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48th Turkish Physiology Congress

1-4 November 2023

Sakarya University, Türkiye

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Scientific Program

1 November 2023 Wednesday

10.00 – 15.00 Registration

15.00 – 16.30 Salon A: Oral Communications **(OC01 – OC06)**

Chairs: Prof. Dr. Hale Sayan Özaçmak & Prof. Dr. Selda Kabadere

Salon B: Oral Communications **(OC07 – OC12)**

Chairs: Prof. Dr. Fatma Töre & Prof. Dr. Serpil Can

Salon C: Oral Communications **(OC13 – OC18)**

Chairs: Prof. Dr. Sinan Canpolat & Assoc Prof. Dr. Bilge Pehlivanoğlu

16.30 – 16.45 Coffee Break

16.45 – 17.15 Salon A: Congress Opening Session

Congress Opening

Respect to Masters (To the Memory of Prof. Dr. İsmail Meral)

17.15 – 18.00 TFBD Briefing

Turkish Physiology Congresses: Planning, Preparations and Abstract Books

TFBD Accreditation Report

Chair: Prof. Dr. Erdal Ağar

18.00 – 19.00 Conference 1: Olfactory Receptor 558 and Sex Differences in Blood Pressure (Virtual)

Jennifer Pluznick

Chair: Prof. Dr. Bayram Yılmaz

19.00 – 20.00 Openning Reception (Sakarya Congress Center)

02 November 2023 Thursday

08.30 – 10.30 Salon A: **Symposium 1:** Methodology & Technology in Epilepsy Research

Ahmet Şevki Taşkıran: Oxidative Stress, TRP Channels and the Role of TRPM2 in Epileptogenesis: An Integrative Perspective

M. Sinem Ethemoğlu Sarı: Advanced Technology in Experimental Epilepsy: Role of AgRP Neurons in Epilepsy

Vincent Magloire: Inhibitory Control of Cortical Excitability in Epilepsy

Mehmet Kaya: Blood Brain Barrier in Drug Resistant Epilepsy

Chairs: Prof. Dr. Mehmet Kaya & Prof. Dr. Ersin Koylu

08.30 – 10.30 Salon B: **Symposium 2:** Physiology in Aerospace, Underwater and Hyperbaric Environment

Akın Savaş Toklu: Physiology in Hyperbaric Environment

Nazım Ata: Aerospace Physiology

Abdullah Arslan: Physiology in Underwater

Chairs: Prof. Dr. Ahmet Ergün & Prof. Dr. Akın Savaş Toklu

10.30 – 11.00 Coffee Break

11.00 – 12.00 Salon A: **Conference 2:** Targeting Polymerisation to Treat α1-Antitrypsin Deficiency and the Serpinopathies

David Lomas

Chair: Prof. Dr. Sadi Kurdak

12.00 – 13.00 Poster Communications **(PC001-PC040)**

13.00 – 14.00 Lunch

14.00 – 15.30 Salon A: Oral Communications **(OC19 – OC24)**

Chairs: Prof. Dr. Selim Kutlu & Assoc Prof. Dr. Mümin Alper Erdoğan

Salon B: Oral Communications **(OC25 – OC30)**

Chairs: Prof. Dr. Kubilay Uzuner & Prof. Dr. Özgür Kasımay

Salon C: Oral Communications **(OC31 – OC36)**

Chairs: Prof. Dr. Mustafa Gül & Prof. Dr. Naciye İşbil

15.30 – 16.00 Coffee Break

16.00 – 17.30 Salon A: **Mini Conferences 1 & 2:** (Virtual)

İdil Orhon (Radboud University): Monitoring Electrolytes and Water in Human Kidney Tubuloids

Kıvılcım Kılıç (Boston University): Chronic Cranial Windows for Long Term Multimodal Neurovascular Imaging in Mice

Chair: Prof. Dr. Bayram Yılmaz

16.00 – 17.30 Salon B: **Panel 1:** Experimental Rat Models of Food Intake and Physical Activity: Relationships to Cardiovascular Physiology and Human Health

Selma Arzu Vardar: High Fructose Diet and Physical Activity Models

Orkide Palabıyık: High Protein Diet and Physical Activity Models

Gülsün Memi: High Fat Diet and Physical Activity Models

Chairs: Prof. Dr. Hakkı Oktay Seymen & Prof. Dr. Selma Arzu Vardar

17.30 – 18.45 Salon A: AGM Turkish Society of Physiological Sciences

19.00 – 19.30 Salon A: Turkish Music Concert

Murat Can Dilber, Hamdi İtil & Tuncay Kardaş

03 November 2023 Friday

08.30 – 10.00 Salon A: Oral Communications **(OC37 – OC42)**

Chairs: Prof. Dr. Lütfiye Kanıt & Prof. Dr. Necip Kutlu

Salon B: Oral Communications **(OC43 – OC48)**

Chairs: Prof. Dr. Levent Öztürk & Prof. Dr. Burcu Gemici Başol

Salon C: Oral Communications **(OC49 – OC54)**

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Chairs: Prof. Dr. Süleyman Sandal & Prof. Dr. Nilsel Okudan

10.00 – 10.30 Coffee Break

10.30 – 12.00 Salon A: **Symposium 3:** Strenuous Exercise Related Cardiomyopathies and Mitophagy

Özgür Kasımay: Strenuous Exercise and Overtraining Syndrome

Halil Düzova: The Role of Strenuous Exercise in the Formation of Cardiomyopathy via Endoplasmic Reticulum (ER) Stress and Mitophagy

Mustafa Gül: Exercise and Cardiomyopathies

Chairs: Prof. Dr. Nevzat Kahveci & Prof. Dr. Halil Düzova

10.30 – 12.00 Salon B: **Panel 2:** Reflection of Electrodermal Activity to the Clinic

Ferhan Esen: Scientific Basis of Electrodermal Activity

Nazan Dolu: Clinical Importance of Electrodermal Activity

Gülbahar Böyük Özcan: Current Trends in Electrodermal Activity Assessment

Chairs: Prof. Dr. Ümmühan İşoğlu & Prof. Dr. Nazan Dolu

12.00 – 13.00 Poster Communications (**PC041-PC080**)

13.00 – 14.00 Lunch

14.00 – 15.00 Salon A: **Conference 3:** The Workings of the Tripartite Synapse

Dmitri Rusakov

Chair: Prof. Dr. Ahmet Ayar

15.00 – 15.15 Coffee Break

15.15 – 17. 15 Salon A: **Symposium 4:** Role of the Vagus Nerve in the Interaction of Brain and Gastrointestinal System

Berrak Yeğen: Role of Vagal Sensory Receptors in the Regulation of Food Intake and Cerebral Effects of Gut Microbiota

Sevil Arabacı Tamer: The Effects of Stomach-Brain Communication on the Regulation of Gastric Function: The Role of Vagus Nerve

Meltem Kolgazi: The Effects of Cholinergic Anti-Inflammatory Pathway on Inflammatory Bowel Diseases and the Role of Vagus Nerve

Zarife Nigar Özdemir Kumral: Understanding Brain-Gut Interaction by Using Experimental Models

Chairs: Prof. Dr. Neşe İmeryüz & Prof. Dr. Berrak Yeğen

15.15 – 17. 15 Salon B: **Panel 3:** Exercise in Lung Health

Fadıl Özyener: Respiratory System Response to Exercise

Metin Baştuğ: Exercise-Induced Respiratory Pathologies

Sanlı Sadi Kurdak: Relationship Between Respiratory System and Athletic Performance

Chairs: Prof. Dr. Metin Baştuğ & Prof. Dr. Fadıl Özyener

17.15 – 17.30 Coffee Break

17.30 – 18.30 Salon A: **Conference 4** The Role of the Cardiac Lymphatics in Heart Repair and Regeneration

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Paul Riley

Chair: Prof. Dr. Numan Ermutlu

20.00 – 23.30 Gala Dinner

04 November 2023 Saturday

08.30 – 10.00 Salon A: Oral Communications **(OC55 – OC60)**

Chairs: Prof. Dr. Nuran Ekerbiçer & Prof. Dr. K. Gonca Akbulut

Salon B: Oral Communications **(OC61 – OC66)**

Chairs: Prof. Dr. Mehtap Kaçar & Prof. Dr. Bülent Gören

Salon C: Oral Communications **(OC67 – OC72)**

Chairs: Prof. Dr. Abdülkerim Kasım Baltacı & Prof. Dr. Berna Karakoyun Laçin

10.00 – 10.30 Coffee Break

10.30 – 11.30 Salon A: **Conference 5:** Mechanisms to Medicines in Neurodegeneration

Giovanna Mallucci

Chairs: Prof. Dr. Ertuğrul Kılıç

11.30 – 12.15 Poster Communications (**PC081-PC106**)

12.15 – 13.00 Lunch

13.00 – 15.00 Salon A: **Symposium 5:** Irisin: A New Adipomyokine in Reproductive Physiology

Haluk Keleştimur: Reproductive Physiology and Adipo-Myokines

Sinan Canpolat: Irisin Hormone in Pubertal Development

Ahmet Yardımcı: The Role of Irisin Hormone in the Central Regulation of the Reproductive System

Nazife Ülker Ertuğrul: Effects of the Irisin Hormone on Sexual Behavior

Chairs: Prof. Dr. Şeref Erdoğan & Prof. Dr. Haluk Keleştimur

13.00 – 15.00 Salon B: **Panel 4:** ATP Sensitive Potassium Channels and Their Pathophysiological Importance

Eylem Taşkın Güven: The Role of ATP-Sensitive Potassium Channels on Myocardial Ischemia-Reperfusion Injury

Eylem Suveren: Pharmacology of ATP Sensitive Potassium Channels

Salih Tunç Kaya: Myocardial Infarction in Diabetes and Its Relationship with K_{ATP} Channels

Hayriye Soytürk: The Physiological and Pathophysiological Roles of ATP Sensitive Potassium (KATP) Channels in the Central Nervous System

Chairs: Prof. Dr. Ayşen Erdem & Prof. Dr. Eylem Taşkın Güven

15.00 – 15.30 Salon A: Awards & Closing Ceremony

Chairs: Prof. Dr. Erdal Ağar & Prof. Dr. Vural Küçükatay

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CONCLUSION: It was observed that as the severity of OA increased, knee pain intensity increased, balance control deteriorated, and knee flexion angles decreased. Additionally, there was an association between knee flexion angles and both pain and balance.
This study was approved by the Başkent University Non-Interventional Clinical Research Ethics Committee (Project no: KA22/11). The research includes a section of Muhlis Yiğitcan Dağ's master's thesis work.
Keywords: Balance, Joint range of motion, Osteoarthritis, Pain.

PC-093

Investigation of the Effect of Radiotherapy on Muscle Strength in Patients with Bone Metastasis Using IsoMed-2000 Dynamometer

Deniz Öztürk[1], Yılmaz Şahin[1], Abdülsamet Zortul[2]

[1]Ataturk University, Health Services Vocational School, Erzurum, Türkiye [2]Erzurum Training and Research Hospital, Department of Radiation Oncology, Erzurum, Türkiye

AIM: This study was conducted to examine the possible effects of radiotherapy on lower extremity muscle strength in patients with pelvic bone metastases.
METHODS: Ten male patients between the ages of 40 and 60 with pelvic bone metastases who applied to the Radiation Oncology outpatient clinic of Erzurum Regional Training and Research Hospital participated in the study voluntarily. The muscle strength of these patients was measured with an isokinetic dynamometer device "Isomed2000" (D&R Ferstl GmbH, Hemau, Germany) twice, before and after radiotherapy. Knee extension or flexion peak torque values for the right and left legs of the whole group before and after radiotherapy application were shown in bar charts as mean ± standard deviation, and individual variations were shown in scatter plot graphs. Shapiro-Wilk test results, skewness, and kurtosis values were evaluated by examining whether the data showed normal distribution. According to these results, the data had a normal distribution. Two-way repeated measures ANOVA was used to compare the mean values of right and left leg knee flexion peak torque before and after radiotherapy application. In cases with a significant difference, pairwise comparisons were analyzed with the Samples t Test. The significance level was accepted as $p<0.05$.
Faculty of Medicine Clinical Research Ethics Committee with the decision numbered B.30.2.ATA.0.01.00/224. In addition, our research was supported by Atatürk University (Project Code: THD-2021-9643).
RESULTS: In our study, although there was no statistical significance, it was determined that both the right and left leg knee flexion peak torque values of the participants increased after radiotherapy application. It was observed that there was a greater increase in knee flexion peak torque values in the right leg than in the left leg.
CONCLUSION: It was determined that radiotherapy application had a positive effect on muscle strength in patients with bone metastases.
Keywords: Pelvis, Bone metastasis, IsoMed-2000 dynamometer, Muscle strength.

PC-094

The Effect of Daily Activities on the Activity of Stress Axes in Preschool Children

Hediye Cevizci[1], Özlem Barutçu[2], Nuri Cevizci[3], Tuba Özgöçer[4], Cihat Uçar[5], Sedat Yıldız[6], Mustafa Gül[1]

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[5]Department of Physiology, Faculty of Medicine, Turgut Özal University, Malatya, Türkiye
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AIM: Daily activities in the kindergarten and their stress load have important impacts on the development of children. In our study, it was aimed to determine the effects of some activities in the kindergarten on the stress level of children and to contribute to the pre-school education programs. For that purpose, salivary alpha-amylase (activity of the autonomous nervous system) and cortisol (activity of the hypothalamo-pituitary-adrenal axis) were investigated.
METHODS: A total of 106 children, 61 boys and 45 girls, between the ages of 5-6, were included in the study. 54 of the children were attending school in the morning and 52 were in the afternoon. Saliva samples were taken from the children before and after the activities limited to 20 minutes each (reading a book, physical exercise, watching a cartoon, playing with playdough). Alpha amylase and cortisol levels in saliva samples were measured using the ELISA method. Since the data were not normally distributed, Kruskal-Wallis test was used to compare group means. Wilcoxon-Signed Rank test was used to compare means of before and after activities. Spearman rho test was used for correlations. $P<0.05$ was accepted significant.
RESULTS: Amylase and cortisol levels were found to be significantly higher in boys compared with girls. The cortisol levels dropped following reading a book. Cortisol was found to be higher in morning students, and amylase and amylase/cortisol ratio were higher in afternoon students. There was no significant relationship between the activities and salivary alpha amylase levels.
CONCLUSION: The significant decrease in salivary cortisol after reading a book suggests that it helps relaxation and reduces stress in children. Moreover, the fact that a small difference in sleep period (sleeping 1 hour late and awakening 1 hour late) dramatically impacts amylase, cortisol and amylase/cortisol ratio suggests that it should be considered in planning the education.
Keywords: Stress, Saliva, Alpha amylase, Cortisol, Child.

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By Öztürk, D (Ozturk, Deniz) [1] ; Sahin, Y (Sahin, Yilmaz) [1] ; Zortul, A (Zortul, Abdulsamet) [2]

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