

ORGANIZER



EUROPEAN LIFESTYLE  
MEDICINE ORGANIZATION

4<sup>TH</sup>

# EUROPEAN LIFESTYLE MEDICINE CONGRESS

Let Lifestyle be thy Medicine

OCTOBER  
7 - 9, 2022

CROWNE PLAZA ATHENS CITY CENTRE  
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ABSTRACT BOOK

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## Oral Presentations

### Multimodal LM Interventions



## OP1.01 | Workplace Health Promotion Through Lifestyle Interventions

**Prof Jelena Helene Cvejic**, Jelena Helene Cvejic and Darija Sazdanic,

*Department of Pharmacy Faculty of Medicine, University Novi Sad, Faculty of Medicine, University Novi Sad, Serbia*

**Introduction:** The modern way of life of the working population includes a high degree of physical inactivity, the consumption of low-quality food, high levels of stress and disturbed life balance. In addition, irregular working hours and transition to "online" work, are associated with reduced levels of overall well-being, sleep disturbance, increased health risks, metabolic syndrome and obesity as well as poorer eating habits among the working age population.

**Methods:** Three major search engines (GoogleScholar, PubMed, ScienceDirect) and combinations of keywords workplace, health, nutrition, wellness, lifestyle were used to identify peer reviewed scientific publications related to the subject. Collected information was critically assessed.

**Results:** The impact of nutrition and exercise on the health and productivity of employees, as well as on the economy, is recognized worldwide. The European Agency for Safety and Health at Work indicates that the promotion of health in the workplace can lead to improved health status and reduced absenteeism.

Workplace health promotion interventions have become more popular over time. Research confirms that short-interval physical exercises during the workday improve overall psycho-physical status. Furthermore, adequate workplace nutrition improves cognitive performance and employees' well-being, while the breathing technique interventions enhance mental balance and general health. Still, the success of these interventions depends not only on program structure and providers, but also on all other stakeholders. It has been suggested that participation rates are often below 50%, attracting mostly those adhering to healthier lifestyles which decreases the potential benefits of programs and the chance of impacting lifestyle change implementation. Various approaches to tackle this issue are currently under development.

**Conclusion:** In order for workplace lifestyle interventions to achieve their full benefit for employees' health, business performance and society, implementation strategies should include continuous education, a flexible approach as well as the use of various communication channels.

**Funding:** *This study has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 872370.*



## OP1.02 | 'Medicus Curat Natura Sanat'\* Include Nature Into 6 Pillars of Lifestyle Medicine to Support Immune System. \*Hippocrates of Kos (460–377 B.C.)

**Dr Agnieszka Pluto-Pradzynska**, Mr Grzegorz Dworacki

*Poznan University of Medical Sciences, Department of Pathomorphology and Clinical Immunology, Poland*

The beginning of the pandemic restrictions influenced on the lives of many people. The observed threat and helplessness of students prompted to pay more attention to methods of coping with stress and stimulating the immune system through relaxation and breathing techniques. The simple, centuries-old, easily accessible techniques, with known scientific grounds were presented in the 'Lifestyle and body immunity' classes in Immunology Course.

Our research on physical activity and yoga based on WHOQOL-BREF (n=714, yoga n=151) shows that both regular physical activity PA and yoga practices could improve QOL. However yoga group produced higher QOL scores than PA of other types. This outcome may be explained by impact of psychological aspects of yoga practice. Previous researches on yoga suggested that it helps in better concentration and communication between mind, emotions and body.

When raising awareness based on modern knowledge in medical science, it is worth to present natural and traditional elements, which can improve the efficiency and effectiveness of the immune system.

In 1973 Wiktor Dega, famous Polish orthopedist, pionier of rehabilitation based on physical activity, wrote: 'Detached from the natural environment, entangled in the ever faster pace of the modern, automated world, we lose our spiritual and physical contact with the eternal laws of nature and the rhythm of the universe. In this total chaos, we lose our sense of existence, serenity and good sleep, we are constantly accompanied by a feeling of frustration and depression. The only way out is to restore harmonious unity with the surrounding world and nature.' The quoted sentences remind us of the integrity of human with nature, the essence is not to disturb it, which is not easy nowadays.



## OP1.03 | Let Lifestyle as Key Be Thy Medicine for Increasing/Optimising, Functioning/Flowing, Duodenum/Triple-Heater for Perpetuum Mobile Positivum for Increasing/Optimising Global Health, Happiness, and Well-Being

### Mr Yannick Pots

*Global Health Association, Belgium*

**Background:** Health is State of Complete Physical, Mental and Social Well-Being. Every Human Being has Fundamental (:=Human) Right to Enjoy Highest Standard of Health. Protection (and also Prevention) and Promotion of Health is of Value to All, declared UN/WHO-Constitution-Preamble-Basic Principles 1-2,4. These Fundamental Principles are developed to 17 UN-Sustainable-Development-Goals (SDGs). The UN-2030 Agenda for SDGs (Resolution 70/1) Broadened Scope/Stimulated Global Action (between 2016-2030). UN/WHO-WFPHA(World Federation of Public Health Association) Global Charter for Public's Health should be read in Conjunction with SDGs.

**Aim:** Let Lifestyle As Key Be Thy Medicine For Increasing/Optimising Functioning/Flowing Duodenum/Triple-Heater For Perpetuum mobile positivum For Increasing/Optimising Global Health, Happiness, and Well-Being.

**Methods:** Lifestyle Across Life Cycle – i.e. from-Birth-until-Death – should fairly/mandatory be introduced, whereby Centres of Excellence should Monitor and Evaluate Health-Determinants, i.e. Personal-Condition Micro-Data based on: Weight/Height, Blood-Pressure, LDL/HDL-Cholesterol/Triglycerides, Glucose, Gamma-Glutamyl-Transpeptidase(≈alcohol), C-Reactive Protein(≈infection/inflammation) based on Digital/E-Health/Big Data-Sharing, i.e. from Primary & Preventive over Secondary to Tertiary Health Management; Where Lifestyle Medicine is/as Key: Diet, resp. Herb(al)/Plants Remedies, Social Support, Breath Exercises, Sanitation or Hygiene (External resp. Internal with Oil), Environment-Respect, Stress-Control, Yoga, Meditation, Sense-Giving and/resp. Sleep including Rest: All Concentrated/Focused on Increasing/Optimising Functioning/Flowing Duodenum/Triple-Heater [:=10eEnergy-Yang-(:=Warm-/Hollow-)Up-Meridian:=3e/3.5eChakra].

**Results:** Increasing/Optimising Functioning/Flowing Duodenum/Triple-Heater [:=10eE-YANG-(:=WARM-/HOLLOW-)UP-MRD:=3e/3.5eCH] as Basic/Fundamental-Source for Creating/Optimising Functioning/Flowing other Meridians: Gall-Bladder [:=11eE-YANG-DOWN-MRD:=2.5eCH], Liver [:=12eE-YIN-(:=COLD-/DENSE-)UP-MRD:=2.5eCH], Lungs [:=1eE-YIN-DOWN-MRD:=1e/1.5eCH], Colon [:=2eE-YANG-UP-MRD:=3eCH], Stomach [:=3eE-YANG-DOWN-MRD:=3eCH], Spleen [:=4eE-YIN-UP-MRD:=2.5eCH], Heart [:=5eE-YIN-DOWN-MRD:=4eCH:=2eHara], Small Intestin [:=6eE-YANG-UP-MRD:=3eCH], Water-Bladder [:=7eE-YANG-DOWN-MRD:=2.5eCH], Kidneys [:=8eE-YIN-UP-MRD:=2eCH], Pericardium [:=9eE-YIN-DOWN-MRD:=4eCH:=2eHA], Duodenum/Triple-Heater

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[:=10eE-YANG-UP-MRD:=3e/3.5eCH] For Perpetuum mobile positivum For Increasing/Optimising Global Health, Happiness, and Well-Being.

**Conclusions & Significance:** Let Lifestyle As Key Be Thy Medicine For Increasing/Optimising Functioning/Flowing Duodenum/Triple-Heater For Perpetuum mobile positivum For Increasing/Optimising Global Health, Happiness, and Well-Being.



## OP1.04 | Lifestyle Treatment of Hypertension: Compliance & Results on Blood Pressure, Endothelial and Vascular Function

**Dr Anastasios Vamvakis**<sup>1</sup>, Dr Maria G. Grammatikopoulou<sup>2</sup>, Dr. Antonios Lazaridis<sup>1</sup>, Dr. Eugenia Gkaliagkousi<sup>1</sup>

<sup>1</sup>Medical School, Aristotle University of Thessaloniki, Thessaloniki, Greece, <sup>2</sup>Medical School, University of Thessaly, Thessaly, Greece

**Introduction:** Raised blood pressure (BP) levels is the leading cause of death globally and Essential Hypertension (EH) is a major risk factor for cardiovascular events. Lifestyle modification is important in controlling BP levels in patients with EH. The aim of this parallel, randomized controlled study was to examine the effect of a 6-month intensive lifestyle treatment compared to the usual care in correlation with BP levels, endothelial and vascular function.

**Methods:** Newly diagnosed adults (n=91) with early stage 1 EH were enrolled. Primary outcomes included: office/24-hour BP (ABPM), central hemodynamics (cBP,PP), endothelial dysfunction (Asymmetric-Dimethylarginine/ADMA), sub-clinical atherosclerosis and carotid stiffness, biochemical and 24-h urine profile. Secondary outcomes included dietary analysis, anthropometry, physical activity and energy expenditure.

**Results:** Post-treatment SBP and DBP levels, were significantly improved compared to the baseline ( $p<0,001$ ), and to the control group ( $p<0,05$ ). Compared to the control group, intensive intervention participants demonstrated improved ADMA levels ( $p<0,001$ ), cIMT ( $p=0,046$ ),  $\beta$ -stiffness index ( $p=0,007$ ) and carotid PWV ( $p=0,007$ ). In the intensive treatment group, a significant reduction in the plasma levels of Total Cholesterol, Triglycerides and LDL, as well as in the urinary Na losses were noted compared to the baseline ( $p<0,001$ ). For secondary outcomes, somatometry measurements in the intervention group showed a reduction in all indices at the end of treatment, compare to baseline ( $p<0,001$ ). Nutritional analysis showed improved nutrition profile in the intensive treatment group at the end of the period. Multivariate analysis revealed that variations in the ADMA levels can be explained by the DII in 52% and changes in the MedDiet score can explain variations in the intensive treatment group for 24-h/day peripheral and central BP.

**Conclusions:** This study showed that intensive lifestyle modification can improve BP, arterial stiffness, sub-clinical atherosclerosis and endothelial dysfunction among patients with early stage I EH compared to the usual care.



## OP1.05 | The Perception of the Medical Students on Impact of a Lifestyle Medicine Curriculum

Prof Dr Kamer Mutafoğlu<sup>2</sup>, **Assoc. Prof Dr Ozden Gokdemir**<sup>1</sup>, Assistant Prof Dr Şermin Tükel<sup>4</sup>, Prof Dr Gönül Dinç Horasan<sup>3</sup>, Prof Dr Yusuf Hakan Abacıoğlu<sup>5</sup>

<sup>1</sup>Izmir University of Economics/Faculty of Medicine, Family Medicine, Turkey, <sup>2</sup>Izmir University of Economics/Faculty of Medicine, Pediatrics, Turkey, <sup>3</sup>Izmir University of Economics/Faculty of Medicine, Public Health, Turkey, <sup>4</sup>Izmir University of Economics/Faculty of Health Sciences, Physiotherapy and Rehabilitation, Turkey, <sup>5</sup>Izmir University of Economics? Faculty of Medicine, Microbiology, Turkey

**Introduction:** A "Lifestyle Medicine Course" has been delivered as a mandatory course to second-year medical students since 2018-19, which contains nutrition, physical activity, sleep, self-care, and addiction domains. The objective is to provide knowledge & skills to promote their patients' and their own health across these domains.

**Methods:** We assessed the students' perceived knowledge, skills, and attitudes toward lifestyle medicine domains on a personal and also professional level. We also aimed to define the impact of the training on their self-behavior change during the COVID 19 pandemic. An electronic anonymous survey was given to all students (n: 210) who participated in the course over 4 years.

**Results:** 62 % of the invited students participated in this study. Majority of students thought "lifestyle factors are important contributors to their own health, for their future patients' health, and public health (91,6%, 92,3%, 93,9 respectively). They believe the course helped them to gain knowledge and skills to consult their future patients for helping them to make positive lifestyle changes about their diet (90,8%), physical activity (93,1%), sleep (85,5%), stress management (81,7%), smoking and alcohol (92,4%), screen time (68,7%). Students think that the curriculum had a positive impact on their own lifestyle choices in general (82,4%), guiding family & friends for making healthy lifestyle choices (91,6%), and will help them for guiding their future patients (90,8%). When asked specifically about COVID 19 pandemic period, students agree that the course made a positive impact on their self-behavior about physical activity (66,4%), diet (65,6%), sleep (56,5%), and stress management (53,4%), and on limiting their screen time (35,1%).

**Discussion:** Majority of the students think that participating in the curriculum enhanced their knowledge and skills about lifestyle medicine on a personal and professional level, and it showed a positive impact on their lifestyle behaviors during the pandemic.

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## Oral Presentations

### Nutrition & Dietetics



## OP2.01 | The Relationship Between Breastfeeding Behaviors of Mothers with 0-3 Years Old Children, their Eating Behaviors and Weight Status: A Single-Center Study

Assistant Prof Dr Olgu Aygün<sup>2</sup>, Assistant Prof Dr Halime Seda Küçükerdem<sup>2</sup>, Dr Gizem Avcı Demirciler<sup>3</sup>, **Associate Prof Dr Ozden Gokdemir<sup>1</sup>**

<sup>1</sup>Izmir University of Economics / Faculty of Medicine, Family Medicine, Turkey, <sup>2</sup>Bozyaka Research and Training Hospital, Family Medicine, Turkey, <sup>3</sup>Bozyaka Research and Training Hospital, Pediatrics, Turkey

Breast milk is the most appropriate food for a newborn. Breast milk can meet all of the baby's fluid, energy, and nutritional needs on its own for the first six months. Breast milk is a complex liquid that contains many bioactive hormones and peptides that influence newborn growth and health.

However, many factors such as maternal age, marital status, education, race, socioeconomic status, cultural factors, number of births, number of children at home, and the presence of social support have been shown to influence women's breastfeeding decisions. Among the factors influencing the mother's decision, knowledge and practise were identified as the factors that can be changed. According to the same study, these factors are the most important determinants in determining the mother's feeding method for her baby.

The aim of this study is whether mothers' readiness for motherhood, feelings of competence, and the effects of mothers' eating behaviour on breastfeeding and formula feeding behaviours were examined.

**Method:** The researchers' questions based on the literature have been applied to mothers with babies aged 0-3 who applied/ will apply to the Family Healthcare Center, prospectively, using the 3-factor eating scale and short exercise test.

**Results:** Ongoing study



## OP2.02 | Adherence to Mediterranean Diet and Nutritional Status in Women with Breast Cancer: What is their Impact on Disease Progression and Recurrence-Free Patients' Survival?

**Ms Maria Mantzorou**<sup>1</sup>, Maria Tolia<sup>2</sup>, Antigoni Poultsidi<sup>3</sup>, Sousana K Papadopoulou<sup>4</sup>, Dimitrios Papandreou<sup>5</sup>, Georgios Antasouras<sup>1</sup>, Constantinos Giaginis<sup>1</sup>

<sup>1</sup>Department of Food Science and Nutrition, School of the Environment, University of the Aegean, Lemnos, Greece, <sup>2</sup>Department of Radiotherapy, Faculty of Medicine, School of Health Sciences, University of Crete, Herakleion, Crete, Greece, <sup>3</sup>Department of Surgery, School of Medicine, University of Thessaly, Larisa, Greece, <sup>4</sup>Department of Nutritional Sciences and Dietetics, School of Health Sciences, International Hellenic University, Thessaloniki, Greece, <sup>5</sup>Department of Health, College of Natural and Health Sciences, Zayed University, Abu Dhabi, Abu Dhabi, United Arab Emirates

**Introduction:** Few studies investigate the role of nutritional status in recurrence-free survival (RFS) in breast cancer patients, and even fewer the impact of adhering to the Mediterranean Diet (MD). The present study aims to assess the nutritional status, MD adherence, physical activity levels and health-related Quality of Life (HRQOL) in recently diagnosed women with breast cancer and evaluate these parameters regarding survival and time to recurrence.

**Methods:** 114 recently diagnosed women, aged 35-87 years, participated in the study. Tumour histopathology was reported, anthropometric indices were measured, while questionnaires regarding nutritional status, HRQOL and MD adherence were administered. Participants were followed up to 42 months.

**Results:** 74% of patients were overweight or obese, yet 4% of women were undernourished, and 28% were at risk of malnutrition. 41% of women had stage 1 cancer, 40% had stage 2 cancer, and the rest had stage 3 and 4 cancer. 51% of women had low MD adherence. 59,7% of women had low quality of life. 19,3% of patients reported recurrence within 42 months.

Low MD adherence was associated with worse nutritional status ( $p=0,0174$ ), and shorter RFS (Log-rank test,  $p=0,0008$ ). Worse nutritional status was associated with higher BMI ( $p<0,0001$ ), and shorter RFS (Log-rank test,  $p=0,0125$ ). Shorter RFS was also associated with higher BMI (Log-rank test,  $p=0,0093$ ), greater tumour size (Log-rank test,  $p=0,0093$ ), more advanced disease stage (Log-rank test,  $p=0,0087$ ) and lower HRQOL (Log-rank test,  $p=0,0327$ ), and physical activity levels (Log-rank test,  $p=0,0327$ ).

**Conclusions:** The impact of MD on RFS remains under investigation, and future interventional studies need to focus on the impact of MD adherence on survival and disease progression. Our study highlights the importance of the nutritional status on disease progression, and the need for nutritional assessment and intervention in breast cancer patients.



## OP2.03 | Caloric Restriction in the Management of Cancer: Lessons from in Vivo Studies and Clinical Trials

### **Dr Aggelos Margetis<sup>1</sup>**

<sup>1</sup>Athens Naval And Veterans Hospital, Athens, Greece

Caloric restriction in the management of cancer: lessons from in vivo studies and clinical trials

**Introduction:** Caloric restriction (CR) has been explored in the context of aging-related disorders and cancer prevention showing promising results. Less research has been conducted though in the field of full-blown cancer. Herein we review the impact of CR regimens in the progression of tumors as depicted in preclinical models and clinical trials.

**Methods:** Pubmed database was employed for the purpose of the study. Keywords “caloric restriction” and “calorie restriction” were used and 47 manuscripts were identified as relevant.

**Results:** CR was demonstrated to exert beneficial effects regarding tumor progression and metastatic spread in a variety of cancer models via interfering with multiple pathways including apoptosis, angiogenesis, growth factor signaling and anti-tumor immune responses.

**Discussion:** In my presentation, I discuss the importance of caloric restriction as a therapeutical modality as multiple studies establish the tumor-inhibiting properties of low-caloric diets and, indeed, these effects are generally not accompanied by major side effects. Additionally, some research highlights from my work focusing in caloric restriction in breast cancer mouse models are reviewed.

**Conclusion:** CR is an emerging and feasible nutritional intervention in the management of cancer which could be exploited in combination with standard-of-care and novel oncological treatments; however, more robust and solid clinical studies are needed so as to establish a safe clinical framework and apply a therapeutic individualized dietary scheme for every cancer patient.



## OP2.04 | Covid-19 Pandemic and Eating Habits Among Italian Adolescents: Results from the Online Survey COALESCENT (Change Among Italian Adolescents).

**Dr Barbara Zanini**<sup>1</sup>, Dr Loredana Covolo<sup>2</sup>, Dr Monica Marullo<sup>1</sup>, Dr Silvia Marconi<sup>1</sup>, Dr Gaia Viola<sup>1</sup>, Prof Umberto Gelatti<sup>2</sup>, Prof Roberto Maroldi<sup>2</sup>, Prof Nicola Latronico<sup>2</sup>, Prof Maurizio Castellano<sup>1</sup>

<sup>1</sup>University Of Brescia, Department of Clinical and Experimental Sciences, Italy, <sup>2</sup>University of Brescia, Department of Medical and Surgical Specialties, Italy

**Introduction:** Lockdown measures affected the eating habits and physical activity of people of all ages. Our study aimed to assess the extent of these changes in a sample of Italian adolescents, two years after the beginning of the pandemic.

**Methods:** In collaboration with the Territorial School Office, we submitted an online survey to high school students in the province of Brescia, investigating their gender, age, housing, parents' employment and education level, change in food consumption and in physical and screen activities, cooking skills, sleep duration and quality, emotional distress, smartphone addiction, nutrition knowledge. According to changes in food consumption, we assigned an eating habit index (EHI) score from -31 to 38, reflecting respectively a worsening or an improvement in diet quality, compared with the period before the pandemic.

**Results:** We collected 1686 questionnaires, 47% male, 50% female, mean age  $16 \pm 1.5$  y.o. Among respondents, 63% did not perceive a substantial change in their diet, 48% improved their physical activity level, 38% declared an increase in body weight, 81% an improvement in cooking skills and 46% were smartphone addicted. The median EHI score was 3 (ranging from -20 to 33). According to a multivariate logistic analysis, EHI score  $>9$  (75<sup>o</sup> percentile value) was associated with female gender (OR 1.79,  $p < 0.0001$ ), higher parents' education level (OR 1.31,  $p < 0.0001$ ), being physically active (OR 1.33,  $p = 0.04$ ), better nutrition knowledge (OR 1.4,  $p = 0.01$ ), no alcohol consumption (OR 1.45,  $p = 0.006$ ), responsibility for food preparation (1.64,  $p = 0.02$ ), better cooking skills (OR 1.61,  $p < 0.0001$ ), less ultra-processed food consumption (OR 3.04,  $p < 0.0001$ ), reduction in body weight (OR 2.26,  $p < 0.0001$ ), no smartphone addiction (OR 1.41,  $p = 0.007$ ).

**Conclusions:** Considering the profound impact of lifestyle on health, our results could be relevant to understand how to promote good practices among young people, helping them to stay healthy after the COVID-19 pandemic.

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## Oral Presentations

### Mental Health



## OP3.01 | Mental Health Continuum in Adolescents and Young Adults, from Crisis & Disease to Flow and Performance

**Dr. Adriana Antohe**<sup>1</sup>, Mr Cadîr Selim Halil<sup>2</sup>, Mr Daniel Karni<sup>3</sup>, Mrs Andreea Oprica<sup>4</sup>

<sup>1</sup>Clinica Dr Adriana Antohe Srl, Bucureşti 63, Romania, <sup>2</sup>International Computer High School , Informatics, Romania, <sup>3</sup>European University Cyprus, School of Medicine, Cyprus, <sup>4</sup>University of Medicine and Pharmacy, Dental Medicine, Romania

**Introduction:** Mental health has a huge value and is an important part of our well-being. Mental health is determined by a complex number of variables: individual and social challenges and vulnerabilities.

Mostly after the pandemic period, it is important and urgent to take action in diagnosing and solving these. There are a lot of strategies, neither expensive, nor difficult, but effective and feasible for promoting, protecting and restoring mental health.

WHO measures the impact of poor mental health in adolescent and the figures are terrifying: one in seven 10-19-years-olds experience a mental disorder (13% of the global burden of disease, depression, anxiety and behavioral disorders are leading causes of illness and disability) and suicide is the fourth leading cause of death among 15-19-years-olds. Furthermore, the consequences of failing to solve mental health problems in adolescents extends to adulthood, with impact in physical and mental health, limiting the opportunities to live fulfilling lives as adults.

We all interact with adolescent and young adults and have opportunities to help and inspire them manage challenging situations and difficult encounters.

This session will highlight the importance of recognizing and managing stress in "crisis and disease", so that we no longer feel the sequelae of chronic stress and succeed to live in the "flow state", with optimal functional abilities to perform.

**Methods:** An engaging lecture session on key essential components of the whole spectrum of mental health possibilities from stress management to flow state and excellence.

**Results:** This session will provide the audience with an overview of how to improve their own practice.

**Conclusions:** Pandemic years have left us vulnerable as adults but also as adolescent and young adults, less experienced in managing stressful situations.

Identifying the problems could give insight to manage stress and guide future generation to excellence for they deserve that.



# Oral Presentations

## Sleep



## OP3.02 | Risk Assessment of Sleep Apnea Syndrome in Obese People with Stop-Bang Questionnaire

**Dr. Ines Bartolacci**

*Clinica Reina Fabiola, Cordoba, Argentina*

**Introduction** Obstructive Sleep Apnoea Syndrome (OSAS) is a common medical condition affecting 2-26% of the population. OSAS is underestimated by health professionals and patients, who do not usually ask about sleep quality. This work aimed to test the performance of the STOP-Bang questionnaire for the suspicion-diagnosis of obstructive sleep apnea. It is one of the most widely accepted screening tools for OSA.

**Objectives:** To estimate the risk of suffering from OSAS using the STOP BANG Questionnaire to guide the patient, if positive, to consult a professional to further advance the diagnosis, to recognise obesity as a risk factor for OSA. Recognition of OSAS among physicians and patients with obesity. METHODS 67 patients were recruited.

**Inclusion criteria:** 18 years of age, literate, obesity: BMI  $\geq 30$  kg/m<sup>2</sup> .

**Exclusion criteria:** patients diagnosed with OSA, patients with chronic obstructive pulmonary disease, congestive heart failure or neuromuscular disease. Patients received the STOP BANG questionnaire via email or WhatsApp in Google Forms format. The results are returned to the email that sent them.

The analyses were carried out with the R-Medic programme,

**Results:** the value corresponding to the OSA score was estimated, based on the 8 items measured. We found ,Apnoea 19,3%, snore 49,25%,tired 59,70%,Hypertension 37,31%, neck circ. 29,85 % BMI >35 kgm<sup>2</sup> 49.25%, male 14,93% , age >50 years 49,25 %.

**Conclusion:** STOP BANG Questionnaire is a useful and easily accessible tool for detecting the risk of OSAS, in order to know when to request a polysomnography study, a standard study that would confirm the diagnosis and the treatment.

We conclude that obesity, BMI greater than 30 kg/m<sup>2</sup>, the presence of snoring at night, age over 50 years, male gender, and neck circumference greater than 40 cm, suggest an increased risk of suffering from OSAS, which has significant morbidity and can cause daytime sleepiness, neurocognitive deficits, and cardiopulmonary conditions.

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## Oral Presentations

### Behavior Change



### OP3.03 | A Digitally Enabled Lifestyle Intervention Delivers Positive Changes in Nutrition, Activity, Sleep and Stress Management Health Behaviors

**Mr José Castela Forte**<sup>1,2</sup>, Mr Rahul Gannamani<sup>1,3</sup>, Ms. Pytrik Folkertsma<sup>1,4</sup>, Dr Sipko van Dam<sup>1,4</sup>, Prof. Dr. Bruce Wolffenbuttel<sup>4</sup>

<sup>1</sup>Ancora Health B.V., Health Science and Engagement, The Netherlands, <sup>2</sup>University Medical Centre Groningen, Clinical Pharmacy and Pharmacology, The Netherlands, <sup>3</sup>University Medical Centre Groningen, Neurology, The Netherlands, <sup>4</sup>University Medical Centre Groningen, Endocrinology, The Netherlands

**Introduction:** Lifestyle habits such as consuming a balanced diet, exercising, and getting sufficient sleep are essential for preventing chronic diseases. Yet, many individuals fail to follow basic health behaviors. Evidence suggests digital lifestyle interventions may be effective in delivering behavioral change. Yet, there is a shortage of interventions based on a solid theoretical framework which deliver measurable behavioral change.

**Methods:** We surveyed 64 volunteers who participated in a digitally-enabled, preventive health program at Ancora Health. Participants followed a 16-week blended, web-based lifestyle coaching program rooted in the Fogg Behaviour Model, focused on nutrition, physical activity, and other health behaviors. Participants were asked to report the days in a typical week before and after the program in which they practiced 11 health behaviors.

**Results:** Sixty percent of participants reported an improvement in dietary health behaviors, with an average increase from 5 to 6 days consciously choosing/preparing healthy meals, and an increase of 1.5 days per week limiting unhealthy foods and controlling portion sizes ( $P < 0.001$ ). Similarly, 60% of participants reported an increase in days performing low-to-moderate intensity activity, with an average increase of 2 days per week ( $P < 0.001$ ). In addition, 42% of participants reported an increase in heart rate zone-guided physical activity with an average of 1 additional day per week of doing so, and 37.5% of individuals did more bone- and muscle-strengthening activities ( $P < 0.001$ ). Participants also reported getting 1 extra day of better and/or more sleep, with 28% reporting an improvement; similarly, 47% of individuals reported using stress management techniques more often ( $P < 0.001$ ). Lastly, 47% also reported the intervention motivated them to search for and consume content about health and wellbeing ( $P < 0.001$ ).

**Conclusion:** Individuals participating in this behavioral change program significantly improved several essential health behaviors across nutrition, physical activity, sleep and stress management.



## OP3.05 | Cooking Skills, Nutrition Knowledge and Eating Behaviours Among Italian Adolescents During COVID-19 Pandemic: Results from the Online Survey COALESCENT (Change Among Italian Adolescents)

**Dr Silvia Marconi**<sup>1</sup>, Dr Loredana Covolo<sup>2</sup>, Dr Monica Marullo<sup>1</sup>, Dr Barbara Zanini<sup>1</sup>, Dr Gaia Claudia Viviana Viola<sup>1</sup>, Prof Umberto Gelatti<sup>2</sup>, Prof Roberto Maroldi<sup>2</sup>, Prof Nicola Latronico<sup>2</sup>, Prof Maurizio Castellano<sup>1</sup>

<sup>1</sup>University of Brescia, Clinical and Experimental Sciences Department, Italy, <sup>2</sup>University of Brescia, Department of Medical and Surgical Specialities, Radiological Sciences and Public Health, Italy

**Introduction:** Recent studies suggest that home cooking and meal sharing play a key role in promoting healthy development in adolescents. Lockdown restrictions during the COVID-19 pandemic affected lifestyle worldwide. This study aimed to investigate change in eating habits, including cooking skills, in a sample of Italian adolescents during the pandemic, compared to the previous period.

**Methods:** An online survey was submitted to students attending high schools in a province of North Italy. According to changes in food consumption, we assigned an eating habit index (EHI) score ranging from -31 to 38, reflecting respectively a worsening or an improvement in diet quality, compared to the period before the pandemic. We divided respondents into three groups considering cooking ability and number of meals able to prepare: high, medium and low cooking skills.

**Results:** We recruited 1686 participants, of whom 50% were female, aged  $16 \pm 1.5$  y.o. The median EHI score was 3 (from -20 to 33). Overall, 58% declared to slightly improve their cooking skills, and 22% improved them a lot. EHI mean score was statistically higher among adolescents who highly improved their cooking ability during the pandemic compared to those reporting no or slightly improvement (5.2 vs. 3.1,  $p=0.0001$ ). According to a multivariate logistic analysis, high cooking skills were associated with female gender (OR 1.40,  $p=0.007$ ), an EHI score  $>9$  (75<sup>o</sup> percentile value) (OR 1.42  $p=0.01$ ), better nutrition knowledge (OR 1.47  $p=0.003$ ) and lower ultra-processed foods consumption (OR 1.44  $p=0.01$ ).

**Conclusions:** Overall, our results suggest that COVID-19 pandemic positively influenced cooking skills among adolescents. Good cooking abilities were associated with better nutrition knowledge and healthier eating habits, including a lower consumption of ultra-processed foods. Projects aimed to improve culinary skills in adolescents could be of value in promoting a healthier lifestyle.

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## Oral Presentations

### Physical Activity



## OP3.04 | A Systematic Review and Meta-Analysis on the Combined Effects of Physical Exercise on Cortisol and Sleep in Adults

**Mr Len De Nys<sup>1</sup>**, dr Gemma Ryde<sup>2</sup>, dr Jenni Connelly<sup>1</sup>, Prof Anna Whittaker<sup>1</sup>, Ms Esther Ofosu<sup>1</sup>, Ms Kerry Anderson<sup>1</sup>

<sup>1</sup>University of Stirling, Faculty of Health Sciences and Sport, Scotland, <sup>2</sup>University of Glasgow, Institute of Cardiovascular and Medical Sciences, Scotland

Managing stress and having good quality sleep is essential for health, and both factors seem to be affected by physical activity. Although there is an established bidirectional relationship between stress and sleep, remarkably few studies have been designed to examine the effects of physical activity on cortisol, a biomarker for stress, and sleep.

Research is particularly scarce in older people. Therefore, a systematic review was conducted following the PRISMA guidelines. Original, peer-reviewed records of intervention studies such as randomized controlled trials (RCTs) and non-RCTs with relevant control groups were eligible for inclusion.

The Participant, Intervention, Comparison, Outcome (PICO) characteristics were (1) adults or older adults (2) physical activity programmes of any duration, (3) controls receiving no intervention or controls included in a different programme, (4) cortisol measurement, and subjective or objective measures of sleep. Thus, ten original studies with low-to-moderate risk of bias were included.

Findings from this review indicated with moderate- and low-certainty evidence, respectively, that physical activity was an effective strategy for lowering cortisol levels (SMD [95% CI] = -0.37 [-0.52, -0.21]  $p < 0.001$ ) and improving sleep quality (SMD [95% CI] = -0.30 [-0.56, -0.04],  $p = 0.02$ ). Caution is needed to generalize these findings to the general population, as included trials included participants predominantly with breast cancer, included few males and no older adults.

To conclude, it seems that cortisol regulation and sleep quality are intertwined and that physical activity programmes could improve both in several ways. Further, physical activity may benefit adults with current poor (mental) health states the most.

Few intervention studies have examined the interrelationship between cortisol and sleep outcomes or were conducted in older adults, indicating fruitful lines of future research.

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## Oral Presentations

Technological Innovations in LM



## OP4.01 | Supportive Tools of Lifestyle Medicine in Rehabilitation and Treatment Protocols after Traumas, Injuries and Chronic Inflammation

**Dr. Elena Gopchuk**

*Women's Health Care Studio, Cyprus*

People are constantly exposed to a complex mixture of cosmic, geo- and heliophysical influences, which all have a significant impact on their health. Lifestyle medicine in rehabilitation and treatment processes after trauma and injuries can be successfully combined with modern technologies, easily available for patient at home or office.

Sensonica technologies open up new horizons in health and wellness care, offers devices enhanced in detecting of low and very low-intensity radiation and wellness devices, using non-ionized radiation for improving person's well-being.

Sensonica has invented, developed and patented a new method for evaluating the effects of radiation on living organisms.

Vega is designed and manufactured using the most modern technologies. Wellness effects can potentially help to fight a wide range of diseases and we are focusing now on the connective tissue problems like post-traumas, inflammations of joints and muscles, body issues that need comfortable rehabilitation. With Vega treatment is pleasure that can be done at the own phase and wherever person is. Vega can provide as well preventive support before the hard clinical symptoms appears. Sensonica Vega device is a portable non-invasive non-ionizing directional radiation device based on the Herzenstein effect and used to improve the condition of the cellular and tissue structures of the body.

Vega is intended for personal use by the consumer in the prevention, treatment and rehabilitation at home, office and hospital conditions. Vega influences the processes occurring in the connective tissue, which makes it possible to stop inflammatory reactions, both acute and chronic, which leads to a therapeutic effect and elimination of inflammation symptoms (pain, swelling, hyperemia, dysfunction, etc).

The design of the device and its generation are patented. Inside the compact housing is a broadband Herzenstein generator that consists of a resonator, an extremely powerful magnetic system and a coherent gravitational radiation generator radiation source, based on a pair of high-power laser emitters. The non-ionizing radiation power of our device is about 10 times lower than the average level of natural cosmic radiation that sensors detecting, Vega allows you to choose the shape and frequency of the signal generated with almost total precision.

At presentation Vega effects as a supportive tool of lifestyle medicine in rehabilitation and treatment protocols after traumas, injuries and chronic inflammations will be discussed.



## OP4.04 | Precision Prevention: A Novel Academic Lifestyle Medicine Program Combining Proteomics and Genomics for Cardiometabolic and Cancer Risk Stratification and Reduction

### **Dr Nicole Sirofin**<sup>1,2</sup>

<sup>1</sup>Cleveland Clinic Abu Dhabi, Department of Preventive Medicine, United Arab Emirates, <sup>2</sup>Cleveland Clinic Lerner College of Medicine, Department of Medicine, United States of America

**Introduction:** Cardiovascular disease (CVD) and cancer, both leading causes of deaths globally, have shared mediating pathways including diet, body fat distribution, increased inflammation, and insulin resistance (Koene et al, *Circulation* 2016). Proteins represent inherited risk and are modified by current disease states and lifestyle choices. Few academic prevention programs have incorporated proteomics with genomics to stratify patients for cardiometabolic and cancer risk.

**Methods:** The Precision Prevention Program is a novel model of care at an academic medical center, Cleveland Clinic Abu Dhabi, which combines proteomics and genomics to identify patients at high risk for cardiometabolic disease and cancer and a personalized lifestyle medicine program to address that risk. At baseline, a Lifestyle Medicine (LM) trained physician performs a LM history, orders a proteomics test which identifies 10 markers of cardiometabolic health including 4-year risk of CVD event, liver fat, glucose intolerance, alcohol impact, visceral body fat and percentage, lean muscle mass, resting energy rate, and VO<sub>2</sub> max, (Williams et al, *Nature Med* 2019) and a lipoprofile panel. The patients are offered a genetic counsellor and one of two genetic panels, depending on personal or family history of cancer.

**Results:** Based on the results, the patient is offered a multidisciplinary LM program with the LM physician, dietician, and exercise specialist for a 3 or 6 month program. The lipoprofile is repeated at the end of the LM program to evaluate the improvement in cardiometabolic health. All high risk cancer genes detected are referred to the Lifestyle Medicine program and high risk cancer clinic.

**Discussion:** This model of care shows a successful incorporation of proteomics with genomics to better risk stratify patients for cardiovascular disease and cancer with a multidisciplinary academic Lifestyle Medicine team. This may serve as an example for other Lifestyle Medicine programs interested in incorporating advanced diagnostic testing.



## OP4.05 | Missed connections: The Undervalued Significance of High-Definition Medicine in Personalized Health Preservation

**Dr Bence Verpeléti**<sup>1</sup>, Dr Dome Cseh<sup>1</sup>, Ildiko Thibodeau<sup>1</sup>, Eszter Toth<sup>1</sup>, Gabor Endre<sup>1</sup>, Dr Richard Kiss<sup>1,2</sup>

<sup>1</sup>Medipredict, Hungary, <sup>2</sup>Semmelweis University, Department of Pathology and Experimental Cancer Research, Hungary

**Introduction:** Multiphasic individual health checkups (commonly referred to as executive or manager health screenings) are often stereotyped as 'comprehensive' in contrast to the growing body of knowledge about human physiology that confronts novel system complexity levels: e.g. genetic health risks, gut microbiome composition, or sub-optimal metabolic states indicated by metabolite pathway disruptions. An integrated approach to health assessment enables early detection of health conditions and disease predispositions, individual risk factors, and sub-optimal body functions through jointly evaluating medical and omics (genomics, gut microbiome analysis, and metabolomics) tests before the onset of symptoms or clinical biomarker abnormalities. Our aim was to demonstrate the feasibility of such an integrated approach.

**Methods:** High-definition health assessments of 10 participants (5 female, 5 male) with a median age of 46.5 years (M= 53.7, range=25-86 years) were conducted, then analyzed. Detailed medical imaging, physical, instrumental, and laboratory examinations were done in combination with whole-genome sequencing, gut microbiome metagenomic sequencing, and custom blood plasma metabolomics tests.

**Results:** The qualitative comparison of our integrative approach to a more traditional health assessment methodology highlighted the limitations of the latter: participating in an executive health screening alone resulted in an average of 5.5 new medical diagnoses (SD=1.8), excluding additional 2.6 diagnoses (SD=1.5) provided by whole-body magnetic resonance imaging (WB-MRI) and 4.6 health risks (SD=1.5) indicated by multi-omics examinations. Furthermore, the integration of omics test results was able to identify subclinical alterations and shift the priorities and focus of intervention possibilities from additional medical examinations and specialist consultations to an emphasis on lifestyle change.

**Conclusion:** The integration of omics and traditional medical studies following the logic of network medicine may be the key to a new dimension of health preservation.

**Keywords:** genome, microbiome, metabolome, prediction, prevention, longevity

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## Oral Presentations

### Public Health



## OP4.02 | Community Measures Based on Lifestyle Medicine

**Dr. Roxanne Marinescu<sup>1, 2, 3</sup>**

*<sup>1</sup>Christiana School of Nursing, Bucharest, Romania, <sup>2</sup>UNC Charlotte School of Nursing, Charlotte, United States, <sup>3</sup>Winston Salem School of Nursing, Salem, United States*

The presentation will discuss about the different measures in which we can sustain lifestyle medicine in the community, such as creating community spaces, designing community programs and community centers, doing community education, exploring financial resources and legislative support.

All these measures will support lifestyle medicine pillars and positive psychology principles. : healthy predominant plant based nutrition, regular physical activity, healthy sleep, emotional and psychological wellbeing, meaningful human connectedness and positive social relationships, and being protected against addictive behaviors and toxic substances..

We will bring main concepts about lifestyle medicine based community spaces for a healthy lifestyle, such as unpolluted, green trails for walking, running, strolling, people with disability, community wellness centers/ gyms, at accessible cost, community fitness and mental relaxation classes, the design of the natural parks to include trails for disabled and beginners, protecting the community space against public smoking, air and noise pollution, the necessity of funding and designing community programs for healthy living in all corners of the country, and for everyone, at a not competitive level but beginner, including the handicapped, disabled, those with a condition, pregnant women, seniors, community health education to be started in schools 1-12 ,and continue in colleges, theoretically and practically, covering all pillars of healthy living, questionnaires on healthy routines and healthy living consultations to be offered in the clinical visits, and covered by all insurances, finding funding for permanent /renewable community healthy living programs, healthy living to be designed as a department in each primary of the country, all chronic patients ( no matter of their condition) and pregnant women to be offered a holistic multidimensional care, based on all pillars of health and wellness, and seen by experts in all areas of healthy living, covering diet and nutrition, physical activity, sleep, stress and relaxation, social relationships and success, addictions. Is important that chronic patients be supported in education on health as well as in motivation to initiate, pursue and maintain healthy routines that will support them in reversing their conditions.

Healthcare personnel to access workshops on pillars of healthy living as well as motivational interviewing that helps with behavior change and to initiate their own personal healthy routines, in order to be more confident, persistent and effective at recommending them to their patients. We will touch on the impact that digital applications on healthy living for chronic patients can have, with group visits for the management of diseases.

# 4<sup>TH</sup> EUROPEAN LIFESTYLE MEDICINE CONGRESS

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OCTOBER  
7 - 9, 2022

CROWNE PLAZA ATHENS CITY CENTRE  
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Lastly, we will mention the importance of telemedicine, community nurses and healthcare personnel to serve rural and remote areas and of digital applications and mobile labs and other medical investigative services.



## OP4.03 | “We Want People Like You to Talk to Us About Vaccinations”. Barriers & Facilitators to Vaccination Among Migrants in the State of Baden Württemberg, Germany: A Qualitative Study

**Dr Bassante Shehata**<sup>1</sup>, Dr. Tobias Eckert, Dr. Andreas Deckert, Dr. Claudia Denking, Engin Tercan, Dr. Till Bärnighausen, Kate Bärnighausen.

<sup>1</sup>Heidelberg Global Health Institute, Heidelberg, Germany

Despite the multiple Covid-19 vaccination centers, information points, and that the Covid-19 vaccination is available for free, vaccine uptake in migrant populations living in Germany remains sub-optimal.

We used focus group discussions (7) and in-depth interviews (10) with adult migrants (>18 years), residing in Germany recruited via local health and migrant authorities in the state of Baden-Württemberg.

Data were analyzed inductively using a thematic analysis approach and managed using NVivo Pro 12. Participants described fear, anxiety, lack of trust in authorities and discrimination as barriers to vaccinations. The role and opinions of family was important in the decision-making process of being vaccinated across all migrant nationalities.

Facilitators identified were the ease of access of vaccinations at language schools and the reassuring feelings and general well-being associated with being protected by the vaccination. Migrants' opinions regarding the Covid-19 vaccination vary but the struggle to access Covid vaccination information that is from respected sources and tailored to their social and cultural needs is consistent across all migrant nationalities.

Future vaccine outreach for migrants could include tailored video resources, public talks, and one-on-one meetings with medical professionals sensitive to the needs of migrant populations.



## Poster Presentations

### Multimodal LM Interventions



## PP01 | Intensive Lifestyle Interventions for Cardiometabolic Risk Reduction: Predictors of 1y-Adherence.

PhD Anna Söderholm<sup>3</sup>, Dr Fanny Ekman<sup>1</sup>, Dr Frida Lindberg<sup>1</sup>, Dr Joakim Lindbäck<sup>1</sup>, PhD Johan Nilsson Sommar<sup>1</sup>, Dr Bernt Lindahl<sup>1</sup>, Dr Eva-Lotta Glader<sup>1</sup>, **Dr Benno Krachler<sup>1,2</sup>**

<sup>1</sup>Umeå University, Public Health and Clinical Medicine, Sustainable Health, Sweden, <sup>2</sup>Region Västernorrland, Livsstilsmedicin Österåsen, Sweden, <sup>3</sup>Umeå University, Psychology, Sweden

**Background:** Patient characteristics and treatment setting are potential predictors of adherence to lifestyle interventions, but their relative importance for the risk of attrition is unknown.

**Method:** From the quality registry of the unit for Behavioral medicine, Umeå University hospital we identified patients who had participated in a multimodal lifestyle intervention for cardiometabolic risk reduction between 2006 and 2018. Baseline characteristics predicting dropout before 1- year follow up were selected by a stepwise logistic regression algorithm for bidirectional elimination.

**Results:** Attrition rates for patients treated in inpatient (n=1963) and outpatient setting (n=1143) were 18% and 25%, respectively. A higher age, general well-being and physical functioning predicted a lower attrition, with adjusted odds ratios (ORs) 0.47 (95% confidence interval (CI) 0.34-0.66), 0.65 (95% CI 0.48-0.88) and 0.69 (95% CI 0.48-0.97) in the highest compared to the lowest quartile, respectively. The adjusted odds of attrition were also lower among females, 0.70 (95% CI 0.55-0.89). A higher attrition was predicted by higher BMI, snuffing tobacco and smoking, with adjusted ORs 1.40 (95% CI 1.02-1.92) in the highest compared to the lowest quartile of BMI, 1.41 (95% CI 1.87-1.07) comparing snuff user with non-users and 2.59 (95% CI 3.70-1.81) comparing smokers with non-smokers. A lower odd of attrition was estimated among inpatients compared with outpatients, with OR 0.84 (95% CI 0.67-1.04). In interaction analyses a statistically significant lower odds of attrition among inpatients were only found among tobacco users who both smoked and snuffed.

**Conclusion:** We identified age, sex, BMI, general well-being, physical functioning, tobacco use and treatment setting as predictors of adherence to lifestyle interventions. As the study was conducted in a Swedish clinical environment, further research is needed to establish validity of our findings in other contexts.



## PP02 | Classification of Behavior Change Techniques Employed in LM-Interventions at Livsstilsmedicin Österåsen

**Ms. Anja Englund**<sup>1,2</sup>, Dr Benno Krachler<sup>1,2</sup>

<sup>1</sup>Umeå University, Public Health and Clinical Medicine, Sustainable Health, Sweden, <sup>2</sup>Region Västernorrland, Livsstilsmedicin Österåsen, Sweden

**Introduction:** To meet the increased prevalence of lifestyle-related diseases, effective behaviour change interventions (BCIs) are essential. Understanding the parts of a complex intervention that may contribute to the effect of change also requires an agreed definition to report the content so that it is possible to replicate the effective parts. The BCT-taxonomy, BCTTv1, was developed by Michie et al. for identification of BCIs in terms of their smallest active ingredients, i.e., behaviour change techniques (BCTs).

**Aim:** Identify BCTs employed during 5-week intensive multimodal LM-interventions at a Swedish clinic for Lifestyle Medicine. Assess the hypothesis that BCTs with an informative nature decrease along the treatment course.

**Methods:** One trained coder applied the BCTTv1 to all mandatory parts of the BCI. Except for group meetings and private meetings, which were coded based on treatment manuals and interviews with health professionals, all activities were coded based on real-life observations.

**Results:** 246 independent intervention-components were evaluated. All intervention components exposed patients to at least one BCT. Numbers of BCTs with informative nature decreased along the course of the treatment phases but no significant trend could be confirmed. BCTs 8.1 Behavioural practice/rehearsal (140 hours), 4.1 Instruction on how to perform the behaviour (113 hours) and 6.1 Demonstration of the behaviour (72 hours) were the most common BCTs used in terms of exposure time. Nineteen of the 22 most commonly used BCTs could be identified.

**Conclusion:** This study demonstrates the use of BCTTv1 to identify BCTs by real life observation of BCIs. Our hypothesis of decreasing exposure to informative BCTs along the course of the treatment could not be confirmed.



## PP03 | Diagnostic Experiences of Women with Polycystic Ovary Syndrome (PCOS): Are physicians Using Lifestyle Interventions as First-Line Management?

**Dr Dana Saeed**<sup>1</sup>, Dr Aarti Javeri-Mehta<sup>2</sup>

<sup>1</sup>Flourish Lifestyle Medicine, United Kingdom, <sup>2</sup>Sustain Health, Dubai

**Introduction:** Polycystic Ovary Syndrome (PCOS) is the most common endocrine disorder amongst women of reproductive age, affecting up to 1 in 4 women. It is a multisystem disorder that significantly impacts quality of life and mental health. Lifestyle modifications positively influence PCOS outcomes and are deemed first-line management by international clinical guidelines. Whether this lifestyle-first approach is implemented in clinical practice is unknown. This study aims to explore women's experiences of their PCOS diagnosis, including whether lifestyle management was provided.

**Methods:** This cross-sectional study used a mixed-methods approach to interview 30 women above the age of 18 with a diagnosis of PCOS in the Middle East, India, and the United Kingdom. This was a convenience sample drawn from clinical practice and social media platforms. An in-depth 30-item online survey and remote interviews were carried out to explore women's experiences at diagnosis, including provision of lifestyle advice and levels of satisfaction.

**Results:** Descriptive statistics were used to summarise the survey answers, and data from free text questions were analysed by thematic analysis. Findings revealed the majority of participants were not offered education on PCOS or the impacts of lifestyle on the condition. Most were not given lifestyle advice, and those that were expressed discomfort with the approach to weight loss advice. Overall, women were dissatisfied with the quality of care at diagnosis, which often led to withdrawal from seeking medical care.

**Conclusion:** Most women did not receive lifestyle advice on diagnosis of PCOS, and were dissatisfied with the care and support received. These findings suggest a significant gap in care, and a need to implement Lifestyle Medicine in the management of patients with PCOS. Additional education and resources may be needed for physicians and patients to ensure an empathetic, personalised, and evidence-based approach to lifestyle management that positively influences health trajectories.



# Poster Presentations

## Nutrition & Dietetics



## PP04 | Lockdown Due to Pandemic and Consequent dietary changes

**Ms Aikaterini Bimpisidou<sup>1</sup>**, Ms Vasiliki Tsaireli<sup>2</sup>, Ms Eleni Andrioti<sup>3</sup>, Mr Dimitrios Kiortsis<sup>4</sup>, Mr Christos Kontogiorgis<sup>5</sup>, Mr Constantinos Giaginis<sup>6</sup>

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**Introduction:** The great spread of the Covid-19 virus was an unprecedented situation that the whole planet was called upon to deal with. The Covid-19 pandemic spreads at an extremely rapid rate, causing psychological distress, social isolation and loneliness, social distance and severe traffic congestion. The Mediterranean diet seems to be the dietary standard that protects the human body from viral infections, as is Covid-19. There is a lot of new data emerging gradually as the Covid-19 pandemic is still ongoing.

**Aim Of the Study:** This study deals with the unprecedented lockdown situation that humanity has experienced so intensely and specifically, focusing on the dietary changes caused by the Covid-19 pandemic.

**Methods:** This study was a systematic literature review, using 87 literature sources and articles, based on the most recent data on Covid-19 and nutrition. A variety of Greek and foreign websites related to Covid-19 and lockdown were used in combination with the Mediterranean diet and the eating habits of consumers.

**Results And Conclusions:** The results of this study are derived from the changes caused by Covid-19 in the eating habits of consumers. There seemed to be several changes in consumers eating habits before and during the Covid-19 pandemic. In addition, many consumers have been strongly influenced by the new reality resulting in the adoption of modern eating habits. In conclusion, this study highlighted all the above data on lockdown due to the pandemic and the dietary changes it caused, as well as, how the dietary patterns chosen are protective and beneficial to the well-being and health of our immune system.

**Keywords:** Lockdown, Pandemic, Covid-19, Dietary habits, Health, Nutrition



## PP05 | The Effect of Nutrition on the Mental Health of Children from Infancy to Adult Life

**Ms. Eleni Andrioti<sup>1</sup>**, Ms Evmorfia Psara<sup>2</sup>, Ms Vasiliki Tsaireli<sup>1</sup>, Associate Professor Aspasia Serdari<sup>2</sup>, Assistant Professor Theofanis Vorvolakos<sup>2</sup>, Associate Professor Constantinos Giaginis<sup>1</sup>

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**Introduction:** Infant nutrition is very important for development at a later age and for this reason proper nutrition has been, in the past, and continues to be the subject of ongoing action by many international organizations. It is important in all stages of life, especially in infancy, as their cognitive and cerebral development are affected from fetal age. Breast milk, as a normal way of feeding the baby, offers the most ideal food for them, as it contains in the right proportion energy, proteins, vitamins, hormones, antibodies and other valuable nutrients. The benefits of breast milk in the physical development of the baby are multiple.

**Aim of the Study:** This study is aimed to evaluate the effect of nutrition on the mental health of children from infancy to adulthood.

**Methods:** The most precise international scientific databases, e.g. Medline, Scopus, and Web of Science were comprehensively searched, using relative keywords to identify the relative studies. Results and Conclusions: It is very important from infancy to receive all the macro-micronutrients through the diet so that we have proper brain development, as well as cognitive and behavioral development. In recent years, the benefits to the infant's mental health have been confirmed, such as strengthening the mother-infant bond, creating strong bonds between mother, child and family. Mental health seems an integral part of health, being inextricably linked to physical health and behavior.

However, the occurrence of eating disorders is a multifactorial phenomenon that may adversely affects the physical and mental health of individuals. However, if we accept that prevention is the best treatment then we can conclude that the formation of a healthy eating consciousness, as well as the adoption of a healthy lifestyle, from an early age, lays a solid foundation to prevent the occurrence of eating disorders in the future.



## PP06 | Evaluation of the Effect of Vegetarian Diet on Human Health and Well-Being Indices

**Maria Zeimpeki**\*<sup>1</sup>, Eleni Mavrakaki\*<sup>1</sup>, Georgios Vasios<sup>1</sup>, Michail Tavernaris<sup>1</sup>, Maria Gialeli<sup>1</sup>, Efthymios Poullos<sup>1</sup>, Constantinos Giaginis<sup>1</sup>

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**Introduction:** Vegetarian diet has gained more visibility in recent years. Notably, various vegetarian diets and their effects on human health and well-being have currently been explored. The definition of a vegetarian diet and its various species, and their potential beneficial effects against serious chronic diseases, but also the nutrients' deficiencies that can arise from such a diet, remain to be thoroughly investigated.

**Aim of the Study:** This study aims to evaluate the effects of vegetarian diet on human health and well-being, covering concepts related to nutritional recommendations in terms of nutrients and nutritional needs as part of a comprehensive diet.

**Methods:** The most precise international scientific databases, e.g. Medline, Scopus and Google Scholar were comprehensively searched, using relative keywords to identify the undersigned studies.

**Results and Conclusions:** When a vegetarian diet is well-designed and includes fortified foods, it can be nutritious, promoting good health and reducing the risk of serious chronic diseases. A healthy diet can be achieved with a plant-based diet, as a regimen that encourages whole foods of plant origin and discourages meats, as well as all processed foods.

A vegetarian diet can be adopted for a variety of reason, including ecological, economic, religious, ethical and health reasons. In the latter case, they arise from the desire for weight loss, the treatment of obesity, the improvement of physical condition and/or the reduction of the risk of developing certain diseases, such as cardiovascular disease, diabetes, and depression. Properly implemented vegetarian diet has been shown to be an effective way to lose weight, improving plasma lipid profile and reducing the incidence of high blood pressure, cardiovascular disease, stroke, metabolic syndrome, and atherosclerosis.

However, more studies are strongly recommended for more precise conclusions to be drawn with special emphasis on nutritional deficiencies that can arise from such a diet.



## PP07 | Nutritional evaluation of physicians: Can diet affect their physical and mental health?

**Mr Georgios Antasouras<sup>1</sup>**, Mrs Evmorfia Psara<sup>1</sup>, Mrs Eleni Mavrakaki<sup>1</sup>, Mr Christos Kontogiorgis<sup>2</sup>, Mr Konstantinos Vadikolias<sup>3</sup>, Mr Constantinos Giaginis<sup>1</sup>

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**Introduction:** Doctors are considered the guides of public health since, from the beginning of their professional training, they advise people to follow a healthier lifestyle, regardless of their offer in medical and surgical treatments. Therefore, looking healthy and active themselves becomes even more convincing in their advice to patients because they are considered role models to those they advise.

**Aim of the Study:** The purpose of this systematic study was to investigate whether diet can affect physicians' physical and mental health while burdening their cognitive function.

**Methods:** An electronic search was conducted, where various articles were studied and analyzed that included data on nutrition, well-being, the physical and mental health of hospital doctors. Specifically, the databases used were PubMed, Scopus and Google Scholar, while the reports examined concerning articles that met the above criteria, were published in English.

**Results and Conclusions:** From all the articles that were studied, it was found that in general, an unbalanced diet has a high chance of contributing negatively to both the physical and mental health of hospital doctors, often causing them various negative symptoms such as burnout, work stress and depression, making them unproductive. It was also revealed that they often find it challenging to seek help for their health because they feel that they will disappoint their patients or colleagues, resulting in stigma and negative effects on their careers. In addition, for practical reasons, such as the many irregular working hours, they do not manage to feed themselves during the hours when they are offered food. However, more research needs to be done, including quantitative studies, to determine if the main issues discussed above represent all hospital doctors and some of their specific specialties.

**Keywords:** Physicians, diet, feeding, well-being, physical health, mental health



## PP08 | Reducing Food Waste in Psychiatric Hospital Structures, Mediterranean Diet as a Sustainable Dietary Model to Minimize Environmental Footprint

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**Introduction:** The planet's health goes through our plates because our food choices affect our health and the environment. Among the foods produced and processed, meat and its products have the most significant environmental impact, followed by dairy products. On the other hand, health care institutions, especially psychiatric structures, have been associated with very high environmental footprint rates due to increased plate waste and food waste.

**Aim of the Study:** Given the magnitude of the problem, this systematic study has identified and highlighted the most critical measures used worldwide to combat this environmental problem.

**Methods:** Through PubMed, Scopus and Google Scholar databases, a literature review was conducted. At the 1st part, the most important measures used worldwide to combat food waste were revealed and analyzed, while in the 2nd part, the model of the Mediterranean Diet was evaluated as a sustainable dietary model to combat the effects of increased food waste.

**Results and Conclusions:** From all the articles studied, it was found that many strategies have been proposed to increase patient food intake and minimize food waste. Therefore, it was revealed that flexible portion sizes, increased food choices through selective menus, additional nutritional support for patients, and the best ordering system are considered the most reliable measures used worldwide by psychiatric hospital structures. On the other hand, it was revealed that by adopting the Mediterranean Diet model, there could be a significant reduction of the environmental footprint from the resulting food waste. Nevertheless, many of the complex reasons will not change when dealing with a sick population. However, it is essential that each structure individually monitors its performance and looks for effective ways to improve food intake by its vulnerable patients.

**Keywords:** Environmental footprint, psychiatric structures, plate waste, food waste, Mediterranean Diet



## PP09 | Nutritional treatment of hospitalized patients with COVID-19: Can Mediterranean Diet be an alternative nutritional intervention to attenuate COVID-19 complications

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**Introduction:** The leading cause of death from COVID-19 disease is a respiratory failure from acute respiratory distress syndrome (ARDS), while the patients to be treated belong to vulnerable groups, i.e. they are elderly, obese, with underlying diseases or a combination of them. All the above may lead to malnutrition, but also dysphagia due to persistent cough. For this reason, dietary protocols for patients suffering from this infection should be simple and applicable because of the urgent and mass arrivals of patients in need of emergency respiratory care take nutritional control and care to a secondary level.

**Aim of the Study:** The present study aims to provide appropriate guidance to medical staff for the nutritional treatment of inpatients with COVID-19 with special focus on alternative nutritional interventions, such as Mediterranean Diet.

**Methods:** A literature review was performed using PubMed, Scopus and Google Scholar databases, and the included articles were published in English.

**Results-Conclusions:** After studying and analyzing the existing articles, it was revealed that the scientific community has concluded that no food or dietary supplement can cure a viral infection but instead requires a diet that includes combinations of foods which can enhance patients' immune system. These foods should consist of a variety of nutrients such as vitamins C, A, D, B6, B12 and trace elements such as iron, zinc, selenium and copper, which are involved in the basic functions of our immune system. On the other hand, the Mediterranean Diet has proven to be one of the healthiest nutritional models in the world. In addition to a variety of vitamins and minerals, Mediterranean Diet contains essential sources of bioactive polyphenols, especially flavonoids, which provide a shield in the highly inflammatory and pro-thrombotic environment caused by COVID-19.

**Keywords:** Nutritional treatment, hospitalized patients, COVID-19, respiratory failure, Mediterranean Diet, immune system



## PP10 | Evaluating Intermittent Fasting in Human Health and Well-Being Indicators: Potential Beneficial Effects and Future Directions

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**Introduction:** Intermittent fasting diets are very popular in the last few years, due to their clinical effectiveness on subjects' weight loss. These types of diets are consisted of periods of eating alternating with periods of fasting. Except from their health benefits, intermittent fasting diets play a central role in spiritual improvement in many kinds of religions such as Orthodox Christians, Muslims, and Adventists.

**Methods:** Applied summarization of current evidence of the efficacy of intermittent fasting to improve human health and well-being indicators. In this aspect, many scientific databases, e.g., PubMed, Scopus, Google Scholar, and Google Trends were comprehensively searched using relative words to identify the existing in vivo and ex vivo evidence from both human and animal studies, as well as clinical trials.

**Results:** Intermittent fasting is a generally safe type of diet and produces few neurological, hormonal, gastrointestinal and other metabolic adverse effects. Although intermittent fasting protocols are equally effective with calorie restriction diets, as far as weight loss, conflicting results were suggested concerning the improvement of cardiometabolic risk factors such as insulin resistance, HbA1c, LDL cholesterol and triglycerides levels and blood pressure. Moreover, intermittent fasting may be beneficial for patients at risk for colorectal cancer (e.g., patients with inflammatory bowel with a history of neoplasms), because it induces autophagy, a very important factor of cellular remodeling and organelle quality control, which involves physiological pathways that deliver intracellular components to the lysosome for degradation.

**Conclusion:** Intermittent fasting may be an improvement factor of many human health and well-being indicators, while it may induce a positive effect on human physiology and various diseases such as obesity, diabetes mellitus, cardiovascular disease, and cancer. However, well-designed clinical trials for longer study periods are intensely recommended.



## PP11 | Human Gut Microbiome: Its Relationship to Insulin Resistance and Type 2 Diabetes

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**Introduction:** In recent decades, the human microflora has been one of the dynamic research fields in the biomedical sciences. Many attempts have been made to study the gastrointestinal tract, which houses most of the microflora of the human body. Our digestive system provides a large interface with the environment, and is critically involved in immune and metabolic homeostasis, providing the conceptual basis that this spatially adapted community of microorganisms affects human health. Immune, metabolic, and xenobiotic receptors perceive and process microbial signals and thus contribute to a reciprocal relationship between the microbiome and the host.

**Aim of the Study:** This study aims to evaluate the relationship of human gut microbiome with insulin resistance and type 2 diabetes (T2D).

**Methods:** The most precise international scientific databases, e.g. Medline, Scopus, and Google Scholar were comprehensively searched, using relative keywords to identify the undersigned studies.

**Results and Conclusions:** In metabolic diseases, such as T2D, the destruction of the intestinal barrier results from the combined effects of endogenous and exogenous factors, of which nutritional factors have the most direct effects. The intestinal microbiome also plays an important role in this. It is also understood that nutrition plays an important role in shaping the human microbiome. Given this correlation, there may be significant therapeutic utility in altering microbial composition through diet. Therefore, all the data has suggested and supported evidence that the intestinal microflora may regulate various pathways in the host, exerting a critical role in human physiology and thus influencing the development of certain pathological conditions, such as T2D.

**Keywords:** intestinal microbiome, type 2 diabetes, insulin resistance, diet, metabolic diseases, human physiology



## PP12 | Phase Angle as a Nutritional Screening Tool in Patients with Gastrointestinal Cancers: Could Be Considered as a Prognostic Factor?

**Ms Maria Mantzorou**<sup>1</sup>, Prof Maria Tolia<sup>2</sup>, Prof Dimitrios Papandreou<sup>3</sup>, Prof Antigoni Poultzidi<sup>4</sup>, Prof Souzana K Papadopoulou<sup>5</sup>, Georgios Antasouras<sup>1</sup>, Constantinos Giaginis<sup>1</sup>

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**Introduction:** Malnutrition is a common finding in patients with cancer and can significantly affect disease progression and patients' survival. Gastrointestinal cancers (GIC) are amongst the most common cancer types that significantly, negatively influence patients' quality of life. In the above patients, the prevalence of malnutrition has been estimated to be around 39-67%. Body composition reflects the nutritional status, and bio-impedance Analysis (BIA) is a noninvasive, time- and cost-effective technique to analyze body composition.

**Aim of the Study:** This study aims to critically summarize the currently available clinical data on the efficiency of the easily obtainable BIA measure, Phase Angle (PA), in the evaluation of malnutrition in GIC patients and on their disease progression and prognosis.

**Methods:** Both PubMed and Scopus database was thoroughly searched to identify clinical studies that explore the role of BIA-derived raw data on disease prognosis and progression, as well on assessing malnutrition.

**Results and Conclusions:** Phase angle may be used as a nutritional screening tool in patients with gastrointestinal cancers, and specifically in esophageal, stomach, liver, biliary and colorectal cancer, while it can also predict sarcopenia in colorectal cancer patients. However, it cannot distinguish between stages of cachexia. Concerning the role of PA as a prognostic factor, current studies have showed that it may be considered as a prognostic factor of survival, yet further studies are needed for firm conclusions regarding post-operative complications and disease characteristics. Although PA could be used as a nutritional screening tool since gastrointestinal cancers are a group of various cancers, further well-designed studies should be undertaken to evaluate the role of BIA and PA on all gastrointestinal cancer sites with special focus on distinct gastrointestinal cancer types.



## PP13 | Evaluation of The Effect of Vegan Diet on Human Health and Well-Being Indicators: Potential Benefits, Nutritional Deficiencies and Future Recommendations

**Mr Michail Tavernaris<sup>1</sup>**, Mr Georgios Antasouras<sup>1</sup>, Dr Georgios Vasios<sup>1</sup>, Mrs Maria Gialeli<sup>1</sup>, Ms Maria Mantzorou<sup>1</sup>, Dr Constantinos Giaginis<sup>1</sup>

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**Introduction:** Vegan diet is the strictest form of vegetarianism, excluding all foods of animal origin, and their by-products. In recent years, the proportion of people who follow vegan diet is constantly increasing, since in addition to its association with religious and ethical beliefs as well as environmental concerns, it has been associated with multiple health benefits.

**Methods:** This study aims to evaluate the effect of vegan diet on human health and well-being indicators. A systematic search was conducted on the PubMed database, where studies investigating the effect of vegan diet on various pathological conditions were scrutinized.

**Results:** Vegan diet was associated with lower prevalence of type 2 diabetes, and lower risk of cancer, exerting beneficial effect on glycemic control. Low body mass index is a feature of those who follow such a diet, leading to lower obesity prevalence and reduced risk of related diseases. Vegan diets seem also protective against several pathological conditions, implicating in cardiovascular disease, dyslipidemia and hypertension. The results seem to be contradictory concerning its effect on neurodegenerative diseases and depression. Although vegan diet is considered healthy, it seems to exert a negative effect on bone health, as well as in pregnancy and lactation. A poorly structured and non-personalized vegan diet may lead to major nutrients deficiencies, thus turning potential benefits into problematic health situations. Its most common deficiencies are the lack of vitamins B12, B2 and D, as well as the reduced levels of calcium, iron, iodine, selenium and omega-3 fatty acids.

**Conclusions:** A well-structured vegan diet consisting of foods in the right amounts and proportions of nutrients (e.g. fortified foods), and always in combination with appropriate nutritional supplements, if necessary, can help to maintain or even improve human health, but otherwise it is likely to cause several problems.

**Keywords:** Vegan, diet, health, well-being, deficiencies, nutrients



## PP14 | Redefining the Characteristics, Value and Dynamics of the Monastic Diet

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**Introduction:** The term of sustainable nutrition refers to an environmentally friendly diet, with low ecological impact, nutrition value, seasonality of food, which provided dietary security to future generations with as much respect as possible to nature and animals. Other dietary models have also emerged such as vegetarianism, pescetarianism, flexible vegetarianism and veganism. We studied the Greek Christian Orthodox (GCO) monastic diet and if it promotes sustainability and good health.

**Methods:** In this research we studied the Monastic diet-gastronomy which is a mixture of all the nutritional models that had been mentioned above. We conducted four semi-structured interviews in two monasteries of northern Greece to collect information about fasting rules (typicon) they follow, their crops and daily tasks (diakonemata). Furthermore, we performed an analysis of the fasting calendars both of GCO worshippers and monks.

**Results:** The monasteries are places where monks (or nuns) spend their solitary life. They are built in specific locations surrounded by nature with a beautiful view. In most monasteries the monks are self-sufficient using good agricultural practices. This was confirmed by our visit to the Holy Monastery of the Dormition (Koimiseos) of the Theotokos in Mikrocastro, and to the Holy Monastery of the Transfiguration (Metamorphoses) of the Saviour in Dryovouno, in Siatista. Analysing both the fasting calendar of GCO worshippers and monks we found out that they are fasting 180 to 200 days per year. Depending on the fasting rules, they consume oil, wine, animal protein, eggs, and dairy, in addition to fruits, vegetables, cereals, nuts and legumes.

**Conclusion:** The GCO monastic diet could be characterized as a periodic vegetarian subset of the Mediterranean diet with a common feature of low intake animal protein. They both have beneficial effects on human health and provide quality of life. Austerity and restraint are the keys for well-being.

**Keywords:** Sustainable diet, Mediterranean diet, Monastic diet, fasting-calendar, health, monks



## PP15 | A Natural Aqueous Extract of Chios Mastic Improves the Severity of Irritable Bowel Syndrome: The Mastiqua Randomized Controlled Clinical Trial

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**Introduction:** Chios mastic is a phytotherapeutic product with benefits in dyspeptic disorders and anti-inflammatory/oxidant properties. We aimed at exploring the effects of a natural aqueous extract of Chios mastic on symptoms related to irritable bowel syndrome (IBS).

**Methods:** This was a double-blind, parallel-group, randomized controlled clinical trial in adult patients with IBS (ROME IV criteria). Participants were blindly randomized to a low-dose-mastic group (LDMG) (n=13), a low-dose-control group (LDCG) (n=13), a high-dose-mastic group (HDMG) (n=15), or a high-dose control group (HDCC) (n=14). The LDMG and HDMG were provided with 600 mL of experimental water (Mastiqua) or lemon juice (Mastiqua Greek lemonada) drinks containing 0.06% and 0.55% of the natural aqueous Chios mastic extract, respectively, to be consumed daily for three months. Control arms received the same amount of placebo drinks. IBS severity was assessed using the IBS Symptom Severity Scale (IBS-SSS) (range: 0-500, higher scores indicate more severe symptoms). Analyses were performed in the intention-to-treat population.

**Results:** The four study groups did not differ in sociodemographic, anthropometric, lifestyle or clinical parameters at baseline. Median (1st, 3rd quartile) baseline IBS-SSS values were 219 (157, 270). A significant decrease in median IBS-SSS was observed in the LDMG [from 195 (154, 285) to 115 (108, 126), P=0.001] and the HDMG [from 205 (170, 270) to 110 (95, 125), P=0.001], but not in the LDCC [from 219 (148, 260) to 211 (187, 246), P=0.780] and HDCC [from 234 (145, 331) to 228 (200, 293), P=0.778]. Post-intervention IBS-SSS values were significantly lower in both intervention arms compared to both control arms (all P<0.001) but similar between the two intervention arms (P=0.720).

**Conclusion:** A natural aqueous extract of Chios mastic could be a valuable addition to dietary and pharmacological treatments for the management of IBS. The study was funded by DS CONCEPTS LTD.



## PP16 | The Multiple Benefits of Honey and Honey Products, a Systematic Review

**Ms Krystallo-Despoina Bati<sup>1</sup>**, Ms Maria Gialeli<sup>1</sup>, Prof. Andreas Troumbis<sup>2</sup>, Dr. Constantinos Giaginis<sup>1</sup>, Dr. Georgios Vasios<sup>1</sup>

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**Introduction:** Beekeeping or apiculture are referred as both to the art and science of maintaining desired species of honeybee colonies for exploitation from the human. *Apis mellifera* or *Apis mellifica* as social insects create swarms that live in beehives, in which they create honeycombs. They produce several products such as honey, pollen, royal jelly, wax, bee venom, and propolis. In the present study we review the multiple benefits of bee products throughout a methodical review and assessment of the literature.

**Methods:** A bibliometric study was undertaken as a result of the ongoing growth in research about honey and honey-related products. After developing a keyword search strategy, 20 subsets were identified, and more than 30,000 scientific publications published between 1883 and 2021 were found in the SCOPUS bibliographic database. The data were extracted, filtered, screened, merged and the duplicates were removed using R programming. A bibliometric analysis was conducted using the Bibliometrix package in R and the VOSviewer software. Various bibliographic maps were created for every subset of the collection and the total dataset.

**Results:** The results obtained confirmed the exponential growth of scientific interest in some of the subsets and in the total dataset. Some of the terms (e.g. honey) are studied for more than 100 years while others emerged the last decades (e.g. apitherapy). The subject area of the sources that published most of the documents was Agricultural and Biological Sciences and especially Insect Science. In the merged co-occurrence network nine clusters were observed.

**Conclusion:** In this collection the greatest emphasis of the scientific community was given to the products of honey and propolis. The terms flavonoids, polyphenols, antimicrobial activity, and antioxidant activity were closely related to the cluster of propolis. Most of the products, according to the literature seem to have potentially benefit to human health.



## PP17 | Anti-Inflammatory Diet: How to Reduce Inflammation Naturally

### **Ms. Natalia Vstavskaja**

*Nutriscience, Bucharest, Romania*

**Introduction:** The anti-inflammatory diet targets chronic inflammation by incorporating an abundance of anti-inflammatory foods and nutrients while moderating or restricting the intake of potentially pro-inflammatory foods.

Chronic or "silent" inflammation, in which the pro-inflammatory response persists at a low level below the pain threshold, has been associated with several chronic health conditions, such as cardio vascular disease, inflammatory bowel conditions, arthritis, obesity and diabetes.

**Methods:** We create individually tailored menu plans on a software platform "NutritioApp", where we include anti-inflammatory foods, recipes and recommendations.

To have higher adherence to our nutritional interventions we take into consideration our patients preferences about eating habits, avoiding Western dietary pattern.

**Results:** Our patients give us satisfied testimonials. They followed personalised dietary advices that helped to reduce inflammation and reported significant amelioration of the clinical symptoms.

**Conclusion:** In order to adapt anti-inflammatory diet, we surveyed our patients on several different parameters. We obtained important feedback on how feasible our special meal plans are for patients with chronic inflammations.

For most of the patients, taking small and targeted steps towards improving the ratio of inflammatory to anti-inflammatory foods in their diet is the most sustainable path toward reducing or preventing chronic inflammation.

# 4<sup>TH</sup> EUROPEAN LIFESTYLE MEDICINE CONGRESS

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## Poster Presentations

### Behavior Change



## PP18 | To Study the Impact of a Single Comprehensive Lifestyle Educational Session (CLES) in the Lifestyle Practice of Patients Attending Wellness Clinic in a Teaching Hospital in South India

**Prof Samuel George Hansdak<sup>1</sup>**, Mr Jonathan Solanki<sup>2</sup>, Dr Herbert Giebel<sup>1</sup>, Dr Divya Elizabeth Mathew<sup>1</sup>, Dr Samuel NJ David<sup>2</sup>

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**Introduction:** The traditional practice of medicine focusses on the clinical diagnosis and pharmacological treatment of various chronic disease. Lifestyle evaluation and counselling regarding healthy lifestyle is often missing due to lack of training and time constraints for a busy health professional. The aim of the study was to assess the effectiveness of a single comprehensive lifestyle educational session (CLES) organized for the patients attending a Wellness Clinic conducted by the Department of Internal Medicine in Christian Medical College Vellore, India.

**Methods:** This was a follow up descriptive cross-sectional study on 101 patients who attended the Wellness Clinic between 2018-21. All these patients were followed up via a telephonic interview using a 30 point lifestyle questionnaire assessing their Knowledge(10), Attitude(10) and Practice(10) (KAP) in areas of nutrition, water intake, physical activity, sleep, screen time, stress, social support and meaning & purpose in life. The practice questions were compared with the baseline evaluation done during their first visit to Wellness clinic. The parametric Paired t-test or Wilcoxon signed rank test was used to assess the difference within group comparison. The chi-square or Fisher's exact test was applied to find association between categorical variables. All analyses was done using STATA software version 16.0.

**Results:** There were 51 (50.5%) females and 50 (49.5%) males with majority (38%) in the age group of 20-30 years. 63.4% were married and 25.3% were high school graduates and 39.4% were post graduates. Statistically significant lifestyle practice change was seen in the intake of breakfast (.042), fruits (.0001), exercise (.001) and emotional support (.021%) from the baseline. The mean Pre total score was 11.6279 and post total score 13.4369. Measuring the success rate of the program average of mean (>13) 56.3%.

**Conclusion:** A single session of CLES was effective in changing the nutrition, exercise and emotional support.

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## Poster Presentations

### Physical Activity



## PP19 | Walk with a Doc in Hungary

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**Introduction:** Walking is the ideal form of exercise, which is simple, healthy and fun at the same time. Our aim to present the American program started in 2005 (Walk with a Doc) and the first steps of hungarian adaptation which was launched in 2019.

**Materials and methods:** The original program was started by Dr. David Sabgir, a cardiologist from Columbus, Ohio, which now extends to more than 500 communities around the world. The international non-profit organization operating under the name "Walk with a Doc" is committed to inspiring disease-preventing communities striving for a healthy lifestyle. In 2019 we were the first in Hungary to start our similar doctor-patient walks in Budapest. We organized a community walk (6-8 people) once a month for half a year, each time talked about healthy lifestyle and enjoyed the interactivity.

**Results:** After the registration on the WWAD website (<https://walkwithadoc.org/join-a-walk/locations/budapest-hungary-europe/>) we followed the recommendations and organized the voluntary walks. Getting outdoors is a fun, free and safe way to take first steps, learn about a healthy lifestyle and meet new friends. We helped our educational work encouraging behavior change with our practical example, for which we also consider the involvement of dietitians in the future. In addition to the beneficial physiological effects of community walking, conversation has also proven to be an excellent method of stress relief.

**Conclusions:** The American model is available free of charge to all who are interested, but its introduction in Hungary requires a new way of thinking and a strong collegial cooperation. If we want to avoid drug therapies, walking can be suggested to everyone and can be done simply, inexpensively and voluntarily.

To know more: [www.mediterranmedicina.com](http://www.mediterranmedicina.com)



## PP20 | Physical Activity and its Barriers and Facilitators Among University Students in Qatar: A Cross-Sectional Study

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**Introduction:** Physical inactivity is a leading risk factor for non-communicable diseases worldwide. This study investigated physical activity (PA) level among university students in Qatar and assessed other lifestyle and demographic factors associated with PA.

**Methods:** A cross-sectional study was conducted using a quota sampling method, between February 2017 and February 2018 in eight universities. A self-administered questionnaire, comprising questions from the International Physical Activity Questionnaire and other validated questionnaires, was used to assess PA and other lifestyle behaviors, including sedentary behavior, stress, sleep, and smoking habits.

**Results:** A total of 370 students (response rate = 95.6%) were recruited. The prevalence of physically active students—as per the World Health Organization's recommendation for PA of 150–300 min/week of moderate-to-vigorous aerobic PA—was 64.9% (75.2% in males and 58.3% in females). Females and students >20 years old were half as likely to be active compared with males and younger students. Significantly more males enjoyed getting regular exercise (83.6% vs. 67.7%, p-value = 0.002) and reported that PA is extremely important (54.6% vs. 28.1%, p-value < 0.001). Students-reported smoking status, perceived stress, sleep duration and habitual sleep efficacy as measured by the Pittsburgh Sleep Quality Index, concentration, and feeling of satisfaction with life as a whole, were not statistically associated with PA levels (in males and females). Time spent sitting was similar during weekdays and weekends (mean time  $\pm$  SD = 480.8  $\pm$  277.7 min/week vs. 492.1  $\pm$  265.0 min/week).

**Conclusion:** Sports facilities and green spaces available on the universities' sites appear to help increase PA among university students in Qatar. Public health interventions should focus on improving PA-related perception and knowledge among students to further increase PA participation.

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## Poster Presentations

### Technological Innovations in LM



## PP28 | Development and Evaluation of a Prototype Lever-Propelled Training System for Wheelchair Users (FIT-WHEEL)

**Dr Themistoklis Tsatalas**<sup>1</sup>, Mr George Bellis<sup>1</sup>, Mr Fotios Tsilfoglou<sup>2</sup>, Mr Athanasios Patas<sup>2</sup>, Mrs Evangeliki Karampina<sup>1</sup>, Dr Charalampos Krommidas<sup>3</sup>, Dr Christos Kokkotis<sup>1</sup>, Mr Sokratis Poullos<sup>2</sup>, Mr Christos Fotos<sup>2</sup>, Dr Athanasios Z. Jamurtas<sup>3</sup>, Dr Giannis Giakas<sup>1</sup>

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**Introduction:** Wheelchair users suffer from shoulder and wrist pain that leads to lower physical capacity, obesity, diabetes, and cardiovascular diseases. Upper body exercise improves both physical and psychological well-being of wheelchair users and this leads to improved quality of life. The purpose of the study was to present the design of a prototype lever-propelled exercise system, called FIT-WHEEL (Functional and Intelligent Training system for WHEELchair users) and the preliminary results of a pilot study conducted to test the device in healthy individuals. 3

**Methods:** FIT-WHEEL consists of a steel frame, two power lever systems, and a control box. The steel frame is used as a “chassis”, on which, every other part is mounted. It is designed so that users can easily access FitWheel, moving backwards while being in their wheelchair. The power lever is a motorized system that moves the lever, in circular motion. Each power lever system is symmetric and mounted on each side of the steel frame and can be operated independently by the right and left hand of the user. The control box of FitWheel is a metallic box, mounted on the rear part of the device. It has connectivity with a portable device and offers the option of real-time gamified exercise for the user. The usability of FitWheel was tested in nine healthy young adults while performing moderate concentric or eccentric exercise in two randomly assigned exercise protocols one week apart.

**Results:** The participants reported high usability scores for both exercise types.

**Conclusion:** Additional research is needed to explore the usability of the proposed system for wheelchair users. «This research has been co-financed by the European Regional Development Fund of the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation, under the call RESEARCH - CREATE – INNOVATE (project code: T1EDK-05425)».



## Poster Presentations

### Reproductive Medicine and Sexual Health



## PP27 | Women's Lifestyle Risk Factors for High Grade Cervical Intraepithelial Neoplasia in a Peruvian Hospital

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**Introduction:** Cervical intraepithelial neoplasia (CIN) is one of the most common types of dysplasia affecting women. Objective: To determine the lifestyle risk factors associated with high-grade cervical intraepithelial neoplasia in women treated at the gynecological oncology service of the María Auxiliadora Hospital, period 2016-2021.

**Methods:** Case-control study design. The sample was 393 patients: 131 cases and 262 controls. Clinical and epidemiological variables obtained from medical records were evaluated. Bivariate and multivariate analyses were performed, using the binary logistic regression model. raw and adjusted OR were calculated with 95% CI and  $p < 0.05$

**Results:** The mean age of the cases was found to be  $44.85 \pm SD (10.89)$  and that of the controls  $40.08 \pm SD (13.25)$ . In the multivariate analysis, the risk factors for high-grade CIN were overweight and obesity OR=14, 95% CI: 5.07-38.7; smoking ORa=14.1, CI95%: 5.07-39.43; alcohol consumption ORa=9.1, CI95%: 3.87-21.41; age of menarche less than 11 years old ORa=2.7, CI95%: 1.01-7.58; the age of onset of sexual intercourse before 15 years ORa=3.9, CI95%: 1.01-15.39; more than 2 sexual partners ORa=2.7, CI%: 1.79-9.47 and the use of oral contraceptives OR=1.81, CI95%: 1.9-3.64.

**Conclusion:** The study suggests that overweight and obesity, smoking, alcohol consumption, having more than 2 sexual partners, and the use of oral contraceptives are significant lifestyle risk factors for high-grade CIN.

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## Poster Presentations

### Public Health



## PP22 | Hypertension Surveillance and Associated Dietary Factors Among Older Adults in Greece

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**Introduction:** Lifestyle, and in particular diet consist of a major modifiable factor in improving blood pressure (BP), with physical activity, optimal weight status, reduction in the intake of alcohol, salt reduction and specific dietary patterns having a predominant role in secondary prolepsis. The aim of the present cross-sectional study was to estimate the prevalence of hypertension in older adults residing Thessaloniki and assess dietary factors associated with BP.

**Methods:** A total of 483 older adults were recruited from center for recreation for the elderly in Thessaloniki. Dietary intake was recorded using one previous day recalls and the Healthy Diet Indicator (HDI) was calculated for each participant according to their reported intake. BP was measured at morning hours, thrice, with the subjects seated in a relaxed position. Hypertension was diagnosed according to the American College of Cardiology (ACC) and the American Heart Association (AHA) joint guidelines, as well as in those receiving anti-hypertensive treatment.

**Results:** The majority (59%) of participants had a known hypertension diagnosis and were receiving anti-hypertensive medication. An additional 28.6% fulfilled the diagnostic criteria based on the BP measurements, and the remaining 12.4% were normotensive. Of those with a diagnosis of hypertension, 81.8% exhibited high BP levels despite receiving medication, with only 18.2% of the participants with known hypertension managing to maintain normal BP levels. Between older adults with normal BP levels and those with hypertension, total HDI score did not differ. However, the first had a lower intake of sodium and dietary cholesterol compared to the latter.

**Conclusions:** Despite the importance of diet in the primary and secondary prevention of hypertension, older adults appear to rely on medication to lower their BP levels, without improvements in their diet.



## PP23 | Factors Associated with Orthorexia in Pregnancy

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**Introduction:** Pregnancy is a time when women tend to improve their lifestyle (diet and physical activity), aiming in better pregnancy outcomes for them and their child. Often however, the adoption of healthier dietary habits reaches pathological levels. The aim of the present cross-sectional study was to assess non-specific eating disorders (orthorexia and pica) in childbearing women.

**Methods:** A total of 157 women with clinical pregnancy were recruited. Orthorexic behaviours were assessed using the ORTO-15 questionnaire and pica was defined with a binary question (yes/no)

**Results:** In the total sample, only 2 women reported experiencing pica during pregnancy, consuming snow or ice. The multivariate model revealed that orthorexic behaviours were associated with low educational attainment, non-assisted conception, being on the first gravidity and in particular the first two trimesters and avoiding gluten intake. Experiencing health issues during pregnancy (gestational diabetes mellitus, hypertensive disorders, etc.), vegetarianism, maternal body weigh status prior to conception and maternal weight gain during gestation were not associated with orthorexia.

**Conclusions:** Attitudes related to non-specific eating disorders are apparent during pregnancy and require attention from the healthcare providers. Orthorexia is often associated with the restriction of specific food groups, jeopardizing nutrient adequacy during pregnancy.



## PP24 | Lifestyle Risk Factor for Stroke in Patients with Type 2 Diabetes: A Case Control Study

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**Introduction:** Diabetes is a well-defined risk factor for the development of a cerebrovascular accident and can affect its evolution and prognosis. Evaluation in this population is essential for prevention and risk stratification in clinical practice.

**Objective:** To determine the risk factors for stroke in patients with Type-2 Diabetes Mellitus in the Internal Medicine Department of a reference hospital in Peru.

**Methods:** Study with unmatched case-control design, which evaluated 324 type-2 diabetic patients, 108 with cerebrovascular accident (clinical-radiological diagnosis by CT Scan) and 216 patients without it, in a Peruvian reference hospital during the period 2012 to 2021. Habits, and clinical and laboratory parameters were evaluated. Odds ratios with 95% confidence intervals were obtained. Logistic regression was used for multivariate analysis.

**Results:** The mean age in cases and controls was  $66 \pm 12.8$  and  $60 \pm 10.7$  years respectively. In the multivariate analysis, age greater than or equal to 60 years: ORa 1.04; CI95% 1.02 to 1.07, arterial hypertension (AHT): ORa 5.26; CI95% 2.84 to 9.74, high levels of glycosylated hemoglobin (HbA1c): ORa 1.11; CI95% 1.00 to 1.23 and high levels of C-reactive protein (CRP): ORa 1.04; CI95% 1.01 to 1.06) were significantly associated with the risk of stroke.

**Conclusion:** The risk factors for stroke in patients with Type-2 Diabetes Mellitus were aging (age over 60 years), chronic inflammation (elevated levels of CRP), inadequate metabolic control (elevated levels of HbA1c), and especially the presence of AHT, all of them related to lifestyle, emphasizing the potential of working with Lifestyle Medicine approach.



## PP25 | Therapeutic Adherence Associated with the Quality of Life of Patients with Arterial Hypertension in a Medical Center, Peru 2021

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**Introduction:** Arterial hypertension (AH) affects more than 30% of the world's adult population. The chronic-degenerative nature of this disease generates a reduction in health-related quality of life (HRQoL). A comprehensive treatment approach can increase blood pressure control, decrease the frequency of complications, and significantly increase the patient's quality of life.

**Methods:** Analytical cross-sectional study, to determine the association between therapeutic adherence and HRQOL in hypertensive patients at the Emergency Care Center - UCE, Lima, Perú 2021. Three hundred and two hypertensive patients, between 30 and 79 years old, were included. The sampling was simple random probabilistic. The variables contained in the clinical history were analyzed and two validated surveys were applied. The Morisky-Green test was used to measure therapeutic adherence and the MINICHAL questionnaire was used to assess the quality of life.

**Results:** Of the patients included, 57.95% were women, mean age of 59.51 years, 58.28% were married and 55.63% had a higher education level. The factors significantly associated with better HRQoL in hypertensive patients were: therapeutic adherence (PR=1.221; P=0.003; CI95%=1.069-1.395), the use of an antihypertensive drug (PR=1.163; P=0.027; CI95 % =1.017-1.330) and the control of arterial hypertension (PR=2.371; P=0.001; CI95%=1.712-3.285).

**Conclusions:** It was found that therapeutic adherence, the use of a single antihypertensive drug (not polypharmacy), and adequate control of hypertensive disease are significantly associated with better HRQoL. Future studies should evaluate how comprehensive treatment with medical monitoring, health coaching, and behavioral changes would affect therapeutic adherence and quality of life in patients with AH.



## PP26 | Inflammatory Biomarkers Related to Survival in Patients with Cervical Cancer in a Hospital in Peru

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**Introduction:** Cervical cancer is the fourth most frequent neoplasm and the leading cause of death in young Latin American women with an incidence of approximately 41,734 cases and mortality of 22,221 women.

**Methods:** Longitudinal, analytical, retrospective study, 86 patients diagnosed with cervical cancer in stages IB2, II, III, and IV were included. The objective was to determine the relationship between inflammatory biomarkers and overall survival in patients with cervical cancer treated at a reference hospital in Peru during the years 2016-2020. Anemia levels, neutrophil-lymphocyte index (NLI), and RDW (erythrocyte distribution width) were evaluated. Survival curves were obtained using the Kaplan Meier method and the log-rank test was applied. Mortality Risk (HR-hazard ratio) was determined using the Cox regression model.

**Results:** Anemia was present in 58 patients (67.4%), 45 patients (52.3%) had elevated INL, and 33 patients (38.4%) had elevated RDW before starting cancer treatment. Survival curves showed a lower overall survival for the presence of anemia, age >65 years, and elevated RDW and NLI. In the bivariate analysis: the presence of anemia obtained HR: 2.68 (95% CI 1.15-6.24; p 0.02), NLI  $\geq 2.1$  HR: 3.44 (95% CI 1.57-7.52 p 0.002) and RDW  $\geq 15\%$  HR: 2.22 (95% CI 1.10-4.48; p 0.02). In the multivariate analysis: NLI was an independent factor of mortality when adjusting for the rest of the variables HR: 3.604 (CI: 1.28 – 10.15, p <0.05).

**Conclusions:** The Inflammatory Biomarkers (NLI, RDW, and anemia) in this study are associated with poor survival in cervical cancer patients. NLI was an independent risk factor in our population. These findings should be prospectively evaluated.

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## Poster Presentations

### Environment



## PP21 | Thermal Water Classification and Health Benefits

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**Introduction:** Thermal water had proved health benefits since ancient times. Thermal Medicine is a specialty and study, classify thermal water by the chemical and physical characteristics, standardize application methods, measure health benefits and provide scientific evidence. Classification may give and structured and practical guide to treatment in patient care.

### Methods

Classification based on temperature:

1. Hypothermal < 35 °C
2. Mesothermal 35-37 °C
3. Hyperthermal >37 °C

Classification based on global mineralization; based on dry Residue 110 °C

1. Oligometalic Less than 100 mg/L
2. Very weak mineralization 100-250 mg/L
3. Weak mineralization 250-500 mg/L
4. Medium mineralization 500-1000 mg/L
5. Strong mineralization 1000 mg/L

Classification based on Mineral components; >1 gr global mineralization based on anion cation content:

1. Chlorinated
2. Sulfated
3. Bicarbonates
4. Ferruginous > 5 mg/L total Fe.
5. Sulfurized >1 mg/L sulfur reduced form SH<sub>2</sub> and SH-
6. Carbonated 250mg/L CO<sub>2</sub> free.
7. Radioactive 67,3 Bq/L radon

Classification based on Hardness

1. Very soft 0-100 mg/L CaCO<sub>3</sub>
2. Soft 100-200 mg/L CaCO<sub>3</sub>
3. Hard 200-300 mg/L CaCO<sub>3</sub>
4. Very Hard 300-400 mg/L CaCO<sub>3</sub>
5. Extremely Hard >400mg/L CaCO<sub>3</sub>



**Results:** The classification of Thermal water provides a better approach of patient treatment and results depending the pathology

**Conclusión:** Thermal water treatment had scientific based evidence to treat Patient Benefit in Rheumatology and pain related pathologies, digestive care, Urinary tract pathologies, dermatology and respiratory care.

The correct prescription on Thermal treatment depends on the type of pathology of the patient and the characteristic of the Thermal water.

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