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Report and Abstracts of the 15th Congress of the Mediterranean Forum of Physical and Rehabilitation Medicine: Rome, July 6-8, 2023

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Abstract

The 15th Mediterranean Forum of Physical and Rehabilitation Medicine (MFPRM) Congress, held in Rome from 6 to 8 July 2023, brought together over 600 PRM specialists and residents from 51 countries and 5 continents to share knowledge, perspectives, and research findings. The Congress focused on the theme "Beyond COVID," highlighting the resilience and adaptability of PRM in the face of the pandemic. Presentations showcased the latest advancements in PRM across various subspecialties, including orthopedics and sports re-education, neurological disorders, pharmacotherapy and pain, pediatrics disorders, musculoskeletal disease, ergonomics and robotics, spasticity management, ICF and evaluation scales, spinal cord injury, musculoskeletal ultrasounds, rehabilitation of patients with cancers disease, post COVID-19 re-education, cardio-respiratory and urogynecological disorders, and traumatic brain injury. The congress successfully served as a platform for knowledge exchange, collaboration, and innovation in PRM, highlighting the importance of international cooperation and the resilience of PRM in adapting to emerging challenges.

Key Words: 15th Congress of the Mediterranean Forum of Physical and Rehabilitation Medicine; clinical studies; personalized medicine; abstracts.

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The 15th Congress of the Mediterranean Forum of Physical and Rehabilitation Medicine (MFPRM) was held in Rome from 6 to 8 July 2023.

Established in 1994, the MFPRM aims to unite PRM specialists and residents across the Mediterranean Basin area nations. Currently 29 countries stand as members. Since its inaugural congress in 1996, MFPRM has hosted 14 biannual gatherings, complemented by an annual educational summer school designed for young members, the Euro Mediterranean Rehabilitation Summer School (EMRSS) held in Syracuse (Italy).

The mission of MFPRM is to serve as the premier scientific organization for PRM practicing across three continents (Europe, Asia, and Africa) and surrounding regions, or in close proximity to the Mediterranean Sea. MFPRM aims to promote Mediterranean collaboration on diverse aspects of rehabilitation research and to influence national governments, in close partnership with respective national societies, to support initiatives and collaborations in teaching, service development, and PRM research.

The main title of the 2023 Congress was “Beyond COVID”: after the COVID-19 pandemic it has finally been possible to gather and share knowledge and new perspective in the field of PRM. The desire to share moments and discussions in person was high through the entire Mediterranean Basin area as demonstrated by the high number of participants.

Approximately 600 PRM specialists from 51 countries and 5 continents participated in the Congress. The event also welcomed around 200 residents and young specialists from Mediterranean countries. This diverse gathering fostered a sense of optimism for the future of disability treatment worldwide.

The Congress was indeed opened by a Residency Assembly strongly wanted by the Congress’ Presidency and by workshops on different topics (muscle-skeletal ultrasounds, irritable larynx syndrome/paradoxical vocal fold motion, Anu-yoga, spasticity management including toxins phenol and cryotherapy, mesotherapy in Physical and Rehabilitation Medicine, salivary glands treatment by botulinum toxin).

Distinguished colleagues were asked to held main lectures in their field of expertise.

- Jorge Lains (Portugal): Rehabilitation medicine perspectives in the future, or is there any future for PRM?
- Luigi Tesio (Italy): Science and care are divorcing, but physical and rehabilitation medicine remains a science of care;
- Walter Frontera (Puerto Rico): Aging sarcopenia and rehabilitation;
- Nicola Maffulli (Italy): Rehabilitation Specialists: an absolute must or an absolute waste for (good) orthopedic surgeons?
- Heakyung Kim (USA): Pediatric Rehabilitation;
- Levent Özcakar (Turkey): MSUS and artificial intelligence.

Many other held keynote lectures on several different topics (Orthopedics and Sports Rehabilitation, Neurological Disorders, Pharmacotherapy and Pain, Pediatrics Disorders, Musculoskeletal Disease, Ergonomics and Robotics, Spasticity, ICF and Evaluation Scales, Spinal Cord Injury, Musculoskeletal Ultrasounds in PRM, Cancer Rehabilitation, post COVID-19 Rehabilitation, Cardio-Respiratory And Urogynecological Disorders, Traumatic Brain Injury, Prostheses And Amputees) and more than 150 oral presentations were held by participants who submitted their research results. Moreover, about 350 posters were selected from the Scientific Committee and presented to the audience. In this Collection the reader can find about 87 abstracts for which the respective authors gave consent to publish. Sadly, not all the Lectures/Oral Presentations/Posters are available: many authors presented unpublished results of important research and preferer to wait for publication of the final paper. This is an indirect sign of the high scientific value of the Congress. The Scientific Committee is grateful to the authors that decided to submit abstracts to be shared with a broader audience.

List of acronyms

MFPRM - Mediterranean Forum of Physical and Rehabilitation Medicine
PRM - Physical and Rehabilitation Medicine
COVID - Disease caused by SARS_CoV-2
ICF - International Classification of Functioning, Disability and Health
EMRSS - Euro Mediterranean Rehabilitation Summer School

Contributions of Authors

Authors equally contributed to write the manuscript. They also approved the final edited version.

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See at the end of the Program.

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Conflict of Interest

The authors declare no financial, personal, or other conflicts of interest.

Ethical Publication Statement

We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

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Mediterranean Forum of Physical and Rehabilitation Medicine

15th Mediterranean Congress of Physical and Rehabilitation Medicine

2023 MFPRM CONGRESS

BEYOND COVID

Rome, 6›8 July 2023

› NH VILLA CARPEGNA

www.mfprm2023rome.com

PRESENTATION

The ***"2023 MFPRM Congress. BEYOND COVID"*** takes place in Rome from 6th to 8th July 2023 and aims to be the greatest Rehabilitative event of the Mediterranean countries for the year.
The scientific and organizing committees have planned an excellent scientific program to promote the development of our beloved discipline, mainly focusing on what COVID-19 taught the rehabilitative world and how is impacting on our activities. Sessions on the various topics of PRM and amazing workshops are warranted.
Academics, clinicians, researchers and nextgen trainees working in the rehabilitative field, as well as patients with their caregivers, are all welcomed.
Rome is ready for you. Enjoy this beautiful city and its surroundings while feeling right at home.
Let yourself be involved in the MFPRM Congress by contributing to turn this event into a very special opportunity!

Prof. Calogero Foti
President of the 2023 MFPRM

SUMMARY

PRM MEDITERRANEAN FORUM BOARD

Milica LAZOVIC
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Maria Laura SOLLINI

CONGRESS VENUE

The 2023 MFPRM Congress takes place in **Rome** at **Hotel NH Villa Carpegna** (Via Pio IV, 6).

The Hotel is **near the Vatican City State**, St Peter's Basilica with direct connection to other neighborhoods as Trastevere and other monuments. Surrounding the hotel is a private park, making it pretty and peaceful, yet it is just 10 minutes from St Peter's Square.

LIST OF TOPICS

1. Neurological disorders
2. PRM and Traumatic Brain Injury
3. PRM and Cerebrovascular Diseases (CVD)
4. Spasticity
5. PRM and Spinal Disorders
6. Musculoskeletal Disorders
7. Politrauma and PRM
8. Orthopedics and PRM
9. Rheuma and PRM
10. Pediatric Disorders
11. Cardiorespiratory Disorders
12. Uroginecological Disorders
13. Vascular Disorders
14. Pharmacotherapy in PRM
15. Musculoskeletal Ultrasound in PRM
16. Spa Rehabilitation-Balneotherapy
17. Sport Rehabilitation and Adapted Physical Activity
18. ICF and Disability evaluation scales
19. New technologies and Robotics
20. Cochrane Rehabilitation
21. Persons with Covid and past Covid
22. PRM intervention in health conditions
23. Use of physical agents
24. Exercise Therapy
25. Prosthesis and orthosis
26. Persons with Cancer
27. Assessment in PRM
28. PRM Field of Competences
29. Pain management; Obesity/Metabolic Disorders

TIME TABLE

15th Mediterranean Congress of Physical and Rehabilitation Medicine

Thursday 6 JULY 2023

	LEONARDO ROOM	RAFFAELLO ROOM A	RAFFAELLO ROOM B	TIEPOLO ROOM
	PRE-CONGRESS WORKSHOPS			
		8:30 a.m. - 1:30 p.m **MSUS basic VII CourseRomanUS** Coordinator: Levent Özçakar (Turkey)	8:30 a.m. - 10:30 a.m. **Irritable larynx syndrome/paradoxical vocal fold motion** Speaker: Marina Elvira Papangelou (USA)	8:30 a.m. - 10:30 a.m. **Spasticity management including toxins phenol and cryotherapy** Coordinator: Heakyung Kim (USA)
			11:00 a.m. - 1:00 p.m. **Anu-yoga** Coordinator: Iuly Treger (Israel)	10:30 a.m. - 12:30 p.m. **Mesotherapy in Physical and Rehabilitation Medicine** Coordinator: Gianpaolo Ronconi (Italy)
	2:30 p.m. - 4:00 p.m. MFPRM RESIDENCY ASSEMBLY			12:30 p.m. - 02:30 p.m. **Salivary glands treatment by BT** Coordinator: Heakyung Kim (USA)
	OPENING CEREMONY			
4:00 p.m. - 4:30 p.m.	MAIN LECTURE: Rehabilitation medicine perspectives in the future, or is there any future for PRM? - Jorge Lains (Portugal) LEONARDO ROOM - Live • RAFFAELLO ROOM - Streaming • TIEPOLO ROOM - Streaming			
4:30 p.m. - 5:00 p.m.	MAIN LECTURE: Science and care are divorcing, but physical and rehabilitation medicine remains a science of care - Luigi Tesio (Italy) LEONARDO ROOM - Live • RAFFAELLO ROOM - Streaming • TIEPOLO ROOM - Streaming			
5:00 p.m. - 5:30 p.m.	MAIN LECTURE: Aging sarcopenia and rehabilitation - Walter Frontera (Puerto Rico) LEONARDO ROOM - Live • RAFFAELLO ROOM - Streaming • TIEPOLO ROOM - Streaming			
5:30 p.m. - 6:00 p.m.	WELCOME OF THE AUTHORITIES			
	WELCOME COCKTAIL			

Friday 7 JULY 2023

	LEONARDO ROOM	RAFFAELLO ROOM	TIEPOLO ROOM
8:00 a.m. - 10:30 a.m.	ORTHOPEDICS AND SPORTS REHABILITATION I	SPASTICITY	CANCER REHABILITATION
10:30 a.m. - 11:00 a.m.	MAIN LECTURE: Rehabilitation Specialists: an absolute must or an absolute waste for (good) orthopedic surgeons? - Nicola Maffulli (Italy) LEONARDO ROOM - Live • RAFFAELLO ROOM - Streaming • TIEPOLO ROOM - Streaming		
11:00 a.m. - 12:30 p.m.	NEUROLOGICAL DISORDERS I	PHARMACOTHERAPY AND PAIN I	PROBLEMS OF THE ELDERLY AND METABOLIC DISORDERS
12:30 p.m. - 1:30 p.m.	LUNCH		
1:30 p.m. - 2:00 p.m.	MAIN LECTURE: Pediatric Rehabilitation - Heakyung Kim (USA) LEONARDO ROOM - Live • RAFFAELLO ROOM - Streaming • TIEPOLO ROOM - Streaming		
2:00 p.m. - 3:30 p.m.	NEUROLOGICAL DISORDERS II	PHARMACOTHERAPY AND PAIN II	FIELD OF COMPETENCES IN THE MEDITERRANEAN AREA
3:30 p.m. - 4:30 p.m.		ORTHOPEDICS AND SPORTS REHABILITATION II	
4:30 p.m. - 6:00 p.m.	**MFPRM GENERAL ASSEMBLY**		
6:00 p.m. - 7:00 p.m.	BEST POSTER SESSION	BEST POSTER SESSION	BEST POSTER SESSION

Saturday 8 JULY 2023

	LEONARDO ROOM	RAFFAELLO ROOM	TIEPOLO ROOM
8:00 a.m. - 9:00 a.m.	PEDIATRICS DISORDERS	COCHRANE REHABILITATION	POST COVID-19 REHABILITATION AND HEALTH INTERVENTION IN PRM
9:00 a.m. - 10:30 a.m.		ICF AND EVALUATION SCALES	
10:30 a.m. - 11:00 a.m.	MAIN LECTURE: MSUS and artificial intelligence - Levent Özçakar (Turkey) LEONARDO ROOM - Live • RAFFAELLO ROOM - Streaming • TIEPOLO ROOM - Streaming		
11:00 a.m. - 12:30 p.m.	MUSCULOSKELETAL DISEASE I	RHEUMATOLOGIC DISORDERS AND BALNEOTHERAPY	REHABILITATION STRATEGY IN AUTOLOGOUS HPSCS CD34 + THERAPY
12:30 p.m. - 1:30 p.m.	LUNCH		
1:30 p.m. - 3:30 p.m.	MUSCULOSKELETAL DISEASE II	SPINAL CORD INJURY	CARDIO-RESPIRATORY AND UROGYNECOLOGICAL DISORDERS
3:30 p.m. - 4:00 p.m.			
4:00 p.m. - 5:30 p.m.	ERGONOMICS AND ROBOTICS	MUSCULOSKELETAL ULTRASOUNDS IN PRM	PROSTHESES AND AMPUTEES AND TBI
5:30 p.m. - 6:00 p.m.	CLOSING CEREMONY		

SCIENTIFIC PROGRAMME

Thursday 6th July 2023

LEONARDO ROOM

LEONARDO ROOM- THURSDAY 6th JULY

2:30 p.m. - 4:00 p.m. **MFPRM RESIDENCY ASSEMBLY**

OPENING CEREMONY

4:00 p.m. - 4:30 p.m. **MAIN LECTURE:** Rehabilitation medicine perspectives in the future, or is there any future for PRM?
Jorge LAINS (Portugal)

4:30 p.m. - 5:00 p.m. **MAIN LECTURE:** Science and care are divorcing, but physical and rehabilitation medicine remains a science of care
Luigi TESIO (Italy)

5:00 p.m. - 5:30 p.m. **MAIN LECTURE:** Aging sarcopenia and rehabilitation
Walter FRONTERA (Puerto Rico)

5:30 p.m. - 6:00 p.m. WELCOME OF THE AUTHORITIES

WELCOME COCKTAIL

RAFFAELLO ROOM A

8:30 a.m. - 1:30 p.m. **Basic MSUS Course: RomanUS-VII**
Coordinator: **Levent ÖZÇAKAR** (Turkey)

RAFFAELLO ROOM B

8:30 a.m. - 10:30 a.m. **IRRITABLE LARYNX SYNDROME/PARADOXICAL VOCAL FOLD MOTION**
Speaker: **Marina Elvira PAPANGELOU** (USA)

11:00 a.m.- 1:00 p.m. **ANU-YOGA**
Coordinator: **Iuly TREGER** (Turkey)

OPENING CEREMONY

4:00 p.m. - 4:30 p.m. **MAIN LECTURE:** Rehabilitation medicine perspectives in the future, or is there any future for PRM?
Jorge LAINS (Portugal) • Streaming Leonardo Room

4:30 p.m. - 5:00 p.m. **MAIN LECTURE:** Science and care are divorcing, but physical and rehabilitation medicine remains a science of care
Luigi TESIO (Italy) • Streaming Leonardo Room

5:00 p.m. - 5:30 p.m. **MAIN LECTURE:** Aging sarcopenia and rehabilitation
Walter FRONTERA (Puerto Rico) • Streaming Leonardo Room

5:30 p.m. - 6:00 p.m. WELCOME OF THE AUTHORITIES

WELCOME COCKTAIL

TIEPOLO ROOM- THURSDAY 6th JULY

TIEPOLO ROOM

8:30 a.m. - 10:30 a.m. **Spasticity management including toxins phenol and cryotherapy**
Coordinator: **Heakyung KIM** (USA)

10:30 a.m.- 12:30 p.m. **Mesotherapy in Physical and Rehabilitation Medicine**
Coordinator: **Gianpaolo RONCONI** (Italy)

12:30 p.m. - 2:30 p.m. **Salivary glands treatment by BT**
Coordinator: **Heakyung KIM** (USA)

OPENING CEREMONY

4:00 p.m. - 4:30 p.m. **MAIN LECTURE:** Rehabilitation medicine perspectives in the future, or is there any future for PRM?
Jorge LAINS (Portugal) • Streaming Leonardo Room

4:30 p.m. - 5:00 p.m. **MAIN LECTURE:** Science and care are divorcing, but physical and rehabilitation medicine remains a science of care
Luigi TESIO (Italy) • Streaming Leonardo Room

5:00 p.m. - 5:30 p.m. **MAIN LECTURE:** Aging sarcopenia and rehabilitation
Walter FRONTERA (Puerto Rico) • Streaming Leonardo Room

5:30 p.m. - 6:00 p.m. WELCOME OF THE AUTHORITIES

WELCOME COCKTAIL

SCIENTIFIC PROGRAMME

Friday 7th July 2023

LEONARDO ROOM

8:00 a.m. - 10:30 a.m. **ORTHOPEDICS AND SPORTS REHABILITATION I**
Chairs: **Nicolas CHRISTODOULOU** (Cyprus), **Gulseren AKYUZ** (Turkey), **Dragana DRAGICEVIC-CVJETKOVIC** (Bosnia – Herzegovina) **Pietro RUGGIERI** (Italy)

8:00 a.m. - 8:20 a.m. Sport Disorders Rehabilitation
Nicolas CHRISTODOULOU (Cyprus)

8:20 a.m. - 8:35 a.m. Sports and Physical Activity
Walter FRONTERA (Puerto Rico)

8:35 a.m. - 8:50 a.m. Extracorporal Shockwave Treatment and Regenerative Medicine
Efthimios KOULOULAS (Greece)

8:50 a.m. - 9:05 a.m. Rehabilitation treatment of Athletes heel pain
Raoul SAGGINI (Italy)

9:05 a.m. - 9:20 a.m. Restorative rehabilitation and electrical neuromodulation techniques in the treatment of neuropathic pain
Gulseren AKYUZ (Turkey)

9:20 a.m. - 9:35 a.m. Hidden anemy of athletes: perineural injuries - US diagnosis and treatment
Anna PACHOLEC (Poland), **Marek KROCHMALSKI** (Poland)

9:35 a.m. - 9:43 a.m. *Cod. 23*
Neurophysiology after ACL reconstruction: cortico-spinal excitability of the operated limb's knee extensors and ankle dorsiflexors increases. A TMS-force study
Stefano Scarano, Ferrua Paolo, Caronni Antonio, Menon Alessandra, Malloggi Chiara, Rota Viviana, Rossetti Angela, Chieppi Paola, Amadei Maurizio, Randelli Pietro Simone, Tesio Luigi (Italy)

9:43 a.m. - 9:51 a.m. *Cod. 114*
"Let's kick the disease": karate and rehabilitation. A pilot study
Stefano Faraci, Porcu Elisa, D'Onofrio Vincenzo, Gatto Gennaro, La Torre Maria Teresa, Concetta Ljoka, Giordani Laura, Foti Calogero, Nocentini Ugo (Italy)

9:51 a.m. - 9:59 a.m. *Cod. 157*
Quality of life in patients after anterior cruciate ligament reconstruction
Dragicevic-Cvjetkovic Dragana, Sucevic Zorana, Keleman Nataša (Bosnia And Herzegovina)

9:59 a.m. -10:07 a.m. *Cod. 279*
Rehabilitation after hip fracture surgery: a survey on italian physiotherapists' knowledge and adherence to evidence-based practice
Santacaterina Fabio, Miccinilli Sandra, Bressi Federica, Bravi Marco, Sterzi Silvia (Italy)

10:07 a.m. -10:15 a.m. *Cod. 349*
Upper limb injuries in the first half season of a semi-professional rugby team
Lopes Nuno, Lima Diana, Pereira Ana, Teixeira André, Jesus Rita, Silva Marta (Portugal)

10:15 a.m. -10:23 a.m. *Cod. 154*
The meniscus dilemma: exploring rehabilitation programs for degenerative lesions
Santos-Faria João, Costa António, Branco João Paulo, Páscoa Pinheiro João (Portugal)

10:30 a.m. -11:00 a.m. **MAIN LECTURE:** Rehabilitation Specialists: an absolute must or an absolute waste for (good) orthopedic surgeons?
Nicola MAFFULLI (Italy)

11:00 a.m. -12:30 p.m. **NEUROLOGICAL DISORDERS I**
Chairs: **Pietro FIORE** (Italy), **Stephen ZAMMIT** (Malta),
Gerold EBENBICHLER (Austria),
Marcela GRÜNEROVÁ LIPPERTOVÁ (Czech Republic)

11:00 a.m. -11:20 a.m. Stroke recovery and Rehabilitation
Nicola SMANIA (Italy)

11:20 a.m.-11:35 a.m. The back muscle surface electromyography-based fatigue index: a potential biomarker of human neuromuscular aging?
Gerold EBENBICHLER (Austria)

11:35 a.m. -11:50 a.m. *Cod. 17*
Dependency of neurobehavioural deficits on adl impairment in stroke rehabilitation
Grünerová Lippertová Marcela (Czech Republic)

11:50 a.m. -12:00 p.m. *Cod. 5*
Effectiveness of telerehabilitation in severe brain injuries
Tripovic Ylenia, Lottarini Anna, Farina Fabrizio, Ferri Sara, Mandosi Giulia, Marchetti Sara, Pantaleone Camilla, Sciarrini Ilaria, Graziani Giancarlo (Italy)

12:00 p.m. -12:10 p.m. *Cod. 236*
The 6mwt as a predictor of the physical activity of stroke patients at home : a systematic review with meta-analysis
Guediri Amine, Agbohessou Kokouvi G., Mandigout Stéphane, Daviet Jean-Christophe, Salle Jean-Yves, Compagnat Maxence (France)

12:30 p.m. - 1:30 p.m. **LUNCH**

1:30 p.m. - 2:00 p.m. **MAIN LECTURE:** Pediatric Rehabilitation
Heakyung KIM (USA)

2:00 p.m. - 4:30 p.m. **NEUROLOGICAL DISORDERS II**
Chairs: **Hawamdeh ZIAD** (Jordan), **Paolo BARTOLOMEO** (France), **Sabrina TUMBIOLO** (Italy)

2:00 p.m. - 2:20 p.m. Long-term evolution of post-stroke neglect: the role of inter-hemispheric communication
Paolo BARTOLOMEO (France)

2:20 p.m. - 2:35 p.m. Electrodiagnosis in PRM – EMG, Nerve conduction and evoked potential
Hawamdeh ZIAD (Jordan)

2:35 p.m. - 2:50 p.m. *Drooling Management as a part of dysphagia management in neurological disabilities*
Esra GIRAY (Turkey)

2:50 p.m. - 3:00 p.m. *Cod. 27*
Neurological damage due to thiamine deficiency: a bout case report
Yazough Hajar, Elmir Sihame, Menay Hajar, Jaai Manar, ElOumri Ahmed Amine (Morocco)

3:00 p.m. - 3:10 p.m. *Cod. 46*
The role of cerebellum in multiple sclerosis-related fatigue and disability
Manocchio Nicola, Bossa Michela, Argento Ornella, Spanò Barbara, Incerti Chiara C, Pellicciari Leonardo, Pisani Valerio, Bozzali Marco, Foti Calogero, Nocentini Ugo (Italy)

3:10 p.m. - 3:20 p.m. *Cod. 331*
Hereditary neuropathy with liability to pressure palsies: discussion of case report
Silva Marta Moreira da, Cavalheiro Ana, Rapazote Machado João Pedro, Magalhães Sandra (Portugal)

3:20 p.m. - 3:30 p.m. *Cod. 33*
The kinesio-taping for the prevention of painful shoulder and for the functional recovery of upper limb after stroke
Tumbiolo Sabrina, Brunelli Stefano, Calvani Alessandra, Manocchio Nicola, Foti Calogero (Italy)

3:30 p.m. - 3:40 p.m. *Cod. 125*
Managing dressing apraxia after stroke: a challenge for clinical practice
Moreira Tiago Simões, Vaz Ana, Costa Frederico, Pinto Nilza, Marantes Isabel (Portugal)

3:40 p.m. - 3:50 p.m. *Cod. 273*
Rare case of botulism and dysphagia: the role of physical and rehabilitation medicine
Teixeira André, Torres Lima Diana, Lopes Nuno, Miguéns Ana Catarina (Portugal)

3:50 p.m. - 4:00 p.m. *Cod. 159*
Non-modifiable factors associated with progression to irreversible disability in multiple sclerosis patients
KEHLI Mohamed, Layadi Khaled (Algeria)

4:00 p.m. - 4:10 p.m. *Cod. 202*
The split hand phenomenon: uncovering an early sign of amyotrophic lateral sclerosis
Matos Dinis Cláudia, Maciel Araújo Pedro, Rodrigues Tomé, Oliveira Raquel, Mota Isabel, Manso Helena (Portugal)

4:10 p.m. - 4:20 p.m. *Cod. 318*
Technological balance and gait rehabilitation in stroke patients: effects on functional, motor and cognitive outcomes
Castelli Letizia, Iacovelli Chiara, Loreti Claudia, Fusco Augusto, Biscotti Lorenzo, Padua Luca, Giovannini Silvia (Italy)

4:30 p.m. - 6:00 p.m. **MFPRM GENERAL ASSEMBLY**

6:00 p.m. - 7:00 p.m. **BEST POSTER SESSION**
Chair: **Mario VETRANO** (Italy)

Cod. 295
Autonomy in clean intermittent catheterization for a tetraplegic patient: which device?
Aggoune Sabrina, Damouche Karima, Talbine Karim, Tair Mouloud (Algeria)

Cod. 75
Factors that predict self-perceived disability in patients with chronic pain
Knezevic Aleksandar, Garipi Enis, Popovic Dunja, Aleksandric Tijana, Vojnovic Larisa, Jeremic-Knezevic Milica (Serbia)

Cod. 217
Primary raynaud's phenomenon treated with high energy electromagnetic field stimulation: a case report
Aaljinovic Ana, Mahnik Silvija (Croatia)

Cod. 186
Urodynamic evaluation in multiple system atrophy
Tsiamasfirou Damiani, Galata Angeliki, Manola Margarita Eleni, Mitsostergiou Panoraia, Gklantzouni Aikaterini, Domazou Marilena, Petropoulou Konstantina (Greece)

Cod. 334
Efficacy of rehabilitative approaches to reduce hemiplegic shoulder pain in stroke survivors: systematic review with meta-analysis
Tasselli Anna, Marotta Nicola, Bartalotta Isabella, Sgro Maria, Zito Roberta, Audino Paola, Filippo Annunziata, Siciliano Roberta, Vimercati Ambrogio, Moggio Lucrezia, De Sire Alessandro, Ammendolia Antonio (Italy)

Cod. 108
Is stromal vascular fraction a treatment option for tendon injuries? a case report.
Boada-Pladellorens Anna, Avellanet Viladomat Mercè, Pages Bolibar Esther, Farras Roca Josep Anton (Andorra)

Cod. 190
Brain plasticity: the role of rehabilitation in a stroke patient
Carvalho Carolina, Pereira André, Gomes Xavier Mariana, Cruz André, Santos Jorge Inês (Portugal)

Cod. 171
Myelite post covid19 vaccination
Miloudi Dalal Radjaa, Boukhers Omar, Doumi Reda, Mammari Mohamed Djamel Eddine (Algeria)

Cod. 291
Epilepsy of infancy with migrating focal seizures. when should we think about genetic origin? about a case
Damouche Karima, Aggoune Sabrina, Tair Mouloud (Algeria)

Cod. 43
Cystic fibrosis rehabilitation interventions
Marruaz Denise, Francisco Rita, Pires Mafalda (Portugal)

Cod. 44
Facioscapulohumeral muscular dystrophy
Marruaz Denise, Pires Mafalda, Francisco Rita (Portugal)

Cod. 45
Rhabdomyolysis: brief theoretical review
Marruaz Denise, Pires Mafalda (Portugal)

Cod. 335
Functional proprioceptive stimulation in intensive care patients with local vibratory device (vibramoov®)
Burnham Paul Matthew, Urbez Mir Maria Rosario, Alexandres Rios de los Rios Daniela, Pellico Nebreda Ana, Gómez Hijosa Verónica (Spain)

Cod. 142
The challenge of diagnosing chronic immune sensitive polyradiculopathy: a rare entity
Rocha Oliveira Diana, Romeiro Ana Isabel, Moura David, Ramalho Joana, Toste Sofia (Portugal)

Cod. 260
Cerebral palsy in children: challenges and management of musculoskeletal disorders a cases series.
Khalid El Youbi, S. Karkouri (Morocco)

Cod. 338
Pulmonary rehabilitation in critical care. intrapulmonary percussive ventilation: two successful case reports
Urbez Mir Maria Rosario, Burnham Paul Matthew (Spain)

Cod. 239
Does icf linking identify properly outcome measures in lower limb musculoskeletal conditions?
Pages Esther, Chaler Joaquim, Avellanet Merce, Anasetti Federica, Boada-Pladellorens Anna, Arienti Chiara, Kiekens Carlotte (Andorra)

Cod. 6
Persons with sacroiliac joint dysfunction exhibit altered electromyographic activity of the latissimus dorsi muscle when lifting a load
Rincón Zully Rocío, Oliveira Ana Beatriz, Ramírez Ramírez Carolina (Colombia)

RAFFAELLO ROOM

8:00 a.m. - 10:30 a.m. **SPASTICITY**
Chairs: **Hafid MELIANI** (Morocco), **Konstantina PETROPOULOU** (Greece), **Eugenia ROSULESCU** (Romania)

8:00 a.m. - 8:20 a.m. Phenol nerve block in spasticity
Hafid MELIANI (Morocco)

8:20 a.m. - 8:35 a.m. Clinical evaluation of spasticity in a patient with stroke
Athanasios TSIVGOULIS (Greece)

8:35 a.m. - 8:50 a.m. Early treatment of Post Stroke Spasticity and prognostic factors
Maria Miha (Greece)

8:50 a.m. - 9:05 a.m. Spasticity treatment with Intrathecal Baclofen Pump
Klemen GRABLJEVEC (Slovenia)

9:05 a.m.- 9:20 a.m. Extracorporeal Shock Wave Therapy Versus Repetitive Peripheral Magnetic Stimulation in Spastic Upper Limb Rehabilitation
Eugenia ROSULESCU (Romania)

9:20 a.m. - 9:30 a.m. *Cod. 25*
Effects of extracorporeal shock wave therapy on post-stroke spasticity and assessment strategy through a gait analysis system
Mihai Emanuela Elena, Berteanu Mihai (Romania)

9:30 a.m. - 9:40 a.m. *Cod. 13*
Botulinum toxin injections for more than spasticity: our experiences in dystonia and myofascial trigger points
Kenis-Coskun Ozge (Turkey)

9:40 a.m. - 9:50 a.m. *Cod. 347*
Does initial contact with forefoot in spastic patients after stroke matter - what says 3d gait analysis with dynamic emg?
Mendes Andrade Inês, Reis E Silva Miguel, Neto António, Cunha Tiago, Gonçalves Rita, Peixoto Catarina, Jacinto Jorge (Portugal)

9:50 a.m. - 10:00 a.m. *Cod. 183*
Focused extracorporeal shock wave therapy as a combined treatment modality for focal spasticity-associated symptoms
Chu Rita, Prada Daniela, Pereira Diogo, Borges Ana (Portugal)

10:00 a.m. -10:10 a.m. *Cod. 373*
quantitative assessment of gait parameters after botulinum toxin injection of spastic gastrocnemius muscles
Hadir Sara, Idam Hajar, Madjidanem Prudent, Kyal Nada, Lmidmani Fatima, El Fatimi Abdellatif (Morocco)

RAFFAELLO ROOM- FRIDAY 7th JULY

10:30 a.m. -11:00 a.m. **MAIN LECTURE:** Rehabilitation Specialists: an absolute must or an absolute waste for (good) orthopedic surgeons?
Nicola MAFFULLI (Italy) • Streaming Leonardo Room

11:00 a.m. -12:30 a.m. **PHARMACOTHERAPY AND PAIN I**
Chairs: **Calogero FOTI** (Italy), **Frane GRUBIŠIĆ** (Croatia), **Carla HOVENKAMP** (Portugal)

11:00 a.m. -11:20 a.m. Pharmacotherapy in osteoporosis
Francesca GIMIGLIANO (Italy)

11:20 a.m. -11:40 a.m. Pharmacotherapy in osteoarthritis
Aydan ORAL (Turkey)

11:40 a.m. -11:55 a.m. Why we make mistakes in pain management – experience of the emergency department
Filip ĐERKE (Croatia) **Frane GRUBIŠIĆ** (Croatia)

11:55 a.m. -12:10 p.m. Tendinopathy treatment with platelet rich plasma (PRP) - what we know from evidence
Jean-Francois KAUX (Belgium)

12:10 p.m. -12:20 p.m. *Cod. 205*
Mesotherapy in clinical prm practice: is there a difference between myofascial and tendinopathic pain?
Hovenkamp Carla, Martins Teresa, Malta João Nuno, Ferreira Ana Margarida, Martins Joana A, Branco João Paulo (Portugal)

12:20 p.m. -12:30 p.m. *Cod. 267*
Therapeutic success of mesotherapy in chronic musculoskeletal pain: the experience of a hospital and university center
Gouveia Martins Maria Teresa, Hovenkamp Carla, Ribeiro Flávio, Ferreira Margarida, Martins Joana, Branco João Paulo (Portugal)

12:30 p.m. - 1:30 p.m. **LUNCH**

1:30 p.m. - 2:00 p.m. **MAIN LECTURE:** Pediatric Rehabilitation
Heakyung KIM (USA) • Streaming Leonardo Room

2:00 p.m. - 3:30 p.m. **PHARMACOTHERAPY AND PAIN II**
Chairs: **Roberto CASALE** (Italy), **Steven STANOS** (USA), **Bushra KAFFOURA** (Siria)

2:00 p.m. - 2:20 p.m. Topicals in the rehabilitation of pain-related disability
Roberto CASALE (Italy)

2:20 p.m. - 2:40 p.m. Interdisciplinary care for chronic pain. Integrating new approaches to improve outcomes
Steven STANOS (USA)

2:40 p.m. - 2:55 p.m. The role of classical music in cognitive rehabilitation
Paolo BARTOLOMEO (France)

2:55 p.m. - 3:05 p.m. *Cod. 109*
Freezing out pain – cryoablation – an innovative approach for chronic pain
Camarinha Inês, Rodrigues Diogo, Afonso Catarina, Correia Adriana, Jesus Rita, Ribeiro Martins Diogo, Rodrigues Jorge (Portugal)

3:05 p.m. - 3:15 p.m. *Cod. 103*
Does vitami d 25 (oh) influence early knee osteoarthritis?
Kaffoura Bushra (Syrian Arab Republic)

3:30 p.m. - 4:30 p.m. **ORTHOPEDICS AND SPORTS REHABILITATION I**
Chairs: **Markos SGANTZOS** (Greece), **Paolo CAPODAGLIO** (Italy), **David REIS ALMEIDA** (Portugal), **Nada KYAL** (Morocco)

3:30 p.m. - 3:50 p.m. Similarities in philosophy between lifestyle medicine and physical medicine and rehabilitation
Markos SGANTZOS (Greece)

3:50 p.m. - 4:05 p.m. Whole-Body Cryostimulation: a rehabilitation booster in frail patients?
Paolo CAPODAGLIO (Italy)

4:05 p.m. - 4:15 p.m. *Cod. 123*
Postural stability computerized evaluation before and after total knee arthroplasty.
Almeida Reis David, Sousa Joana, Pires Jennifer, Moreira Flávia, Alves Filipe, Teixeira-Vaz Ana, Oliveira Paulo, Barroso João, Fonseca Pedro, Vilas-Boas João Paulo (Portugal)

4:15 p.m. - 4:25 p.m. *Cod. 32*
Evaluation of center of pressure in patients with total knee arthroplasty
Kyal Nada, Tahri Zaineb, Boutalja Hasnaa, Lmidmani Fatima, El Fatimi Abdellatif (Morocco)

6:00 p.m. - 7:00 p.m. **BEST POSTER SESSION**
Chair: **Federica BRESSI** (Italy)

Cod. 196
The role of mesotherapy in musculoskeletal pain: a review on the current evidence
Ribeiro Flávio, Costa Joana Santos, Martins Teresa, Martins Joana (Portugal)

Cod. 93
Musculoskeletal symptoms and related factors in postacute covid-19 patients
Bakilan Fulya, Gökmen Ismal Günes, Ortanca Burcu, Uçan Anil, Eker Güvenç Sebnem, Sahin Mutlu Fezan, Gökmen Hatice Merve, Ekim Ayse (Turkey)

Cod. 265
Hand early-applied prosthetics in children: evaluation protocol from italy
Gaudenzi Marco, Della Bella Gessica, Santecchia Luigino, D'Urzo Rossella, Tofani Marco, Luttazi Paola, Pochiero Lorenzo, Denza Gabriele, Zenardi Daniele, Calogero Foti, Castelli Enrico (Italy)

Cod. 307
Guillain barre syndrome: correlation of the electrophysiological study with the f unctional status of the patients following inpatient rehabilitation
Gklantzouni Aikaterini, Mitsostergiou Panoraia, Manola Margarita- Eleni, Tsiamasfirou Damiani, Galata Aggeliki, Gkroumas Nikolaos, Petropoulou Konstantina (Greece)

Cod. 27
Neurological damage due to thiamine deficiency: a bout case report
Yazough Hajar, Elmir Sihame, Menay Hajar, Jaai Manar, ElOumri Ahmed Amine (Morocco)

Cod. 204
Radiofrequency thermal neuroablation of genicular nerves - an alternative pain management strategy of pigmented villonodular synovitis in the knee
Menezes José Inácio, de Castro Correia Miguel, Meixedo Sofia, Mazin Yuriy, Gonçalves Ana, Rodrigues Lopes Tiago (Portugal)

Cod. 223
Rehabilitation at home as bed substitution providing similar intensity of multidisciplinary and medical input to inpatient admission: a scoping review
Churilov Irina, Churilov Leonid, Murphy David (Australia)

Cod. 113
Quadruple fracture in a postmenopausal woman during prolonged bisphosphonate therapy – an instructive case - report
Marunica Karšaj Jelena, Klaric Danijela, Grazio Simeon (Croatia)

Cod. 96
One-stage bilateral total hip arthroplasty: case report and literature review
Pimenta José Pedro, Saraiva João Pedro, Barbosa Tiago, Cunha Ana Mafalda, Sousa Vítor, Araújo Diogo, Silva Marco, Santos Raquel, Silva Joana, Cunha e Vaz Patrícia (Portugal)

Cod. 160
Fatigue during multiple sclerosis
Kehli Mohamed, Kobci Yacine, Doumi Reida, Layadi Khaled (Algeria)

Cod. 219
Effects of a reasonable accommodation on well-being for employee with disability: comparison of two cases using the employment passport
Uno Kyoko, Kobayashi Ryuji, Kazuaki Maebara (Japan)

Cod. 333
Correlation of developmental delay degree with somatosensory evoked potentials in children with psychomotor delay
Jelic Zorica (Serbia)

Cod. 151
Effect of early management of bell's palsy in physical rehabilitation department
Loubiri Ines, Layouni Saoussen, Mrizak Zeineb, Gaddour Mariem, Jemni Sonia, Ouannes Walid (Tunisia)

Cod. 316
Exercise counteracts the complications of covid-19
Parisi Maria Chiara, Mingrino Omar, Pepi Benedetta, Crescimanno Caterina, Di Corrado Donatella, Iraci Giuseppe, Sberna Angelo, Francavilla Vincenzo Cristian (Italy)

Cod. 39
Reluctant diabetic chronic wounds and focused extracorporeal shock wave therapy: a case series.
Avellanet Merce, Pages Esther, Boada-Pladellorens Anna (Andorra)

Cod. 71
Low-intensity extracorporeal shock wave therapy treatment of erectile dysfunction after robot-assisted radical prostatectomy
Koleva Mariya, Takeva Iskra (Bulgaria)

TIEPOLO ROOM

8:00 a.m. - 10:30 a.m. **CANCER REHABILITATION**
Chairs: **Iuly TREGER** (Israel), **El OUMRI** (Morocco)

8:00 a.m. - 8:20 a.m. Cancer Rehabilitation
Iuly TREGER (Israel)

8:20 a.m. - 8:40 a.m. Pain treatment in Cancer Disability
El OUMRI (Morocco)

8:40 a.m. - 8:55 a.m. The role of PRM specialist in Cancer rehabilitation
Gulseren AKYUZ (Turkey)

8:55 a.m. - 9:05 a.m. *Cod. 10*
Quality of life and the need for information among rectal cancer survivors
Elmir Siham, Jabi Rachid, Bouziane Mohammed, El Oumri Ahmed Amine (Morocco)

9:05 a.m. - 9:15 a.m. *Cod. 52*
Efficacy of an individual rehabilitation project in patients undergoing allogeneic hematopoietic stem cell transplantation
Manocchio Nicola, Buzzatti Elisa, Scarpini Claudia, Ljoka Concetta, De Nicola Francesca, Pellicciari Leonardo, Cerretti Raffaella, Venditti Adriano, Foti Calogero (Italy)

9:15 a.m. - 9:25 a.m. *Cod. 272*
Low anterior resection syndrome: what role for prm?
Teixeira André, Lopes Nuno, Torres Lima Diana, Silva Teresa, Silva Marta, Arques Elsa (Portugal)

9:25 a.m. - 9:35 a.m. *Cod. 332*
Genital lymphedema in urological cancer: how are we treating these patients?
Silva Marta Moreira da, Caldas Afonso Sara, Madanelo Mariana, Marques Pinto André, Barros Paula, Vinagre Nuno (Portugal)

9:35 a.m. - 9:45 a.m. *Cod. 255*
The role of therapeutic ultrasound in the treatment of mastitis
Roxo Diogo, Monteiro Carolina Viveiros, Fernandes Alexandre, Allan Brandon, Campos Sofia, Bettencourt Mónica (Portugal)

10:30 a.m. -11:00 a.m. **MAIN LECTURE:** Rehabilitation Specialists: an absolute must or an absolute waste for (good) orthopedic surgeons?
Nicola MAFFULLI (Italy) • Streaming Leonardo Room

11:00 a.m. -12:30 p.m. **PROBLEMS OF THE ELDERLY AND METABOLIC DISORDERS**
Chairs: **Xanthi MICHAIL** (Greece), **Nur Sena OZTEKIN SAADET** (Turkey), **Nicola MANOCCHIO** (Italy)

11:00 a.m. -11:15 a.m. Geriatric Rehabilitation or Rehabilitation of the elderly?
Xanthi MICHAIL (Greece)

11:15 a.m. -11:27 a.m. Sarcopenia + US = ISarcoPRM
Levent ÖZÇAKAR (Turkey)

11:27 a.m. -11:39 a.m. Food for pain: the role of nutraceuticals in the rehabilitation approach to chronic pain
Roberto CASALE (Italy)

11:39 a.m. -11:51 a.m. Age-related changes in the hand
Aikaterini KOTRONI (Greece)

11:51 a.m. -12:03 p.m. Obesity Rehabilitation
Paolo CAPODAGLIO (Italy)

12:03 p.m. -12:11 p.m. *Cod. 220*
Effect of ozone therapy added to resistance exercises on sarcopenia-related factors: a randomized, controlled, experimental elderly rat study
Oztekin Saadet Nur Sena, Akkaya Nuray, Alkan Hakan, Ok Nusret, Abban-Mete Gulcin, Kilic-Erkek Ozgen, Bor-Kucukatay Melek, Bolukbasi-Hatip Funda Fatma, Altunay Zeynep Mine, Neset Gul (Turkey)

12:11 p.m. -12:19 p.m. *Cod. 69*
Neurological complications: uncommon sequelae after bariatric surgery
Pinto Irene, Miranda Carla, Marques Vilma, Dias Lúcia (Portugal)

12:30 p.m. - 1:30 p.m. **LUNCH**

1:30 p.m. - 2:00 p.m. **MAIN LECTURE:** Pediatric Rehabilitation
Heakyung KIM (USA) • Streaming Leonardo Room

2:00 p.m. - 4:30 p.m. **FIELD OF COMPETENCE IN THE MEDITERRANEAN AREA**
Round TABLE: all the members of the board
Nicolas CHRISTODOULOU (Cyprus) - **Franco CIRILLO** (Italy)

6:00 p.m. - 7:00 p.m. **BEST POSTER SESSION**

Cod. 47
Clinical and functional aspects in patients with neuromeningeal tuberculosis: about 32 cases
Yazidi Mouad, Kabil Abdelhakim, Dades Rime, Kyal Nada, Lmidmani Fatima, El Fatimi Abdellatif (Morocco)

Cod. 30
Management of vesicosphincteric disorders in patients with spina bifida
Yazidi Mouad, Dades Rime, Kabil Abdelhakim, Kyal Nada, Lmidmani Fatima, El Fatimi Abdellatif (Morocco)

Cod. 266
Evaluation of the quality of life and the functional impact in patients with guillain barré
Yazidi Mouad, Kabil Abdelhakim, Dades Rime, Kyal Nada, Lmidmani Fatima, El Fatimi Abdellatif (Morocco)

Cod. 358
Post covid-19 fatigue in patients followed in the physical medicine department
El Fani Nadra, Benzarti Houcem, Ghanmi Maroua, Mtaoua Sahbi (Tunisia)

Cod. 298
Guillain barre syndrome rehabilitation and recovery
Mitsostergiou Panoraia, Gklantzouni Aikaterini, Galata Angeliki, Manola Margarita Eleni, Tsiamasfirou Damiani, Petropoulou Konstantina (Greece)

Cod. 111
Gait analysis after acute achilles tendon rupture management: a systematic review
Petropoulos Orestis, Ntritsos Georgios, Varvarousis Dimitrios, Dimopoulos Dimitrios, Giannakeas Nikolaos, Tzallas Alexandros T, Ploumis Avraam (Greece)

Cod. 173
Pressure ulcer management in patients with impaired mobility
Jelassi Omaima, Tiss Bassem, Ghali Syrine, Layouni Saoussen, Loubiri Ines, Ouanes Walid, Frigui Sinene, Jemni Sonia (Tunisia)

Cod. 213
Low back pain in taxi drivers
Jelassi Omaima, Arfaoui Afifa, Rahmani Chiraz, Dhouibi Jaouher, Toulgui Emna, Ouanes Walid, Jemni Sonia (Tunisia)

Cod. 98
Biomechanical voice differences in patients with bulbar versus spinal als
Pérez Bonilla Margarita, M. Mora Ortiz , P. Díaz Borrego ,
R. Fernández-Baillo Gallego de la Sacristana, E. Girela López ,
F. Mayordomo Riera (Spain)

Cod. 292
Quality of life and patient satisfaction :an 18-months-follow-up of cardio-respiratory rehabilitation program
Rahmani Chiraz, Toulgui Emna, Benzarti Wafa, Aissa Sana, Ghannouchi Ines, Ouanes Walid, Jemni Sonia, Ben Saad Helmi (Tunisia)

Cod. 221
Assessment of management for adult constipation and improvement of laxative prescribing, in a rehabilitation inpatient setting
Fielder Ryan (United Kingdom)

Cod. 162
Effects of purposeful activity-based electrical stimulation therapy on brain function in individuals with chronic upper limb paralysis
Minami Seigo, Kobayashi Ryuji, Kondo Ken, Horaguchi Takahiro,
Fukumoto Yoshihiro, Aoki Hideaki, Ishimori Takuya, Aoyama Tomoki (Japan)

Cod. 282
Effects of purposeful activity-based electrical stimulation therapy on brain function in individuals with chronic upper limb paralysis
Minami Seigo, Kobayashi Ryuji, Kondo Ken, Horaguchi Takahiro,
Fukumoto Yoshihiro, Aoki Hideaki, Ishimori Takuya, Aoyama Tomoki (Japan)

Cod. 126
Anxiety and depression after stroke: about 43 cases
Zineddine Taha, Rsaissi Khaoula, Tahri Zainab, Kyal Nada, Lmidmani Fatima,
El Fatimi Abdellatif (Morocco)

Cod. 180
Thoracic outlet syndrome: literature update of the main conservative measures
Tzanos Ioannis - Alexandros, Iakovaki Vasileia, Nianiarou Maria, Kotroni Aikaterini (Greece)

Cod. 178
The outcome of targeted peri-neural corticosteroid installation for symptomatic neuroma, in limb amputation residuum
Mahmud Zanaib, Basu Bhaskar, Crawford Kath (United Kingdom)

Saturday 8th July 2023

LEONARDO ROOM

8:00 a.m. - 10:30 a.m. **PEDIATRIC DISORDERS I**
Chairs: **Stefano NEGRINI** (Italy) **Evrim Karadag SAYGI** (Turkey), **Gessica DELLA BELLA** (Italy)

8:00 a.m. - 8:20 a.m. Rehabilitation of adolescents with idiopathic scoliosis: state of the art
Stefano NEGRINI (Italy)

8:20 a.m. - 8:40 a.m. Diagnostic and therapeutic dilemma of growing pain
Ivana PETRONIĆ MARKOVIĆ (Serbia)

8:40 a.m. - 8:55 a.m. Idiopathic toe walking: diagnosis and treatment
Evrim KARADAG SAYGI (Turkey)

8:55 a.m. - 9:10 a.m. Approach to Spinal Pain in Children
Esra GIRAY (Turkey)

9:10 a.m. - 9:20 a.m. *Cod. 15*
Pediatric ischemic stroke: 10 year experience from latvia
Kovalovs Sandis, Reimane Emilija, Diriks Mikus, Rozentals Guntis (Latvia)

9:20 a.m.- 9:30 a.m. *Cod. 28*
The role of early interventionist for high risk infants in elepap-rehabilitation for the disabled
Pyrgeli Maria (Greece)

9:30 a.m.- 9:40 a.m. *Cod. 56*
Focal periphyseal edema: a case report
Antunes Sara Isabel, Pinheiro Fernanda, Luís João Francisco, Cordeiro David, Araújo Mariana, Pereira Gonçalo, Freitas Margarida, Almeida Susana (Portugal)

9:40 a.m. - 9:50 a.m. *Cod. 197*
Effectiveness of cranial orthoses in recovery of plagio and brachycephaly
Marques Sara, Maia Mariana, Rocha Jackelyn (Portugal)

9:50 a.m. - 10:00 a.m. *Cod. 348*
Improvement of gross motor function after selective dorsal rhysotomy in a group of children with cerebral palsy
Groleger-Sršen Katja, Jemec-Štukl Irena, Majdic Neža (Slovenia)

10:00 a.m. -10:10 a.m. *Cod. 199*
Case series - the importance of rehabilitation in children with spinal muscular atrophy type 1
Ramalho Joana, Ribeiro André, Pinto Luisa, Silva Sara, Gouveia Filipa, Toste Sofia, Aguiar Branco Catarina (Portugal)

10:10 a.m. -10:20 a.m. *Cod. 231*
Efficacy of helmet therapy on positional head deformation- a retrospective study
Fonseca Catarina, Gomes Emília, Cotter Maria João, Dias Lúcia (Portugal)

10:20 a.m. -10:30 a.m. *Cod. 164*
Growing up ain't easy: transition to adulthood in adolescents with childhood onset disabilities
Stern Idit, Barak Sharon, Guttman Dafna (Israel)

10:30 a.m. -10:40 a.m. *Cod. 41*
Adolescent idiopathic scoliosis, self-esteem and body perception
Marruaz Denise, Pires Mafalda (Portugal)

10:30 a.m. -11:00 a.m. **MAIN LECTURE:** MSUS and artificial intelligence
Levent Özçakar (Turkey)

11:00 a.m. -12:30 **MUSCULOSKELETAL DISEASE I**
Chairs: **Ilker YAGCI** (Turkey), **Carmelo PIRRI** (Italy),
Merce AVELLANET (Andorra)

11:00 a.m. -11:20 a.m. Management of chronic NS LBP
Ilker YAGCI (Turkey)

11:20 a.m. -11:35 a.m. Fascia: from Anatomy to Physical and Rehabilitation Medicine
Carmelo PIRRI (Italy)

11:35 a.m. -11:45 a.m. *Cod. 40*
Exercise versus postural garment for cervical pain: a multicenter randomized cross-over trial
Avellanet Merce, Mena Aurelia, Pages Esther, Boada-Pladellorens Anna (Andorra)

11:45 a.m. -11:55 a.m. *Cod. 133*
Was it just a simple low back pain?
Caldas Afonso Sara, Ramalhão Nuno, Cavalheiro Ana, Silva Marta, Zão Ana (Portugal)

11:55 a.m. -12:05 p.m. *Cod. 99*
Effect of disc dehydration on the clinical symptomatology of chronic low back pain. clinical radio study by functional mri.
Mammari Mohammed Djamel Eddine, Dib Kheir Eddine, Boukhers Omar, Miloudi Dalal Radjaa (Algeria)

12:05 p.m. -12:15 p.m. *Cod. 184*
Clinical efficacy of a modified maigne's manipulative technique in low back pain: a clinical study
Miraglia Accursio, Vita Giulia, Pirri Carmelo, Foti Calogero (Italy)

12:15 p.m. -12:25 p.m. *Cod. 353*
Effects of exercise on balance in patients with non-specific low back pain: a systematic review and meta-analysis
Dal Farra Fulvio, Arippa Federico, Arru Mauro, Cocco Martina, Porcu Elisa, Tramontano Marco, Monticone Marco (Italy)

12:25 p.m. -12:35 p.m. *Cod. 226*
Comparing the treatment effect of trigger point vibration in acute myophacial pain syndrome with dry needle: a prospective randomized controlled research
Soytürk Gülsah, Paker Nurdan (Turkey)

12:30 p.m. -1:30 p.m. **LUNCH**

1:30 p.m. - 4:00 p.m. **MUSCULOSKELETAL DISEASE II**
Chairs: **Klemen GRABLJEVEC** (Slovenia), **Adriana CORREIA** (Portugal), **Domiziano TARANTINO** (Italy)

1:30 p.m. - 1:50 p.m. Frozen shoulder
Klemen GRABLJEVEC (Slovenia)

1:50 p.m. - 2:05 p.m. Which persons with musculoskeletal disorders can benefit of tele-rehabilitation
Jorge LAINS (Portugal)

2:05 p.m. - 2:20 p.m. Effectiveness of High-Intensity Laser Therapy in Knee Osteoarthritis
Eugenia ROSULESCU (Romania)

2:20 p.m. - 2:30 p.m. *Cod. 246*
Focal shockwave therapy: study of effectiveness in the treatment of plantar fasciitis
Pimenta José Pedro, Vilaça José, Araújo Diogo, Cunha Ana Mafalda, Silva Marco, Sousa Vítor, Silva Joana, Santos Raquel, Saraiva João Pedro, Azevedo Maria João (Portugal)

2:30 p.m. - 2:40 p.m. *Cod. 372*
Beyond gonarthrosis - a case of pellegrini-stieda disease
Correia Adriana, Jesus Rita, Rodrigues Diogo, Lima Diana, Martins Diogo, Camarinha Inês, Afonso Catarina (Portugal)

2:40 p.m. - 2:50 p.m. *Cod. 118*
High-intensity interval training for knee osteoarthritis: a narrative review
Tarantino Domiziano, Theysmans Tine, Mottola Rosita, Verbrugghe Jonas (Italy)

2:50 p.m. - 3:00 p.m. *Cod. 211*
Passus saudáveis: an original supervised exercise program for intermittent claudication
Pinto Irene, Santarém Daniel, Ferreira Joana, Pinto José, Marques Vilma, Dias Lúcia, Abrantes Catarina (Portugal)

3:00 p.m. - 3:10 p.m. *Cod. 121*
Effect of a rehabilitation program on musculoskeletal disorders related to music performance: preliminary results of a randomized control trial
Balkhadir Hind, Karkouri Samia (Morocco)

3:10 p.m. - 3:20 p.m. *Cod. 276*
Clinical research on low back pain. who is doing what?
Thevenon André, Elhanafi Asma (France)

3:20 p.m. - 3:30 p.m. *Cod. 366*
Nerves at play: the importance of physical examination in parsonage-turner syndrome
Matos Dinis Cláudia, Maciel Araújo Pedro, Oliveira Raquel, Rodrigues Tomé, Carvalho Sá Pedro, Mota Isabel (Portugal)

3:30 p.m. - 3:40 p.m. *Cod. 64*
Infraspinatus calcification: a uncommon cause of shoulder impingement syndrome
Rodrigues Diogo, Camarinha Inês, Jesus Rita, Correia Adriana, Afonso Catarina, Ribeiro Martins Diogo, Rodrigues Jorge (Portugal)

3:40 p.m. - 3:50 p.m. *Cod. 42*
Congenital Femoral Deficiency
Marruaz Denise, Pires Mafalda, Caetano Francisco, Costa Maria, Tavares Delfin, Ovídio Joana (Portugal)

4:00 p.m. - 5:30 p.m. **ERGONOMICS AND ROBOTICS**
Chairs: **Alessandro GIUSTINI** (Italy), **Helena BURGER** (Slovenia)
Eleftherios STEFAS (Greece)

4:00 p.m. - 4:20 p.m. Evidence in Robotics
Alessandro GIUSTINI (Italy)

4:20 p.m. - 4:35 p.m. The best Prosthesis
Helena BURGER (Slovenia)

4:35 p.m. - 4:45 p.m. *Cod. 74*
Prediction of upper limb rehabilitation outcomes from robot-measured data in subacute stroke patients
Goffredo Michela, Proietti Stefania, Pournajaf Sanaz, Cioeta Matteo, Posteraro Federico, Franceschini Marco (Italy)

4:45 p.m. - 4:55 p.m. *Cod. 165*
Transcranial direct current stimulation in combination with robotics for upper e xtremity for stroke patients in post-acute phase
Stefas Eleftherios, Sgoutzakos Sokratis, Katsigianni Vaia, Giordamni Maria, Kouvelioti Vasiliki, Kandylakis Emmanouil (Greece)

4:55 p.m. - 5:05 p.m. *Cod. 177*
Robotic-assisted hand therapy with gloreha sinfonia for the improvement of hand function after pediatric stroke: a case report
Nasto Francesca, Bressi Federica, Santacaterina Fabio, Cricenti Laura, Campagnola Benedetta, Miccinilli Sandra, Bravi Marco, Assenza Carla, Morelli Daniela, Cordella Francesca, Lapresa Martina, Zollo Loredana, Sterzi Silvia (Italy)

5:05 p.m. - 5:15 p.m. *Cod. 76*
Quality of life in children with cerebral palsy and relationship with motoric and cognitive functioning
Radulovic Dubravka, Bašcarevic Danijela, Velaševic Jovana, Mališic Jelena (Serbia)

5:30 p.m. - 6:00 p.m. **CLOSING CEREMONY**

RAFFAELLO ROOM

8:00 a.m. - 9:00 a.m. **COCHRANE REHABILITATION**
Chairs: **Carlotte KIEKENS** (Belgium), **Maria Gabriella CERAVOLO** (Italy)

8:00 a.m. - 8:15 a.m. Knowledge Translation to bridge the Know-Do gap in rehabilitation practice
Carlotte KIEKENS (Belgium)

8:15 a.m. - 8:27 a.m. How to read a (Cochrane) Systematic Review
Chiara ARIENTI (Italy)

8:27 a.m. - 8:39 a.m. Rehabilitation–COVID-19 Evidence-based Response (REHCOVER) action: is it still needed?
Maria Gabriella CERAVOLO (Italy)

8:39 a.m. - 8:51 a.m. The RCTs in Rehabilitation Checklist (RCTRACK- GUIDERehab) project
Stefano NEGRINI (Italy)

8:51 a.m. - 9:03 a.m. Cochrane Rehabilitation
Angela PALOMBA (Italy)

9:00 a.m. - 10:30 a.m. **ICF AND EVALUATION SCALES**
Chairs: **Gerold STUCKI** (Swisse), **Francesca GIMIGLIANO** (Italy), **Mohammad ETOOM** (Jordan)

9:00 a.m. - 9:15 a.m. WHO Rehabilitation 2030: what's new?
Francesca GIMIGLIANO (Italy)

9:15 a.m. - 9:30 a.m. ICF based standards and tools for rehabilitation management and care
Stucki GEROLD (Swisse)

9:30 a.m. - 9:42 a.m. Individual Rehabilitation Project
Mauro ZAMPOLINI (Italy)

9:42 a.m. - 9:50 a.m. *Cod. 16*
Ataxia rating scales: content analysis by linking to the international classification of functioning, disability and health
Etoom Mohammad (Jordan)

9:50 a.m. - 9:58 a.m. *Cod. 18*
Impairment in brief icf core sets of low back pain as predicted by routinely used patient reported outcomes
Kienbacher Thomas, Habenicht Richard, Fehrmann Elisabeth, Blohm Peter, Ebenbichler Gerold, Fischer-Grothe Linda, Kienbacher Anna Pia, Kollmitzer Josef, Mair Patrick (Austria)

9:58 a.m. - 10:06 a.m. *Cod. 72*
Clinical acumen in rehabilitation medicine - a shocking case report
Agius Anastasi Andrei (Malta)

10:06 a.m. -10:14 a.m. *Cod. 117*
Functioning assessment of patients with neoplasms in greece: application of the whodas 2.0 (12-item version)
Theotokatos Georgios, Escorpizo Reuben, Karteroliotis Konstantinos, Grammatopoulou Eirini, Skordilis Emmanouil (Greece)

10:14 a.m. -10:22 a.m. *Cod. 127*
The burden of wilson disease – an icf based perspective
Freixo Ribeiro Pedro, Silva Ermelinda, Nery Filipe, Pessegueiro Miranda Helena, Pedroto Isabel, Ferreira José Manuel, Gandara Judith, Maia Luís, Fernandes Presa, Ferreira Sofia, Magalhães Marina (Portugal)

10:22 a.m. -10:30 a.m. *Cod. 167*
Functional independence measure (fim) scale scores in severely dependent older adults upon stroke rehabilitation completion
Justo Dan, Peleg Danielle Ann (Israel)

10:30 a.m. -11:00 a.m. **MAIN LECTURE:** MSUS and artificial intelligence
Levent Özçakar (Turkey) • Streaming Leonardo Room

11:00 a.m. -12:30 **RHEUMATOLOGIC DISORDERS AND BALNEOTHERAPY**
Chairs: **Khalil AL-ABBADI** (Jordan), **Stefano MASIERO** (Italy), **Joana SALDANHA** (Portugal)

11:00 a.m. -11:20 a.m. Use of balneotherapy at the Dead Sea in psoriasis
Khalil AL-ABBADI (Jordan)

11:20 a.m. -11:35 a.m. Balneotherapy in Italy
Stefano MASIERO (Italy)

11:35 a.m. -11:45 a.m. *Cod. 24*
Physical exercise impact in patients with fibromyalgia: a case-control study
Saldanha Joana, Genrinho Inês, Azevedo Sofia, Portelada Maria do Céu, Costa Graça, Cunha Inês (Portugal)

11:45 a.m. -11:55 a.m. *Cod. 65*
Comparison of two hyaluronic acid preparations for the treatment of rizoarthrosis
Sallì Marcello, Grasso Giovanni, Sallì Salvatore, Foti Calogero (Italy)

11:55 a.m. -12:05 p.m. *Cod. 78*
Tradition vs science, or does natural resource have a role in treatment of nonspecific low back pain
Kolaric Dinko, Kolaric Ana, Radovic Endi, Mužic Vedrana (Croatia)

12:05 p.m. -12:15 p.m. *Cod. 31*
Investigating the benefits of aerobic exercise for patients with ankylosing spondylitis
Zineddine Taha, Tahri Zaineb, Rsaissi Khaoula, Kyal Nada, Lmidmani Fatima, El Fatimi Abdellatif (Morocco)

12:15 p.m. -12:25 p.m. *Cod. 296*
Unusual fragility fracture of the tibial plateau
Maciel Araújo Pedro, Matos Dinis Cláudia, Carneiro de Oliveira Raquel, Pinha Cardoso Daniel (Portugal)

12:25 p.m. -12:35 p.m. *Cod. 339*
Diagnostic accuracy of ultrasonography compared to electrodiagnosis in carpal tunnel syndrome; a systematic review and meta-analysis
Rayegani S. Mansoor, Aalipour Kianmehr, Malek Mahmoudi Rashin, Raeissadat Seyed Ahmad, Akyüz Gulseren, Razzaghi Zahra (Islamic Republic Of Iran)

12:35 p.m. -12:42 p.m. *Cod. 376*
Rehabilitation in the health resort setting for Long Covid patients
Maria Chiara Maccarone (Italy)

12:30 p.m. -13:30 p.m. **LUNCH**

1:30 p.m. - 3:30 p.m. **SPINAL CORD INJURY**
Chairs: **Ali OTOM** (Jordan), **Yannis DIONYSSIOTIS** (Greece), **Chiara PAVESE** (Italy)

1:30 p.m. - 1:45 p.m. Neuropathic Pain with Special Reference to Spinal Cord Injury
Ali OTOM (Jordan)

1:45 p.m. - 2:00 p.m. Osteoporosis in SCI
Yannis DIONYSSIOTIS (Greece)

2:00 p.m. - 2:15 p.m. The role of kinesiotherapy against Heterotopic Ossification revisited
George VASILEIADIS (Greece)

2:15 p.m. - 2:25 p.m. *Cod. 19*
A case series and protocol proposal for management of neurogenic heterotopic ossification in spinal cord injury
Romano Joana, Reis David, Rodrigues Margarida, Cunha Maria, Gandarez Fátima (Portugal)

2:25 p.m. - 2:35 p.m. *Cod. 210*
Correlation between age and recovery after traumatic spinal cord injury
Pavese Chiara, Puci Mariangela V., Jutzeler Catherine R., Maier Doris D., Weidner Norbert, Rupp Ruediger, Abel Rainer, Yorck Kalke B., Kriz Jiri, Schubert Martin, Lena Emanuela, Molinari Marco, Montomoli Cristina, Curt Armin, Scivoletto Giorgio (Italy)

2:35 p.m. - 2:45 p.m. *Cod. 319*
Spinal cord injury due to multiple spinal neurofibromas in a patient with neurofibromatosis type 1, a case report
Hovenkamp Carla, Malta João Nuno, Coelho Alexandra P, Azenha António, Branco João Paulo (Portugal)

2:45 p.m. - 2:55 p.m. *Cod. 343*
Spinal myoclonus post spinal instrumentation
Shan Ni Thu, Young Hsueh Yi Sherry (United Kingdom)

2:55 p.m. - 3:05 p.m. *Cod. 351*
Epidemiological evolution and functionality of portuguese traumatic sci in the last 10 years
Romano Joana, Gonçalves Correia Rita, Medeiros Luísa, Pereira Adriana, Carvalho Maria da Paz, Baptista Glória, Martín Maria, Ferrreira Anabela, Barbeiro Carolina, Capelo João, Faria Filipa (Portugal)

3:05 p.m. - 3:15 p.m. *Cod. 176*
Cardiovascular risk in individuals with spinal cord injuries: insights from a 2-year retrospective observational study
Freixo Ribeiro Pedro, Ermida Filipe, Sousa José Eduardo, Madureira Nuno, Campos Inês, Margalho Paulo (Portugal)

3:15 p.m. - 3:25 p.m. *Cod. 352*
Functional recovery after traumatic sci (tsci) - in a portuguese in-patient rehabilitation center, a five years study
Gonçalves Correia Rita, Romano Joana, N. Medeiros Luísa, da Paz Carvalho Maria, Capelo João, Batista Gloria, Ferreira Anabela, Martín Maria, Barbosa Pereira Adriana, Mendes Andrade Ines, Barbeiro Carolina, Faria Filipa (Portugal)

3:30 p.m. - 5:30 p.m. **MUSCULOSKELETAL ULTRASOUNDS IN PRM**
Chairs: **Levent ÖZÇAKAR** (Turkey), **Giovanni MINISOLA** (Italy), **Catarina AFONSO** (Portugal)

3:30 p.m. - 3:50 p.m. Ultrasound Imaging/Guidance for Musculoskeletal Interventions
Levent ÖZÇAKAR (Turkey)

3:50 p.m. - 4:00 p.m. *Cod. 20*
Treatment of greater trochanteric pain syndrome with ultrasound guided bipolar pulsed radiofrequency of the trochanteric branches of the femoral nerve
Vieira André, Martins Pedro, Rodrigues Fabiana, Caires Daniano, Correia Duarte (Portugal)

4:00 p.m. - 4:10 p.m. *Cod. 124*
Pinning down the problem: a case of refractory (pseudo) lateral epicondylitis
Afonso Catarina, Camarinha Inês, Correia Adriana, Jesus Rita, Ribeiro Martins Diogo, Diogo Rodrigo Rodrigues (Portugal)

4:10 p.m. - 4:20 p.m. *Cod. 182*
Local anesthetic systemic toxicity: a rare complication
Fernandes de Jesus Rita, Correia Adriana, Camarinha Inês, Rodrigues Diogo, Afonso Catarina, Torres Lima Diana, Ribeiro Martins Diogo (Portugal)

4:20 p.m. - 4:30 p.m. *Cod. 203*
The efficacy of ultrasound vs fluoroscopy guided genicular nerve block for knee osteoarthritis – prospective study
Ramalho Joana, Vieira André, Tomé Sónia, Romeiro Isabel, Moura David, Correia Duarte (Portugal)

4:30 p.m. - 4:40 p.m. *Cod. 283*
Posttraumatic neuropathic pain-ultrasound diagnosis and treatment
Pacholec Anna, Marek Krochmalski (Poland)

4:40 p.m. - 4:50 p.m. *Cod. 62*
Posterior interosseous nerve syndrome: a clinical case
Rodrigues Diogo, Camarinha Inês, Jesus Rita, Correia Adriana, Afonso Catarina, Ribeiro Martins Diogo (Portugal)

4:50 p.m. - 5:00 p.m. *Cod. 155*
Clinical and ultrasonographic effectiveness of two different splints used in the treatment of lateral epicondylitis: a prospective randomized controlled study
Songur Kadir, Dinc Demir Zehra, Baysan Caner, Dilek Banu (Turkey)

4:50 p.m. - 5:00 p.m. *Cod. 193*
Changes of muscle ultrasound parameters between bmi categories in older patients
Ozturk Yelda, Okyar Bas Arzu, Koca Meltem, Guner Merve, Ceylan Serdar, Balci Cafer, Dogu Burcu Balam, Cankurtaran Mustafa, Halil Meltem (Turkey)

5:10 p.m. - 5:20 p.m. *Cod. 229*
The relationship of ultrasonography-measured subcutaneous fat thickness with sarcopenia parameters
Bas Hakan, Okyar Bas Arzu, Öztürk Yelda, Güner Merve, Ceylan Serdar, Koca Meltem, Balci Cafer, Dogu Burcu Balam, Cankurtaran Mustafa, Halil Meltem Gülhan (Turkey)

5:30 p.m. - 6:00 p.m. **CLOSING CEREMONY**

TIEPOLO ROOM

8:00 a.m. - 10:30 a.m. **POST COVID-19 REHABILITATION AND HEALTH INTERVENTION IN PRM**
Chairs: **Aydan ORAL** (Turkey), **Asmaa MAHMOUD** (Egypt), **Antonio SANTORO** (Italy)

8:00 a.m. - 8:20 a.m. Pulmonary rehabilitation for COVID-19: Challenges and solutions
Aydan ORAL (Turkey)

8:20 a.m. - 8:35 a.m. Gait analysis in post-covid patients
Asmaa MAHMOUD (Egypt)

8:35 a.m. - 8:45 a.m. *Cod. 38*
Long covid-19 rehabilitation in turkey
Dogru Ciftci Yildiz Gonca (Turkey)

8:45 a.m. - 8:55 a.m. *Cod. 128*
The impact of age on treatment outcomes in vestibular rehabilitation
Moreira T.S, Oliveira M., Vaz A., Costa F., Moreira S. (Portugal)

8:55 a.m. - 9:05 a.m. *Cod. 134*
Does mechanical ventilation of severe covid-19 patients affect functional outcomes and length of stay in subacute inpatient rehabilitation?
Elkrinawi Sliman, Getmansky Julia, Lutsky Lena, Friedman Alen, Treger Iuly (Israel)

9:05 a.m. - 9:15 a.m. *Cod. 179*
Memory complaints 2 years after covid-19
Romeiro Isabel, Tomé Sónia, Ramalho Joana, Azevedo Ana Sofia, Rocha Oliveira Diana, Moura David, Ribeiro Silva Sara, Cubelo Pereira Pedro, Aguiar Branco Catarina (Portugal)

9:15 a.m. - 9:25 a.m. *Cod. 214*
Effects of an occupational therapy online consultation in after-school childcare program
Kobayashi Ryuji, Mnami Seigo (Japan)

9:25 a.m. - 9:35 a.m. *Cod. 290*
Early rehabilitation in covid-19 patients. our experience at the tor vergata hospital
Santoro Antonio, Manocchio Nicola, Buttarelli Lara, Sorbino Andrea, Foti Calogero (Italy)

9:35 a.m. - 9:45 a.m. *Cod. 321*
The effectiveness of kinesiotherapy during treatment of acute and early post-acute covid-19 in an infectious department: a retrospective observational study.
Talalaj Jaroslaw, Olszewska Marta, Karpiuk Monika, Jamiolkowski Jacek, Kuryliszyn-Moskal Anna (Poland)

9:45 a.m. - 9:55 a.m. *Cod. 341*
Covid-19 beyond the respiratory symptoms
Torres Lima Diana, Lopes Nuno, Teixeira André, Correia Adriana, Almeida Pereira Ana, Martins Mariana, Silva Marta (Portugal)

9:55 a.m. - 10:05 a.m. *Cod. 55*
Kluyveromyces marxianus b0399 supplementation in patients with covid-19
Backovic Ana, Filipovic Aleksandar, Hrkovic Marija, Gajic Ivana, Avramovic Jovana, Lazovic Milica (Serbia)

10:05 a.m. -10:15 a.m. *Cod. 215*
Effect of the respiratory program in long-covid-19 patients
Takácsová Tímea (Slovakia)

10:30 a.m. -11:00 a.m. **MAIN LECTURE:** MSUS and artificial intelligence
Levent Özçakar (Turkey) • Streaming Leonardo Room

11:00 a.m. -12:30 p.m. **REHABILITATION STRATEGY IN AUTOLOGOUS HPSCS CD34+ THERAPY – R&D PROJECT CO-FINANCED BY EU**
Chairs: **Marek KROCHMALSKI** (Poland), **Giulio MACCAURO** (Italy),

11:00 a.m. -11:20 a.m. From simple injection to holistic procedure
Marek KROCHMALSKI (Poland)

11:20 a.m. -11:40 a.m. Rehabilitation stategy - from OR to outpatient patient care
Marek KILJAŃSKI (Poland)

11:40 a.m. -12:00 p.m. Radiological assesment – two years follow up
Sylwia GIELETUCHA-ROSIAK (Poland)

12:00 p.m. -12:20 p.m. Hip joint OA in developmental dysplasia – Long-term personal case study
Eleonora SZACHOŃ- STEFAŃSKA (Poland)

12:30 p.m. -1:30 p.m. **LUNCH**

1:30 p.m. - 4:00 p.m. **CARDIO-RESPIRATORY AND UROGYNECOLOGICAL DISORDERS**
Chairs: **Milica LAZOVIC** (Serbia), **Jannis PAPATHANASIOU** (Bulgaria), **Luisa Viana PINTO** (Portugal)

1:30 p.m. - 1:50 p.m. Exercise and cardiac rehabilitation
Milica LAZOVIC (Serbia)

1:50 p.m. - 2:10 p.m. Twenty-four weeks of group-based high-intensity interval training combined with Amendcor® supplementation leads to superior improvement in left ventricular ejection fraction, functional exercise capacity, and quality of life in patients with heart failure with reduced ejection fraction
Jannis PAPATHANASIOU (Bulgaria)

2:10 p.m. - 2:25 p.m. Pulmonary rehabilitation in neuromuscular disorders
Ozge KENIS COSKUN (Turkey)

2:25 p.m. - 2:35 p.m. *Cod. 11*
Impact of prehabilitation on morbidity and mortality after coloplasty for caustic burns ''treatment efficiency and patient satisfaction''
Elmir Siham, bouziane mohammed, El Oumri Ahmed Amine (Morocco)

2:35 p.m. - 2:45 p.m. *Cod. 49*
Improvement of quality of life in people affected by underactive bladder treated with ptns
Sollini Maria Laura, Stola Liliana, Foti Calogero, Nocentini Ugo, Finazzi Agrò Enrico (Italy)

2:45 p.m. - 2:55 p.m. *Cod. 68*
Walking economy, quality of life and mental health after arm-ergometry exercise training in peripheral arterial disease – a randomized clinical trial
Magalhães Sandra, Santos Mário, Viamonte Sofia, Martins Joana, Martinho-Dias Daniel, Schmidt Cristine, Cyrne Carvalho Henrique (Portugal)

2:55 p.m. - 3:05 p.m. *Cod. 100*
Do portuguese health care providers have stigma and awareness about urinary and anal incontinence?
Viana Pinto LVP, Luisa, Matos Tomé SMT, Sonia, Ramalho JR, Joana, Ribeiro Silva SRS, Sara, Taboas MIT, Maria Inês, Leal Silva JLS, Joana (Portugal)

3:05 p.m. - 3:15 p.m. *Cod. 110*
Pelvic floor rehabilitation resorting to intravaginal inflatable balloon
Aguiar Ana Rita, Amaral Daniela Melo, Dias Joana (Portugal)

3:15 p.m. - 3:25 p.m. *Cod. 253*
Pediatric urodynamic studies: the experience of a tertiary care hospital
Fernandes de jesus Rita, Saldanha Joana, Correia Adriana, Cardoso Francisco Rita, Pires Mafalda, Torres Lima Diana, Rodrigues Diogo, Camarinha Ines, Afonso Catarina (Portugal)

3:25 p.m. - 3:35 p.m. *Cod. 354*
A case report on popliteal artery entrapment syndrome (paes): diagnosis and treatment journey
Peixoto Catarina, Silva Nuno, Andrade Inês, Peres Rui, Nunes Ricardo, Flores Sofia, Ladeira André (Portugal)

3:35 p.m. - 3:45 p.m. *Cod. 89*
Postpartum femoral neuropathy: a multidisciplinary approach
Neto Igor, Moita Gonçalves Eugénio, Lanzaro Camile, Cunha Silva Luísa, Correia Pedro, Azevedo Marta, Carrapatoso Inês, Silva João Pedro, Carvalho Carolina, Cruz André (Portugal)

3:35 p.m. - 3:45 p.m. *Cod. 43*
Cystic fibrosis rehabilitation interventions
Marruaz Denise, Francisco Rita, Pires Mafalda (Portugal)

4:00 p.m. - 5:30 p.m. **PROSTHETES, AMPUTEES AND TBI**
Chairs: **Helena BURGER** (Slovenia), **Mohankumar MARIAPPAN**(UK)

4:00 p.m. - 4:20 p.m. Rehabilitation of people after lower limb amputation
Helena BURGER (Slovenia)

4:20 p.m. - 4:30 p.m. *Cod. 22*
Impact of lower limb amputation and prosthetic fitting in employment of working age adults
Malta João, Rovisco-Branquinho Lurdes, Hovenkamp Carla, Santos Faria João, Santos-Costa Joana, Azenha António, Lemos Pereira Pedro (Portugal)

4:30 p.m. - 4:40 p.m. *Cod. 79*
Comparison between lower limb amputees who were fitted with a prosthesis after one-admission hospitalization and two-admission hospitalization
Elkrinawi Sliman, Glukhoded Michael, Getmansky Julia, Lutsky Lena, Friedman Alen, Treger Iuly (Israel)

4:40 p.m. - 4:50 p.m. *Cod. 153*
The timed up and go test and its implications for rehabilitation in unilateral lower limb amputees
Santos-Faria João, Ribeiro Flávio, Santos Costa Joana, Branco João Paulo (Portugal)

4:50 p.m. - 5:00 p.m. *Cod. 342*
Challenges in delivering neurorehabilitation for a person with complex traumatic brain injury (tbi) in a community hospital setting
Shan Ni Thu, Mariappan Mohankumar, Ruwanpura Gayathri (United Kingdom)

5:00 p.m. - 5:10 p.m. *Cod. 161*
Determination of the factors affecting the length of hospitalization and outcomes in the rehabilitation clinic in patients with traumatic brain injury
Doganyigit Kuzan Nursel, Erden Ender, Tiftik Tülay (Turkey)

5:10 p.m. - 5:20 p.m. *Cod. 241*
Do amputation level and prostheses use influence posture and gait in upper limb amputees? a monocentric pilot study
Miccinilli Sandra, Cordella Francesca, Morrone Michelangelo, Bravi Marco, Santacaterina Fabio, Campagnola Benedetta, Cricenti Laura, Denaro Vincenzo, Di Lazzaro Vincenzo, Di Pino Giovanni, Davalli Angelo, Gruppioni Emanuele, Foti Calogero, Zollo Loredana, (Italy)

5:20 p.m. - 5:30 p.m. *Cod. 305*
Grieving while functioning after spousal acquired brain injury (abi): exploring the role of burden, interpersonal loss, and sense of coherence
Yehene Einat (Israel)

5:30 p.m. - 6:00 p.m. **CLOSING CEREMONY**

DIGITAL POSTER SESSION

Cod. 6
Persons with sacroiliac joint dysfunction exhibit altered electromyographic activity of the latissimus dorsi muscle when lifting a load.
Rincón Zully Rocío, Oliveira Ana Beatriz, Ramírez Ramírez Carolina (Colombia)

Cod. 7
Pain and disability in persons with sacroiliac joint dysfunction
Rincón Zully Rocío, Oliveira Ana Beatriz, Ramírez Ramírez Carolina (Colombia)

Cod. 26
Dysferlinopathy-type girdle myopathy
Yazough Hajar, Elmir Sihame, Menay Hajar, Jaii Manar, ElOumri Ahmed Amine (Morocco)

Cod. 27
Neurological damage due to thiamine deficiency: a bout case report
Yazough Hajar, Elmir Sihame, Menay Hajar, Jaai Manar, ElOumri Ahmed Amine (Morocco)

Cod. 29
Assessment of psychological impact in patients with stroke: about 71 cases
Yazidi Mouad, Kabil Abdelhakim, Dades Rime, Kyal Nada, lmidmani Fatima, El Fatimi Abdellatif (Morocco)

Cod. 30
Management of vesicosphincteric disorders in patients with spina bifida
Yazidi Mouad, Dades Rime, Kabil Abdelhakim, Kyal Nada, lmidmani Fatima, El Fatimi Abdellatif (Morocco)

Cod. 34
Anorectal disorders and management in spinal cord injured patients
Kyal Nada, Tahri Zaineb, Boutalja Hasnaa, Lmidmani Fatima, El Fatimi Abdellatif (Morocco)

Cod. 35
Effect of high intensity interval training on cardiovascular function in postmenopausal women: a meta-analysis
Song Jia, Chen Mai, Ruan Bing (China)

Cod. 39
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GENERAL INFORMATION

CONGRESS VENUE
How to arrive to NH Roma Villa Carpegna

From the airport

Taxi: It's a 31 minutes trip

Aerobus shuttle: Departs every 30-45 minutes. Drop off at Stazione Termini and from there, there is a Metro A (Termini) underground stop toward Battistini for 10 stops, get off in Cornelia stop. From there take the bus 94 towards Piazza Venezia for 4 stops. The hotel is 250m away from the stop.

From the train station

From Cornelia metro stop: take the Bus line 94 toward (Piazza Venezia) for 4 stops. From there the hotel is approximately 250 meters away

Closest metro station: Cornelia
Ticket (100 min): 1.50€
Ticket (24 H): 7.00€
Ticket (48 H): 12.50€
Ticket (72 H): 6.00€
Ticket (1 Week): 24.00€

The Congress secretariat opens at 1.00 p.m.

During the opening Ceremony (on 6th July) it will awarded **the best scientific work** sent by an African Author under 40 with the **"Ezio Caruso Award"**.
Indeed, Prof. Ezio Caruso - Emeritus Professor in Physical Medicine and Rehabilitation at the "Tor Vergata" University of Rome - was born in Libya and he always stayed tied to Africa

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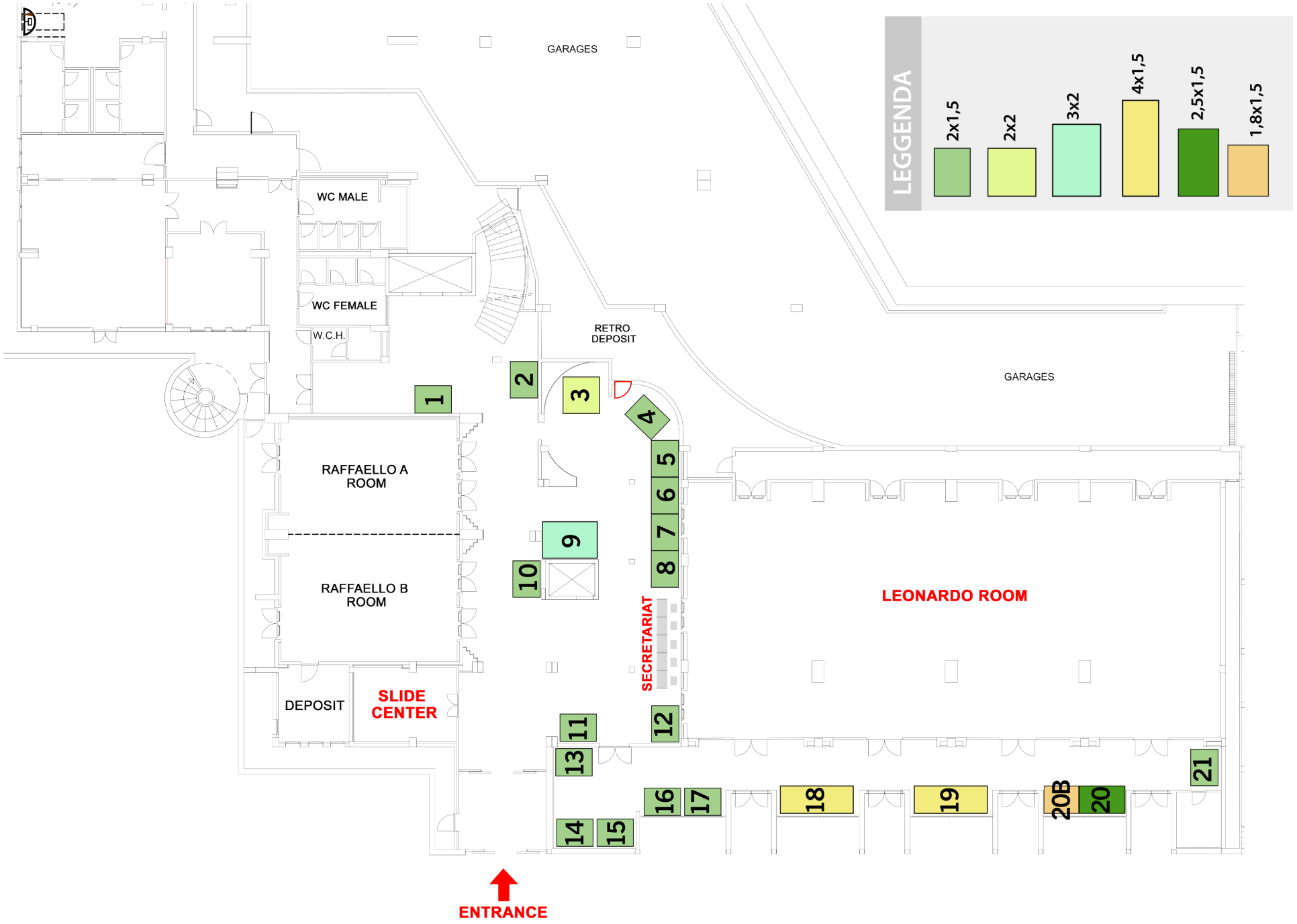
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PRE-CONGRESS WORKSHOPS

Irritable Larynx Syndrome and Paradoxical Vocal Fold Motion

Papangelou Marina-Elvira[1]

1 Department of Speech-Language Pathology, The Institute of Research and Rehabilitation (TIRR) Memorial Hermann Hospital, Houston, TX

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This course will allow the participants to describe Paradoxical Vocal Fold Motion (PVFM) and Irritable Larynx Syndrome (ILS), PVFM/ ILS syndrome disorders, their causes, and symptoms. They will learn how to evaluate PVFM/ILS and ask the appropriate questions via the use of specific questionnaires. Participants will understand the direct link between breathing and voice production and implement a multi-modality therapy program and will receive hands-on training and participate in group practice. They will be able to demonstrate the proper application and execution of Relaxed Throat Breathing Exercises and behavioral modifications for PVFM and ILS independently. Current approaches, case studies, videos to enhance learning, current literature review will be used.

ORTHOPEDICS AND SPORTS REHABILITATION I

LECTURE

Philosophical Similarities Between Lifestyle Medicine and Physical and Rehabilitation Medicine

Markos Sgantzos[1]

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Lifestyle medicine (LM) is a branch of medicine that has as its goal to maintain optimal health and to prevent, treat and reverse chronic illness across all life stages.

On the other hand, Rehabilitation Medicine (RM/PRM) is the application of medical skill to the diagnosis and management of disabling disease and injury of whatever cause and affecting any system of the body. There is a need for an international universal framework for the scope of the specialty to have a greater impact on improving the lives of those with chronic medical conditions. Also, the necessary support to help individuals adopt and sustain improved health behaviors goes beyond the efforts of an individual physician.

The key to therapeutic lifestyle change is partnering with the patient to empower them to be an active participant in their health and to adopt healthier lifestyles.

Physiatrists are trained in and demonstrate superior communication skills, patience, and compassion to address the chronic issues of disability, which intersect with patients' families, vocations, and communities. They have experience in running rehabilitation teams treating patients with complex disabilities, make them comfortable and trained to use team leadership skills to convene and maximize its effectiveness. They are naturally drawn to exercise and physical activity as the cornerstone lifestyle behavior that most closely aligns with their interests, experience, and training. Indeed, an effective exercise prescription can become a lifestyle prescription.

Maybe there is a need for expansion for the scope of the RM/PRM to have a greater impact on improving the lives of those with chronic medical conditions.

Maybe it is another Proposal for Expansion of the Medical Specialty of Physical and Rehabilitation Medicine.

LECTURE

Whole-Body Cryostimulation: a rehabilitation booster for frail patients?

Jacopo Maria Fontana[1], Paolo Piterà[1], Federica Verme[1], Angelo Alito[2], Amelia Brunani[1], Paolo Capodaglio[1,3]

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Whole-body cryostimulation (WBC) consists of short exposures (2-3 minutes) to cryogenic temperatures (-110°C to -140°C) and had been widely recognized for its anti-inflammatory and metabolic effects, used as a post-exercise recovery technique in elite athletes. A growing body of work suggests that WBC could play a very promising adjuvant therapy role in various conditions of rehabilitation interest. In fact, WBC is currently used in selected facilities as an add-on treatment to relieve symptoms of rheumatoid arthritis, fibromyalgia, ankylosing spondylitis, and muscle soreness after strenuous exercise. Recent evidence also indicates a potential role of WBC in depressive and anxiety syndromes, multiple sclerosis, Parkinson's disease, sleep disorders, post-COVID19 condition, and obesity. More generally, WBC may have the potential to become an additive therapeutic approach to existing rehabilitation strategies in frail patients. Indeed, in addition to systemic inflammation, WBC appears to reduce abdominal obesity and body mass in individuals with obesity and low fitness levels. Therefore, this application is of particular interest in a population with a high dropout rate from exercise programs and is believed to potentially open up a new frontier in the treatment of obesity and related disorders.

In addition to its role as symptomatic physical therapy, WBC rather represents an "adaptation therapy" that triggers physiological responses in the autonomic, endocrine, circulatory, neuromuscular and immunological systems with an adaptive mechanism that contributes to the restoration of the homeostatic state. Therefore, based on existing evidence, WBC can be described as:

1) a "training method" for the autonomic nervous system;

2) a novel anti-inflammatory and antioxidant treatment;

3) a treatment with beneficial effects on body composition and adipose tissue.

The effects of thermal stress on the human body provoke powerful physiological responses with distinct characteristics that could be further exploited to improve rehabilitation outcomes in various medical conditions. Therefore, it is important to present the state of the art of current studies on the

potential use of WBC for medical use and to emphasize its importance as an adjuvant treatment in various conditions of rehabilitation interest.

Hidden Enemy of Athletes: Perineural Injuries - Us Diagnosis And Treatment

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One of the key challenges for sports medicine and rehabilitation of athletes is perineural scarring after muscle injuries. Most patients complain of an ongoing or intermittent spontaneous pain of, for example, burning, pricking, squeezing quality, which may be accompanied by evoked pain, particular to light touch and cold.

Ultrasound imaging of nerves and associated tissues may play an important role in the management of patients with neuropathic pain.

The normal nerve, in transverse section, reveals small hypoechoic areas separated by hyperechoic septae, giving a “honeycomb-like” appearance. Abnormal nerve is seen as hypoechoic appearance of nerve with loss of normal fascicular architecture.

The typical US appearance of scar tissue is that of an echogenic homogeneous or inhomogeneous irregular area. The less typical US appearance of scar tissue is hypoechoic area because of presence of irregularly oriented dense fibrous tissue.

Our proposal for the treatment of a scar are ultrasound guided Kolagen Neural, corticosteroid and Lignocain injections around nerves.The role of Kolagen Neural is: scar relaxation and neoangiogenesis.The role of Corticosteroid is: scar prevention,scar regression, analgesic and anti-edematous effect. The role of Lignocain is analgesic effect.

The dose is: 1 amp of Kolagen Neural, 1/3 amp of Diprophos, 1 amp of Lignocain. Apply injections from 3 to 5 times, every two weeks.

The final effect of the ultrasound guided perineural injections is reducing pain and numbness.

This is a preliminary report requiring further investigation. In the future we are going to use elastography to assess scars.

Quality of life in patients after Anterior Cruciate Ligament reconstruction

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Return to sports activities after anterior cruciate ligament (ACL) reconstruction is a sign that is the primary goal of treatment in these patients. Quality of life has returned to the level before the injury. This paper aims to investigate the quality of life of patients who underwent rehabilitation using isokinetic exercises after ACL reconstruction.

The research included 40 men, average age of 24.13 ± 4.2 years, who were undergoing rehabilitation after ACL reconstruction. Patients were divided into two groups (Group 1 and Group 2) according to the type of applied rehabilitation protocol. Group 1 patients (n=20) underwent rehabilitation treatment consisting exclusively of strength and proprioception exercises in a closed and open kinetic chain with the application of progressive loading. In addition, Group 2 patients (n=20) performed targeted isokinetic exercises according to the load determined by isokinetic testing. All subjects underwent the rehabilitation process five times a week for three months. It started after three months after the reconstruction and lasted until the 6th postoperative month. The follow-up parameter was the Anterior Cruciate Ligament Quality of Life Questionnaire (Anterior Cruciate Ligament QoL). Student's t-test with the level of significance was $p < 0.05$ was used.

After 6th months postoperativelly the average value of Anterior Cruciate Ligament QoL in Patients from Group 2 was statistically better than patients form Group 1 ($p<0.05$).

Isokinetic strength and proprioception training as a targeted therapeutic intervention helps earlier return to sports activities and improves patient's quality of life after ACL reconstruction.

The Meniscus Dilemma: Exploring Rehabilitation Programs for Degenerative Lesions

João Santos-Faria[1], António Santinho Costa[1], João Paulo Branco[1], João Páscoa Pinheiro[1]

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Degenerative meniscus lesions (DML) are prevalent in middle-aged and elderly people with no history of trauma, potentially leading to knee osteoarthritis. DMLs may be asymptomatic or present with symptoms, including pain, swelling, and mobility impairments. Surgical intervention for DML has been debated, and non-surgical approaches have been found to be effective for many patients. We aimed to identify the most effective rehabilitation program for DML by comparing different exercise programs. Research was conducted using the PubMed database, including only articles published within the last 5 years that evaluated pain and/or functionality outcomes in patients with DML undergoing a rehabilitation program. We excluded studies that exclusively referred to surgical approaches, simulated surgery, post-traumatic meniscus tear diagnosis, meniscus repair, or concomitant anterior cruciate ligament injury. Two specialists independently proceeded with article selection, considering the PRISMA guidelines. We assessed the quality of the studies using the AMSTAR-2 tool. Nine systematic reviews matched our inclusion criteria. The quality of the articles was evaluated with the AMSTAR-2 tool, rating one article as "low" and eight as "critically low". Various systematic reviews used different outcome measures for pain and functionality, leading to significant variations in the rehabilitation programs proposed. Our analysis showed that surgery and conservative methods do not show a significant difference in the long-term treatment of DML. However, the rehabilitation programs proposed in the various studies differed significantly in terms of exercises and duration, highlighting the need for further research to determine the most effective rehabilitation approach.

Neurophysiology after ACL reconstruction: cortico-spinal excitability of the operated limb's knee extensors and ankle dorsiflexors increases. A TMS-force study.

Scarano Stefano[1,2], Ferrua Paolo[1,3], Caronni Antonio[2], Menon Alessandra[3], Malloggi Chiara[2], Rota Viviana[2], Rossetti Angela[2], Chieppi Paola[3], Amadei Maurizio[2], Randelli Pietro Simone[1,3] and Tesio Luigi[2]

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2 IRCCS Istituto Auxologico Italiano, Department of Neurorehabilitation Sciences, Ospedale San Luca, Milan, Italy

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Patients with ACL reconstruction (ACLR) often complain of poor knee functioning despite the surgical restoration of knee stability. Delayed return to sport and re-injury risk parallel these subjective complaints. Neural alterations are suspected to underlie this phenomenon. The present ongoing cross-sectional study assesses lower limbs' function with mechanical and neurophysiological measures after ACLR with semitendinosus-gracilis graft.

So far, four patients (age 20–30 years; 8-12 months after ACLR) have been recruited. All patients had achieved good recovery after surgery and exercise therapy. Both lower limbs were assessed: morphometry (mid-thigh circumference, echographic knee extensors' thickness); dynamometry (extensor peak moment) and voluntary activation (interpolated-twitch technique, ITT) at maximal isometric effort; cortico-spinal excitability of Vastus medialis and Tibialis anterior muscles with transcranial magnetic stimulation (amplitude/stimulus intensity recruitment curves were built during submaximal contractions; the more the curve is leftward-shifted, the higher the corticospinal excitability).

All patients showed muscle hypotrophy on the impaired, compared to the unimpaired, quadriceps: 0.14-1.0 cm difference for knee extensors' thickness. Two patients had asymmetric extensor peak moments (11.76-22.01% greater on the unimpaired side). Only one patient showed asymmetric voluntary activation (11.69% greater on the impaired limb). In all four participants, recruitment curves of both the Vastus medialis and Tibialis anterior of the operated side were left-shifted compared to the unimpaired side.

The asymmetry in recruitment curves suggests enhanced cortico-spinal excitability of the impaired limb's muscles. This enhancement might counteract the force decline associated with reduced muscle mass, which is still to be explained.

SPASTICITY

Focused extracorporeal shock wave therapy as a combined treatment modality for focal spasticity-associated symptoms

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Spasticity is a disabling neurological condition with different treatment modalities available. Recently, extracorporeal shock wave therapy (ESWT) has been proposed as a promising treatment modality. The aim of this study is to present our center's short experience with focused ESWT (fESWT) as a combined treatment modality for patients with refractory focal spasticity-associated symptoms.

We performed a prospective study in patients with focal spasticity submitted to botulinum toxin type A injections at regular intervals of aproximately 3 months who had not fully achieved SMART treatment goals related to pain reduction, spasm frequency reduction or both. fESWT was proposed to help achieve these goals. All patients underwent 4 consecutive ultrasound-guided fESWT sessions at weekly intervals and the results were measured 4 weeks after the last session. Measurements included the Numeric Pain Rating Scale (0-10) and Penn Spasm Frequency Scale.

6 male patients were recruited, between 43 to 64 years old. Patient diagnosis included stroke (n=2), spinal cord injury (n=1), hereditary spastic paraplegia (n=1), multiple sclerosis (n=1) and subacute combined degeneration (n=1). Treatment was interrupted in 1 patient because of spasm frequency increase. 3 patients had spasticity-associated pain and 4 had spasms. Pain reduction goals were achieved in 3/3 patients and spasm frequency reduction goals in 3/4 patients.

Although no causal inferences can be made because of the small study sample, simultaneous treatment modalities and lack of control group, this study supports the relevance of fESWT as a combined treatment modality for reducing focal spasticity-associated symptoms, in line with current evidence.

Effects Of Extracorporeal Shock Wave Therapy On Post-Stroke Spasticity And Assessment Strategy Through A Gait Analysis System

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Lower limb spasticity often leads to impaired walking ability in post-stroke patients. Therefore, in order to complement the clinical assessment and ensure objective, easy to access measurements, quantitative gait analysis through instrumented treadmills was used for the assessment of spatiotemporal and kinematic parameters. A total of 15 patients took part into an observational study and were evaluated both clinically and through an instrumented treadmill. Before and after radial extracorporeal shock wave therapy (rESWT) and conventional physical therapy program, the patients were evaluated at the same walking speed. Spatiotemporal and kinematic parameters were measured and complemented the clinical evaluation. Kinematic endpoints were range of motion (ROM) of the hip, knee, and ankle. Spatiotemporal endpoints were step length, step cycle time, stance, and swing. Clinical outcomes were spasticity grade, range of motion, and pain intensity. The effects of the conventional rehabilitation program and rESWT delivery on plantarflexor muscles affected by spasticity and gait pattern analysis were evaluated through spatiotemporal, kinematic, and clinical parameters. The statistical analyses were performed through GraphPad Software, Microsoft Excel, and MATLAB. All the endpoints showed statistically significant improvement. Spasticity grade and pain intensity decreased significantly, whereas balance and gait were enhanced at the end of the program. The data suggest that rESWT and conventional physical therapy program improved clinical endpoints, spatiotemporal, kinematic parameters, balance, and gait in post-stroke patients. The addition of objective analysis to clinical examination allowed an accesible progress record and a tailored therapeutic approach for post-stroke patients.

Efficacy of an Individual Rehabilitation Project in Patients Undergoing Allogeneic Hematopoietic Stem Cell Transplantation

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Allogeneic Hematopoietic Stem Cell Transplantation (allo-HSCT) is an intensive procedure that compromises performance status as lack of physical activity leads to deconditioning and deterioration of quality of life. Fatigue appears in 30-50% of allo-HSCT patients and physical activity seems to have a positive effect on it and on the immune system. We aimed to investigate the effect of an individual rehabilitation project (IRP) on allo-HSCT adults inpatients.

Subjects were assessed at hospitalization (T1), discharge (T2), 2 months (T3) and 6 months (T4) post discharge using Barthel Index (BI), Fatigue Severity Scale (FSS), Modified Borg Scale (MBS), 30 Seconds Sit to Stand Test (30STS) and 6 Minutes Walking Test (6MWT).

The IRP consisted of two phases: i) during hospitalization (motor re-educational program, five times a week); ii) at home (continuing the exercises following instructions in an illustrated booklet).

47 allo-HSCT patients (26 females, median age 49.5 years) were recruited; of them, 33 completed the protocol.

All evaluated parameters showed a worsening in T2 (FSS p=0.009, 30STST p=0.007, 6MWT p=0.002, MBS p=0.001) and 30STST also in T3 (p=0.001).

They, however, improved in T4 (FSS p=0.026, 30STST p=0.018, 6MWT p=0.038, MBS p=0.049). No change was found in BI probably because the subjects, despite the worsening physical conditions, rarely lost their autonomy.

During hospitalization for allo-HSCT a decline in the initial functional status was detectable. However, the proposed IRP appeared feasible (70% of the sample completed the protocol) and allowed to achieve a good recovery after six months.

The Role of Therapeutic Ultrasound In The Treatment Of Mastitis

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Mastitis is a common condition affecting lactating women, which can cause pain, fever and breast engorgement. While antibiotics are the mainstay of treatment for mastitis, ultrasound therapy has been proposed as a non-invasive alternative. A few studies suggest that ultrasound therapy could improve symptoms and promote faster resolution of the condition through its termal and non-termal effects. However, randomized clinical trials have not been able to prove this theory. Also, optimal parameters of ultrasound therapy, such as frequency, duration and intensity, are still unclear. Nevertheless, therapeutic ultrasound was added to the 2022 recommendations of the Academy of Breastfeeding Medicine for the treatment of mastitis. In this case report, we present the use of ultrasound therapy as coadjuvant therapy for the management of mastitis in a 25 years old woman who presented with severe breast pain, redness and fever while breastfeeding. Despite appropriate antibiotic treatment, the symptoms remained. After ruling out abscess formation and obtaining informed consent, the patient received 6 sessions of ultrasound therapy, using 1 MHz frequency and an intensity of 2W/cm2, lasting 5 minutes in each breast, over a period of 1 week. After this time, treatment was suspended due to significant improvement in the visual pain scale and redness. No adverse effects or recurrence were reported during the follow-up period of 8 months. Ultrasound therapy appears to be a promising modality for the management of mastitis in lactating women and further studies are warranted to establish its safety and efficacy.

NEUROLOGICAL DISORDERS I

The 6MWT as a predictor of the daily steps of stroke patients at home: a systematic review with meta-analysis

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Stroke is a major public health issue. The level of physical activity (PA) in stroke survivors is low. We need to determine the factors that predict the home walking activity to avoid the sedentary behavior in this population. The six minute walking test (6MWT) is commonly used in people with stroke. It is a safe test and easy to administer. The aim of this study is to assess the correlation between the 6MWT and the daily steps at home. This study is a secondary analysis of a larger meta-analysis. It was conducteed in line with PRISMA 2020 recommendations. We searched PubMed, ScienceDirect, Scopus, Cinahl and Embase to found relevant studies. In this analysis, we included stuides assessing 6MWT and the daily steps at home with activity tracker. The data were extracted by two authors. 19 studies were included involving 832 patients. The mean age was 63±4.8 years old with 36±41 months delay after stroke. The data were normally distributed. We found a significant correlation between the 6MWT and daily steps ($p<0.01$). The correlation was low with $R=0.45$. Although a low significatn correlation, our results showed that the 6MWT could be a good predictor of the level of PA at home for stroke patients. Further studies are needed to confirm the use of 6MWT as a paramter to individulize the recommendations and the monitoring of PA at home.

Effect Of Ozone Therapy Added To Resistance Exercises On Sarcopenia-Related Factors: A Randomized, Controlled, Experimental Elderly Rat Study

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Ozone therapy (OT) as a complementary/adjuvant therapy for various diseases has become widespread in recent years. In Sarcopenia treatment, different studies have reported the efficacy of resistance exercises (RE). However, to our knowledge there is no clinical or experimental studies evaluating the effects of OT added to RE. The aim's to compare the efficacy of OT added to RE in old rats.

We randomised 24 elderly female rats into 3 groups and subjected them to the 8 weeks protocol. Group1 had no intervention. Group2 only received RE. Group3 received OT in addition to RE. RE were performed on ladder with increasing weights, 3 days a week, for a total of 24 sessions. OT was implemented intraperitoneally twice a week, for a total of 16 sessions, at 20mcg/ml concentration. Before and after intervention, measurements of weights and functional tests that are Open Field and Rotarod. By sacrificing all of elderly rats, we analyzed gastrocnemius muscles macroscopy, the levels of serum inflammatory cytokine (IL-6, myostatin,homocysteine,hsCRP) on serum oxidative statement (Total Oxidative Status (TOS),Total Antioxidative Status(TAS),Oxidative Stress Index(OSI)) on serum and tissue, histologic features (rates of muscle leaf types,IGF-1,Pax-7,Nrf-2) on tissue.

Weight loss in groups 1 and 2, functional tests in group1 compared to groups 2 and 3 was a statistically significant difference. Group 3 had significantly difference muscle oxidative statement compared to others. Groups 2 and 3 had significantly difference type2 fiber, IGF-1, PAX-7,Nrf-2 ratios on muscle, compared to group 1.

We detected that OT added to 8-week RE didn't affect parameters that evaluated about sarcopenia.

NEUROLOGICAL DISORDERS II

LECTURE

Drooling Management as a Part of Dysphagia Management in Neurologic Disabilities

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Drooling is a frequent but underrecognized and undertreated symptom of neurological diseases. Like the proverbial 'elephant in the room' the issue of drooling cannot continue to be ignored. Hypersalivation, sialorrhoea and drooling are often used interchangeably, but they refer to different aspects of salivary continence. Hypersalivation refers to the increased production of saliva, whereas sialorrhoea refers to excessive saliva accumulation and the unintentional loss of saliva from the mouth. Sialorrhoea can be caused by excessive production of saliva, or swallowing disturbances, which ultimately lead to an inability to retain saliva within the mouth. This is also known as drooling. Sialorhea can be caused by excessive production of saliva, or swallowing disturbances. In neurological disabilities, impaired neuromuscular control is the main reason of sialorrhea while hypersalivation is an infrequent cause. Sialorhea can be caused by excessive production of saliva, or swallowing disturbances. In neurological disabilities, impaired neuromuscular control is the main reason of sialorrhea while hypersalivation is an infrequent cause. Anterior drooling can be described as unintentional leaving of saliva from mouth to outside of the body while posterior drooling is the invisible spill of saliva from mouth through pharyngeal isthmus and, then to respiratory or digestive tract, inside the body possibly creating a risk of aspiration. Anterior drooling may cause consequences including psycho-social impairment, skin problems, infections, bad odor, dehydration, dentation problems and wet clothes and tools. Posterior drooling has more severe consequences including chronic aspiration that pose a risk for aspiration pneumonia, progressive lung disease, increased frequency of suctioning resulting in caregiver burden and even difficulty weaning from tracheostomy. Treatment of drooling should be multi-disciplinary. Conservative treatments include pharmacological and non-pharmacological management. Interventional treatments include botulinum toxin injection, surgery and radiotherapy. If drooling cannot be managed adequately with non-pharmacological methods, pharmacological treatment is indicated. Among pharmacological treatment choices botulinum toxin injection is preferred due to unwanted systemic side effects of oral pharmacological treatments.

Technological balance and gait rehabilitation in stroke patients: effects on functional, motor and cognitive outcomes

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Overcoming motor and cognitive deficits is a prerequisite for stroke patients to regain autonomy in activities of daily living. In recent years, the rehabilitation landscape has been enriched with new technologies to improve the quality and efficiency of functional recovery after an acute event.

The aim of this study is to evaluate the effects of technological rehabilitation with the robotic platform Hunova® (Movendo Technology srl, Genova, IT) in terms of improvement of fatigue, cognitive performance and quality of life.

This is an interventional, single-blinded, preliminary randomized control trial. Twenty-four elderly with stroke were randomized into the Hunova group (HuG), which performed a specific rehabilitation program for balance using Hunova for 12 sessions in addition to conventional rehabilitation, and the control group (CoG), which performed only conventional rehabilitation. All patients underwent clinical and instrumental assessment of balance with Hunova at the beginning and end of treatment.

Statistical analysis showed significant improvements in most clinical scales in both groups. Comparing the groups, HuG showed greater improvements in static and dynamic balance ($p<0.001$) and autonomy in daily activities ($p=0.010$), postural sway ($p=0.050$), trunk control ($p=0.045$), information processing speed ($p=0.002$), cognitive interference ($p=0.032$), fatigue ($p=0.03$) and autonomy ($p=0.05$).

The analysis showed that elderly persons with stroke who received balance technology treatment with Hunova in combination with conventional treatment achieved greater benefits with regard to balance, certain cognitive domains, fatigue and autonomy.

Dependency Of Neurobehavioural Deficits on ADL Impairment In Stroke Rehabilitation

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Outpatient concepts in stroke rehabilitation are for a quality of life and a successful social reintegration of increasing importance. For a good quality of life and a successful reintegration not only the sensorimotor deficits, but also the dimension of neuropsychological and behavioral deficits are of major interest. The aim of our study was to investigate the spectrum and severity of daily behavior functions and behavioral deficits during the outpatient rehabilitation in a subacute phase after stroke. 61 patients after hemorrhagic or ischemic stroke (0-6 months) were included. We used additional to the neurological examination for the ADL Barthel Index (BI) and Marburger Kompetenz Skala (MKS, self- and external assessment). For the examination of behavior, we used Neurobehavioral Rating Scale (NBRS). NBRS we used also after dividing patients in two groups: patients with no or minor limitations in ADL limitations (BI> = 85 points), vs. patients with higher limitations (BI <= 80 points). As expected for the outpatient rehabilitation, BI has averaged 90.2 points, 47 of the patients achieved 85 or more points and were independent in basic activities of daily living. The Results of the MKS (daily behavior) showed most of all limits in recreational activities, physical work and mobility (driving a car, using the public transport). No difference between the self and the external assessment in MKS was determined. The most commonly observed neurological deficits were disturbances of coordination and fine motor skills. Already a huge spectrum of behavioral deficits were recognized, mainly – next to well-known symptoms of depression and fear - limitations in attention and increase in fatigability. Patients with limitations in ADL were significantly more affected ($p < 0.001$) by behavioral deficits than patients with low limitations. The future development of innovative outpatient rehabilitation concepts in the subacute phase of stroke rehabilitation should be considered relevant to individual everyday life skills and behavioral competences. Early comprehension of individually customized neuropsychological and behavioral therapy, accompanied by therapeutic care of the social and familiar environment, is an important factor for improvement of reintegration of these patients. Therefore, they should receive special attention in the subacute phase of rehabilitation, especially also in patients with more severe limitations of sensorimotor function, for whom neuropsychological therapy is often only very limited.

Non-Modifiable Factors Associated with Progression to Irreversible Disability In Multiple Sclerosis Patients

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Multiple sclerosis (MS) is a heterogeneous disease, with unpredictable symptoms, general course and functional prognosis. The consequences of the disease in terms of disability follow its progression, imposing a permanent multidimensional handicap on those affected. The prevalence of this disease is rising sharply in Algeria. In addition, its evolutionary profile appears to be more severe. Identifying the factors associated with progression to irreversible disability is an important step towards appropriate management. Survival curve analysis according to the main prognostic factors was used to calculate the probability of reaching a level of severe disability EDSS (Expanded Disability Statue Scale) ≥ 6); taking into account, the time elapsed between the onset of the disease and the last assessment. Our results suggest that the disease's evolutionary profile is more severe in our patients, and this is in line with work done on the North African population. We noted that patients who presented with initial symptoms at an advanced age had a short duration of evolution and a more rapid progression of disability, and therefore a poor prognosis. Our results concur with the literature on several aspects that favor rapid disease progression, and significant correlations were found between worsening disability and non-modifiable factors such as male gender, initial motor or sensitive symptomatology and progressive form. On the other hand, the presence of retro-bulbar optic neuritis at the time of the first neurological episode would be a good prognostic factor for our patients. We found that patients born and/or living in the coastal region had a more severe disability than those living in the Sahara, in line with studies showing the protective effect of altitude, ultraviolet radiation and vitamin D. These non-modifiable factors are important predictors of MS disability and should alert the clinician to appropriate and specific management, even at an early stage of the disease.

The Role of Cerebellum in Multiple Sclerosis-Related Fatigue and Disability

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Fatigue causes persons with Multiple Sclerosis (pwMS) to fail in performing mental and physical tasks, resulting in disability and deteriorating Quality of Life. Previous studies1,2 have demonstrated cerebellum damage role in central fatigue (CF), this role is poorly understood in relation to different kinds of fatigue and cerebellar sub-structures.

44 pwMS were enrolled. The Modified Fatigue Impact Scale (cognitive, physical, and psychosocial: cMFIS, pMFIS, psMFIS) was used to assess CF, clinical disability was rated by the Expanded Disability Status Scale. Based on the score of MFIS, patients were subdivided into fatigued (F-MS: score>38) and non-fatigued (nF-MS: score<38). Gray/white matter volumes of each cerebellar lobule were acquired by 3 Tesla Magnetic Resonance Imaging (MRI), normalized by use of intracranial volume. Correlations between MRI and clinical parameters were assessed using the Spearman rank correlation coefficient.

In F-MS, higher disability was correlated with cognitive and limbic cerebellum atrophy. Instead, consistently with the functional topography3 (sensorimotor vs cognitive/emotional) of the cerebellum, physical and psychosocial fatigue were significant related to, respectively, the sensorimotor and the limbic cerebellum. Finally, cognitive fatigue was inversely related to the limbic cerebellum volume.

Actual data confirm that MS CF construct is complex and refers to several components. It is possible that the various components of fatigue are related to the damage of different cerebellum sub-structures according to the role that has been attributed to them based on previous studies. New hypotheses emerge on the role of the cerebellum itself, which assume relevance in a neuro-rehabilitative perspective.

The Split Hand Phenomenon: Uncovering an Early Sign of Amyotrophic Lateral Sclerosis

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Split hand phenomenon (SHP) is a specific pattern of dissociated hand muscle atrophy, characterized by localized weakness and wasting of the abductor pollicis brevis and first dorsal interosseous muscles with relative sparing of the abductor digit minimi. A 70-year-old female was sent to our outpatient clinic after presenting progressive distal left hand weakness, initially interpreted as sequelae after a lacunar stroke. Examination revealed atrophy of thenar eminence, predominantly affecting thumb abduction, loss of the pincer grasp and normal abduction of the fifth finger. There were no sensory symptoms. Deep tendon reflexes demonstrated an increased response. Electromyography showed moderate to severe acute and chronic neurogenic distress predominantly on the C7 to T1 roots on the left. Since the patient had a history of breast cancer, we initially considered radiation-induced brachial plexopathy. However, the MRI of the cervical spinal cord was unremarkable. Despite rehabilitation, the patient did not improve. A few months after the onset of symptoms, the weakness extended to the proximal limb, she reported fatigue and orthopnea. The patient was hospitalized for further investigation. She was subsequently evaluated by neurology reporting new onset progressive liquid dysphagia. Proximal lower limbs weakness, tongue fasciculations and Babinski's positive sign were present. Amyotrophic lateral sclerosis (ALS) diagnosis was established and riluzole was initiated. Although SHP has been observed in other conditions, it is primarily associated with ALS. This case demonstrates the importance of promptly identifying this sign through physical examination to avoid delaying treatment.

The kinesio-taping for the prevention of painful shoulder and for the functional recovery of upper limb after stroke

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Hemiplegic shoulder pain is found with an incidence in the first year between 1% and 22% of strokes. Some previous studies have reported conflicting results on the use of Kinesio Tape (KT) in the treatment of painful hemiplegic shoulder. The primary objective of the study was to evaluate the effect of early application of KT in preventing the onset of shoulder pain symptoms in patients with sub-acute stroke with muscle flaccidity. In addition, it was evaluated whether this protocol could affect the onset and progression of spasticity and functional recovery of the upper limb. 15 patients in the experimental group (EG) and 15 in the control group (CG) were enrolled and randomized. Both underwent biweekly treatment aimed at shoulder rehabilitation in addition to standard rehabilitation. The EG underwent a weekly application of KT aimed at joint support. A sham application of KT was instead applied to the CG. Pain intensity by the Ritchie Articular Index (RAI), upper limb function by the Fugl-Meyer Assessment (FMA) scale, and the presence of upper limb spasticity by the modified Ashworth Scale (MAS) was assessed at enrollment and after 2 and 4 applications of KT. Analysis of the results showed a significant effect on pain (RAI). No significant effects were found on limb function and spasticity. We have observed no side effects. Treatment with KT can be a safe and effective method for the prevention of pain in hemiplegic shoulder.

LECTURE

Approach to Spinal Pain in Children

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Low back pain (LBP) in children and adolescents is thought to be uncommon previously, and often underappreciated. Its prevalence rises with age. In early adolescence, most children with back pain have mild, transient symptoms and they do not seek medical care. While infants and children often have an identifiable source of back pain, back pain in the adolescent population has benign, self-limiting, and idiopathic causes. The differential diagnosis of LBP in school-aged children is broad and different from the back pain in adults. The most common cause of LBP is nonspecific musculoskeletal pain with no identifiable pain generator. Etiology, management and progress of causes of LBP in children are different from adults. When a specific etiologic cause for LBP in children can be identified, it includes injury to the posterior elements of the spine, such as spondylolysis, which is much more common in this population than pathologic disc features. Spondylolisthesis may progress until maturity. In case of radicular pain, apophyseal ring fracture should also be considered in differential diagnosis of sciatica. During our approach to spinal pain in children, we should appropriately take history and perform a physical examination and we should seek for warning signs that are called ‘’red flags’’. Further imaging and laboratory tests should be ordered for all young children with red flags warning signs. Evaluation and management of childhood and adolescent back pain are challenging and require a thorough history and physical examination.

Focal Periphyseal Edema: a case report

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Knee pain in active adolescents is a common reason for presentation to the pediatric orthopaedic surgeon. The aims of this case report were to elucidate physicians about this condition and to elicit the importance of a patient-tailored rehabilitation program in the treatment of this finding.

A 14-year-old male adolescent with progressive bilateral nociceptive somatic knee pain. The pain was worse with weight bearing, and relieved at rest.

On the physical examination he referred pain at the medial joint line of the left knee, and experienced pain in the last 10° of knee passive flexion and no joint instability, a grade 4 muscle strength in Medical Research Council's scale of knee flexors and extensors and a positive McMurray's test was observed. The patient was treated conservatively with nonsteroidal anti-inflammatory drugs and a rehabilitation program.

The program's objectives were pain control, muscle strengthening of the knee flexor and extensor muscles and ankle stabilizer muscles.

Right knee Magnetic Resonance Imaging (MRI) showed a focal abnormal signal intensity noted at the distal femoral metaphyseal and epiphyseal bone marrow, indicating bone marrow edema and Focal Periphyseal Edema (FOPE) diagnosis was made. After a total of 6 months of treatment, the patient was asymptomatic, reporting a 0 score in VAS. Sports activities were gradually tolerated and he was able to perform daily activities.

FOPE is a clinical entity that should not be ignored and must be treated for the patient's comfort. It is a self-limited condition and has an excellent prognosis.

Efficacy of helmet therapy on positional head deformation

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The incidence of positional head deformation has increased during the last decades. Helmet therapy is a non-surgical option for treating nonsynostotic skull deformations. Some authors support that 4 to 6 month of age is the optimal starting point for this treatment, until 12 months of age. In this retrospective study, we investigated the impact of helmet therapy on positional plagiocephaly, brachycephaly, or both and the different efficacy between the groups.

Twenty patients diagnosed with positional head deformation were treated by helmet therapy between May 2020 and March 2022. We divided the patients in three groups: plagiocephaly, brachycephaly, and a combination of both, using two values, cephalic index (CI) and oblique diameter difference index (ODDI).

In all, 13 patients (65%) were male and 7 patients were female (35%) aged 5 to 10 months, with mean duration of treatment of 3.8 months. All variables were compared before and after helmet therapy and were categorized by type of skull deformation. In patients with brachycephaly, CI improved 4.09%. Mean improvement of ODDI ranged from 0.4% to 5.1%, with mean reduction of 2.50%, in patients with plagiocephaly. On the last group, the mean reduction of CI and ODDI was 2.80% and 2.86%, respectively, with statistical significance ($p<0.05$).

In positional brachycephaly, we verified the greatest improvement in the relevant parameter in comparison with the other two groups. Helmet therapy appears to be an effective method no matter the initial starting age of treatment.

The Role of Early Interventionist For High Risk Infants In Elepap-Rehabilitation For The Disabled

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The Goal of Early Intervention: "…To enable young children to be active and successful participants during the early childhood years and in the future in a variety of settings –in their homes with their families, in childcare, in preschool or school programs, and in the community."

Early Interventionists coach, consult and collaborate with families and community members so they are comfortable and confident that they can promote child learning, development and participation in everyday activities.

Organizing and implimenting an individualized service plan for high risk infants' groups for neurodevelopmental problems. These groups are:

• Very small premature babies with a long hospitalization in the NICU and especially those with specific brain pathology (e.g. cerebral hemorrhage, hydrocephalus, e.t.c.)

• Children with early diagnosis of various syndromes and psychomotor retardation.

• Infants with suspected symptoms of Cerebral Palsy after perinatal events (e.g. perinatal asphyxia).

The results of early intervention are monitored by scientific assessment tools: Alberta Infant Motor Scale, AIMS, GMFMCS, Peabody Developmental Motor Scales (PDMS-2) and Bayley Scales of Infant and Toddler.

Children's experiences actually influence gene expression. So development is a highly interactive and sensitive process that is not exclusively determined by genes. Thanks to neuroplasticity during the first years of life, more than 1 million new neural connections are formed every second. Thus, Neuroplasticity is the basis of Early Childhood Intervention concept.

Functioning assessment of patients with neoplasms in Greece: Application of the WHODAS 2.0 (12-item version)

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In Greece, disability status is verified by state's medical committees who provide patient's disability percentage based on ICD-10 and a Barema scale (biomedical approach). A holistic disability assessment considers the appraisal of the patients concerning their health condition and well-being. This biopsychosocial approach can be employed using a questionnaire based on the International Classification of Functioning, Disability and Health (ICF), such as and the WHO Disability Assessment Schedule 2.0 questionnaire (WHODAS). The aim of the respective study was to examine the differences between the biomedical and biopsychosocial approaches to disability assessment of patients with neoplasms that had applied for welfare benefits in Greece. The short form, interview-administered version, of the questionnaire was used (12-item). The participants were also examined by 3-member medical committees who attributed their disability percentages based on a Barema Scale (Barema Score). Overall, 2,143 adult patients with cancer were assessed (females: 77.65%) and the mean age was 57.38 ± 13.03 years. Results showed acceptable internal consistency (Cronbach's alpha = 0.897). The mean WHODAS score was: 47.78 ± 21.12 and the average Barema Score was: 72.05 ± 15.3 ($t = -45.97$, $p < 0.001$). A significant correlation was found between the two disability scores (Pearson's $r = 0.129$, $p < 0.001$). Holistic disability assessment with ICF-based tools, may provide crucial information to practitioners with respect to the affected domains of the patients' daily life. Needs assessment and self-reported disability will contribute to the patient's rehabilitation, participation in the community and overall functioning.

POST COVID-19 REHABILITATION AND HEALTH INTERVENTION IN PRM

Long COVID-19 Rehabilitation in Turkey

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Long COVID is defined as 'the continuation or development of new symptoms 3 months after the initial SARS-CoV-2 infection, with these symptoms for at least 2 months with no other explanation. Rehabilitation has an important role in improving the disability. In Turkey, according to the long COVID symptoms, patients are rehabilitated by multidisciplinary teams in outpatient or inpatient units. The Physical Medicine and Rehabilitation Association of Turkey has prepared a brochure for post-COVID-19 patients called 'Support for Rehabilitation and Self-Management After COVID-19-Related Illness. In the brochure, red flags and the management of dyspnoea, energy conservation techniques and fatigue, voice, problems with swallowing, nutrition, smell and taste, attention, memory and clear thinking, stress, anxiety, depression and sleep issues, pain and physical activity, and exercise recommendations were described. Brain fog, cognitive function and memory problems, speech and language disorders, and sensorimotor symptoms are reported. Aerobic, strengthening, balance exercises, and energy conservation techniques are recommended for patients with chronic fatigue. For sleep disorders, cognitive-behavioural therapy, Yoga and Tai-chi, and medical treatment are recommended. For musculoskeletal symptoms such as pain, and muscle spasms, rehabilitation programs should be prepared. For bedridden patients' neuromuscular rehabilitation, tilt table, compression stockings, mobilization, range of motion, bridge and trunk exercises were performed. After developing adequate trunk stability, bedside sitting, standing, balance coordination; walking in the parallel bar; step climbing; strengthening exercises, and progressive resistance training were performed. Education, respiratory/oxygen support, mobilization, respiratory/ventilatory muscle, aerobic, daily living activities exercises, and nutritional support are applied in pulmonary rehabilitation. When patient is stable, cardiac rehabilitation program consisting of aerobic, strengthening, and endurance exercises should be applied. Healthcare professionals need to be careful about detecting, examining, and differential diagnosis of ongoing and newly developing symptoms in patients with COVID-19. The content of rehabilitation programs should be planned individually for each patient, focusing on the areas of the patient's dysfunction.

Early Rehabilitation in Covid-19 Patients. Our Experience at The Tor Vergata Hospital

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Coronavirus disease 2019 (COVID 19) is a contagious respiratory infectious disease caused by SARS-COV-2 virus. It may cause bilateral interstitial pneumonia and extra-pulmonary manifestations, that may lead to prolonged hospital stays in intensive and non-intensive care areas, prolonged periods of bed rest and non/invasive ventilation therapy. The purpose of this paper is to describe the effects of early rehabilitation on stenia, dyspnea symptoms, and patients' dependence on activities of daily living.

Patients admitted to the Department of Infectious Diseases at the Policlinico di Roma Tor Vergata were recruited. The rehabilitation procedures included three stages: initial assessment, rehabilitation intervention, and physiatric reevaluation at the time of the patient's discharge, using the Medical Research Council scale, Barthel's Index and Dyspnea Index. The treatment protocol included 45-60 minute sessions of motor or respiratory physical therapy, or both, 5/6 times per week.

Our study highlighted the importance of an early rehabilitation project in the recovery of patients with COVID-19 in an acute care setting, that leads to a full or partial recovery of the patient's basic autonomies, improves quality of life, and facilitates early discharge to home or other facilities.

Covid-19 patients are potentially susceptible to future problems typical of people with chronic lung disease. It seems necessary to develop lines of research aimed at evaluating the degree to which the benefits of rehabilitation are maintained over the long term, trying to understand if it can affect the onset and the development of functional impairment in the long COVID population.

The effectiveness of kinesiotherapy during treatment of acute and early post-acute COVID-19 in an infectious department: A retrospective observational study.

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The publications appearing from 2020 indicated the need for early rehabilitation of patients with COVID-19. The aim of the study was to compare the effectiveness of kinesiotherapy in the chosen groups of patients. 64 patients with COVID-19 were admitted to the Temporary Infectious Department (TID). Groups were distinguished according to sex, phase of the disease (acute phase – AD or early post-acute phase requiring oxygen therapy – POT) and coexistence of at least one of the following chronic diseases (CD+ or CD(-)): arterial hypertension, diabetes, obesity. The patients were analyzed at the beginning and the end of the hospitalization: SpO2, walking distance measured until discontinuation due to fatigue, dyspnea or desaturation <90 %, RR, HR and BP. Patients used kinesiotherapy based on the WHO tutorial extended by gait training. Interval exercises were conducted in two daily sessions, at any pace and with any training intensity. All effectiveness indicators finally improved. The SpO2 before treatment was negatively correlated with the time passed from the first symptoms to the day of arrival at TID ($p=0.002$, r -0.38) and with the extent of inflammatory changes in the lungs ($p=0.000$, r -0.53). The walking distance at the end of hospitalization was significantly longer in the group of POT ($p=0.038$) and in the group of CD+ ($p=0.015$). However, a significantly greater increase in the walking distance was shown only in the group of CD+ ($p=0.005$). All patients achieved objective clinical improvement. The results suggest that the group CD+ gained the greatest benefit from kinesiotherapy, regardless of the disease phase.

Does mechanical ventilation of severe COVID-19 patients affect functional outcomes and length of stay in subacute inpatient rehabilitation?

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Patients with severe forms of COVID-19 frequently develop pulmonary injury and, in some cases, need long mechanical ventilation. In addition to the physical damage, many patients present post-trauma needing emotional and psychological treatment. After some improvement and withdrawal from mechanical ventilation, some of them need inpatient intensive multidisciplinary rehabilitation. This program aims to improve respiratory symptoms, improve function and reduce complications, disability, anxiety, and depression. Our main goal is to assess the influence of mechanical ventilation on functional outcomes and length of stay in the rehabilitation department.

This retrospective cohort study included data on post covid-19 hospitalized rehabilitation, in Soroka University Medical Center, 1,000-bed tertiary hospital during 2020-2022. We obtained data of COVID-19 ventilated patients including length of stay (LOS), 6 minutes walk, Berg balance scale, MoCA (Montreal Cognitive Assessment), FIM(Functional Independence measure), TUG(Time Up ang Go), DGI (Dynamic Gate Index), from the computerized database and compared them with non-ventilated patients.

We identified 32 cases of COVID-19 rehabilitation after mechanicaly ventilated and non-ventilated (21 vs. 12). Female patients (33.3%vs. 61.9%), at a similar age (53vs. 49 accordingly). Ventilated patients had a longer LOS in the acute department (29vs. 23 days, p=0.02), but not in the rehabilitation ward (30vs. 34 days, p=0.56). Rehabilitation improved all functional scales in both groups. Mechanically ventilated patients had improved more in FIM (39vs.32), TUG (-15.4vs.3.9), 6-minutes walk (203vs.124), MOCA (4.3vs.2). Non-ventilated had better improvement in the next scores: BERG (18 vs.12), DGI (2.7 vs.2.2). Although there was no statistical significant difference between groups. Most patients were weaned from the use of oxygen (9->3 non ventilated patients and 17 ->5 ventilated).

Mechanical ventilation resulted in longer hospitalization in the acute department but did not significantly prolong subacute rehabilitation. Also, mechanical ventilation did not significantly influence the motor function parameters of the patients.

Clinical efficacy of a Modified Maigne's manipulative technique in Low Back Pain: a clinical study

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Low back pain (LBP) is the most common cause of disability under the age of 45. Mostly due to a benign condition, LBP painful symptomatology may be linked with a minor intervertebral pain disorder (MIPD), commonly treated with Maigne's vertebral manipulations. In the present study we present a modified Maigne's manipulative technique and its preliminary results. A comparative study was planned. Inclusion criteria were pure transitional dorso-lumbar region MIPD. After enrollment, patients were divided into two groups: Normal-Grip technique (NG) and Original-Grip technique(OG) group. When compared with NG, in OG technique operator arm is over the patient's contralateral arm, which can be maintained adhered to the trunk by patient, with no pressure applied on the costal, sub-axillary or breast region during maneuver. In our experience, OG technique provide a comfortable and firm grip, without any risk of incomplete or incorrect rotation. Maigne's classic star pattern was used for clinical assessment, while data from Roland Morris Questionnaire (RMQ) and the visual analogue scale (VAS) were collected. 14 patients (F=8,M=6,mean age=51) were enrolled, 7 each group. Both groups showed clinical improvement (NG: RMQ Z=-2.375 p= 0.018, VAS Z=-2.375 p=0.018; OG: RMQ Z=-2.375 p= 0.018, VAS Z=-2.375 p=0.018). No statistically difference was found between groups (Z=0.330; p= 0.742, VAS Z= 0.266 p=0.790). Our preliminary data demonstrated that both OG and NG can improve disability and symptoms in LBP. No statistically significant differences were reported between groups. Therefore, OG may be offered to enhance patients' comfort during vertebral manipulations.

RHEUMATOLOGIC DISORDERS AND BALNEOTHERAPY

LECTURE

Health Resort Medicine: Current Applications and Future Prospects to Achieve Global Health

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Health resort medicine has a long-standing tradition, dealing with the clinical uses and health-related applications of natural mineral waters and muds. The increased interest in global health and the need for restored sociability left by the pandemic will strengthen the preventive, therapeutic, rehabilitative, and social role of health resort interventions. Here, an update of health resort medicine effects is conducted in order to highlight the possible future applications.

Thanks to a multidisciplinary staff's presence at the spa facilities, global therapeutic and rehabilitative protocols are offered for patients with musculoskeletal, cardiorespiratory, or neurological disabilities. A synergistic combination of mechanical (hydrostatic pressure, buoyancy, etc.), thermal, and biochemical actions of water's components (anti-inflammatory, analgesic, and immunomodulatory properties) is responsible for balneotherapeutic treatments' therapeutic effect. In addition, health resort therapy can also act therapeutically on psychological concerns and may be considered a useful intervention for achieving general well-being, having a positive effect on mood, sleep quality, and depression. Furthermore, health resort therapy has the potential to offer health education measures and to encourage social integration between healthy subjects and people with disabilities.

In conclusion, the health resort setting can contribute to achieving global health, defined as a state of bio-psycho-social well-being in which participate medical, psychological, social, cultural, and environmental factors. Therefore, the synergic effects of health resort treatments may determine the expansion of health resort medicine applications in the future.

Tradition Vs Science, Or Does Natural Resource Have A Role In Treatment Of Nonspecific Low Back Pain

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Non-specific low back pain (NLBP) is pain that cannot be associated with a specific pathology and is likely to have a mechanical cause. The aim of this study was to evaluate the efficacy of hydrotherapy and kinesitherapy for NLBP with and without mineral mud therapy. There were 64 patients: 31 received standard hydro and kinesitherapy and 33 had additional daily mud therapy. Measurements included Thomayer, sagittal mobility (Schober), bilateral lateroflexion and indices of Rolland Morris Disability (RMDQ), ClinFit, DASS 21, EQ -5D-5L quality of life questionnaires and visual analogue scale (VAS) for pain. Paired t-tests or Wilcoxon signed rank tests were used depending on the normal distribution of the data. Delta change was analysed using ANOVA for effects of treatment type, age and sex of patients. Significance was set at $p<0.05$. Overall, all measurements significantly improved after therapy by paired tests. Univariate analyses showed sex and treatment type to be associated with lateroflexion and age with VAS pain. After accounting for the effects of age and gender using multivariate analyses, there was a significant difference in delta changes of Thomayer ($p<0.01$), left lateroflexion ($p<0,01$) and RMDQ ($p=0.01$) results with higher improvement in group treated with mud than standard therapy alone. Multivariate analysis also showed mud treatment to be the most important factor for EQ-5D-5L pain and activity but not significant.

Addition of mineral mud treatment to standard hydro and kinesitherapy significantly improves results in NLBP patients as indicated by three different measures followed.

Rehabilitation in the Health Resort Setting for Long Covid Patients

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The Long Covid syndrome is defined as the persistence of symptoms after the COVID-19 acute infection resolution. Among these symptoms, fatigue, dyspnea, cognitive impairment, and psychological concerns could require specific rehabilitative interventions. We evaluated the outcomes obtained by Long Covid subjects after a multidimensional rehabilitative protocol carried out in the health resort setting.

Clinical data were collected from patients of both sexes treated in two health resort facilities of the Euganian Thermal Basin, Veneto, Italy. The patients underwent a 5-week rehabilitation cycle, with 2 sessions per week. Each session included thermal mineral-rich inhalation therapy, motor, respiratory and proprioceptive rehabilitation, and aquatic exercises in thermal mineral-rich water.

Outcomes were assessed before and after the treatment by clinical parameters (weight, height, and pain assessed by Numerical Rating Scale), physical performance and fatigue tests, dyspnea scales, and psychological assessment scales.

Statistically significant differences were observed in respiratory and motor function indices, as well as in pain. Regarding chronic fatigue, the rehabilitation protocol proved to be effective in significantly reducing it. Moreover, statistically significant differences were obtained in the improvement in anxiety, depression, and cognitive functions. No adverse events were recorded among the patients involved in the assessments.

In conclusion, a multidimensional rehabilitation program conducted in the health resort setting could be effective in improving motor, respiratory, psychological, and neurocognitive symptoms reported by patients with Long Covid syndrome. The safety demonstrated by the protocol may favor the application of this type of treatment to a greater number of patients in the future.

Unusual Fragility Fracture of The Tibial Plateau

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Osteoporosis is a silent disease that often remains undiagnosed until a fracture occurs. This report documents an atypical case of a fragility fracture of the tibial plateau.

A 47-years-old female patient with diabetes mellitus suffered two ischemic strokes in 2020, resulting in right hemiparesis. In May 2021, chronic kidney disease (CKD) stage 5 was diagnosed during rehabilitation, and hemodialysis was proposed due to its severety. In October 2022, while being transferred from a wheelchair to a bed, the patient experienced a left knee sprain and fracture of the external tibial plateau. Orthopedics recommended conservative treatment. Considering the minor trauma that caused the fracture, there was a strong suspicion of bone fragility. Despite being relatively young and in pre-menopause, the patient had risk factors for fragility fractures, including female gender, diabetes mellitus, CKD, and right hemiparesis, which limited her ability to perform exercises with load. The FRAX®Portugal algorithm, without bone mineral density (BMD) information, underestimated the risk of fracture. Due to the limitations of the algorithm, a bone densitometry test was requested, which confirmed osteoporosis. With the addition of BMD information, the FRAX®Portugal algorithm showed a high risk of hip fracture, and targeted treatment was initiated.

This clinical case illustrates an unusual and severe fragility fracture that impacted the patient's stroke rehabilitation plan. The risk of fractures is influenced by multiple clinical and environmental factors in addition to BMD. Therefore, it is essential to identify and correct these risk factors throughout a person's life.

Comparison of two hyaluronic acid preparations for the treatment of rizoarthrosis

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Osteoarthritis of the trapeziometacarpal joint (TOA) or rizoarthrosis is a pathology particularly prevalent in post-menopausal women. It can be symptomatic, with associated pain, or asymptomatic, and ni this latter case it is diagnosed by radiographical examination. TOA, when symptomatic, strongly affects quality of life. The treatment of TOA involves both pharmacological and non-pharmacological treatment (including local application of heat, ultrasound and splints). The major treatments, recommended by the European League Against Rheumatism consists of corticosteroids for pain control and hyaluronic acid (HA) for amelioration of functional capacity. The present study aimed at comparing the efficacy and tolerance of intra articular injections of two HA preparations, high-low molecular weight HA (HL) (Sinovial® HL; IBSA) and high molecular weight HA (HMW) (Sinovial® Mini, IBSA), ni patients with TOA. The observational and retrospective study involved overall 125 subjects, ageing from 45 to 85 years, who had clinical symptoms of TOA lasting at least 6 months. The patients received HL (66 subjects) or HMW (59 subjects) in two injections at baseline and after 15 days. The subjects were followed for 6 months, and the outcome measurements included pain control (through VAS scale) functional hand capacity, using the Duruoz Hand Index (DHI) and the change of the duration of morning stiffness, using the Italian version of the Health Assessment Questionnaire (HAQ). HL was found superior to HMW in all the three parameters examined, with a quicker and stronger pain relief, recovery of hand function as well as in self-assessment by the subjects. Both treatments were associated with very modest side effects. In conclusion, our data show the efficacy of HL and HMW for the treatment of TOA and the superiority of HL to HMW. Although these data are observational and retrospective, they pose the basis for future prospective studies focused on the use of HL and HMW in TOA.

REHABILITATION STRATEGY IN AUTOLOGOUS HPSCS CD34+ THERAPY – R&D PROJECT CO-FINANCED BY EU

LECTURE

Rehabilitation Strategy in Autologous Peripheral Hematopoietic Stem Cells CD34+ Therapy, R&D Project Co-Financed By Eu No.Rpld.01.02.0210.0125/19 Titled: "Phscs Cd34+ in the Treatment of OA and Joint Cartilage Injuries – R&D Project"

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The main goals of the R&D project are: noticeably slowing down the progression of osteoarthritis (OA), postponing or even avoiding arthroplasty (longer self-use of patient's own joints), therefore reducing costs of healthcare (i.e. less arthroplasty procedures in a lifetime, multiple rehabilitation cycles, disability related costs). Research group: 240 joints. Duration: Dec 2020 – Dec 2023.

After the long lasting pilot study and searching for experimental solutions for treatment and rehabilitation procedures we have started conducting our R&D project. Below we present observations related only to hip joints (67). Patients were qualified based on clinical, MRI and X-ray Kellgren-Lawrence scale examinations. PHSCs CD34+ were collected through apheresis. Fresh concentrate was injected under US control into joint spaces and surrounding tissues, sometimes also to the femoral head within the operating theater under spinal anesthesia. Rehabilitation has started in the OP theater. We have discovered that thanks to spinal anesthesia we could perform on patients' joint passive movement with forces and achieve improvement of ROM by 30%.

Rehabilitation programme was divided into 5 stages and was carried out for 6 month:

Stage 1 – in hospital 4-5 days

Stage 2 – every day for next 5 weeks with physiotherapist

Stage 3 – 3 times per week for next 6 weeks if possible with physiotherapist

Stage 4 – once a week for next 12 weeks under physiotherapist control
Stage 5 – we recommended: 6 months after HSCs injection at least once a week by the patient himself

Our aims of rehabilitation were: pain reduction, ROM increase, strength, coordination and balance improvement, gait pattern reeducation and quality of life improvement.

Periodic medical and physiotherapeutic check-ups were done after: 6 weeks, 3 months, 6 months, 1 year and 2 years; MRI after 6 months, 1 year and 2 years; X-ray after 2 years.

We approached patient assessment holistically by using SF-36, HOOS and HARRIS questionnaires. According to the data collected so far:

- HOOS: one year after PHSCs application - observed improvement in all K-L degrees, except 1° (difficult to explain why); two years after - K-L 1° big improvement, K-L 2° better, K-L 3° and 4° worse
- SF-36: two years after PHSCs application - improvement in K-L 1° and 2° statistically significant (p-value 0.05) except Emotional Well-Being, K-L 3°and 4° after one year little improvement but after two years, 3° almost without changes, 4° with little worsening.

Rehabilitation is an integral part of PHSCs treatment and significantly improves the quality of life (p-value 0.05). Spine anesthesia allows drastic increase of ROM, immediately restoring patient's movement capabilities which lets the patient perform exercise programme (p-value 0.05). Treatment improved the body WB load distribution by lengthening the line of contact between the foot sole and the ground and reduced pain intensity.

Radiological images mostly do not correspond to clinical examinations. After 1 year MRI imagines show inflammation symptoms of joint soft tissue in most patients – probably it is the healing process in progress. Joint space widening appears in more than 50% MRI.

PHSCs are safe and easy to obtain by apheresis, collection less invasive than from bone marrow. No side effects were observed with the use of Fresh (may matter) Autologous Peripheral HSCs CD34+. There is high level of treatment acceptance by patients. The first results of our project allow to conclude that 1°-2° K-L has better prognosis for THA avoidance. More conclusions are expected after completion of the project.

Effect of a rehabilitation program on musculoskeletal disorders related to music performance: preliminary results of a randomized control trial

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Regular and intensive practice of a musical instrument can expose to the development of playing-related musculoskeletal disorders (PRMDs), which are defined as any pain, weakness, numbness, tingling, or other symptoms that interfere with your ability to play an instrument at the accustomed level.

Several research has tried to establish a specific rehabilitation program adapted to musicians.

The aim of our study is to evaluate the effectiveness of a rehabilitation program on PRMDs

It is a single-blind randomized controlled trial, conducted at the National Conservatory of Music and Dance in Rabat, which should include 20 musicians, randomized into two groups: A rehabilitation program including an educational presentation and a 4-week home exercise program, versus no intervention.

A total of 11 musicians have already participated, and the epidemiological profile of all musicians was studied. Exercise group (n=6) adherence to the rehabilitation program was 97.7%, there were no drop-outs and a significant reduction in frequency and severity of PRMDs were reported at the end of the intervention.

The preliminary results of our study assess that the studied rehabilitation program is effective in decreasing the intensity and functional impact of musicians' symptoms.

Focal Shockwave Therapy: Study Of Effectiveness In The Treatment Of Plantar Fasciitis

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Focal Shockwave therapy (FSWT) is a non-invasive treatment that delivers high-energy shock waves to an affected area. It has been shown to improve blood flow, stimulate collagen production, and promote tissue regeneration. Shockwave therapy has been studied for the treatment of calcified tendinitis, plantar fasciitis, myofascial pain syndrome, and osteoarthritis. Nonetheless, considering the high acquisition cost of devices, FSWT is not widely available in public healthcare in Portugal. This study aims to investigate the effectiveness of this therapy in treating plantar fasciitis. To evaluate the use of ESWT on plantar fasciitis, a group of 8 patients was treated according to "Enthesopathies: Shock-wave Therapy in Practice" protocols. The patients were evaluated with validated questionnaires (SF-12 Health Survey and Brief Pain Index) before treatment and 1 month after the last treatment. All patients concluded the treatment, without any losses of follow-up. Patients showed significant decrease in pain severity score accessed with the Brief Pain Index. Regarding pain interference score it showed little to no variation. The SF-12 Health Survey showed an important improvement in the functionality for common household tasks, professional activity, and general social activity, with less physical discomfort or emotional problems. FSWT showed overall improvements regarding pain levels, quality of life and functionality, showing it can be a powerful ally in the treatment of some musculoskeletal pathologies. However, more quality studies, with bigger populations, are necessary for further conclusions.

Clinical research on low back pain. Who is doing What?

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The PRM specialist is generally defined as a leader of a multidisciplinary rehabilitation team. Chronic low back pain (CLBP) is a pathology wherein Rehabilitation by a multidisciplinary team is the best treatment. PRM specialist should have a key role in this pathology. Do they assume this position in the field of clinical research? The first February we made a query on Pubmed with the keywords: low back pain, clinical trials, since one year. For each article, we looked for the country and the initial diploma of the last author. 186 articles were displayed, we excluded 30 articles (about another disease or concerning mainly radiculopathy). The 156 articles came from 32 countries. The top three were USA, China and Australia (28, 18 and 12 articles respectively). Among the Mediterranean countries 8 articles came from from Spain, 7 from Turkey, 3 from Italy, 2 from Egypt, 1 from France , Jordan and Albania. We found 25 different medical specialties or non-medical professions. The most frequent disciplines were: Physiotherapy 41 times, PRM 16 times, Orthopaedic surgeon 14 times, Chinese medicine or acupuncture 10 times. To conclude, there are indeed many stakeholders involved in CLBP clinical trials. Is the second position of PRM, far behind Physiotherapy in research about CLBP in line with its role in the health system? Does this result reflect the level of the PRM research, or the commitment of our academic teams in this disease?

LECTURE

Neuropathic Pain with Special Reference To Spinal Cord Injury

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Neuropathic pain is a serious consequence of many neurological disorders, such as spinal cord injury, neuropathy, multiple sclerosis and stroke.

Pain after SCI can be broadly subcategorized into two categories: nociceptive pain that arises from firing of pain receptors, and neuropathic pain as a result of damage to the nerves of the somatosensory system.

Chronic neuropathic pain is considered a disease not a symptom. Clinically it is characterized by spontaneous ongoing or shooting pain and evoked amplified pain response following noxious or non-noxious stimuli.

Pathophysiological mechanisms are complex and remain a challenge for proper management, although recent research identified different pathophysiological pathways which reflected in improvement of new treatment strategies.

A better understanding of neuropathic pain and its underlying mechanisms will lead to more effective and mechanism-based approach.

Multi-dimensional approach to assessment and diagnosis is required.

Treatment goals include reducing baseline pain and pain exacerbations, ensure a balance between efficacy and safety, and follow individual tailored mechanism-based treatment approach including psychosocial intervention.

Treatable underlying pathology must be excluded.

Pain is a bio psychosocial problem which requires a multidisciplinary and multimodal approach.

LECTURE

Osteoporosis in spinal cord injury

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Spinal cord injury (SCI) causes severe sublesional osteoporosis not comparable with osteoporosis caused by other conditions and has different pathophysiology compared with primary (postmenopausal, age related) and secondary osteoporosis. The pathophysiology in the acute and chronic phases is multifactorial. Bone loss may be enhanced by a lack of muscle tension-pull on the bones or other neural factors associated with the injury. Sympathetic nervous system deterioration and other non-mechanical factors that increase bone loss include poor nutritional adequacy, alterations in gonadal function, and other endocrine dysfunctions. Calcium absorption is reduced in the acute phase, metabolic disorders (alkaline phosphatase increase, hypercalcemia/hypercalciuria, hydroxyproline secretion) as well as hormonal changes (parathormone, glucocorticoids, calcitonin) act as etiological factors and/or secondary to the loss of bone density.

In a SCI person, the diagnostic assessment for bone loss must include the patient's history, anthropometric parameters, clinical examination (level of neurological injury) and spasticity's assessment, imaging test (bone density measurement with DXA in the hip and/or knee), hormonal test, biochemical control (blood and urine bone turnover indices).

We performed an international survey in a sample of SCI specialists (ISCOS members) to assess clinical practice patterns regarding osteoporosis and to compare them to those advanced by professional societies. The results were variable and far from evidence-based guidelines. Next, under the auspices of Spinal Cord Section of Hellenic Society of Physical Rehabilitation Medicine (HeSCoSPRM) we convened a working group at the Pan-Hellenic Congress 2018 of PRM in Athens Greece and established an evidence-based position statement for bone loss in persons with SCI. This work was reviewed by an International Task Force to create S1 Guidelines to provide help with prophylactic basic osteoporosis therapy diagnostic and therapeutic decisions in acute and chronic phase and rehabilitation countermeasures against osteoporosis related with SCI.

The Rehabilitation program aims to treat osteoporosis and impending fractures in paralyzed limbs and may include the following: 1) With regard to drug therapy, p.os / i.v. bisphosphonates and denosumab are recommended, 2) The use of calcium supplements (under monitoring of renal function indicators) and vitamin D is essential, 3) The Rehabilitation program is proposed to include: a)

counselling regarding the condition and b) training in the prevention-avoidance of falls, c) a physical therapy program that includes: 1) avoiding limitation of range of motion that will lead to further limitation of mobility., 2) loading of the axial skeleton to reduce bone loss, 3) if this is possible, standing retraining and therapeutic walking with orthotics, and in addition, the program needs to include dietary interventions aimed at improving dietary calcium intake and nutrition indicators. Finally the effectiveness of using other countermeasures i.e. FES would be useful; however the use of PEMF, US or vibration in this population remains controversial.

CARDIO-RESPIRATORY AND UROGYNECOLOGICAL DISORDERS

LECTURE

Effects of 12-week application of Amendcor® combined with group-based high-intensity aerobic interval training on left ventricular ejection fraction, functional exercise capacity and quality of life in patients with heart failure and reduced ejection fraction

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Despite several evidence-based medical and device therapies suggested for patients with heart failure (HF) and reduced ejection fraction (HFrEF), there is a lack of studies quantifying the superior effects of combined therapeutic strategies in these cohorts. Our study aimed to quantify the effects of 12-week supplementation with Amendcor® (IncMed Ltd, Botevgrad, BG) combined with group-based high-intensity aerobic interval training (GB-HIAIT) on left ventricular ejection fraction (LVEF), functional exercise capacity (FEC) and quality of life (QoL) in patients with HFrEF and compared with subjects receive supplementation therapy with Ubiquinol and D-ribose, and performed GB-HIAIT. We assessed the LVEF, FEC, m-Borg's perceived exertion scale (mBPES), and QoL in 68 stable CHF patients in New York Heart Association, (NYHA) II to IIIB class of both genders, [59.2 ± 15 years, 43 males vs 25 females with ejection fraction (EF) 27,15 ±9], randomly assigned to Amendcor® group (n=35) or to non Amendcor® (n=33) group. Significant improvements in LVEF ($P<0.001$), FEC ($P<0.001$), mBPES, and QoL ($P<0.001$) were observed after 12 weeks in both study groups. However, the improvement observed in HFrEF subjects supplemented with Amendcor® was greater in terms of FEC ($P<0.001$), LVEF ($P<0.001$), mBPES, and QoL ($P<0.001$), compared to those received Ubiquinol and D-ribose ($P<0.001$). Our randomized clinical trial provided initial evidence that 12-week supplementation with (Amendcor®) combined with GB-HIAIT led to superior effects on LVEF, FEC, mBPES, and QoL in patients with HFrEF.

Transcranial direct current stimulation in combination with robotics for upper extremity for stroke patients in post-acute phase

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One of the commonest impairment caused by stroke is weakness of the upper extremity. Transcranial direct current stimulation (tDCS) and robotics is an innovation in the neuro-rehabilitation field. This study was a randomized, controlled pilot trial to test the effects of bilateral tDCS combined with upper extremity robot-assisted therapy in post-acute stroke patients. Twenty six patients stroke patients were randomly assigned to two groups:(i) tDCS and robotics (ii) sham-tDCS and robotics. Each patient underwent 10 sessions (5 sessions/week) over two weeks. Outcome measures were collected before and after treatment: (i) Fugl-Meyer Assessment-Upper Extremity (FMA-UE), (ii) Box and Block Test (BBT). Both groups reported a significant improvement in FMA-UE and BBT score after treatment ($p<0.01$). Patients with combination therapy benefited more from the treatments than patients with tDCS application only. Application of tDCS in parallel with robotic systems represents a promising neurorehabilitation tool for post-stroke patients regarding upper limb motor performance. Future clinical trials must be conducted in order to prove the effectiveness in clinical practice.

Quality Of Life in Children with Cerebral Palsy And Relationship With Motoric And Cognitive Functioning

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Quality of life is defined as " individual's perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards, and concerns". Physical quality of life (QoL) is invariably more affected in individuals with cerebral palsy (CP) but connection between CP and psychosocial QoL is less clear."

We evaluated QoL in CP children (mean age 7,63 years) and determined the relationship with their motoric and cognitive level of functioning. 33 mothers completed the parent proxy version of CPQoL questionnaire. Cross-sectional study was conducted in 2022/2023 while the children were on in- or out - patient rehabilitation treatment.

Our results demonstrated negative relationship between GMFCS level and QoL (-0,395 p=0.05) only in domain of feelings about functioning. Items about basic activities of daily living had significant impact on QoL. The question about access to community services and facilities had negative (-0, 465 p=0.01) while child's concern about having CP had positive correlation to motor functioning (0.398 p=0.05). There was no relationship between cognitive level and domains of QoL nor with individual items. Some mothers rated most of items with high values. We assume they used the mechanism of negation and idealisation and advised more intensive psychoeducation of mothers. Possible protected environment with similar children during rehabilitation had a positive effect on the rating. Understanding QoL of CP children is important outcome in research and practice and a way to identifiy child's needs and develop coordinated strategic plans.

Treatment of greater trochanteric pain syndrome with ultrasound guided bipolar pulsed radiofrequency of the trochanteric branches of the femoral nerve

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Greater trochanteric pain syndrome (GTPS) is a common cause of lateral hip pain. For patients with refractory symptoms, therapy with a local corticosteroid injection is usually administered. Most patients still have painful complaints in the 1 and 5 year follow-up (76% and 63% respectively). We present a case series of nine patients with GTPS, treated with ultrasound guided bipolar pulsed radiofrequency of the trochanteric branches of the femoral nerve. We treated eligible patients with ultrasound guided bipolar pulsed radiofrequency that was performed at one cycle of 42°C for 6 minutes, followed by the injection of 3 mL of 0.2% ropivacaine and 12mg of dexamethasone. Short Brief Pain Inventory (BPIs) and Lequesne Algofunctional index (LAI) were used prior to the procedure and third month post procedure. Most of our patients had a satisfactory outcome, with 76.22% average reduction of their symptoms when asked the question “how much pain you have right now” of the BPIs, and 8 of 9 having at least 50% relief. These results are similar to Abd-Elsayed et al case series, that had average pain reduction of 71.4%., There was an improvement of 17.43% at the 3-month follow-up in the LAI (preprocedural μ=18,17). There weren´t any immediate complications after the procedure or reported at the subsequent follow-up. This technique seems to be promising, considering the amount of non-responders to current conservative treatment. With our case series, it looks to be feasible the guidance of this technique using ultrasound.

Comparison between lower limb amputees who were fitted with a prosthesis after one-admission hospitalization and two-admission hospitalization.

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In our hospital, amputee rehabilitation follows two models. All patients undergo transfer and wheelchair training and assessment for prosthetic rehabilitation. Those not suitable for prosthetic rehabilitation are discharged home once the other goals have been mastered. Those who have the potential for prosthetic rehabilitation are further divided into 2 groups depending on the healing of the residual limb: (1) Patients whose residual limb healed quickly are fitted with a prosthesis and continue with inpatient prosthetic rehabilitation. (2) Those whose surgical wounds have not sufficiently healed are discharged and receive outpatient rehabilitation. Once their wounds heal, they are fitted for and receive a prosthesis in the community. They are then re-admitted for inpatient rehabilitation.

The aim of the study was to compare length of stay (LOS), functional independence measure (FIM) measured at admission and discharge between two groups of amputees – those who completed prosthetic rehabilitation in one hospitalization and those who had two- hospitalizations.

A retrospective cohort study was conducted. A total of 48 lower limb amputees were admitted between 2015 and 2022. Of those, only 22 eventually received a prosthesis. Six completed prosthetic rehabilitation during one admission, and 16 completed prosthetic rehabilitation during two admissions.

There was no significant difference between the groups in mean LOS, admission FIM or discharge FIM (p-value of 0.18, 0.79, and 0.32).

In both groups of patients, those who ultimately received a prosthesis had similar discharge functional status as measured by FIM scores.

Impact Of Lower Limb Amputation and Prosthetic Fitting In Employment Of Working Age Adults

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Lower limb amputation has a great impact on functionality. Outcomes after amputation can vary widely, and literature regarding functionality after lower limb amputation and prosthetic fitting is scarce. In this study, the authors intend to characterize a portuguese population of working age lower limb amputees and study the impact of amputation and prosthetic fitting in their occupation. The authors conducted a unicentric cross-sectional study in march 2022, with a sample of adult lower limb amputees with unilateral transtibial or transfemoral amputation between 25 or 60 years of age at amputation, who received the first prosthetic fitting between 2 to 10 years prior to march 2022. Data collection was conducted by telephonic interview and included age, sex, scholarity, occupation, amputation cause and timing, prosthetic fitting timing, activity level and subjective prosthesis adjustment and use. The study included 32 lower limb amputees, most of them male and with 9 years of schooling. Nineteen participants were transfemoral amputees and 13 participants were transtibial amputees. The main cause of amputation was vascular disease. The most common occupations were elementary occupations and services and sales. Two-years after prosthetic fitting, most participants felt that their prosthesis was well adjusted and used the prosthesis for at least 50% of the waking hours. At that time, only about one-third who had a job prior to amputation maintained their occupation. This study characterizes a portuguese population of working age lower limb amputees. Most participants did not maintain their job two-years after prosthetic fitting.

Determination of the Factors Affecting the Length of Hospitalization and Outcomes in the Rehabilitation Clinic in Patients with Traumatic Brain Injury

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The aim of this study is to examine factors such as sociodemographic characteristics and possible complications that affect the rehabilitation period and results in patients with traumatic brain injury, and to determine the reasons for recurrent hospitalizations.

The epidemiological and clinical characteristics of TBI patients who received an inpatient rehabilitation program between 2005 and 2018 at Ankara Physical Therapy and Rehabilitation Training and Research Hospital, one of the largest and most important rehabilitation centers in Turkey, were retrospectively analyzed from computer or archive records. Patients over the age of 18 with a diagnosis of traumatic brain injury were included in the study. TBI complications were recorded as present/absent. Recurrent hospitalizations were examined also.

A total of 321 patients, 62 (19.3%) women and 259 (80.7%) men, were included in the study. When the number of recurrent hospitalizations was added, a total of 395 hospitalizations were evaluated.

Complications were found in 94.1% of the patients. Among the complications, spasticity with 69.8% and joint contracture with 47.7% were the most common complications. Considering the number of recurrent hospitalizations of the patients, it was seen that the most frequent hospitalizations were one-time hospitalizations with 81.3%. Most of the complications, especially spasticity, prolong the hospital stay and affect the functional status.

Complications are encountered in almost all patients treated in the rehabilitation service after traumatic brain injury. As the complications decrease, the length of hospital stay and rehabilitation costs will also decrease. Early rehabilitation is critical in reducing complications.

BEST POSTER SESSION

Autonomy in clean intermittent catheterization for a tetraplegic patient: which device?

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Tetraplegic patients with spinal cord injury present several deficits that lead to restrictions and disabilities, including urinary voiding difficulties. Intermittent catheterization is the method of choice, but it remains impossible for the patient due to hand dexterity deficits, which lead to dependence on a third party. Various therapeutic options are available, including technical aids that are used to achieve autonomy in clean intermittent catheterization.

Our goal is to enable a tetraplegic patient with reduced dexterity to perform clean intermittent catheterization independently.

This report describes a case of a young, left-handed, tetraplegic patient with asymmetrical C7-level spinal cord injury: • Grip strength evaluation revealed subnormal strength in the left hand. • The right hand was unusable. • A pinch and power (PP) test yielded a score of 6/15. An orthosis was designed and fabricated by the occupational therapist, using thermoformable material for the patient's right hand.

The technical aid allowed the patient to perform clean intermittent catheterization independently. Clean intermittent catheterization is the gold standard treatment for neurological urinary disorders. However, it can be difficult for tetraplegic patients with reduced hand dexterity. Technical aids can help overcome this deficit and improve autonomy and quality of life.

Factors that predict self-perceived disability in patients with chronic pain

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Chronic pain affects more than 20% of the population making it one of the leading problems of the health care system. Beside decreasing pain intensity, improvement in functionality of these patients is the most important goal.

Therefore, the goal of this study was to investigate which variables predict disability in subjects with chronic pain.

Of the total number of 109 subjects (average age 54.9±11 years, 93 (85.3%) women), 57 (52.3%) were fibromyalgia (FM) patients and 52 (47.7%) were patients with neuropathic pain from the lumbosacral radiculopathy (NPSLR). Pain disability questionnaire (PDQ) was used to evaluate the perceived disability as well as dependent variable in a linear regression model. Following independent variables were used: age, gender, cause of chronic pain (FM vs NPLSR), body mass index, present pain intensity (0-10), Central Sensitization Inventory, Depression, Anxiety and Stress Scale (DASS 21), Fear Avoidance Component Scale (FACS) and average duration of sleep in the last 4 weeks.

Regression model was able to explain ($F=15.974$, $p<0.001$) 56.1% of variance of the dependent variable (PDQ). Variables that made unique contribution to the equation were: FACS, present pain intensity, average duration of sleep in the previous 4 weeks and age.

The combination of higher level of fear-avoidance behavior, high pain intensity, lower sleep duration and older age may predict higher level of perceived disability in patients with chronic pain.

Is stromal vascular fraction a treatment option for tendon injuries? A case report.

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Current treatments available for tendinopathies and tendon injury, either conservative or surgical, are unable to restore the original tendon structure, functionality and biomechanical features. Although some preclinical studies have proven tendon healing with platelet-rich plasma (PRP), evidence in humans is still lacking. Therefore, biological treatments based on mesenchymal stem cells (MSC) are increasingly being used to improve tendon regeneration. Stromal vascular fraction (SVF), obtained from adipose tissue and made of large numbers of MSC, is feasible and safe and seems to improve tendon healing.

We present a clinical case of tendinopathy and tendon injury with previous poor outcome despite physiotherapy and PRP treatment.

A 58-year-old man with chronic rotator cuff tendinopathies with partial tear in supraespinatus tendon of his right shoulder was firstly treated with physiotherapy without improvement. Afterwards, PRP treatment was applied on the partial tear. No changes, clinical nor radiological, were found. He finally underwent a unique intratendinous SVF injection resulting in no shoulder pain and radiological improvement at 6-months follow-up.

The clinical application of SVF yield positive effects in the treatment of tendon injury and tendinopathy. A randomized clinical trial is needed to confirm the role of SVF for the treatment of tendon injury and tendinopathy compared to physiotherapy or other biological therapies.

Epilepsy of infancy with migrating focal seizures. When should we think about genetic origin? About a case.

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Epilepsy of infancy with migrating focal seizures (EIMFS) is an early infantile epileptic encephalopathy (EIEE) characterized by resistant focal seizures that migrate from one hemisphere to the other, delayed psychomotor development and acquired microcephaly.

It is a very rare disease (1case per 1million) caused by a de novo mutation of the voltage-gated potassium channel subunit KCNT1 gene

Our objective is to determine that in the face of EIEE with episodes of regression, the genetic origin must be sought.

We report the case: a six-month-old infant referred for care in the physical medicine and rehabilitation (PMR) department. He presented with developmental delay and acquired microcephaly, initially diagnosed with West syndrome.

The child was normal until the age of 3 months; he had onset of drug-resistant tonic-clonic seizures which worsened over time.

EEG showed multifocal epileptiform discharges and MRI was unremarkable.

The evolution was marked by a regression of psychomotor acquisitions, hence the questioning of the initial diagnosis. We referred the child to pediatrics for genetic testing.

The genetic study carried out at the age of 18 months revealed the presence of the heterozygous variant in the DNA sample analyzed: KNCT1.

The genetic origin should be suspected in infants presenting EIEE, often in the context of an uneventful perinatal history and without underlying cerebral abnormalities accompanied by regression of psychomotor acquisitions.

Genetic diagnosis can thus lead to early therapeutic intervention using new and/or reoriented therapies.

Fatigue During Multiple Sclerosis

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Unlike the fatigue experienced in a healthy population, fatigue in MS (multiple sclerosis) is different: it is chronic, permanent, both physical and mental, and could prevent prolonged physical functioning and be responsible for significant impairment in quality of life. Fatigue in MS can have a variety of origins, but we have assessed it in its entirety using the FSS (Fatigue Severity Scale). Long underestimated and neglected, fatigue is nevertheless extremely frequent in MS, according to studies; it occurs in 80 to 97% of cases, mainly in primary and secondary progressive forms, and our results are similar to those in the literature, with fatigue reported in 91.2% of our patients. Fatigue is a predictive factor of work disability independently of other neurological deficits. Our results are in line with those reported in the literature: there was no significant correlation between fatigue intensity and disability severity; however, we did find that patients with MS for more than 10 years suffered more fatigue, irrespective of disability severity. The study confirmed the absence of a link between fatigue and gender, confirming the findings of previous research. However, our study showed that the prevalence of severe fatigue was higher in women. We did not find a relationship between pain and fatigue, which for some authors was consistently correlated with pain intensity, but the presence of neuropathic pain was associated with severe fatigue. Our study did not reveal a correlation between fatigue and the presence of depressed mood, whereas the relationship between depression and fatigue in MS patients reported in previous studies was established. Radiologically, we found a significant correlation only with the presence of demyelinating lesions in the cerebellum, something that has not been sufficiently studied in the literature. Fatigue is a frequent symptom in MS, aggravating patients' disability. Appropriate management of fatigue in MS first requires a proper evaluation and semiological analysis.

Radiofrequency Thermal Neuroablation of Genicular Nerves: an Alternative Pain Management Strategy of Pigmented Villonodular Synovitis in the Knee

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Pigmented villonodular synovitis (PVNS) is a rare disease that can result in severe joint pain, stiffness, swelling, and limited articular range of motion, which may impose considerable functional limitation. A neoplastic etiology has been suggested for PVNS by recent literature, thus describing it as a proliferative disorder characterized by the overgrowth of synovial tissue in the joints, bursae, and tendon sheaths, which can lead to focal or diffuse nodular synovial thickening. Although surgery remains the standard of care, pain assessment also stands as a critical component in PVNS management. Patients often experience chronic, persistent pain that can reduce QoL. Pain can be managed through NSAIDs, corticosteroids, and opioids. Additionally, physical and occupational therapy may improve joint function and pain.

We describe an alternative pain management strategy in a case of PVNS involving the right knee joint of a 67-year-old male, with 11 years of evolution and exacerbated symptoms, referring diffuse inflammatory knee pain refractory to previous conservative and surgical treatment (arthroscopic synovectomy).

Ultrasound-guided radiofrequency thermal neuroablation of the right superomedial, inferomedial and superolateral Genicular Nerves was performed, via 10cm injection electrode with continuous application of 80ºC temperature for 3min.

Successful pain control at 1-month follow-up was reported, with no procedure-related complications described. Next revaluation was scheduled for 3 months.

Considering the high recurrence rates of PVNS, these patients would most likely benefit from a comprehensive pain management plan with a multidisciplinary approach that could ensure them the best possible clinical outcomes. Radiofrequency thermal neuroablation may be an effective approach in patients experiencing PVNS refractory symptoms.

Assessment of management for adult constipation and improvement of laxative prescribing, in a rehabilitation inpatient setting

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Constipation is a common issue within the adult inpatient population. This can be caused and/or worsened by immobility, acute illness, recent surgery, and medication side effects. All of these are colloquially known to be common to rehabilitation inpatients. Constipation and its potential complications have the potential to inhibit rehabilitation and extend hospital stay, incurring a higher healthcare cost and poorer patient experience

The aim of this project is for 1) 100% of patients on the ward to have evidence of regular review of bowel management, to include initiation of laxatives and reduction/stopping of laxatives according to recorded bowel charts 2) Promote adherence to national guidelines regarding laxative prescribing on an adult rehabilitation units, 3) Implement a positive change to promote best practice

Data was collected from patients resident on the ward within a specific period of dates over 1 week and then electronically recorded. This provided objective evidence of problems within current practice, including: documentation of stool type and frequency, rationale for laxatives prescribed, appropriate type of laxative prescribed, review in response to change in bowel frequency/type. To tackle these issues, a 'constipation review' chart was created, as well as implementation of a weekly constipation review for patients to be undertaken by the medical team.

Data collection repeated to compare results to initial data, showing that following implementation of the changes, documentation was clear and regular, the majority of patients had a predictable 'normal' bowel routine, and laxative prescriptions fell from 84% to 64%

The project showed that good laxative prescribing may lead to predictable bowel regimens for patients with reduced laxative prescriptions overall, and there is potential for reduced expenditure on laxative medications. A serendipitous observation was that the nurse's records of bowel movements became more detailed (type and frequency) - with more information to interpret, changing laxatives appropriately became easier for the medical staff. The project also opens up the possibility of further research into the greater benefits of this on hospital stay and patient experience.

Correlation of developmental delay degree with somatosensory evoked potentials in children with psychomotor delay

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Children with psychomotor delay often present with central nervous system pathology. We aimed to analyze correlation of psychomotor development level assessed with Brunet-Lezine scale with results of somatosensory evoked potentials (SEP) in children with developmental delay.

Twenty-five patients were screened by Brunet-Lezine scale. Brunet-Lezine scale results was categorized into seven categories. Additionally, SEP diagnostic was performed in every child from tibial nerve on lower extremities and median nerve on upper extremities. SEP findings were categorized as normal, mild, moderate and severe.

According to results categories from Brunet-Lezine scale, there were 2 (8.0%) patients below average, 3 (12.0%) with borderline, 7 (28.0%) with mild, 7 (28%) with moderate, 5 (20.0%) with severe and 1 (4.0%) with profound delay. For SEP on upper extremities there were 9 (36.0%) patients with normal findings, 11 (44.0%) with mild, 2 (8.0%) with moderate and 3 (12.0%) with severe degree of central afferents dysphunction. For SEP on lower extremities there were 1 (4.0%) patient with normal findings, 12 (48.0%) with mild, 9 (36.0%) with moderate and 3 (12.0%) with severe degree of central afferents dysphunction. There is significant correlation between Brunet-Lezine scale results and SEP findings on upper extremities (rho=0.634, p=0,001) as well as with SEP findings on lower extremities (rho=0.522, p=0.007).

Our findings demonstrated that degree of developmental delay is in correlation with dysphunction of central afferents in children with psychomotor delay.

Hand early-applied prosthetics in children: evaluation protocol from Italy

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There are currently few studies analysing the early use of prostheses in children with upper limb amputation or agenesis. Establishing the most appropriate timing for their introduction remains one of the most debated issues. Furthermore, the psychological impact, both on child and parents, plays a non-marginal role in the process of condition acceptance and better adherence to the rehabilitation pathway. Our study wants to propose a specific pilot protocol for the evaluation and prescription of hand-early applied prosthetics in children.

50 children with upper limb unilateral congenital agenesis or amputation were enrolled. They underwent evaluation using PEDI, UBET, AbilHand Kids, CAPP-PSI scales, with the support of video recordings. Furthermore, participants older than 18 months and their parents completed a semi-structured interview and questionnaires (PSI SF, PedsQL CBCL) to investigate stress levels, quality of life and behavioral correlates, pre and after prosthesis delivery. Preliminary evaluation revealed poor shared attention, difficulty in motor planning, underdevelopment of reaching, gripping and manipulation skills and postural asymmetry. Mothers perceived higher level of stress and lower scores in quality of life. Children didn't seem to show emotional and behavioral correlates, quality of life seemed improved after prosthesis delivery. Upper limb early-applied prosthetics, both in children with congenital and acquired amputation, allow a better postural balance and thus an adequate acquisition of developmental milestones of the first months of life, as well as providing the child with the prerequisites for appropriate environmental exploration. Follow-up studies are currently ongoing to better define comprehensive care taking.

Guillain Barre Syndrome Rehabilitation and Recovery

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Assessment of motor and functional recovery in patients with Guillain Barre syndrome that were hospitalized in our PRM department in the period of 2015-2023. The study involved 20 inpatients with confirmed Guillain Barre syndrome, of which 11 men and 9 women, in the period of 2015-2023. They underwent an investigation and individualized rehabilitation program, including physiotherapy, ergotherapy, hydrotherapy and logotherapy when needed. The motor recovery was assessed with clinical examination, while the functional recovery with Barthel Index score.

The mean age of the patients that were included was 57,5 years and 55% of them were male. The average length of hospitalisation was 5 months and 28 days. 45% of patients required re-admission. 70% of patients with Guillain Barre who took part in the study, are systematically followed up as outpatients. 80% presented with incomplete tetraplegia, while 20% with incomplete paraplegia. 20% have also cranial nerve lesions. These patients needed a temporary tracheostomy and had an extended length of stay on inpatient rehabilitation. None of our patients had any kind of dysfunction regarding the lower urinary system. During the rehabilitation program, 60% required orthosis for gait training and 15% of them needed still orthosis at the discharge. The Barthel Index score of all our patients was >80/100 at discharge.

Guillain Barre syndrome is a demyelinating disease, which mainly affects men, usually manifests itself in the form of incomplete tetraplegie and needs a long hospitalisation and time of recovery

Does ICF linking identify properly outcome measures in lower limb musculoskeletal conditions?

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Lower limb musculoskeletal conditions (LLMC) are one of the main causes of morbidity and disability worldwide. The International Classification of Functioning, Disability and Health (ICF) provides, through categories and core sets, a multi-dimensional approach to describing human functioning and disability. As it's been adopted by WHO, ICF constitutes the reference framework to assure information comparability. The ICF allows to link the concept of functioning with tools that can be assessed and reported in a standardized manner. To attain such objective, linking outcome measures (namely, health-status measures, but also clinical measures and interventions) and ICF is essential. However, at this moment, a clear map of LLMC patient outcome measurements linked to ICF is not available. ICF linking rules allow clinicians and researchers to link and compare meaningful concepts related to functioning and a specific pathological condition. The most appropriate outcome measures are selected and linked to ICF, usually using ICF core sets. Those are shortlists of ICF categories selected from the whole classification for specific health conditions and contexts. The objective of this protocol is to understand the extent and type of evidence in relation to LLMC assessment methods linking to ICF categories included in validated core sets. Under the guidance of Cochrane Rehabilitation, we propose a protocol for a scoping review of LLMC outcome measures and ICF linking (registered at Open Science Framework). Target population: LLMC patients. Concept of interest: ICF linking to assessment methods. Context: importance to adopt a common language through ICF to assess LLMC patient functioning. Search: Embase, CENTRAL, CINAHL and PubMed databases. Search terms: ICF; core sets, linking, hip fractures, hip osteoarthritis, hip replacement, knee osteoarthritis, knee replacement, knee injuries, lower limb fractures, ankle injuries, ankle fractures, low back pain, osteoarthritis, musculoskeletal diseases.

The expected results are as follows. Exact mapping of published studies on linking LLMC functional assessment methods to the ICF. Identification of main research gaps regarding ICF linking to assessment methods in LLMC patients. The main findings will summarize linking and facilitate clinicians' effective use of them.

Exercise Counteracts the Complications Of COVID-19

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The coronavirus (COVID-19) pandemic has had a significant impact on the health of the general population, leading to unknown and unusual health conditions that are challenging to manage. Long COVID syndrome (LCS) is one of those challenges. It is commonly used to describe a diverse set of symptoms that can persist after a minimum of 4 weeks from the diagnosis of infection. In particular, people with LCS showed impairment of the function and structure of multiple organs. Common symptoms reported persistent breathlessness, fatigue or muscle weakness, dyspnea, heart palpitations, and increased likelihood of developing stress, depression, irritability, confusion. The evidence has suggested that exercise could play a fundamental role in rehabilitation and restoring the normal life. Therefore, the aim of this study was to assess the effectiveness of the exercise in fifty-five long COVID people aged between 49 and 68 years (M = 57.86; SD = 7.7 years). From January 2022 to February 2023, all participants followed an adapted motor protocol, including breathing exercises and active mobilization. The exercise training program included 2 exercise sessions per week. Spirometry, oxygen saturation, blood gas analysis and chest circumferences both before and after exercises were performed. The main results of spirometry showed that forced vital capacity (FVC) and the expiratory volume exhaled in the first second (FEV1) increased 7.11% and 13.56% ($p < 0.03$ for both), respectively. The peak expiratory flow (PEF) value had an increase of more than 45%. After the training program, chest circumferences could also be confirmed to be improving. Furthermore, data revealed that the progression was inversely proportional to the age; while following the same protocol, the oldest participants have obtained less benefits than the adults. In conclusion, these results may highlight that a specific adapted motor protocol could be a promising option to reduce the symptoms of "long Covid", to ensure healthy living and promote better quality of life.

The Role of Mesotherapy in Musculoskeletal Pain: a review on the current evidence

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Mesotherapy is the use of intradermal microinjections containing different case specific drugs for locoregional administration. One of its main applications in rehabilitation medicine is in local musculoskeletal pain relief. Our aim was to review the latest evidence about the role of mesotherapy in the treatment of musculoskeletal pain. We conducted a search for studies that simultaneously included the MeSH terms [mesotherapy AND pain] and [mesotherapy AND musculoskeletal pain], in the last 10 years. The search was conducted using the following databases: Cochrane, Embase, PubMed and Google Scholar. We included a total of 7 studies in this review: 4 RCTs, 1 retrospective observational study and 2 systematic reviews. Mesotherapy with NSAIDs showed similar or better effectiveness and safety profiles in the relief of chronic and acute musculoskeletal pain and associated disability, requiring lower total dosages of medication, when compared to systemic therapy. In a recent study it was at least as effective in the treatment of MSK lumbar pain, when compared to epidural steroid injection. Mesotherapy is an effective and safe treatment modality for musculoskeletal pain, requiring lower total drug dosages, when compared to systemic NSAID therapy. However, there are very few recent RCTs on its usage and there is high inconsistency in the methodologies adopted between them. Being musculoskeletal pain the most prevalent of all painful conditions, efforts should be made to conduct RCTs using properly standardized protocols.

Persons With Sacroiliac Joint Dysfunction Exhibit Altered Electromyographic Activity Of The Latissimus Dorsi Muscle When Lifting A Load

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The interaction of the Latissimus Dorsi (LD) with the thoracolumbar fascia (TLF) is considered essential for the stability of the lumbo-pelvic region. Therefore, examining electromyographic (EMG) activity of the LD muscle when lifting a load in a standing position in people with and without Sacroiliac Joint Dysfunction (SIJD) may provide relevant information in the understanding of the SIJD. A Cross-sectional analytical observational study was made, with 114 subjects aged 18 and 40 years old (24.76 ± 8.06; men= 76; women= 38) distributed in three groups: Control, Low Back Pain (LBP) and SIJD. Diagnosis of SIJD was established through the multitest regimen. EMG activity of the LD was evaluated when lifting a load in a symmetrical bipedal position. The Root Mean Square (RMS) amplitude and latency of the right and left LD muscles were calculated. Kruskal-Wallis test and Dunn's multiple comparisons test were conducted to compare RMS amplitude and latency of the LD muscle between groups. We have found a significant increase in RMS amplitude ($p = 0.03$) was found in the left LD and significant delay in the onset ($p = 0.02$) of the right LD in the SIJD group (Control: -1.88 msec [- 3.03, -1.14]; LBP: -1.49 msec (-1.88, -0.9), SIJD: -1.2 msec (-2.31, -0.91). These results indicate that significant delays in the onset and the increase in the RMS amplitude of the LD muscle reveals a change in the pattern of EMG activity in subjects with SIJD. This suggests that the synergistic activity between the LD and the contralateral gluteus maximus may also be altered, affecting the force closure in the sacroiliac joint during load lifting, altering, in turn, the correct transfer of forces from and towards the lower limbs and trunk, thus potentially contributing to the perpetuation of symptoms.

Evaluation of the quality of life and the functional impact in patients with Guillain Barré

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Guillain-Barré syndrome (GBS) is a primary acute inflammatory polyradiculoneuritis of autoimmune origin. The vital and functional prognosis may be compromised in the short and medium term. Retrospective study including 27 patients with GBS, who were treated in the Physical Medicine department at the Ibn Rochd University Hospital. The average age was 32.7 years. The majority of patients were females. All patients had a tetraparesis on admission 7 patients required assisted ventilation, 17 patients had early axonal damage on ENMG. The evolution was favorable in the majority of cases at 1 year. The average MIF score increased from 65.8 to 107.3/126. 9 patients regained their professional activities, one patient was able to benefit from a professional reclassification. The SF-36 score was improved in all dimensions in all patients.

GBS is the most frequent form of acute polyradiculoneuritis, initially life-threatening and secondarily compromising the functional prognosis, with residual functional sequences that can sometimes persist and affect the patient's daily and professional activities, thus the need for an early multidisciplinary care.

Thoracic Outlet Syndrome: Literature Update Of The Main Conservative Measures

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Thoracic outlet syndrome (TOS) is caused by compression or irritation of the neurovascular structures as they leave the thoracic cage through its narrow outlet. We aim to report the main effective conservative methods to treat this syndrome.

A bibliographic research was conductedin literature of the last 25 years using the scientific search engines "PubMed", "Google Scholar", "Uptodate" and "Cochrane Library". Keywords used were "thoracic outlet conservative" and "thoracic outlet treatment".

A multidisciplinary approach is mandatory. Initially, pain management and good sleeping hygiene are important. A supervised physiotherapy program includes graduated resisted shoulder girdle exercises and exercises to improve posture. The aim is to restore movement of the whole shoulder girdle and to provide more space for the neurovascular structures. Restoration of the movement and function of the cervical spine requires exercises that aim to activate the anterior, middle, and posterior scalene muscles. Stretching of the shoulder girdle muscles involves the upper part of the trapezius muscles, the sternocleidomastoid muscles, the levator scapulae, and the small pectoral muscle. The role of the small pectoral muscle has been also emphasized. Further stretching exercises should be implemented, depending on the findings in the individual case. Strengthening exercises for the anterior serratus muscle should also be included, enhancing scapula stability. Nerve gliding exercises can restore the mobility of the nerves. The role of psychologists, occupational therapists, and social workers is also main for TOS treatment.

Conservative therapy is the first line treatment in TOS due its safety and its potential for self-implementation.

Anxiety and depression after stroke: about 43 cases

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Depression is a common condition affecting a significant number of individuals following a stroke, with prevalence rates ranging from 30% to 60%. It can manifest shortly after the stroke event or even several years later. The objective of this study was to investigate the incidence of depression and anxiety in patients with post-stroke hemiplegia, following their stroke.

This prospective study was conducted over a six-month period, from September 10th, 2022, to February 10th, 2023. It included all cases of stroke treated in the Physical and Rehabilitation Medicine (PRM) service during this period, with the exclusion of patients with severe aphasia. The Hospital Anxiety and Depression Scale (HADS) by Sigmond and Snaith was utilized for assessment.

Out of the 43 hemiplegic patients treated in our department, the mean age was 57.14 years (range: 17-87 years), The male-to-female ratio was 1.1. All patients had experienced an ischemic stroke. Among the participants, 11 patients (25.6%) exhibited post-stroke depression, nine patients (20.9%) presented with anxiety. Three patients (6.9%) had uncertain depression symptoms. Eight patients (18.6%) displayed definite depression symptoms. Five patients (11.6%) exhibited doubtful anxiety. Four patients (9.3%) had clear symptoms of anxiety. Antidepressant treatment was initiated for the patients who showed positive progress.

Our study revealed a relatively low frequency of post-stroke depression, which may be attributed to the limited sample size. However, it is crucial to address this condition, as it significantly impacts functional prognosis and can lead to patient demotivation, particularly during rehabilitation. Post-stroke depression typically emerges early after the stroke event and exhibits a high incidence, with somatic and cognitive symptoms of depression being more prevalent, often associated with specific encephalic locations.

It is imperative to systematically assess post-stroke depression in all hemiplegic patients, particularly in the early phase, and through regular interviews involving family members. Appropriate antidepressant treatment should be implemented to achieve favorable outcomes.

DIGITAL POSTER SESSION

Thoracic meningioma revealed in the aftermath of surgery for a lumbar herniated disc

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Spinal meningiomas are rare, slow-growing tumors that mostly affect females. The symptomatology ranges from simple radicular involvement to a medullary compression syndrome accompanied by a spinal syndrome. Our objective is to demonstrate that sciatica with motor deficit in the lower limb can reveal an underlying pathology such as meningiomas in our case.

We report the case of a patient who presented with right paralyzing sciatica due to L4-L5 herniated disc, operated by discectomy, and received rehabilitation care in Physical Medicine and Rehabilitation (PMR).

Clinical examination revealed a chronic spinal syndrome with dorsolumbar pain, pyramidal deficit in both lower limbs, and vesicourethral disorders such as dysuria. A spinal MRI was performed, and the result revealed a right-sided intracanalicular and extramedullary lateral-posterior mass at the level of T3. The patient underwent total resection of the meningioma, which was histopathologically classified as a grade 1 meningothelial meningioma.The patient was managed in the PMR service for 2 years, with a slow recovery of the muscle deficit. She resumed walking without technical assistance.

A transdisciplinary diagnostic approach for sciatica with motor deficit in the lower limb is necessary, with a decision for surgical intervention, as it may conceal other underlying pathologies.

Primary Raynaud's phenomenon treated with high intensity focused electromagnetic field stimulation: a case report

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Primary Raynaud's phenomenon (PRP) is often refractory to treatment causing pain and functional impairment. It is usually treated with non-pharmacological measures, usually cold avoidance, and smoking cessation. A first line drugs used for PRP treatment are calcium channel blockers. Although PRP is clinical diagnosis specialist investigations such as nailfold capillaroscopy and infrared thermography can also be used to establish diagnose and to monitor treatment.

High intensity focused electromagnetic field stimulation (HIFEM) is a therapy used in rehabilitation to reduce pain, enhance circulation, and tissue regeneration.

In this case report HIFEM was used to treat PRP symptoms.

A 45-year-old woman with PRP was tested with infrared thermography before the treatment. The baseline data were obtained before the treatment with infrared thermographic camera (FLIR i60, FLIR® Systems AB, Sweden) together with data after cold immersion and rewarming. The BTL Super Inductive System's program for chronic circulation disorders was used set to 50% intensity five times once a day applied to the patient's right hand. The same examination was done after the treatment. The left hand was used as a control.

The following results were recorded: baseline values for the right hand (RH); average temperature (Avg) 24.6°C, minimal (Min) 24.0°C, maximal (Max) 26.8°C, middle finger (MF) 26.9°C. Baseline left hand (LH); Avg 25.4°C, Min 24.8°C, Max 32.8°C, MF 25.4°C. After cooling RH; Avg 23.2°C, Min 15.3°C, Max 31.8°C, MF 19.6°C. LH; Avg 23.3°C, Min 13.9°C, Max 32.2°C, MF 19°C. Rewarming RH; Avg 31.5°C, Min 28.4°C, Max 35.7°C, MF 32.2°C. LH; Avg 32°C, Min 27.5°C, Max 35.9°C, MF 34.7°C. After treatment RH; Avg 29.9°C, Min 27.2°C, Max 32.7°C, MF 30.2°C. LH; Avg 28.1°C, Min 28°C, Max 34.3°C, MF 28.6°C. After cooling RH; Avg 24.9°C, Min 16°C, Max 32.5°C, MF 21.2°C. LH; Avg 26.5°C, Min 16.7°C, Max 32.8°C, MF 19°C. Rewarming RH; Avg 29.4°C, Min 24.6°C, Max 34.7°C, MF 33.7°C. LH; Avg 30.3°C, Min 25.8°C, Max 33.5°C, MF 27.6°C.

Analysis of the gathered data show that patient with PRP treated with HIFEM had less pain in her right hand and thermography results show higher temperatures after treatment. Results of this case report suggest that HIFEM could be beneficial treatment for the PRP.

Stromal vascular fraction treatment for knee osteoarthritis: preliminary results.

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Knee osteoarthritis (KOA) is a chronic degenerative joint condition characterised by the progressive destruction of the articular cartilage. Treatment with stromal vascular fraction (SVF) contains adipose derived mesenchymal stem cells and is among the new strategies to treat KOA. SVF efficacy and safety has already been proven but the use of a standardised SVF product is needed to better analyse clinical and radiological improvements.

We present 6 cases of unilateral chronic KOA who underwent a standardised SVF treatment (CelStem®). The treatment is made from the autologous adipose tissue acquired via liposuction and prepared by biotechnologists in a clean room manufacturing environment. Few hours after, the SVF treatment is injected intraarticularly in the affected knee. Magnetic resonance (MR) images analysis through MOCART classification, pain and functional outcomes (VAS and KOOS) are assessed before and 1-year after the treatment. Adverse effects are reported.

4 men and 2 women, middle aged (mean age 54), mean body mass index 27.17, were treated with SVF: two left and four right knees. MOCART classification improved in all cases whereas VAS and KOOS did it in 4 patients (21.53, 4.1 and 14.62 points of average improvement, respectively). No adverse effects were reported.

A manufacturing standardised SVF product is safe and seems to be effective for KOA with radiological evidence of cartilage regeneration.

Training as a strategy to improve care for patients with oropharyngeal dysphagia

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Awareness of oropharyngeal dysphagia (OD) is crucial for early diagnosis, and to advance the prevention and treatment of swallowing disorders, enhancing professional consciousness is needed. The Health Sciences Research Group (Andorra University) that includes PMR doctors, pharmacist, speech therapist, has appointed in November 2021 an educational strategy for dysphagia, to raise awareness and training for health professionals related to OD: speech therapists, nurses and caregivers.

The aim of the study is to evaluate participation in and benefit from training.

Training was organized Training was organized in 3 levels (Level A: Basic 6 hours, Level B: Advanced 8 hours, Level C: Expert 8 hours) and the content was adapted to each level. Topics focused on 4 essential aspects that were combined with practical workshop: Anatomy-Physiology, Screening-Diagnosis, Therapeutic-nutritional interventions, Safety and efficient medication management.

Participation and benefits were analyzed from November 2021 to December 2022. Participation was considered as an indicator of success. The attendees answered an evaluation survey measuring the content, methodology and organization. An open field was provided to indicate points/aspects for improvement.

A total of 124 places were offered for level A and 50 for level B. Attendance was 67% and 97% and overall rate, 4.46/5 and 4.55/5 for level A and level B respectively. The level C course was taken by 19 people out of those who took level 1 and overall rate was 8.9/10. Specific results on benefit were: Content 4.25/5, Teaching methodology 4.60/5, Training organization 4.53/5. The human resources of the workplace and the University email were the main means of communication to promote the level C course. Aspects to improve were increasing practical part, more real-life interventions, broader promotion of the training.

Training evaluation was excellent both in participation and benefit for awareness in OD. A promotion strategy for basic level needs revision.

Post-mastectomy pain syndrome: assessment and management in physical medicine and rehabilitation

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Post-mastectomy pain syndrome (PMPS) is a chronic neuropathic pain that occurs after mastectomy or lumpectomy affecting the anterior chest, armpit, and/or upper arm. The importance and severity of PMPS ranges from simple discomfort to major disability with significant impact on quality of life.

Our objectives are the evaluation of the functional impact of PMPS and its management.

A case report of PMPS classified as intense according to the score of Labrèze and al for a right-handed 42-year-old woman, with stiffness of the right shoulder leading to incapacity and restrictions, preventing her from starting her sessions of radiotherapy.

The QUICKDASH score evaluating the functional impact of PMPS is 6,82. We have proposed a treatment protocol which required 3 months of care in the physical medicine and rehabilitation department: physiotherapy, kinesitherapy and occupational therapy, supplemented by mesotherapy and psychological support.

A significant reduction in pain with improvement in shoulder range of motion, making it possible to start her radiotherapy sessions: improvement in the monitoring score for the intensity of the PMPS, while the QUICKDASH score raised to 95, 45.

PMPS is one of the most feared sequelae of surgical treatment of breast cancer, due to its considerable impact on quality of life and its slow and difficult resolution.

It is important to provide comprehensive interdisciplinary care once the disease is announced in patients at risk, in order to prevent the onset of a major disability.

Clinical and epidemiological profiles of cervical spondylotic myelopathy

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The aim of this study is to establish the epidemiological characteristics of cervical spondylotic myelopathy in patients presenting physical medicine and rehabilitation department

This is a descriptive study involving patients suffered of cervical spondylotic myelopathy followed at a Physical Medicine and Rehabilitation department in Tunisia. The data analyzed were epidemiological and clinical characteristics.

Forty-five patients were included in this study, the average age was 61.4 ± 5 years with a male predominance (sex ratio 2.3). Ten patients (22.2%) were from rural areas. The majority of our patients (86.7%) were married. We found that the most frequent reason for consultation was Weakness of upper limbs was seen in 32.5%, lower limbs in 22.5%,42.5% of patients complained of neuropathic pain of upper and or lower limbs. 30% of patients had urinary incontinence, 27.5% had positive Lhermitte's sign, 60% spasticity. Multi-level disease was seen in the MRI in the majority of patients, with C5/6 being the most commonly affected level followed by C3/ 4. Single disc disease was seen in 8 out of 45 patients (17.7%), with multi-level disease in the remaining 37 (82.2%). In this group there was evidence of broad-based disc osteophytic bars in 34 out of 45 cases.

Cervical myelopathy is an uncommon cause of cord compression with insidious onset that can present with a number of different symptoms and requires a high index of suspicion to diagnose.

Neurogenic bladder and intermittent catheterization: what difficulties are encountered?

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Difficulties with intermittent catheterization (IC) are common and may lead to serious complications secondary to the neurogenic bladder. The aim of this study is to identify the factors that make the practice of IC difficult in neurological patients.

We conducted a descriptive cross-sectional study on patients practicing IC for neurogenic bladder, followed in our rehabilitation department. We used the "Intermittent Catheterization Difficulty Questionnaire" (ICDQ) in its Arabic version to evaluate the difficulties of IC.

Our study population consisted of 15 patients, with a sex ratio equal to 0.5. The mean age was 38.5 years [26; 49]. The mean duration of IC practice was 9 years [3 months; 19 years]. The results of the ICDQ questionnaire showed that three patients had pain on introduction of the bladder catheter. A transient blocking sensation was described in five cases. One patient felt obliged to adopt a different position to allow catheter progression. One patient had spasms involving the muscles of the lower limbs concomitant with the practice of IC. Urethral bleeding was reported in one case. Changing position or using the fingers was necessary to ensure bladder emptying in one patient. A sensation of blockage on removal of the catheter was described in two patients. One patient reported urinary incontinence during IC. Residual pain after IC was reported in two patients.

Our study determined the causes that made IC difficult in neurological patients using a valid questionnaire. Any difficulty encountered during IC should be managed in order to resolve the causal problem.

Idiopathic Scoliosis: Effects Of Aerobic Exercise

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Idiopathic scoliosis (IS) is a three-dimensional deformity of the spine affecting the quality of life (QOL) of patients.The purpose of this study was to evaluate the effects of aerobic exercise on QOL and functional capacity on patients with IS.This study evaluated the effects of aerobic exercise on 14 patients with IS. We uses the Scoliosis Research Society-22 patient questionnaire (SRS-22),Short-Form Health Survey-12 (SF-12) to evaluate QOL,and Borg scale along with six-minute walk test to measure functional exercise capacity at baseline (T0) and at the end of 30 minutes/3 times a week /12 weeks long exercise protocol.We adapted exercise parameters to patient's vitals and Borg scale.We excluded patients with neuromuscular and congenital scoliosis.Average age was 21 years old (17-26),average time since diagnosis was 48,7 months and 74.5% had a cobb's angle inferior to 40°.The average SRS-22 score function domain went from 2.3 at T0 to 3.7.Average SF-12 physical score was at 35 at T0 and at 41,7 at T1.74.5% of patients completed a distance of less than 250m at T0 and 41,7% completed a distance of more than 350m at T1.27,5% perceived the exercise as hard on the borg scale at T0 and 10,4% perceived it as hard at T1.This study confirms the effects of aerobic exercise on QOL and capacity of patients with idiopathic scoliosis.Other studies confirm the role of exercise in improving the quality of life for IS patients.

Anorectal Disorders and Management in Spinal Cord Injured Patients

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Anorectal disorders (ARD) in spinal cord injured (SCI) patients have major impacts on the quality of life of patients. Their evaluation and management must be systematic.

The aim is to study the prevalence, the severity and the management of ARD in these patients.

This is a descriptive and retrospective study of 46 SCI patients who were recruited in Physical Medicine and Rehabilitation department for rehabilitation care. The evaluation of ARD was done using the Neurogenic Bowel Dysfunction Score (NBD) questionnaire, and the functional independence measure (FIM).

The mean age was 43.6 with a male predominance. 73.9% were paraplegic. 41.3% had an ASIA B score and 26% an ASIA A score. The prevalences for constipation, dyschesia and fecal incontinence were 39.1%, 21.7% and 43.4% respectively. The NBD was 11.9±5.6 and the mean FIM 82.9. The management consisted of education and information of the patient, specific diet, oral bowel medications, enemas and pelvic floor therapy using biofeedback.

The severity of ARD and therefore of the NBD score is correlated with the global motor deficit including the perineal region and with the ASIA score. The management of ARD involves a physical examination, imaging (MRI defecography) and anorectal manometry in order to propose the right therapy.

Low-Intensity Extracorporeal Shock Wave Therapy Treatment of Erectile Dysfunction After Robot-Assisted Radical Prostatectomy

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Low-intensity extracorporeal shock wave therapy (Li-ESWT) has been reported as an option in the treatment of patients with erectile dysfunction (ED). The algorithm of treatment is not clarified. The aim of the current study was to determine the efficacy and safety of Li-ESWT for early ED rehabilitation after robotic-assisted radical prostatectomy (RARP) for prostate cancer (PC) and whether more frequent administration of Li-ESWT has better therapeutic effect.
68 men with prostate carcinoma underwent nerve-sparing robot-assisted radical prostatectomy from 2017 to 2022, 48 men underwent low-intensity extracorporeal shock wave therapy after robot-assisted radical prostatectomy for prostate carcinoma.

- 26 men (group 1) were treated with low-intensity extracorporeal shock wave therapy once a week for a period of 6 weeks
- 22 men (group 2) were treated with low-intensity extracorporeal shock wave therapy twice a week for a period of 6 weeks
- 20 men (group 3) were not treated with low-intensity extracorporeal shock wave therapy

There are many Li-ESWT devices worldwide. We used Chattanooga Intelect RPW Shockwave Therapy.

Low-intensity extracorporeal shock wave therapy is administered:after the 14th postoperative day, for a period of 6 weeks, at 5 positions of the penis: in the proximal, middle and distal part of the dorsal surface of the body of the penis, as well as on the left and right legs of the corpus cavernosum, with the penis in an extended position, 600 strokes were exposed at each point, for a total of 3000 strokes per procedure. All procedures were performed without anesthesia in an outpatient setting. We used a standardized International Index of Erectile Function (IIEF-5) questionnaire to assess erectile function before, after Li-ESWT, and 1 month after therapy.
The average age of the studied patients was 61.26±4.73. In the patients of groups 1 and 2, a significant improvement of the erectile function was achieved on the 1st month after the therapy compared to the initial values (Fig. 3). There was no significant difference between the results in the first two groups. The results were clinically significant difference in groups 1 and 2 compared to the control group. No cases of patients with side effects from Li-ESWT have been observed.

Early physical therapy may provide more effective penile blood flow during temporary cavernous neuropraxia occurring after radical prostatectomy.
Considering the natural course of cavernous nerve recovery after radical prostatectomy, early physical therapy would be effective in improving the overall recovery of sexual function.
Li-ESWT can be successfully applied to patients with ED after RARP.
More frequent application does not lead to an increase in the effectiveness of the procedure. The method is efficient and safe.

Effect Of Early Management of Bell's Palsy in Physical Rehabilitation Department

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Bell's palsy is a common idiopathic cranial neuropathy causing acute unilateral lower motor neuron facial paralysis. The objective of our study is to determine the contribution of rehabilitation program in the management of patients with Bell's palsy.

We conducted a descriptive cross-sectional study during the period between March 2022 and March 2023 including patients with Bell's palsy consulting in the physical and rehabilitation department. We studied socio-demographic data, physical examination data based on Freyss muscle testing .Twenty four patients were included, referred for rehabilitation after treatment with corticosteroid therapy associated with an antiviral for 10 days. The evolution of Bell's palsy was on average two weeks. Sixty percent of patients were women with an average age of 42± 2 years. It was the first episode in 60% of cases. Lacrimation was noted in all patients. Neuropathic pain was noted in one patient. Most of the patients (70%) had moderate damage according to the Freyss testing(15/30). All the patients benefited from an adapted rehabilitation program. It was based on facial muscle exercises,biofeedback and lasted 10 weeks on average with a good evolution in 70% of the cases.

Bell's palsy a very difficult condition for patients to live with but which regresses quickly. However, in some cases, recovery is slow, requiring continuous optimal rehabilitation to minimize the sequelae.

Evaluation Of Taopatch® Effects On Spine Morphology

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Spine 3D is a device that allow to monitor the spine from a morphological and functional point of view, through a non-invasive analysis widely used in the medical field. The Taopatch® is an innovative medical nanotechnology that induce beneficial effects on the human body. It is already known that this device can improve and prolong the effect on proprioception, balance, inducing also postural rebalancing.

This study aims to examine whether the application of Taopatch® can improve the spinal morphology's change of subjects with spinal dysfunction.

Twenty healthy subjects with spinal dysfunction, such as hyperlordosis, kyphosis, and scoliosis, were enrolled in the study. The subjects were evaluated by Spine 3D device at the beginning (T0) and after two hours of the application of Taopatch® (T1).

Through comparison of the measurements taken to T0 and T1, a significant change was observed, particularly for some variables such as VertebralDeviationMinus_COR (0.069), TrunkImbalance_VPDM_COR (0.136), and CoronalImbalance_VPDM_COR (0.148).

The application of the Taopatch® would appear to have a positive effect on spinal morphology and rebalance and appears to be a useful tool for long-term support and maintenance of the spinal alignment.

Six-month functional prognosis of patients hospitalized in ICU for severe/critical COVID-19

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The sequelae of COVID-19 infection can lead to disability and impact activities and participation in patients who require intensive care. The purpose of this study was to describe the 6-month follow-up of the functional status of COVID-19 survivors and to analyze which variables predict a limited functional status.

Patients hospitalized in ICU for severe/critical COVID-19 were invited to participate in our survey between March and June 2021. We quantified a 6-month functional outcome in COVID-19 survivors using the Post-COVID-19 Functional Status Scale (PCFS). We examined the risk factors for the incomplete functional status defined as the loss of at least 1 point on the PCFS scale at a 6-month follow-up after discharge. We performed multivariable analyses to identify factors associated with functional decline.

Of 57 individuals analyzed, 36 (63.2%) were male with a median age of 57.9 (13.35) years. A total of 84.2% required mechanical ventilation and were hospitalized for more than 15 days. 89.5% continued hospitalization in a rehabilitation center. At 6 months, functional decline occurred in 36 (63.16%) patients, with a median worsening of 3 points.

Results of the multiple linear regression indicated that there was a collective significant effect between independent variables, ($F(8.298) = 2$, $p = .001$, $R2 = .23$). The individual predictors were examined further and indicated that baseline PCFS ($t = 2.839$, $p = .006$) and days in ICU ($t = 2.743$, $p = .008$) were significant predictors in the model. Other variables (age, mechanical ventilation, Charlson Comorbidity Index, and body mass index did not show clinical variables associated with worse functional status at month follow-up after discharge.

Six months after critical illness by COVID-19, patients had functional limitations according to PCFS. Worse pre-COVID-19 functional status and longer ICU stay were predictors of worse functional status at 6 months after discharge. These patients may benefit from early and follow-up rehabilitation programs.

Injuries and Athlopathies Among Basketball Athletes: A Questionnaire Survey

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Basketball is an alternating aerobic-anaerobic activity, a limited contact sport, and that physical contact in most cases can determine the injury. Sports injuries, can have traumatic, accidental nature, but also can be caused by mechanisms common to all motor activities and wear and tear injuries defined as atlopathies. Our study tries to answer two questions: “can the atlopathies affecting professional basketball players be compared in any way with the injuries suffered by athletes in minor categories?” and “how many athletes injured, after a rehabilitation protocol, turned to a motor science doctor to perform prevention and pre-qualification training?”.

Our 25 questions’ questionnaire was divided into three main parts: information and consent, athlete’s sports career and injuries history, and in the end the rehabilitation process.

39 players were recruited, for a total of 95 injuries, and questionnaires showed a close relationship between match minutes, weekly training hours and incidence of injuries. The damaging events most affect those athletes who are called upon to make the competitive effort for above-average periods, increasing exposure to traumatic events, fatigue and loss of neuromuscular control. It showed also that the lack of specific prevention exercises significantly increases the percentage of risk of incurring an injury.

This study shown how a proper balance between hours of training and minutes played in the match, combined with adequate preventive exercise, is a favourable condition for reducing the likelihood of atlopathies. The results obtained were also compared to a broader study of NBA players, that showed similar results.

Nanomembrane Based Apheresis - Simple and Safe Procedure For Prevention Cardiovascular Complication In Metabolic Syndrome

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The study focuses on Nanomembrane Based Apheresis (NA) as a potential intervention within a preventive program to reduce cardiovascular complications in patients with Metabolic Syndrome (MetS). MetS combines various abnormalities in obesity, arterial hypertension, and diabetes, necessitating immediate treatment to prevent life-threatening complications. This research aimed to display the effects of NA in individuals meeting MetS criteria.

The prospective study involved 48 outdoor participants (31.3% female, 68.7% male), with an average age of 50 years, who underwent four cycles of NA. The procedure, performed every other day, utilized a safe and minimally invasive single-needle technique on the Hemofenix device employing nanotech membrane PFM 500. The process ensured the exclusion of risks associated with allergic reactions and viral disease transmission. Each cycle involved removing 30% of circulating plasma, replaced only with a saline solution. Blood samples were obtained before the first and after the fourth cycle for testing.

Results from four cycles of NA revealed significant decreases in systolic and diastolic blood pressure ($p<0.001$), sedimentation rate ($p<0.0001$), glucose ($p<0.001$), cholesterol ($p<0.001$), triglycerides ($p<0.011$), high-density lipoprotein cholesterol ($p<0.006$), fibrinogen ($p<0.001$), C-reactive protein (CRP) ($p<0.02$), and high-sensitive CRP ($p<0.05$). Notably, there were no significant differences in the complete blood count.

Conclusively, the study highlights NA as a potentially powerful, yet simple and safe technique for removing proinflammatory and proatherogenic factors. This approach aims to slow down disease progression and prevent cardiovascular complications in MetS patients.

Target group survey on rehabilitation service utilisation and needs among patients with rheumatic conditions.

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The aim of the study was to understand the needs for rehabilitation of patients with rheumatic diseases to prepare to draft the guidelines of social rehabilitation. This study was an electronic survey distributed through patient`s organisation. Four men and 57 womens filled in the questionnaire. Majority (35) of the respondents belonged to the age group 40-64 years. About half (31) of the participants had history of rheumatic disease over 10 years. Forty-four respondents worked full- or part-time, only four reported inability to work due to health problems. More than a third (21) of the respondents had no experience with any type of rehabilitation service, 26 had utilised the services provided by social support structures and 34 were treated as in- and/or outpatients in physical and rehabilitation medicine facilities. Nineteen participants found that they had the opportunity to choose the most suitable rehabilitation service for them. Coping with ADL as a desired goal for the rehabilitation was set by the vast majority (58) of the respondents. The other often named goals were better work performance and engaging in hobbies. Ten participants would prefer rehabilitation in group, the rest would rather use individual services. The preferred duration of a rehabilitation program was three (20 respondents) or 12 months (19), 51 respondents preferred rehabilitation sessions with a frequency of one to three times a week. Physiotherapy was the most desired service (58 participants) followed by physical and rehabilitation medicine doctor’s consultation (43). Most of respondents (35) prefered the complex rehabilitation service in medical spa. Distributed through a patients’ organisation, an electronic survey can give valuable information to plan patient centred rehabilitation service for patients with rheumatic conditions. The patients have a clear vision of their needs and are ready to share it in order to jointly design the rehabilitation services.

Narrative Review Of Non-Invasive Treatment Options For Sacroiliac Joint Dysfunction

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Sacroiliac joint (SIJ) pain equates to anatomical dysfunction with consequent joint hypermobility or hypomobility, in conjunction with concurrent or resultant arthritic inflammation. Clinical manifestations include intense pain inferolateral to the joint that deteriorates with changing positions or rotation of pelvis. The most common causes are immoderate axial loading or joint stress, degenerative alterations, trauma, pregnancy, and inflammatory conditions. The aim of this work is to illustrate the main non-invasive therapeutic options regarding SIJ dysfunction.

Literature research of the last 15 years using the web engines, “PubMed” “Google Scholar” and “Cochrane Library”. Keywords used were “sacroiliac joint pain conservative” and “sacroiliac joint pain rehabilitation”.

Initially, it is substantial to use the biopsychosocial model to design a therapeutic plan that focuses on the individual needs of the patient. Apart from analgesic medication such as nonsteroidal anti-inflammatory agents and muscle relaxants in case of concomitant muscle spasm, conservative measures such as therapeutic exercise, mobilization, and belts, are potential options for pain control. If these treatments are ineffective, then one may consider fluoroscopic, ultrasound, or CT–guided intra-articular or peri-articular injections, nerve blocks, and radiofrequency. Nevertheless, psychologists, occupational therapists, recreation

therapists, dieticians and social workers have also an important role within the interdisciplinary rehabilitation team.

Conservative treatment for SIJ pain mainly includes mobilization, antiinflammatory drugs and joint belts and it is generally considered as effective.

Case Report: Electromyographic Investigation of Severe One- Sided Axonial Sciatic Nerve Damage After ICU Hospitalization Due To Severe Sars-Cov-2 Infection

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Severe SARS-Cov-2 infection is often accompanied by peripheral nerve damage. It is also known that patients often placed inappropriately in the ICU bed, which may lead to peripheral nerve entrapments. Our objective is to present a case of a patient with severe sciatic nerve damage after hospitalization in ICU due to severe SARS-Cov-2 infection.

A 44-year-old woman came to our electromyography laboratory due to weakness and hypoesthesia of the left lower extremity (sciatic nerve distribution) for a month, at which time she was discharged from the ICU. She had remained in the ICU for 7 days due to severe respiratory failure due to SARS-Cov-2 infection. She was walking using an ankle foot orthosis.

Electromyographic testing revealed spontaneous activity at rest in the left hamstrings, tibialis anterior, gastrocnemius, abductor halluces and extensor digitorum brevis. No voluntary motor unit activity was found from the above muscles while no motor evoked potential was recorded from the left peroneal and tibial nerves. Sensory evoked potential from the left sural nerve was also not recorded, which support the diagnosis of postganglionic damage.

Differential diagnosis of the cause of this sciatic nerve axonal injury between nerve entrapment due to prolonged misplacement and mononeuropathy due to Covid-19 in this case is difficult and requires more evidence from patient's recent medical history.

Clinical Case on Quadriceps Femoris Muscle Plasticity in A Patient With Post-Traumatic Stiffness In Knee Extension (PECK)

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Traumatic fractures of the distal femur could often be complicated by severe stiffness in knee extension (PECK) and this type of damage can cause many difficulties in performing activities of daily living (ADL). Very often, only rehabilitative treatment may not be resolving and in some cases is required a more invasive surgical procedure, as arthromiolysis of the quadriceps femoris muscle according to Judet. The purpose of this study was to evaluate the effectiveness of immediate and costant post-operative rehabilitation treatment for the first few months after this type of surgical treatment. This article documents the clinical case of 41-years-old patient, suffering from PECK, hospitalized in Orthopaedic Trauma Center (CTO) in Rome, where patient has undergone both surgery and rehabilitation treatment. In the Rehabilitation Department it was designed an individual rehabilitation project during 20 days, where several evaluations have been assessed as the increase in joint range, improvement in gait pattern, the ability to perform stairs and complete recovery in simple ADL.

The results collected during the rehabilitation treatment revealed some of the desired functional targets. Conservative treatment allowed the patient to get back the ADL as before the injury. In addition, it is important to note that the rehabilitation course in this type of patient should be continued and carried out consistently for at least 6 months after surgery, because the risk of PECK's relapse during this period is higher. For this reason, after discharge from the Rehabilitation Department the patient continued the exercise in Day Hospital Rehabilitation setting.

The transversal role of physical and rehabilitation medicine compared to medical and surgical specializations

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Physical and Rehabilitation Medicine (PRM) is an independent specialty aiming at disability prevention and treatment. Its main goal is to improve the functioning of the systems and organs of the human body. The objective of this study is to better clarify the evolution across the centuries of MFR, and Physiatrists, MFR physicians, and its role within European Health System (EHS). A narrative review was designed to describe the evolution of clinical care across human development and the rising importance of PRM in the contemporary care setting and its role in the EHS. Since the birth of ancient medicine, a dichotomous division between medical clinic (MC) medical and surgical clinic (SC) specialties were introduced. For instance, in 13th century in Sicily medical figures were divided between the "Plague Doctor" (surgeon) and the "Urine Doctor" (clinician). In the XX century, improvement of organ pathophysiology knowledge, medical technological innovation led to apparatus or organ-driven specialization of different specialties. However, after World War I, an increasing number of veterans and their unmet need for their disabilities emerged because both CM and CC were not enough to meet the patient's care and improve their quality of life and PRM was introduced and developed. Nowadays, the Rehabilitation Care (RC) has gone beyond the limits of mere physical rehabilitation and has risen as a third part of the EHS aiming at the patients' holistic and functional recovery as a single scientific nucleus with all its sub-specializations of apparatus and function.

Avascular Necrosis of Both Knee Joints After Allogeneic Hematopoietic Stem Cell Transplantation - A Case Report

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Avascular bone necrosis of symmetrical joints manifesting simultaneously although described in the literature is extremely rare and with this abstract we want to present a case of a young 36-year-old patient with bilateral avascular necrosis of both knee joints. A 36-year-old male patient was referred to the physiatry outpatient clinic for a consultation by a hematologist in 2020. Patient complained of severe pain in both knee joints and had difficulty walking. Patient stated that symptoms appeared suddenly and were not provoked by any injury or trauma. A detailed medical history was taken and it was significant to notice that patient underwent allogeneic hematopoietic stem cell transplantation in 2018, after being diagnosed with myelodysplastic syndrome in 2017. After transplantation patient received high doses of immunosuppressive therapy for a period of six months. A detailed clinical examination was performed and in the clinical status, there was severe palpation tenderness of both knees, reduced range of motion and limping when walking. At the examination, patient presented with X-ray images of both knee joints which were taken in another institution. X-ray findings of both knee joints were normal, so a magnetic resonance imaging (MRI) was indicated. MRI scans presented with multiple irregular demarcated areas of both condyles of the femur and both patellas what is a typical sign for avascular necrosis of the bone. To relieve his symptoms patient was prescribed with physical therapy, painkillers and walking with crutches to reduce weight bearing. Patient was also referred to an orthopedic surgeon for a surgery consultation. Orthopedic surgeon examined the patient and indicated core decompression surgery of the affected bone. After three months patient went for the scheduled surgery on his left knee and had a good recovery afterwards. After the operation patient was under the constant supervision of a physiatrist and has completed a rehabilitation program. Patient is now waiting for a second operation, core decompression surgery on his right knee. Bilateral avascular necrosis of symmetrical joints manifesting simultaneously is extremely rare and with this abstract we wanted to present a case of a young patient with bilateral avascular necrosis of both knee joints. If the patient's medical history shows that he received immunosuppressive therapy, then avascular necrosis should be suspected. In the early stages of the disease this condition is often not visible on X-rays images, so a magnetic resonance imaging (MRI) should be taken. MRI is higly sensitive and specific imaging modality as MRI scans will show changes typical for avascular

necrosis even in the early stages of the disease. It is important to detect avascular necrosis in the early stages of the disease as early detection results in better treatment options and consequently overall better treatment outcome for our patients.

Efficacy of rehabilitation in hospitalized patients with billateral COVID-19 pneumonia

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Rehabilitation is an integral part of the treatment of hospitalized patients with pulmonary insufficiency. We aimed to evaluate efficacy of early rehabilitation in patients with billateral covid pneumonia, the impact on functional disability caused by dyspnea and rating exertion and breathlessness during physical activity.

Hospitalized non-intubated patients with bilateral COVID 19 pneumonia included in a study. Patients had rehabilitation program twice a day (positioning, breathing exercises, airway clearance techniques, exercises for arms and legs, transfers, walk). The Modified Borg Scale (mBS), Modified Medical Research Council Dyspnea Scale (MMRCDS), assessment of walking ability, hand grip of the dominant hand using a dynamometer (HG) on the first (fdr) and last (ldr) day of rehabilitation, were measured.

54 patients average age 60±14.23 were included in the study. The average duration of rehabilitation is 9.81±5.33. 27 patients were on non-invasive ventilation, and 27 were on oxygen supplementation using oronasal mask. 41 patients were unable to walk on fdr, and on ldr four of them were unable to walk (X2 McNemar = 35.027, df=1, $p< 0.001$). Median values were mBSfdr (3.0; 0-5) and mBSldr (0.5; 0-3) (V=1029, $p< 0.001$) at rest and mBSfdrn (3.0; 0.5-7), and mBSldr (1; 0-4) (V= 1252, $p< 0.001$) after rehabilitation session. Median value MMRCDSfdr (4; 2-4) and MMRCDSldr (2; 0-4) (V= 1275, $p< 0.001$). Median value HGfdr (39.8; 0.5-110) and HGldr (49; 2-110) (V= 59.5, $p< 0.001$).

In relation to the presented results, we can conclude that early rehabilitation helps improve functional performance, reduce dyspnea and improve strength in hospitalized COVID patients.