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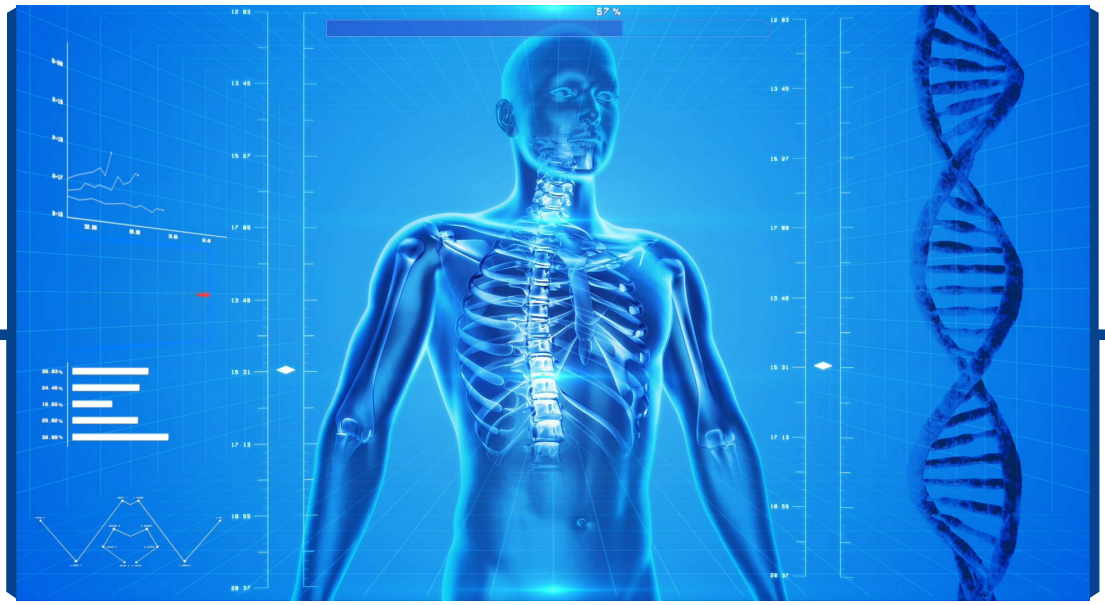
# EUROPEAN JOURNAL OF TRANSLATIONAL AND CLINICAL MEDICINE



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***Interdyscyplinarne spojrzenie na Nauki o Zdrowiu***

pamięci profesora Piotra Lassa

# II NAUKOWA KONFERENCJA WYDZIAŁU NAUK O ZDROWIU Z INSTYTUTEM MEDYCYNY MORSKIEJ I TROPIKALNEJ GDAŃSKIEGO UNIWERSYTETU MEDYCZNEGO

# II SCIENTIFIC CONFERENCE INTERDISCIPLINARY VIEW ON HEALTH SCIENCES IN MEMORY OF PROFESSOR PIOTR LASS

**Gdańsk, 23-25 listopada 2022 r.**

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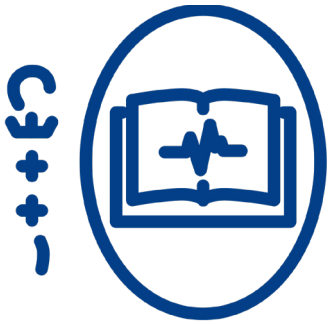

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**Wydział Nauk o Zdrowiu**

**z Instytutem Medycyny Morskiej i Tropikalnej**

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**Sale:** Auditorium Primum im. prof. Olgierda Narkiewicza
Sala 103

# środa, 23 listopada 2022 r.

ROZPOCZĘCIE KONFERENCJI

**10:00-10:15** prof. Przemysław Rutkowski – dziekan WNoZ, prof. Katarzyna Zorena, dr inż. Marta Jaskulak

**10:15-10:30** Otwarcie Konferencji
JM Rektor, prof. dr hab. Marcin Gruchała

**10:30-11:30** **Wykład inauguracyjny**
**Transplantacja narządów, świat a Polska – gdzie jesteśmy?**
prof. Alicja Dębska-Ślizień

**11:30-13:00** SESJA 1: **CHOROBY KARDIOLOGICZNE**
Auditorium Primum

**Przewodniczący sesji**
prof. Marek Koziński, dr Renata Wachnicka-Truty

**13:00-13:30** **PRZERWA NA LUNCH**

**13:30-14:30**

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Auditorium Primum

**Przewodnicząca sesji**
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Auditorium Primum

**Przewodniczące sesji**
prof. Małgorzata Myśliwiec,
prof. Katarzyna Zorena

**Otyłość i cukrzyca u dzieci – narastający problem we współczesnym świecie**
Małgorzata Myśliwiec

**14:30-16:30**

SESJA 3B
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SALA 103

**Przewodniczący sesji**
dr Katarzyna Gierat-Haponiuk,
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**15:30-17:00**

SESJA 4A
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Auditorium Primum

**Przewodnicząca sesji**
dr hab. Agnieszka Zimmermann, prof. uczelni

# czwartek, 24 listopada 2022 r.

**8:45-10:30**

## SESJA 5. **ŻYWIENIE, MIKROBIOTA A CHOROBY CYWILIZACYJNE**

Auditorium Primum

**Przewodniczące sesji**
prof. Sylwia Małgorzewicz, dr hab. Karolina Skonieczna-Żydecka



**10:30-12:00**

## SESJA 6. **OPIEKA MEDYCZNA OPARTA NA DOWODACH NAUKOWYCH U PACJENTÓW GERIATRYCZNYCH: CO MOŻEMY ZROBIĆ LEPIEJ**

Auditorium Primum

**Przewodnicząca sesji**
prof. Wioletta Mędrzycka-Dąbrowska

**12:00-14:00**

SESJA 7. ***HEALTHAT HIGH ALTITUDE /*** sesja w całości w j. ang
Auditorium Primum

**Przewodniczący sesji**
dr hab. Robert Szymczak



**14:00-14:30** **PRZERWA NA LUNCH**

**14:30-16:00**

SESJA 8A
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Auditorium Primum

**Przewodniczący sesji**
dr hab. Mariusz Siemiński,
dr Jan Pyrzowski



**14:30-15:30**

SESJA 8B
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prof. Beata Lipska-Ziętkiewicz

**16:00-17:30**

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Auditorium Primum

**Przewodniczące sesji**
dr Ewa Bandurska, dr Marta Jaskulak



**15:30-16:30**

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SALA 103

**Przewodniczące sesji**
dr hab. Beata Szostakowska, prof. Katarzyna Zorena

*Sesja 9A. c.d.*



*Sesja 9B. cd.*



# czwartek, 24 listopada 2022 r.

**9:00-10:30**

## SESJA 10. **CHOROBY ZAKAŹNE W 2022**

Auditorium Primum

**Przewodniczący sesji**
dr hab. Katarzyna Sikorska, prof. uczelni; prof. Krzysztof Korzeniewski

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Auditorium Primum

**Przewodniczący sesji**
dr Piotr Paluchowski



**11:30-13:00** SESJA 12. **NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU**
Auditorium Primum

**Przewodniczące sesji**
prof. Dorota Bielińska-Wąż, dr Marta Jaskulak

*Sesja 12. c.d.*



**13:00-13:30** **PRZERWA NA LUNCH**

**13:30-15:00**

SESJA 13A
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*sesja dedykowana prof. Mikołajowi Majkowicz oraz dr. hab. Bogusławowi Borysowi*
Auditorium Primum

**Przewodniczące sesji**
dr hab. Magdalena Błażek, prof. uczelni;
dr Agata Zdun-Ryżewska;
dr Alicja Raczak



SESJA 13B
**ONKOLOGIA – BADANIA *IN VITRO* I *IN VIVO***
SALA 103

**Przewodniczący sesji**
dr Maciej Bobowicz, dr Jacek Gulczyński

*Sesja 13A. c.d.*



*Sesja 13B. cd.*



**15:00-16:00**

**SESJA PLAKATOWA I**
Auditorium Primum

**Przewodniczące sesji**
dr hab. Małgorzata Grembecka, dr Matra Jaskulak



**SESJA PLAKATOWA II**
SALA 101

**Przewodnicząca sesji**
prof. Katarzyna Zorena

*Sesja Plakatowa I. c.d.*



*Sesja Plakatowa II cd.*

*Sesja Plakatowa II cd.*

EUROPEAN JOURNAL OF TRANSLATIONAL
AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA 1: CHOROBY KARDIOLOGICZNE**
***CARDIOLOGICAL DIESESES***

# The role of assessment of cardiovascular laboratory biomarkers in hospitalized patients infected with SARS-CoV-2

## Rola oznaczeń laboratoryjnych biomarkerów sercowo-naczyniowych u pacjentów hospitalizowanych z powodu zakażenia SARS-CoV-2

**Marek Koziński, Renata Wachnicka-Truty**

Department of Cardiology and Internal Diseases, Institute of Maritime and Tropical Medicine, Medical University of Gdańsk, Gdynia, Poland

### Abstract

The coronavirus disease 2019 (COVID-19) pandemic has rapidly spread all over the world, resulting in an excessive mortality and exerting an unprecedented impact on health care systems, international economy and everyday life. It is well established that when patients with cardiovascular diseases become infected with severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), they are at high risk of unfavorable clinical outcome. Additionally, extrapulmonary manifestations, including cardiovascular, are relatively frequently observed in this setting. These include: acute myocardial injury, acute heart failure, pulmonary embolism, arrhythmias, acute coronary syndromes, myocarditis and pericarditis. Symptoms typical for cardiac diseases (e.g. dyspnea unlikely to be explained by extracardiac conditions, poor exercise capacity, chest pain or palpitations) are reported by a substantial proportion of patients who recovered from the COVID-19 pneumonia. This presentation aims to provide an overview of: 1) pathomechanisms of cardiovascular complications in patients infected with SARS-CoV-2; 2) the role of cardiovascular laboratory biomarkers in the risk stratification of patients both in the acute phase of disease and recovered from COVID-19 pneumonia; and 3) management of patients infected with SARS-CoV-2 with co-existing acute cardiovascular disease. Possible pathomechanisms of COVID-19 cardiovascular complications may be associated with angiotensin-converting enzyme 2-related signaling pathways, widely expressed both in the lungs and in the cardiovascular system, cytokine storm, respiratory failure with hypoxia and drug interactions. Application of laboratory cardiovascular biomarkers (e.g. cardiac troponins, natriuretic peptides and D-dimer) substantially enhances the risk stratification of patients hospitalized due to COVID-19 pneumonia. In contrast, there is a lack evidence supporting evaluation of these biomarkers in non-hospitalized patients. A frequently observed slight elevation in cardiac troponin concentration in patients hospitalized due to COVID-19 pneumonia may originate from multiple, often co-existing causes (e.g. direct cytotoxic effect of SARS-CoV-2 on cardiomyocytes, oxygen supply and demand mismatch, myocarditis, cytokine storm, and COVID-19-related acute kidney injury). Importantly, acute coronary syndromes may also occur in SARS-CoV-2-infected patients. Elevated concentration of D-dimer may result from endothelial injury and microthrombosis, cytokine storm, concomitant bacterial infection as well as venous thromboembolism. On the other hand, elevated concentrations of natriuretic peptides (BNP/NT-proBNP) are predominantly associated with acute right ventricular overload. Additionally, galectin-3 emerges as a promising biomarker in patients hospitalized due to COVID-19 pneumonia. Interpretation of elevations in laboratory cardiovascular biomarkers is considered easier in stable COVID-19 patients than in these who are critically ill (e.g. with acute respiratory distress syndrome, disseminated intravascular coagulation or in shock). In general, the management of acute cardiac conditions does not differ between patients with and without COVID-19 infection.

### Citation

Koziński M, Wachnicka-Truty R. The role of assessment of cardiovascular laboratory biomarkers in hospitalized patients infected with SARS-CoV-2. Eur J Transl Clin Med. 2022;5(Suppl.2):20.

SESJA 1: CHOROBY KARDIOLOGICZNE
*CARDIOLOGICAL DIESESES*

# Does transthoracic echocardiography using strain analysis identify patients with post-COVID heart involvement? CMR-TRICITY study sub-analysis

## Czy przezklatkowe badanie echokardiograficzne z wykorzystaniem analizy odkształceń identyfikuje pacjentów z pocovidowym zajęciem serca? Subanaliza badania CMR-TRICITY

**Marzena Ławrynowicz**

Department of Cardiology and Internal Diseases, Institute of Maritime and Tropical Medicine, Medical University of Gdańsk, Gdynia, Poland

## Abstract

**Abstract Objective:** To investigate the diagnostic value of two-dimensional (2D) transthoracic speckle-tracking echocardiography in relation to cardiac magnetic resonance (CMR) imaging for detection of cardiac involvement in symptomatic patients who recovered from pneumonia caused by the coronavirus disease 2019 (COVID-19). **Methods:** 121 patients with persistent cardiac symptoms were enrolled in the study between January 2021 and May 2021. 2D echocardiographic images were obtained from study participants and offline 2D speckle-tracking analysis of global and regional myocardial function was performed. All examinations were done according to the American Society of Echocardiography guidelines. Global and regional longitudinal systolic strain as well as post-systolic index were calculated using the 17-segment bull's eye plot. All patients underwent CMR which was considered the reference examination for detection of post-COVID-19 cardiac involvement. Tissue characterization was assessed by T1 mapping, T2 mapping and late gadolinium enhancement (LGE) imaging. **Results:** Of the 121 study participants, active myocarditis and LGE on CMR were present in 10 (8.3%) and 63 (52.1%) patients, respectively. Patients with active myocarditis had a markedly reduced global longitudinal strain (GLS) (-16.2%, [interquartile range-15.2%;-18.3%] vs.-19% [-17.8%;-20.8%]; $p < 0.01$), numerically lower left ventricular ejection fraction (LVEF) (55.7 ± 8.4 % vs. 61.2 ± 5,7 %; $p = 0.071$) and significantly higher left ventricular end-diastolic volume (LVEDV) (135 mL [117.2; 147.2 mL] vs. 110 mL [92; 127 mL]; $p = 0.04$) when compared with the non-myocarditis group. Furthermore, patients with LGE presented with a substantially reduced GLS (-18.7% [-16%;-20%] vs.-20% [-18.6%;-21.1%]; $p = 0.01$), significantly lower LVEF (59.2 ± 6.7 % vs. 62.4 ± 5 %; $p = 0.005$) and numerically higher LVEDV (117 mL [95; 135 mL] vs. 109.5 mL [90.5; 126.8 mL]; $p = 0.16$) than those without LGE. Additionally, the receiver-operating curve (ROC) analysis revealed a moderate and modest value of GLS for detection of active myocarditis (area under the curve [AUC] 0.75; 95% confidence interval [95% CI] 0.58-0.92) and LGE (AUC 0.65; 95% CI 0.56-0.75), respectively. **Conclusions:** Our results indicate that transthoracic 2D echocardiography using speckle-tracking analysis may serve a useful diagnostic tool for detection of post-COVID-19 cardiac involvement. However, further studies are warranted before widespread implementation of this imaging technique in post-COVID-19 population.

## Citation

Ławrynowicz M. Does transthoracic echocardiography using strain analysis identify patients with post-COVID heart involvement? CMR-TRICITY study sub-analysis. Eur J Transl Clin Med. 2022;5(Suppl.2):21.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA 1: CHOROBY KARDIOLOGICZNE**
***CARDIOLOGICAL DIESESES***

# Cardiologist's nightmare: coexistence of severe COVID-19 pneumonia and aspergillosis in a 59-year-old patient 5 months after heart transplanta

## Koszmar kardiologa: współistnienie ciężkiego covidowego zapalenia płuc i aspergilozy u 59-letniego pacjenta 5 miesięcy po przeszczepie serca

**Renata Wachnicka-Truty**

Department of Cardiology and Internal Diseases, Institute of Maritime and Tropical Medicine, Medical University of Gdańsk, Gdynia, Poland

### Abstract

The coronavirus disease 2019 (COVID-19) has become an unprecedented threat to solid-organ transplant (SOT) recipients. We present diagnostic and therapeutic difficulties in a heart transplant recipient who was co-infected with COVID-19 and aspergillosis. WA 59-year-old male who was admitted with COVID-19 to our department after orthotropic heart transplantation. The post-transplant course was complicated by invasive aspergillosis of the lung and later COVID-19 infection. On admission to our unit, we performed a chest CT which revealed lesions typical for pulmonary aspergillosis, without any signs of COVID-19 pneumonia. Despite the change in treatment of aspergillosis and inclusion of broad-spectrum antibiotics, the patient's condition gradually deteriorated. Another chest CT demonstrated abnormalities characteristic for COVID-19 pneumonia with the extent of the involved lung tissue estimated to be 30% together with the co-existing pulmonary aspergillosis. The management of this very complex patient was extensively consulted with numerous specialists. Apart from COVID-19 pneumonia and pulmonary aspergillosis, we also suspected sepsis of mixed (bacterial and fungal) etiology. The patient was treated with remdesivir, convalescent plasma, red blood cell transfusion, filgrastim, meropenem, teicoplanin, levofloxacin and dexamethasone, leading to a gradual recovery. Three weeks after the admission, a control chest CT showed regression of the COVID-19-related lesions with stable lesions attributed to pulmonary aspergillosis. On day 23 the test for SARS-CoV-2 was negative. At the 12-month follow-up, the patient has no limitations to everyday activities, free from opportunistic infections. This case report illustrates how vulnerable to SARS-CoV-2 and other infections SOT recipients are and how challenging their treatment may be when COVID-19 pneumonia develops and how powerful multidisciplinary cooperation can be.

**Keywords**: COVID-19; SARS-CoV-2; aspergillosis; heart transplantation; antifungal therapy; multidisciplinary cooperation

### Citation

Wachnicka-Truty R. Cardiologist's nightmare: coexistence of severe COVID-19 pneumonia and aspergillosis in a 59-year-old patient 5 months after heart transplanta. Eur J Transl Clin Med. 2022;5(Suppl.2):22.

SESJA 1: CHOROBY KARDIOLOGICZNE
*CARDIOLOGICAL DIESESES*

# Severe myopericarditis as the only manifestation of SARS-CoV-2 infection

## Ciężkie zapalenie mięśnia sercowego i osierdzia jako jedyna manifestacja infekcji SARS-CoV-2

**Joanna Chochoł-Labun, Marek Koziński, Karolina Dorniak, Marzena Ławrynowicz**

Department of Cardiology and Internal Diseases, Institute of Maritime and Tropical Medicine, Medical University of Gdańsk, Gdynia, Poland

### Abstract

Apart from respiratory tract infection, numerous extrapulmonary manifestations of the coronavirus disease 2019 (COVID-19) have been reported so far. The goal of this presentation is to discuss the diagnostic and therapeutic approach (including modern imaging modalities, etiology-specific treatment, state-of-the-art heart failure pharmacotherapy) in a middle-aged woman who presented to our department with severe myopericarditis in the course of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) infection and to address multiple potential clinical implications of this case. A 40-year-old female patient developed myopericarditis 6 years ago during an influenza virus infection and had a transient decrease in left ventricular ejection fraction (LVEF) to 30%. In December 2021, this patient was admitted to our clinic due to recurrent myopericarditis with SARS-CoV-2 infection diagnosed. Echocardiography showed a decrease in LVEF to 30% and pericardial fluid up to 18 mm. Speckle tracing echocardiography echocardiography showed a reduced global longitudinal strain (GLS) to-13.4%. The patient's condition was deteriorating with signs and symptoms of heart failure. Both cardiac troponin I and N-terminal pro-B-type natriuretic peptide concentrations were markedly elevated. Cardiac magnetic resonance examination showed generalized acute inflammation and myocardial oedema, generalized early contrast enhancement and bands of late contrast enhancement in the basal segments of the inferior and posterior wall and in the interventricular septum. Coronary angiography revealed normal coronary vessels. Treatment with remdesivir, furosemide, carvedilol, ramipril, dapagliflozin and eplerenone was initiated. The patient's condition improved and LVEF increased up to 50% and she remains asymptomatic in a 11-month follow-up. Based on this case presentation, I would also like to increase the awareness of clinicians about the facts that i) COVID-19 myocarditis is not a benign entity; ii) myocarditis and/pericarditis may be the only clinical manifestation of SARS-CoV-2 infection and iii) a history of non-COVID-19 viral myocarditis may predispose to the development of COVID-19 myocarditis.

### Citation

Chochoł-Labun J, Koziński M, Dorniak K, Ławrynowicz M. Severe myopericarditis as the only manifestation of SARS-CoV-2 infection. Eur J Transl Clin Med. 2022;5(Suppl.2):23.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA 1: CHOROBY KARDIOLOGICZNE**
***CARDIOLOGICAL DIESESES***

# Deviations in cardiac magnetic resonance imaging in symptomatic patients with a history of COVID pneumonia: the CMR-TRICITY study

## Odchylenia w badaniu rezonansu magnetycznego serca u objawowych pacjentów po przebytym covidowym zapaleniu płuc: badanie CMR-TRICITY

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## Abstract

**Background**: Alongside pulmonary manifestations, the coronavirus disease-2019 (COVID-19) may be associated with numerous cardiovascular complications. Clinical consequences of COVID-19-related cardiac involvement remains unknown. **Objectives**: To evaluate the occurrence of cardiac magnetic resonance (CMR) abnormalities in patients who recently recovered from the COVID-19 pneumonia and present with persistent cardiac symptoms. **Methods**: This is a single-center, prospective, cohort study. Between January 2021 and May 2021, 121 post-COVID-19 patients were recruited. Clinical data and CMR imaging were analyzed. **Results**: Of the 121 included patients, 66 (54.5%) were men. The majority of patients reported dyspnoea (43.8%; n = 53) and fatigue (43.0%; n = 52) as the predominant complaint. Nearly half (47.9%; n = 58) of the study participants required hospitalization during the acute phase of COVID-19 infection. The median time from the diagnosis of COVID-19 infection to CMR examination was 41 days (range from 11 to 113 days). Cardiac involvement (defined as the presence of late gadolinium enhancement [LGE] lesions and/or active myocarditis on CMR) was visualized by CMR in most of post-COVID-19 patients (52.9%; n = 64) with LGE abnormalities and active myocarditis present in 63 (52.1%) and 10 (8.3%) participants, respectively. Most COVID-19 patients had at least two segments involvement (60.9%; 39 of 64). The majority of LGE lesions were located in the left ventricle at the inferior and inferior-lateral at base. **Conclusions**: In this study, CMR confirmed cardiac involvement in the majority of symptomatic patients with recent COVID-19 pneumonia. The most common visualized abnormality was LGE. Our findings indicate the need to define the long-term cardiovascular consequences of COVID-19 infection.

**Keywords**: COVID-2019 cardiac magnetic resonance imaging; cardiac involvement; myocarditis

## Citation

Wojtowicz D. Deviations in cardiac magnetic resonance imaging in symptomatic patients with a history of COVID pneumonia: the CMR-TRICITY study. Eur J Transl Clin Med. 2022;5(Suppl.2):24.

SESJA 2A: UROGINEKOLOGIA
*UROGYNECOLOGY*

# Urogynecology in everyday practice: pessaries, tampons

## Uroginekologia w praktyce codziennej: pessary, tampony

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### Abstract

A wide range of conservative treatment of stress urinary incontinence (SUI) and pelvic organ prolapse (POP) in women is available – the selection of an appropriate treatment for each patient is not easy. It is important to give optimal information how to use the chosen methods. Pessaries have been used to treat urogynecological conditions for many years, but practical information about them are scarce. Authors prefer daily usage of pessaries to avoid complications. In women with POP we start with cube pessaries, which our patients find most comfortable. They are effective in patients with different stages of POP, also in total prolapse. In women with SUI instead of pessaries we usually start with tampons because it is easier to teach patients the proper use of tampons. Authors put a lot of effort into choose the best quality pessaries. We check the quality of the silicon, its delicacy and durability. We look at manufacturer's brand name and country of origin of the pessary because the material used for production may differ from that stated on the packaging. Some materials may release harmful substances that are often well absorbed through the vagina (PVC pessaries must be replaced every 6 months at the most). In our opinion cube pessaries should be perforated, pulled out with a string (not a rubber band or ribbon) fixed in the central part (e.g. Dr. Arabin) and not threaded through the holes of the pessary on the side (e.g. Calmona).

### Citation

Surkont G, Wlaźlak E. Urogynecology in everyday practice: pessaries, tampons. Eur J Transl Clin Med. 2022;5(Suppl.2):25.

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SESJA 2A: UROGINEKOLOGIA
*UROGYNECOLOGY*

# Sexual dysfunction in women with pelvic floor disorders

## Zaburzenia seksualne u pacjentek z dolegliwościami uroginekologicznymi

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### Abstract

Pelvic floor disorders (PFDs) include pelvic organ prolapse (POP), urinary incontinence (UI), anal incontinence, and sexual dysfunctions. Sexual dysfunctions affect 30-50% of women in the general population and 50-83% of women with PFDs. The sexual complaint meets the diagnostic criteria of sexual dysfunction when it causes personal distress or interpersonal difficulties and lasts at least 6 months. Female sexual dysfunctions include sexual interest/arousal disorders, orgasmic disorder, genital-pelvic pain/penetration disorder and substance/medication-induced sexual dysfunctions. Symptoms of sexual function specific to PFDs are vaginal symptoms, lower urinary tract sexual dysfunction symptoms, anorectal sexual dysfunction symptoms, prolapse-specific symptoms, pain symptoms and specific postoperative sexual dysfunction symptoms. Sexual function of women with PFDs is an ambiguous issue. Factors potentially affecting it include the type and severity of UI, pelvic organ prolapse, coital incontinence (CI), body mass index, age, education, body image, age of partner, and partner relationship. CI affects 36.2%-65.4% of women with UI or Overactive Bladder Syndrome. However, the impact on quality of life is not straightforward, as only 7.9% of women report it as substantial. The severity of UI correlates positively with CI and has a negative effect on the quality and frequency of sexual activity. As much as 6% of UI women abstain from sexual activity. Reasons for avoiding sexual activity are night incontinence, coital incontinence, shame, depression, decreased libido, vaginal dryness and pain during sexual intercourse – the vicious cycle of sexual dysfunction. In women with POP, lower quality of sexual function correlates with worse self-image and greater distress about POP. Both, POP and UI have a negative impact on body image, affecting the female motivation regarding sexual activity.

### Citation

Grzybowska ME. Sexual dysfunction in women with pelvic floor disorders. Eur J Transl Clin Med. 2022;5(Suppl.2):26.

SESJA 2A: UROGINEKOLOGIA
*UROGYNECOLOGY*

# Analysis of the quality of life of women after childbirth included in the Model of Physiotherapeutic Care

## Analiza jakości życia kobiet po porodzie, objętych Modelem Opieki Fizjoterapeutycznej

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### Abstract

**Aim**: The study aimed to assess the quality of life of postpartum women under the Model of Physiotherapeutic Care (MOF). **Material and methods**: In February 2022, the EuroQol-five dimensions (EQ-5D-5L) questionnaire was applied to postpartum women, who underwent physiotherapy education according to the MOF. The questionnaire comprised five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. The functions were assessed on a 5-point scale: 1 – no problems, 2 – slight problems, 3 – moderate problems, 4 – severe problems and 5 – extreme problems. The questionnaire was administered twice – during hospitalization after the physiotherapy education (122 women) and at follow-up after the puerperium (57 women). MOF assumes the implementation of primary physioprevention. **Results**: The mean age of the women was 31.3 ± 4.4 years, and the mean Body Mass Index was 23 ± 10kg/m2. The mean EQ-5D-5L scores were: 2.1 and 1.2 points for mobility problems; 1.7 and 1.2 for self-care, 1.9 and 1.2 for performance of normal activities; 2.5 and 1.6 for pain and discomfort; 1.7 and 1.2 for anxiety/fear dimensions, at baseline and follow-up respectively ($p < 0.05$). Assessment of well-being using the VAS scale showed that women defined their current well-being at the mean level of 68.5 and 80.1 points at baseline and follow-up ($p < 0.05$). At baseline after education in the hospital, 70.1% of women agreed with the statement: "The instructions given to me by the physiotherapist allowed me to recover faster from childbirth." after puerperium it was true for 81.1% of women. **Conclusions**: The quality of life in women after delivery increased after puerperium. Women believe that the physiotherapy recommendations helped them with postpartum recovery.

### Citation

Barcikowska Z, Siluk D, Gierat-Haponiuk K, Grzybowska ME. Analysis of the quality of life of women after childbirth included in the Model of Physiotherapeutic Care. Eur J Transl Clin Med. 2022;5(Suppl.2):27.

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SESJA 2A: UROGINEKOLOGIA
*UROGYNECOLOGY*

# Sociodemographic data influencing the choice of the source of knowledge concerning the methods of relieving labor pain

## Dane socjodemograficzne wpływające na wybór źródła wiedzy na temat metod łagodzenia bólu porodowego

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## Abstract

**Background**: Most women perceive labor pain as the most difficult and painful event in their lives. The course of labor is influenced not only by the competence of medical personnel but also by patients' knowledge about the delivery and the methods of relieving labor pain. **Aim**: The purpose was to evaluate the socio-demographic data influencing the source of knowledge about methods of alleviating labor pain. **Methods**: A cross-sectional study was conducted in 454 women, using an online interview questionnaire for pregnant and postpartum women in social groups. The questionnaire also included socio-demographic questions. Data were analyzed with Cramer correlation coefficient **Results**: In our study, statistically significant socio-demographic data influencing the choice of antenatal education classes as the primary source of knowledge were age ($p = 0.008$), education ($p < 0.001$), place of residence ($p < 0.001$) and the number of past natural deliveries ($p < 0.001$). Respondents who chose the antenatal classes (birthing school) were aged 24-30 and 31-35 (70.4% and 72.4%), had higher education (73.8%), were residents of large cities (78.0%) and had one past natural childbirth (77.0%). On the other hand, young women aged 18-23 (100%; $p = 0.004$) and respondents who gave birth naturally (60.89%; $p = 0.018$) were the most likely to use the internet as a source of knowledge. In contrast, respondents who delivered twice by cesarean section (73.1%; $p < 0.04$) used the knowledge of the medical staff. The hospital's credentials were not associated with any source of knowledge about labor pain relief methods. **Conclusions**: The classes conducted in birthing schools should be disseminated so that pregnant women derive their knowledge from reliable sources.

## Citation

Pietrzak J, Mędrzycka-Dąbrowska W, Grzybowska ME. Sociodemographic data influencing the choice of the source of knowledge concerning the methods of relieving labor pain. Eur J Transl Clin Med. 2022;5(Suppl.2):28.

SESJA 2B: FIZJOTERAPIA U OSÓB Z NIEPRAWIDŁOWĄ MASĄ CIAŁA ORAZ U PACJENTÓW ONKOLOGICZNYCH
*PHYSIOTHERAPY FOR PEOPLE WITH ABNORMAL BODY WEIGHT AND ONCOLOGICAL PATIENTS*

# Skeletal muscles and adipose tissue determine the beneficial effects of cold therapy

## Mięśnie szkieletowe i tkanka tłuszczowa decydują o korzystnych efektach terapii zimnem

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### Abstract

Cold treatment and physical exercise are methods, well documented in the scientific literature, which reduce the systemic inflammation induced by excessive amounts of adipose tissue or inactivity. Despite the fact that both methods are often used in treatment of joint or spine diseases, it is not known how their combination affects glucose homeostasis or endocrine functions characteristic of both tissues (exerkines in muscle and – adipokines in fat). It has particular meaning not only due to pandemic condition, when people have started to look for new strategies to counteract weight gain but also for health and establish the right exerkine/adipokine profile. The conducted experiments using of WBC: whole-body cryotherapy (3-min of exposure at temperature -110°C) show that the effects of exposure to cold depend on the physical capacity of the participants, body composition and the exercise protocol applied simultaneously. WBC can also stimulate changes in amino-acid profile and the effects are recorded in response to single as well repeated session. The cold-induced reduction of pro-inflammatory adipokines (resistin and visfatin) are determined by the cardiorespiratory fitness level and the drop in myostatin concentration depends on age of participants. At the same time, the improvement in glucose homeostasis induced by cold therapy might have short-lasting effect. Data regarding the impact of WBC on irisin concentration requires further research. Overall, physical training in combination with exposure to low temperature can be an effective pro-health therapy that changes intracellular metabolism and the concentration of selected exerkines and adipokines.

### Citation

Ziemann E, Rodziewicz-Flis E, Lombardi G, et al. Skeletal muscles and adipose tissue determine the beneficial effects of cold therapy. Eur J Transl Clin Med. 2022;5(Suppl.2):29.

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**SESJA 2B: FIZJOTERAPIA U OSÓB Z NIEPRAWIDŁOWĄ MASĄ CIAŁA ORAZ U PACJENTÓW ONKOLOGICZNYCH**
***PHYSIOTHERAPY FOR PEOPLE WITH ABNORMAL BODY WEIGHT AND ONCOLOGICAL PATIENTS***

# The influence of manual lymphatic drainage (MLD) on leptin, adiponectin levels and insulin resistance in patients with abnormal body mass index

## Wpływ manualnego drenażu limfatycznego (MLD) na stężenie leptyny, adiponektyny oraz insulinooporność u pacjentów z nieprawidłowym wskaźnikiem masy ciała

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### Abstract

**Introduction**: Obesity is considered as a risk factor for developing insulin resistance, and simultaneously it is associated with impaired secretion of adipokines, which in turn increases the risk of developing metabolic diseases. Moreover, new findings indicate a two-way relationship between obesity and dysfunction of the lymphatic system. The aim of the study was to assess the parameters of carbohydrate metabolism, homeostatic model assessment of insulin resistance (HOMA-IR) and the level of leptin and adiponectin before and after MLD therapy. **Material and methods**: The study examined 40 patients aged 40 ± 11 years. The patients were divided in 3 groups. Group I – patients with normal weight (n = 15), group II – overweight patients (n = 15), group III – obese patients (n = 10). The patients were subjected to the medical, physiotherapeutic interview and examination, biochemical tests. Body mass index (BMI), waist-to-hip ratio (WHR) and body composition analysis were measured for each of the patients before and after MLD therapy. Each patient underwent 10 MLD therapies, 3 times a week for 30 minutes. The level of glycated hemoglobin (HbA1c), fasting glucose, insulin, C-peptide, leptin, adiponectin was measured in each of the patients before and after MLD therapy and the HOMA-IR was tested. **Results**: Group I showed a lower level of C-peptide ($p = 0.24$) and a statistically significant lower level of insulin ($p < 0.05$), leptin ($p < 0.05$) and HOMA-IR ($p = 0.047$) after a series of MLD therapy compared to parameters before MLD therapy. In group II, after MLD therapy, lower fasting glucose ($p = 0.25$) and statistically significant lower levels of leptin ($p < 0.05$) and HOMA-IR ($p < 0.05$) were observed. In group III, lower HOMA-IR ($p = 0.16$) and leptin levels ($p = 0.2$) were found after the MLD therapy, but they were statistically insignificant. **Conclusion**: We suggest that MLD may have a positive effect on improving tissue sensitivity to insulin and leptin levels in the studied patients. Further studies on a larger number of patients are warranted in order to confirm our findings and investigate the mechanism of the effect of MLD therapy on biochemical parameters in patients with abnormal body weight.

### Citation

Antoniak-Pietrynczak K, Jaskulak M, Zorena K. The influence of manual lymphatic drainage (MLD) on leptin, adiponectin levels and insulin resistance in patients with abnormal body mass index. Eur J Transl Clin Med. 2022;5(Suppl.2):30.

**SESJA 2B: FIZJOTERAPIA U OSÓB Z NIEPRAWIDŁOWĄ MASĄ CIAŁA ORAZ U PACJENTÓW ONKOLOGICZNYCH**
***PHYSIOTHERAPY FOR PEOPLE WITH ABNORMAL BODY WEIGHT AND ONCOLOGICAL PATIENTS***

# Social and diagnostic challenges among women with lipoedema

## Wyzwania społeczne i diagnostyczne u kobiet z obrzękiem tłuszczowym

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### Abstract

Lipoedema is a complex and multifactorial disease of adipose tissue characterized by excessive bilateral and symmetrical accumulation of fat tissue in the lower extremities. Lipoedema is still a poorly understood condition, and insufficient awareness often leads to an incorrect diagnosis. In many cases, women receive the correct diagnosis after many years of the onset of lipoedema symptoms when they already have many physical limitations affecting their daily life. Initially, lipoedema was thought to be absolutely independent of one's lifestyle, however, more and more cases of lipoedema coexisting with obesity are described in the literature. Research shows that lipoedema is not only an aesthetic issue. Women with lipoedema experience a variety of symptoms such as heaviness in limbs, pain upon palpation, easy bruising and visible disproportion between the slim trunk and enlarger lower limbs. Those symptoms have a considerable impact on their quality of life. Moreover, women with lipoedema encounter a lack of understanding from their environment and the general public, which can lead to severe psychological distress and as a result, increase the level of experiencing pain. In order to improve the situation of women suffering from lipoedema it is necessary to raise awareness about it both among the general public and among medical professionals. This would enable earlier diagnosis, which would allow to introduce of appropriate treatment, and prevent very severe symptoms and complications of lipoedema.

### Citation

Czerwińska M, Ostrowska P, Hansdorfer-Korzon R. Social and diagnostic challenges among women with lipoedema. Eur J Transl Clin Med. 2022;5(Suppl.2):31.

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**SESJA 2B: FIZJOTERAPIA U OSÓB Z NIEPRAWIDŁOWĄ MASĄ CIAŁA ORAZ U PACJENTÓW ONKOLOGICZNYCH**
***PHYSIOTHERAPY FOR PEOPLE WITH ABNORMAL BODY WEIGHT AND ONCOLOGICAL PATIENTS***

# Compression corset in prophylaxis and treatment of lymphoedema in patients after mastectomy with axillary lymphadenectomy

## Gorsety kompresyjne w profilaktyce i leczeniu obrzęku limfatycznego u pacjentek po mastektomii z wycięciem węzłów pachowych

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### Abstract

Lymphedema is regarded as a progressive disorder that is difficult to treat, therefore it is essential to prevent. Most of the literature regarding physiotherapeutic treatment after mastectomy describes Complete Decongestive Therapy only in relation to the limb on the operated side and disregarding the chest area. A lack of reports in the literature, the discomfort reported by patients, difficulties in selecting underwear due to the growing lymphatic fluid repository on the side of the chest were the inspiration to initiate studies. These were the first Polish studies regarding the application of chest compression therapy. Our aims were to find whether compression corset therapy could prevent truncal lymphedema on the operated side after axillary lymph node dissection, whether it is efficient in the prevention and treatment of truncal lymphedema in patients who underwent mastectomy and additional radiotherapy and whether it could be implemented for pain reduction in this treatment group. The study was carried out in 50 randomly selected patients classified as candidates for surgery. They were randomly divided into two subgroups: one received compression corsets 1-month following the surgery and the other didn't. Size of truncal lymphedema was measured using ultrasound. The patients were examined four times. The follow-up was for 7 months in total. The results were statistically analyzed. Class I compression corsets are an effective treatment for lymphedema, could be used for antiedematous prevention in patients who underwent removal of axillary lymph nodes and radiotherapy. Furthermore it could reduce pain associated with surgical treatment of breast cancer.

### Citation

Hansdorfer-Korzon R, Teodorczyk J, Gruszecka G. Compression corset in prophylaxis and treatment of lymphoedema in patients after mastectomy with axillary lymphadenectomy. Eur J Transl Clin Med. 2022;5(Suppl.2):32.

SESJA 3A: CZYNNIKI RYZYKA OTYŁOŚCI I CUKRZYCY A MOŻLIWOŚCI ICH ZAPOBIEGANIA
*RISK FACTORS FOR OBESITY AND DIABETES AND POSSIBILITIES FOR THEIR PREVENTION*

# Possible influence of gaseous pollutants and dust (PM2.5 and PM10) in the air on the risk of developing type 1 diabetes. Assessment on the basis of six randomly selected Voivodships in Poland

## Możliwy wpływ zanieczyszczeń gazowych oraz pyłów (PM2.5 oraz PM10) zawartych w powietrzu na ryzyko rozwoju cukrzycy typu 1. Ocena na podstawie sześciu losowo wybranych województw w Polsce

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## Abstract

In recent years, it has been shown that air pollution increases the risk of many diseases including type 1 (T1DM) and type 2 diabetes (T2DM). The aim of this study was to detect associations between the concentration of gaseous pollutants, PM2.5, PM10 in air and the number of new cases of T1DM in children in the in randomly selected Voivodships in Poland. **Materials and methods**: The number of new cases of T1DM was obtained from the Department of Gdańsk, Lublin, Opole, Białystok, Silesia, Poznań. Data on PM2.5, PM10 concentration and the gaseous pollutants was obtained from the report and annual evaluations of air quality prepared by the relevant Voivodeship Inspectorate of Environmental Protection (WIOŚ). **Results**: Mathematical models describing relationships between the increase of the mean concentration of PM2.5 and PM10 in 2015 and 2016 from the Pomorskie, Lubelskie, Śląskie, Opolskie, Podlaskie and Wielkopolskie voivodships and the increase in the number of new T1DM cases were cereated. This approach is based the generalized linear model (Poisson regression). The obtained coefficients of fit were statistically significant (in each of the models p-value < 0.001). The predicted increase in the number of sick children with an increase in concentration by one unit for PM2.5 is 1.07 ($\beta = 0.0667$) and for PM10 is 1.05 ($\beta = 0.0467$). An analogous model was created for the mean concentrations of carbon monoxide ($\beta = -1.3930$), nitrogen dioxide ($\beta = 0.07309$), sulfur dioxide ($\beta = 0.0423$), and of nitrogen oxide ($\beta = 0.0330$). For the above-mentioned factors, the fit coefficients were also statistically significant with p-values < 0.001. **Conclusion**: Bearing in mind the continuous increase in the incidence of diabetes, we should strive to improve air quality in Poland and in the rest of the world.

## Citation

Zorena K, Michalska M, Wąż P, et al. Possible influence of gaseous pollutants and dust (PM2.5 and PM10) in the air on the risk of developing type 1 diabetes. Assessment on the basis of six randomly selected Voivodships in Poland. Eur J Transl Clin Med. 2022;5(Suppl.2):33.

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**SESJA 3A: CZYNNIKI RYZYKA OTYŁOŚCI I CUKRZYCY A MOŻLIWOŚCI ICH ZAPOBIEGANIA**
***RISK FACTORS FOR OBESITY AND DIABETES AND POSSIBILITIES FOR THEIR PREVENTION***

# Connection between the particulate matter (PM) and the vascular endothelial factor (VEGF) as the predictor of microangiopathy in obese and diabetic children

## Powiązania pyłów (PM) i czynnika wzrostu śródbłonka naczyniowego (VEGF) jako predyktora mikroangiopatii u dzieci otyłych i z cukrzycą

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### Abstract

Vascular endothelial growth factor (VEGF) is a signal protein that stimulates vasculogenesis and angiogenesis. It is part of the system that restores the oxygen supply to tissues when blood circulation is inadequate. Serum concentration of VEGF is high in bronchial asthma and diabetes mellitus. Overexpression of VEGF can cause vascular disease in the retina of the eye and other parts of the body. VEGF levels was significantly positive associated with PM2.5 exposure. Environmental particulate matter (PM) is defined as the microscopic solid or liquid matter suspended in atmospheric aerodynamic. PM2.5 refers to particulates less than 2.5 microns (also known as inhalable lung particles) that cause negative impact on human health. Mean levels of VEGF were highest in children with obesity 356.55 pg/ml (SD 169.44 pg/ml). In children with DM1 mean VEGF was 254.88 pg/ml (SD 167.89 pg/ml). The lowest levels of VEGF was observed in group healthy children: mean 188.75 pg/ml (SD 144.88 pg/ml). According to our study metanalyses of literature was noticed statistic significant differences of VEGF between group of diabetic and obese children and healthy children. The results were correlated with BMI.PM2.5 exposure statistically elevated the level of VEGF and was significantly positive associated with PM2.5 exposure. Conclusion: High levels in peripheral blood marker of vasculogenesis and predictor of microagiopathy VEGF is more connected with obesity then with diabetes type 1.PM is significant additional cause of VEGF increase.

### Citation

Beń-Skowronek I, Skowronek A, Urbańczyk A. Connection between the particulate matter (PM) and the vascular endothelial factor (VEGF) as the predictor of microangiopathy in obese and diabetic children. Eur J Transl Clin Med. 2022;5(Suppl.2):34.

SESJA 3A: CZYNNIKI RYZYKA OTYŁOŚCI I CUKRZYCY A MOŻLIWOŚCI ICH ZAPOBIEGANIA
*RISK FACTORS FOR OBESITY AND DIABETES AND POSSIBILITIES FOR THEIR PREVENTION*

# The effect of adipose-derived mesenchymal stromal cells (AD-MSCs) on *in-vitro* cultured skin cells from diabetic patients – implications for cellular therapies in diabetic wounds

## Wpływ komórek macierzystych tkanki tłuszczowej na hodowane *in vitro* komórki skóry pochodzące od pacjentów z cukrzycą – implikacje dla terapii komórkowych w leczeniu ran cukrzycowych

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## Abstract

Diabetes is a civilization disease. The population of diabetic patients is predicted to grow and reach 592 million by 2035. One of the most common and severe complications of diabetes are diabetic foot ulcers (DFUs). Treatment of these wounds is costly, significantly reduces patients' quality of life and may lead to their death. Therefore, new methods of treatment of these wounds are being sought. In recent years, there has been a significant interest in using cell-based therapies with AD-MSCs in treating wounds of various etiology, including diabetic wounds. These cells show tremendous pro-regenerative potential and can be easily obtained from adipose tissue. However, these cells' exact mechanism and effects on skin cells from diabetic patients are unknown. Therefore, the main goal of our work was to evaluate the effect of allogeneic ASCs on keratinocytes and fibroblasts obtained from diabetic patients. We performed co-cultures of human AD-MSCs and skin cells and evaluated AD-MSCs effect on human fibroblasts and keratinocytes from healthy donors in an in vitro cell culture. In addition, the effect on proliferation, chemotaxis, and secretion of cytokines and growth factors (Luminex analysis) was analyzed. We observed slight changes in cell proliferation and chemotaxis, and secretion of cytokines. However, these results were only partially consistent, and further research is needed. Obtained results suggest that enhancement of AD-MSCs regenerative potential, e.g. by their pre-conditioning with pro-regenerative substances, may be needed.

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## Citation

Deptuła M, Tymińska A, Czerwiec K, et al. The effect of adipose-derived mesenchymal stromal cells (AD-MSCs) on in-vitro cultured skin cells from diabetic patients – implications for cellular therapies in diabetic wounds. Eur J Transl Clin Med. 2022;5(Suppl.2):35.

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**SESJA 3B: ZDROWIE A RÓŻNE JEDNOSTKI CHOROBOWE W ASPEKCIE FIZJOTERAPII I REHABILITACJI**
***HEALTH AND VARIOUS DISEASE ENTITIES IN THE CONTEXT OF PHYSIOTHERAPY AND REHABILITATION***

# Elements of the Health Triad – structure, mental (emotions), biochemistry

## Elementy triady zdrowia – struktura, mental (emocje), biochemia

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### Abstract

The concepts of health are widely understood. The World Health Organization (WHO) defines health as "the state of welfare, well-being". On the principles of a holistic vehicle to health of the created concept (triangle), brought up by the father of chiroprake D.D. Palmer. Health consists of 3 funds; The elements, biochemistry and psyche, which are intended to be used, form an equilateral triangle. When a person has suffered in poor health, is there always three factors involved, in the case of one condition, and the happy problems? Science such as applied kinesiology enables us to evaluate the success of a triad. The structure in which chiropractic has always been involved is the triad of health. Many chiropractors have limited their concentration to create a blockage to improve nerve function. This of course produces excellent results. But advances in combat, when using the tools to be leveled up, improve to a higher level, when exploring and using the services of commercial.

### Citation

Grządziel J, Pędzimąż J, Zadora K. Elements of the Health Triad – structure, mental (emotions), biochemistry. Eur J Transl Clin Med. 2022;5(Suppl.2):36.

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*HEALTH AND VARIOUS DISEASE ENTITIES IN THE CONTEXT OF PHYSIOTHERAPY AND REHABILITATION*

# Unravelling the possibilities to maintain health during ageing: interventions with promising potential

## Odkrywanie możliwości utrzymania dobrego zdrowia w okresie starzenia: interwencje o obiecującym potencjale

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### Abstract

The modern world is constantly attempting to unravel the mechanisms underlying the maintenance of good health during ageing. Practically we live longer, therefore physical and mental fitness is starting to be a commonly desired value. Our recent experience confirms that regular endurance training, such as Nordic Walking (NW), positively affects all human body systems. A similar effect is achieved within Time Restricted Eating (TRE), a regime limiting food intake to 8-10 hours per day without caloric restriction – a method not yet fully explored. We successfully combined both of these interventions in our most recent study, which we conducted among seniors of both sexes (over 60 years of age) focusing on the effect on health biomarkers. One of them is the vicious accumulation of iron over the years. Iron is an extraordinary element, on the one hand, necessary for most life processes, on the other hand, its excess is toxic and affects a number of diseases that progress with ageing. This threat is compounded by diet in the case of men the transition to menopause among women. Our research showed that NW lasting 32 weeks lowers body iron stores, but the same effect was achieved after only 12 weeks of these combined interventions. The drop in body iron was associated with increased endurance and some improvements in body composition. Our results are so promising that they may be the starting point for further investigation of the positive effects of these two minimally invasive and seemingly insignificant methods with an undefined potential.

### Citation

Reczkowicz J, Kortas JA, Juhas U, et al. Unravelling the possibilities to maintain health during ageing: interventions with promising potential. Eur J Transl Clin Med. 2022;5(Suppl.2):37.

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# Enhancing the soft skills of the tough physiotherapists

## Doskonalenie umiejętności miękkich twardych fizjoterapeutów

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[3] Department of Physiotherapy, Medical University of Gdańsk, Poland

### Abstract

**Research material**: Physiotherapy students of MUG. **Research methods**: Proprietary questionnaire addressed to MUGs physiotherapy students in 2 languages (Polish, English), 21 questions each, approx. 120 responds. **Thesis:** Without abroad experience gained during studies, the graduate profile will not be fully achieved. Nowadays the learning outcomes of health sciences students working in future with another human being does not cover the needs of the 21st century patient – patient of a different culture, religion, beliefs and customs. In order to meet these expectations, the EU Commission offers various programs that give students of all types a chance to enhance their skills abroad. In 2018 our Department has decided to initiate the research about the low factor of student exchange at the faculty in order to look for answers if there's such a need and if yes – why don't students take advantage of it. The possibilities of the student exchange allow them to explore the subject and knowledge during their studies, among others in terms of so-called soft skills such as communication, cultural differences, leadership skills and self-confidence. The assumption of the research is that without the possibility of international mobility, a student in the 21st century will not fully achieve the new modern profile of the graduate which is stated in the Act of Physiotherapist Profession of 2015 (with further changes). Also, not to mention the opportunity to train foreign language abroad. Students should certainly better understand the need for lifelong learning.

### Citation

Spychała D, Gierat-Haponiuk K, Hansdorfer-Korzon R. Enhancing the soft skills of the tough physiotherapists. Eur J Transl Clin Med. 2022;5(Suppl.2):38.

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# Mitochondria training in amyotrophic lateral sclerosis

## Trening mitochondriów w stwardnieniu zanikowym bocznym

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### Abstract

Training-induced changes in muscle mitochondria are still not fully understood and concern both the function and structure of these organelles. Little is known about how training affects skeletal muscle metabolism in amyotrophic lateral sclerosis (ALS). ALS is an incurable, chronic neurodegenerative disease characterized by the selective death of motoneurons, which control any muscle action in the motor cortex, brainstem and spinal cord. Approximately 90% of ALS cases are sporadic (sALS), with unknown etiology, and the rest are genetically determined (fALS). However, in clinical terms, both forms are identical. The aim of this study was to elucidate the molecular basis of swim training in a mouse model of ALS. ALS mice (SOD1G93A) were analyzed before the onset of ALS, at first disease symptoms (trained and untrained), and the last stage of disease (trained and untrained), and then compared with a wild-type (WT) group of mice. Training resulted in extending the life of ALS animals, delays the onset of the first symptoms of the disease and reduces weight loss and muscle degradation. It also significantly improves the metabolism of mitochondria, probably by modification of the contact sites of the mitochondrial membrane structures and the endoplasmic reticulum, and reducing oxidative stress. It seems that the current and future research results on this topic may help develop the new approach in rehabilitation activities for patients with ALS.

### Citation

Ziółkowski W. Mitochondria training in amyotrophic lateral sclerosis. Eur J Transl Clin Med. 2022;5 (Suppl.2):39.

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***HEALTH AND VARIOUS DISEASE ENTITIES IN THE CONTEXT OF PHYSIOTHERAPY AND REHABILITATION***

# The influence of vibration training on the postural stability and flexibility of muscles in people with generalized joint hypermobility

## Wpływ treningu wibracyjnego na stabilność posturalną i elastyczność mięśni osób z uogólnioną hipermobilnością stawową

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## Abstract

According to the manufacturers, training on a vibration platform is recommended in order to improve the stabilization, strength and flexibility of muscles. There is, however, confusion in the literature as to its effect on postural stability. This is especiparticularly of interest for people with generalized joint hypermobility (UHS). In this group, proprioceptive training is recommended and stretching techniques are contraindicated. The study included 36 people aged 23.0 ± 1.1 years. They underwent the Beighton test, qualifying them to the UHS or control group. The subjects were subjected to a 2-week training on the Galileo Med 35 vibration platform. Postural stability tests were performed on the Biodex Balance System SD device and the flexibility of the muscles of the lumbar-pelvic-hip complex was assessed using the AMI numerical inclinometer. After training on the vibration platform, a significant ($p < 0.05$) decrease in the general index of inclination was found in the dynamic examination with eyes closed in people with and without UHS. An improvement ($p < 0.05$) in the flexibility of the two-joint hip flexors was observed in group with UHS on the right side. There was no effect ($p > 0.05$) on the elasticity of the posterior group of the thigh muscles and the single-joint hip flexors. People with and without UHS show a similar level of postural stability and flexibility of the muscles of the lumbar-pelvic-hip complex. Training on a vibration platform improves the postural stability in dynamic conditions but does not affect the flexibility of the muscles of the lumbar-pelvic-hip complex.

## Citation

Poniatowski Ł, Formella O, Ewertowska P, et al.. The influence of vibration training on the postural stability and flexibility of muscles in people with generalized joint hypermobility. Eur J Transl Clin Med. 2022;5(Suppl.2):40.

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# Aerobic fitness of children after surgical treatment of congenital cardiac defects

## Wydolność fizyczna dzieci z wrodzoną wadą serca po operacji korekcyjnej

**Bartłomiej Jankowski[1], Jakub Wasilewski[1], Agnieszka Staniak[1], Marcin Łuszczyk[1], Konrad Paczkowski[1], Agata Wasilewska[1], Afrodyta Zielińska[1], Paulina Ewertowska[1], Radosław Laskowski[1], Ireneusz Haponiuk[2]**

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[2] Department of Pedriatric Surgery, Nicolaus Copernius Hospital in Gdańsk, Poland

## Abstract

**Background**: Atrial septal defect (ASDII) as well as ventricular septal defect (VSD) entails structural and functional problems in the heart. Determining aerobic capacity of children after surgical correction of ASDII or VSD is important to improve their functional condition, quality of life and progression in growth and maturation. **Objective**: To evaluate the aerobic capacity of children with ASDII and VSD correction compared with healthy peers. **Methods**: Children 9 to 11 years old with a surgically managed A/VSD (n = 15) were compared with healthy peers (controls, n = 25) regarding spiroergometric measurements: maximal workload ($WR_{max}$), maximal heart rate ($HR_{max}$) and peak oxygen uptake (VO2 peak). **Results**: Valid results of cardiopulmonary exercise testing were obtained in 69 and 81%, respectively in the opearted and control group. $HR_{max}$ emerged as non-significantly lower in operated subjects. Aerobic capacity in regards to $WR_{max}$ and $VO_2$ peak was lower ($p < 0.05$) in children with correction of congenital heart defects. **Conclusion**: Children with surgically repaired VSDs and ASDII have a normal exercise capacity and they are considered healthy. Simultaneously, low physical activity level observed in these group may result in the lower exercise capacity.

## Citation

Jankowski B, Wasilewski J, Staniak A, et al. Aerobic fitness of children after surgical treatment of congenital cardiac defects. Eur J Transl Clin Med. 2022;5(Suppl.2):41.

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***HEALTH AND VARIOUS DISEASE ENTITIES IN THE CONTEXT OF PHYSIOTHERAPY AND REHABILITATION***

# Bruxism – why do patients need the support of medical specialists?

## Bruksizm – dlaczego pacjenci potrzebują wsparcia specjalistów medycznych?

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### Abstract

**Introduction**: Bruxism is the involuntary repetition of the activities of the masticatory muscles, causing a number of ailments such as clenching, tapping and teeth grinding. This problem appears more and more often in society, therefore it seems important to increase the knowledge and awareness of it. **Objective**: The aim of the presentation is to make the audience aware of what bruxism is, its causes and of the consequences of neglecting its treatment. The aim is also to emphasize the need for interdisciplinary cooperation of specialists dealing with the treatment of bruxism. In addition, we present the results of a short, pilot study on the occurrence of bruxism among representatives of the Independent Team of Physiotherapists of the University Clinical Centre in Gdańsk. **Conclusions**: Bruxism is a disorder that is often underestimated, which, in consequence, may lead to serious health complications and therefore requires treatment. One of the most important elements of the effective treatment of bruxism is the cooperation of various specialists. Due to complexity of the causes, course and complications of bruxism, specialists involved in working with the patient are: physiotherapists, dentists, dental technicians, speech therapists and psychologists. The treatment plan is always determined individually for a given case. The bruxism treatment team should remain in constant dialogue in order to comprehensively provide professional support to the patient.

### Citation

Mazella W, Ziemlańska B, Gierat-Haponiuk K. Bruxism – why do patients need the support of medical specialists? Eur J Transl Clin Med. 2022;5(Suppl.2):42.

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*HEALTH AND VARIOUS DISEASE ENTITIES IN THE CONTEXT OF PHYSIOTHERAPY AND REHABILITATION*

# Impact of traction manipulation of the ankle joint on muscle activity, strength and proprioception among hip and ankle joint. Study protocol

## Wpływ manipulacji stawu skokowego na aktywację jednostek motorycznych, siłę i propriocepcję w obrębie stawu biodrowego i skokowego. Protokół badania

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## Abstract

**Background**: Ankle Sprain is one of the most common sport injuries. One of the risk factors of ankle sprain is the weakness of muscles responsible for ankle inversion and eversion, and also for hip abduction. Previous research indicated that traction manipulation of the ankle joint may increase muscle strength and activation in hip and ankle area, although the mechanism is not fully known. **Aim**: The main goal of this randomized, double-blinded trial is to verify the impact of traction manipulation of the ankle joint on strength and muscle activation in fibularis longus, gluteus maximus, gluteus medius and tensor fasciae latae muscle and on proprioceptive ability to set the joint into previously imposed angle without visual perception. **Methods**: 20 patients will be randomized into an intervention group and placebo group. No patient nor researcher will be aware of patients assignment to intervention or placebo group. Patient's body composition will be examined with InBody device, range of motion in hip and ankle joints will be measured, then their muscle strength and activation will be measured with BioDex and EMG devices before and after physiotherapist intervention. **Discussion**: Basing on previous research and empirical evidence we predict the increase of strength and activation in muscles everting the ankle joint and hip abductors in the intervention group. Basing on publications showing the impact of abductor muscles' strength on risk of the ankle sprain, studies are likely to point the ankle joint manipulation as a prevention of ankle sprains.

## Citation

De Tillier K, Wojsław P, Wilczyński B. Impact of traction manipulation of the ankle joint on muscle activity, strength and proprioception among hip and ankle joint. Study protocol. Eur J Transl Clin Med. 2022;5(Suppl.2):43.

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***HEALTH AND VARIOUS DISEASE ENTITIES IN THE CONTEXT OF PHYSIOTHERAPY AND REHABILITATION***

# Effects of joint manipulation on muscle strength and potential applications in the treatment of an ankle sprain, literature review

## Wpływ manipulacji na siłę mięśni i potencjalne zastosowanie w leczeniu skręceń stawu skokowego

**Piotr Wojsław[1], Karol de Tillier[1], Bartosz Wilczyński[2]**

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[2] Department of Immunobiology and Environmental Microbiology, Faculty of Health Sciences with the Institute of Maritime and Tropical Medicine, Medical University of Gdańsk, Poland

### Abstract

Muscle weakness of hip abductors, foot pronators, and supinators is a risk factor for ankle sprains. It is important to develop specific guidelines for strengthening the muscles in order to avoid injury and reinjury, which occur in almost 70% of those who previously suffered ankle sprain. Manual therapy may be one of the interventions used during treatment, although various techniques show different results in terms of strength. The aim of this paper is to present the potential benefits of manipulation in treating joint dysfunctions. Moreover, the specific goal, based on available research, was the evaluation of potential mechanisms for how manual techniques may work. We searched in PubMed, PEDRO and EBSCO databases and analyzed studies that included manual therapy in different body regions and that resulted in alteration in action of listed muscles. Several studies indicate that manipulation can potentially induce positive changes in strength. These interventions can be considered when treating patients after an ankle sprain and preventing recurrences. Though more studies in this field are needed in order to create specific manual therapy usage methodologies.

### Citation

Wojsław P, De Tillier K, Wilczyński B. Effects of joint manipulation on muscle strength and potential applications in the treatment of an ankle sprain, literature review. Eur J Transl Clin Med. 2022;5(Suppl.2):44.

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# Modern physiotherapy – professional roles of physiotherapist in the Polish health care system

## Nowoczesna fizjoterapia – role zawodowe fizjoterapeuty w polskim systemie ochrony zdrowia

**Katarzyna Gierat-Haponiuk[1,3], Iwona Kowalska-Bobko[4], Małgorzata Gałązka-Sobotka[5], Maciej Polak[4], Karolina Piotrowska[5], Zofia Barcikowska[2], Julia Skwarlińska-Haponiuk[6], Jakub Wasilewski[3], Ireneusz Haponiuk[3]**

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## Abstract

**Introduction**: In Poland, there have been many attempts to regulate the physiotherapy profession. In 2015, the code of conduct for physiotherapists was defined in the Law on the Profession of Physiotherapist, thus it became an independent medical profession. **Aim:** To determine the role of the physiotherapist in the Polish health care system basing on legal regulations and survey conducted among health care professionals. **Methodology**: All existing legal regulations were reviewed, as well as a quantitative, multi-center survey was conducted among health care professionals simultaneously from 1.04.2022-30.05.2022. The questionnaire analyzed: group demographics, evaluation of existing system changes and changes in teamwork. **Results:** 109 medical professionals were surveyed, including 82 women and 27 men with a mean age = 43.54 y.o. (SD ± 11.06). There were 36 physiotherapists, 42 nurses and 30 physicians. The legal acts released between 2015 and 2022 were analyzed. The most important were related to professional autonomy and granting new professional competencies to physiotherapists, which was reflected in the results of the survey. 96.7% of doctors gave a strongly positive assessment of the competencies held by physiotherapists, 95.2% of nurses also gave positive assessment. Physicians rated new physiotherapists' competencies highest: 76.6% rate positively and strongly positively. Nurses and physiotherapists have a 50% positive assessment of the granting of new powers. Working as part of a multidisciplinary team and expanding the professional activities of physiotherapists were rated highly by all groups. **Conclusions**: 1. The profession of physiotherapist in the Polish health care system in the context of regulatory changes concerning the granting of new professional rights is highly rated by the medical professionals. 2. The teamwork of doctor-physiotherapist, physiotherapist-nurse is rated mostly strongly and positively.

## Citation

Gierat-Haponiuk K, Kowalska-Bobko I, Gałązka-Sobotka M, et al. Modern physiotherapy – professional roles of physiotherapist in the Polish health care system. Eur J Transl Clin Med. 2022;5(Suppl.2):45.

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SESJA 4A: ATRYBUTY SAMODZIELNOŚCI ZAWODÓW MEDYCZNYCH
*ATTRIBUTES OF INDEPENDENCE OF MEDICAL PROFESSIONS*

# Pharmaceutical prescription as an element of the pharmacists' professional independence

## Recepta farmaceutyczna jako element samodzielności zawodowej farmaceutów

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Division of Medical and Pharmacy Law, Medical University of Gdańsk, Poland

### Abstract

In recent years, a systematic increase in the role and powers of pharmacists has been observed. The COVID-19 pandemic has shown that this is a professional group that is extremely necessary for the smooth functioning of the health care system. One of the important powers of pharmacists is the possibility of issuing prescriptions. Polish pharmacists obtained extended powers in this field in March 2020. In order to evaluate the practices of prescribing prescriptions by pharmacists, a retrospective analysis of written inspection reports from 842 generally accessible pharmacies in one Polish voivodeship for the period from 2002 to 2016, during which 2189 issued prescriptions were recorded. In addition, data collected on e-prescriptions issued by pharmacists between April 1, 2020 and October 31, 2020 showed a significant increase in the number of pharmaceutical regulations (18.529). Although the prescription should be issued in a health threatening situation, the most common reason for issuing it is the lack of medication necessary to continue treatment, not emergencies. Cardiovascular, respiratory, dermatological and digestive tract medications are the most commonly prescribed. A pharmaceutical prescription is the first tool that allows a pharmacist to make truly independent professional decisions. Study has shown that Polish pharmacists use the new entitlements willingly but carefully.

### Citation

Wrzosek N. Pharmaceutical prescription as an element of the pharmacists' professional independence. Eur J Transl Clin Med. 2022;5(Suppl.2):46.

SESJA 4A: ATRYBUTY SAMODZIELNOŚCI ZAWODÓW MEDYCZNYCH
*ATTRIBUTES OF INDEPENDENCE OF MEDICAL PROFESSIONS*

# Professional independence of nurses

## Samodzielność zawodowa pielęgniarki

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### Abstract

**Introduction**: The Act on Nurse and Midwife Professions of 15th July 2011 has been a breakthrough for the nursing profession. It has not only granted an attribute of independency but also many other privileges in independent provision of health services. This law has started development of legislation in the direction of other medical professions becoming independent and creating therapeutic teams in the Polish healthcare system. **Aim**: The aim of this work was to analyse the applicable law in the context of nurses' independence on various levels with the possible use amongst the profession. **Methods**: The work is based on analysis of the The Act on Nurse and Midwife Professions and based on it – regulations concerning independent provision of health services, which are collated with doctrine. **Results**: Polish legal system in this particular area corresponds with the best European model. Introducing the attribute of independence in the professions of physical therapist and pharmacist suggests that the Polish legislature aims to implement therapeutic teams and change the roles in the Polish healthcare system. Patient is to be taken care of by specialists of different areas. In this model nurse is still to perform physician's orders but they should be able to use the attribute of independence. What is more, these solutions promote opening individual nursing practices. These solutions are beneficial not only to the nursing profession but also for the patients, for whom it will be easier to access the professional healthcare system. **Conclusions**: Taking under consideration progressive Polish legislation, which borrows solutions introduced in other European countries, it should be recognized as going in the right direction in the matter of professional independence of nursing. The nurse profession is becoming more attractive, which is to increase the number of nurses. The following changes should be further widening the privileges in the area of prescriptions and the possibility of issuing medical leave. Polish legislator should also enact APN – Advanced Practice Nursing, which will allow to fully use the significant potential of Polish nurses and will encourage young people to work in this profession.

### Citation

Piątkowska K. Professional independence of nurses. Eur J Transl Clin Med. 2022;5(Suppl.2):47.

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SESJA 4A: ATRYBUTY SAMODZIELNOŚCI ZAWODÓW MEDYCZNYCH
*ATTRIBUTES OF INDEPENDENCE OF MEDICAL PROFESSIONS*

# Patients' personal data protection in healthcare providers in the context of the GDPR provisions – selected practical aspects

## Ochrona danych osobowych pacjentów w podmiotach leczniczych w perspektywie przepisów RODO – wybrane aspekty praktyczne

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### Abstract

The observed continuous development of information collection and processing systems in healthcare providers, including patient data, requires the evaluation of these systems from the point of view of ensuring the protection of this data. Normative conditions for guaranteeing the standard of patient data security in the health care system understood in this way are formulated by generally applicable provisions of law, including the so-called General Data Protection Regulation (GDPR). The purpose of this article is to present selected legal provisions that allow to define the conditions for the protection of patient's personal data in the process of treatment. It can be assumed that these conditions were sufficiently defined by legal norms. The presentation of legal provisions guaranteeing the protection of patient data in the treatment process was made from a practical perspective, in particular from the use of IT systems. The paper will also present examples of violations of the provisions of the GDPR, and more broadly of the provisions relating to the protection of personal data which may be an incentive to take preventive measures in all such healthcare providers. At the same time, the study attempts to indicate potential remedial measures, which in cases of violations of data protection regulations may also take the form of the so-called good practices. The work was based on the author's own observations, resulting from his scientific work and professional experience (work in healthcare system). It should be noted that the achievements of the doctrine and judicature of medical law in this respect are relatively modest.

### Citation

Lipowski P. Patients' personal data protection in healthcare providers in the context of the GDPR provisions – selected practical aspects. Eur J Transl Clin Med. 2022;5(Suppl.2):48.

SESJA 4A: ATRYBUTY SAMODZIELNOŚCI ZAWODÓW MEDYCZNYCH
*ATTRIBUTES OF INDEPENDENCE OF MEDICAL PROFESSIONS*

# Legal Implications of the Physiotherapists' Professional Independence

## Implikacje prawne samodzielności zawodowej fizjoterapeutów

**Anna Pilarska**

Division of Medical and Pharmacy Law, Medical University of Gdańsk, Poland

### Abstract

**Introduction**: The profession of a physiotherapist has become an independent medical occupation under the Act of 25 September 2015 on the profession of a physiotherapist. While providing healthcare services, physiotherapists are obliged to perform their job with due diligence, according to principles of the code of conduct, with respect for patient's rights, caring for his/her safety and following recommendations of current medical knowledge. Aim: The aim of the presented thesis is to analyse the legal consequences of the statutory regulation of a physiotherapist profession. **Methods**: The thesis uses the exegesis of the Act on the profession of a physiotherapist and the Act on patient's rights and the Patient's Ombudsman as well as the analysis of available judicature. **Results**: The Act on the profession of a physiotherapist taking effect was a revolutionary change for this profession, which beforehand had not been regulated by law. For the first time it introduced the rules of obtaining the right to practice the profession for the first time as well as the rules to be followed in the practice. Moreover, it set forth the scope of competences, duties and professional liability. By obtaining occupational independence and clearly defined competencies and limits of liability, physiotherapists have obtained a more certain position in their cooperation with other medical professions. The Act indicates healthcare services, including functional diagnostics of a patient, qualifying a patient, planning and conducting physiotherapy, kinesiotherapy and massage as well as ordering medical products. **Conclusions**: Professional independence of physiotherapists implies not only increasing the prestige of this profession, but results also in obligations to raise one's qualifications, care for safety and rights of patients and to fulfil formal requirements due to practicing a regulated profession.

### Citation

Pilarska A. Legal Implications of the Physiotherapists' Professional Independence . Eur J Transl Clin Med. 2022;5(Suppl.2):49.

EUROPEAN JOURNAL OF TRANSLATIONAL
AND CLINICAL MEDICINE 2022;5(Suppl.2)



SESJA 4A: ATRYBUTY SAMODZIELNOŚCI ZAWODÓW MEDYCZNYCH
*ATTRIBUTES OF INDEPENDENCE OF MEDICAL PROFESSIONS*

# Professional independence of laboratory diagnostician in the context of the Act of September 15, 2022 on Laboratory Medicine

## Samodzielność zawodowa diagnosty laboratoryjnego w świetle nowej ustawy z 15 września 2022 r. o medycynie laboratoryjnej

**Miłosława Zagłoba**

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### Abstract

On September 15, 2022 the Act on Laboratory Medicine was adopted in Poland. It specifies principles and conditions for performing the activities of laboratory medicine, practicing the profession of a laboratory diagnostician, as well as supervision and control of laboratories. For the first time, laboratory diagnosticians will be able to practice independently. Growing interest of patients in various laboratory tests, combined with new regulations taking effect, will undoubtedly change the health services market in Poland, towards the commercialization of laboratory tests that has been observed in the American and Western European markets for many years. The presentation includes an analysis of the new regulation and other related laws and compares relevant regulations in selected countries. On one hand, the changes are far-reaching (the possibility of running a business in person), and on the other hand conservative as they do not include the possibility of providing diagnostic advice to patients. The rules of laboratory tests and critical parameters performed in a health and life-threatening condition in the place of patient care have been regulated, enabling a quick therapeutic decision to be made. The paths of education, specialization and professional development were described, and changes were made to the functioning of the professional self-government of laboratory diagnosticians. The functioning of medical laboratories and laboratory diagnostics after the Act on Laboratory Medicine takes effect will require numerous executive provisions, as well as conducting detailed analyses in the context of the implementation of patients' rights and their safety.

### Citation

Zagłoba M. Professional independence of laboratory diagnostician in the context of the Act of September 15, 2022 on Laboratory Medicine. Eur J Transl Clin Med. 2022;5(Suppl.2):50.

SESJA 5: ŻYWIENIE, MIKROBIOTA A CHOROBY CYWILIZACYJNE
*NUTRITION, MICROBIOTA AND DISEASES OF CIVILIZATION*

# The influence of *Nigella sativa* essential oil tymoquinone, and p-cymene on the proliferation, activation and apoptosis of human T lymphocytes *in vitro*

## Wpływ olejku eterycznego z nasion czarnuszki siewnej (*Nigella sativa*), tymochinonu oraz p-cymenu na proliferację, aktywację i apoptozę limfocytów T

**Klaudia Ciesielska-Figlon, Agnieszka Daca, Adam Kokotkiewicz, Maria Łuczkiewicz, Bożena Zabiegała, Jacek M. Witkowski, Katarzyna A. Lisowska**

Medical University of Gdańsk, Poland

### Abstract

Recently, substances of plant origin have attracted considerable interest in medicine and ***Nigella sativa*** (black cumin) has an important place among the plants mentioned in the literature. The oil extracted from its seeds contains an oily fraction, an essential oil (EO). EO is considered to have the greatest immunomodulatory potential due to active substances, such as thymoquinone (TQ) or p-cymene. Clinical observations indicate that Nigella sativa (NS) seeds and oil can alleviate symptoms of immune-related diseases. On the other hand, TQ shows antioxidant and anticancer properties and, together with p-cymene, shows anti-inflammatory properties. However, the exact mechanism of action of black cumin on the immune system is not fully understood. In the present study, we examined the immunomodulatory properties of EO obtained from the NS seeds and the chemicals identified in the essential oil: TQ and p-cymene. The phenotype, proliferative activity, and susceptibility to apoptosis of human T cells in the presence of serial ethanol EO dilutions were analyzed by flow cytometry. Our results showed that EO and TQ significantly inhibit the proliferation of CD4+ and CD8+ T cells and induce cell death in a dose-dependent manner. In contrast, p-cymene does not affect the proliferation of T cells but induces their necrosis at the highest concentration and partially counteracts some of the effects of TQ. Our results are of high cognitive significance, as they could explain the immunosuppressive effects observed in patients suffering from immune-related diseases and provide a basis for implementing alternative therapies using plant-derived substances.

### Citation

Ciesielska-Figlon K, Daca A, Kokotkiewicz A et al. The influence of ***Nigella sativa*** essential oil tymoquinone, and p-cymene on the proliferation, activation and apoptosis of human T lymphocytes in vitro. Eur J Transl Clin Med. 2022;5(Suppl.2):51.

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**SESJA 5: ŻYWIENIE, MIKROBIOTA A CHOROBY CYWILIZACYJNE**
***NUTRITION, MICROBIOTA AND DISEASES OF CIVILIZATION***

# Diet, intestinal microbiota and its metabolites and cardiovascular risk in chronic kidney disease

## Dieta, mikrobiota jelitowa i jej metabolity a ryzyko sercowo-naczyniowe w przewlekłej chorobie nerek

**Sylwia Czaja-Stolc, Sylwia Małgorzewicz**

Department of Clinical Nutrition, Medical University of Gdańsk, Poland

### Abstract

Patients with chronic kidney disease are characterized by high mortality. Traditional risk factors such as hypertension, diabetes, and lipid disorders do not explain the rapid progression of cardiovascular disease. The gut microbiota is involved in the formation of uremic toxins such as trimethylamine N-oxide (TMAO), p-cresol sulfate (pCS), and indoxyl sulfate (IS). These metabolites are recognized as non-traditional risk factors and their high concentrations correlate with atherosclerosis and cardiovascular diseases. Their precursors are nutrients transformed by intestinal bacteria. This study involved 43 kidney transplant recipients (KTRs) aged 52.4 ± 10.4 years and 79 hemodialysis (HD) patients aged 62.4 ± 16.1 years. Their diet was assessed based on the Food Frequency Questionnaire (FFQ-6). Metabolites of gut microbiota were measured by liquid chromatography-tandem mass spectrometry (LC-MS/MS). In the KTRs group, the concentration of metabolites of microbiota positively correlated with the concentration of serum creatinine, urea, and phosphorus and negatively with the frequency of fruit consumption. IS was positively correlated with levels of cholesterol. Among KTRs with eGFR < 60, the concentration of TMAO was positively correlated with ADMA. IS was positively correlated with the frequency of red meat consumption. In HD patients, a negative correlation was observed between the concentration of pCS and the frequency of root and yellow-orange vegetable consumption. IS was negatively correlated with the frequency of cruciferous vegetable consumption. The type of consumed products affects the concentration of gut microbiota metabolites. An improper diet may promote the excessive production of TMAO, pCS, IS and, consequently, increase the cardiovascular risk in these patient groups.

### Citation

Czaja-Stolc S, Małgorzewicz S. Diet, intestinal microbiota and its metabolites and cardiovascular risk in chronic kidney disease. Eur J Transl Clin Med. 2022;5(Suppl.2):52.

SESJA 5: ŻYWIENIE, MIKROBIOTA A CHOROBY CYWILIZACYJNE
*NUTRITION, MICROBIOTA AND DISEASES OF CIVILIZATION*

# Weight regain in obese patients after bariatric surgery – the multidimensional aspect

## Ponowny przyrost masy ciała pacjentów po operacji bariatrycznej – aspekt wielowymiarowy

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### Abstract

Bariatric surgery (BS) is the most effective method of treating morbid obesity. Unfortunately, 20-30% of patients do not achieve their targeted weight loss or regain large amounts of weight 6 to 24 months after surgery. The incidence and clinical significance of weight regain (WR) after BS remains largely unclear as there is no standardised definition of WR. There is disagreement about the clinical definition, making it impossible to determine when WR becomes pathological. WR can have a variety of aetiologies. The aim is to collect information on the causes of WR in patients undergoing bariatric surgery and to draw attention to the multidimensional aspect that may require interdisciplinary support for patients before and in the long term after surgery. The MEDLINE (PubMed) bibliographic database was searched for English-language articles on this topic published between 2010 and 2022. The following keywords and their combinations were used: BS, WR, systematic review, nutritional management, LSG, gastric bypass, revision procedure, Roux-En-Y gastric bypass. Analysis of studies (n = 10) and systematic reviews (n = 9) suggests that causes of WR include: non-compliance with dietary recommendations, hormonal and metabolic imbalances, lack of physical activity, psychological disorders, genetic factors and surgical factors. WR can lead to the need for revision surgery. Patients who regain weight should be assessed and treated by a multidisciplinary team of specialists: bariatric surgeon, dietician, psychologist and physiotherapist. Social support, self-care, behavioral strategies, lifestyle modification and appropriate pharmacotherapy facilitate long-term postoperative weight control.

### Citation

Budny A. Weight regain in obese patients after bariatric surgery – the multidimensional aspect. Eur J Transl Clin Med. 2022;5(Suppl.2):53.

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**SESJA 6: OPIEKA MEDYCZNA OPARTA NA DOWODACH NAUKOWYCH U PACJENTÓW GERIATRYCZNYCH: CO MOŻEMY ZROBIĆ LEPIEJ**
***EVIDENCE-BASED MEDICAL CARE FOR GERIATRIC PATIENTS: WHAT WE CAN DO BETTER***

# Roadsigns in geriatrics

## Drogowskazy w geriatrii

**Dorota Religa**

Division of Clinical Geriatrics, Department of Neurobiology, Care Sciences, and Society, Karolinska Institutet, Stockholm, Sweden

### Abstract

The older adults are a heterogeneous group as the individual differences increase with increasing age. The individual's unique needs are governed by a number of different factors such as morbidity, degree of frailty and social situation. In addition, the symptoms for the same condition differ both between the different older individuals and in comparison, with a younger population. In order to provide optimal care for the geriatric patients, it is required that the care is person-centred and imbued with a holistic view. This requires a great deal of flexibility and responsiveness to the patient's needs, ability and will. It also requires collaboration with several other care professions in multiprofessional teams where there is respect for each other's skills and with the patient as an important part of the team. I will discuss some aspects of physiology and pathology of aging, as well as the multimorbidity that often comes with advancing age. I will present the evidence in multiprofessional teams and how to map the patient's entire care needs and form patient's individual care plan. Finally, some advice how we can secure the journey of older patients through the health system, which means especially protecting the patient against harmful care and treatment.

### Citation

Religa D. Roadsigns in geriatrics. Eur J Transl Clin Med. 2022;5(Suppl.2):54.

SESJA 7: ZDROWIE W GÓRACH WYSOKICH
*HEALTH AT ALTITUDE*

# Immune health at high altitude

## Odporność immunologiczna na dużych wysokościach

**Sam Oliver**

Institute for Applied Human Physiology, Bangor University, Wales, UK

### Abstract

Respiratory infection symptoms are commonly reported by athletes, trekkers and mountaineers when sojourning at high altitude. One possible explanation for the increased respiratory infection symptoms is that hypoxia may suppress immune function. Indeed, the compensatory physiological responses to improve oxygen delivery and utilisation in a hypoxic environment, including increases in ventilation, cardiac output, systemic vasodilation and carbohydrate oxidation, are orchestrated by autonomic and endocrine actions which are also potent effectors of the immune system. Using evidence collected on two separate medical field expeditions, this presentation will examine whether high altitude leads to immunosuppression that renders individuals travelling to high altitude more susceptible to respiratory infection.

### Citation

Oliver S. Immune health at high altitude. Eur J Transl Clin Med. 2022;5(Suppl.2):55.

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**SESJA 7: ZDROWIE W GÓRACH WYSOKICH**
***HEALTH AT ALTITUDE***

# Fitness at high altitude: friend of foe?

## Sprawność fizyczna na dużych wysokościach: przyjaciel czy wróg?

**Jamie Hugo Macdonald**

Bangor University, UK

### Abstract

This presentation will describe the complex relationship between fitness and hypoxic sensitivity with exercise performance and acute mountain sickness (AMS) at altitude. During the MEDEX 2015 (a medical research expedition to the Himalaya), 44 trekkers (26 men; 18 women; 20-67 years) completed a loaded walking test and a fitness questionnaire in normoxia to measure and estimate sea-level maximal aerobic capacity (maximum oxygen consumption [VO2max]), respectively. Participants also completed a hypoxic exercise test to determine hypoxic sensitivity (cardiac, ventilatory and arterial oxygen saturation responses to acute hypoxia, fraction of inspired oxygen [Fio2] = 0.112). One month later, all participants completed a 3-week trek to 5085m. On ascent to 5085 m, ratings of perceived exertion (RPEascent), fatigue by Brunel Mood Scale and AMS were recorded daily. At 5085m, RPE during a fixed workload step test (RPEfixed) and step rate during perceptually regulated exercise (STEPRPE35) were recorded. Greater sea-level VO2max was associated with, and predicted, lower sense of effort (RPEascent; $r = -0.43$; $p < 0.001$; RPEfixed; $r = -0.69$; $p < 0.001$) and higher step rate (STEPRPE35; $r = 0.62$; $p < 0.01$), but not worse AMS ($r = 0.13$; $p = 0.4$) or arterial oxygen desaturation ($r = 0.07$; $p = 0.7$). Lower RPEascent was also associated with better mood, including less fatigue ($r = 0.57$; $p < 0.001$). Hypoxic sensitivity was not associated with, and did not add to the prediction of submaximal exercise responses or AMS. In conclusion, participants with greater sea-level fitness reported less effort during simulated and actual trekking activities, had better mood (less fatigue), and chose a higher step rate during perceptually regulated exercise, but did not suffer from worse AMS or arterial oxygen desaturation. Simple sea-level fitness tests may be used to aid preparation for high-altitude travel.

### Citation

Macdonald JH. Fitness at high altitude: friend of foe?. Eur J Transl Clin Med. 2022;5(Suppl.2):56.

SESJA 7: ZDROWIE W GÓRACH WYSOKICH
*HEALTH AT ALTITUDE*

# The risk of hypothermia in the summit zone of Mount Everest in the spring and winter seasons

## Ryzyko hipotermii w strefie szczytowej Mount Everestu w sezonie wiosennym i zimowym

**Krzysztof Błażejczyk[1], Robert Szymczak[2], George Havenith[3]**

[1] Institute of Geography and Spatial Organization Polish Academy of Sciences
[2] Department of Emergency Medicine, Faculty of Health Sciences, Medical University of Gdańsk, Poland
[3] Environmental Ergonomics Research Centre, Loughborough University, Leicestershire, UK

### Abstract

**Background**: More than 47000 climbers participated in expeditions to 8000m peaks. The average death rate on 8000m peaks is 1.8%. Over 70% of deaths on Mount Everest occur during the summit attempt at > 8000m. One-fifth of those deaths is caused by cold exposure. **Aim**: Hypothermia risk assessment during summit attempt on Mount Everest. **Materials and Methods**: We calculated climbers' heat balance using the Man-ENvironment heat EXchange model. Meteorological data was derived from the National Geographic Expedition's in situ dataset. We analyzed climbing and sleeping (with and without a tent) phases of winter and spring summit attempt. **Results**: The average values of particular heat fluxes in (W m−2) during winter vs. spring climbing phase of summit attempt: heat gains – absorbed solar radiation (12 vs. 25), metabolic heat production at 50% of VO2max (128 vs. 140); heat losses – convection (-24 vs.-16), long-wave radiation (-19 vs.-15), evaporation (-24 vs.-29), respiration (-40 vs.-44); net heat storage 26 vs. 47). Mean values of net heat storage during winter and spring sleeping phase of summit attempt with a tent were (-10.7 vs. 0.8) and during an emergency night without shelter (-19.6 vs.-1.8). **Conclusion**: The risk of hypothermia exists during an emergency night in winter without shelter. There is no risk of hypothermia during climbing phase both in spring and in winter as well as during sleeping phase with and without tent in spring.

### Citation

Błażejczyk K, Szymczak R, Havenith G. The risk of hypothermia in the summit zone of Mount Everest in the spring and winter seasons. Eur J Transl Clin Med. 2022;5(Suppl.2):57.

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**SESJA 7: ZDROWIE W GÓRACH WYSOKICH**
***HEALTH AT ALTITUDE***

# Acclimatization strategy for "oxygen-less" ascent of Mount Everest

## Strategia aklimatyzacji podczas „beztlenowego" wejścia na Mount Everest

**Robert K. Szymczak[1], Magdalena Sawicka[2]**

[1] Department of Emergency Medicine, Faculty of Health Sciences, Medical University of Gdańsk, Poland
[2] Department of Neurology, Faculty of Medicine, Medical University of Gdańsk, Poland

### Abstract

**Background**: Adequate ascent rate allows acclimatization and determines ability to tolerate hypobaric hypoxia. The golden rule > 3000m is not to increase sleeping elevation by more than 500m/day. On expeditions, where the altitude difference between camps is > 500m, it is not recommended to stay overnight in the camps when climbed for the first time. Reaching the summit of Mount Everest (8848m) requires the highest level of acclimatization. **Aim**: Defining the adequate altitude/time profile for "oxygen-less" ascent of Mount Everest. **Materials and Methods**: The profiles of 177 "oxygen-less" ascents were analyzed: 91 – South Col Route (SR), 86 – Northeast Ridge Route (NR). All data, including the dates of setting up the camps and reaching the summit, were obtained from the Himalayan Database. **Results**: The number of days between setting the base camp (SR-5340m, NR-5200m), reaching camps and summit was similar on SR and NR: camp I (SR-6050m, NR-6400m) (8 ± 5 vs 6 ± 3), camp II (SR-6400m, NR-7000m) (12 ± 7 vs 13 ± 6), camp III (SR-7200m, NR-7700m) (20 ± 8 vs 23 ± 9), camp IV (SR-7980m, NR-8250m) (31 ± 12 vs 35 ± 8), summit (37 ± 12 vs 36 ± 11). The camps established during the last rotation before the summit attempt were > 7000m: 77% on SR (7200m-43%, 7980m-34%), 90% on NR (7000m-22%, 7700m-54%, 8250m-14%). Camp IV was mostly established during the final summit attempt: 64% on SR, 85% on NR. **Conclusions**: Forty days spent climbing > 5000m including an overnight stay > 7000m during the last rotation is required to succeed on Mount Everest without oxygen support.

### Citation

Szymczak RK, Sawicka M. Acclimatization strategy for "oxygen-less" ascent of Mount Everest. Eur J Transl Clin Med. 2022;5(Suppl.2):58.

SESJA 7: ZDROWIE W GÓRACH WYSOKICH
*HEALTH AT ALTITUDE*

# The nutrition of a long-distance walker on the Via Alpina trail: 2650 km and 3 months of trekking through the Alps

## Żywienie długodystansowca na szlaku Via Alpina: 2650 km i 3 miesiące przez Alpy

**Marta Naczyk**

Independent Laboratory of Nutrition Biochemistry, Department of Clinical Nutrition, Medical University of Gdańsk, Poland

### Abstract

The aim of this case study is to describe the nutrition practices of a female recreational trekker who completed Via Alpine trail (2650 km) in 90 consecutive days. Information relating to the nutritional intake of female trekkers during multi-day endurance events is very limited. This case study reports the nutrition intervention, dietary intake, body mass changes and gastrointestinal problems during the 3 months. Due to a large energy deficit and limited access to food, a 17 kg weight loss was observed and this is just some of the consequences as a result of taking on such a major challenge to the human body. This case study highlights the importance of providing general and event-specific nutrition education when training for such an event. This is especially important for multi-day, endurance walking events.

### Citation

Naczyk M. The nutrition of a long-distance walker on the Via Alpina trail: 2650 km and 3 months of trekking through the Alps. Eur J Transl Clin Med. 2022;5(Suppl.2):59.

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**SESJA 8A: MOŻLIWOŚCI DIAGNOSTYCZNE I TERAPEUTYCZNE W SZPITALNYCH ODDZIAŁACH RATUNKOWYCH**
***DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES IN HOSPITAL EMERGENCY DEPARTMENTS***

# An early prognosis attempt for the Emergency Department (ED) patients, basing on a multimodal analysis including the interpretation of the soluble urokinase plasminogen activator receptor (suPAR) plasma concentration

## Próba wczesnej oceny rokowania u pacjentów Szpitalnego Oddziału Ratunkowego (SOR), na podstawie analizy multimodalnej z uwzględnieniem interpretacji stężenia rozpuszczalnego urokinazowego receptora aktywatora plazminogenu (suPAR) w osoczu

**Piotr Woźniak**

Department and Clinic of Emergency Medicine, Medical University of Gdańsk, Poland

**Abstract**

Patients admitted to the ED are a very heterogeneous group in terms of the risk of death or significant, permanent health deterioration. This also applies to the group of patients with acute cardiopulmonary failure, including those after out-of-hospitalcardiac-arrest (OHCA). A global tendency, also clearly visible in Poland, is the increasing number of ED patients, which results in frequent ED overcrowding. This effect is secondary to a population aging. In these conditions, it becomes extremely important to quickly and reliably estimate the risk of death or significant health deterioration of patients admitted to the ED, and thus prioritize the treatment of patients at risk or not to escalate the therapy that is not likely to be successful. In order to initially stratify the risk of ED patients, several in-hospital segregation protocols (TRIAGE) are used worldwide. These are basing on algorithms related to parameters and physiological scales measurements. An example of such a protocol is the Manchester Triage System (MTS) used in the University Clinical Center ED. During the initial diagnosis in the ED, laboratory tests are ordered, the results of which may indicate a higher risk of a severe course of the disease. However, there is no generally accepted, universal, easily measurable parameter that would allow to predict the severity of the course of hospitalization, regardless of its cause. In recent years, there has been increasing interest in measuring the level of soluble urokinase plasminogen receptor (suPAR) in plasma. Currently, this measurement is fast and possible to be performed in the ED, using simple point-of-care-testing 112 (POCT) equipment. In the present study, we tested the hypothesis that suPAR determination as an additional parameter measured on admission in the ED, together with analysis of its association with other standardly measured parameters and scales, can identify the group of patients at highest mortality risk. In the future, early prioritization of treatment for these patients could reduce the number of preventable deaths. To verify the aforementioned hypothesis, we analysed the relation between the suPAR level and other parameters measured on the ED admission, including Early Warning Scores (EWS), and later course of treatment, with particular emphasis on survival to hospital discharge. An additional quantitative parameter, plasma suPAR, was determined from blood samples collected in addition to standard laboratory tests. The study group

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included all patients with priority 1 MTS during the study period, excluding patients with environmental cause of illness (ICD10 codes S00 – Y98). Subsequently, a retrospective analysis of the hospitalization course allowed to determine the type of association of the studied parameters with the patients prognosis. Initially, 75 patients were included to the study group from which, as a result of detected qualification errors and missing data, 14 patients were eliminated and finally 61 patients were qualified for the statistical analysis phase. The correlations of suPAR with inflammatory parameters such as CRP and PCT were confirmed. The direct positive correlation of suPAR concentration with warning scales: MEWS, MEDS and also qSOFA, was also confirmed. The correlation with the biochemical marker of shock- lactate concentration and with the Shock Index (SI) was confirmed as well. Plasma suPAR concentration on admission proved to be the strongest predictor of in-hospital mortality in the study group. Statistical significance of suPAR demonstrated its superior usefulness comparing to EWS and other laboratory parameters. The study confirmed the prognostic application of suPAR as a highest mortality risk group identification tool for a specific and demanding population of patients admitted to the ED with the highest MTS priority.

**Citation**

Woźniak P. An early prognosis attempt for the Emergency Department (ED) patients, basing on a multimodal analysis including the interpretation of the soluble urokinase plasminogen activator receptor (suPAR) plasma concentration. Eur J Transl Clin Med. 2022;5(Suppl.2):60-61.

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**SESJA 8A: MOŻLIWOŚCI DIAGNOSTYCZNE I TERAPEUTYCZNE W SZPITALNYCH ODDZIAŁACH RATUNKOWYCH**
***DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES IN HOSPITAL EMERGENCY DEPARTMENTS***

# Post-traumatic hypopituitarism – a neglected consequence of traumatic brain injury

## Pourazowa niedoczynność przysadki jako pomijana konsekwencja urazu czaszkowo-mózgowego

**Mariusz Siemiński, Maria Kałas**

Department and Clinic of Emergency Medicine, Medical University of Gdańsk, Poland

### Abstract

Post-traumatic hypopituitarism (PTHP), described for the first time in 1918, used to be neglected and only considered a consequence of traumatic brain injury (TBI). The research conducted in the past 20 years, however, elucidated that its prevalence has been significantly underestimated. A PubMed search was conducted in order to find literature on the topic of post-traumatic hypopituitarism. Efforts were made to identify the wide point of view on this problem, from the historical perspective to the most recent data. The pathogenesis of PTHP is complex, and various hypotheses concerning the etiology of this condition have been proposed. Unrecognized and untreated PTHP has negative socio-economic consequences and influences the quality of life. Although a few attempts to create a screening algorithm have already been performed, there is still no clear answer regarding follow-up. The prevalence of post-traumatic hypopituitarism, a rare consequence of traumatic brain injury, has been significantly underestimated in the past 20 years. The issue is very complex so in order to make reliable guidelines a collaboration of specialists from different fields is required. Due to the increasing prevalence of TBI, and because patients after initial treatment at emergency department usually remain under control of a neurologist, both neurologists and emergency medicine specialists should be aware of clinical picture and mechanisms of PTHP.

### Citation

Siemiński M, Kałas M. Post-traumatic hypopituitarism - a neglected consequence of traumatic brain injury. Eur J Transl Clin Med. 2022;5(Suppl.2):62.

SESJA 8A: MOŻLIWOŚCI DIAGNOSTYCZNE I TERAPEUTYCZNE W SZPITALNYCH ODDZIAŁACH RATUNKOWYCH
*DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES IN HOSPITAL EMERGENCY DEPARTMENTS*

# Evaluation of current and future medical staff on the course of action with trauma patients

## Badanie poziomu wiedzy obecnych i przyszłych kadr medycznych w zakresie zaopatrywania pacjentow urazowych

**Weronika Jarych, Anna Dąbrowska, Weronika Jarych, Dorota Czachor, Anna Wściślak, Zuzanna Świąder, Wiktoria Malik, Łucja Komisarczyk**

Student Scientific Circle of Emergency Medicine, Medical University of Gdańsk, Poland

### Abstract

**Introduction**: Trauma patient management guidelines were created to standardize life-saving interventions and decrease the mortality rate. Guidelines are updated every few years to engage better management of acute trauma cases into the practice of healthcare workers. Familiarity with updated guidelines and ability to apply them under time-pressure is the key while working in the Emergency Department, pre-hospital conditions and all kinds of medical facilities. **Aim**: The aim of this study was to evaluate the knowledge of the current and the future medical staff on the course of action with trauma patients. **Materials and Methods**: The study will take place between 01.12.2022-28.02.2023, when the participants will be filling a questionnaire consisting of 47 questions based on the guidelines: ERC 2021, ITLS, PHTLS and TCCC. The question set included question of varying levels of difficulty. Participants selected for the study were adult men and women, students and graduates of the following degrees: physicians, paramedics, and nursing in the specialization of emergency medicine. The data from the questionnaire was analysed and evaluated. **Results**: The results will indicate whether students and medics are following the latest guidelines and can apply them in practice. In case of high scores, we can summarize that the guidelines are being read and taught in the medical community regularly. On the other hand, in case of low scores, we will endeavor to raise awareness of the importance of staying up to date with the newest guidelines and encourage reading them.

### Citation

Jarych W, Dąbrowska A, Jarych W, et al. Evaluation of current and future medical staff on the course of action with trauma patients. Eur J Transl Clin Med. 2022;5(Suppl.2):63.

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**SESJA 8A: MOŻLIWOŚCI DIAGNOSTYCZNE I TERAPEUTYCZNE W SZPITALNYCH ODDZIAŁACH RATUNKOWYCH**
***DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES IN HOSPITAL EMERGENCY DEPARTMENTS***

# Sepsis Associated Encephalopathy as a poorly understood complication of sepsis: analysis of the Emergency Department patient database

## Encefalopatia związana z sepsą jako słabo poznana komplikacja sepsy. Analiza bazy danych pacjentów Oddziału Ratunkowego

**Ewa Sokołowska, Klaudia Krzyżaniak, Mariusz Siemiński**

Clinical Emergency Department, University Clinical Center in Gdańsk, Poland

### Abstract

**Introduction**: Sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection, leading to multi-organ failure. A possible complication of sepsis is sepsis associated encephalopathy (SAE), a neurological dysfunction secondary to a severe inflammatory response. It manifests as acute cognitive dysfunction and mental state alteration of a sudden onset. SAE occurs in 9 to 71% of septic patients. Uropathogenic Escherichia coli is the most common pathogen causing bacteremia, responsible for 80% of uncomplicated outpatient urinary tract infections (UTIs) and 40% of nosocomial infections. The aim of the study was to assess the difference in the severity of urosepsis in patients with and without septic encephalopathy. **Materials and Methods**: The study comprised emergency department patients suspected of urosepsis. Inflammatory parameters, urinalysis and blood cultures, as well as clinical evaluation of sepsis severity and encephalopathy were performed. **Results**: 197 patients were included in the study. E. coli-induced urosepsis was diagnosed in 91 cases. In this group, SAE was diagnosed in 41 patients. Patients with SAE were older, and presented higher death rate. However, there was no significant difference in sepsis severity scales and biochemical parameters between the groups. **Conclusions**: Patients suffering from SEA have a higher risk of death and possible long-term cognitive impairment. We plan to analyze the sensitivity and specificity of brain injury markers in SAE and their usefulness in the diagnosis and monitoring of sepsis associated encephalopathy. We hope to widen perspectives for projects aiming to further investigate neuroprotective interventions in sepsis.

### Citation

Sokołowska E, Krzyżaniak K, Siemiński M. Sepsis Associated Encephalopathy as a poorly understood complication of sepsis: analysis of the Emergency Department patient database. Eur J Transl Clin Med. 2022;5(Suppl.2):64.

SESJA 8A: MOŻLIWOŚCI DIAGNOSTYCZNE I TERAPEUTYCZNE W SZPITALNYCH ODDZIAŁACH RATUNKOWYCH
*DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES IN HOSPITAL EMERGENCY DEPARTMENTS*

# Pulmonary embolism (PE) in COVID-19 patients in the Emergency Department

## Zatorowość płucna u chorych z COVID-19 w Oddziale Ratunkowym

**Piotr Foszcz, Mikołaj Młyński, Jan Pyrzowski, Mariusz Siemiński**

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### Abstract

Pulmonary embolism (PE) is a common complication of COVID-19. Symptoms of both conditions are usually overlapping and therefore cause diagnostic dilemma. We retrospectively compared clinical and laboratory data of patients admitted to the emergency department (ED) of University Clinical Centre in Gdańsk that were diagnosed with COVID-19 and referred to computed tomography of pulmonary arteries (CTPA). Between June 2020 and March 2021, out of 104 patients, 95 met inclusion criteria, and PE was diagnosed in 29 of them resulting in the 30.53% prevalence. Interestingly, commonly used in PE diagnostic prediction scales and D-dimer level did not meet statistical significance for PE in ED setting. We identified several factors that when coexisting together correlate with PE diagnosis and death during ongoing hospitalization. With the help of artificial intelligence (AI) programming we have selected factors which may predict pulmonary embolism in COVID-19 patients with a 73% accuracy. We hope that our study will lead to further investigation that eventually would allow development of better diagnostic algorithms with a great value especially for emergency departments.

### Citation

Foszcz P, Młyński M, Pyrzowski J, Siemiński M. Pulmonary embolism (PE) in COVID-19 patients in the Emergency Department. Eur J Transl Clin Med. 2022;5(Suppl.2):65.

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**SESJA 8A: MOŻLIWOŚCI DIAGNOSTYCZNE I TERAPEUTYCZNE W SZPITALNYCH ODDZIAŁACH RATUNKOWYCH**
***DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES IN HOSPITAL EMERGENCY DEPARTMENTS***

# The role of emergency department blood pressure measurements in detection of arterial hypertension

## Rola doraźnego pomiaru ciśnienia tętniczego w oddziale ratunkowym w procesie diagnostycznym nadciśnienia tętniczego

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### Abstract

Arterial hypertension (HT) is the most important modifiable risk factor for cardiovascular diseases in Poland and in the world. The basis for the diagnosis of HT is the indirect in-office measurement of arterial blood pressure (ABP), however the automatic measurement of arterial blood pressure (ABPM) can provide valuable clinical information. Given the prevalence of undetected hypertension and the number underprivileged patients visiting emergency departments (EDs), creating a model for managing patients with elevated ABP values during triage may improve the detectability of HT and reduce the burden of its complications. The aim of the study was to assess the prevalence of HT in people reporting to the ED by verifying ad hoc measurements with ABPM. The study included patients reporting to the Emergency Department of the University Clinical Centre in Gdańsk from 01/01/2019 to 31/12/2020, with elevated blood pressure values (systolic blood pressure (SBP) > 140 mmHg and / or diastolic blood pressure (DBP) > 90 mmHg) during triage according to the inclusion and exclusion criteria. Out of 34597 patients with SBP > 140 mmHg and / or DBP > 90 mmHg, 27896 patients (80.6% of patients) had previously been diagnosed with arterial hypertension. Finally, a group of 6701 patients with elevated values of arterial blood pressure in triage, who had not yet been diagnosed with HT, was identified, which accounts for 8.6% of patients admitted to the ED. Ultimately, 58 patients (26 women and 36 men) decided on having ABPM. Based on the analysis, HT was diagnosed in 32 patients, at the same time no statistically significant correlation was found between SBP and DBP and the level of pain on the VAS scale. On the other hand, a statistically higher level of anxiety was observed in the patients who had not been diagnosed with hypertension in ABPM. The emergency department plays an important role in the diagnosis of hypertension among people reporting to the ED for various reasons. There is a high probability of diagnosis of arterial hypertension in the group of patients who have elevated blood pressure values during triage and have not yet been diagnosed with hypertension. In the performed ABPM examination, HT was found in 55.2% of people with elevated CT values in triage.

### Citation

Szypenbej J. The role of emergency department blood pressure measurements in detection of arterial hypertension. Eur J Transl Clin Med. 2022;5(Suppl.2):66.

SESJA 8B: GENETYKA I CHOROBY RZADKIE
*GENETICS AND RARE DISEASES*

# An adult with a rare genetic disease as exemplified by Cornelia de Lange syndrome

## Dorosły z rzadką chorobą uwarunkowaną genetycznie na przykładzie zespołu Cornelii de Lange

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### Abstract

Cornelia de Lange Syndrome (CdLS) (MIM 122470) is a rare dominantly inherited multisystem disorder, characterized by a typical, but variable phenotype, which includes developmental delay, characteristic facial features, pre- and postnatal growth retardation and limb abnormalities. About 50-60% cases of CdLS are caused by mutations in one of tree genes: mainly in a regulator of cohesin – NIPBL, and less frequently in the two building the cohesin ring – between them SMC1, SMC3, RAD 21, HDAC8 etc. Cohesin is involved in control chromosome segregation during cell divisions and also in double strand break repair and/or transcriptional regulation. The prevalence is estimated to be between 1:10000 and 1:30000 live births. There were 208 patients, under the care of the Cornelia de Lange Association, since 2001 46 of them have reached adulthood. Four adult patients died during the follow-up. All of them have microsomia Gastroenterological disorders, especially gastro-oesophageal reflux disease was demonstrated in 29 patients, in two cases manifested by Barret's esophagus. Heart defects are usually hemodynamically insignificant and do not require intervention. Hearing loss is a significant problem (20/46 patients), but none of the patients tolerate hearing aids. Sexual maturation is delayed. Epilepsy, observed in 8 of them requires only monotherapy. 18 adults stay at home taking advantage of individual education. Behavioral disturbances are typical for the whole group, dominated by autistic behavior, anxiety and sleep disorders. Only 14 were able to communicate in sentences, some patients have developed the language of gestures. Patients from this group are a challenge for the health service.

### Citation

Wierzba J. An adult with a rare genetic disease as exemplified by Cornelia de Lange syndrome. Eur J Transl Clin Med. 2022;5(Suppl.2):67.

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**SESJA 8B: GENETYKA I CHOROBY RZADKIE**
***GENETICS AND RARE DISEASES***

# Achondroplasia – a well-known disease and the new therapeutic option

## Achondroplasia – znana choroba a nowe leczenie

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### Abstract

Achondroplasia is the most common form of dwarfism. The prevalence is estimated at 1:26000-1:28000 live births. Phenotypic traits of achondroplasia are visible at birth and include shortening of the proximal limbs, macrocephaly with prominent forehead, frontal bossing, hypoplasia of the midface, severe lordosis and brachydactyly. Compression of the spinal cord at the level of the foramen magnum is relatively common in infants and younger children, which leads to central apnea and delayed development. Younger children with achondroplasia also tend to have reduced muscle tone, whereas older ones often suffer from obesity. Final height reached by adult males and females with achondroplasia is 131 cm and 124 cm, respectively. The disease is caused by a heterozygous mutation in the fibroblast growth factor receptor 3 (FGFR-3) gene on chromosome 4p16.3. The pathogenic variant of the gene, p.Gly380Arg, leads to constitutive activation of FGFR-3, which acts as a negative regulator of bone growth by inhibiting the proliferation and differentiation of chondrocytes. Pattern of inheritance is autosomal dominant. Vosoritide, a modified C-typenatriureticpeptideanalogue, might be a breakthrough in the treatment of achondroplasia. By reducing the activity of FGFR-3 itacts as a positive regulator of intra-cartilagebonegrowth, stimulating the production of cartilaginous matrix and maintaining it.

### Citation

Cichoń-Kotek M, Wierzba J. Achondroplasia – a well-known disease and the new therapeutic option. Eur J Transl Clin Med. 2022;5(Suppl.2):68.

SESJA 8B: GENETYKA I CHOROBY RZADKIE
*GENETICS AND RARE DISEASES*

# Assessment of the founder effect on examples of hereditary kidney diseases in selected populations

## Ocena efektu założyciela na przykładach dziedzicznych chorób nerek w wybranych populacjach

**Maciej Jankowski[1], Patrycja Daca-Roszak[2], Ewa Ziętkiewicz[2], Beata S. Lipska-Ziętkiewicz[3,4,1]**

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[2] Institute of Human Genetics, Polish Academy of Sciences, Poznań, Poland
[3] Centre for Rare Diseases, Medical University of Gdańsk, Poland
[4] Clinical Genetics Unit, Department of Biology and Medical Genetics, Medical University of Gdańsk, Poland

### Abstract

Hereditary kidney diseases are a heterogeneous and extensive group of human disorders, comprising glomerulopathies, tubulopathies, ciliopathies and structural defects. One of the hallmarks of renal disfunction is proteinuria, which may result from an inborn genetic defect in over 100 genes. It has been observed that the frequency distribution of variants in some of the causative genes (e.g. in NPHS2, COQ2, COQ6, COQ8B or COL4A5) is different between different human populations, even small local groups such as Kashubians. This differentiation may be the result of genetic drift, migration or the demographic specificity of a population. Genetic drift in closed populations can lead to founder effects for specific genetic variants which, if pathogenic in nature, lead to an increased incidence of kidney diseases. This effect will be manifested by the disproportionately more frequent occurrence of a given allele variant (founding mutation) than in the general population, e.g. of a country. Detecting an increased regional prevalence of pathogenic variants sheds light on historical processes that influenced populations and could help develop effective screening and diagnostic strategies for personalized medicine.

### Citation

Jankowski M, Daca-Roszak P, Ziętkiewicz E, Lipska-Ziętkiewicz BS.Assessment of the founder effect on examples of hereditary kidney diseases in selected populations. Eur J Transl Clin Med. 2022;5(Suppl.2):69.

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SESJA 9A: ZDROWIE PUBLICZNE
*PUBLIC HEALTH*

# Therapeutic Team vs ECMO

## Zespół terapeutyczny vs ECMO

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### Abstract

**Introduction**: Acute Respiratory Distress Syndrome in its most severe forms is an indication for use of VV ECMO. Application of this method in the ICU is a challenge for the whole interdisciplinary team Aim: The main goal of that study was the presentation of issues and tasks for the interdisciplinary team while taking care of patients undergoing ECMO therapy. **Materials and methods**: In this paper, two research methods were used. The first method was based on the analysis of the literature. The second of method was a case study of a patient with acute respiratory distress syndrome with VV ECMO. Data were obtained from medical records analysis. **Case study**: Patient admitted to ICU in one of the Tricity hospitals after VV ECMO cannulation due to presentation of ARDS during his stay in a different hospital. In the first day of hospitalization, the patient was extubated after obtaining hemodynamic stability. On the twenty-seventh day of hospitalization after cardiac arrest patient was pronounced dead due to exhaustion of all therapeutic possibilities. **Summary**: Patient undergoing ECMO is exposed to a series of complications including neurological, cardiological or haematological complications. Medical care of the patient undergoing ECMO is complex and requires not only specialistic knowledge but cooperation inside the therapeutic team too.

### Citation

Olejnik M. Therapeutic Team vs ECMO. Eur J Transl Clin Med. 2022;5(Suppl.2):70.

SESJA 9A: ZDROWIE PUBLICZNE
*PUBLIC HEALTH*

# Impact of COVID-19 pandemic and hybrid teaching on nursing and midwifery students' knowledge and skills levels

## Wpływ pandemii COVID-19 i nauczania hybrydowego na poziom wiedzy i umiejętności studentów pielęgniarstwa i położnictwa

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Department of Obstetrics and Gynecology Care, Institute of Health Sciences, College of Medical Sciences, University of Rzeszów, Poland

## Abstract

**Introduction**: Since its emergence, the COVID-19 pandemic has caused universities to switch to a remote teaching. Practical medical faculties, which had hitherto trained students face-to-face, were faced with this situation for the first time. **Material and methods**: The study was conducted in 2021 during the second wave of the COVID-19 pandemic on a group of 301 nursing and midwifery students of the University of Rzeszów. The study consisted of a self-administered questionnaire survey, which, after collecting the material, was subjected to statistical analysis in the Jamovi package, assuming a significance level of $p < 0.05$. **Results**: Respondents during the COVID-19 pandemic participated in a mixed form of teaching, with a predominance of face-to-face classes (66.1%) along with hybrid teaching (27.2%) and online meetings (6.2%). Face-to-face learning, according to the respondents, was more successful than online learning (53.2%), but after the pandemic, the respondents would prefer to attend lectures in online form (29.9%). There was also a difference in theoretical and practical preparation when studying before and after the second wave of the pandemic. The assessments of knowledge and skills acquired before the pandemic and after the pandemic were found to be significantly higher compared to the assessment of knowledge ($p < 0.001$) and practical skills ($p < 0.001$) acquired during the pandemic. **Conclusions**: The COVID-19 pandemic changed the form of study in medical faculties, affecting the level of knowledge and practical skills of students.

**Keywords**: pandemic COVID-19; hybrid learning; online education, students

## Citation

Zych B, Szczepańska I, Kremska A, Jajko M. Impact of COVID-19 pandemic and hybrid teaching on nursing and midwifery students' knowledge and skills levels. Eur J Transl Clin Med. 2022;5(Suppl.2):71.

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**SESJA 9A: ZDROWIE PUBLICZNE**
***PUBLIC HEALTH***

# Students' level of stress during the COVID-19 pandemic associated with entering the nursing and midwifery profession

## Nasilenie odczuwania stresu przez studentów w czasie pandemii COVID-19 związane z podjęciem pracy w zawodzie pielęgniarki i położnej

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Department of Obstetrics and Gynecology Care, Institute of Health Sciences, College of Medical Sciences, University of Rzeszów, Poland

## Abstract

**Introduction**: Working with patients is demanding and during a coronavirus pandemic, it is associated with the risk of SARS-Cov-2 infection affecting perceived anxiety and stress levels. **Material and methods**: The study was conducted in 2021 during the COVID-19 pandemic on a group of 301 nursing and midwifery students at the University of Rzeszów. The study consisted of a self-administered survey questionnaire and the Perceived Stress Scale (PSS-10), which were developed in the Jamovi package, assuming a statistical significance level of $p < 0.05$. **Results**: The subjective perception of stress was at the level of high intensity of the trait (average 25.9 points; 8 STEN), while working in the profession is associated with its moderate intensity. The highest level of stress reported by the students was associated with insufficient preparation for the nursing/midwifery profession (3.71 points), the lowest with medical record keeping (2.90 points). In this situation, the coronavirus pandemic did not cause the respondents to feel increased stress (3.16 points). However, a statistically significant relationship was found between the level of perceived anxiety and the level of stress related to future work in the profession, showing that as the level of anxiety increases, so does the level of perceived stress ($p < 0.001$) further exacerbated by the COVID-19 pandemic ($p < 0.001$). **Conclusions**: The students' level of perceived stress was high. Although they indicated that it was moderate, their stress was associated with feelings of anxiety related to starting a career in the near future and the presence of a coronavirus pandemic.

**Keywords:** SARS-CoV-2 virus; COVID-19 pandemic; stress; nurse; midwife

## Citation

Zych N, Szczepańska I, Kremska A, Fus G. Students' level of stress during the COVID-19 pandemic associated with entering the nursing and midwifery profession. Eur J Transl Clin Med. 2022;5(Suppl.2):72.

SESJA 9A: ZDROWIE PUBLICZNE
*PUBLIC HEALTH*

# Insomnia among correctional officers. The role of sociodemographic, organizational factors and strategies of coping with stress

## Bezsenność funkcjonariuszy penitencjarnych. Rola czynników socjodemograficznych, organizacyjnych i strategii radzenia sobie ze stresem

**Ewa Sygit-Kowalkowska[1], Andrzej Piotrowski[2]**

[1] Faculty of Psychology, Kazimierz Wielki University in Bydgoszcz, Poland
[2] Institute of Psychology, University of Gdańsk, Poland

**Abstract**

Sen i jego jakość ma udowodnione znaczenie w badaniach empirycznych z zakresu psychologii pracy i organizacji. Niniejsza prezentacja ma na celu przedstawienie wyników badań przeprowadzonych na grupie pracowników struktur więziennictwa. Specyfika tej pracy, m.in. wielozmianowość i duża presja, czynią te osoby ciekawym podmiotem badań psychologicznych. Do tej pory jednak wspomniana grupa nie była analizowana pod kątem dolegliwości związanych ze snem. Analizy uwzględnione w modelu zakładają relację między czynnikami o charakterze organizacyjnym, socjodemograficznym oraz psychologicznym a objawami bezsenności. Wyniki badań przeprowadzonych na grupie 311 funkcjonariuszy wskazują na różnice między płciami, znaczenie zmianowości w pracy dla jakości snu człowieka oraz wskazują na słabe zależności między wiekiem, strategiami radzenia sobie ze stresem a nasileniem objawów. Przedyskutowano znaczenie kontynuacji badań w tym zakresie.

**Citation**

Sygit-Kowalkowska E, Piotrowski A. Insomnia among correctional officers. The role of sociodemographic, organizational factors and strategies of coping with stress. Eur J Transl Clin Med. 2022;5(Suppl.2):73.

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**SESJA 9A: ZDROWIE PUBLICZNE**
***PUBLIC HEALTH***

# New tool for measuring COVID-19-related post-traumatic stress disorder (COVID-19-PTSD Questionnaire)

## Nowe narzędzie do pomiaru zespołu stresu pourazowego związanego z COVID-19 (COVID-19-PTSD Questionnaire)

**Justyna Kosydar-Bochenek**

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### Abstract

Pandemia może być postrzegana jako wydarzenie traumatyczne i jak każda sytuacja traumatyczna, może wiązać się ze zwiększonym ryzykiem zaburzeń adaptacyjnych i innych zaburzeń emocjonalnych, takich jak zespół stresu pourazowego (PTSD), zaburzenia depresyjne czy lękowe. Eskalacja PTSD podczas pandemii wymaga rzetelnego narzędzia oceny. Kwestionariusz do pomiaru zespołu stresu pourazowego związanego z COVID-19 (COVID-19-PTSD Questionnaire) jest narzędziem służącym do pomiaru obecności i nasilenia objawów PTSD w sytuacji przedłużającego się stresu wywołanego pandemią. Celem badania była adaptacja kulturowa polskiej wersji kwestionariusza oraz walidacja jego właściwości psychometrycznych. Badanie przeprowadzono w grupie personelu medycznego (lekarzy, pielęgniarek, ratowników medycznych). Personel medyczny w pandemii działa na pierwszej linii frontu, dlatego jest szczególnie narażony na ryzyko wystąpienia lęków, stresu, problemów ze snem oraz stanów depresyjnych. Występowanie PTSD związanego z COVID-19 zaobserwowano u około 32% respondentów. W procesie dostosowania skali do uwarunkowań w Polsce dokonano adaptacji językowej i kulturowej, walidacji psychometrycznej oraz normalizacji skali. Otrzymane wyniki wskazują na wysoką trafność i rzetelność kwestionariusza, co oznacza, że skala ta może być stosowana do określenia nasilenia objawów PTSD związanego z pandemią COVID-19.

### Citation

Kosydar-Bochenek J. New tool for measuring COVID-19-related post-traumatic stress disorder (COVID-19-PTSD Questionnaire). Eur J Transl Clin Med. 2022;5(Suppl.2):74.

SESJA 9A: ZDROWIE PUBLICZNE
*PUBLIC HEALTH*

# Quality of the association between obesity and menopausal symptoms in women

## Jakość związku między otyłością a objawami menopauzalnymi u kobiet

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Department of Obstetrics and Gynecology Care, Institute of Health Sciences, College of Medical Sciences, University of Rzeszów, Poland

## Abstract

**Background**: One of the leading health problems for women in menopause is obesity. A contributory factor to obesity is an abnormal lifestyle. A decline in physical and psychological well-being entails a reluctance to take remedial action. **Material and method**: This study was conducted among 250 patients of the gynaecological ward of the Specialist Hospital in Gorlice in the period 10.12.2021-02.02.2022. They were divided into two groups: the study group consisted of obese women and the control group of overweight, normal weight and underweight women. The study consisted of a self-administered questionnaire survey which was subjected to statistical analysis assuming a significance level of $p < 0.05$. **Results**: Respondents with obesity had more severe menopausal symptoms, e.g. hot flashes ($p = 0.011$), excessive sweating ($p = 0.001$), depressive mood ($p < 0.001$), dizziness ($p < 0.001$), lack of energy ($p < 0.001$), joint pain ($p < 0.001$), headaches ($p < 0.001$) and cardiac arrhythmia ($p = 0.021$). Among respondents in the study group, obesity was most often found in childhood (52.8%) or after menopause (20.1%), while in the control group obesity was most often found in patients who were peri- or post-menopausal (31.9% and 47.3%, respectively). More than half of the women had lost weight in the past, more often in the study group (86.8%) than in the control group (54.7%). On the other hand, permanent weight loss was more frequently achieved by the respondents in the control group (41.4%) than by the obese respondents (8.9%). No form of physical activity was practised by 48.4% of the women in the study group and 40.9% of the women in the control group. 41.8% of the women in the study group consumed meals regularly. **Conclusions**: Obese female respondents had more severe symptoms of the menopausal syndrome. Obese women were not physically active and did not eat regularly.

**Keywords:** woman; menopausal symptoms; obesity

## Citation

Kremska A, Kajdas J, Zych B, Materna D. Quality of the association between obesity and menopausal symptoms in women. Eur J Transl Clin Med. 2022;5(Suppl.2):75.

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**SESJA 9A: ZDROWIE PUBLICZNE**
***PUBLIC HEALTH***

# Potassium iodide through the eyes of social media users

## Jodek potasu oczami użytkowników mediów społecznościowych

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### Abstract

**Objective**: The purpose of the study was to identify and analyze information and comments posted on social media regarding the use of potassium iodide in a nuclear danger. The compatibility of the content with current scientific knowledge was assessed. Material: The material consisted of information posted on social media (e.g. Facebook, TikTok), local government portals, social news service wykop.pl and others. 15 selected comments were included in the analysis. **Methods**: The study was conducted in two stages. The first consisted of reviewing the content of the posted materials. The selected comments were grouped into 4 thematic sections: oncology, vaccination, market asccess, toxicity. The final stage was to assess the consistency of the content of the posts with current knowledge and to correct the comments. **Results**: In the oncology section, one of the main concerns was the carcinogenicity and teratogenicity of potassium iodide. According to the Food and Drug Administration, potassium iodide used at recommended doses is not carcinogenic or teratogenic. The recommended dose depends on the patient's age, weight and health status. A common concern was that potassium iodide exposes the public to foreign genetic material and forced oral immunization against COVID-19. According to Article 32 of the Law on the Profession of Physician and Dentist, a doctor may conduct an examination or provide other health services after the patient gives consent (except as provided by law). To conceal from the patient the composition of the preparation administered would be in violation of Polish law. A significant number of posts addressed concerns about the illegal introduction of potassium iodide into circulation with an unknown composition. According to information available from the Office for Registration of Medicinal Products, Medical Devices and Biocidal Products, two preparations containing the active substance potassium iodide are approved for use on the Polish market. Analysis of the composition proved that these preparations did not contain any harmful or unauthorized substances. **Conclusions**: There is a lot of content published in social media expressing public concern about the use of potassium iodide. This content, is not in line with current knowledge, and due to its prevalence, may pose a threat to public health, inciting the public to improper health behavior. It is necessary to increase the activity of public institutions in providing information about potassium iodide.

### Citation

Ciećko W, Bystram M, Labunets K, et al. Potassium iodide through the eyes of social media users. Eur J Transl Clin Med. 2022;5(Suppl.2):76.

SESJA 9A: ZDROWIE PUBLICZNE
*PUBLIC HEALTH*

# Online prescription services: doctors or machines? The prevalence of obtaining drugs online during the pandemic

## Receptomaty – lekarze czy maszyny? Powszechność pozyskiwania leków przez Internet w czasie pandemii

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## Abstract

Celem badania była analiza ilościowa i jakościowa działania oraz dostępności internetowych serwisów wystawiających elektroniczne recepty, tzw. receptomatów. Ponadto ich obecność i działanie zweryfikowano w kontekście ram prawnych oraz aspektów finansowych. **Materiał i metody**: Wykorzystując dostępne źródła przeprowadzono niesystematyczny przegląd literatury oraz stron internetowych. Do analizy włączono 40 wyselekcjonowanych źródeł, które poddano analizie uwzględniając następujące czynniki:

- sposób weryfikacji potrzeby zdrowotnej pacjenta,
- rodzaj leków zamawianych najczęściej,
- konstrukcja formularza medycznego,
- koszt e-recepty oraz czas wykonania usługi,
- opinia świadczeniobiorcy.

**Wyniki**: Liczba rekordów otrzymana w wyniku wprowadzenia w przeglądarkę internetową zapytania „receptomat" wyniosła 66. Spośród nich 19 domen cechuje się zwiększoną popularnością wśród użytkowników. Tylko w przypadku dwóch z nich konieczna jest e-wizyta w formie chatu w celu sprawdzenia zasadności wypisania recepty. W przypadku pozostałych domen wymaga się jedynie wypełnienia przez zamawiającego formularza medycznego dostępnego na stronie. Zazwyczaj obejmuje on standardowe pytania dotyczące rodzaju i liczby opakowań zamawianego leku oraz płci, wieku; sporadycznie zadawane są pytania na temat chorób przewlekłych czy opisu stanu zdrowia. Wyjątek stanowią leki psychotropowe, dla których przepisania konieczna jest e-wizyta lub przedłożenie dokumentacji medycznej, potwierdzającej konieczność przyjmowania przez pacjenta tych produktów. Najczęściej zamawiane są produkty klasyfikowane jako antykoncepcja awaryjna, a w następnej kolejności leki psychotropowe. Koszt pozyskania e-recepty wynosi od 28 zł do 79 zł. Średni czas realizacji usługi wynosi średnio 15 minut. **Wnioski**: Receptomaty są szybkim i wygodnym dla pacjenta sposobem otrzymania e-recept. Do ich zalet należy zaliczyć szybki czas realizacji oraz brak konieczności umawiania się na konkretny termin wizyty z lekarzem. Niemniej jednak niepokojącym jest, iż większość receptomatów wymaga wyłącznie deklaratywnego wypełnienia formularza, co może stwarzać warunki dla niewłaściwego używania leków przez pacjentów.

## Citation

Skwierawska J, Labunets K, Ciećko W, Bandurska E. Online prescription services: doctors or machines? The prevalence of obtaining drugs online during the pandemic. Eur J Transl Clin Med. 2022;5(Suppl.2):77.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



SESJA 9B: ZANIECZYSZCZENIE BIOLOGICZNE I CHEMICZNE ŚRODOWISKA
*BIOLOGICAL AND CHEMICAL CONTAMINATION OF THE ENVIRONMENT*

# Rare bacterial species indicated in the Gulf of Gdańsk

## Rzadkie gatunki bakterii obserwowanych w Zatoce Gdańskiej

**Agnieszka Kijewska[1], Marta Potrykus[1], Monika Kurpas[1], Natalia Wiktorczyk-Kapischke[2], Krzysztof Skowron[3], Katarzyna Zorena[1]**

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### Abstract

Some species of bacteria are rarely identified as part of marine communities. Despite their sporadic presence, these species can sometimes influence the health of beachgoers, local communities and people professionally related to the marine environment. This study aimed to identify species isolated from the Baltic microbial community that can potentially impact the sanitary standards of recreational beaches and marine waters along the Gulf of Gdańsk. In 2021-2022, we analysed 12 seawater samples (1 L each) from beaches in different locations (Gdańsk, Gdynia, Puck and Hel Peninsula). Bacteria from 20 ml of seawater were concentrated on acetate filters (Millipore, 0.45 µm) and grown on eight agar media at 25 and 36 °C. Colonies were identified using the MALDI-TOF MS technique (Microflex, Bruker). Of 380 bacterial isolates, 86.56% represented species frequently observed in seawater samples. Species whose participation was less than 1% (0.26-0.78% each) among all isolates were qualified as rare. Among these species, 12 were sporadically or not previously observed in the Baltic Sea. Rare species belonged to the genus Empedobacter, Glutamicibacter, Arthrobacter, Aeromonas, Exiguobacterium, Ochrobactrum, Bacillus, Pseudomonas, Staphylococcus and Vibrio. These genera comprised pathogenic and non-pathogenic species and represented 13.44% of all identified isolates. Most of these species were previously described as clinical isolates, sub-tropical and tropical species, halophilic species, bacteria with a veterinary origin, and others. Characteristics of some identified rare species indicate that they can potentially affect the marine ecosystem by establishing in the coastal areas, which requires monitoring the share of these species in the local bacterial communities. There is also a risk that new opportunistic pathogens can be a reason for atypical infections, which, by their confusing symptoms, can require different diagnostic and treatment approaches.

### Citation

Kijewska A, Potrykus M, Kurpas M, et al. Rare bacterial species indicated in the Gulf of Gdańsk. Eur J Transl Clin Med. 2022;5(Suppl.2):78.

SESJA 9B: ZANIECZYSZCZENIE BIOLOGICZNE I CHEMICZNE ŚRODOWISKA
*BIOLOGICAL AND CHEMICAL CONTAMINATION OF THE ENVIRONMENT*

# The effect of different contact lenses care solutions on survival and biofilm formation of Pseudomonas aeruginosa

## Wpływ różnych płynów stosowanych do pielęgnacji soczewek na biofilm pałeczek *Pseudomonas aeruginosa*

**Dominika Przybylska, Katarzyna Grudlewska-Buda, Krzysztof Skowron, Eugenia Gospodarek-Komkowska**

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### Abstract

*Pseudomonas aeruginosa* (PAE) are the most commonly isolated etiological factor of contact lens-related keratitis, which can lead to corneal ulceration and blindness. The aim of this study was to evaluate the effect of contact lenses care solutions on PAE survival and ability of biofilm formation. Selected strains were tested for their ability to form biofilm, with use of CV method, and survival in three contact lenses care solutions: Opti-Free, ReNu and Horien. Tested solutions have different chemical composition and recommended action time. Biofilm formation in the contact lens solution environment was performed in two variants: on the hydrogel lenses and on the lens cases. The results of the study proved that PAE show the ability to form biofilm on both surfaces. Solutions limited the growth of these microorganisms in both planktonic and biofilm forms. The most effective multipurpose solution against PAE turned out to be Opti-Free (double disinfection system). About a 2.5-fold decrease in the number of bacteria during 24 hours of incubation in the solution was observed. The number of living bacteria reisolated from biofilm formed on the lenses was 0 cfu/ml, with a similar outcome for lens cases. Solutions, which contains only one disinfectant component, such as ReNu and Horien, proved to be less effective. For Horien the number of bacteria reisolated from biofilm was even as high as 3.85 × 10 ^ 3 CFU/ml for lenses and 6.24 × 10 ^ 6 CFU/ml for cases. The correct selection of solution is of key importance for the safety of the contact lenses usage.

### Citation

Przybylska D, Grudlewska-Buda K, Skowron K, Gospodarek-Komkowska E. The effect of different contact lenses care solutions on survival and biofilm formation of ***Pseudomonas aeruginosa.*** Eur J Transl Clin Med. 2022;5(Suppl.2):79.

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# The role of ground beetles as intermediate hosts for Mastophorus muris

## Rola biegaczowatych jako żywicieli pośrednich dla nicienia *Mastophorus muris*

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[3] University of Warsaw, Poland
[4] University of Nottingham, United Kingdom

### Abstract

Mastophorus muris known as cosmopolitan, gastric spiruid nematode requires an obligatory intermediate invertebrate host. Larvae can develop in stomach of Orthoptera, Dermaptera, Dictyoptera and Siphonaptera. Larvae of spirurid parasite may also develope in ground beetles (e.g. Geotrupidae). Bank voles are omnivorous rodents, especially herbivorous. However, their diet is occurred also with arthropodes and annelids. Natural sources of proteins from invertebrates are usually the most important during of breeding and lactation, when rodents have the greatest protein requirements. Beetles are considered to be reservoirs of infection for their occasional predators that include rodents. Our objectives were to monitor the prevalence of M. muris in the ground beetles species (Anoplotrupesstercorosus, Trypocoprisvernalis) found in three separated locations – Pilchy, Tałty and Urwirałt and to assess the potential role of ground beetles as intermediate hosts for M. muris. Beetles were dissected and then any parasites present were counted, recorded, transferred to a glass slide, and examined under light microscope. Found larvae were stored in 70% ethanol for molecular analysis – Polymerase Chain Reaction (PCR). Products of PCR reaction were observed by electrophoresis method. We detected M. muris larvae in 18 from 240 dissected beetles, with an overall prevalence of 7.5% (23.8% for Pilchy, 40.0% for Tałty and 26.3% for Urwitałt). We provided sequencing of M. muris genome and obtained 10 various sequences. These results contribute to our understanding of the abundance of M. muris in ground beetles in Poland and confirm that M. muris circulates in A. stercorosus and T. vernalis. Therefore, they may potentially play a role as reservoirs of this parasite in the sylvatic environment.

This research was funded through the 2018-2019 BiodivERsA joint call for research proposals under the BiodivERsA3 ERA-Net COFOUND programme. JN and MG were supported by the National Science Centre, Poland, under the BiodivERsA3 programme (2019/31/Z/NZ8/04028).

### Citation

Nowicka J, Antolová D, Bajer A, et al. The role of ground beetles as intermediate hosts for *Mastophorus muris*. Eur J Transl Clin Med. 2022;5(Suppl.2):80.

SESJA 9B: ZANIECZYSZCZENIE BIOLOGICZNE I CHEMICZNE ŚRODOWISKA
*BIOLOGICAL AND CHEMICAL CONTAMINATION OF THE ENVIRONMENT*

# Complex issues of agricultural fertilization with sewage sludge – bioaccumulation, translocation of heavy metals and transcriptome changes in crops and earthworms

## Skomplikowane problemy nawożenia gleb rolnych osadami ściekowymi – bioakumulacja, translokacja metali ciężkich oraz zmiany transktyptomiczne w uprawach i dżdżownicach

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### Abstract

The quantities of sewage sludge generated in wastewater treatment plants keeps increasing worldwide and hundreds of million tons are produced every year. In Europe, approx. 50% of sludge is dumped in agriculture and forestry soils (http://ec.europa.eu/eurostat). The disposal of biosolids can on one hand be the beneficial organic fertilizer but it may cause environmental problems, particularly in terms of food-chain pollution by heavy metals, organic pollutants, including new emerging contaminants. Here, RNA-seq has been used to assess the impact of the exposure to sewage sludge supplemented soil at the whole-transcriptome level in the ***Brassica napus*** crop and Eisenia fetida earthworms. Although the municipal sewage sludge passed all safety regulations set by the EU commission (86/278/EEC), soil supplementation with SS caused a significant ($p < 0.05$) increase in the content of Pb (by 68.8%), Zn (by 22.4%), and Ni (by 67.0%). The de-novo assembled transcriptome of B. napus identified 555 differently expressed genes (DEGs) in a response to sewage sludge supplementation at the false detection rate below 0.001 (FDR < 0.001). The gene ontology analysis (GO) had shown, that significantly enriched GO groups included genes involved in photosynthesis, carbohydrate metabolism and photosystems repair, response to oxidative stress, response to pathogens, response to xenobiotics, and heavy metals. Similarly, in earthworms the soil supplementation with SS caused an increase in accumulation of Pb, Cd, Zn and Ni tissues and altered the gene expression. Two of the top upregulated genes in cerebral ganglion samples were Tubulin polymerization-promoting protein (TPPP) gene and stabilizer of axonemal microtubules 2 (Saxo2) which are both involved in neurodegeneration. Other altered gene groups included oxidative stress, regeneration and apoptosis pathways. These results suggest a significant impact of contaminants in sewage sludge on transcriptome of plants and earthworms. Project highlighted the crucial necessity for rapid legislation change concerning the allowable levels of contaminants in sewage sludge applied on land, to mitigate the possible adverse outcomes in the ecosystem after its use as a fertilizer.

### Citation

Jaskulak J, Zorena K. Complex issues of agricultural fertilization with sewage sludge – bioaccumulation, translocation of heavy metals and transcriptome changes in crops and earthworms. Eur J Transl Clin Med. 2022;5(Suppl.2):81.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



SESJA 9B: ZANIECZYSZCZENIE BIOLOGICZNE I CHEMICZNE ŚRODOWISKA
*BIOLOGICAL AND CHEMICAL CONTAMINATION OF THE ENVIRONMENT*

# Antibiotics resistance of bacteria from the coli group and E. coli species isolated from the catchment area and the waters of the Baltic Sea

## Lekooporność bakterii z grupy *coli* i gatunku *E. coli* izolowanych ze zlewni i wód Morza Bałtyckiego

**Marta Potrykus, Monika Kurpas, Agnieszka Kijewska, Katarzyna Zorena**

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### Abstract

Antimicrobial substances have revolutionized medicine. Antibiotics, in the human or animal body, are only partially metabolized and then excreted in faeces and/or urine. Subsequently, these metabolites are released into wastewaters and eventually get mixed into the surface waters. The presence of antibiotic residues in surface waters influences the diversity of microorganisms present in a given ecological niche. This can lead to the selection of new drug resistance mechanisms in the environment or to an increased spread of multi-drug resistant bacterial strains in the surface waters, thus people who use water reservoirs may have a higher risk of being infected with multi-drug resistant bacteria. Due to the previously observed presence of coliforms and Escherichia coli species belonging to multi-drug resistant ESBL bacteria in retention reservoirs, streams and rivers opening in the Gulf of Gdańsk (Poland), the presence of multi-drug resistant bacteria was verified in the Baltic Sea waters and wet sand around the Gdańsk Bay. The aim of this study was to verify the presence and abundance of multi-drug resistant bacteria belonging to coli group and E. coli species in the area of Gdańsk Bay. In the summer season of 2022, bacteria from the coli group and E. coli species were isolated from sea water, wet sand and fresh water in 15 locations within the Gulf of Gdańsk on MacConkey medium. Bacterial drug resistance was verified according to EUCAST disc diffusion method. The obtained results, will allow for the risk assessment associated with the presence of multi-drug resistant bacteria in the bathing areas located around the Bay of Gdańsk. In the longer term, the results of the research may contribute to the creation of new legal regulations regarding the testing of water and sand in bathing areas.

The research was funded with grants for young scientists (“Młody Badacz 2022”) to MP from Medical University of Gdańsk.

### Citation

Potrykus M, Kurpas M, Kijewska A, Zorena K. Antibiotics resistance of bacteria from the ***coli*** group and ***E. coli*** species isolated from the catchment area and the waters of the Baltic Sea. Eur J Transl Clin Med. 2022;5(Suppl.2):82.

SESJA 9B: ZANIECZYSZCZENIE BIOLOGICZNE I CHEMICZNE ŚRODOWISKA
*BIOLOGICAL AND CHEMICAL CONTAMINATION OF THE ENVIRONMENT*

# Antibiotics resistance of Vibrio spp. isolated from the coastal zone of Gdańsk Bay

## Oporność izolatów *Vibrio spp.* pochodzących z Zatoki Gdańskiej na substancje przeciwbakteryjne

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### Abstract

Global warming causes an increase of the occurrence of *Vibrio spp*. in the Baltic Sea. In recent years, numerous cases of infections associated with *Vibrio spp*. in human have been reported in Germany, Sweden and Poland. The most dangerous are the infections caused by *Vibrio vulnificus* and *Vibrio cholerae* non-O1 and non-139. This study aimed to investigate the sensitivity of *Vibrio spp*. isolates to antibiotics. In the study, the isolates of *Vibrio spp*. (n = 10) collected in 2020 in coastal waters of Gdańsk Bay were examined. These isolates belong to 3 different species, namely *V. cholerae/mimicus* (6 isolates), *V. vulnificus* (3 isolates), and *V. alginolyticus* (1 isolate). Antimicrobial susceptibility to the 12 antimicrobial agents was determined by disc diffusion method according to the guidelines of the CLSI (3 repetitions). Tested antimicrobials belongs to aminoglycosides, B-lactams, tetracyclines, fluoroquinolones, cephems and carbapenems. Seventy percent of all examinated isolates were susceptible to all tested agents. Isolate W5 (*V. alginolyticus* was resistant to amikacin (aminoglycoside) and ofloxacin (fluoroquinolone). Isolates W4 and S2 (*V. cholerae/mimicus*) were resistant to gentamicin. Our data showed that among the tested isolates, only 3 were resistant to antimicrobial agents. These antibiotics are not used as primary medications in the treatment of *Vibrio spp*. infections in humans. Only in the case of *V. alginolyticus*, aminoglycoside resistance may cause a problem due to the use of amikacin against this bacterial infection in aquaculture. Further research and isolation of new strains from the Gdańsk Bay region will be continued.

### Citation

Kurpas M, Potrykus M, Kijewska A, Zorena K. Antibiotics resistance of *Vibrio spp.* isolated from the coastal zone of Gdańsk Bay. Eur J Transl Clin Med. 2022;5(Suppl.2):83.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA 10: CHOROBY ZAKAŹNE W ROKU 2022**
***INFECTIOUS DISEASES IN 2022***

# Ukrainian war refugees in Poland in the aspect of epidemiological threats

## Ukraińscy uchodźcy wojenni w Polsce w aspekcie zagrożeń epidemiologicznych

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### Abstract

The armed aggression of the Russian Federation against Ukraine in February 2022 forced over 10 million Ukrainians to flee their country. More than 6 million Ukrainian war refugees have entered Poland in the last eight months. Currently there are over 3 million Ukrainians staying in our country (including at least 1.3 million economic migrants who arrived in Poland before 2022). The epidemiological situation in Ukraine is characterized by high incidence of infectious diseases (tuberculosis, HIV/AIDS, hepatitis B, hepatitis C, syphilis, measles, poliomyelitis, multi-drug resistant infections), low vaccination rates and high morbidity associated with non-communicable diseases (cardiovascular diseases, diabetes, cancer, mental illnesses and disorders) and is assessed as one of the worst in Europe. Nevertheless, the massive influx of millions of war refugees has not resulted in a significant deterioration of the epidemiological situation in Poland. This was possible due to excellent organization of comprehensive assistance for Ukrainian refugees provided by Polish local governments and volunteers, and is also due to the fact that the majority of Ukrainians arriving in Poland in recent months are in good health (unlike many Ukrainian inhabitants who have stayed in their country, often because they were unable to finance their travel abroad).

### Citation

Korzeniewski K. Ukrainian war refugees in Poland in the aspect of epidemiological threats. Eur J Transl Clin Med. 2022;5(Suppl.2):84.

SESJA 10: CHOROBY ZAKAŹNE W ROKU 2022
*INFECTIOUS DISEASES IN 2022*

# The epidemiological situation in therms of selected infectious diseases in the Pomeranian Voivodeship and Poland

## Sytuacja epidemiologiczna w zakresie wybranych chorób zakaźnych w województwie pomorskim i w Polsce

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Voivodship Sanitary Epidemiological Station, Gdańsk, Poland

### Abstract

Epidemiological investigations are conducted by the employees of Sanitary and Epidemiological Stations in Poland in order: 1) to determine the sources, routes of spreading the infection, people susceptible to infection, 2) to allow the classification of infectious diseases according to the definition of cases introduced by European Commission Decision 2018/945 of June 22, 2018 on infectious diseases and related health issues that are to be subject to epidemiological surveillance and 3) to implement anti-epidemic and preventive measures, including immunization of vulnerable people. The COVID-19 pandemic has changed the epidemiological situation of infectious diseases in Poland. Managed restrictions, orders and bans aimed at limiting the transmission of SARS-CoV-2 contributed to the reduction of the incidence of many infectious diseases and the inhibition of the spread of pathogens transmitted not only via droplets, but also food, sexual contact and tick bites. The legitimacy of using active specific prophylaxis methods with proven effectiveness in protection against life-threatening and health-threatening infections, e.g. vaccinations, remains the subject of public discussion. Currently, within most epidemic restrictions lifted, the role of changing SARS-CoV-2 variants in shaping the morbidity resulting from the transmission of other pathogens is observed, also in relation to changes in the Protective Vaccination Program and the degree of implementation of guidelines about obligatory and recommended vaccinations. The paper presents data on changes in the epidemiology of selected infectious diseases in the Pomeranian Voivodeship and Poland over the last 10 years.

### Citation

Bardon-Błaszkowska A, Schabowski M, Jalowski P. The epidemiological situation in therms of selected infectious diseases in the Pomeranian Voivodeship and Poland. Eur J Transl Clin Med. 2022;5(Suppl.2):85.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA 10: CHOROBY ZAKAŹNE W ROKU 2022**
***INFECTIOUS DISEASES IN 2022***

# Monkeypox in the world and in Poland in 2022

## Małpia ospa na świecie i w Polsce w 2022 r.

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### Abstract

Monkeypox virus belongs to the genus ***Orthopoxvirus*** and is detected in various species of rodents and monkeys. The first human infections were confirmed in Africa in 1970 and in the era after the eradication of smallpox, this virus is gaining more and more importance as a human pathogen. The first human disease data came from an analysis of 47 human monkeypox cases reported before 1980. However, at that time monkeypox was not considered a serious threat to human health because there was no evidence of an embedded human transmission model and the disease was seen primarily as a zoonotic, occasional in the tropical forests of Central and West Africa. After 2002monkeypox infections were exported outside the African continent, to the USA, Great Britain, Israel and Singapore. Two clades of virus were isolated and the type-dependent mortality was demonstrated (West African 1%, Congo Basin 10%). From the beginning of May 2022 monkeypox in humans has been reported from non-endemic countries in Europe, the Americas, Asia, Australia and New Zealand. July 23, 2022 The World Health Organization has declared that the global monkeypox outbreak represents a public health emergency of international concern. According to WHO data, by November 8, 2022 – 78 628 confirmed cases among humans and 3703 probable cases, 41 deaths were reported from 110 countries around the world. With the exception of countries in West and Central Africa, the ongoing monkeypox outbreak mainly affects men who have sex with men and engage in risky sexual behavior. Outside the African continent, deaths in the course of monkeypox occurred in people with severe immunodeficiency, including those infected with HIV. Among European countries, a total of 4 deaths were reported in Belgium, Czech Republic and Spain. By October 31, 2022, 208 cases were reported from Poland, including 3 confirmed and 6 probable cases in the Pomeranian Region.

### Citation

Sikorska K. Monkeypox in the world and in Poland in 2022. Eur J Transl Clin Med. 2022;5(Suppl.2):86.

SESJA 10: CHOROBY ZAKAŹNE W ROKU 2022
*INFECTIOUS DISEASES IN 2022*

# Schistosomiasis – current epidemiological data and case report

## Schistosomoza – aktualna sytuacja epidemiologiczna na świecie i opis przypadku

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### Abstract

Schistosomiasis is a parasitic disease caused by blood flukes (trematode worms) of the genus ***Schistosoma***. This disease affects almost 240 million people worldwide and more than 700 million people live in endemic areas. Schistosomiasis cases have been reported in 78 countries. This infection is prevalent in tropical and sub-tropical areas, in poor communities without potable water and adequate sanitation. Urogenital schistosomiasis is caused by ***Schistosoma haematobium*** and intestinal schistosomiasis by any of the organisms ***S. guineensis, S. intercalatum, S. mansoni, S. japonicum,*** and ***S. mekongi***. Control of this disease, based on a large-scale treatment of at-risk population groups with praziquantel has been successfully implemented over the past 40 years in several countries. Access to safe water, improved sanitation, hygiene education, and snail control play an important role. Researchers have found that treating school-aged children periodically with praziquantel has decreased the prevalence of schistosomiasis in sub-Saharan Africa by almost 60% during the past 20 years. We present a case of acute schistosomiasis with lung involvement in traveler returning from Equatorial Guinea.

### Citation

Sulima M, Sikorska K, Zieliński P. Schistosomiasis – current epidemiological data and case report. Eur J Transl Clin Med. 2022;5(Suppl.2):87.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



SESJA 11: LUDZIE I EPIDEMIE. PRZESZŁOŚĆ I PRZYSZŁOŚĆ NAUK O ZDROWIU
*PEOPLE AND EPIDEMICS. THE PAST AND FUTURE OF HEALTH SCIENCE*

# Alternative medicine in the treatment of cholera and cholera-like diseases in the 19th century Russia

## Medycyna alternatywna w leczeniu cholery i chorób choleropodobnych w XIX w. w Rosji

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### Abstract

**Introduction**: In the years 1817-1896, five cholera pandemics took place around the world. This disease was characterized by high mortality, on average approx. 30%. Cholera was treated symptomatically with internal and external medical measures. They were adjusted to the stage of the disease and the patient's condition. **Thesis**: The low effectiveness of traditional cholera treatment methods, a relatively long recovery time and high social expectations have opened the way to the development of the so-called alternative medicine. During the cholera epidemic in the 19th century, doctors returned to the previously known therapies such as hydrotherapy (water treatment), phlebotomy (bloodletting), hirudotherapy (attaching leeches) and homeopathy. In addition, new therapies were developed – cryotherapy (treatment with cold), aromatherapy (treatment with aromas), electrification (galvanism, treatment with electricity) and oxygen therapy. **Methods**: The research was based on the analysis of medical reports from the archives of the Vilnius Medical Society, medical treaties, doctors' correspondence, articles from the medical press. **Conclusions**: As a result of the research, it was found that the above-mentioned methods in the treatment of cholera and cholera-like diseases were experimental and were not widely used. In addition, they complemented the basic methods of treating the disease. There were not many specialists in their use. They were often practiced by people who did not have medical education and wanted to achieve financial success. In many cases, the investigated treatments were very risky for the patients. Hirudotherapy, phlebotomy, electrification (galvanism) and cryotherapy turned out to be ineffective. Aromatherapy and oxygen therapy did not cure cholera either. On the other hand, hydrotherapy and homeopathy had good results as a supplement to existing treatment methods.

### Citation

Janicka I. Alternative medicine in the treatment of cholera and cholera-like diseases in the 19th century Russia. Eur J Transl Clin Med. 2022;5(Suppl.2):88.

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*PEOPLE AND EPIDEMICS. THE PAST AND FUTURE OF HEALTH SCIENCE*

# Theriac – a case study

## Teriak – analiza przypadku

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[3] Historical Institute, University of Wrocław, Poland

### Abstract

Theriac is considered the medical preparation with the longest noted history of use, reaching two millennia. It was also one of the most important European drugs during the Early Modern Period. The main indications for its use were cases of intoxication or epidemic diseases. The Early Modern Theriac recipes were multi-ingredient and commonly included three combined preparations. Among the compounds one may find also toxic or narcotic substances, which led to the stereotypical perception of Theriac as a preparation dangerous to the patient's health. Here we present an analysis of a Theriac recipe with historical confirmation of its use in 1630 in Thorn (Toruń). Its qualitative and quantitative, comprehensive investigation shows the great diversity of the compounds, in terms of geographical origin, source species as well as the phytochemical activity. It proves also, that Theriac was considered and administrated based on the back-then science, particularly humoral pathology. The gathered information also allows preliminary conclusions to be drawn about the real impact of Theriac on human health.

**Funding:** Polish National Science Centre [2017/26/E/HS3/00452].

### Citation

Raj D, Pękacka-Falkowska K, Włodarczyk M, Węglorz J. Theriac – a case study. Eur J Transl Clin Med. 2022;5(Suppl.2):89.

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SESJA 11: LUDZIE I EPIDEMIE. PRZESZŁOŚĆ I PRZYSZŁOŚĆ NAUK O ZDROWIU
*PEOPLE AND EPIDEMICS. THE PAST AND FUTURE OF HEALTH SCIENCE*

# Theriac at the Baltic shores. Production of Theriac in Gdańsk and Toruń in the late 17th and early 18th centuries

## Teriak nad Baltykiem. Produkcja teriaku w Gdańsku i Toruniu w II poł. XVII i I poł. XVIII w.

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[3] Historical Institute, University of Wrocław, Poland

### Abstract

From 1630 onwards, apothecaries and physicians in Gdańsk (Danzig) and Toruń (Thorn), were publishing recipes and formulas on Theriac and Mithridate. A few of them were also included in Dyspensatorium Gedanense (1665), an unpublished pharmacopoeia of Gdańsk. Also, numerous by-products of Theriac and Mithridate, both Galenic and alchemical, were meeting with quick success in the aforementioned largest cities of the Polish-Lithuanian Commonwealth. We analysed the changing patterns of production and consumption of both i) apothecary texts and ii) medicaments related to Theriac and Mithridate in Gdańsk and Toruń in the 17th-mid 18th centuries.

**Funding:** Polish National Science Centre [2017/26/E/HS3/00452].

### Citation

Pekacka-Falkowska K, Raj D, Wlodarczyk M, Weglorz J. Theriac at the Baltic shores. Production of Theriac in Gdańsk and Toruń in the late 17th and early 18th centuries. Eur J Transl Clin Med. 2022;5(Suppl.2):90.

SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# A new mathematical model for comparing DNA/RNA sequences

## Nowy matematyczny model porównywania sekwencji DNA/RNA

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### Abstract

The aim of this work is to develop a new mathematical method in bioinformatics. The presented method provides an algorithm for the calculation of numerical values (descriptors) characterizing the DNA/RNA sequences. These descriptors can be used in various studies related to similarity/dissimilarity analysis of the sequences. For example, the distribution patterns of clusters of points which emerged in the similarity maps based on the new descriptors, strongly support the hypothesis that SARS-CoV-2 virus may have originated in bat and in pangolin. Our calculations for the Zika virus sequence data proved that the proposed approach is also applicable to a description of the time evolution of genome sequences of viruses. We have also applied the method to study the genetic diversity of *Echinococcus multilocularis* in red foxes in Poland.

### Citation

Bielińska-Wąż D. A new mathematical model for comparing DNA/RNA sequences. Eur J Transl Clin Med. 2022;5(Suppl.2):91.

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# How to screen to win?

## Jak badać, aby wygrać?

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### Abstract

As the leading cause of cancer-related deaths, lung cancer (LC) is a significant clinical and social problem being. Each year, almost 24 000 new cases of LC are diagnosed in Poland and the number of deaths is close to the number of new diagnoses. Non–small cell lung cancer (NSCLC) accounts for about 85% of all lung cancers. Despite the advances in diagnosis and treatment, the overall 5-year survival rate of NSCLC patients in Poland is 14.5% and remains unchanged for decades. Active smoking is the main risk factor in the development of lung cancer and thus primary prevention in form of smoking cessation is of utmost importance. However, without effective lung cancer screening that leads to an early detection and timely surgery, the prognosis remains poor. Two randomized trials (NLST, NELSON) proved that screening in the high-risk group with chest low-dose computed tommography (LDCT) reduces LC mortality. Population-based screening tests in LC should be introduced without undue delay and should include primary (smoking cessation / refraining) and secondary (LDCT) prevention. There are effective organizational solutions, research protocols and paths of lung cancer screening in Poland, developed during scientific studies and pilot programs. We have experts in Poland, as well as human and equipment resources necessary to conduct LC screening (LCS). In March 2022, the European Commission's Scientific Advice Mechanism issued recommendations to introduce population-based LCS using the latest technologies, such as low-dose computed tomography in active and ex-smokers. We discuss here the ongoing Pilot National LCS in Poland realized also in Gdańsk, that is leader in this field.

### Citation

Bidzińska J, Szurowska E, Rzyman W. How to screen to win?. Eur J Transl Clin Med. 2022;5(Suppl.2):92.

SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# From sampling to the final result – the modern methods used to investigate the gut microbiome

## Od pobrania próbki do wyniku końcowego – nowoczesne metody badania mikrobiomu jelitowego

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### Abstract

Microbiome has a significant influence on the development of many digestive system diseases. Therefore, the analysis of microbiome is important to detect for instance biomarkers, which allow diagnosing gastrointestinal tract cancers in early stage. Currently, 16S rRNA gene sequencing and shallow shotgun sequencing are used to investigate gut microbiome. There is a difference between these two methods regarding for instance taxonomic level or functional point of view. Attention should be paid strongly to follow an appropriate protocol from taking stool sample to obtaining results of gut microbiome analysis. Stool samples are the most common material used to investigate gut microbiome. They should be kept in an appropriate, sterile tubes often with liquid that allows to maintain genetic materials. The results which are received from 16S rRNA gene sequencing are α and β biodiversity. Finally, there is a need to conduct bioinformatics analysis to present gut microbiome composition.

### Citation

Muszyński D, Kudra A. From sampling to the final result – the modern methods used to investigate the gut microbiome. Eur J Transl Clin Med. 2022;5(Suppl.2):93.

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SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# Analysis of very long chain fatty acids in brain in a mouse model of IKSHD disease using GC-MS

## Analiza bardzo długołańcuchowych kwasów tłuszczowych w mózgu w mysim modelu choroby IKSHD przy użyciu GC-MS

**Agata Zwara[1], Aleksandra Hliwa[2], Alicja Sztendel[2], Oliwia Lange[1], Monika Czapiewska[2], Agnieszka Jakubiak[1], Tomasz Śledziński[2], Adriana Mika[2]**

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### Abstract

IKSHD (ichthyotic keratoderma, spasticity, hypomyelination, dysmorphic features) is a genetic disease discovered in 2017 by prof. R. Płoski. This disease is caused by the p.Ser165Phe mutation in the gene encoding fatty acid elongase 1 (ELOVL1) and it was found in two unrelated patients. The symptoms of the disease appear on the skin and in the nervous system. The mutation causes the accumulation of very long chain fatty acids (VLCFA) with 20 and 22 carbon atoms (C20 and C22) and at the same time deficiencies of FA ≥ C24. VLCFA play a role in the formation of skin barrier and proper myelin maintenance. The first enzyme involved in synthesis of VLCFA are elongases. Elongases have seven isoforms and specific for VLCFA is ELOVL1, 3, 4 and 5. In our research we analyzed brain tissue from IKSHD mice model. Tissues were collected from three type of mice: Elovl1p.S165F/p.S165F (homozygotes), Elovl1p.S165F/wt (heterozygotes) and control group (wild type, WT) and the levels of VLCFAs were analyzed by GC-MS. The expression levels of genes encoding lipogenic enzymes belonging to the elongase isomers were analyzed by RT-PCR. We observed the accumulation of C19 and C20 and deficiencies of C22-C26 in Elovl1p.S165F/pS165F and Elovl1p.S165F/wt mice compared with WT males and females. Level of Elovl4 and Elovl6 expression was lower in Elovl1p.S165F/pS165F compared with WT mice in both genders. The results show the effect of mutations on the levels of expression genes encoding lipogenic enzymes, which is reflected in the VLCFA content.

### Citation

Zwara A, Hliwa A, Sztendel A, et al. Analysis of very long chain fatty acids in brain in a mouse model of IKSHD disease using GC-MS. Eur J Transl Clin Med. 2022;5(Suppl.2):94.

# The use of bioflavonoid hydrogels in tissue regeneration

## Zastosowanie hydrożelowych formulacji bioflawonoidów w regeneracji tkanek

**Paulina Słonimska, Paweł Sachadyn**

Laboratory for Regenerative Biotechnology, Gdańsk University of Technology, Poland

### Abstract

Epigenetic processes are responsible for the control of fundamental biological processes. Epigenetic repression of genes determining regeneration processes may be one of the causes of wound healing complications. Epigenetic agents can activate epigenetically silenced genes. Bioflavonoids are compounds of natural origin target many cellular processes, including DNA methylation. Drugs achieve their therapeutic effects on the condition that they reach the tissues at the required dose and time. Hydrogels, such as alginate, are promising drug carriers. They also slow down drug release, ensure the targeted action, allow a single administration of a hefty dose of the active substance without side effects, and increase its stability. This research aims to test alginate hydrogel formulations of flavonoids as agents promoting tissue regeneration. An ear punch wound model in mice was applied to evaluate the pro-regenerative activities of tested bioflavonoids. The alginate hydrogel formulations of flavonoids were injected subcutaneously into the neck area immediately after the injury and on day 10 post-injury. The following wound closure results were observed on day 42 post-injury: 69.2 +/- 11% for baicalein ($p = 0.0279$), 71.67 +/- 10% for quercetin ($p = 0.0048$), 70.35 +/- 11% for 7,8-dihydroxyflavone ($p = 0.0115$), 70.07 +/- 10% for fisetin ($p = 0.0933$) relative to the alginate hydrogel control 61.04 +/- 16%. The hydrogel formulations of flavonoids showed moderate but statistically significant pro-regenerative effects. Quercetin, baicalein, fisetin, and 7,8-dihydroxyflavone demonstrated similar levels of wound closure efficacy. Alginate hydrogel proved useful for flavonoid delivery. The presented data indicate that alginate hydrogel bioflavonoid formulations are promising for developing new wound healing treatments and therapies in regenerative medicine.

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### Citation

Słonimska P, Sachadyn P. The use of bioflavonoid hydrogels in tissue regeneration. Eur J Transl Clin Med. 2022;5(Suppl.2):95.

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SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# The effects of bioactive peptides on wound healing

## Wpływ bioaktywnych peptydów na gojenie ran

**Małgorzata Zawrzykraj, Milena Deptuła, Martyna Fularczyk, Maria Dzierżyńska, Katarzyna Czerwiec, Patrycja Gzowska, Agata Tymińska, Aneta Skoniecka, Sylwia Rodziewicz-Motowidło, Michał Pikuła**

Department of Clinical Anatomy, Medical University of Gdańsk

### Abstract

Wound healing is a complex, multi-step process. Abnormalities such as infections, stress, and associated diseases (diabetes, cancer) result in chronic wounds. In addition, long-term and costly care of patients prompts the search for new solutions for effective wound treatment. Modern regeneration methods include skin grafts or substitutes, wound dressings or stem cell therapy. An alternative or complementary method to the above is stimulation with growth factors or bioactive compounds to accelerate wound healing. Potential factors to promote wound healing include biocompatible and biodegradable peptides with growth factor-like properties. Additionally, literature data and our previous research show that growth factors may be used to design new bioactive peptides. These compounds are safe for human cells. They do not show cytotoxicity and immunogenicity. Moreover, they may express pro-regenerative properties, e.g., stimulation of cell proliferation and wound healing in mice models. Our newest research on peptides derived from bone morphogenetic protein (BMP) confirms that they stimulate the proliferation of human cells (HaCaT and 46BR.1N cell lines, primary fibroblasts). In addition, BMP-derived peptides did not demonstrate cytotoxic properties. Research shows that peptides could be a potential source of wound therapy drugs, which could contribute to less painful treatment for patients in the future.

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### Citation

Zawrzykraj M, Deptuła M, Fularczyk M, et al. The effects of bioactive peptides on wound healing. Eur J Transl Clin Med. 2022;5(Suppl.2):96.

SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# Assessment of Hospital Medical Technologies (HB-HTA) – a practical perspective

## Ocena Szpitalnych Technologii Medycznych (HB-HTA) – perspektywa praktyczna

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### Abstract

Hospital-based health technology assessment (HB-HTA) is an assessment of health technologies implemented at the hospital level. Due to the developing medical technologies in the world, actions have been taken also in Poland – to introduce the concept of HB-HTA to medical care providers. HTA in Poland is supervised by the Agency for Health Technology Assessment and Tariffication (AOTMiT). Research is also underway in Poland on the institutional positioning of HB-HTA in the health care system. The main goal of the work is to present the idea of health technology assessment, also from the perspective of innovation in medical procedures. The aim of the study was also to analyze and preliminary assess the process of implementing innovative medical technologies on the example of the University Hospital in Krakow (one of the largest clinical hospitals in Poland). The study uses the literature on the subject as well as an original research questionnaire, developed on the basis of this literature and materials made available as part of the HB-HTA project "Implementation of the Hospital-Based HTA (HB-HTA) – Hospital Assessment of Innovative Medical Technologies". We present the results according to which in the years 2017-2021 the above-mentioned hospital has implemented 17 innovative medical technologies. The respondents had knowledge of the above-mentioned project. The procedure for implementing new technologies has been introduced in the hospital, which is the first starting point for the development of the HB-HTA report. It can be assumed that employees dealing with the issues raised at work may not be fully aware of it. The respondents may not have knowledge of who is responsible for evaluating the results and whether checking the effects of the introduction of a new technology is taking place. Employees may be uninformed about the current activities. It seems necessary to train employees in the field of HB-HTA and especially in the methodology of preparing an HB-HTA report. Such conclusions may also be common to other medical care providers.

### Citation

Mydel M, Lipowski P. Assessment of Hospital Medical Technologies (HB-HTA) – a practical perspective. Eur J Transl Clin Med. 2022;5(Suppl.2):97.

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SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# Graphene as a representative of new technologies and its applications in medicine

## Grafen jako przedstawiciel nowych technologii i jego zastosowania w medycynie

**Jacek Gulczyński, Anna Kamm, Aleksander Żołnierski, Magdalena Górska-Ponikowska, Ewa Iżycka-Świeszewska**

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### Abstract

Graphene is a single layer form of carbon atoms arranged in hexagonal lattice. This material has very specific and unique properties, expressed in terms of physics, chemistry and electrics. Synthetised in 2004 brought Nobel Prize to professors Geim and Novoselov in 2010. Graphene's lightness, flexibility, strength, hardness, thermal and electrical conductivity define a vast area of applications. Medicine is very important part of it. A project called Graphene Flagship set a roadmap defining possible directions. In medicine it covered prosthetics, biosensors, anti-bacterial and anti-neoplasmatic properties, implants and drug delivery. Physical properties are used in building light support structures in tissue engineering. The ability to conduct impulses, especially at minimal potentials, allows the create ultra-sensitive sensors e.g. within the CNS. The size change of molecules of graphene or derivatives (graphene oxide, reduced graphene oxide) reflects in a change in bioavailability/permeability through biological barriers (mucosa, skin, penetration through the cell/nuclear membranes). This feature is fundamental in creating biologically active preparations. One of the first studies on the effect of graphene derivatives on malignant tumor cell lines (including glioblastoma) was carried out at the Warsaw University of Life Sciences. The ability to initiate the apoptotic pathway in a malignant cell was confirmed. The next research conducted at the MUG confirmed cytotoxic properties of 2-methoxyestradiol and graphene derivatives on human melanoma and osteosarcoma cell lines. The fact that drug delivery as part of the Graphene European Project was predicted after 2030 confirms that our research is ahead of the plans.

### Citation

Gulczyński J, Kamm A, Żołnierski A, et al. Graphene as a representative of new technologies and its applications in medicine. Eur J Transl Clin Med. 2022;5(Suppl.2):98.

SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# ACGH as a useful tool in pediatric clinical practice

## Zastosowanie mikromacierzy w praktyce pediatrycznej

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[3] Department of Internal and Pediatric Nursing, Medical University of Gdańsk, Poland

### Abstract

Autism spectrum disorder (ASD) is an example of neurodevelopmental early onset disorder, characterized by impairment in social and communicative skills and stereotyped behaviour. It may affect as much as 1% of the population; with a male predominance. Till now, the etiology of ASD is not definitely established. Environmental and genetic factors may play an important role in the pathogenesis of the disease. For the majority of ASD cases, there are no clinical signs indicating a specific genetic alteration. As a general rule, it is currently recommended that all ASD patients should be screened for CNV through chromosomal microarray analysis (abnormal in ca 10% of cases). Particularly, in patients presenting with dysmorphic features, developmental delay and congenital defects. We would like to present single centre experience in diagnostics of ASD using microarray analysis, showing advantages and disadvantages, difficulties and failures of this diagnostic tool in neurodevelopmental diseases.

### Citation

Śledzińska K, Kłosowska A, Cichoń-Kotek M, et al. ACGH as a useful tool in pediatric clinical practice. Eur J Transl Clin Med. 2022;5(Suppl.2):99.

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SESJA 12: NOWOCZESNE TECHNOLOGIE W MEDYCYNIE I NAUKACH O ZDROWIU
*MODERN TECHNOLOGIES IN MEDICINE AND HEALTH SCIENCES*

# Possibilities of applying adipose-derived stromal cells in tissue engineering and regenerative medicine

## Możliwości zastosowania komórek macierzystych pochodzących z tkanki tłuszczowej w inżynierii tkankowej i medycynie regeneracyjnej

**Katarzyna Czerwiec[1], Małgorzata Zawrzykraj[1], Milena Deptuła[2], Aneta Skoniecka[3], Agata Tymińska[3], Jacek Zieliński[4], Adam Kosiński[1], Michał Pikuła[2]**

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### Abstract

Tissue engineering and regenerative medicine are very dynamically developing areas of science in which stem cells play a key role. Due to the ease of obtaining and high regenerative potential, adipose-derived stromal cells (ADSCs) have become the subject of intensive research in recent years. The characteristic features of these cells are: adherence to the culture flasks, expression of surface antigens: CD73, CD90, CD105, lack expression of CD45, CD34, CD19, CD14, CD11b, and HLA-DR and the possibility of differentiation into other cell lines, e.g. adipocytes, chondrocytes, osteoblasts. Particularly noteworthy is the fact that ADSC cells have immunomodulatory properties. They possess the ability to migrate towards the area of inflammation and stimulate strong immunomodulatory and anti- inflammatory effects, which is taking place through cell-cell contact or soluble factors. Due to the differentiating potential of these cells, effective methods of using them in the treatment of joint diseases or skeletal diseases are being sought. The results of our projects indicate that the stimulation of stem cells with peptides and their appropriate cultures on scaffolds enables the creation of advanced tissue constructs. Thanks to this strategy, it is possible to create tissue substitutes that in the future can be used in the treatment of joint diseases and skin defects. However, more research is still needed to develop new compounds that stimulate the proliferation and differentiation of ADSCs.

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### Citation

Czerwiec K, Zawrzykraj M, Deptuła M, et al. Possibilities of applying adipose-derived stromal cells in tissue engineering and regenerative medicine. Eur J Transl Clin Med. 2022;5(Suppl.2):100.

SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Psychological aspects of health and quality of life

## Psychologiczne aspekty zdrowia i jakości życia

**Magdalena Błażek[1], Agata Zdun-Ryżewska[2], Alicja Raczak[1]**

[1] Department of Psychology, Medical University of Gdańsk, Poland
[2] Department of Research on the Quality of Life Medical University of Gdańsk, Poland

### Abstract

The scientific session in this symposium dedicated to the research work of dr hab. Bogusław Borys and prof. Mikołaj Majkowicz, two clinical psychologists, scientists and practitioners, long-term heads of the Division of Clinical Psychology and Division of Quality of Life Research, who introduced modern ideas of psychology into the medical university and laid the foundations for the idea of interdisciplinary cooperation. These ideas are still being developed today.

### Citation

Błażek M, Zdun-Ryżewska A, Raczak A. Psychological aspects of health and quality of life. Eur J Transl Clin Med. 2022;5(Suppl.2):101.

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SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Questioning Gender and Sexual Identity in the Context of Self-Concept Clarity, Sense of Coherence and Value System

## Kwestionowanie tożsamości seksualnej i płciowej w kontekście klarowności ja, poczucia koherencji i systemu wartości

**Julia Jastrzębska**

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### Abstract

Sexual and gender identity are fundamental parts of one's overall identity and play important roles in human functioning. Questioning one's sexuality associated with low levels of self- concept clarity, certainty, consistency and stability with regard to the individual's beliefs about oneself, can affect their sense of coherence and value system. The aim of this study was to compare heterosexual and cisgender people with non-heteronormative and non-cisgender people regarding their attitudes and the way they perceive significant personal values. It was assumed that non-heterosexual and non-cisgender individuals would have lower self-concept clarity and lower sense of coherence and that among them such values as openness to change and transcending the Self would be dominant. The study was conducted on a group of 337 individuals aged 18 to 30. The participants filled out four self-report online questionnaires. Self-concept clarity was found to be connected with a greater tendency to question one's sexual and gender identity. The results also indicate differences between heterosexual/cisgender participants and non-heterosexual/non-cisgender participants in terms of the degree of self-concept clarity and sense of coherence. Non-heteronormative and cis gender individuals show a greater tendency to question their identity and have lower self-concept clarity, which may lower their sense of coherence.

### Citation

Jastrzębska J. Questioning Gender and Sexual Identity in the Context of Self-Concept Clarity, Sense of Coherence and Value System. Eur J Transl Clin Med. 2022;5(Suppl.2):102.

SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Psychological and sociodemographic predictors of chronic low back pain in patients presenting to emergency departments

## Psychologiczne i socjodemograficzne predyktory przewlekłego bólu pleców u pacjentów zgłaszających się na oddziały ratunkowe

**Krzysztof Basiński, Agata Zdun-Ryżewska, Mikołaj Majkowicz**

Department of Research on the Quality of Life Medical University of Gdańsk, Poland

### Abstract

Chronic pain is an important public health problem, generating high financial and social costs. Among various pain disorders, chronic low back pain is particularly common. This research aimed to determine the sociodemographical and psychological predictors of chronic low back pain in patients with acute symptoms visiting an emergency department. 110 patients participated in the study. Lower self-rated health status predicted pain after three months ($p < 0.01$). Longer length of sick leave was predicted by lower self-rated health ($p < 0.01$), higher pain interference ($p < 0.05$), internal health locus of control ($p < 0.05$), less frequent use of the diverting attention coping strategy ($p < 0.001$), more frequent use of the reinterpreting of pain sensations coping strategy ($p < 0.05$). Because of its simplicity, a measurement of self-rated health status may be included in future clinical practice for assesing the risk of pain chronicity. Further research is needed to determine the practical usefulness of this method.

### Citation

Basiński K, Zdun-Ryżewska A, Majkowicz M. Psychological and sociodemographic predictors of chronic low back pain in patients presenting to emergency departments. Eur J Transl Clin Med. 2022;5(Suppl.2):103.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Why is our ability to predict suicide so limited?

## Dlaczego nasze możliwości przewidywania samobójstwa są tak ograniczone?

**Małgorzata Basińska**

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### Abstract

World Health Organization states that suicides are preventable, yet 700 000 people die from suicide each year, and even more are attempting to take their lives. Accurate suicide attempt prediction may help reduce this deathtoll, but despite decades of research our ability to predict suicide or suicide attempt is very limited. In predicting suicide no single model performs much better than chance and no single method of clinical assessment has satisfying predictive validity. To date, most of the research has concentrated on individual differences and risk stratification. Nevertheless, some suicides are committed by patients classified as low-risk. I will show that one of the reasons for poor predictive performance is the paucity of data regarding when and in what circumstances suicide attempts may occur. I will use stressful life events as an example of a predictor. I will also support my proposal by showing recent developments in the area of suicide prediction, stressing the need for a more quantitatively oriented theoretical approach in psychology.

### Citation

Basińska M. Why is our ability to predict suicide so limited?. Eur J Transl Clin Med. 2022;5(Suppl.2):104.

SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Changes in daily functioning during the SARS-CoV-2 virus pandemic

## Zmiany codziennego funkcjonowania w czasie pandemii wirusa SARS-CoV-2

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### Abstract

The outbreak of the SARS-CoV-2 virus and the subsequent sudden restrictions in everyday functioning, astonished everyone. The isolation, concern about health, and disruption of everyday life greatly impacted mental health. However, reactions changed alongside the development of the pandemic and changing conditions. During the first lockdown, in response to a major disturbance in everyday functioning, symptoms of anxiety and a sense of disorientation dominated. In time, as separation from loved ones became more severe and many also experienced financial distress, the anxiety became symptoms of depression. According to my research, at this time, almost 60% of respondents experienced a deterioration of well-being as a result of the pandemic and approximately 30% experienced a deterioration in sleep quality, accompanied by a feeling of annoyance and confusion. During the second wave, some daily functioning had resumed and people had more knowledge about the coronavirus. However, the feeling of being overwhelmed by media information had increased, and 67% of respondents suffered from less frequent contacts with relatives. The resulting sense of threat to mental well-being was much greater than the sense of threat to health. After one year of the pandemic, in May 2021, the lack of a clear end date for the pandemic was worrying for 85% of respondents. Another year later, the imposing and removing of restrictions has left a significant mark on mental health. Even before the end of the pandemic was announced in Poland, on February 24 2022, war broke out in Ukraine, with which Poland shares a 535.18 km border. The results obtained from research conducted during the first, second, and third wave of increases in morbidity will be supplemented and compared with the results of the current research, with consideration of the war in Ukraine.

### Citation

Budzyńska N, Moryś J. Changes in daily functioning during the SARS-CoV-2 virus pandemic. Eur J Transl Clin Med. 2022;5(Suppl.2):105.

EUROPEAN JOURNAL OF TRANSLATIONAL
AND CLINICAL MEDICINE 2022;5(Suppl.2)



SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Application of the concept of family resilience in clinical research – WFRQ-PL questionnaire

## Zastosowanie koncepcji prężności rodzinnej w badaniach klinicznych – kwestionariusz WFRQ-PL

**Magdalena Błażek[1], Natalia Nadrowska[2], Agata Zdun-Ryżewska[2]**

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[2] Department of Research on the Quality of Life, Medical University Gdańsk, Poland

### Abstract

The most stressful events in the life of a family is the chronic illness of one of its members. Family resilience processes represent the resources that enable the family to cope with crises. We adapted the Walsh Family Resilience Questionnaire to the Polish language and culture. The WFRQ is used to evaluate the cooperative processes in the family, such as belief system, family organization, and communication and problem-solving. The study involved 930 participants aged 18 to 63 (M = 26.94, SD = 9.80). We maintained the original three-factor version of the tool by performing a confirmatory factor analysis. Fitting the data to the model turned out to be excellent: $\chi 2/df = 1.12$, RMSEA = 0.01, CFI = 0.99, TLI = 0.99, SRMR = 0.04. Internal reliability also came out to be satisfactory for each of the scales. WFRQ-PL is a valuable method of measuring the processes of coping with difficulties, also in clinical aspects, especially by families suffering from severe, chronic, and incurable diseases. The assessment of family resilience processes allows for noticing positive resources despite the crises experienced by members of the family.

### Citation

Błażek M, Nadrowska N, Zdun-Ryżewska A. Application of the concept of family resilience in clinical research – WFRQ-PL questionnaire. Eur J Transl Clin Med. 2022;5(Suppl.2):106.

SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# The role of self-control and personality traits in the formation of individual resilience in the group of former wards of the Youth Educational Center

## Rola samokontroli i cech osobowości w kształtowaniu się prężności psychicznej w grupie byłych wychowanków Młodzieżowego Ośrodka Wychowawczego

**Angelika Bucka, Natalia Nadorowska**

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### Abstract

Self-control is an important aspect that regulates behaviour and adaptation to the situation and life in society, while resilience is one of the mechanisms thanks to which a person can maintain mental balance despite life difficulties. The study aimed to verify the relationship between self-control, resilience, and personality traits, as well as to make a comparison between the group of former wards of Youth Educational Centre (YEC) and the group of high school graduates in the scope of mentioned variables. We used three questionnaires: Resilience Measure Questionnaire (KOP-26), Self-Control Scale (NAS-50), and Ten Item Personality Inventory (TIPI-PL). Numerous correlations were obtained between the studied variables. Proactive control and extroversion turned out to be predictors of individual resilience in the group of former wards of YEC. Former wards of YEC also scored higher on Emotional Stability or Initiative and Persistence than high school graduates. The results of the study can provide practical guidance for people who work with youth, including socially maladjusted youth.

### Citation

Bucka A, Nadorowska N. The role of self-control and personality traits in the formation of individual resilience in the group of former wards of the Youth Educational Center. Eur J Transl Clin Med. 2022;5(Suppl.2):107.

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SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Humour styles – their relationship with personality factors and coping with stress strategies

## Style humoru – ich związek z cechami osobowości oraz ich relacje ze strategiami radzenia sobie ze stresem

**Paulina Piechowiak, Alicja Raczak**

Department of Psychology, Medical University of Gdańsk, Poland

### Abstract

Focusing on humour styles and their place in human life, this study has two primary aims. First, to determine how humour style correlates with personality factors. Second, to examine how humour styles relate to, coping strategies. Participants (N = 242) completed the Humour Styles Questionnaire, International Personality Item Pool-Big Five Markers-20 and the Coping Strategies with Stress inventory (Mini-COPE). The strongest correlation (and a positive one), was found between maladaptive – Aggressive style of humour and Intellect. The same style also correlated with Conscientiousness. Self-Defeating humour – the second maladaptive style, showed no correlation with any of the personality factors. Adaptive – Self-Enhancing humour correlated positively with Extraversion, Agreeableness, Conscientiousness and Intellect. Second adaptive style – Affiliative humour style – correlated only with Agreeableness. The fifth personality factor Emotional Stability showed no valuable correlation with any of the styles of humour, which was unexpected since low emotional stability – neuroticism correlated with maladaptive styles of humour, in other subject research. In the subject of seeking a valuable correlation between adaptive humour styles and adaptive strategies and in parallel maladaptive humour style and maladaptive strategies for coping with stress – only Self-Defeating humour (one of the maladaptive types) showed a meaningful correlation with a majority of maladaptive coping strategies. Other results were insufficient to support the stated hypothesis. It can be concluded that the relationship between humour styles, personality factors and coping strategies is more diverse than suspected and therefore deserving of future attention and research.

### Citation

Piechowiak P, Raczak A. Humour styles – their relationship with personality factors and coping with stress strategies. Eur J Transl Clin Med. 2022;5(Suppl.2):108.

SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# "Mature and immature adulthood" by Professor Bogusław Borys and the clinical understanding of borderline personality disorder

## „Dojrzała i niedojrzała dorosłość" autorstwa Profesora Bogusława Borysa a kliniczne rozumienie zaburzeń osobowości *borderline*

**Anna Burkiewicz-Kierzkowska**

Department of Psychology, Medical University of Gdańsk, Poland

**Abstract**

According to the book "Mature and Immature Adulthood" by Prof. Borys, psychological maturity can be seen in the perspective of three dimensions: the autonomy of the individual, openness to the other people and insight into the motives of one's own behavior. Borderline personality disorder is one of the most common disorders characterized by low self-image, interpersonal dysfunction, instability of emotional reactions and impulsivity. Recently, the aproaches most often used to explain the various of this psychopathology are the concepts of emotional dysregulation as well as the theory of mind and mentalization. This article shows the latest research on the borderline personality disorder, the relationship between emotional dysregulation, difficulties in mentalization and lowered insight into the causes of one's own behavior.

**Citation**

Burkiewicz-Kierzkowska A. "Mature and immature adulthood" by Professor Bogusław Borys and the clinical understanding of borderline personality disorder. Eur J Transl Clin Med. 2022;5(Suppl.2):109.

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SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# Assessment of the level of depression and burnout of IT workers

## Ocena poziomu depresji i wypalenia zawodowego pracowników IT

**Monika Serkowska[1], Krzysztof Szymański[1], Paulina Kozak[1], Marlena Robakowska[2]**

[1] Department of Paediatrics, Gastroenterology, Allergology and Nutrition for Children, Medical University of Gdańsk, Poland
[2] Division of Public Health & Social Medicine, Faculty of Health Sciences with the Institute of Maritime and Tropical Medicine Medical University of Gdańsk, Poland

### Abstract

Information technology (IT) industry employees are perceived as earning significant income. Due to the possibility of "remote" and in-office work, high earnings and a potentially bright future due to technological progress, IT is assumed to be one of the most attractive professions. It should be mentioned, however, that new, innovative solutions are created at the expense of longer working time, thus partial or complete resignation from free time, appropriate level of rest, working for several people due to staff shortages and mental pressure. The fact of the pandemic also had an impact in this respect. This may result in an increased risk of exposure to mental health problems, especially depression and burnout. The aim of the study is to assess the level of depression and burnout among employees in the IT industry. The study was conducted using a questionnaire containing the Beck's depression test and Christina Maslach's burnout test using the CAWI method. The results were cross-checked with current statistics and reports on the work area in the industry as well as mental health issues, and compared with similar studies to be carried out. The presented results will allow for the current assessment of the discussed professional group in terms of exposure to these mental problems. It is also planned to extend the study to other professional groups working at least 4 hours at the computer in order to compare the risk levels of employees in particular industries.

### Citation

Serkowska M, Szymański K, Kozak P, Robakowska M. Assessment of the level of depression and burnout of IT workers. Eur J Transl Clin Med. 2022;5(Suppl.2):110.

SESJA 13A: PSYCHOLOGICAL ASPECTS OF HEALTH AND QUALITY OF LIFE
*PSYCHOLOGICZNE ASPEKTY ZDROWIA I JAKOŚCI ŻYCIA*

# The role of coping with stress in forming Health-Related Quality of Life in cardiovascular disease

## Rola radzenia sobie ze stresem w kształtowaniu jakości życia osób z chorobami układu krążenia

**Marta Ruszkiewicz**

Department of Research on the Quality of Life, Medical University of Gdańsk, Poland

### Abstract

Cardiovascular diseases (CVD) affect a large part of the population and are responsible for premature death of majority of patients. Cardiac patients encounter diagnosis at an earlier and earlier stage of their lives, but thanks to the development of medicine, they can live with the disease for many more years. For this reason, it is especially important to measure the health-related quality of life (HRQL) amongst patients and to identify the factors that determine it. These factors include exposure to chronic stress and coping strategies. The study analyzed the relationship between coping strategies and the patient's HRQL assessed in terms of physical and mental health. In addition, it was verified whether this relationship was conditioned by the patient's sex and the presence of comorbidities. The study was conducted on a group of 191 patients of cardiology clinics using the SF-36 v2 questionnaire to measure the quality of life and the Mini-COPE inventory to measure coping strategies. The results confirmed the existence of a negative relationship between the use of the helplessness and avoidance strategies and the quality of life, as well as its positive relationship with the use of the active-behavioral coping strategy. The patient's gender and the presence of comorbidities differentiated the relationships between coping with stress and health-related quality of life.

### Citation

Ruszkiewicz M. The role of coping with stress in forming Health-Related Quality of Life in cardiovascular disease. Eur J Transl Clin Med. 2022;5(Suppl.2):111.

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SESJA 13B: ONKOLOGIA – BADANIA *IN VITRO* I *IN VIVO*
*ONCOLOGY* – IN VITRO *AND* IN VIVO *RESEARCH*

# The role of bacterial metabolites in detection of colorectal cancer

## Rola metabolitów bakteryjnych w wykrywaniu raka jelita grubego

**Anna Kudra, Damian Muszyński**

Scientific Circle of Clinical Nutrition, Medical University of Gdańsk, Poland

### Abstract

Intestinal microbiota contains wide range of beneficial microbes with the largest amount of bacteria. These microorganisms are unquestionably essential to act against pathogens consequently to maintain gut homeostasis. Composition of the large intestinal microbiome as well as the entirety of metabolites it produces, are conditioned by many factors such as general state of patients' health, body mass, the level of physical activity, intake of dietary fiber and processed food. Among others, bacteria take part in breaking down multiple compounds delivered from food, allowing to benefit from substances which were created and expelled by bacteria in the process. Recently, it has been recognized that there is a significant interplay between risk of colorectal cancer (CRC) occurrence and presence of not only specific bacteria but also metabolites produced by microorganisms. Microbes produce, among others, exopolysaccharides and short-chain fatty acids (SCFAs). Some of bacterial metabolites may open cascades of molecular mechanisms leading to development of CRC. Similarly, other metabolites may contribute to the prevention of this cancer occurrence. Microbiota-derived metabolites can be analysed using different laboratory methods, for instance gas chromatography allows to detect SCFAs. Summarizing, it should be emphasized that insight into metabolites derived from microbiota seems to be significant because they allow to distinguish CRC patients from healthy individuals and consequently may be helpful during early detection of this cancer.

### Citation

Kudra A, Muszyński D. The role of bacterial metabolites in detection of colorectal cancer. Eur J Transl Clin Med. 2022;5(Suppl.2):112.

EUROPEAN JOURNAL OF TRANSLATIONAL
AND CLINICAL MEDICINE 2022;5(Suppl.2)







# Segmentation of Breast Using Ultrasound Image for Detection Breast Cancer

## Segmentacja obrazów ultrasonograficznych do wspomagania diagnostyki nowotworów piersi

**Mikołaj Badocha, Tomasz Dziubich, Maciej Bobowicz, Marlena Rygusik, Paulina Kalinowska, Katarzyna Gwoździewicz**

Gdańsk University of Technology, Poland
Karolinska Institute, Sweden
Medical University of Gdańsk, Poland

### Abstract

Deep Learning has rapidly become a methodology of choice for analysing medical images and increasingly attracts researchers' attention in the medical research community. Breast cancer became one of the most frequent cancers among women worldwide, accounting for the majority of deaths. The medical images and especially breast ultrasound (US) images are of poor quality, low contrast and ambiguous. To avoid misdiagnosis, Computer-Aided Diagnosis (CAD) systems have been created for the diagnosis of breast cancer, which support radiologist in segmentation and classification tasks. Current deep learning-based solutions for breast US image classification seek to feed ultrasound images into deep convolutional neural networks, to learn a hierarchical combination of features for discriminating malignant and benign masses. This study discusses a variety of ultrasonic image segmentation approaches, with an emphasis on several methods developed in the recent four years. We focus on comparing the accuracy of selected models for automatic tumor segmentation on a single breast ultrasound image. The araNet and PraNet models were compared among 10 other solutions in our unified testbed environment for the publicly available breast databases: BUSI, BUS B and OASBUD. The segmentation accuracy calculated using overlap coefficient (DSC) is ~ 83%. These trained models are used in the process of creating a new dataset for the classification of lesions according to the BIRADS score, being developed by Medical University of Gdańsk and Gdańsk University of Technology.

### Citation

Badocha M, Dziubich T, Bobowicz M. Segmentation of Breast Using Ultrasound Image for Detection Breast Cancer. Eur J Transl Clin Med. 2022;5(Suppl.2):113.

EUROPEAN JOURNAL OF TRANSLATIONAL
AND CLINICAL MEDICINE 2022;5(Suppl.2)





# Ulcerative colitis – essence, course, treatment directions based on a case study

## Wrzodziejące zapalenie jelita grubego – istota, przebieg, kierunki leczenia na podstawie studium przypadku

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[1] Student Research Group at the Department of Bromatology, Medical University of Gdańsk, Poland
[2] Departamnet of Bromatology, Medical University of Gdańsk, Poland

### Abstract

Ulcerative colitis (UC) is an autoimmune disease characterized by a chronic inflammatory process in the lining of the intestine. In Poland, 700 people suffer from this disease every year, and the number of patients is around 40000. Diagnosis in patients is difficult because the etiology of the disease is not fully understood. The symptoms of UC can be quite non-specific, the most common being diarrhea with an admixture of mucus and blood, cramping abdominal pain and a feeling of pressure on the stool. Some patients develop joint pain and swelling that are not usually associated with the condition in question. The first ailments are sometimes underestimated by patients and are attributed to food intolerances, a stressful lifestyle or intoxication. The longer the disease goes undetected, the more severe its symptoms and can lead to weight loss, weakness and iron deficiency anemia. In order to compare the condition of patients with different time from the diagnosis of their disease, attempts were made to analyze two cases. The first patient was a 22-year-old man diagnosed with UC 1.5 years ago. The patient was initially hospitalized in good general condition without pain from the digestive system. During the course of the disease, abdominal pain, bloody stools and joint pains appeared. During treatment, the patient's condition improved. The second patient, 62 years old was diagnosed 27 years ago. The patient reports pain and 10-12 bowel movements a day. Affected people require targeted pharmacological treatment and dietary counseling adapted to the patient's condition.

### Citation

Baczewska K, Misztal-Szkudlińska M, Grembecka M. Ulcerative colitis – essence, course, treatment directions based on a case study. Eur J Transl Clin Med. 2022;5(Suppl.2):114.

SESJA 13B: ONKOLOGIA – BADANIA *IN VITRO* I *IN VIVO*
*ONCOLOGY* – IN VITRO *AND* IN VIVO *RESEARCH*

# Nursing care for a patient with chronic lymphocytic leukemia

## Opieka nad pacjentką z przewlekła białaczką limfatyczną

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### Abstract

Chronic lymphocytic leukemia is a disease that mainly affects older people, i.e. people over the age of 65. The higher the patient's age determines typically a worse prognosis. Furthermore, the patient of this disease will receive less aggressive treatment due to the fact that those with this disease may have coexisting diseases. The causes of lymphatic leukemia are still unknown. The characteristic of leukemia causes this regulation to the genetic and epigenetic. The subject of the research is the process of nurse care of patient with chronic lymphocytic leukemia. The main problems of caring for the patient are: risk of falling, constant fatigue, excessive drowsiness, discomfort caused by pain in the lumbosacral spine and an increased risk of infectious disease. Chronic lymphocytic leukemia affects the quality of the patient's life to a great extent, because it prevents the performance of everyday activities and their social roles.

### Citation

Malewicz K, Ośmiałowska E, Pryszcz J. Nursing care for a patient with chronic lymphocytic leukemia. Eur J Transl Clin Med. 2022;5(Suppl.2):115.

EUROPEAN JOURNAL OF TRANSLATIONAL
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SESJA 13B: ONKOLOGIA – BADANIA *IN VITRO* I *IN VIVO*
*ONCOLOGY* – IN VITRO *AND* IN VIVO *RESEARCH*

# Neuropeptide Y in prostate cancer biology

## Neuropeptyd Y w biologii raka prostaty

**Dawid Sigorski[1], Wojciech Wesołowski[1], Agnieszka Gruszecka[2], Jacek Gulczyński[3], Piotr Zieliński[4], Sara Misiukiewicz[1], Joanna Kitlińska[1], Ewa Iżycka-Świeszewska[3]**

[1] Department of Oncology, University of Warmia and Mazury in Olsztyn, Poland
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[3] Department of Pathology and Neuropathology, Medical University of Gdańsk, Poland

### Abstract

**Introduction**: Neuropeptide Y (NPY) is a neurotransmitter, which regulates the important biological mechanisms of cell growth and survival. The aim of this study was a comprehensive analysis of the NPY system in prostate pathology. **Methods**: The study was based on immunohistochemical analysis of NPY and its receptors, (Y1R, Y2R and Y5R), in tissue samples from benign prostate (BP), primary prostate cancer (PCa, n = 51) and PCa bone metastases (n = 11). The specimens were examined using tissue microarray technique. Intensity of the immunoreactivity, expression index (EI), and distribution of the immunostaining in tumoral cells and stromal elements were evaluated. Perineural invasion and extraprostatic extension areas were assessed separately. In addition, chemotactic activity of NPY in PCa cells was measured using a transwell migration assay. **Results**: Morphological analysis revealed homogeneous membrane-cytoplasm pattern of NPY immunostaining in cancer cells, while immunoreactivity in BP glands concentrated on the cell membrane. All elements of the NPY system were upregulated in prostate intraepithelial neoplasia, PCa and metastases, as compared to BP. There was a positive correlation between Y2R and Y5R expression. The levels of NPY system expression were elevated in perineural invasion and extraprostatic extension areas. In bone metastases, the Y1R and Y5R presented high expression scores. **Conclusions**: Results of our study suggest that the NPY system is involved in PCa biology starting from early stages of its development to metastatic stage of the disease.

### Citation

Sigorski D, Wesołowski W, Gruszecka A, et al. Neuropeptide Y in prostate cancer biology. Eur J Transl Clin Med. 2022;5(Suppl.2):116.

**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Determining Gender Of Fetus Using Maternal Pulse Intensity

**Mahesh Prasanth**

Student of the Medical University of Gdańsk, Poland

## Abstract

Fetal sex has been identified as an important factor influencing pregnancy outcomes. The objective of the study was to find the fetal sex by palpating the intensity of the pulse on the 5th finger of pregnant women. The magnitude of intensity of the pulse on the left and right hand is the basis of determination of fetal sex. 85 Patients were taken into the study, which included pregnant women from different gestational weeks. Twins were not considered in the study. The intensity of the pulse, was measured by palpation alone. The intensity of pulse was first checked on the right 5th finger by palpating on the medial aspect of the 5th finger. The same was repeated for the left 5th finger and the intensity of the pulse on both the fingers were compared. The comparison was based on the results from palpation of the pulse, which helped in determining if the fetal sex was of a male or female. This was also confirmed from the candidate themselves. If the intensity of the pulse palpated was higher on the right 5th finger, the conceived fetus was a male. On the contrary if the intensity of the pulse palpated was higher on the left 5th finger, the conceived fetus was a female. Out of the 85 patients recorded, there was an accuracy of 76%, making it a quite efficient process in determining the gender in case of emergency or absence of ultrasound device.

## Citation

Prasanth M. Determining Gender Of Fetus Using Maternal Pulse Intensity. Eur J Transl Clin Med. 2022;5(Suppl.2):117.

EUROPEAN JOURNAL OF TRANSLATIONAL
AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Nursing care and rehabilitation of a patient after ischemic stroke – case report

## Opieka pielęgniarska i rehabilitacja pacjenta po przebytym udarze niedokrwiennym mózgu – opis przypadku

**Kamila Jonak, Katarzyna Malewicz, Natalia Marczyńska**

Department of Nursing and Midwifery, Department of Family and Pediatric Nursing, Faculty of Health Sciences, Medical University in Wrocław, Poland

### Abstract

**Introduction**: Ischaemic stroke is characterised by the presence of focal and neurological symptoms for at least 24 hours resulting from obstruction of blood supplying vessels to the brain. The most common symptoms include: unilateral limb paresis/impairment, aphasia – speech disorders, dysphagia – swallowing disorders, and apraxia. It is a disease that may cause permanent damage to the human body, resulting in disability. Treatment is focused on the modification of the patient's lifestyle and long-term rehabilitation. **Objective**: The aim of this study was to formulate nursing problems that may affect the patient after an ischemic stroke and to create a process containing actions to improve the patient's quality of functioning in daily life. **Research methods and techniques**: The research method in this study is based on the individual case method using the nursing process. The research techniques used in this study were: taking the patient's history, observation of the patient and analysis of medical records. Standardized scales were used to analyse the patient's case: ADL scale, NIHSS scale, Scandinavian Stroke Scale, Glasgow Coma Scale, Barthel scale and Mathew scale. **Conclusions**: Nursing care of patients after ischaemic stroke primarily involves assistance with basic activities. Patients after stroke are at risk of experiencing limitations with normal functioning. The main complications are paresis or paralysis. The nurse's role is to prevent permanent and total disability through appropriate rehabilitation.

### Citation

Jonak K, Malewicz K, Marczyńska N. Nursing care and rehabilitation of a patient after ischemic stroke – case report. Eur J Transl Clin Med. 2022;5(Suppl.2):118.

**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Contamination of foods with microplastics and its impact on human health

## Zanieczyszczenie żywności mikroplastikiem i jego wpływ na zdrowie człowieka

**Piotr Kowalczyk[1], Kornelia Kadac-Czapska[2], Małgorzata Grembecka[2]**

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[2] Department of Bromatology, Faculty of Pharmacy, Medical University of Gdańsk, Poland

### Abstract

**Introduction**: Microplastic has become an ubiquitous contaminant in today's world. The main exposure route for humans is considered to be the gastrointestinal tract. The presence of microplastic has been confirmed in everyday food products such as water and other beverages, salt, sugar, honey, poultry, fish, fruits and vegetables. It has also been found in meconium, placenta, breastmilk and infant formula, which sparks concern among scientists. **Aim**: The aim of the study was to assess the current state of knowledge about microplastics and their potential health impact on humans. Microplastics are particles of synthetic polymers with a size range from 0.1 to 5000 µm. They can be manufactured in such sizes (primary microplastics – microbeads) or be a product of degradation of polymers through hydrolysis, photooxidation or mechanical impact. Most commonly found in foods are polyethylene terephthalate (PET), polyethylene (PE), polypropylene (PP), polystyrene (PS), polyvinyl chloride (PVC), polyamide (PA) and polycarbonate (PC). The toxicity of microplastic is related to the type of the polymer as well as its size. Particles below 150 µm can be absorbed, below 20 µm can penetrate organs, and below 2µm can cross the blood-brain barrier. Microplastic can cause oxidative stress and inflammatory response. Monomers like bisphenol A and styrene (of polycarbonate and polystyrene respectively) are endocrine-disrupting chemicals. Additives like phthalates impair human development and reproductive health. Microplastic can also adsorb bacteria, heavy metals and other chemical pollutants, further increasing its toxic potential.

### Citation

Kowalczyk P, Kadac-Czapska K, Grembecka M.Contamination of foods with microplastics and its impact on human health. Eur J Transl Clin Med. 2022;5(Suppl.2):119.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Nutrition assessment of senior athletes-basketball playersbased on the nutritional expert recommendations of the National Center for Nutritional Education

## Ocena żywienia sportowców – seniorów koszykówki w świetle zaleceń ekspertów do spraw żywienia Narodowego Centrum Edukacji Żywieniowej

**Katarzyna Dżochowska**

Department of Public Health and Social Medicine, Medical University of Gdańsk, Poland

## Abstract

The topic of nutrition is especially important nowadays in order to live longer in health. Athletes are a particularly important population that should eat properly, because they must meet the training, match and professional requirements. However, studies over several years have shown that physically active people do not meet nutritional guidelines and have deficiencies. Women are more likely to suffer from deficiencies, which means that they achieve worse sports results than men. The main goal of the thesis was to evaluate the knowledge of sportsmen-seniors of basketball about nutrition. In the literature on the subject in Polish, no example of a similar study was found. Materials and methods: The study intentionally selected 30 athletes-basketball seniors with an equal gender division. The source basis for the analysis were the responses of the surveyed athletes-basketball seniors to the questionnaire, which the respondents received electronically and the same way the completed questionnaires were returned to the author of the study. The research tool "NSKQ V2 87" was translated backwards / forwards and approved for use by the author, Ms Gina Trakman.The survey questionnaire consisted of three parts: (1) An introductory letter to the respondent; (2) Lists of 16 metric questions; (3) Lists of 35 questionnaire questions. The study population consisted of 30 senior athletes-basketball players selected in a purposeful manner with equal gender division. Participation in the study was voluntary. Independent variables were adopted in the study: gender, age, education and place of residence (city / village), and dependent variables: knowledge of the respondents. Research hypotheses were formulated about the level of knowledge of the respondents depending on demographic and social characteristics. Statistical data analysis was carried out using MS Office Excel in accordance with the knowledge and skills of the author of this paper. Results: The study was more often attended by people with secondary education and below (20 people out of 30 respondents), born before 2000 (19 people out of 30 respondents), living in the city (19 people out of 30 respondents). Due to the detailed knowledge about nutrition, a satisfactory result was obtained in terms of general knowledge about nutrition, and unsatisfactory in terms of knowledge about sports nutrition. Men, people with over secondary education, born before 2000, living in the city, had real knowledge slightly more often, which confirmed the adopted research hypotheses. Despite this, no significant statistical correlations were found between the level of knowledge of athletes and their demographic and social characteristics. Conclusions (implications for future research): 1) The interest of the National Center for Nutritional Education in team sports should be broadened. 2) Nutrition education for athletes should be introduced not only in clubs but also in schools, so that athletes can achieve better results in their sports. 3) You should strive to provide nutrition specialists or dietitians in each senior club.

## Citation

Dżochowska K. Nutrition assessment of senior athletes-basketball playersbased on the nutritional expert recommendations of the National Center for Nutritional Education. Eur J Transl Clin Med. 2022;5(Suppl.2):120.

**SESJA PLAKATOWA I**
***POSTER SESSION I***

# The use of naturally acquired eco-catalysts in common reactions in organic chemistry

## Wykorzystanie ekokatalizatorów pozyskiwanych naturalnie w powszechnych reakcjach w chemii organicznej

**Jakub Krajnik, Wiktor Wiśniewski, Małgorzata Wójtowicz, Mateusz Kowalik**

Stefan Żeromski High School No. 5, Gdańsk, Poland

### Abstract

In recent years, an increase in awareness of environmental pollution and toxicity of widely used substances, caused a wide discussion about green chemistry. One of its principles is to avoid using stoichiometrically occurring reactions and use only catalytic reagents focusing on them being very selective. Another fundamental rule focuses on choosing less hazardous substances to minimize the possibility of causing harm to human health and the environment. Due to herein presented stress on environmental safety, for many green chemistry is a very important field of research and one worth exploring. Eco-catalysts are the foundation of eco-friendly chemistry. These compounds are obtained from natural or otherwise easily accessible sources such as dried plant organs or clay, allowing for diverse pathways of preparing desired products. Commonly high yields, utility in various types of organic reactions, broad prospects of usage in a large-scale industry and most importantly, safety towards human health and the environment are the main advantages of exploitation of eco-catalysts. Synthesis, properties and the reactions catalyzed by them have been discussed and the future possibilities of development in this field were emphasized.

### Citation

Krajnik J, Wiśniewski W, Wójtowicz M, Kowalik M. The use of naturally acquired eco-catalysts in common reactions in organic chemistry. Eur J Transl Clin Med. 2022;5(Suppl.2):121.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Logopedics in Health Sciences

## Logopedia w naukach o zdrowiu

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### Abstract

Logopedics is an interdisciplinary field that deserves a place in the health sciences. It includes achievements in medicine, pedagogy, phonetics, neurolinguistics, vocal studies, etc. Speech therapists work in healthcare facilities that treat patients with aphasia and dysarthria (neurology and rehabilitation departments) and voice and hearing disorders (phoniatric and audiology departments). The studies in 2008-2011 proved the effectiveness of logopedics voice therapy in treating patients with hyperfunction dysphonia (Mielnik, 2011). Reports of S. Grabias (2011) indicate that logopedics is the science of biological determinants of language and language behaviors and describes and evaluates cognitive, language, and communication competence. It explains the natural causes that determine this state. Logopedics could help in developing neurosciences as well. Medical universities should teach students to work in interdisciplinary teams and include speech and language therapy in the curriculum in direct contact with the patients.

### Citation

Mielnik M. Logopedics in Health Sciences. Eur J Transl Clin Med. 2022;5(Suppl.2):122.

**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Statistical Study of the course of COVID-19 Pandemic

## Statystyczne opracowanie przebiegu pandemii COVID-19

**Damian Lech[1], Klaudia Szydłowska[1], Natalia Olszańska[1], Dawid Wyrzykowski[1], Viktoria Marcinik[1], Franciszek Deresz[1], Danuta Borowska[1], Weronika Łyzińska[1], Marta Jaskulak[2]**

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### Abstract

The pandemic of the SARS-CoV-2 virus, declared on 11th March 2020, has left large amounts of data. This study aims to gather and analyse statistical data and data concerning restrictions imposed during the epidemic in Poland and other European countries. The main objective is to extract factors such as immunisation coverage, applied restrictions which may have had a relevant impact on the course of the epidemic in certain European countries. The countries which will subsequently undergo analysis are France, Great Britain, Italy, Estonia, Slovenia, and Serbia. Data acquired for this study are sourced from official government records of each country as well as from both: European and independent organisations such as European Centre for Disease Prevention and Control, Our World in Data, COVID-19 Sledilnik, Sciensano. The framework of our research consisted of analyses conducted using tools such as Pearson correlation coefficient, linear regression with standardized beta coefficient. Further work may require more complicated methods of statistical analysis. IBM SPSS statistics 26 programme was used to carry out these analyses. Data originating from Poland revealed a few interesting dependencies such as a negative correlation of 0.445 magnitude between the number of people vaccinated and the number of occupied respirators by patients infected with SARS-COV-2. The median mortality between the 3rd, 4th and 5th wave relevantly declined, the values being 2.58%, 1.48%, 0.70% respectively. Between the 3rd and 4th wave an increase of several times was observed between the ratio of COVID-19 deaths among the vaccinated to all COVID-19 deaths. Gathered data will serve to expand knowledge of the dynamics and course of the COVID-19 pandemic. They may also be useful in constructing more effective action plans in the case of an outbreak of future epidemics caused by a pathogen of similar infectivity and mortality.

### Citation

Lech D, Szydłowska K, Olszańska N, et al. Statistical Study of the course of COVID-19 Pandemic. Eur J Transl Clin Med. 2022;5(Suppl.2):123.

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**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Treatment of vaginal hypoplasia in patients with MRKH syndrome

## Leczenie hipoplazji pochwy u pacjentek z zespołem MRKH

**Aleksandra Białek**

Student Scientific Circle of Obstetric Art Enthusiasts at the Obstetrics and Gynecology Nursing Department of the Medical University of Lublin, Poland

### Abstract

Mayer-Rokitansky-Küster-Hauser syndrome (MRKH) is the most common defect of the reproductive system diagnosed in girls. It involves the presence of hypoplasia or aplasia of the uterus and vagina. Some patients with the MRKH syndrome are eligible for non-surgical treatment of vaginal hypoplasia. The aim of this study is to evaluate the effectiveness of non-surgical treatment for vaginal hypoplasia in patients with MRKH syndrome based on analysis of the available literature. **Methods and materials**: Publications that were in the PubMed and MEDLINE databases which were limited to the primary non-surgical treatment of vaginal hypoplasia in patients with the MRKH syndrome from 2000 to 2021. The following keywords were used to identify the publications: "Mayer-Rokitansky-Küster-Hauser syndrome, vaginal dilation, vaginal hypoplasia, dilation of vagina procedure, psychological support, sexual function". 96 articles were found, of which 21 were included in the analysis. **Research**: The effectiveness of vaginal hypolasia treatment is evidenced by its functionality and the patient's satisfaction with her sexual life. The effectiveness of this method is estimated to be between 60% and 80% and this depends on the anatomical conditions, the treatment method used and the patient's motivation. The results show that vaginal phantomisation is easy to perform and safe for the patient. The Ingram method is the most preferred and accepted method for treating vaginal hypoplasia, with an estimated success rate of up to 85%. Recent studies indicate that the efficacy of the therapy is influenced by an individualised educational programme on vaginal phantomisation and the psychological support of the patient. **Conclusions**: The effectiveness of non-surgical treatment of vaginal hypoplasia depends on the anatomical conditions and the patient's mental and physical preparation for vaginal phantomisation.

### Citation

Białek A. Treatment of vaginal hypoplasia in patients with MRKH syndrome. Eur J Transl Clin Med. 2022;5(Suppl.2):124.

**SESJA PLAKATOWA I**
***POSTER SESSION I***

# Prevention of urinary incontinence in women of reproductive age

## Profilaktyka nietrzymania moczu u kobiet w wieku rozrodczym

**Sandra Paćkowska**

Student Scientific Circle of Obstetric Art Enthusiasts at the Obstetrics and Gynecology Nursing Department of the Medical University of Lublin, Poland

### Abstract

Urinary incontinence is a condition in which the lack of control over urination causes biopsychosocial problems in women at various times in their lives, including their reproductive years. **Aim**: The aim of the study is to analyze the factors influencing the prevention of stress urinary incontinence in women of reproductive age. **Material and method**: The publications in the PubMed and MEDLINE databases on the prevention of stress urinary incontinence from 2000 to 2022 were studied. The following keywords were used to identify the publications: "stress urinary incontinence, prevention, lifestyle, risk factors, pelvic floor muscle training". 145 articles were identified and after rejection based on keywords, abstracts and full text, 35 were included in the analysis. **Results**: Urinary incontinence affects approximately 25% of women of childbearing age. The authors of the analyzed studies indicate the need for urinary incontinence prophylaxis during pregnancy, during childbirth and the postpartum period. Prevention of urinary incontinence should include the preparation of pelvic floor muscles for labor, passive delivery, and exercise of the pelvic floor muscles after delivery. An important role in the effective prevention of urinary incontinence is also implementation of a proper lifestyle, elimination of risk factors (obesity, lifting heavy objects, inflammation of the urinary system), and protection of pelvic floor muscles during everyday activities. **Conclusions**: Actions in the prevention of stress urinary incontinence should be directed to the individual needs of patients, with particular emphasis on their lifestyle, risk factors and the possibility of effective exercise of the pelvic floor muscles.

### Citation

Paćkowska S. Prevention of urinary incontinence in women of reproductive age. Eur J Transl Clin Med. 2022;5(Suppl.2):125.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Effect of brewing on the antioxidant potential of yerba mate infusions

## Wpływ parzenia na potencjał antyoksydacyjny naparów yerba mate

**Katarzyna Nasierowska[2], Monika Drzewiecka[2], Katarzyna Baczewska[2], Paulina Myszkowska[2], Dominika Paczkowska[2], Patrycja Rudnik[2], Weronika Kwiatkowska[2], Justyna Ośko[1], Małgorzata Grembecka[1]**

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[2] Student Research Group at the Departament of Bromatology, Medical University of Gdańsk, Poland

### Abstract

*Ilex paraguariensis* St. Hilaire, commonly known as mate or yerba mate, is a plant native to South America. At present, it is mainly consumed by the inhabitants of South America, i.e., Argentina, Brazil, Paraguay and Uruguay. The water-poured dried mate can be consumed for most of the day by several additions of another portions of boiled water. The aim of our study was to estimate changes in the antioxidant potential of yerba mate infusions over three successive brewings. The material for the study consisted of yerba mate products from different South American countries. Samples of yerba mate were brewed three times to reflect the traditional way preparing this beverage. The infusions were filtered under reduced pressure and the resulting aqueous extracts were determined spectrophotometrically at 760 nm, using the Folin-Ciocâlteu reagent. It was found that the yerba mate infusions were characterized with varying antioxidant potentials in the range of 51.22-32.91 mg GAE/g. The highest antioxidant potential was estimated for the product from Uruguay amounting to 51.22, 21.86, 8.12 mg GAE/g in the following three brews. It was concluded that with each successive brewing, the total polyphenols' content of the sample decreased. However, the differences in the antioxidant potential of yerba mate infusions are smaller in the second and third brewing. In addition, it was observed that the total polyphenols' content of mate products from different geographical regions can be influenced by the degree of grinding of the dried product and the presence of stem pieces in addition to mate leaves.

### Citation

Nasierowska K, Drzewiecka M, Baczewska K, et al. Effect of brewing on the antioxidant potential of yerba mate infusions. Eur J Transl Clin Med. 2022;5(Suppl.2):126.

**SESJA PLAKATOWA II**
***POSTER SESSION II***

# How time has changed our perception of COVID-19 – evaluation of stressors and satisfaction of work and life among health providers

## Jak czas zmienił nasze postrzeganie COVID-19 – ocena stresorów i satysfakcji z pracy i życia wśród pracowników ochrony zdrowia

**Wanda Kwiatkowska[1], Anna Szablewska[1], Katarzyna Turoń[1], Agnieszka Czerwińska-Osipiak[1], Agata Zdun-Ryżewska[2], Jolanta Olszewska[2]**

[1] Faculty of Health Sciences, Institute of Nursing and Obstetrics, Department of Obstetrics and Gynecology Nursing, Medical University of Gdańsk, Poland
[2] Department of Research on the Quality of Life Medical, University of Gdańsk, Poland

## Abstract

**Introduction**: Unexpected changes in human life are referred to as psychosocial stressors. One of them is an adaptation disorder, which is particularly noticeable during the COVID-19 pandemic, but it will evolve with its duration. **Aim**: The aim of the study is to identify the most common stressors among medical staff during the COVID-19 pandemic, to highlight the differences between stressors at the beginning of the pandemic and now. **Methods and material**: The 2020 study was conducted online in a group of 361 people among medical staff working in health care centres and among 130 persons on 2022. The diagnostic survey method was selected for the study, using questionnaire: HADS-M scale – Chalder Fatigue Questionnaire-PL, sociodemographic data and questions about sterssors. **Results**: The most frequently mentioned stressful situation is the possibility of bringing the pathogen home from work (93) (an increase of 58% compared to the situation before the epidemic). The lack of a properly prepared workplace has also increased by 60%, as well as the possibility of concealing the fact that the patient is carrying an infectious disease. Lack of mutual support in the team is felt by 71% less. **Conclusion**: Based on a detailed analysis of the collected data from this year and comparing them with the data from 2020, we want to introduce specific solutions aimed at reducing the level of psychological disorders among health care workers related to the COVID-19 pandemic.

## Citation

Kwiatkowska W, Szablewska A, Turoń K, et al. How time has changed our perception of COVID-19 – evaluation of stressors and satisfaction of work and life among health providers. Eur J Transl Clin Med. 2022;5(Suppl.2):127.

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**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Anti-cancer effects of Trametes gibbosa extract

## Badanie antykancerogennych właściwości ekstraktu z wrośniaka garbatego (*Trametes gibbosa*)

**Barbara Siewert, Maciej Uranowski, Marta Polańska**

High School no 3, Gdynia, Poland

### Abstract

***Trametes gibbosa***, also referred to as lumpy bracket, is a fungus belonging to ***Polyporaceae*** with natural bioactive compounds that have aroused great interest for their potential benefits in human health. This pilot atudy aimed at investigating the anti-cancer effect of ***Trametes gibbosa*** extract against the HCT-116 cell line (human colorectal cancer cells). The extract was obtained via macerating dry biomass with 3 solvents: acetone, isopropyl alcohol and DCM and isolating established anticancer agents – polysaccharide complexes (PSK and PSP) from the extract, then being dissolved. Gas chromatography indicated the presence of potentially cytotoxic compounds (9-octadecanamide, pentadecanoic acid). Cellular toxicity was assessed by trypan blue staining determining the effect of 1- and 24-hour continuous exposure to the extract of varying concentrations: 100 µl/mL, 200 µl/mL, 500 µl/mL, 1000 µl/mL. Results have demonstrated cytotoxic effect in time and dose-dependent manners. Proposed cellular mechanisms behind the results are most likely apoptosis followed by secondary necrotic cell death as literature suggests although that remains unclear and requires further experiments. Within the course of consecutive studies, it can be established whether the extract or the compounds contained may hold promise for clinical use, e.g., for adjuvant therapy.

### Citation

Siewert B, Uranowski M, Polańska M. Anti-cancer effects of ***Trametes gibbosa*** extract. Eur J Transl Clin Med. 2022;5(Suppl.2):128.

**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Breast cancer – nurse's role and tasks in the therapeutic process – case report

## Nowotwór piersi – rola i zadania pielęgniarki w procesie terapeutycznym w oparciu o opis przypadku

**Edyta Ośmiałowska, Katarzyna Malewicz, Monika Nieckarz**

Department of Health Sciences, Department of Nursing and Midwifery, Division of Family and Paediatric Nursing, Wrocław Medical University, Poland

### Abstract

Breast cancer is the second most common cause of cancer deaths for Polish women. The reason of the disease's development is not known so far. However, there are risk factors that determine its progress. These include age, gender, medical history or lifestyle, among others. It is usually asymptomatic until side effects of the treatment appear. The applied therapy depends on the type and prognosis of the diagnosed neoplasm. The aim of this study was to present the nursing problems in a patient with breast cancer and the recommendations that the patient should receive during and after treatment. The research tools used in the nursing process are: taking patient history, analysis of medical documentation, as well as Barthel, VAS and AIS scales. The paper presents the process of nursing a 51-year-old woman diagnosed with breast cancer. The patient underwent chemotherapy, surgery and radiotherapy. Nursing problems mainly related to the side effects of treatment, particularly chemotherapy. In the presented case, the patient required especially support in difficult moments and knowledge of how to deal with the side effects of therapy. The nursing process and the presented conclusions show the importance of the nurse's participation in the therapeutic team caring for a patient with breast cancer. Not only nursing, but also educational role is of great importance.

### Citation

Ośmiałowska E, Malewicz K, Nieckarz M. Breast cancer – nurse's role and tasks in the therapeutic process – case report. Eur J Transl Clin Med. 2022;5(Suppl.2):129.

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AND CLINICAL MEDICINE 2022;5(Suppl.2)



**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Lipids changes in the development of the endometrial cancer

## Zmiany lipidowe w rozwoju raka błony śluzowej trzonu macicy

**Monika Czapiewska[1], Rozalia Tyszkiewicz[1], Agata Zwara[1], Agata Stańczak[1], Paulina Żygowska[1], Katarzyna Bukato[2], Anna Abacjew-Chmyłko[2], Dariusz G. Wydra[2], Adriana Mika[1]**

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[2] Department of Gynecology, Obstetrics and Neonatology, Medical University of Gdańsk, Poland

### Abstract

Cancer diseases are closely related with lipid metabolism alterations through which cancer cells acquire features that facilitate their growth, division and spread. High morbidity, increasing mortality and lack of screening tests incline to research aimed at understanding the molecular mechanisms underlying the development of endometrial cancer (C54 cancer) and the looking for new markers in diagnosis and treatment of this cancer. The aim of this pilot study was to determine the quantitative and qualitative composition of fatty acids (FA) in the cancer tissue of the endometrium in C54 patients. Gas chromatography-mass spectrometry (GC-MS) was used to analyze the fatty acid profile in tumor tissues and healthy endometrium (n = 37). The obtained results were statistically analyzed using paired T test using SigmaPlot. Statistically significant differences were considered at $p < 0.05$. The cancer tissue was characterized by a significantly increased level of MUFA (monounsaturated FA) ($p = 0.003$) and PUFA n-3 (polyunsaturated FA n-3) ($p < 0.001$). In addition, an increased desaturation index (18:1/18:0) was observed in the cancer tissue compared to healthy endometrium ($p < 0.001$) and increased level of VLCFA (very long-chain FA). The high level of MUFA is beneficial for cancer cells, because they are an energy source for the rapidly proliferating cells. Increased level of PUFA is a reservoir of ingredients of biological membranes in rapidly proliferating cells. In turn, increased desaturation index and decreased level of SFA may indicate increased expression of steroyl-CoA desaturase, and increased VLCFA are associated with increased expression of fatty acid elongase 1 in cancer cells.

### Citation

Czapiewska M, Tyszkiewicz R, Zwara A, et al. Lipids changes in the development of the endometrial cancer. Eur J Transl Clin Med. 2022;5(Suppl.2):130.

**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Alterations of fatty acids profile in tissues from breast cancer patients

## Zmiany w profilach kwasów tłuszczowych w tkankach pacjentek z rakiem piersi

**Oliwia Lange[1], Alicja Pakiet[1], Monika Czapiewska[2], Paweł Kabata[3], Michalina Ciosek[4], Adriana Mika[5]**

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[2] Department of Pharmaceutical Biochemistry, Medical University of Gdańsk, Poland
[3] Departament of Surgical Oncology, Medical University of Gdańsk, Poland
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[5] Department of Pharmaceutical Biochemistry, Medical University of Gdańsk, Poland

### Abstract

**Background**: The connection between cancer and changes in lipid metabolism has been repeatedly confirmed. The fatty acids (FAs) are essential building blocks of most lipid classes and determine their properties and function. Polyunsaturated FAs (PUFAs) are present in phospholipids in cell membranes and affect their fluidity, biophysical properties, and function of transmembrane proteins. Also, very long-chain FA (VLCFAs) are important for cell membrane as a component of sphingolipids and phospholipids. **Methods**: The aim of this study was to compare the FA profiles obtained from tumor tissue and adjacent healthy tissue of 54 breast cancer patients. We also analyzed FA profiles in breast fat from patients and healthy controls (n = 10). Lipids were extracted with the Folch method and derived to methyl esters. FA profiles were analyzed with gas chromatography-mass spectrometry. **Results**: The tumor tissue was characterized by an increased level of n-3 PUFAs ($p < 0.001$) and numerous n-6 PUFAs compared to healthy tissue. While fat tissue did not show many disturbances in PUFAs levels. In both tumor and fat tissue from breast cancer patients we detected elevated levels of VLCFAs: $p < 0.001$ (tumor vs healthy tissue) and $p = 0.029$ (patients' vs control breast fat). **Conclusion**: FA profile in breast cancer tumor tissue is severely disturbed. The FAs groups with the most altered levels were PUFAs and VLCFAs which are components of cell membranes. This may affect their fluidity, permeability and protein configuration. These changes can have implications for functioning and proliferation of cancer cells, serve as potential biomarkers or indicate possible therapeutic avenues.

### Citation

Lange O, Pakiet A, Czapiewska M, et al. Alterations of fatty acids profile in tissues from breast cancer patients. Eur J Transl Clin Med. 2022;5(Suppl.2):131.

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**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Awareness of women about the influence of breastfeeding on the risk of developing breast, ovarian or endometrial cancer

## Ocena poziomu wiedzy kobiet na temat wpływu karmienia piersią na ryzyko rozwoju raka piersi, jajnika oraz trzonu macicy

**Aleksandra Zaremba[1,2], Agnieszka Kruk[1], Renata Piotrkowska[1], Dominika Pawłowska[3]**

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## Abstract

**Introduction**: Cancer is the second cause of death in Poland. Each year, breast cancer is diagnosed in about 19 thousand of women, the endometrial cancer is diagnosed in 6 thousand of women and in about 4 thousand of women the ovarian cancer is diagnosed annually. Research has shown that promoting breastfeeding leads to the reduction of ovarian, endometrial and breast cancer incidence rates. **Material and methods**: 279 women were examined since January to April 2022. Diagnostic poll method was used through CAWI (computer assisted web interview) technique. The calculations were made by using IBM SPSS Statistics 25 software and the graphs were designed in Excel. Results. About 60% respondents have declared, that they have given birth to at least one child, in which 91.5% is or was breastfed. Only 46% of women knew about the impact of breastfeeding on ovarian, breast or endometrial cancer incidence. About 66% of respondents believed, that breastfeeding reduces the risk of breast cancer incidence. Only 50% of interviewees have confirmed the positive influence of lactation on reducing the incidence of ovarian cancer and only 47% when it comes to the endometrial cancer. Over 80% of respondents were not aware of breastfeeding being highlighted in The European Code Against Cancer or in National Oncological Strategy for the period 2020-2030. **Results:** The results of this research indicate a low awareness of women when it comes to the influence of breastfeeding on reducing the risk of breast, ovarian or endometrial cancer incidence. It is the main reason to take action to increase awareness about lactation being one of the factors decreasing risk of cancer development.

## Citation

Zaremba A, Kruk A, Piotrkowska R, Pawłowska D. Awareness of women about the influence of breastfeeding on the risk of developing breast, ovarian or endometrial cancer. Eur J Transl Clin Med. 2022;5(Suppl.2):132.

**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Professionalization of research data management at the research university

## Profesjonalizacja zarządzania danymi badawczymi na uczelni badawczej

**Agnieszka Milewska, Jakub Rusakow**

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### Abstract

Research data management is a vital part of the work of scientists, who increasingly realise that maintaining data at every stage of the scientific process significantly improves its quality. This is also recognised by institutions that fund research, e.g. the European Commission, the National Science Centre, the National Agency for Academic Exchange and the Foundation for Polish Science, all of which already require open access to the data from the projects they fund. Similar regulations may soon be introduced at the national level to cover all publicly funded research. Moreover, it is necessary to carefully plan all aspects of data management, from generation to release, in accordance with FAIR principles. Publishers also make requirements, often obligating scientists to share their datasets along with their research articles. In order to help researchers meet these requirements at the Medical University of Gdańsk, we are attempting to professionalize the research data management, which can be accomplished by streamlining this activity across the university. The development of appropriate procedures, the provision of the necessary technical support, and appropriate tools and infrastructures will not only provide solid and necessary support to researchers, but will also ensure that MUG data is disseminated in a secure and legitimate way. It will be searchable, accessible and interoperable. This will also make it easier to reuse data. At the Medical University of Gdańsk streamlining of this process has already begun. A large storage space for the secure data storing has been provided, the Open Science Team at the MUG Main Library was established to help researchers create proper data management plans, and finally, the repository, Polish Platform of Medical Resarch, is being developed to store the datasets.

### Citation

Milewska A, Rusakow J. Professionalization of research data management at the research university. Eur J Transl Clin Med. 2022;5(Suppl.2):133.

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**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Medical staff feedback regarding effectiveness of different types of protective masks during SARS-CoV-2 pandemic

## Opinie personelu medycznego na temat skuteczności różnych rodzajów maseczek ochronnych stosowanych podczas pandemii wirusa SARS-CoV-2

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### Abstract

**Introduction**: One of the most controversial and objectionable restrictions among the society caused by the SARS-CoV-2 virus pandemic was the requirement to wear protective masks. Since the outbreak of the pandemic, opinions on the effectiveness of masks were divided both at the governmental level and within the society. **Aim**: The purpose of this study was to find out the opinion of medical personnel on the effectiveness of using protective masks to reduce the risk of SARS-CoV-2 infection. **Materials and methods**: The study group included 150 people working as medical personnel and support staff. The research was carried out using the survey method diagnostic using the proprietary questionnaire that was made available on social networks and groups associating medical personnel. **Results and conclusions**: The vast majority of respondents (86.7%) were of the opinion that covering their mouth and nose with a mask protection allows to limit the transmission of the virus. The participants of the study showed a high level of knowledge in terms of the etiopathogenesis of SARS-CoV-2 virus, the effectiveness of various types of masks and principles use of personal protective equipment. The results of our research indicate that that the profession does not affect the opinion on the effectiveness of protective masks. Most of the respondents had negative opinions about the anti-mask movement that emerged during the pandemic. A statistically significant relationship between the positive was observed attitude to anti-mask slogans and a negative assessment of the effectiveness and legitimacy of wearing protective masks.

**Keywords:** protective masks; COVID-19; SARS-CoV-2 virus

### Citation

Ziębińska A, Kruk A, Piotrkowska R, Patelczyk A. Medical staff feedback regarding effectiveness of different types of protective masks during SARS-CoV-2 pandemic. Eur J Transl Clin Med. 2022;5(Suppl.2):134.

**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Difference in thr perceived speech signal quality assessment among monolingual and bilingual teenage students as well as young adults

## Różnica w ocenie postrzeganej jakości sygnałów mowy wśród jednojęzycznych i dwujęzycznych nastoletnich uczniów oraz młodych dorosłych

**Przemysław Falkowski-Gilski**

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### Abstract

The user perceived quality is a mixture of factors, including the background of an individual. The process of auditory perception is discussed in a wide variety of fields, ranging from arts, engineering, to medicine. Many studies examined the difference between musicians and non-musicians. Since musical training develops musical hearing and other various auditory capabilities, similar enhancements should be observable in case of bilingual people. On the other hand, hearing loss related with ageing and harmful working conditions is linked with the impairment of the active, non-linear mechanisms in the inner ear. This results in a decreased sensitivity to low-intensity stimuli, as well as supra-threshold deficits, including loss of frequency selectivity, loudness recruitment and impaired temporal processing. This paper examines the difference in perceived speech signal quality between teenage students from monolingual and bilingual classes as well as young adults. The subjective study was carried out on a group of 60 people, including 30 high school students aged 16-18 years old (with 15 individuals in the monolingual and bilingual class), as well as 30 university students aged 19-35 years old, considering three languages: English, German, and Polish. Results of this study may aid researchers as well as professionals active in the field of auditory perception, hearing loss related with ageing, and of course evaluation of various networks, services and mobile applications.

### Citation

Falkowski-Gilski P. Difference in thr perceived speech signal quality assessment among monolingual and bilingual teenage students as well as young adults. Eur J Transl Clin Med. 2022;5(Suppl.2):135.

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**SESJA PLAKATOWA II**
***POSTER SESSION II***

# Coping strategies for labor pain and pain experience of parturients – a pilot study

## Strategie radzenia sobie z bólem porodowym a odczuwanie bólu przez rodzące – badania pilotażowe

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### Abstract

The type and intensity of labor pain depend on the period of labor and are a result of the physiological processes associated with it. Excessive labor pain has adverse effects on both the parturient and the fetus. Reports from the literature indicate that the re-evaluation of the pain experience and the type of coping strategy presented by the person affect the experience of this ailment. The purpose of this study was to find out what coping strategies characterize parturients, whether this has an impact on the experience of pain and what methods of coping with pain they use. The study was conducted at the Independent Public Clinical Hospital No. 4 in Lublin. It included 108 women who gave birth by natural means. The study used a diagnostic survey method, using the Coping Strategies Questionnaire (CSQ), an author's survey questionnaire along with the NRS numerical scale. Based on the results of the study, it was found that the level of labor pain experienced during childbirth was related to the types of pain coping strategies used. The strongest relationship was found between the level of pain and the catastrophizing strategy. It was used more often when the higher the level of pain intensity was present. Higher levels of pain also correlated, but this time negatively, with the strategy of ignoring sensations. In addition, higher pain intensity caused the parturients to make less use of the strategy of declaring coping and the strategy of increased behavioral activity. The parturients were mostly familiar with non-pharmacological methods of coping with labor pain and used them. Most of them used the technique of conscious breathing.

### Citation

Doroszewska A, Jaśkiewicz A, Postępska W, et al. Coping strategies for labor pain and pain experience of parturients – a pilot study. Eur J Transl Clin Med. 2022;5(Suppl.2):136.

***SESJA 5: ŻYWIENIE, MIKROBIOTA A CHOROBY CYWILIZACYJNE***
***NUTRITION, MICROBIOTA AND DISEASES OF CIVILIZATION***

# Diet and intestinal microbiota

## Dieta a mikrobiom jelit

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### Abstract

A concept that is currently attracting a lot of interest from both the biological sciences and medicine is the microbiome. The human microbiome is made up of genes and genomes of saprophytic and commensal microorganisms and parasites inhabiting the human body, as well as their mutual dependencies and interactions. The microbiome creates a specific ecosystem located in specific places, such as the digestive tract and skin. The analysis and assessment of the interactions and relationships between the individual components of the human intestinal ecosystem is currently used as a tool to understand both the causes of the occurrence of many disease entities and the implementation of targeted treatment. The dominant groups of microorganisms inhabiting the digestive tract are *Firmicutes, Bacteroidetes, Proteobacteria, Actinobacteria* and *Fusobacteria*. The diversity of the intestinal microbiological composition depends, among others, on the pH of the environment, oxygen availability or diet. The increasing number of studies conducted allows us to better understand the influence of the intestinal microbiota on human metabolism and the coexistence of diseases such as obesity, type 2 diabetes, hypertension or lipid disorders. Nutritional modulation of the gut microbiota can affect the total energy intake, absorption, transport and storage of selected nutrients, which shapes the host's metabolism, ultimately promoting health or, conversely, promoting weight gain. A diet rich in fiber and polyphenols increases the diversity of the gut microbiota, which can be described as much healthier, while a high-fat Western diet greatly promotes dysbiosis. The key to health is the balance between symbiotic and potentially pathogenic microbial populations. Probiotic bacteria synthesize antibacterial, antimutagenic and immunosuppressive compounds, thus effectively protecting the body against pathogens, supporting the tightness of the intestinal barrier and treating metabolic disorders.

### Citation

Janczy A. Diet and intestinal microbiota. Eur J Transl Clin Med. Eur J Transl Clin Med. 2022;5(Suppl.2):137.

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**SESJA 7: ZDROWIE W GÓRACH WYSOKICH**
***HEALTH AT ALTITUDE***

# Adaptation to high altitude generates plasticity from the macrophysiology all the way to the mitochondria

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## Abstract

The oxygen transport triad involving the Pneumo-dynamic and Hemo-dynamic pumps and hemoglobin are the macrophysiological mechanisms of adaptation to high altitude. The pumps play the initial role of adaptation, but once hemoglobin increases to its optimal level, following the high altitude adaptation formula, both pumps gradually reduce their activity as an efficient energy-saving mechanism. All the oxygenation mechanisms must ensure adequate and sufficient oxygen transport to the mitochondria for life to continue. This generates plasticity in the heart, the lungs, the pulmonary circulation, and even mitochondrial plasticity. We refer to it as increased mitochondrial efficiency. One of the most significant threats to humans recently has been the COVID-19 Pandemic. We have successfully shown that the incidence and the case fatality rate are lower at high altitudes compared to sea level in 5 countries: Bolivia, Peru, Colombia, Ecuador, and Mexico. In the hypobaric chronic hypoxia environment, we feel safer at high altitude and have shown a greater chance of survival during the pandemic. We have previously affirmed that sea-level residents (compared to high-altitude dwellers) have poor tolerance to hypoxia. Nevertheless, adequate adaptation makes it possible to climb to the summit of Mt. Everest without oxygen. High-altitude life under chronic hypoxia is a healthy stimulus for the metabolism of living beings. It is like performing exercises that stimulate favorably not only the muscles but also the heart, the lungs, the kidneys, and all the body organs, along with favorable metabolic and genetic expressions to survive under low oxygen pressures. This has important implications even for space travel as in a space capsule and during life outside of our planet; the ambient should have the pressure of the high altitude cities of La Paz (3100-4100 m) and El Alto (4.100m). This would not only be an advantage for dealing with reduced barometric pressure changes when leaving the space capsule or another planet's habitat but also make humans much more resistant for survival in the hostile environment of space. In conclusion, life at a high altitude is optimal physically and mentally. It provides the high-altitude resident with a physiological advantage with respect to the sea-level resident that grants him an enhanced chance for survival and extended longevity.

## Citation

Zubieta-Calleja G, Zubieta-DeUrioste N. Adaptation to high altitude generates plasticity from the macrophysiology all the way to the mitochondria. Eur J Transl Clin Med. 2022;5(Suppl.2):138.

SESJA 7: ZDROWIE W GÓRACH WYSOKICH
*HEALTH AT ALTITUDE*

# Health at high altitude: Cerebral forms of mountain sickness

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## Abstract

Acute mountain sickness and high altitude cerebral edema are both neurological syndromes associated with rapid ascent to high altitude. Symptoms of acute mountain sickness include headache, nausea/vomiting, dizziness and fatigue, whereas symptoms of HACE are more serious such as altered levels of confusion, conscious and ataxia. Both syndromes are neurological in nature and the time course in symptom development is similar (AMS, 6-24 hours and HACE, 24-72 hours). Thus, there has long been a speculation that HACE is the end-stage of AMS. During the development of AMS, it is well established that hypoxia causes profound cerebral vasodilation due to extracranial and intracranial artery dilation, resulting in an elevation in intracranial blood volume. Over the time course of these experiments, an increase in brain water (edema) has rarely been noteworthy, but fluid shifts between brain cellular compartments are observed consistently. Thus, if extracranial or intracranial artery dilation activates the trigeminal vascular system, known as the 'vascular hypothesis', to cause high altitude headache, then a shared common pathology between AMS and HACE is unlikely. However, the increase in intracranial blood volume may predispose the brain to a modest elevation or transient fluctuations in intracranial pressure and the initial fluid shifts within white matter may influence the development vasogenic edema. In this situation, a heamo- and hydrodynamic cascade in the early stages of hypoxia could predispose individuals to HACE and support the continuum between both entities.

## Citation

Lawley J. Health at high altitude: Cerebral forms of mountain sickness. Eur J Transl Clin Med. 2022;5(Suppl.2):139.