Pohybové ústrojí

Pokroky ve výzkumu, diagnostice a terapii

The 26th Prague-Lublin Symposium

Locomotor Apparatus Adaptation V – Interdisciplinary Aspects

November 15–16, 2024
Medical House, Sokolská 31, Prague, Czech Republic

Vydává
Společnost pro pojivové tkáně ČLS J. E. Purkyně z.s.
Ortopedicko-protetická společnost ČLS J. E. Purkyně z.s.
Ambulantní centrum pro vady pohybového aparátu, s.r.o.

ročník 31 / 2024 číslo 2 Suppl.

EMBASE / Excerpta Medica | Bibliographia medica Čechoslovaca

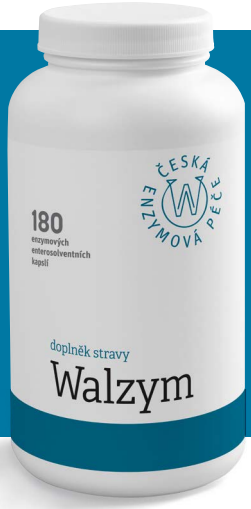
ISSN 2336-4777


ottobock.
Louisa, 27, roztroušená skleróza
S Exopulse Mollii Suit už zase tančím.
60 minut terapie každý druhý den může zásadně uvolit spastické a napjaté svaly, aktivovat svaly ochablé a zmírnit chronickou bolest. A to nejen u Louisy s roztroušenou sklerózou, ale i dalších lidí trpících obdobnými problémy po cévní mozkové příhodě, při dětské mozkové obrně a jiných neurologických onemocněních.
Ottobock. The human empowerment company.
Louisa ve videu:
#WeEmpowerPeople
www.ottobock.cz
EXOPULSE
Výrobek je zdravotnickým prostředkem, určeným výhradně k slaboproudé transkutánní neurostimulaci celého těla. Přečtěte si pečlivě návod k použití.

Pro podporu regenerace a rekonvalescence

Vyvinuto v České republice

Komplexní enzymová péče pro optimální výsledek



Walzym® Enzymové kapsle

Originální kombinace proteolytických enzymů (trypsin, chymotrypsin, bromelain a papain), flavonoidu rutinu a vitamínu C

- Optimalizace regenerace po nadměrné zátěži organismu
- Rychlejší navrácení životního komfortu
- Neobsahuje laktózu
- Základní dávka: 1 kapsle 2x denně
  V případě zvýšené potřeby 2–3 kapsle 2x denně

Walzym® Enzymový krém

Účinná kombinace proteolytických enzymů doplněná o calcium pantothenicum, vitamin E a chlorhexidin

- Lokální podpora regenerace pokožky
- Redukce tvorby jizevnaté tkáně
- Snížení rizika infekce

Výhody kombinace

Komplexní péče: systémový i lokální efekt

Komplexní enzymová péče	Čisté a vysoce aktivní ingredience	Nezávislá kontrola kvality	Vyvinuto v České republice

Doplněk stravy Walzym nenahrazuje pestrou stravu a zdravý životní styl.

www.walzym.cz

Pohybové ústrojí. Pokroky ve výzkumu, diagnostice a terapii.

ISSN 2336-4777 (od roku 2013 pouze on-line verze)
Vydává Společnost pro pojivové tkáně ČLS J. E. Purkyně z.s.
& Ortopedicko-protetická společnost ČLS J. E. Purkyně z.s.
& Ambulantní centrum pro vady pohybového aparátu, s. r. o.
Excerpováno v Excerpta Medica a Bibliographia medica Čechoslovaca.
Návrh a grafická úprava obálky Pavel Lorenc.
Časopis je na Seznamu recenzovaných neimpaktovaných periodik vydávaných v České republice. Dvě čísla časopisu vycházejí v elektronické verzi jako ročník s průběžným vydáváním příspěvků po recenzi.
Při příležitosti sympozií je dvakrát ročně vydáváno supplementum.

Pro současné odběratele časopisu PÚ a další zájemce doporučujeme přihlásit se na http://www.pojivo.cz/en/newsletter/, zadat jméno a e-mailovou adresu, na kterou bude časopis posílán. Na webové doméně SPT ČLS JEP http://www.pojivo.cz/cz/pohybove-ustroji/ naleznete ve formátu PDF všechna jednotlivá čísla a dvojčísla časopisu (včetně Supplement) vydaná od roku 1997.
Rukopisy zasílejte na adresu *profesor MUDr. Ivo Mařík, CSc., Olšanská 7, 130 00 Praha 3, (ambul_centrum@volny.cz)* ve formátu doc. Vydavatel upozorňuje, že za obsah inzerce odpovídá výhradně inzerent. Časopis, jakožto nevýdělečný, neposkytuje honoráře za otištěné příspěvky.

LOCOMOTOR SYSTEM

Advances in Research, Diagnostics and Therapy

Published by The Society for Connective Tissues, Czech Medical Association of J. E. Purkyně, Prague, Society for Prosthetics and Orthotics, Czech Medical Association of J. E. Purkyně, Prague, Czech Republic and Centre for Defects of Locomotor Apparatus Prague, Czech Republic.

Call for papers

Support this journal by sending in your best and most interesting papers. The issue of the journal is published during whole year after proof acceptation of the reviewers. In occasion of the symposia (twice a year) is published the supplement.

Submitted papers: Locomotor System will review for publication manuscripts engaged in diagnostics and interdisciplinary treatment of genetic and metabolic skeletal disorders, limb anomalies, secondary osteoporosis, osteo/spondyloarthritis and another disorders that negatively influence development and quality of locomotor apparatus during human life. Both papers on progress in research of connective tissue diagnostics, medical and surgical therapy of multiple congenital abnormalities of skeleton mainly in the fields of paediatric orthopaedic surgery and plastic surgery, orthotics and prosthetics treatment, and papers dealing with biomechanics, clinical anthropology and paleopathology are appreciated.

The journal has an interdisciplinary character which gives possibilities for complex approach to the problems of locomotor system. The journal belongs to clinical, preclinical and theoretical medical branches which connect various up-to-date results and discoveries concerned with locomotor system. You can find the volumes of Locomotor System journal at http://www.pojivo.cz/cz/pohybove-ustroji/ since 1997 (free of charge). Since 2013 only electronic edition of the journal is available. That is why we recommend to all subscribers and those interested apply at http://www.pojivo.cz/en/newsletter, enter personal data, titles and e-mail address where the journal will be mailed.

Abstracts of presented papers are excerpted in EMBASE/Excerpta Medica (from the year 1994) and in the Bibliographia medica Čechoslovaca (from the year 2010). We prefer the manuscripts to be prepared according to Uniform Requirements for Manuscripts Submitted to Biomedical Journals (Vancouver Declaration, Brit med J 1988; 296, p. 401–405).

Society for Connective Tissues CMA J.E. Purkynje & Society for Prosthetics and Orthotics CMA J.E. Purkynje & Czech Medical Association J.E. Purkynje & Medical University of Lublin & Vincent Pol University in Lublin

Final Programme of

THE 26TH PRAGUE-LUBLIN SYMPOSIUM

Main topic: Locomotor Apparatus Adaptation V – Interdisciplinary Aspects

The Symposium will be held under the auspices
of the president of the Czech Medical Association (CMA) J.E. Purkynje
Professor Štěpán Svačina, MD, DSc.
&
the honorary president of the Society for Connective Tissues CMA J.E. Purkynje
Professor Josef Hyánek, MD, DSc.

The Symposium will be held at the
Medical House, Sokolská 31, 120 26 Prague 2, Czech Republic,
on November 15–16, 2024, (Friday and Saturday)

This Symposium belongs to educational events integrated into the life training system of physicians according to professional statute No. 16 of the General Medical Council.

General partner

Partners of the symposium

ottobock.

Wald Biotech

Exhibitor

Swixx BioPharma
Modern Medicines for All

PROGRAMME

FRIDAY, NOVEMBER 15, 2024

8.00–9.00 | REGISTRATION OF PARTICIPANTS

9.00 | OPENING OF THE CONFERENCE

WELCOME SPEECHES

Professor Tomasz Karski, MD, PhD
Honorary member of the Society for Connective Tissues CMA J.E. Purkynje and the CMA J.E. Purkynje

Professor Ivo Mařík, MD, PhD
President of the Society for Connective Tissues, Czech Medical Association J.E. Purkynje

9.30–12.30 | MORNING SESSIONS

9.30 | SESSION I: RARE BONE DISEASES – treatment options

Chairmen: Kraus Josef, Zemková Daniela, Mařík Ivo

Pharmacotherapy in neurology (20 min.)
Kraus Josef
Child Neurology Department, Motol University Hospital; Prague, Czech Republic
E-mail: josef.kraus@lfmotol.cuni.cz

Comprehensive treatment of hypophosphatemic rickets. Brief overview and case report (20 min.)
Mařík Ivo[1,2], Myslivec Radek[2,3], Krulišová Veronika[4], Maříková Alena[2], Hudáková Olga[2], Vážná Anna[5], Zemková Daniela[6]
[1] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*
[2] *Centre for Defects of Locomotor Apparatus l.l.c.; Prague, Czech Republic*
[3] *Orthopaedic and Traumatology Department of Hospital Pribram,; Příbram, Czech Republic*
[4] *GHC Genetics; Prague, Czech Republic*
[5] *Department of Anthropology and Human Genetics, Faculty of Science, Charles University; Prague, Czech Republic*
[6] *Dept. of Paediatrics, Charles University, Motol University Hospital; Prague, Czech Republic*
E-mail: ambul_centrum@volny.cz

First year of vosoritide treatment in Czech patients with achondroplasia (20 min.)

Zemková Daniela[1,2], Maratová Klára[1], Kodytková Aneta[1], Mařík Ivo[2], Souček Ondřej[1], Šumník Zdeněk[1]

[1] *Dept. of Paediatrics; Motol University Hospital; Prague, Czech Republic*

[2] *Centre for Defects of Locomotor Apparatus I.l.c.; Prague, Czech Republic*

E-mail: dezem@email.cz

FGFR3-related bone dysplasia. A difficult path to diagnosis (15 min.)

Zemková Daniela[1,4], Krulišová Veronika[2], Vážná Anna[3,4], Mařík Ivo[4,5]

[1] *Dept. of Paediatrics; Motol University Hospital; Prague, Czech Republic*

[2] *GHC Genetics; Prague, Czech Republic*

[3] *Faculty of Science, Department of anthropology and human genetics, Charles University; Prague, Czech Republic*

[4] *Centre for Defects of Locomotor Apparatus I.l.c.; Prague, Czech Republic*

[5] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*

E-mail: dezem@email.cz

A novel splicing variant of FGFR3 gene detected in patients with hypochondroplasia and achondroplasia (15 min.)

Krulišová Veronika[1], Zemková Daniela[2], Mařík Ivo[3,4], Paszeková Helena[1], Michalovská Renáta[1], Vlčková Zděnka[1]

[1] *GHC Genetics; Prague, Czech Republic*

[2] *Dept. of Paediatrics, Charles University, Motol University hospital; Prague, Czech Republic*

[3] *Centre for Defects of Locomotor Apparatus I.l.c.; Prague, Czech Republic*

[4] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*

E-mail: krulisova@ghcgenetics.cz

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

11.20–11.30 | COFFEE BREAK

11.30 | SESSION II: RARE BONE DISEASES

Chairmen: Krulišová Veronika, Zemková Daniela, Mařík Ivo

Genochondromatosis, type II: a case report of a Czech young woman (15 min.)

Mařík Ivo[1,2], Píchová Renata[3], Tesner Pavel[4], Maříková Alena[2], Zemková Daniela[2,5]

[1] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*

[2] *Centre for Defects of Locomotor Apparatus I.l.c.; Prague, Czech Republic*

[3] *Department of Radiology and Nuclear Medicine, University Hospital Královské Vinohrady and 3rd Faculty of Medicine, Charles University; Prague, Czech Republic*

[4] *Institute of Biology and Medical Genetics, Charles University, University Hospital Motol; Prague, Czech Republic*

[5] *Dept. of Paediatrics, Charles University, Motol University hospital; Prague, Czech Republic*

E-mail: ambul_centrum@volny.cz

Characteristics of constitutional bone diseases as didactic contents for students of midwifery (15 min.)

Warchoł Katarzyna[1], Skoczylas Michał[2]

[1] *Institute of Medical Sciences, Collegium Medicum, The John Paul II Catholic University of Lublin (KUL), Konstantynów 1 H Street, 20-708 Lublin, Poland*
E-mail: katarzyna.warchol@kul.pl

[2] *Department of Diagnostic Imaging and Interventional Radiology, Pomeranian Medical University in Szczecin; Szczecin, Poland*
E-mail: emes@e-post.pl

Braun Martin
Introduction of **Prof. Dr. Ali Abdul Salam Awni Al-Kaissi, DSc**

The terms Rare or Orphan are only applied to the severe forms. But why are the medical disciplines ignoring the frequent occurrence of the mild and the moderate types within the same families? (30 min.)

Al-Kaissi Ali Abdul Salam
Former consultant and expert for bone diseases at the Paediatric Department of the Orthopaedic Hospital Speising; Vienna, Austria
Currently Honorary Professor at Ilizarov Institute for Traumatology and Orthopedics; Kurgan, Russia
E-mail: kaissi707@gmail.com

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

13.00–13.30 | LUNCH

13.30–18.00 | AFTERNOON SESSIONS

13.30 | SESSION III: ARTIFICIAL INTELIGENCE IN MEDICINE – BIOMECHANICS/ BIOMATERIALS

Chairmen: Macek Milan, Tesař Karel, Braun Martin

Braun Martin
Introduction of **Professor Milan Macek Jr. MD, DSc, M.H.A.**

AI in medical genetics (30 min.)

Macek Milan Jr. Department of Biology and Medical Genetics of Charles University Prague 2nd School of Medicine and Motol University Hospital; Prague, Czech Republic,

President of the Czech Society of Medical Genetics and Genomics (www.slg.cz)

E-mail: milan.macek.jr@lfmotol.cuni.cz

Artificial intelligence in orthopaedics and orthopaedic prosthetics – how can it help us? (20 min.)

Bém Robert

Diabetes Centre, Institute for Clinical and Experimental Medicine; Prague, Czech Republic

E-mail: robert.bem@ikem.cz

Current status of Mg-Zn wires and strands development (30 min.)

Tesař Karel[1], Luňáčková Jitka[2], Vrbová Radka[2], Dušková Jaroslava[3], Juhás Štefan[4], Klein Pavel[5], Žaloudková Margit[6], Bartoš Martin[2], Tichá Pavla[7], Balík Karel[6]

[1] *Department of Materials, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague; Prague, Czech Republic*

[2] *Institute of Dental Medicine, First Faculty of Medicine, Charles University and General University Hospital in Prague; Prague, Czech Republic*

[3] *Institute of Pathology, First Faculty of Medicine, Charles University and General University Hospital in Prague; Prague, Czech Republic*

[4] *Institute of Animal Physiology and Genetics, Czech Academy of Sciences; Liběchov, Czech Republic*

[5] *Biomedical Center, Faculty of Medicine in Pilsen, Charles University; Pilsen, Czech Republic*

[6] *Department of Composites and Carbon Materials, Institute of Rock Structure and Mechanics, Czech Academy of Sciences; Prague, Czech Republic*

[7] *Department of Plastic Surgery, 3rd Faculty of Medicine, Charles University, Hospital Královské Vinohrady; Prague, Czech Republic*

E-mail: Karel.Tesar@fjfi.cvut.cz

Perspective composite biomaterials suitable for the treatment of connective tissue defects and current trends in tissue engineering and regenerative medicine (30 min.)

Braun Martin

Department of Composites and Carbon Materials, Institute of Rock Structure and Mechanics, Czech Academy of Sciences, V Holešovičkách 41; Prague, Czech Republic

E-mail: braun@irsm.cas.cz

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

15.30–15.45 | COFFEE BREAK

15.45 | SESSION IV: ORTHOPAEDICS, ORTHOPAEDIC PROSTHETICS

Chairmen: Karski Jacek, Pallová Iveta, Mařík Ivo

Discoid Meniscus in paediatric patients, symptoms, recognition, treatment (15 min.)

Karski Jacek, Ciszewski Andrzej, Matuszewski Łukasz
Paediatric Orthopaedic and Rehabilitation Department of Medical University of Lublin, Poland
E-mail: jkarski@vp.pl

Proper therapy of children with orthopedic disorders – the chance of healthy and active function status of adults (30 min.)

Karski Tomasz[1], Karski Jacek[2], Minami Daniel[3]
[1] *In years 1995 – 2009 – Head of the University Pediatric Orthopedic Department in Lublin, Poland. From 2009 - Professor Lecturer in Vincent Pol University in Lublin, Poland*
[2] *Medical University in Lublin, Poland /*
[3] *Medical Office, Wayne, Pennsylvania, USA /*
E-mail: tmkarski@gmail.com; www.ortopedia.karski.lublin.pl; jkarski@vp.pl; dminami100@gmail.com

Relationship of the shoulder girdle and the spine in scoliosis (15 min.)

Pallová Iveta
F-Therapy, Prague, Czech Republic
E-mail: Iveta.Pallova@seznam.cz, web: www.skolioprogram.cz

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

17.00 | SESSION V: ORTHOPAEDICS AND ORTHOPAEDIC PROSTHETICS

Chairmen: Krawczyk Petr, Svoboda Michal

Bone substitutes in the diabetic foot (online, 15 min.)

Fejfarová Vladimíra, Sutoris Karol, Sixta Bedřich, Jarošíková Radka, Sojáková Dominika, Němcová Andrea, Dubský Michal, Wosková Veronika
Diabetes Centre, Department of transplant surgery, Institute for Clinical and Experimental Medicine; Prague, Czech Republic
E-mail: vladimira.fejfarova@ikem.cz

Charcot's neuroosteoarthropathy from the point of view of orthopedic prosthetics (15 min.)

Svoboda Michal
Orthopaedic Department, University Hospital Olomouc
PROTEOR CZ, Ostrava, Czech Republic
E-mail:MichalSvoboda2011@email.cz

Two-phase treatment of head positional deformities with a revolutionary 3D printed cranial orthosis (online 15 min.)

Dilý Matěj, Šámalová Hana, Rosický Jan
Invent Medical Group, s.r.o., Ostrava, Czech Republic
E-mail:matej.dily@inventmedical.com

Explore the power of the motion motionsmatrix® concept (15 min.)

Frána Michal Joshua
Polyclinic Dr. Frány
Department of Orthopaedics and Traumatology, Faculty of Medicine in Pilsen, Charles University
Credendo Corpore Sano LLC, Fort Lauderdale, Florida USA
E-mail:josh@joshfrana.cz

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

18.00 | DINNER

SATURDAY, NOVEMBER 16, 2024

8.00–9.00 | REGISTRATION OF PARTICIPANTS

9.00–9.30 | PRESENTATION OF JUBILARIANS

Mařík Ivo
Introduction of **Associate Professor Michael Bellemore, MD, PhD, A.M.F.R.A.C.S – 70 years**

Braun Martin
Introduction of **Professor Dr. Med. Hans Zwipp – 75 years**

Braun Martin
Introduction of **Piet van Loon, MD – 70 years**

Presentation of **the Diploma of Honorary Membership in the Czech Medical Association (CMA) J.E. Purkynje** by the President of the CMA J.E. Purkynje **Professor Štěpán Svačina, MD, DSc**

9.30–13.00 | MORNING SESSIONS

9.30 | SESSION VI: DISCONGRUENT OSTEONEURAL GROWTH RELATIONS

Chairmen: Mařík Ivo, van Loon Piet, Zwipp Hans

Calcaneogenesis with secondary Achilles tendon-bone allograft for repair of the loss of hindfoot function. A 12-year case report (15 min.)

Zwipp Hans
Universitäts Centrum für Orthopädie, Unfallund Plastische Chirurgie, Universitätsklinikum Carl Gustav Carus, Technische Universität Dresden, Dresden, Germany
E-mail: hans.zwipp@t-online.de

Unhealthy postures (sagittal profiles) and serious (neuro-)muscular tightness in Dutch youth. A result of discongruent Osteoneural Growth Relations (20 min)

van Loon Piet[1], Soeterbroek A.M.[2], van Erve R.[3], Smit T.H.[4]
[1] *Orthopedic surgeon, Proktovar, Hengelo, the Netherlands;*
[2] *Analyst, Chairman Posture Network Netherlands,*
[3] *Orthopedic Surgeon; former Care to Move, Deventer, the Netherlands*
[4] *Professor Tissue Engineering; Mechanobiology of development and disease; Amsterdam UMC , the Netherlands*
E-mail: pvanloon@planet.nl

Death toll in the Netherlands by not understanding serious discongruent Osteoneural Growth Relations (Roth). Death following accidental falls, a fast rising element in mortality (15 min.)

van Loon Piet[1], Soeterbroek A.M.[2], Grotenhuis J.A.[3], Smit T.H.[4]
[1] *Orthopedic surgeon, Proktovar, Hengelo, the Netherlands;*
[2] *Analyst, Chairman Posture Network Netherlands, the Netherlands*
[3] *Em. prof. neurosurgery Radboud University Nijmegen; the Netherlands*
[4] *Professor Tissue Engineering; Mechanobiology of development and disease; Amsterdam UMC, the Netherlands*
E-mail: pvanloon@planet.nl

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

10.30–11.00 | COFFEE BREAK

11.00 | SESSION VII: PALEOPATOLOGY AND PALEOGENETICS

Chairmen: Rühli Frank, Schünemann Verena, Smrčka Václav

Paleopathological findings in ancient Egyptian Mummies – an overview (30 min)

Rühli Frank

Faculty of Medicine, University of Zurich, Switzerland, www.medicine.uzh.ch
Founding Chair and Director, Institute of Evolutionary Medicine, University of Zurich, www.iem.uzh.ch
Co-Head, UZH Center for Crisis Competence, Faculty of Business, Economics, and Informatics, University of Zurich,
E-mail: frank.ruehli@iem.uzh.ch

Past Pandemics and One Health: Tracing pathogen through time with ancient DNA (20 min)

Schünemann Verena

Department of Environmental Sciences, University of Basel, Spalenring 145, CH-4055 Basel, Switzerland
E-mail: verena.schuenemann@iem.uzh.ch

Metabolic diseases in early Ottoman children from coastal Asia Minor (20 min)

Scheelen-Nováček Kristina[1,2], Nováček Jan[3,4]

[1] *Federal Archaeological Office of Bremen, Germany*
[2] *Department of Biology and Chemistry, University of Hildesheim; Hildesheim, Germany*
[3] *Thuringian State Service for Cultural Heritage and Archaeology; Weimar, Germany*
[4] *Institute of Anatomy and Cell Biology, University Medical Centre, Georg-August University of Göttingen; Göttingen, Germany*
E-mail: K.Scheelen@gmx.de

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

13.00–13.45 | LUNCH

13.45–16.00 | AFTERNOON SESSIONS

13.45 | SESSION VII: PALEOPATOLOGY AND PALEOGENETICS

Chairmen: Martin Mihaljevič, Jan Nováček, Václav Smrčka

Pearls of Vysočina – (film documentary, 45 minutes)

Smrčka Václav[1], Zapletal Vít[2], Musilová Zdenka[3]

[1] *Institute for History of Medicine and Foreign Languages, First Faculty of Medicine, Charles University in Prague; Prague, Czech Republic*
[2] *Municipal Library of Prague, Czech Republic*
[3] *Municipality of the Town, Letovice, Czech Republic*
E-mail: sedlcany1@seznam.cz

Age (14C) and composition (δ13C and δ15N) of skeletal remains from Czech and Moravian ossuaries (20 min)

Mihaljevič Martin[1] , Smrčka Václav[2]

[1] *Faculty of Science, Charles University in Prague; Prague, Czech Republic*

[2] *Institute for History of Medicine and Foreign Languages, First Faculty of Medicine, Charles University in Prague; Prague, Czech Republic*

E-mail: martin.mihaljevic@natur.cuni.cz

First reported archaeological case of leprosy in Slovakia (20 min)

Hukeľová Zuzana, Nováček Jan, Daňová Klaudia, Ruttkay Matej

Institute of Archaeology of the Slovak Academy of Sciences, v. v. i.; Nitra, Slovakia

E-mail: hukelova.zuz@gmail.com

An Early Neolithic "family" with severe joint dysplasia and stunted growth from Central Germany (20 min)

Nováček Jan[1,2], Gresky Julia[3]

[1] *Thuringian State Service for Cultural Heritage and Archaeology; Weimar, Germany*

[2] *Institute of Anatomy and Cell Biology, University Medical Centre, Georg-August University of Göttingen; Göttingen, Germany*

[3] *German Archaeological Institute, Division of Natural Sciences, Berlin, Germany*

E-mail: Jan.Novacek@tlda.thueringen.de

DISCUSSION AFTER EACH LECTURE (time in brackets includes discussion)

16.00 | CLOSING OF THE SYMPOSIUM
AND PLANNING OF THE 27TH INTERNATIONAL SYMPOSIUM

IVO MAŘÍK & PETR KRAWCZYK & TOMASZ KARSKI & JACEK KARSKI & PIET VAN LOON

18.00 | DINNER

ORGANIZERS OF THE SYMPOSIUM

Professor Ivo Mařík, MD, PhD

Faculty of Health Care Studies, West Bohemia University, Pilsen & Centre for Defects of Locomotor Apparatus l.l.c., Prague, Czech Republic, ambul_centrum@volny.cz

&

Petr Krawczyk, MD, PhD
PROTEOR CZ l.l.c. & Department of Rehabilitation and Physical Medicine, University Hospital Ostrava, Ostrava, Czech Republic, krawczyk@proteorcz.cz

&

Professor Václav Smrčka, MD, PhD
Institute for History of Medicine and Foreign Languages
First Faculty of Medicine, Charles University in Prague, Prague, Czech Republic, sedlcany1@seznam.cz

&

Martin Braun, RNDr., PhD
Department of Composites and Carbon Materials, Institute of Rock Structure and Mechanics,
Czech Academy of Sciences, Prague, Czech Republic, braun@irsm.cas.cz

&

Professor Tomasz Karski, MD, PhD & Jacek Karski, MD, PhD
University of Vincent Pol & Medical University in Lublin,
Lublin, Poland, tmkarski@gmail.com & jkarski@vp.pl

Participants will receive the Programme and Certificate of Attendance
Abstracts of lectures will be published in Supplement 2 of the journal Locomotor System, vol. 31, 2024 (electronic version, ISSN 2336-4777, http://www.pojivo.cz/cz/pohybove-ustroji/)

The latest information about the Symposium will be available on the websites:
www.pojivo.cz & www.ortoprotetika.cz

NOTE: The organizers are preparing a symposium in both in-person and online formats.

Sign up for active or passive participation will be listed on the website www.pojivo.cz or www.ortoprotetika.cz

Welcome speech to

The 26th Prague–Lublin Symposium – Locomotor Apparatus Adaptation V – Interdisciplinary Aspects

Dear Participants of the 26th Prague-Lublin Symposium, in Prague on 15–16th November 2024

Dear friends, colleagues – all participants of the 26th Prague-Lublin Symposium in Prague, Czech Republic

As usual, the end of the year is the time for the new Prague-Lublin Symposium. This time it is the 26th edition. As before, it is a nice opportunity to meet all friends, participants working in the field of orthopaedics, rehabilitation and fields of medicine dealing with the musculoskeletal system. Our noble and scientifically very important meeting is possible as many times before thanks to Professor Ivo Mařík, Dr. Petr Krawczyk and the co-organizers.

At this moment we want to remember all the places where our symposia have been held. Different places, mostly in the Czech Republic, often in Prague, but also in Kroměříž, also in other places – in other countries, for example in Rhodes in Greece, also in Poland – there is Lublin, Kozłówka, Sarbinowo, Krasnobród and Zwierzyniec. One of our symposia was also held in St. Petersburg.

The places were different – the names of the symposia were also different. At first – Prague-Sydney, later Prague-Sydney-Lublin and Prague-Lublin-Sydney, next Prague-Lublin-Sydney-St. Petersburg and last years due to the world events – the name – "Prague-Lublin". It was in ancient times – in Rome – that they said *"tempora mutantur a nos mutamur in illis"*. It has happened in our time – again and again.

Being here is a very pleasant opportunity for all of us to meet again in beautiful Prague. We all – orthopaedists, rehabilitation doctors, physiotherapists and other specialists from all over Europe – have the opportunity to present "new knowledge" from our countries for the benefit of sick people, for their better therapy during the 26th Prague-Lublin Symposium.

We wish you all – the participants of the symposium - a pleasant stay, successful presentation of your lectures, exchange of opinions, participation in discussions and – in your free time – admiring the beauty of Prague.

Prof. Tomasz Karski MD, PhD

Former Head of the Pediatric Orthopedic and
Rehabilitation Department of the Medical University of Lublin (1995–2009)
Currently – Professor Lecturer at the Vincent Pol University of Lublin / Poland
E-mail: tmkarski@gmail.com
www.ortopedia.karski.lublin.pl

Welcome Speech to

The 26th Prague–Lublin Symposium – Locomotor Apparatus Adaptation V – Interdisciplinary Aspects

Prague, November 15, 2024

Ladies and Gentlemen, dear colleagues,

I cordially welcome you all to the 26th Prague-Lublin Symposium, which is being held under the auspices of the President of the Czech Medical Association J. E. Purkyně (CMA JEP), Professor Štěpán Svačina, DrSc. and the Honorary president of the Society for Connective Tissues CMA JEP, Professor Josef Hyánek, DrSc. It is a great honour for me to welcome these two well-known personalities of Czech medicine among us.

I am pleased to welcome our co-organisers Professor emeritus Tomasz Karski, MD, PhD (Vincent Pol University in Lublin, Poland) and his son Assistant Professor Jacek Karski, MD, PhD, (Medical University of Lublin, Poland) and our guests Honorary Members of the Connective Tissue Society CMA JEP Professor Hans Zwipp, MD, DSc, (Dresden, Germany), Dr. med. Piet Van Loon (Orthopedic Surgeon, Proktovar, Hengelo, The Netherlands) and Professor Dr. Ali Abdul Salam Awni Al-Kaissi, DSc, (Clinic for the Diagnosis of Various Forms of Congenital Bone Disorders in Children and Adults, Vienna, Austria). Greetings to Associate Professor Michael Bellemore from New Children's Hospital in Sydney, with whom I have worked in paediatric orthopaedics for many years, and to all those who follow us online.

Here I warmly welcome Professor Ctibor Povýšil, DrSc., well known pathologist, and other colleagues geneticists, paediatricians, neurologists, surgeons, other specialists from different medical disciplines as experts in orthotics and prosthetics, physiotherapy, orthopaedic anthropology, biomechanics, and other participants interested in neuromusculoskeletal disorders from different perspectives.

Tomorrow we will welcome well-known anthropologists: professor Frank Rühli, Dean of the Faculty of Medicine at the University of Zurich, Switzerland; professor Verena Dr. Schünemann from the Department of Environmental Sciences at the University of Basel, Switzerland; Dr. rer. nat. Jan Nováček, PhD, Thuringian State Service for Cultural Heritage and Archaeology, Weimar,

Germany; Kristina Scheelen-Nováček, M.A., Federal Archaeological Office Bremen, Germany; Hukeľová Zuzana, MSc, PhD, Institute of Archaeology, Slovak Academy of Sciences, Nitra, Slovakia.

My sincere thanks to my close colleagues, symposium coordinators Petr Krawczyk, MD, PhD (Ortopedic Prosthetist, Vice President of the Society for Connective Tissues of the Czech Medical Society J. E. Purkyně /CMA JEP/ and Chairman of the Orthotic-Prosthetic Society of the CMA JEP), Martin Braun, PhD (researcher, biochemist, scientific secretary of SCT CMA JEP) and Professor Václav Smrčka, PhD (plastic surgeon and paleopathologist, honorary member of SCT CMA JEP).

Finally, I would like to express my sincere thanks to Professor Mikhail Dudin (Director Emeritus of the Ogonyok Centre) and his team for their active support of this traditional event in 2013–2019,

From right: Professor Ivo Mařík, MD, PhD, professor Jana Pařízková, MD, DSc, Alena Maříková MD, Professor Mikhail Dudin, MD, DSc and his wife Tatjana Dudinova, MD.
The 15th Prague-Lublin-Sydney Symposium was held on September 15–22, 2013 at the Children's Rehabilitation Center of Orthopedics and Traumatology "Ogonyok", St. Petersburg, Russia.

when they co-organized and actively participated in the Prague-Lublin-Sydney-St. Petersburg symposium with original contributions, especially in the field of spinal deformities.

I would also like to thank the experienced team of the Medical House in Prague, especially Mr. Michal Stavinoha and Eng Josef Šubert, without whose perfect organization the symposium would not have been possible in online form. Last but not least I thank and welcome the symposium partners Otto Bock CZ, ORLING llc. and the exhibiting company Swixx Biofarma Wald Biotech llc.

Nowadays, new discoveries are mainly made at the interface of disciplines. Interdisciplinary approach to congenital and acquired skeletal deformities has been adopted as a major school of thought to recognize new relationships regarding the etiology, pathogenesis, and even causal therapy of several genetic skeletal diseases.

Artificial intelligence (AI) is increasingly transforming the medical field. Today, AI is already finding applications particularly in X-ray imaging, orthopaedics, orthotic prosthetics and other disciplines. AI technologies provide opportunities to improve diagnosis, surgery planning, patient outcomes and rehabilitation processes.

I believe that the scientific lectures presented today will also expand our knowledge for the benefit of affected patients. I wish you to enjoy the new scientific information and I hope you will establish new friendships that will help us to organize an interdisciplinary and international scientific approach to knowledge.

Let me present a few commemorative photographs from the 25th Prague-Lublin Symposium, which took place in the Medical House in Prague on November 4, 2023.

Professor Ivo Mařík, MD, PhD, FABI

Faculty of Health Care Studies, West Bohemia University, Pilsen, Czech Republic
Chief of the Centre for Patients with Locomotor Defects l.l.c., Prague, Czech Republic
President of the Society for Connective Tissue, Czech Medical Association, J.E. Purkynje
Scientific secretary of the Society for prosthetics and orthotics Czech Medical Association J. E. Purkynje
Chief-Editor of the journal Locomotor System – Advances in research, diagnosis and therapy

Unofficial welcome of foreign participants at the Matylda restaurant on November 3, 2023

Colleagues and friends during the break.

Prof. Mařík presented in his introductory message "some fragments from the 25-year history of international symposia".


Discussion contributions by prof. Ali Al-Kaissi and Dr. Jacek Karski

Energy replenishment and conversations of colleagues and friends during necessary breaks

Most of the speakers at 25th Prague-Lublin Symposium

ABSTRACT

PHARMACOTHERAPY IN NEUROLOGY

Josef Kraus
Child Neurology Department, University Hospital Motol; Prague, Czech Republic
E-mail: josef.kraus@lfmotol.cuni.cz

Keywords: pharmacotherapy, neurodegenerative diseases, neurocutaneous diseases, gene therapy.

Neurodegenerative diseases of the brain and spinal cord
These are rare sporadic diseases, some with a hereditary basis. Clinical classification is very imprecise; diseases different from a neuropathological point of view can have the same clinical picture, and on the contrary, very different clinical manifestations can be caused by the same pathogenetic mechanism. The two most common neurodegenerative diseases in adulthood are Alzheimer's and Parkinson's. In some diseases therapies currently possible.

Spinal muscular atrophy
It is a group of genetically determined diseases that affect the motoneurons of the anterior horns of the spinal cord and sometimes also the motor nuclei n.V.-XII. A completely new category of patients with a predisposition to SMA consists of patients identified as part of the SMA newborn screening program. It is now possible to catch SMA before the development of clinical problems.

Since 2016, spinal muscular disease has already belonged to causally treatable diseases. Nusinersen (the so-called antisense oligonucleotide) is approved for all types of SMA regardless of age. Modulates alternative splicing of the SMN2 gene. It is administered intrathecally. Risdiplam is the first oral drug and is administered as a sirup once a day. Furthermore, gene therapy is currently possible for patients with SMA. Onasemnogenum abeparvovecum is a gene therapy drug that delivers a functional copy of the SMN1 gene via the bloodstream.

Neurocutaneous disease (phakomatoses)
For pediatric patients with NF 1 and symptomatic inoperable plexiform neurofibromas, selumetinib is used from 3 years of age. It reduces the volume, number and proliferation of tumor cells by inhibiting mitogen-activated protein kinases 1 and 2 (MEK 1/2). Bevacizumab (an antibody against vascular endothelial growth factor, VEGF) is reserved for patients with NF 2.

Spinocerebellar degeneration
These are hereditary diseases, in which there are a progression of walking and balance disorders, hand mobility, impaired speech and eye movements. In Europe, Friedreich's ataxia is the most common (50%). Now in the treatment of Friedreich's ataxia is the approved registration of omaveloxolone, which can be administered to adults and adolescents aged 16 years and older. It has three effects – it removes free radicals, prevents apoptosis and stops the spread of the inflammatory reaction. The capsules are taken orally once a day. It slows the progression of the disease and improves swallowing, speech, limb mobility and coordination, stability and posture. However, in

some patients, the findings on the lower limbs will not change. Cardiac functions remain as well mostly the same.

ABSTRACT

COMPREHENSIVE TREATMENT OF HYPOPHOSPHATEMIC RICKETS. BRIEF OVERVIEW AND CASE REPORT

Mařík Ivo[1,2], Myslivec Radek[2,3], Krulišová Veronika[4], Maříková Alena[2], Hudáková Olga[2], Vážná Anna[5,] Zemková Daniela[6]

[1] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*

[2] *Centre for Defects of Locomotor Apparatus l.l.c.; Prague, Czech Republic*

[3] *Orthopaedic and Traumatology Department of Hospital Pribram,; Příbram, Czech Republic*

[4] *GHC Genetics; Prague, Czech Republic*

[5] *Department of Anthropology and Human Genetics, Faculty of Science, Charles University, Prague, Czech Republic*

[6] *Dept. of Paediatrics, Charles University, University Hospital Motol; Prague, Czech Republic*

E-mail: ambul_centrum@volny.cz

Keywords: hypophosphatemic rickets, X-linked hypophosphatemia (XLH), lower limb deformities, conventional therapy, orthotic and surgical treatment, human monoclonal antibody IgG1/ Burosumab-twza, bone metabolism, bone healing in children and adults.

In this case report, we demonstrate a 26.5-year-old female patient with hypophosphatemic rickets. The diagnosis was made at 2 years of age. Conventional medical treatment was instituted from 2 years and 9 months. (Rocaltrol and Neutra phos and phosphate solution, respectively). The varus deformities of the tibiae were partially corrected with flexion-preloaded orthoses, which were used intermittently at night from 20 months to 7 years of age.

At 8 years of age, anterolateral curvature and varus deformity in the distal third of both tibias were addressed by two-level tibial osteotomy and intramedullary fixation according to Küntscher. Remodeling of the ostetomies of both tibias was demonstrated by X-ray examination 5 months after surgery. The planned operation for residual varosity of the left tibia at the end of the growth period was not performed due to the disagreement of one of the parents.

The current aim of the communication is to verify the transient compensation of calcium-phosphate metabolism by the effect of 6 months of administration of the drug (LP) burosumab (Crysvita) and to document the favourable healing of the corrective osteotomy of the tibia, which was performed at the age of 25 years at the patient's request (after the approval of the extraordinary reimbursement of the treatment with burosumab according to §16 of Act No. 48/1997 Coll., on public health insurance).

Burosumab is a drug that compensates for hypophosphataemia and potentiates bone healing (remodelling), which is significantly impaired and prolonged in adulthood with a risk of pseudoarthrosis.

ABSTRACT

FIRST YEAR OF VOSORITIDE TREATMENT IN CZECH PATIENTS WITH ACHONDROPLASIA

Zemková Daniela[1,2], Maratová Klára[1], Kodytková Aneta[1], Mařík Ivo[2], Souček Ondřej[1], Šumník Zdeněk[1]

[1] *Dept. of Paediatrics; Motol University Hospital; Prague, Czech Republic*

[2] *Centre for Defects of Locomotor*

E-mail: dezem@email.cz

Keywords: achondroplasia, vosoritide treatment

Achondroplasia is the most common form of non-lethal bone dysplasia. The cause of this disease is a gain of function pathological variant of the FGFR3 gene with the subsequent development of a disorder of endochondral ossification. The new drug Vosoritide is an analogue of natriuretic peptide C, which affects intracellular NPR-B signaling, thereby limiting the action of activated FGFR3. This drug has been available in the Czech Republic since 2022. The aim of this contribution is to evaluate the effect of one-year of Vosoritide treatment in Czech patients. So far, 25 patients have been treated at University Hospital Motol in Prague for 1 year or more. Body height (SDS) before treatment was -5.7 $\pm$ 1.2 SD, compared to European group of achondroplasia -0.3 $\pm$ 1.5 SD. After one year of treatment, it changed to -5,3 $\pm$ 1.1 SD, and +0.2 $\pm$ 1.4 SD, resp. While the growth rate was 3.8 cm/r ($\pm$ 1,9) before treatment, it accelerated to 6,2 cm/r ($\pm$ 1,3) during treatment, which corresponds to published data. At the same time, average patients with achondroplasia of the same age grow up 4 cm in a year. Thus, our patients gained an average of 2,2 cm during the first year of treatment. In 18 cases (72%), the growth rate increased sufficiently during the first year of treatment so that the gain in body height was greater than 1.5 cm. In 6 cases the response to treatment was delayed. One patient with severe course with hydrocephalus, hemiparesis, thoracolumbar kyphosis and gibbus did not achieve growth acceleration, but his psychomotor development improved.

References

1. SAVARIRAYAN R et al. C-Type Natriuretic Peptide Analogue Therapy in Children with Achondroplasia. N Engl J Med, 2019. 381(1): p. 25–35.
2. SAVARIRAYAN R, TOFTS L, IRVING M, et al**.** Once-daily, subcutaneous vosoritide therapy in children with achondroplasia: a randomised, double-blind, phase 3, placebo-controlled, multicentre trial. Lancet, 2020 Sep 5;396(10252):684–692.
3. SAVARIRAYAN R, TOFTS L, IRVING M, et al. Safe and persistent growth-promoting effects of vosoritide in children with achondroplasia: 2-year results from an open-label, phase 3 extension study. Genet Med. 2021 Dec;23(12):2443–2447.

ABSTRACT

FGFR3-RELATED BONE DYSPLASIA. A DIFFICULT PATH TO DIAGNOSIS

Zemková Daniela[1,4], Krulišová Veronika[2], Vážná Anna[3,4], Mařík Ivo[4,5]

[1] *Dept. of Paediatrics; University Hospital Motol; Prague; Czech Republic*

[2] *GHC Genetics, Prague, Czech Republic*

[3] *Faculty of Science, Department of anthropology and human genetics, Charles University, Prague*

[4] *Centre for Defects of Locomotor Apparatus l.l.c.; Prague; Czech Republic*

[5] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*

E-mail: dezem@email.cz

Keywords: achondroplasia, hypochondroplasia

Achondroplasia and hypochondroplasia are the most common and longest-known bone dysplasias. Hypochondroplasia was originally thought to be a mild form of achondroplasia, but since the 1970s it has been known that they are two different nosological units. These are allelic disorders. In the 90s, the development of molecular genetics has proven that they are caused by various mutations in the FGFR3 gene. In Nosology of genetic skeletal disorders: 2023 revision, they are included in the first group together with thanatophoric dysplasia and achondroplasia with developmental delay and acanthosis nigricans (SADDAN).

Achondroplasia has a characteristic unmistakable phenotype: short-limb dwarfism (115–142 cm), macrocephaly, typical face. Characteristic radiological features include metaphyseal changes, shortening and bowing of the long bones, small squared (mickey mouse ear) iliac wing , short and narrow sacroiliac notches, horizontal acetabular roof, short skull base, narrow foramen magnum, narrowing of the inferior lumbar interpedicular distances , wedge-shaped vertebra. The course of the disease can be complicated by hydrocephalus, cervicomedullar compression, sleeping apnea, thoracolumbar kyphosis, spinal canal stenosis. Patients may have delayed motor development, but mental development is normal.

Patients with hypochondropplasia differ from achondroplasia both quantitatively and qualitatively. Most of them reach a higher body height (124–165 cm). Macrocephaly is less pronounced, they have nearly normal face and complications such as hydrocephalus, cervicomedullary compression and sleep apnea do not occur. The interpedicular distances are normal or mild narrowing. Spinal canal stenosis occurs rarely. On the other hand, sometimes we encounter scoliosis and mild mental retardation. 99% patients with ACH are carrying pathogenic variant c.1138G>A or c.1138G>C located in exon 10. In hypochondroplasia, there are more pathogenic variants causing this disease, and in some cases, the molecular cause has not yet been found.

It was also the case for our two patients followed from 2 years of age to the end of growth period – a boy of Vietnamese origin and a Czech girl. Both patients correspond to the diagnosis of **hypochondroplasia** from a clinical and radiological point of view. The head and face are characteristic of hypochondroplasia. In early childhood, they temporarily showed some features typical of achondro-

plasia. The final height is more similar to achondroplasia, but both had a more pronounced pubertal growth spurt.

Conventional molecular genetic testing has not detected *FGFR3* pathogenic variants characteristic of achondroplasia or hypochondroplasia. Could this clinical picture be caused by mutations in genes other than FGFR3? The girl (case 2) was genetically investigated in more detail. There was no deletion or point mutation in the SHOX gene. Molecular genetic examination of the clinical exome showed the presence of potentially pathogenic variants in the heterozygous state of IGF1R, SLC26A2 genes, and a variant of unknown significance in FLNB gene which, however, did not explain the clinical picture of the patient. Eventually, a deep intronic alteration c.1075+95C>G was detected in a heterozygous state in the *FGFR3* gene in both patients . For more details, see Krulišová et al. in this volume.

References

1. ARENAS, MARÍA ALEJANDRA, DEL PINO, MARIANA and FANO, VIRGINIA. „FGFR3-related hypochondroplasia: longitudinal growth in 57 children with the p.Asn540Lys mutation" Journal of Pediatric Endocrinology and Metabolism, vol. 31, no. 11, 2018, pp. 1279-1284. https://doi.org/10.1515/jpem-2018-0046
2. BENGUR FB, EKMEKCI CG, KARAARSLAN E, GUNOZ H, ALANAY Y. p.Ser348Cys mutation in FGFR3 gene leads to „Mild ACH /Severe HCH" phenotype. Eur J Med Genet. 2020 Feb;63(2):103659. doi: 10.1016/j.ejmg.2019.04.016. Epub 2019 Apr 30. PMID: 31048079.
3. BOBER MB, BELLUS GA, NIKKEL SM, et al. Hypochondroplasia. 1999 Jul 15 [Updated 2020 May 7]. In: Adam MP, Feldman J, Mirzaa GM, et al., editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2024. Available from: https://www.ncbi.nlm.nih.gov/books/NBK1477/
4. CHEUNG, M. S., COLE, T. J., ARUNDEL, P., BRIDGES, N., BURREN, C. P., COLE, T., DAVIES, J. H., HAGENÄS, L., HÖGLER, W., HULSE, A., MASON, A., MCDONNELL, C., MERKER, A., MOHNIKE, K., SABIR, A., SKAE, M., ROTHEN BUHLER, A., WARNER, J., & IRVING, M. (2024). Growth reference charts for children with hypochondroplasia. American Journal of Medical Genetics Part A, 194A: 243–252. https://doi.org/10.1002/ajmg.a.63431
5. FASANELLI, S. (1988). Hypochondroplasia: Radiological Diagnosis and Differential Diagnosis. In: Nicoletti, B., Kopits, S.E., Ascani, E., McKusick, V.A., Dryburgh, S.C. (eds) Human Achondroplasia. Basic Life Sciences, vol 48. Springer, Boston, MA. https://doi.org/10.1007/978-1-4684-8712-1_22
6. FOLDYNOVA-TRANTIRKOVA S, WILCOX WR, KREJCI P. Sixteen years and counting: the current understanding of fibroblast growth factor receptor 3 (FGFR3) signaling in skeletal dysplasias. Hum Mutat. 2012 Jan;33(1):29-41. doi: 10.1002/humu.21636. Epub 2011 Nov 16. PMID: 22045636; PMCID: PMC3240715.

ABSTRACT

A NOVEL SPLICING VARIANT OF *FGFR3* GENE DETECTED IN PATIENTS WITH HYPOCHONDROPLASIA AND ACHONDROPLASIA

Krulišová Veronika[1], Zemková Daniela[2], Mařík Ivo[3,4], Paszeková Helena[1], Michalovská Renáta[1], Vlčková Zděnka[1]

[1] *GHC Genetics, Prague, Czech Republic*

[2] *Dept. of Paediatrics, Charles University, University Hospital Motol; Prague, Czech Republic*

[3] *Centre for Defects of Locomotor Apparatus I.l.c.; Prague, Czech Republic*

[4] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*

E-mail: krulisova@ghcgenetics.cz

Keywords: achondroplasia, hypochondroplasia, *FGFR3* gene, splicing variant, clinical exome sequencing

Background

Achondroplasia (ACH) and hypochondroplasia (HCH) are the most common skeletal dysplasias. Both ACH and HCH are related to pathogenic variants in the fibroblast growth factor receptor-3 (*FGFR3*) gene. The vast majority of cases can be attributed to the hotspot missense variants in heterozygous state in the *FGFR3* gene: 99% patients with ACH are carrying pathogenic variant c.1138G>A or c.1138G>C located in exon 10. Approx. 70% of individuals with HCH are carrying pathogenic variant c.1620C>A or c.1620C>G located in exon 13.

Here we present 2 patients with a novel splicing variant c.1075+95C>G of *FGFR3* that represents probably recurrent causal variant in patients manifesting with ACH and HCH.

Case presentation

Here we report a 15-year-old boy of Vietnamese origin with HCH. Both clinical features and X-ray findings were corresponding to HCH. His family history was negative. DNA testing for typical hotspot mutations in *FGFR3* gene was performed with negative result, therefore DNA analysis focused on the whole *FGFR3* gene using clinical exome sequencing (CES) followed.

A deep intronic alteration c.1075+95C>G was detected in a heterozygous state in the *FGFR3* gene. Since the variant was originally evaluated as a variant of unknown significance, targeted testing of this particular variant in both healthy parents was performed to elucidate the causality. Both parents were tested negative for c.1075+95C>G *FGFR3* variant and thus the causality was suspected. In the meantime, the c.1075+95C>G variant in the *FGFR3* gene was described in the literature as likely pathogenic, causing HCH (**1**) and ACH (**2**).

The same likely pathogenic splicing variant was detected in one additional patient among genetically unresolved patients with skeletal dysplasias in our affiliation:

A 10-year-old girl with phenotype showing both HCH and ACH features came for genetic counseling. Her family history was negative. DNA testing for typical hotspot mutations in *FGFR3* gene was

performed with negative result, therefore DNA analysis focused on the whole *FGFR3* gene by CES followed. No causal variant was described first.

After reanalysis, that was performed 3 years apart, the c.1075+95C>G variant in the *FGFR3* gene in heterozygous state was noticed. As this variant correspond to HCH, ACH and overlapping forms (2), we consider this variant to be causal.

Conclusions

Our results are in concordance with previous results in literature that c.1075+95C>G alteration in *FGFR3* represents recurrent variant causing HCH, ACH and overlapping forms of HCH/ACH. Recognition of molecular genetic background enables appropriate surveillance for the patient. Furthermore, intronic variant c.1075+95C>G represents a candidate for clinical trial strategies and subsequent treatment.

We recommend to include this variant in routinely used diagnostic tests for HCH and ACH. We also recommend to reanalyse data of patients clinically diagnosed with HCH or ACH, who were tested negative using methods based on New Generation Sequencing (NGS) technologies.

References

1. XU, T.; SHI, L.; DAI, W.; GU, X.; YU, Y.; FAN, Y. An intronic variant disrupts mRNA splicing and causes FGFR3-related skeletal dysplasia. J Pediatr Endocrinol Metab. 2021 Jun 24;34(10):1323-1328.
2. OUEDRAOGO, Z.G.; JANEL, C.; JANIN, A.; MILLAT, G.; LANGLAIS, S.; PONTIER, B.; BIARD, M.; LEPAGE, M.; FRANCANNET, C.; LAFFARGUE, F.; et al. Relevance of Extending FGFR3 Gene Analysis in Osteochondrodysplasia to Non-Coding Sequences: A Case Report. Genes (Basel). 2024 Feb 10;15(2):225.

ABSTRACT

GENOCHONDROMATOSIS, TYPE II: A CASE REPORT OF A CZECH YOUNG WOMAN

Mařík Ivo[1,2], Píchová Renata[3], Tesner Pavel[4], Maříková Alena[2], Zemková Daniela[2,5]

[1] *Faculty of Health Care Studies, West Bohemia University; Pilsen, Czech Republic*

[2] *Centre for Defects of Locomotor Apparatus l.l.c.; Prague, Czech Republic*

[3] *Department of Radiology and Nuclear Medicine, University Hospital Královské Vinohrady and 3rd Faculty of Medicine, Charles University; Prague, Czech Republic*

[4] *Institute of Biology and Medical Genetics, Charles University, University Hospital Motol; Prague, Czech Republic*

[5] *Dept. of Paediatrics, Charles University, University Hospital Motol; Prague, Czech Republic*

E-mail: ambul_centrum@volny.cz

Keywords: genochondromatosis type II; limb deformities; X-ray examination; bone scintigraphy; sporadic occurrence

The case report of a 27.5-year-old woman shows limb deformities and structural bone changes (enchodromes) in typical skeletal locations for genochondromatosis, type II. X-rays showed bone deformities of both humeri. Clavicles are not affected. Nonprogressive structural changes were demonstrated by whole-body bone scintigraphy using technetium-labeled diphosphonates, which was performed repeatedly in 2011, 2012, 2015, and 2017. This case is an isolated occurrence in the family. Surgical treatment of humeral deformities was not indicated.

References

1. DINULOS, M. B., STERNEN, D. L., GRAHAM, C. B., HUDGINS, L (1999). Expansile bone lesions in a three-generation family. Am. J. Med. Genet. 82: 1-5,. [PubMed: 9916834, related citations] [Full Text]
2. ISIDOR B, GUILLARD S, HAMEL A, LE CAIGNEC C, DAVID A. 2007. Genochondromatosis type II: Report of a new patient and further delineation of the phenotype. Am J Med Genet Part A 143A:1919–1921. https://doi.org/10.1002/ajmg.a.31854
3. KOZLOWSKI K, JARRETT J. (1992). Genochondromatosis II. Pediatr Radiol; 22: 593–5.

ABSTRACT

CHARACTERISTICS OF CONSTITUTIONAL BONE DISEASES AS DIDACTIC CONTENTS FOR STUDENTS OF MIDWIFERY

Katarzyna Warchoł[1], Michał M. Skoczylas[2]

Institute of Medical Sciences, Collegium Medicum, The John Paul II Catholic University of Lublin (KUL), Konstantynów 1 H Street, 20-708 Lublin, Poland

E-mail: katarzyna.warchol@kul.pl

Keywords: osteogenesis imperfecta, dysosteosclerosis, pycnodysostosis, rare diseases, education

Introduction

Increased incidence of fractures is characteristic for constitutional bone diseases, including bone dysplasia. It is an important problem in pregnant women.

Objectives

This paper presents an original didactic method, which aims to enrich the curriculum of midwifery students, with content concerning rare bone diseases, with a tendency for fractures to the pelvic bones.

Methods

Authors' didactic method based on case reports from medical literature is to present it to students of midwifery as an issue to be aware of any procedures, especially during delivery (e.g. osteogenesis imperfecta, dysosteosclerosis, pycnodysostosis).

Results
The review of medical literature shows that the problem can be presented based on case descriptions (e.g. osteogenesis imperfecta, dysosteosclerosis, pycnodysostosis)

Discussion
Special situations burdened with the possibility of pelvic bone fractures should be discussed in the process of educating midwifery students. A detailed analysis of the pathogenesis of these diseases is not necessary, however it is worth focusing on clinical practice. These are rare situations, at the same time they are associated with a threat to the progress of labour. There is an increased probability that the mother's child may also be burdened with this disease, so care should be taken not to damage the bones of the foetus, as well as after the delivery of the newborn. This type of idea is worth discussing with a group of experienced orthopaedists and obstetricians. Imaging diagnostics plays a supporting role, all this to improve the care of midwives for the mother and child.

ABSTRACT

THE TERMS RARE OR ORPHAN ARE ONLY APPLIED TO THE SEVERE FORMS. BUT WHY ARE THE MEDICAL DISCIPLINES IGNORING THE FREQUENT OCCURRENCE OF THE MILD AND THE MODERATE TYPES WITHIN THE SAME FAMILIES?

Al Kaissi Ali Abdul Salam
Former consultant and expert for bone diseases at the Paediatric Department of the Orthopaedic Hospital Speising, Vienna, Austria
Currently Honorary Professor at Ilizarov Institute for Traumatology and Orthopedics, Kurgan, Russia
Email: kaissi707@gmail.com

Keywords: Orphan or rare disease; Etiology understanding; Clinical and Radiological phenotypic characterizations; The mild and the moderate types of genetic disorders

The etiological understandings of bone disorders have assumed increasing importance over the years and now make significant contribution to the total burden of different medical disciplines, and specifically, Paediatric orthopaedics. Rare or Orphan disease, is a common term in practice, rare disease is only applied to the severe recognizable syndrome (which in fact rare), but the mild and moderate types are so frequent. Rare disease manifests itself mostly soon after birth. But the mild and moderate showed up the abnormalities later in life. Physicians frequently use the term rare, or idiopathic because these are the easiest terms to apply. The mild and the moderate types of genetic disorders are the real risk in orthopedic practices and in other medical disciplines. Because they manifest the health problem late in life, the gene hides itself for a decade or more. Then, suddenly, it showed up with a partial pathologic clinical picture. Etiology understanding is crucial for a successful management. Every skeletal deformity /abnormality has an underlying causality. The vast majority of the skeletal deformities do not occur randomly. Disturbances of skeletal growth presenting at birth or developing in childhood produce a bewildering array of pathological syndromes. Clinical manifestations of skeletal dysplasia are diverse ranging between Neonatal lethality,

mild growth disorders to severe malformation complexes. The eminent question arises in clinical practice; How to interpret the structural defect of an inborn error of morphogenesis into touchable scientific facts? Firstly, family history interrogation can be the access toward instant and preliminary clinical assessment. Secondly, clinical and radiological phenotypic characterizations is the corner stone, and its objective is to interpret and connect the current bone malformation to other relevant clinical abnormalities. In this session, we are presenting two heritable disorders in two unrelated families to refute the term orphan.

1. Variable orthopaedic abnormalities in a MULTIGENERATIONAL FAMILY with mixed types of MPS (Three generational family study)

2. Hypohidrotic Ectodermal Dysplasia - three generational family study

ABSTRACT

AI IN MEDICAL GENETICS

Macek Milan Jr.
Department of Biology and Medical Genetics of Charles University Prague 2nd School of Medicine and Motol University Hospital; Prague, Czech Republic
President of the Czech Society of Medical Genetics and Genomics (www.slg.cz)
E-mail: milan.macek.jr@lfmotol.cuni.cz

ABSTRACT

ARTIFICIAL INTELLIGENCE IN ORTHOPAEDICS AND ORTHOPAEDIC PROSTHETICS – HOW CAN IT HELP US?

Bém Robert
Diabetes Centre, Institute for Clinical and Experimental Medicine; Prague, Czech Republic
E-mail: robert.bem@ikem.cz

Keywords: Artificial intelligence, orthopaedics, orthopaedic prosthetics, ethical considerations, personalisation of prosthesis movement

Artificial intelligence (AI) is increasingly transforming the medical field, and orthopedics is no exception. In orthopedics, AI technologies provide opportunities to enhance diagnosis, surgical planning, patient outcomes, and rehabilitation processes. By leveraging machine learning algorithms, computer vision, and big data analytics, AI can assist in ***identifying patterns in medical images***, such as X-rays and MRIs, with higher accuracy and speed than traditional methods. This can improve the early detection of conditions like osteoarthritis, fractures, and ligament injuries, which are critical

for timely and effective treatment. In surgical procedures, AI offers a new level of precision and personalization. ***Robotic-assisted surgeries***, guided by AI, allow for minimally invasive techniques that reduce recovery time and minimize the risk of complications. These systems can analyze patient-specific data, helping surgeons plan more effective interventions by considering variables such as bone density, alignment, and previous medical history. ***AI-driven surgical navigation systems*** provide real-time feedback during operations, enhancing the surgeon's ability to make complex decisions in the operating room. AI also plays a pivotal role in ***orthopedic prosthetics***, driving the development of smart, adaptive devices. AI-powered prosthetics have sensors and algorithms that allow them to adjust to the wearer's movements and environment in real time. These devices can learn from the user's activity patterns, providing more natural and responsive motion. This personalization improves both functionality and comfort, significantly enhancing the quality of life for individuals with limb loss. Additionally, AI enables predictive maintenance of prosthetics by monitoring wear and tear, ensuring timely repairs or replacements before a failure occurs. *In rehabilitation*, AI systems contribute to more effective and tailored recovery programs. Virtual therapy platforms, powered by AI, offer personalized exercise routines based on patient progress, and can monitor movement through wearable devices. These platforms provide real-time feedback, enabling patients to adjust their movements to avoid injury and maximize recovery. AI-driven rehabilitation also facilitates remote monitoring, allowing healthcare providers to oversee progress and adjust treatment plans without the need for frequent in-person visits. Furthermore, AI applications in orthopedics extend beyond patient care to improving research and education. AI-powered data analysis helps researchers identify trends in patient outcomes and treatment efficacy, facilitating evidence-based improvements in clinical protocols. *In* ***medical education***, *AI simulations* are used to train orthopedic surgeons, providing a risk-free environment to practice complex procedures. Despite these advancements, integrating AI in orthopedics comes with challenges, including data privacy concerns, ethical considerations, and the need for healthcare professionals to adapt to new technologies. Ensuring that AI systems are transparent, safe, and accessible remains a priority as the technology continues to evolve.

In **conclusion**, AI holds significant potential to revolutionize orthopedics and orthopedic prosthetics by improving diagnostics, surgical precision, prosthetic functionality, and rehabilitation outcomes. By enhancing both patient care and the efficiency of orthopedic practice, AI is poised to play an essential role in the future of musculoskeletal healthcare.

ABSTRACT

CURRENT STATUS OF MG-ZN WIRES AND STRANDS DEVELOPMENT

Tesař Karel[1], Luňáčková Jitka[2], Vrbová Radka[2], Dušková Jaroslava[3], Juhás Štefan[4], Klein Pavel[5], Žaloudková Margit[6], Bartoš Martin[2], Tichá Pavla[7], Balík Karel[6]

[1] *Department of Materials, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague; Prague, Czech Republic*

[2] *Institute of Dental Medicine, First Faculty of Medicine, Charles University and General University Hospital in Prague; Prague, Czech Republic*
[3] *Institute of Pathology, First Faculty of Medicine, Charles University and General University Hospital in Prague; Prague, Czech Republic*
[4] *Institute of Animal Physiology and Genetics, Czech Academy of Sciences; Liběchov, Czech Republic*
[5] *Biomedical Center, Faculty of Medicine in Pilsen, Charles University; Pilsen, Czech Republic*
[6] *Department of Composites and Carbon Materials, Institute of Rock Structure and Mechanics, Czech Academy of Sciences; Prague, Czech Republic*
[7] *Department of Plastic Surgery, 3rd Faculty of Medicine, Charles University, Hospital Královské Vinohrady; Prague, Czech Republic*
E-mail: Karel.Tesar@fjfi.cvut.cz

Keywords: magnesium wire, *in vivo*, hydrogen, mechanical testing, bone support

Magnesium (Mg) is a promising material for bone support implants due to its biocompatibility and biodegradability. It can gradually degrade in the body, eliminating the need for secondary surgeries. However, Mg implants face challenges like rapid corrosion and excessive localized hydrogen gas formation, which can compromise implant mechanical stability. To address these issues, extruded low-alloyed Mg-Zn wires have been explored, offering improved mechanical properties and reduced localized corrosion. The developed wires could serve as cerclage wires, for reconstructive hand surgeries or as a sternal fixation.

Various Mg-Zn alloys with different zinc contents (up to 1%) were used to produce wires of 250 μm and 300 μm diameters. The wires underwent surface treatments and coating with a copolymer of L-lactide and ε-caprolactone to control their degradation rates. Mechanical and microstructural properties were assessed through *in vitro* tests, followed by *in vivo* testing on damaged rat femurs using the Mg-0.4Zn variant with and without the polymer coating.

Moving forward, a pilot *in vivo* study was performed for sternal fixation on the minipig model to probe the Mg-Zn strand handling and implant-tissue interactions in a large animal model. Considering the property changes of the Mg-Zn strands *in vitro*, wire braiding seems like a reasonable approach for further development.

ABSTRACT

PERSPECTIVE COMPOSITE BIOMATERIALS SUITABLE FOR THE TREATMENT OF CONNECTIVE TISSUE DEFECTS AND CURRENT TRENDS IN TISSUE ENGINEERING AND REGENERATIVE MEDICINE

Braun Martin
Department of Composites and Carbon Materials, Institute of Rock Structure and Mechanics, Czech Academy of Sciences, V Holešovičkách 41; Prague, Czech Republic
E-mail: braun@irsm.cas.cz

Keywords: collagen, composites, advanced biomaterials, biodegradable polymers, scaffolds, nanofibers, nanotechnology, tissue engineering, regenerative medicine

Within the past decade we can observe novel technological approaches and many significant advances in material sciences, molecular biology, biochemistry and medicine that lead to the development of new advanced biomaterials that are tested to determine their potentials in numerous applications in the field of tissue engineering and regenerative medicine.

The most promising ones are often based on biodegradable composites formed by natural or synthetic polymers and can well imitate not only the chemical composition but also the structural, biological and biomechanical properties of real connective tissues and scan be successfully applied in implantology for more effective and faster treatment of tissue defects.

The basis of many of these composite materials is collagen, which represents almost 30% of all proteins in human and mammalian bodies and exhibits properties such as good biocompatibility, biodegradability, hemocompatibility, low antigenicity and low toxicity. Therefore it belongs to the most attractive biopolymers used in tissue engineering and in various forms such as nanofibers, 3D cell scaffolds, thin layers etc. and is often a key component of biodegradable composite materials applied as implant coatings, bone or cartilage fillers and replacements in different tissue defects, composite vascular grafts and patches, have many applications in regenerative medicine, e.g. in wound treatment, dermatology and cosmetics or even in targeted drug delivery.

From a biomechanical point of view and in order to mimic the functional and degradation properties of real tissues, it is advantageous to combine collagen with other polymeric molecules to obtain matrices with even better parameters for a given purpose. Therefore, collagen-based scaffolds, bioactive thin layers or other composites may also contain specific ratios of glycosaminoglycans, proteoglycans, various adhesive molecules, growth factors, antibiotics and other molecules that promote enhanced tissue regeneration.

A considerable achievement is also the extensive development and application of nanotechnologies enabling sufficient production of copolymers containing e.g. poly-L-lactate (PLA) and polycaprolactone (PCL) nanofibers combined with a collagen matrix or nanofibers. A combination of purified collagen isolated from various animal sources with hydroxyapatite nanoparticles is very effective in hard tissue engineering, e.g. in bone tissue replacement and great effort is currently devoted also to the development of bioinks suitable for tissue 3D printing.

This contribution therefore reviews fundamental issues related to biomaterials processing and the development of advanced composite materials with desired properties and summarizes the current knowledge and promising trends in the field of tissue engineering.

Acknowledgement: This work is supported by the The Ministry of Health of the Czech Republic, Research project No. NW24-02-00206.

ABSTRACT

DISCOID MENISCUS IN PAEDIATRIC PATIENTS, SYMPTOMS, RECOGNITION, TREATMENT

Karski Jacek, Ciszewski Andrzej, Matuszewski Łukasz
Paediatric Orthopaedic and Rehabilitation Department of Medical University of Lublin, Poland
E-mail: jkarski@vp.pl

Keywords: Discoid Meniscus, treatment

Discoid meniscus (DM) is quite often problem in paediatric orthopaedics. DM of the knee joint occurs at a higher incidence in the lateral than in the medial menisci. Literature revealed that the proportion of the area of meniscus to that of the plateau was continuously higher in the lateral side than in the medial side. The observed differential development of lateral and medial sides of the meniscus may be involved in the aetiology of discoid meniscus.

In the period of last 8 years the 24 patients were treated because of discoid meniscus (DM). Age of the patients reached 6 to 17 years old, average 11 years old at onset. In 17 cases left knee was affected, in 11 right, in 4 cases problems were bilaterally.

In anamnesis the mild trauma occurrence, or no trauma at all, followed by pain, and/or block of the movement, contracture in extension or in flection, or both. Oedema was not often, usually absent.

The diagnosis was made by clinical examination, ultrasound examination, and finally MRI. The findings are very characteristic.

All patients were operated by arthroscopic way. The intraoperativefindings show that the patients have type I or II in Watanabe Classification of MD. Treatment usually consent of removing, shaving destroyed part, in a few cases the additional suture was performed. Analysis show very good and good result of such a treatment.

ABSTRACT

PROPER THERAPY OF CHILDREN WITH ORTHOPEDIC DISORDERS – THE CHANCE OF HEALTHY AND ACTIVE FUNCTION STATUS OF ADULTS

Karski Tomasz[1], Karski Jacek[2], Minami Daniel[3]

[1] *In years 1995 – 2009 – Head of the University Pediatric Orthopedic Department in Lublin, Poland. From 2009 – Professor Lecturer in Vincent Pol University in Lublin, Poland*

[2] *Medical University in Lublin, Poland*

[3] *Medical Office, Wayne, Pennsylvania, USA*

E-mail: tmkarski@gmail.com; www.ortopedia.karski.lublin.pl; jkarski@vp.pl; dminami100@gmail.com

Keywords: Syndrome of Contractures and Deformities (SofCD), Minimal Brain Dysfunction (MBD). Hips, Knees. Shanks. Spine.

1/ Introduction. It is very important to realize the prophylaxis or therapy program of newborn and babies, as well of older children in situations of various orthopedic problems. If pathology exists, it can have various causes – *first Minimal Brain Dysfunction* (MBD) caused by asphyxia of the fetus in gravidity or delivery period. The second cause of pathology is *Syndrome of contractures and deformities (SofCD)* – first described by Professor Hans Mau (Tübingen, Germany) *as "Siebener syndrome"* – *"Syndrome of seven deformities".* In 2006 we (T. Karski and J. Karski) added an *eighth deformity*, varus shanks.

2/ Importance of anamnesis. It is important to have complete information about the pregnancy and delivery period of a child. Important is – to known – delivery was easy and short – or long and complicated. If there were some complications during pregnancy or delivery – can be asphyxia for fetus – and next symptoms of MBD. If in mother uterus – was too small space for the fetus – can be symptoms of SofCD.

3/ Newborn and babies – condition of hips, spine, leg axis. At this time we should examine and treat: a/ dysplasia of hip or hips. This pathology can be in SofCD – usually left hip, in joint laxity, in spasticity of the adductor muscles of the hips, b/ wry neck (torticollis cong.) – this pathology can be in SofCD, or after traumatic delivery, c/ varus deformity of the tibia/knees in SofCD – if the space in uterus was too small.

4/ Older children – age of 5–15 years. Problems of feet in form of valgus or plano – valgus deformity. Such form of pathology is connected with MBD. In cases of MBD – is shortened Achilles tendon as well m. triceps surae, what we called in orthopedic language – "contracture". This shortening and on the same time – laxity of joints – make – during walking the compensatory pronation position of feet – what after years give the "valgus or plano – valgus deformity". The first – who described this causes of feet pathology – was Professor Jean Meary from Paris, France (1919–2015) in 70th years of XX century. The therapy consists – on lengthening of Achilles tendons what we described as "stretching therapy".

5/ Older children – age of 5–15 years. Problems of knees. The pathology may take the form of – altered axis – varus or valgus deformity of the knee joints – or contracture (not complete extension of the knee), or instability of the joint. This pathology can cause pain of knee in older children. Varus deformity of the tibia is described in the chapter above.

Valgus deformity of knees – mostly is connected with improper sitting position of children. This problem – incorrect sitting – is described by T. Karski and co-authors in Journal of Orthopedic Science and Research India / UK / 2020. Therapy – important correct sitting and m. rectus exercises – only in knee extension position – never – from flexion to extension.

6/ Older children – spine – scoliosis. The "Idiopathic Scoliosis" – other description – Adolescents Idiopathic Scoliosis (AIS). Why "Idiopathic" – because the etiology of deformity was secret, not found over 2300 years – from Hippocrates and Galen time. In Lublin – we speak „So-Called Idiopathic Scoliosis" – because in years 1995 – 2007 was described the etiology of this spine deformity. It was also given the new classification of the spine deformity and presented the new proper therapy.

7/ The following steps were taken to reveal the etiology of so-called idiopathic scoliosis. History with data.

1984–2024 – Research into so-called idiopathic scoliosis has been ongoing for many years. The first observations were made in 1984–1995. It was confirmed that scoliosis is connected with biomechanical causes – loading and impact on the spine – "walking" and "standing 'at rest' on the right leg". It was also confirmed – three patterns of hip movement – and three groups and four types of scoliosis.

1984 – First observation – during the "Scholarship study of T. Karski" in Invalid Foundation Hospital in Helsinki / Finland.

1984–1995 – Observation in Lublin, Poland of children with scoliosis – and discovery – that every child with scoliosis has limited movement of the right hip – adduction in extension position of the hip joint, often also limited internal rotation and extension of this right hip joint. These symptoms – asymmetries – are connected with Syndrome of Contracture and Deformities according to Prof. Hans Mau and Lublin observations.

1996 – First publication about biomechanical etiology of the So-Called Idiopathic Scoliosis in Journal – Orthopädische Praxis, Germany.

1997 – Finally, it was confirmed that standing 'at ease' (upright) on the right leg causes left lumbar convex scoliosis. The child begins to stand only or predominantly on the right leg in the second year of life. After 8 to 10 years, the scoliosis is visible and fixed. Confirmation of these observations – in countries – not only in Poland – but also in Germany, Austria, Denmark, Finland, China, Cuba, Hungary, Czech Republic – during "educational trips" or during "congresses and symposia".

2001 – a new classification was introduced – two groups of scoliosis: group 1 – deformity "S", 3D. Causes: walking and standing 'at ease' on the right leg. In this type spine is stiff, gibbous on the right side of thorax, progression. Group 2 – "C" and "S" deformity, 2D or 3D – one or two curves. Connection only with standing 'at ease' on the right leg. Spine flexible, small progression, no gibbous or small.

2004 – a 3rd group of scoliosis was described, 2D or 3D – only spinal stiffness – small curves or no curves. Associated with gait only.

2006 – Finally, three patterns of hip movement and three groups and four types of scoliosis have been described – and confirmed.

2007 – was answered the questions – why the blind children do not have scoliosis – answer – other gait – without lifting of legs. Also, in 2007 – other causes of scoliosis were described – namely – a symptom typical for MBD – a/ poor pelvic position – anterior tilt and b/ joint laxity.

8/ Therapy of scoliosis in points. In the new therapy we recommend in Lublin:
a/ never stand 'at ease' on the right leg, but on the left – beneficial – or on both legs – neutral,
b/ stretching exercises to obtain full movement of the right hip and correct pelvis position,
c/ exercises to obtain full movement of the spine – in all directions. The best sports arts in therapy are karate, taekwondo, aikido, kung fu.

9/ Pathology of spine in form of "hyperlordosis of lumbar spine" and "hyperkyphosis of thoracic spine".

a/ Hyperlordosis of the lumbar spine is a symptom of MBD and is associated with spastic or subspastic shortening of the hip flexors. The result is "anterior pelvic tilt" and hyperlordosis of the lumbar spine.

b/ Hyperkyphosis of the thoracic spine in girls is associated with the 'antepulsive shoulder habit' – the underlying psychology. In both boys and girls it can also be a symptom of Scheuermann's disease. Therapy – stretching exercises for the shoulders and spine.

10/ Laxity of joints. Children with MBD typically have greater than normal laxity in all joints. In the clinical examination we use one of the ten tests of Dr Ruth Wynne Davies – 1926–2012 – an orthopaedic and rehabilitation physician in the UK.

11/ Discussion and Conclusions. In children – even in newborns and infants, we can diagnose MBD symptoms and symptoms associated with SofCD. There may be changes in the spine, pelvis, hips, knees, feet. There may be asymmetries in the range of motion of the hips – left and right – as well as causing changes in function – standing and walking. We can also diagnose the state of stability of the knee and ankle joints. All of these abnormalities should be treated during the child's lifetime. It is a condition for proper and painless function of the musculoskeletal system in adulthood – in employment, in sports and in everyday activities. The rules of therapy are given in the paper/lecture.

12/ Literature www.ortopedia.karski.lublin.pl link – point 17 – publications

ABSTRACT

RELATIONSHIP OF THE SHOULDER GIRDLE AND THE SPINE IN SCOLIOSIS

Pallová Iveta
F-Therapy, Trávníčkova 1746/37, Praha, Czech Republic
E-mail: Iveta.Pallova@seznam.cz, web: www. skolioprogram.cz

Keywords: idiopathic scoliosis, shoulder girdle, scapula, spine shape

Abstract
Idiopathic scoliosis is a 3D spinal deformity. It includes a complex of changes that can be manifested to varying degrees in all systems of the human body. The lower limbs affect the pelvis and vice versa. Likewise, the shoulder girdle affects the shape and function of the spine and vice versa. The shoulder girdle includes components that mutually influence its shape and function. Disorders of any joints of shoulder complex can change movement and its rhythm.

1. Glenohumeral joint
2. Scapulothoracic joint
3. Acromioclavicular joint
4. Sternoclavicular joint
5. Costovertebral joints
6. Sternocostal joints

In patients with scoliosis we observe asymmetry of the shoulder girdle, including imperfect function of the scapulae in asymmetry too. We find non-optimal movement of the upper limb in both open and closed kinematic chains. Patients with idiopathic scoliosis show changes in scapular kinematics that are associated with shoulder pathology. When treating scoliosis, the function of the scapulothoracic and glenohumeral joints has to be considered (**1, 2**). Shoulder balance (level of the shoulders) is one of the major determinants of the cosmetic outcomes of scoliosis surgery. It may happen that after corrective surgery, the asymmetry of the shoulder girdle becomes more pronounced (**1**).

The non-optimal position and function of the shoulder girdle goes hand in hand with a change in the shape and function of the spine. A patient with a flat thoracic spine and a patient with hyperkyphosis in the thoracic spine has a different shape (anatomy), therefore the movement of the shoulder girdle, including the arms, is different. Recently, the number of scoliotic patients who have a flat thoracic spine and kyphotization of the thoracolumbar junction has been increasing. It is related, among other things, to a sedentary lifestyle, lack of physical work and imperfect locomotor-related movements in early infancy. Hypermobility is also characteristic for a flat back. The most common shape changes and thus limitations of spinal movement in idiopathic scoliosis include:

1. in the frontal plane – lateral deviation
2. in the sagittal plane – flattening of the thoracic spine up to lordotization and kyphotization of the thoracolumbar junction
3. in the transversal plane – axial rotation of vertebrae

„Posture follows movement like a shadow" (Sherrington 1906, Magnus, 1924)

Physiotherapy has the ways to influence the shape and function of the spine and shoulder girdle, including the shoulder blade. The surgical solution creates a stable fixed section of the spine that is

immobile. In contrast to an operative solution, physiotherapists want to achieve dynamic stability and mutual cooperation of individual body segments.

When the joint settings change, so does the movement. If the joints are not set in a centered position (within the ability of each individual) the exercise is useless, whatever method is used.

Conclusion

Idiopathic scoliosis is an interesting and interconnected complex of changes in soft and hard tissues, the nervous system and internal organs. It also includes a different perception of the body scheme. The aim of this message is to draw attention to the mutual shape and functional relationship between the shoulder girdle and the spine in scoliosis.

Literature

1. MENON KV, PILLAY HM, M A, TAHASILDAR N, J RK. Post-operative shoulder imbalance in adolescent idiopathic scoliosis: a study of clinical photographs, Scoliosis. 2015 Nov 17, doi: 10.1186/s13013-015-0055-6. eCollection 2015.
2. RAPP VAN RODEN EA, PETERSEN DA, PIGMAN J, CONNER BC, TYLER RICHARDSON R, CRENSHAW JR. Shoulder Complex Mechanics in Adolescent Idiopathic Scoliosis and Their Relation to Patient-perceived Function, J Pediatr Orthop. 2018 Sep;38(8):e446-e454. doi: 10.1097/BPO.0000000000001207.
3. TAE-GYU K, YOUNG-HOON K, RUI M, SOO-YONG K. Scapula position test reliability and comparisons of scapula position and shoulder function among individuals with and without adolescent idiopathic scoliosis. J Back Musculoskelet Rehabil, 2024, Jul 18. doi: 10.3233/BMR-230357.

ABSTRACT

BONE SUBSTITUTES IN THE DIABETIC FOOT

Fejfarová Vladimíra, Sutoris Karol, Sixta Bedřich, Jarošíková Radka, Sojáková Dominika, Němcová Andrea, Dubský Michal, Wosková Veronika

Diabetes Centre, Department of transplant surgery, Institute for Clinical and Experimental Medicine; Prague, Czech Republic

E-mail: vladimira.fejfarova@ikem.cz

Keywords: diabetic foot, bone substitutes, osteomyelitis, reconstructive orthopedic or surgical therapy

Diabetic foot (DF) is a serious late diabetic complication dramatically increasing patient morbidity and mortality especially in cases connected to infectious complications. The clinically and prognostically most important is a presence of osteomyelitis (OM). OM should be always appropriately ruled out or diagnosed and then aggressively treated. The international guidelines recommend different treatment approaches how to manage OM based on it´s location, severity of the infectious process, presence of ischemia and comorbidities. OM is in certain cases hardly treatable and besides

off-loading, local therapy, improvement of vascular supply is crucial the ATB therapy guided by microbial sensitivity of causative agents.

Bone substitutes could contribute to the OM treatment and resolution especially in cases of torpid infection, in immunocompromise patients with DF or those with advanced comorbidities. Other option for using bone substitutes is reconstructive orthopedic or surgical therapy, where support musculoskeletal structures are missing due to inevitable necrectomies, surgical resections or amputations. Some case reports included in the presentation will describe the clinical usage in daily podiatric practice.

Supported by NU20-01-00078, NW24-09-00184, LX22NPO5104

ABSTRACT

TWO-PHASE TREATMENT OF HEAD POSITIONAL DEFORMITIES WITH A REVOLUTIONARY 3D PRINTED CRANIAL ORTHOSIS (ON-LINE)

Dilý Matěj, Šámalová Hana, Rosický Jan
Invent Medical Group, l.l.c., Ostrava, Czech Republic
E-mail: matej.dily@inventmedical.com

Keywords: Cranial remodeling, Orthotic treatment, Talee 2v1, 3D printing in orthotics, Cranial shape improvement

The presentation, outlines a new orthotic approach for cranial remodeling, specifically addressing asymmetrical conditions like Asymmetrical brachycephaly and Plagiocephaly. This patented "Talee 2 in 1" design utilizes advanced 3D printing to enhance user comfort, stability, and aesthetic appeal while maintaining a lightweight structure. The treatment follows a two-phase process: the initial phase targets asymmetry correction, and the subsequent phase improves cranial proportions. Key benefits include optimized rotational control, improved stability, and a streamlined follow-up process, reducing the frequency of necessary adjustments and enhancing adherence to the recommended usage protocol.

ABSTRACT

CHARCOT'S NEUROOSTEOARTHROPATHY FROM THE POINT OF VIEW OF ORTHOPEDIC PROSTHETICS

Svoboda Michal
Orthopaedic Department, University Hospital Olomouc; PROTEOR CZ, Ostrava, Czech Republic
E-mail: MichalSvoboda2011@email.cz

Keywords: Charcot neuro-osteoarthropathy, orthopaedics, prosthetics, diabetes, treatment, management, multidisciplinary approach.

Overview
Charcot neuro-osteoarthropathy (CN) is a rare debilitating condition seen in individuals with diabetes and peripheral neuropathy, leading to progressive joint destruction and deformity. This presentation aims to illuminate the intricate relationship between orthopaedic intervention and prosthetic management in patients affected by CN.

Objectives
1. To enhance understanding of the pathophysiology of Charcot neuro-osteoarthropathy.
2. To discuss the role of early diagnosis and intervention in mitigated joint damage.
3. To explore innovative prosthetic solutions tailored for patients with CN.

Key Points
- **Clinical Insights:** Examination of clinical presentations, diagnostic challenges, and the importance of a multidisciplinary approach in management.
- **Surgical Interventions:** Overview of surgical options, including arthrodesis and joint stabilization techniques, and their implications for prosthetic design.
- **Prosthetic Considerations:** Insights into custom prosthetics that accommodate joint deformities, reduce the risk of recurrence, protect the contralateral foot, and enhance quality of life.
- **Case Studies:** Presentation of case studies highlighting successful outcomes and lessons learned from multi-disciplinary teamwork.

Conclusion
The presentation emphasizes the critical need for collaboration among orthopaedic surgeons, prosthetists, diabetologists and other healthcare professionals to optimize care for patients with Charcot neuro-osteoarthropathy. Offloading and activity reduction remains the gold standard of acute Charcot neuro-osteoarthropathy treatment. By advancing our understanding of the condition and improving prosthetic strategies, we can significantly enhance patient outcomes and quality of life.

ABSTRACT

EXPLORE THE POWER OF THE MOTION MOTIONSMATRIX® CONCEPT

Frána Michal Joshua
Dr. Frána Polyclinic
Department of Orthopaedics and Traumatology, Faculty of Medicine in Pilsen, Charles University, Czech Republic
Credendo Corpore Sano LLC, Fort Lauderdale, Florida USA
E-mail: josh@joshfrana.cz

Keywords: MotionsMatrix®, physiotherapy, podiatry, neuromuscular stabilization, proprioception, biomechanical patterns, CAD/CAM insole

MotionsMatrix®: A Comprehensive Concept for Modern Physiotherapy And Podiatry
Today's physiotherapy and podiatry face growing demands for personalized, technology-supported care that maximizes treatment effectiveness and accelerates patient recovery. The MotionsMatrix® concept is an advanced system of rehabilitation plates that incorporate various levels of stability to stimulate neuromuscular control, proprioception, and balance. Grounded in scientific principles, this tool allows for gradual, safe increases in exercise difficulty, making it ideal for clinical settings and home-based exercise.

Diagnostic Aspects and Evaluation
One of MotionsMatrix®'s key advantages is its support for advanced diagnostics through devices measuring baropodometric values, enabling precise analysis of pressure distribution across different areas of the foot. This assessment is crucial for identifying inconsistencies in movement patterns and is valuable for both injury prevention and correction of long-standing movement imbalances. MotionsMatrix® is compatible with modern diagnostic systems, such as CAD/CAM insoles and dynamic goniometry, which track and assess joint movements with high accuracy. Data can be exported in RAW format, ensuring compatibility with other baropodometric platforms.

Implementation and Practical Application in Rehabilitation
MotionsMatrix® offers a versatile solution for a wide range of rehabilitation exercises aimed at strengthening the lower extremities, stabilizing the torso, and preventing re-injury. The plates allow diverse exercise combinations targeting specific areas, providing therapists with options for customizing therapy and gradually increasing load according to each patient's current capabilities. Designed for independent use in home-based exercise, the plates enhance treatment effectiveness and encourage long-term patient engagement. Their benefits in podiatry include targeted improvements in foot stability and neuromuscular function, essential for gait correction and post-injury recovery.

Within the MotionsMatrix® concept, the plates can be combined with methods such as Dynamic Neuromuscular Stabilization (DNS) to support proper body alignment during functional movements and improve stabilization patterns. This approach not only enhances performance but also reduces the risk of repetitive-stress injuries, which is crucial for athletes and post-trauma patients.

Output Data and Treatment Optimization
For therapists, MotionsMatrix® provides significant advantages by allowing real-time assessment and analysis of output data, enabling training protocols to be adapted to each patient's needs. Data from individual sessions can be analyzed in detail, allowing therapists to plan further rehabilitation based on available data. This might include introducing CAD/CAM insoles to address specific movement-pattern deficiencies or adding specialized exercises focused on particular movement patterns.

Summary and Recommendations for Practice
MotionsMatrix® is an innovative and effective tool that empowers physiotherapists and podiatrists to deliver highly individualized care using the latest technology and insights. It benefits both amateur and professional athletes, as well as patients with chronic lower extremity or torso conditions.

This concept enables therapists to improve patients' stability and motor control continuously, supporting them in an active role in their own recovery.

ABSTRACT

CALCANEOGENESIS WITH SECONDARY ACHILLES TENDON-BONE ALLOGRAFT FOR REPAIR OF THE LOSS OF HINDFOOT FUNCTION. A 12-YEAR CASE REPORT

Zwipp Hans
Universitäts Centrum für Orthopädie, Unfallund Plastische Chirurgie, Universitätsklinikum Carl Gustav Carus, Technische Universität Dresden, Dresden, Germany
E-mail: hans.zwipp@t-online.de

Keywords 3rd degree open calcaneus fracture dislocation (type 5), Subtotal calcanectomy, Talar distraction osteotomy, Total Achilles tendon loss · Achilles tendon-bone block allograft

Background
Calcanectomy and Achilles tendon resection are very hard to repair.

Objective
Ilizarov's "calcaneogenesis" is possible with ankle joint preservation. Even after 3.5 years of functio laesa of the triceps surae muscle it can be rebuilt.

Material and methods
A 25-year-old motorcyclist suffered a 3rd degree open calcaneal dislocation fracture (type 5). Osteitis and necrosis required calcanectomy, resection of the Achilles tendon and a latissimus dorsi muscle transfer. A talus corpus osteotomy with Ilizarov distraction created in the 1st step a "neo-calcaneus". In a delayed 2nd step a fresh-frozen Achilles tendon-bone block allograft was transplanted to regain active plantar flexion.

Results
The initial AOFAS score of 35 points was significantly improved to 70 points 12 years after step 1. After both operations the patient could walk without an orthosis and regained 88% of normal plantar flexion strength. Quantitative measure of health outcome according to EQ-5D-5L was marked by the patient with 80 out of 100 points.

Discussion
"Calcaneogenesis" with preservation of the ankle joint is possible and innovative. Despite 3.5 years of disconnection of the triceps surae muscle, an Achilles tendon-bone block allograft could restore 88% of the push-off force even attached to a neo-calcaneus that is 1/3 smaller than normal, which is also new.

ABSTRACT

UNHEALTHY POSTURES (SAGITTAL PROFILES) AND SERIOUS (NEURO-)MUSCULAR TIGHTNESS IN DUTCH YOUTH. A RESULT OF DISCONGRUENT OSTEONEURAL GROWTH RELATIONS

van Loon Piet[1], Soeterbroek A.M.[2], van Erve R.[3], Smit T.H.[4]

[1] *Orthopedic surgeon, Proktovar, Hengelo, the Netherlands;*

[2] *Analyst, Chairman Posture Network Netherlands, the Netherlands*

[3] *Orthopedic Surgeon; former Care to Move, Deventer, the Netherlands*

[4] *Professor Tissue Engineering; Mechanobiology of development and disease; Amsterdam UMC, the Netherlands*

E-mail: pvanloon@planet.nl

Keywords: unhealthy postures, sagittal profiles, neuromuscular tightness, osteoneural growth relations (Milan Roth)

Introduction

Official data in the Dutch registries show youth is facing increasing bodily problems like >40% back pain; sport injury proneness and other musculoskeletal conditions. Prolonged sloughed and slumping sitting postures in (early) childhood are seen to be causative. Dutch youth is "Champion Sitting" in Europe. On effects of sitting in the development of posture and function of the locomotor apparatus (stiffness) very little contemporary research is undertaken.

Material and methods

248 adolescents (15–18 years) were checked on sagittal postural deviations while bending (Adam's bending test). A questionnaire on sport activities and tests on neuromuscular tightness were done. Femorotibial angle measured hamstring-tightness. Dorsiflexion of foot in two positions of the knee assessed tightness of calf muscles/Achilles tendons. All were photographed from lateral performing the Finger Floor Test (can you reach the floor with your fingers for a few seconds). This is a knock-out test with historical use in big cohorts of American schoolchildren. The unhealthy sagittal spinal profiles while bending were classified as abnormal arcuate or angular (hyper)kyphosis.

Results

Only 40.7% of the children scored positive in the Finger Floor Test (could reach the floor) Hamstring tightness in both legs was present in 62.1%. Plus 18.2% unilateral. Achilles tendon tightness bilateral in 59.3%. Plus 19,4% unilateral.

Activities with descending presence of stiffness (FFT): football; running; no sports; field hockey; tennis; dance; gymnastics. 93.5% of the soccer players has tight hamstrings in both legs and 0.0% of those performing gymnastics! The correlation of the FFT with tight hamstring is 73.2% and can be used as test on flexibility. By the lack of scoring systems for sagittal bending deformities the correlation between form and function deficits could not (yet) be made. But 80 of 248 spines were rated by all examiners as pathological deformed in flexion.

Discussion
Concepts on Osteoneural Growth Relations (Milan Roth) describe the relation between unhealthy postures (as scoliosis) and insufficient muscular length as lack of growth by stretch of the nervous cells. Nachemson proofed extreme high intradiscal pressure in sitting adults, so children must be at a greater risk for disc degeneration by overload caused by (passive) sitting too.

Conclusion
This is the first study on clinical consequences of discongruent osteoneural growth in otherwise healthy schoolchildren. It looks clear youth in general will encounter serious problems in growth with their impressive sedentary and "screenful lifestyle" by manifestation of discongruent neuro--osseous growth relations (Roth) in serious neuromuscular tightness (injury prone) and spinal deformations, at time leading to pain and early degeneration of discs and joint cartilage (arthrosis). Prevention is possible by less passive sitting in wrong postures, more active sitting and life long preventive maintenance of flexibility, full range of motion and posture (e.g. by yoga, gymnastics etc.)

ORIGINAL PAPER

DEATH TOLL IN THE NETHERLANDS BY NOT UNDERSTANDING SERIOUS DISCONGRUENT OSTEONEURAL GROWTH RELATIONS (ROTH). DEATH FOLLOWING ACCIDENTAL FALLS, A FAST RISING ELEMENT IN MORTALITY

van Loon P.J.M.[1], Soeterbroek A.M.[2], Grotenhuis J.A.[3], Smit T.H.[4]

[1] *Orthopedic surgeon, Proktovar, Hengelo, the Netherlands;*

[2] *Analyst, Chairman Posture Network Netherlands, the Netherlands*

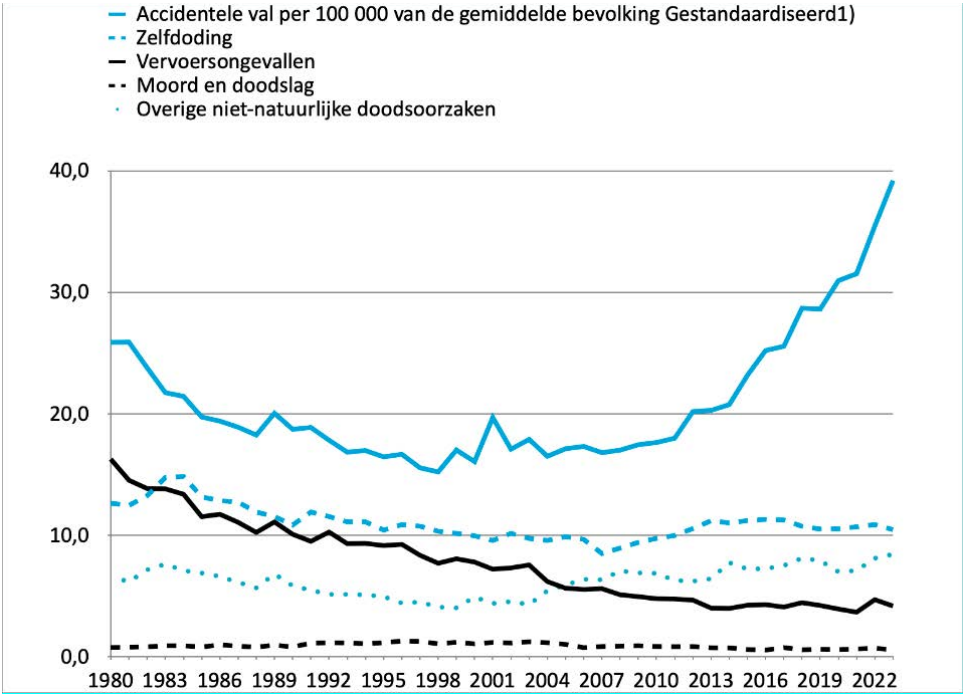
[3] *Em. prof. neurosurgery Radboud University Nijmegen; , the Netherlands*

[4] *Professor Tissue Engineering; Mechanobiology of development and disease; Amsterdam UMC, the Netherlands*

E-mail: pvanloon@planet.nl

Introduction
After the Covid-19 pandemic many (west-European) countries reported still excess mortality, as was seen in the Netherlands too. The excess was unexpected in post-corona prognoses, were return to the "normal" deathrate would show itself after one of two years of less than normal deaths. This excess was reason for many studies because there was fear it was caused by the vaccines or late complications of corona or those vaccines. Many conspiracy thinkers pointed to their government or secret plans by even more secret parties to disrupt societies. In the Netherlands several of such studies were granted. Not one could show that excess mortality was due to corona-related issues (vaccines; lockdowns).

In our vision, with knowledge of general health decline by hypokinesia and of tremendous lack of prevention during childhood for decades in our country, the consequences of discongruent Osteoneural growth Relations (Milan Roth) by an intensive sedentary lifestyle, we suspected these consequences in later life for the locomotor apparatus can be part of this excess mortality. Under



1. Non-natural deaths 1980-2022; Accidental fall per 100000; suicide; traffic accidents; murder and manslaughter; other not natural deaths like unintended poisoning.

discongruent Osteoneural Growth Relations we include all postural, early degenerative musculoskeletal conditions and early degenerative neurological conditions that are caused by a mismatch in processes of growth (childhood) between these two organ systems.

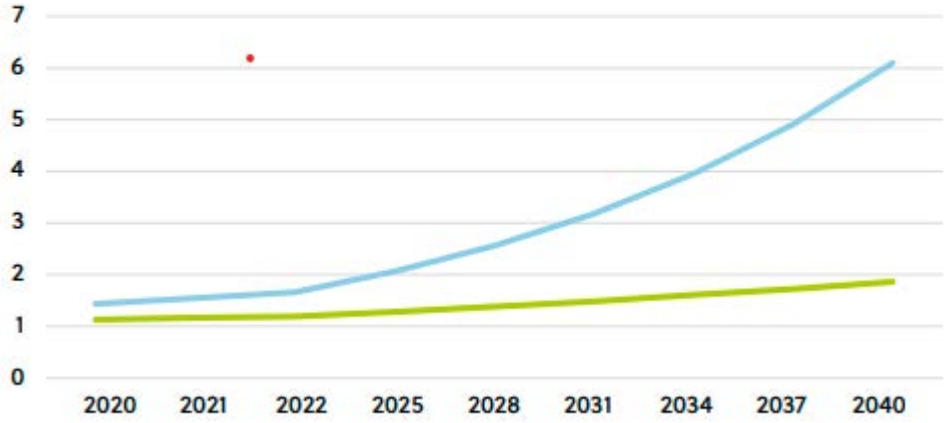
Method

We looked for mortalities that could be related to conditions of the locomotor system in the national registries (RIVM) and the central department of statistics (CBS; Central Bureau of Statistics). That can be musculoskeletal conditions like trauma, motor- or bike accidents leading to mortality. But also, degenerative arthrosis or osteoporosis are infrequently reported as causative for death. But since the WHO defined "accidental fall" leading to death within three months is an apart item in death registries with known increase in prevalence, these became focus of our study. We could look into a span of 40 years in these registries.

Results

In comparison to other causes of death was the death following an accidental fall the only one that showed a quit steep increase in incidence during and after the corona pandemic that was

2. Sterfgevallen volgens prognose toename incidentie (variant B) en VTV 2018.[1 2] Indexatie basisjaar 2015: 1,0.



2. Death by accidental falls in the governmental prognosis (VTV 2018, green line) and our estimated prognosis (Variant B, blue line). Indexation base year 2015: 1,0

unexpected in earlier prognoses. Whilst "ageing" of the population was already an issue in the period 1980-1990 there was first a decrease in death by accidental fall, after a relative stable period the increase around 2013 stayed apparently unnoticed by the epidemiologists, until it was "too late" (**table 1**).

Death toll of accidental falls raised from 3500 in 2014 to 5400 in 2021 (+54%) and that is far above the line "ageing" should show.

Non-natural deaths 1980-2022; Accidental fall per 100000; suicide; traffic accidents; murder and manslaughter; other not natural deaths like unintended poisoning.

Where the RIVM showed their prognosis towards 2040 also for death by accidental fall as a slightly increasing line, we estimated a Variant B based on the true data and their trend (**table 2**).

Death by accidental falls in the governmental prognosis (VTV 2018, green line) and our estimated prognosis (Variant B, blue line). Indexation base year 2015: 1,0

The most recent data on diagnoses at the time of death by CBS for 2023 it proofed that Variant B was the most accurate! Death toll by accidental falls rise from a total of 6228 in 2022 to 6973 in 2024 (+12%).

Discussion

In the WHO-definition of an accidental fall is described: In the event of death from an accidental fall, a person dies within thirty days of an accident in which a person unintentionally falls, trips or slips (International Classification of Diseases (ICD-10).

A problem in understanding the increase off death toll by nontraumatic falls, is that while surgeons that have to operate the many hip fractures that can lead to death, do assess osteoporosis on X-ray and in surgery, but the true registration of osteoporosis is only possible if a DEXA measurement proved it. So, there is tremendous underscore of osteoporosis in the Dutch society. Another etiologic factor that easily causes falls is degenerative polyneuropathy caused by lumbosacral stenosis, as osteoporosis a very underestimated condition in the population. There is a registration on low backpain, with or without neurology, but the amount of concomitant neurologic complaints as in polyneuropathies caused by stenosis is unknown. Shuffling, stumbling and falling are well-known sequelae of degenerative neuropathies.

Another not foreseen aspect of the increase of death by accidental fall was the pressure on the nursing houses. After many "extra" deaths by corona especially in nursing homes, there was an unexpected increase of people with morbidity, mostly hip fractures, that created after that "dip" in corona time the need for transfer to a nursing house. Waiting lists as consequence, because the increased number of elderly people with accidental falls, that could not be transferred to their homes has to conquer with the even so increased number of ageing people with dementia or Alzheimer.

Conclusion

Even the CBS (Central Department of Statistics) had to admit, that our analysis presented in an article in Medisch Contact, the Dutch medical journal, must be the reason for the "post covid" excess of deathrate and was caused by the rapidly increasing "death following accidental fall". In the youngest data of 2023, they showed unintentionally that our "variant B" was the most appropriate "line into the future".

Used references

1. VTV 2018 Een gezond vooruitzicht. https://www.vtv2018.nl/ and https://www.rivm.nl/volksgezondheid-toekomst-verkenning-vtv/c-vtv
2. Centraal Bureau voor Statistieken (CBS). www.cbs.nl
3. https://www.veiligheid.nl/kennisaanbod/infographic/feiten-en-cijfers-valongevallen-65-plussers-2020
4. Schönau (2004): The peak bone mass concept: is it still relevant? Pediatr Nephrol 19:825–831. DOI 10.1007/s00467-004-1465-5
5. CBS Bevolkingsprognose 2022-2070, www.cbs.nl

ABSTRACT

PALEOPATHOLOGICAL FINDINGS IN ANCIENT EGYPTIAN MUMMIES – AN OVERVIEW

Rühli Frank
Professor, Dean, Faculty of Medicine, University of Zurich, Switzerland, www.medicine.uzh.ch *Founding Chair and Director, Institute of Evolutionary Medicine, University of Zurich,* www.iem.uzh.ch *Co-Head, UZH Center for Crisis Competence, Faculty of Business, Economics, and Informatics, University of Zurich*
E-mail: frank.ruehli@iem.uzh.ch

Keywords: paleopathology, Egyptian Mummies, Swiss Mummy Project, evolutionary medicine

For 30 years the Swiss Mummy Project at the University of Zurich investigates particularly ancient Egyptian human remains with biomedical state-of-the-art methods (esp. Computed tomography, MRI etc.). The aim of this presentation is to report on both, the most famous and scientifically intriguing cases but also on the current methodological practices. Also – based on our field work experiences (esp. in Upper Egypt) – our data shall provide an insight into epidemiological trends (incl. different time periods, socio-economic status). Finally, ethical aspects of dealing with ancient human remains shall be addressed too. The study of ancient human remains – as done within the Swiss Mummy project – is a major part of the novel field of evolutionary medicine.

ABSTRACT

PAST PANDEMICS AND ONE HEALTH: TRACING PATHOGEN THROUGH TIME WITH ANCIENT DNA

Schünemann Verena
Professor Dr. Dr., Department of Environmental Sciences
University of Basel, Switzerland
Spalenring 145
CH-4055 Basel
E-mail: verena.schuenemann@iem.uzh.ch

Keywords: ancient DNA, ancient pathogens, One Health across time, medieval leprosy

Research on ancient pathogens enables us to gain new perspectives on the evolutionary history of pathogens and their adaptation to different host organisms. By integrating the latest ancient DNA methods, historical pandemics can be characterized via the identification of their causative agents in genome-wide studies, which also allow for tracing the history of a pathogen back through time. Here we will explore examples highlighting the different directions in the ancient pathogen genomics field to showcase current and future perspectives of the field.

ABSTRACT

METABOLIC DISEASES IN EARLY OTTOMAN CHILDREN FROM COASTAL ASIA MINOR

Kristina Scheelen-Nováček[1, 2], Jan Nováček[3, 4]

[1] *Federal Archaeological Office of Bremen, Germany*

[2] *Department of Biology and Chemistry, University of Hildesheim, Germany*

[3] *Thuringian State Service for Cultural Heritage and Archaeology Weimar, Germany*

[4] *Institute of Anatomy and Cell Biology, University Medical Centre, Georg-August University of Göttingen, Germany*

Email: kristina.scheelen-novacek@landesarchaeologie.bremen.de & k.scheelen@gmx.de

Keywords: anaemia, cribrous lesions, light microscopy, radiography, rickets, scurvy

Introduction and aim of the study
Skeletal traces of metabolic diseases in subadults are important indicators of health status of a community. This study aims to compare their frequency in two early Ottoman (15^{th}–17^{th} century CE) skeletal series of subadult human remains from coastal Asia Minor and tests the hypothesis that the assumed different living conditions of the groups are reflected in their state of health.

Skeletal human remains and historical background
The first group comprises 97 subadult individuals from an Islamic cemetery in the Ottoman settlement of Ayasoluk, on the western coast of Turkey. The second group comprises 36 subadult individuals from a cemetery in Limyra, in southern Turkey. While Ayasoluk, founded close to the former Greek and Roman city of Ephesos, was a rather flourishing, urban settlement, the lifestyle in Limyra was rural, perhaps semi-nomadic.

Methods
The examination focussed on possible traces of scurvy, anaemia and rickets, such as cribrous lesions, signs of marrow expansion, new bone formations, or shape alterations of bones. The skeletal remains were first analysed macroscopically. X-ray examinations and light microscopy were used to improve the diagnosis.

Results
In Ayasoluk, the recorded frequency of possible scurvy reached up to 16.5% (16/97), of anaemia 17.5% (17/97), and of rickets 10.3% (10/97). In the skeletal remains from Limyra, possible scurvy was recorded in 44.4% (16/36), of anaemia 50% (18/36), and of rickets 2.8% (1/36).

Discussion
The statistical significance (p=0.05) in the frequency of both scurvy and anaemia suggests major differences in living conditions. This investigation is among the first palaeopathological studies of metabolic diseases in Islamic cemeteries of early Ottoman Turkey.

Limitations and Prospects
The results are limited by the difference in sample sizes and by the comparatively low number of individuals from Limyra. For future research, investigations of larger samples of Ottoman individuals from urban and rural backgrounds is advised.

ABSTRACT OF THE DOCUMENTARY FILM

PEARLS OF VYSOČINA

Smrčka Václav[1], Zapletal Vít[2], Musilová Zdenka[3]

[1] *Institute for History of Medicine and Foreign Languages, First Faculty of Medicine, Charles University in Prague; Prague, Czech Republic;*

[2] *Municipal Library of Prague; Prague, Czech Republic*

[3] *Municipality of the Town, Letovice, Czech Republic*

E-mail: sedlcany1@seznam.cz

Keywords: ^{14}C dating; ossuaries; tyfoid fever epidemics; famine; skull injury

The pilgrimage church of St. John of Nepomuk on Zelená Hora has been a UNESCO World Heritage Site since 1994. Zelená Hora is the star of the Vysočina Region, but all around here, other pearls can be found. To us, these pearls are the ossuaries in Nížkov, Velké Losenice, Dlouhá Ves and Třešť. They tell us about the life of the inhabitants of the region over the centuries, in much the same way as written documents do. In the past, there used to be many more ossuaries in Vysočina. As a result of colonisation, charnel houses were introduced to Bohemia from Austria via Southern Moravia. They were two-storey buildings with a chapel on top and a place for bone deposition in the basement. Examples can be found in Stonařov and Moravské Budějovice. The main ones for us, and for our research, were the Baroque ossuaries, which have, however, largely perished. They were converted into mortuaries or chapels, such as the one in Tasov, where the Chapel of St. Michael was built, but they may have perished for other reasons, as in Sopoty in 1977, due to acts of vandalism. It can be seen that ossuaries with bone remains are rare.

We came to the ossuary in Velká Losenice in 2016 at the invitation of the Reverend father because the bone remains here had been damaged by mould. We collected bacteriological samples. The moulds were black, and were identified as *Aspergillus*, which would have also damaged the interiors of the ossuary. We invited toxicologist, professor Jaroslav Klán, who diagnosed and tested the interior conditions and sprayed the damaged bone remains with chlorine agents. At the same time, the rehabilitation was complemented by making the ventilation holes accessible and, gradually, improvement on the bone surface was observed, in that the colour gradually changed from black to brownish, and then to almost white. And that was very helpful to the other research that was being conducted here. The ossuary in Velká Losenice was built in the 1770s, it is hexagonal, with one bone pillar in each corner, so there used to be six bone pillars. However, only two remain. According to those locals who still remember, up to the mid-twentieth century, there used to be four pillars here.

In the ossuary, we needed to find out from when the bone remains originated. We performed n ^{14}C dating at the Radiocarbon Centre in Poznan on neutral bone, and it pointed to the Jagiellonian period. The additional dating in 2023 revealed typhoid fever epidemics in the ossuary in Velká Losenice in 1755± 30years, that they were from the Theresian Wars period and the next dating was to 1790±30 years, so that would also approximately cover the end of the Theresian Wars. There is a possibility that they were soldiers from the Theresian Wars, and chronicle records point to that, too. The entries in the chronicles speak of a hospital where these soldiers suffered from some kind of infection.

There are several bone depositions in Nížkov. These depositions, like those in Velká Losenice, are distinctive because there were epidemics of typhoid fever. The lesions found here in the ossuary numbered to around thirty. The deposition that was in the fourth pillar is one of the oldest that we have discovered in what used to be the Bohemian Kingdom and it dates from 1180± 30years. There was another typhoid deposition in the third pillar from 1390± 30years, and in the second pillar dated to 1340± 30years. This is very interesting because this deposition corresponds with other finds in the ossuaries in Malín and Kotouň, which show that at that time, at the beginning of the 14th century, a large part of the Bohemian Kingdom was struck by typhoid fever in connection with famine, which occurred not only in this country but also in neighbouring countries. There were epidemics in 1315 and 1318, and there was another recurrence in 1328, and Queen Elizabeth ordered a procession to prevent the epidemic and to ask for divine help at that time. This means that the bones in the ossuary in Nížkov are much older than the building which was erected in 1709 at the request of the Dean of Polná to free up the cemetery around the church. Although it had been assumed that these were only remains from the Theresian Wars, in fact the deposition of these bone remains continued from the early 18th century until the end of the Theresian Wars.

The bone bank holds typical war injuries as seen on these three skulls, probably caused by a halberd. So far, we've talked about the war injuries in the ossuary that probably proved fatal to those individuals. But in the ossuary, there are also war injuries that had healed. It is evident that the Nížkov ossuary contains a large amount of material and interesting palaeopathological finds Another rare find is the skull of a young woman aged 20 to 30 who suffered from syphilis. The syphilitic lesions are concentrated in the forehead and left parietal regions. Interestingly, both the acute defects and the scarred ones are concentrated in the frontal region in one area. This is described as the so-called "Hackett's signs". This find is important because radiocarbon dating pointed to the period of 1535±30 years, the early stage of the spreading of the syphilis epidemic across Europe. It was so violent in its beginning that it was assumed that it would not have developed in bones at all, or only rarely, which is precisely the case in Nížkov.

The skeletal remains in the ossuary in Dlouhá Ves were disordered. In 2004 and 2006, the council with mayor decided to save the half-demolished ossuary, including the skeletal remains. The skeletal remains were taken out in boxes and put away.The building repaired, wooden shelves made, and the councillors that is, put all the skeletal remains back onto these shelves. In the ossuary, now is very nicely arranged, In the ossuary, there are also signs pointing to an epidemic of typhoid fever, as there are lesions of typhoid osteomyelitis on the upper surfaces of the tibiae in the knee. In total,

we found about six of these lesions on the exposed sides of the walls. We didn't know where to place this epidemic. It had to be determined through dating, by ^{14}C analysis. This showed the date of 1775±30 years, which directed us to the period of 1771 to 1772, when there was a famine in the region. And the unknown infection that accompanied this famine, for Dlouhá Ves and the surrounding area, could have been typhoid fever, which manifests itself on bones as lesions. The most interesting exhibit from the ossuary in Dlouhá Ves is in Prague Anatomical Museum. The skull of a young girl who died in the eighteenth year of her life and was afflicted in early childhood with a deformity, the malformation of the face. Both the upper and lower jaw have fused, probably as a result of an injury. The union of the jaws, *syngnathia*, is not a commonly encountered defect. Mostly, this defect is related to congenital disorders. In our case, it's more of a post-traumatic malformation. This skull was discovered by two medical students who were on holiday in Dlouhá Ves in 1869. With the help of the teacher and parish priest, they discovered that this woman lived in Dlouhá Ves between 1762 and 1780. She could only eat mashed food with an inverted spoon and only drink liquids from a bottle. She also spoke very badly.

The last pearl of Vysočina that we will visit is the ossuary in Třešť. It was built at the end of the 17th century during the reconstruction of the church of St. Martin.

Here, to the left of the entrance, is the skull of a man aged 30 to 40, with an injury in the temporal region. It is an unhealed cut wound and the dating conducted at the Radiocarbon Centre in Poznan showed it to be 95% from 1717 to 1784 and 68% from 1724 to1779, which is when the Theresian Wars happened. So, we can assume that the injury on this skull could be placed in the period of Theresian Wars.

Wars were what connected the ossuaries in Vysočina. Dating from the four ossuaries in Vysočina pointed to Theresian Wars, and also to the War of the Austrian Succession, where 120,000 men were killed, 280,000 wounded, in all the armies involved, with half of the losses being Austrian. In the following Seven Years' War, the Austrian casualties were as many as 32,000 men. In the last thousand years, about 2,000 wars have taken place. From chronicles we learn that common people considered most, if not all, of the wars pointless. It was not only that the war deprived the population of young men, but soldiers were also the cause of epidemics that would affect local populations. On the other hand, we find statues of kings, generals, and warriors in town squares, but the monuments to the soldiers who came from the poorest classes are only the ossuaries, where their bones form the pillars and walls.

Thanks to skeletal remains in ossuaries, we can study typhoid fever, we can study tuberculosis, we can study congenital defects, and even jaw fusions. To this day, students learn the tremendous adaptability of bones and of people. It is also important to note that with the loss of bone material in ossuaries, a great deal of information gets lost because they provide an important gene pool of people that can be used for research, and comparisons for future populations. The ossuary should be recognized as a national treasure, serving as a reference for future generations. From this point of view, it is necessary to approach them with respect and carefully protect them.

ABSTRACT

AGE (^{14}C) AND COMPOSITION ($\Delta^{13}C$ AND $\Delta^{15}N$) OF SKELETAL REMAINS FROM CZECH AND MORAVIAN OSSUARIES

Martin Mihaljevič[1], Václav Smrčka[2]

[1] *Faculty of Science, Charles University in Prague; Prague, Czech Republic*

[2] *Institute for History of Medicine and Foreign Languages, First Faculty of Medicine, Charles University in Prague; Prague, Czech Republic*

E-mail: martin.mihaljevic@natur.cuni.cz

Keywords: radiometrically dating ^{14}C, carbon and nitrogen isotopic composition $\delta^{13}C$, $\delta^{15}N$, skeletal remains, Czech and Moravian ossuaries

Bone samples (N=47) from 46 Czech and Moravian ossuaries were radiometrically dated (^{14}C) and the carbon and nitrogen isotopic composition ($\delta^{13}C$, $\delta^{15}N$) of their collagen was determined. According to the determined ages, most of the samples fall within the climatic minima (Sporer, Dalton and Wolf) of the last millennium. It is possible that these minima influenced lower food and forage production, which was reflected in higher mortality. The course of the $\delta^{13}C$ vs $\delta^{15}N$ relationship has a linear character indicating the predominant source of protein in the diet.

With regard to the isotopic composition of C and N, it is evident that the studied samples from the ossuaries differ in these isotopes from individuals of the La Tene period from Kutná Hora and Radovesice (380-150 BC), the Moravian Lombard population (5^{th}–6^{th} centuries AD) and the inhabitants of Great Moravia (9^{th}–early 10^{th} centuries AD). The isotopic composition that reflects the diet of the studied samples is closest to the population of the 15^{th}–18^{th} centuries buried in the area of the monastery of St. Benedict in Prague at Hradčany.

ABSTRACT

FIRST REPORTED ARCHAEOLOGICAL CASE OF LEPROSY IN SLOVAKIA

Hukeľová Zuzana, Nováček Jan, Daňová Klaudia, Ruttkay Matej
Institute of Archaeology of the Slovak Academy of Sciences, v. v. i.
Nitra, Slovakia
E-mail: hukelova.zuz@gmail.com

Keywords: infectious diseases, Middle Ages, Slovakia, osteology, light microscopic analysis

Material
In 2009 and 2010, an atypically located cemetery dating back to the end of the 11^{th} century was excavated in Nitra-Selenec II (Slovakia). Of the 72 individuals, nearly half exhibited indications of

chronic infectious diseases. A macroscopic examination of the skeleton of a young woman from grave 28 revealed the presence of lesions consistent with leprosy.

Objectives
To confirm or refute the diagnosis of leprosy in the individual from Nitra-Selenec II.

Methods
An osteological analysis of the skeletal remains manifesting leprosy-related changes, with a focus on pathological lesions typical of the disease was performed. A light microscopic analysis was also conducted, using a Zeiss Axiolab II microscope equipped with Zeiss Achroplan objectives (4X, 10X, and 40X magnification) to perform qualitative histomorphological assessment of the bones, to evaluate differential diagnosis, assess the healing stage, and identify microscopic features characteristic of specific inflammations.

Results
A macroscopic examination of the skeleton revealed the presence of lesions consistent with leprosy, including *facies leprosa* and atrophy/pencil-like thinning of the metatarsal bones. *Cribra orbitalia*, *cribra cranii*, bilateral periostitis of the distal parts of the tibiae and hypervascularization of the vertebral bodies were also present. Microscopically, massive pathological alterations were observed. The original surface of the bones always interacted with the layers of the new bone, the bone tissue below showing vestiges of a pathological process. Commonly, "polster-like" structures were observed.

Discussion
While some of the lesions may also be observed in other diseases, such as tertiary syphilis, tuberculosis, and/or diabetes, the combination of pathological changes indicated leprosy. All microscopically examined bone sections were probably affected by the same process and at about the same intensity and period of time, thus excluding most kinds of non-specific inflammations. The layers' appearance was not consistent with a subperiosteal haemorrhage. Rather, it was a process that involved both the original bone and the periosteum, suggesting inflammation. At least two layers of new bone were observed, suggesting recurring inflammatory process with a slow course. This finding supports the diagnosis of a specific inflammation, such as in leprosy. To confirm leprosy, aDNA analysis will be necessary, even though the light microscopic investigation supports the macroscopic diagnosis of specific inflammation, leprosy being the most plausible differential diagnosis.

ABSTRACT

AN EARLY NEOLITHIC "FAMILY" WITH SEVERE JOINT DYSPLASIA AND STUNTED GROWTH FROM CENTRAL GERMANY

Nováček Jan[1,2], Gresky Julia[3]

[1] *Thuringian State Service for Cultural Heritage and Archaeology; Weimar, Germany*

[2] *Institute of Anatomy and Cell Biology, University Medical Centre, Georg-August University of Göttingen; Göttingen, Germany*

[3] *German Archaeological Institute, Division of Natural Sciences; Berlin, Germany*

E-mail: jan.novacek@tlda.thueringen.de & jannovacek@yahoo.com

Keywords: Linear Pottery culture (LBK), circumscribed joint lesions, humerus deformation, autosomal dominant multiple epiphyseal dysplasia, rare disease

Introduction & Archaeological background
An archaeological excavation in Schönstedt, a village in northwestern Thuringia (Central Germany), unearthed a burial site with crouched inhumations (three adult males, six adult females, one indetermined adult, five nonadults). The artefacts suggest an Early Neolithic (LBK) association.

Materials & Methods
The anthropological investigation, including macromorphological, microscopic, and radiological methods, identified a severe pathological condition in at least five of 16 skeletons. The poor preservation of the joint surfaces of four individuals prohibited a secure diagnosis, while seven showed no changes.

Results
The severe destruction with deep, well-circumscribed lesions of multiple joint surfaces was found in three of the 16 individuals. Two of those individuals showed atypical erosive lesions of the ear ossicles. In one case, shortening and deformation of the humeri was observed. Two individuals were of proportionated short stature.

Discussion
Severe pathological changes repeating in a similar way, albeit different in expression, found in five of 16 individuals in one burial ground, suggests a biological relationship of them, sharing the same genetic disease. A possible diagnosis could be autosomal dominant multiple epiphyseal dysplasia (MED). However, a characteristic feature of this disease are shortened phalanges, which is not present in the affected skeletons. It is uncertain whether this is due to a possible change of characteristic features of this disease within the last 7000 years, or limited preservation. Alternatively, other differential diagnoses are possible. DNA analyses are pending and might confirm the original diagnosis.

Aim & prospects
There is only one known individual with MED, which dates to the third millennium BCE Old Kingdom of Egypt. If indeed confirmed as MED, the oldest known cases worldwide, these individuals would add to the research on ancient rare diseases, with the aim of raising awareness of these conditions.

THE 26TH PRAGUE-LUBLIN SYMPOSIUM A LIST OF SPEAKERS AND CO-AUTHORS OF PAPERS

Al-Kaissi Ali Abdul Salam, Professor, MD, DSc *(Vienna, Austria)*
Balík Karel, Assoc. Professor, Eng, PhD *(Prague, Czech Republic)*
Bartoš Martin, MD, MDD, PhD *(Prague, Czech Republic)*
Bellemore Michael, Professor, MD, PhD *(Sydney, Australia)*
Bém Robert, MD, PhD, MHA *(Prague, Czech Republic)*
Braun Martin, Dr, PhD *(Prague, Czech Republic)*
Ciszewski Andrzej, MD, PhD *(Lublin, Poland)*
Daňová Klaudia, Dr, PhD *(Nitra, Slovakia)*
Dilý Matěj, Eng *(Ostrava, Czech Republic)*
Dubský Michal, Assoc. Professor, MD, PhD, FRSPH *(Prague, Czech Republic)*
Dušková Jaroslava, Professor, MD, PhD *(Prague, Czech Republic)*
Fejfarová Vladimíra, MD, PhD *(Prague, Czech Republic)*
Frána Michal Joshua, Dr, MHA, MBA, LL.M. *(Prague, Czech Republic)*
Gresky Julia, Dr *(Berlin, Germany)*
Grotenhuis Joachim Andre, Professor, MD, PhD, IFAANS *(Nijmegen, Netherlands)*
Hukeľová Zuzana, Bc, MSc, PhD. *(Nitra, Slovakia)*
Hudáková Olga, MD, PhD *(Prague, Czech Republic)*
Hyánek Josef, Professor, MD, DSc *(Prague, Czech Republic)*
Jarošíková Radka, MD *(Prague, Czech Republic)*
Juhás Štefan, MVD, PhD *(Liběchov, Czech Republic)*
Karski Jacek, Assoc. Professor, MD, PhD *(Lublin, Poland)*
Karski Tomasz, Professor, MD, PhD *(Lublin, Poland)*
Klein Pavel, Eng, PhD *(Pilsen, Czech Republic)*
Kodýtková Aneta, MSc *(Prague, Czech Republic)*
Kraus Josef, MD, Ph.D. *(Prague, Czech Republic)*
Krawczyk Petr, MD, PhD *(Ostrava, Czech Republic)*
Krulišová Veronika, MD, PhD *(Prague, Czech Republic)*
Luňáčková Jitka, MDD *(Prague, Czech Republic)*
Macek Milan Jr., MD, DSc, MHA *(Prague, Czech Republic)*
Maratová Klára, MSc, PhD *(Prague, Czech Republic)*
Matuszewski Łukasz, Professor, MD, PhD, DSc *(Lublin, Poland)*
Mařík Ivo, Professor, MD, PhD *(Prague, Czech Republic)*
Maříková Alena, MD *(Prague, Czech Republic)*
Mihaljevič Martin, Professor, Dr, PhD *(Prague, Czech Republic)*
Michalovská Renata, MSc, PhD *(Prague, Czech Republic)*
Minami Daniel, MD *(Wayne, Pennsylvania, USA)*
Musilová Zdeňka *(Letovice, Czech Republic)*
Myslivec Radek, MD *(Prague – Příbram, Czech Republic)*
Němcová Andrea, MD, PhD *(Prague, Czech Republic)*
Nováček Jan, Dr, Dr. rer. nat *(Weimar, Germany)*

Pallová Iveta, Dr, PhD *(Dobřichovice, Czech Republic)*
Paszeková Helena, MSc *(Prague, Czech Republic)*
Píchová Renata, MD *(Prague, Czech Republic)*
Rosický Jan, BA, MBA *(Ostrava, Czech Republic)*
Ruttkay Matej, Assoc. Professor, Dr, PhD *(Nitra, Slovakia)*
Rühli Frank, Professor, MD, Dr, EMBA *(Zurich, Switzerland)*
Scheelen-Nováček Kristina, Dr. PhD *(Bremen, Germany)*
Schünemann Verena J., Professor, Dr, Dr *(Basel, Switzerland)*
Sixta Bedřich, MD *(Prague, Czech Republic)*
Skoczylas Michał, MD, PhD *(Szczecin, Poland)*
Smit T.H., Professor, Eng, PhD *(Amsterdam, Netherlands)*
Smrčka Václav, Professor, MD, PhD *(Prague, Czech Republic)*
Soeterbroek, Andre M, Dr. *(Oosterbeek, Netherlands)*
Sojáková Dominika, MD *(Prague, Czech Republic)*
Souček Ondřej, Assoc. Professor, MD, PhD *(Prague, Czech Republic)*
Sutoris Karol, MD, PhD *(Prague, Czech Republic)*
Svačina Štěpán, Professor, MD, DSc *(Prague, Czech Republic)*
Svoboda Michal, MD, PhD *(Olomouc, Czech Republic)*
Šámalová Hana, Bc *(Ostrava, Czech Republic)*
Šumník Zdeněk, Professor, MD, PhD *(Prague, Czech Republic)*
Tesař Karel, Eng, PhD *(Prague, Czech Republic)*
Tesner Pavel, MD, PhD *(Prague, Czech Republic)*
Tichá Pavla, MD, MgA, PhD *(Prague, Czech Republic)*
van Erve, Ruud HG, MD *(Deventer, Netherlands)*
van Loon Piet, J. M., MD *(Deventer, Netherlands)*
Vážná Anna, MSc *(Prague, Czech Republic)*
Vlčková Zděnka, MD *(Prague, Czech Republic)*
Vrbová Radka, Eng, PhD *(Prague, Czech Republic)*
Warchoł Katarzyna, MSc *(Lublin, Poland)*
Wosková Veronika, MD *(Prague, Czech Republic)*
Zapletal Vít, MgA *(Prague, Czech Republic)*
Zemková Daniela, Dr, PhD *(Prague, Czech Republic)*
Zwipp Hans, Professor, MD, DSc *(Dresden, Germany)*
Žaloudková Margit, Eng, PhD *(Prague, Czech Republic)*

Associate Professor Michael Bellemore, MD, A.M.F.R.A.C.S. anniversary 71 years

In front of Techmania Science Center, Pilsen, Czech Republic – The Human Biomechanics 2014 – Assoc. Professor Michael Bellemore and his wife on the right side.

Assoc. Prof. Bellemore, born 1953, has specialised in paediatric orthopaedic surgery for 40 years. He was on staff at the Children's Hospital at Westmead in Sydney, Australia and he was the director of a busy private clinical practice based at the Children's Hospital Medical Centre.

Governor-General of the Commonwealth of
Australia and Chancellor of
the Order of Australia

To

MICHAEL CHARLES BELLEMORE

Greeting

***'WHEREAS** with the approval of Her Majesty Queen Elizabeth The Second, Queen of AustraUa and Sovereign of the Order of Australia, I have been pleased to appoint you to be a Member in the General Division of the Order of Australia,*

*I **DO** by these Presents appoint you to be a Member in the General Division of the said Order and authorise you to hold and enjoy the dignity of such appointment together with membership in the said Order and all privileges thereunto appertaining.*

GIVEN at Government House, Canberra under the seal of the Order of Australia this twenty-sixth day of January 2018.

Dr. Bellemore was actively involved in undergraduate and postgraduate teaching. Under the auspices of the Australian Orthopaedic Association he was a supervisor of orthopaedic training and he had clinical academic appointments at the University of Sydney and The University of Notre Dame. Dr. Bellemore pioneered many paediatric orthopaedic endeavors in Australia including the use of ultrasonography in the management of DDH, Ilizarov limb lengthening and deformity correction, the Ponseti method of treating clubfeet, guided growth surgery and the use of the Fassier Duval telescopic nail in the treatment of children with osteogenesis imperfecta.

A brief scientific curriculum vitae of Associate Professor, Michael BELLEMORE, MD, PhD, A.M.F.R.A.C.S. Department of Orthopaedic Surgery The Children's Hospital at Westmead Sydney, Australia www.michaelbellemore.com Email: mbellemore@michaelbellemore.com

Education

1977 – M.B., B.S. (Hons) University of New South Wales 1985 Fellow Royal Australasian College of Surgeons
1985 – Fellow Royal Australasian College of Surgeons
1985 – Fellow Australian Orthopaedic Association

National Awards

2018 – Order of Australia *Member in the General Division AM (see copy of Order of Australia Text on the page 65)*

2021 – L O Betts Award *Australian Orthopaedic Association*

Academic Awards

1985 – Zimmer Travelling Fellowship
1988 – Inaugural Research Fellowship, Australian Orthopaedic Association
1993 – Diploma in Management for Clinicians
2003 – Best Lecturer, Diploma of Child Health Course
2013 – Excellence in Teaching, CHW Clinical School University of Sydney
2013 – JMO Clinical Teaching Award. The Kilham CHW

University Appointments

1987–2020 Senior Clinical Lecturer, Sydney University
2011–2012 Senior Clinical Lecturer, University of Notre Dame, Sydney
2013 – Adjunct Clinical Associate Professor, University of Notre Dame, Sydney.

Hospital Appointments

1987–2021 Orthopaedic Surgeon, Department of Orthopaedics Sydney Children's Hospital Network
2021 – Emeritus Life Associate, Department of Orthopaedics Sydney Children's Hospital Network
2003–2010 Head of the Department of Orthopaedic Surgery (CHW)
1990–2010 VMO Strathfield Private Hospital
2001–2020 VMO Westmead Private Hospital

Australian Paediatric Orthopaedic Society

2011–2014 President

Previous Appointments & Career Development

1977–79 Resident Medical Officer, St. Vincent's Hospital, Sydney
1980 – Orthopaedic Registrar, Westmead Hospital, Sydney
1981–84 Orthopaedic Registrar, Australian Orthopaedic Training Scheme
1984 – Inaugural President, The Australian Orthopaedic Registrars Association
1985 – Clinical Fellow in Orthopaedics, The Children's Hospital, Sydney
1985–86 Clinical Fellow in Orthopaedic Surgery The Hospital for Sick Children, Toronto, Canada
1986–87 Clinical Fellow in Orthopaedic Surgery The Royal Bristol Hospital for Sick Children, Bristol, UK
1987–89 Consultant Orthopaedic Surgeon, The Lewisham Institute of Sport

Professional Societies & Committees

Membership Of Professional Societies

- Royal Australasian College of Surgeons
- Australian Orthopaedic Association
- Canadian Society of Orthopaedic Technologists (Life Member)
- Australian Society for Limb Lengthening and Reconstruction
- Australian Society of Orthopaedic Surgeons
- Australian Paediatric Orthopaedic Society – *President 2011–2014*
- Society for Connective Tissues Czech Medical Association
- Czech Medical Association of J.E. Purkyne (CzMA)

Committees
- National Health and Medical Research Council of Australia Panel of Assessors – retired
- Australian Association of Orthotics and Prosthetics Accreditation Board 1991–1995
- Australian Orthopaedic Association Board of Studies – NSW Branch 1995–1999
- The Royal Alexandra Hospital for Children, Sydney
  Postgraduate Education Committee 1989 (co-opted)
  Grandrounds Committee 1990–91
  Trauma Committee 1990–92
  Orthopaedic Sub-committee Planning New Hospital
- Australian Paediatric Orthopaedic Society Chairman Medical Services Subcommittee 2008–2020
- MBS Review Taskforce *Orthopaedics Clinical Committee 2016–2021*

Editorial Board Membership
- Editorial Board of Locomotor System, Czech Republic

Teaching
Invited Lecturer

1992 – Australian Orthopaedic Association COE Meeting, Update in Paediatric Orthopaedics, Sydney, Convenor: M C Bellemore
2001 – Prague-Sydney Orthopaedic Symposium
Centre for Orthopaedics and Ambulatory Care, Prague, Czech Republic
2004 – Australian Orthopaedic Association COE Meeting, Hips for All Ages, Sydney
2006 – First Australian Ponseti Method Conference, Royal Children's Hospital, Brisbane.
2007 – Paediatric Orthopaedic Seminar, Hamburg, Germany.
2007 – Society for Connective Tissues ASM, Prague, Czech Republic.
2008 – Second Australasian Ponseti Method Conference,
Conveners: M C Bellemore and P Gibbons, Sydney.
2010 – Third Australasian Ponseti Method Conference, Adelaide.
2010 – Russian Medical Conference, Moscow, Russia
2011 – Paediatric Orthopaedic Symposium, Bnai Zion Hospital, Haifa, Israel.
2014 – Human Biomechanics Conference, Pilsen, Czech Republic
2015 – GP and Medical Specialist Conference, Istanbul, Turkey.

2018 – Visiting Professor, Hospital and Rehabilitation Centre for Disabled Children, Banepar, Kathmandu, Nepal
2018 – 66th Continuing Orthopaedic Education Meeting, Indonesian Orthopaedic Association Banjarmasin, Indonesia.
2018 – 20th Prague-Lubin-Sydney-St Petersburg Symposium, Kromeriz, Czech Republic.
2019 – British Society for Children's Orthopaedic Surgery ASM, Norwich UK.
2020 – Australian Limb Lengthening and Reconstruction Society ASM, Melbourne.

Research
Grants

1985 – Clinical Research Fellowship | The Children's Hospital, Sydney | „Growth Plate Mapping"
1989 – Australian Orthopaedic Association | Research Fellowship | „Growth Plate Distraction in Rabbits"
1989 – The James N. Kirby Foundation, | „Treatment of Limb Shortening"
1990 – The Children's Hospital Fund | „Effects of Growth Promoting Agents on Distracted Rabbit Growth Plate"
1991 – The Children's Hospital Fund | „Effects of Growth Promoting Agents on Distracted Rabbit Callus and Fracture Healing"
1992–95 National Health and Medical Research Council | „Effects of Growth Factors on Bone"
1996 – Financial Markets Foundation for Children | "The Effect of Chemotherapy on Bone Mineralisation"

Publications
More than 30 original articles in peer reviewed journals. In the journal Locomotor System: Advances in Research, Diagnostics and Therapy, 2007, 14, p. 232–238, he published immportant paper „Osteogenesis Imperfecta" (Bellemore M.C., Munns C.F.).

His last oustanding publication is:

ST GEORGE J, KULKARNI V, BELLEMORE M, LITTLE D G and BIRKE C. Importance of Early Diagnosis for Developmental Dysplasia of the Hip: A 5 Year Radiological Outcome Study Comparing the Effect of Early and Late Diagnosis. J Paed and Child Health 2021 57: 41–45.

Supervised Research Scholars

Dr Fergal Monsell PhD University College, London 2010
Thesis: The Effect of Cytotoxic Chemotherapy on the Structural and Material Properties of Regenerate Bone in a Rabbit Model of Limb lengthening

Dr. Michael Bellemore, F.R.A.C.S. was one of the initiators of the Prague-Sydney Symposium. The first Symposium was held in Sydney in 1999 with the participation of Michael Bellemore, MD, F.R.A.C.S., Assoc. Professor Kazimierz Kozlowski, MD, M.R.A.C.R., Professor David Sillence, MD, Assoc.

Professor RNDr. Ivan Mazura, Ph.D. and Ivo Mařík, MD, Ph.D. At this Symposium Dr. Bellemore lectured again in 2001, 2007 and 2018.

In 2014 Associate Professor Michael Bellemore, MD, PhD, A.M.F.R.A.C.S. was invited participant of The Human Biomechanics, Techmania Science Center, Pilsen, Czech Republic.

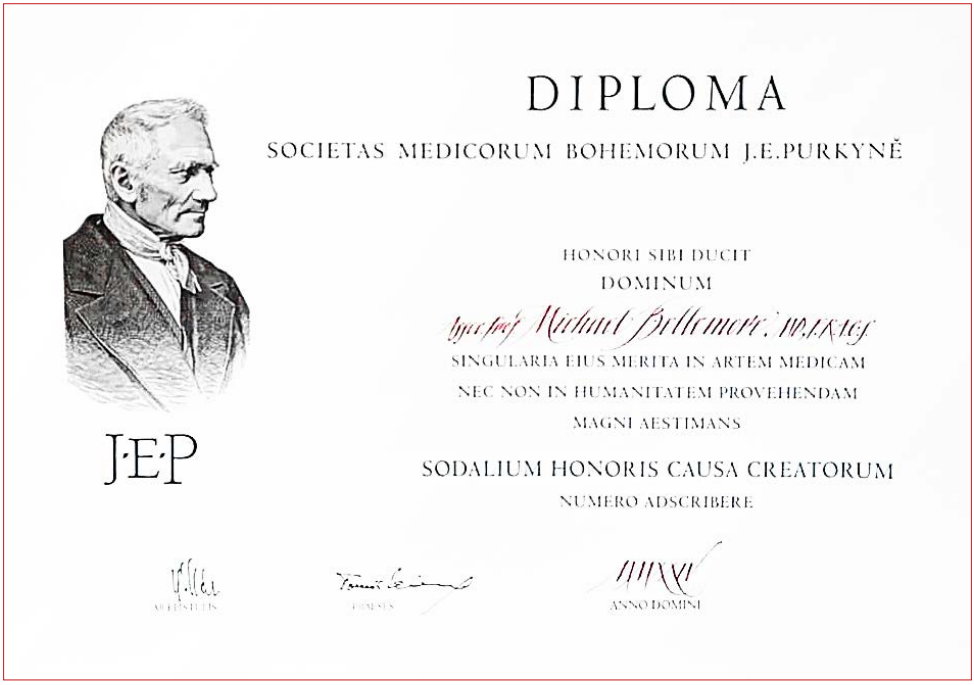
Since 2001 he has been a member of the editorial board of Locomotor System journal.

In 2007 he was awarded by Honorary Membership of the Society for Connective Tissue of Czech Medical Asociation J.E. Purkynje (CMA JEP).

On the occasion of the 20th Prague-Lublin-Sydney-St. Petersburg Symposium in 2018, he was awarded the Honorary Medal of of CMA JEP for his professional work and long-term cooperation.

He is retired as of 2022, but continues to work as an orthopedics teacher.

He still occasionally publishes in Locomotor System journal and we value him as a valuable reviewer.


DIPLOMA

SOCIETAS MEDICORUM BOHEMORUM J.E.PURKYNĚ

HONORI SIBI DUCIT
DOMINUM
SINGULARIA EIUS MERITA IN ARTEM MEDICAM
NEC NON IN HUMANITATEM PROVEHENDAM
MAGNI AESTIMANS
SODALIUM HONORIS CAUSA CREATORUM
NUMERO ADSCRIBERE

ANNO DOMINI

Diploma of Honorary Membership in the Czech Medical Association J.E. Purkynje

Dear Michael,

we highly value your knowledge and experience in orthopedic surgical treatment of children with congenital malformations, particularly in the field of long bone prolongation and in the surgical treatment of children with osteogenesis imperfecta.

On the occasion of your jubilee, the Committee of the Czech Medical Association J. E. Purkynje decided to recognize your professional work and your long-standing collaboration with an Honorary Membership of the CMA J.E. Purkynje.

We sincerely wish you good health, success in your educational activities for the next generation of pediatric orthopedists, and joy and contentment in your beautiful large family.

Sincerely Yours

Professor Ivo Mařík, MD, PhD and **Alena Maříková, MD**

&

Members of the Committee of the Society for Connective Tissues of the Czech Medical Association J.E. Purkynje (CMA JEP) and members of the Committee of the Orthopaedic-Prosthetic Society CMA JEP

&

Professor Štěpán Svačina, MD, DSc.
the president of the Czech Medical Association J.E. Purkynje

Professor Dr. Med. Hans Zwipp – anniversary 75 years

Orthopedic and Traumatology Department of the University in Dresden, Germany
E-mail: hans.zwipp@t-online.de
https://www.researchgate.net/profile/Hans-Zwipp

Professor Hans Zwipp was born on 1st March 1949 in Neustadt (near Coburg), Germany. In 1969–1975 he studied veterinary medicine, theology and human medicine in Vienna, Berlin, Bochum and Essen and in 1975 he graduated at the Medical Faculty in Essen.

He started his professional career in 1975–1977 as a medical assistant in St. Vincenz hospital / Bethesda hospital in Essen (Germany), in 1978–1993 he had surgery practice at Teaching hospital in Hannover (MHH) in Lower Saxony. Later he became a specialist in surgery, orthopaedics and traumatology, specialist in sport medicine and urgent medicine, in 1992–1993 he was the head of Trauma and Surgery Clinic in Hannover and since 1994 he works as a professor of surgery and reconstruction surgery and specialist in hand surgery at the Department of Trauma and Reconstruction Surgery of University Hospital „Carl Gustav Carus" in Dresden (Germany), since 2007 he has been the head of Surgery Clinic there.

He has devoted his professional life to surgery, orthopaedics and traumatology and currently he is the Chairman Emeritus of the Dresden Surgical Clinic and recognized as an internationally renowned traumatologist, scientist, teacher, writer and an excellent physician respected by his patients and colleagues.

Professor Zwipp published more than 400 scientific papers, presented more than 400 lectures, participated in numerous research projects and led many student´s dissertations as well.

He has been an active member of many scientific societies and their committees such as the founding member and the president of ESFAS (European Foot and Ankle Society, Dresden), president of Surgery Association in Saxony, German Association for Trauma Surgery, Working Association for Foot of DGU and others.

During his lifetime he received numerous **honors and awards** for his outstanding work. Here are listed:

1987 – Hermann-Kümmel´s Price from NWD – Surgeons
1988 – Hans Liniger´s Price of German Association for Trauma Surgery (DGU)
1994 – founding member and the president of ESFAS (European Foot and Ankle Society), Dresden
1994–2006 – chairman of the board AOI for surgery of foot and ankle
1998–99 – president of Surgery Association in Saxony
1999–2001 – member of the bord of German Association for Trauma Surgery
2000–2004 – member of consulting board od German AO
2002–2008 – head of Working Association for Foot of DGU
2003 – honorary membership of AO Alumni Association, Chile
2005–2007 – member of the board of DGU
2006 – commemorative Medal of 3rd Medical Faculty, Charles University, Prague
2011 – honorary membership of Czech Society for Trauma Surgery
2017 – honorary membership of the Society for Connective Tissues, Czech Medical Association J. E. Purkynje
2021 – honorary Medal of the Czech Medical Association J. E. Purkynje

Dear Hans,

on the occasion of your 75th birthday, the Committee of Czech Medical Association (CMA) J. E. Purkynje decided to recognize your professional work and your long-standing collaboration with an Honorary Membership of the CMA J.E. Purkynje. This award will be presented to you by Prof. Štěpán Svačina, MD, DSc., President of the CMA JEP

We sincerely wish you satisfaction from your medical work, from raising the next generation of successful doctors, joy from your family and above all good health in the years to come.

May your admirable work commitment last as long as possible.

Festina lente!

Professor Ivo Mařík, MD, Ph.D.
Chairman and members of the Committee of the Society for Connective Tissues of the CMA J. E. Purkynje

&

Petr Krawczyk, MD, Ph.D.
Chairman and members of the Committee of the Orthopaedic and Prosthetic Society of the CMA J.E. Purkynje

&

Prof. Štěpán Svačina, DrSc.
President of the CMA J. E. Purkyně

Piet van Loon, MD – anniversary 70 years

Orthopaedic surgeon fighting for "care to move" in Deventer and Hengelo, the Netherlands
e-mail: pvanloon@planet.nl
https://www.researchgate.net/profile/Piet-Van-Loon

Piet van Loon, MD at the Medical House in Prague, 12.9.2020

Dr. Piet van Loon was born on May 17, 1954 in Haarlem, the Netherlands. He graduated from the Medical Faculty of Free University of Amsterdam and decided practice and focus on orthopaedics. During his professional career, he gained experience in a number of clinical workplaces within the Netherlands.

After attestation, he worked as a consultant in the field of orthopaedics and vertebral surgery at the university and in many hospitals. His concepts are often inspired and based on the ideas of osteovertebral and osteoneural growth relationships studied by the Czech expert Prof. Milan Roth. He is also a founder and board member of Houding Netwerk Nederland since 2016 and Orthopedic Consultant "Care to Move" Orthopedic Clinic Deventer and Hengelo in the Netherlands.

Dr. Piet van Loon has studied and described crucial relationships in sitting such as decline in healthy posture, numerous spinal deformities, scoliosis, pathoanatomy and pathophysiology of spinal pain, stenosis, herniated discs, etc. He provides also numerous tips on healthy lifestyle for people of all ages, and suggests solutions for active sitting and exercises to correct patients' posture. Dr. Piet van Loon is even the inventor and patent holder of Brace for Spinal Deformities called TLI brace EPO as well as Sit Active device, as well as the Sit Active posture optimization device called „Zami". He specializes in function and biomechanics, based approaches on etiology-based interventions in musculoskeletal conditions, posture related and refining technique of TLI (thoracolumbar lordotic intervention) brace techniques for load-dependent postural malalignment problems like scoliosis and others following early thoracolumbar kyphosis.

In addition to his clinical practice, he also devotes time to publishing and lecturing. He is an author of about 50 scientific papers in international medical journals and numerous presentations at clinical conferences. A few of his outstanding publications were influenced by the lifetime work of Associate Professor Milan Roth DSc. We introduce two of his most appreciated papers:

VAN LOON P, VAN ERVE R. The Development of TLI (Thoracolumbar Lordotic Intervention) as an Effective Bracing Concept for the Postural Spinal Problems –A Review. J Spine, Vol 4, 2015, No. 3, 7 p. DOI: 10.4172/2165-7939.1000226.

VAN LOON PJ, GROTHENIUS JA. Legacy of Milan Roth: Osteoneural growth relations, the biomechanic and neurodynamic processes of physical body growth in vertebrates with tension as its tool to overcome gravity. Clinical implications of discongruent osteoneural growth. Locomotor System journal vol. 25, 2018, No. 1, p. 25–67.

Since 2018 he has been actively participating also at The Prague-Lublin-Sydney-St. Petersburg Symposium and Kubát´s days. Among other things, Piet is currently also a member of the Editorial board of the journal Locomotor System – Advances in Research, Diagnostics and Therapy and peer reviewer of the journal "Scoliosis". He holds a position in the management of a number of scientific societies with the interest in studying the spine and spinal deformities e.g. Scoliosevereniging (Dutch Scoliosis Association), European Spine Society, International Fellow Scoliosis Research Society, Society on Scoliosis Orthopedic and Rehabilitation Treatment SOSORT, various Dutch medical societies (KNMG/ FMS, DSS, NOV, NVOT).

For his lifelong efforts to advance the insight into the etiopathogenesis of skeletal deformities and for promoting the results of the work of Czech prof. Milan Roth the Society for Connective Tissues of the Czech Medical Association, J.E. Purkynje awarded dr. Piet van Loon an honorary membership

In 2021, during the 23rd Prague-Lublin Symposium, Dr. Piet van Loon was awarded the Honorary Medal of the Czech Medical Society J. E. Purkyně.

Dear Piet,

on the occasion of your jubilee, the Committee of Czech Medical Association (CMA) J. E. Purkynje decided to recognize your professional work and your close collaboration with an Honorary Membership of the CMA J.E. Purkynje. This award will be presented to you by Prof. Štěpán Svačina, MD, DSc., President of the CMA JEP.

We sincerely wish you good health, success in your scientific endeavors, and joy and contentment in your beautiful family. Thank you very much for your fruitful cooperation.

Professor Ivo Mařík, MD, Ph.D.
Chairman and members of the Committee of the Society for Connective Tissues of the CMA J. E. Purkynje

&

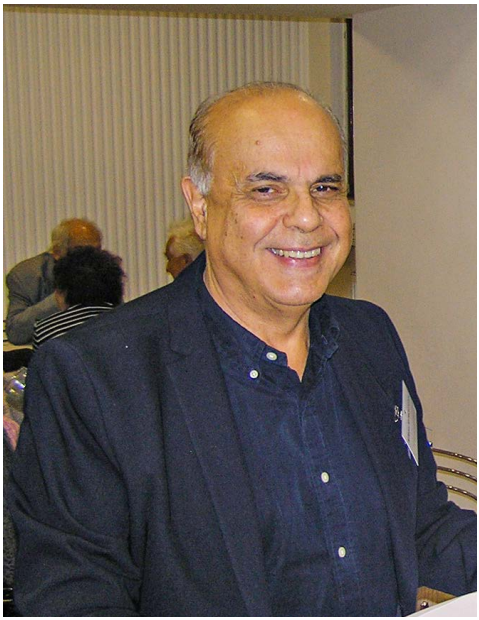
Petr Krawczyk, MD, Ph.D.
Chairman and members of the Committee of the Orthopaedic and Prosthetic Society of the CMA J.E. Purkynje

&

Prof. Štěpán Svačina, MD, DrSc,
President of the CMA J. E. Purkynje

Professor Ali Abdul Salam Awni Al-Kaissi, MD, MSc, DSc

Clinic for the diagnosis of diverse forms of congenital bone disorders in children and adults, Vienna, Austria
e-mail: kaissi707@gmail.com
https://www.researchgate.net/profile/Ali-Al-Kaissi
https://m.facebook.com/people/Ali-Al-Kaissi/100078996342924/



Prof. Ali Al-Kaissi was born in Baghdad, Iraq. He graduated in Egypt from Cairo University in 1978 where he obtained degree in Medicine and Surgery and then continued at the School of Medicine, University of Warwick in the United Kingdom (1987–1989) where he specialized on Paediatrics and later was clinically attached to Coventry-Warwickshire Hospital and Walsgrave Hospital (1987–1990).

Then he established the first center for early diagnosis of handicapping conditions in Tunisia (in 1991–2003) and with Prof. Franz Grill established also the first specialized clinic for the diagnosis of diverse forms of congenital bone disorders in children and adults (2004–2021).

Prof. Ali Al-Kaissi is specialized mainly in growth and bone disorders in children (obtained certificate, diploma and Master´s Degrees in this field) and is also an expert in congenital bone deformities, spine malformation, bone radiology and CT scans.

In the course of his professional career he has developed research partnerships with a number of clinical institutions e.g. H. Turner National Medical Research Center for Children's Orthopedics and Trauma Surgery in Saint Petersburg (Russia), National Ilizarov Medical Research Centre for Traumatology and Ortopaedics in Kurgan (Russia), Pediatric Kidney Clinic in Makhachkala (Russia), Department of Radiology of Sydney Children's Hospital (Australia) and currently he works in Vienna (Austria) like in Orthopädisches Spital Speising, Department of Pediatric Orthopaedics and Foot

Surgery or in Ludwig Boltzmann Institute for Osteology, First Medical Department of Hanusch Hospital in Vienna.

He published more than 180 research papers in international journals and achieved medical breakthrough in five diseases, one of which was even named after him as "Al Kaissi syndrome" (ALKAS – OMIM: 617694) which is an autosomal recessive developmental disorder characterized by growth retardation, spine malformation, particularly of the cervical spine, dysmorphic facial features, and delayed psychomotor development with moderate to severe intellectual disability. The others are: Al Kaissi et al, 3MC syndrome, (OMIM: 257920); Al Kaissi Novel Type of Desbuquois syndrome (OMIM: 251450); Al Kaissi Novel conception of Wormian Bones Diagnostics J. Basel– (2023). *https://www.researchgate.net/scientific-contributions/39876458_Ali_Al_Kaissi*

The Austrian Ministry of Scientific Research granted him the title of scientist and the Austrian Ministry of Health awarded him the title of expert on bone deformities in children. The Turner Orthopedic Research and Surgery Institute in St. Petersburg, Russia awarded him the degree of DSc, an honorary doctorate in bone deformities, and he was awarded also the Russian Gold Medal for Scientists and the Russian Gold Medal. Moreover, Prof. Ali Al-Kaissi was nominated as a honorary Professor at Ilizarov Medical Centre in Kurgan, Russia in 2021 too.

Last year, Professor Ali Al-Kaissi gave an interesting lecture entitled „Skeletal Disorders and the Misuse of the Term Idiopathic" at the 25th Prague-Lublin Symposium, which can be viewed by all colleagues interested in congenital musculoskeletal disorders at *http://www.pojivo.cz/cz/nase-akce/lectures-from-the-25th-prague-lublin-symposium/*.

He proposed to establish a research partnership in the field of genetic diagnosis of skeletal disorders. In the past years, together with professor Kazimierz Kozlowski (6 June 1928 – 11 December 22), we held a Case Presentation Conference once a year. We would like to renew this tradition.

We appreciate the valuable support of Professor Ali Al-Kaissi and his participation in international symposia, cooperation and close involvement in our team, and therefore we have proposed to award him the J. E. Purkynje with a diploma of honorary membership in the Society for Connective Tissues of the Czech Medical Association (CMA JEP).

This award will be presented on the occasion of The 26th Prague-Lublin Symposium on 15 November 2024.

Professor Ivo Mařík, MD, Ph.D.
Chairman of the Society for Connective Tissues of the CMA J. E. Purkynje

&

Petr Krawczyk, MD, Ph.D.
Chairman of the Orthopaedic and Prosthetic Society of the CMA J.E. Purkynje

Professor Milan Macek Jr. MD, DSc, M.H.A.

Professor Milan Macek Jr. MD, DSc, M.H.A. is the chairman of the largest academic medical / molecular genetics institution in the Czech Republic – Department of Biology and Medical Genetics of Charles University Prague-2nd School of Medicine and Motol University Hospital, and of the National Coordination Centre for Rare Diseases (*www.nkcvo.cz*; NKCVO) responsible for implementation of the ten year national strategy on rare diseases and resulting three national action plans. In addition, he is chairing the national Rare Disease Taskforce at the Ministry of Health.

In this capacity his institute has been serving as a "clearing centre" for the dissemination of knowledge gathered within various international projects on rare disease-related research and diagnostics (e.g. EuroGentest.org, RD-Connect.eu, Solve-RD.eu, Norway Grants) to partners in Eastern Europe, Transcaucasia and the Middle East. In this capacity Prof. Macek is also the Czech National coordinator of Orpha.net. In his capacity as chairman of NKCVO he assured that since 2017 Czechia is ranking first within EU13 in terms of participation in European Reference Networks (ERN) for rare diseases.

Prof. Macek is also the past President of the European Society of Human Genetics (*www.eshg,org; 2010-2011 ESHG*), currently serves at the ESHG liaison for European National Human Genetics Societies (*https://www.eshg.org/76.0.html*). Under his leadership medical genetics was recognized as an official EU specialty in the Professional Qualifications Directive in 2011. He also closely collaborated with the Council of Europe on the ratification of the Additional protocol on genetic testing for health purposes to the Oviedo convention (2019). He had also been the past-board member of the European Cystic Fibrosis Society (ECFS.eu; 2007-2014) and is the current member of the European Cystic Fibrosis Registry board (*https://www.ecfs.eu/ecfspr*), whereby he published seminal papers on the disparities in cystic fibrosis care between the "New" and "old" EU Member States. Moreover, he had also been the board member of the European Society of Human Reproduction and Embryology (*www.eshre.eu*; ESHRE) where he was responsible for three joint position statements of ESHG and ESHRE in the field of reproductive genetics as their senior author. Prof. Macek served at the European Commission Expert Group on Rare Diseases (formerly *www.eucerd.eu*) and is currently involved in the European Board of Member States for European Reference Networks for Rare Diseases (*https://ec.europa.eu/health/ern_en*), including the newly formed EU Advisory Board on ERN sustainability. He had also been member of the Diagnostic Committee of the International Rare Disease Consortium (*www.irdirc.org*). Prof. Macek is currently the president of the Czech Society

of Medical Genetics and Genomics (*www.slg.cz)*. Finally, he was the chief government advisor of the CZ EU Council presidency under which the EU Council recommendation on a field of action in rare diseases was been adopted in 2009. He has also been involved in the second CZ EU Council presidency in 2022 under which he organised key meetings aimed at the development of an updated policy framework for rare diseases (for more information - https://www.mzcr.cz/towards-a-new-european-policy-framework-building-the-future-together-for-rare-diseases/).

Prof. Macek did his postdoctoral studies at the Department of Medical and Human Genetics at Humboldt University Berlin (1989–1992) followed by McKusick-Nathans Centre for Genetic Medicine, Johns Hopkins University in Baltimore (1992–1996). In 1992 he was also a fellow at Harvard School of Medicine in the field of non-invasive prenatal diagnosis of rare diseases.

His main research and clinical interests are in the field of molecular genomics of rare diseases, including their deep phenotyping, and in ways on how to bring genomics knowledge to the bedside via targeted therapies with orphan medicinal products. He has also been involved in health economics "cost of illness" studies in this regard or in establishing recommendations for next generation sequencing. His citation index is over 11,000x with H–index of 38, with 33 peer reviewed publications within the last 5 years. He has been regularly invited as a speaker at ECFS.eu (4x) and ESHG.org (6x) conferences on various subjects within the last 5 years.

Professor Milan Macek Jr. MD, DSc, M.H.A. is the chairman of the largest academic medical / molecular genetics institution in the Czech Republic – Department of Biology and Medical Genetics of Charles University Prague-2nd School of Medicine and Motol University Hospital, and of the National Coordination Centre for Rare Diseases (*www.nkcvo.cz*; NKCVO) responsible for implementation of the ten year national strategy on rare diseases and resulting three national action plans. In addition, he is chairing the national Rare Disease Taskforce at the Ministry of Health. In this capacity his institute has been serving as a „clearing centre" for the dissemination of knowledge gathered within various international projects on rare disease-related research and diagnostics (e.g. EuroGentest.org, RD-Connect.eu, Solve-RD.eu, Norway Grants) to partners in Eastern Europe, Transcaucasia and the Middle East. In this capacity Prof. Macek is also the Czech National coordinator of Orpha.net. In his capacity as chairman of NKCVO he assured that since 2017 Czechia is ranking first within EU13 in terms of participation in European Reference Networks (ERN) for rare diseases.

Prof. Macek is also the past President of the European Society of Human Genetics (*www.eshg,org; 2010-2011 ESHG*), currently serves at the ESHG liaison for European National Human Genetics Societies (*https://www.eshg.org/76.0.html*). Under his leadership medical genetics was recognized as an official EU specialty in the Professional Qualifications Directive in 2011. He also closely collaborated with the Council of Europe on the ratification of the Additional protocol on genetic testing for health purposes to the Oviedo convention (2019). He had also been the past-board member of the European Cystic Fibrosis Society (ECFS.eu; 2007-2014) and is the current member of the European Cystic Fibrosis Registry board (*https://www.ecfs.eu/ecfspr*), whereby he published seminal papers on the disparities in cystic fibrosis care between the "New" and "old" EU Member States.

Moreover, he had also been the board member of the European Society of Human Reproduction and Embryology (*www.eshre.eu*; ESHRE) where he was responsible for three joint position statements of ESHG and ESHRE in the field of reproductive genetics as their senior author. Prof. Macek served at the European Commission Expert Group on Rare Diseases (formerly *www.eucerd.eu*) and is currently involved in the European Board of Member States for European Reference Networks for Rare Diseases (*https://ec.europa.eu/health/ern_en*), including the newly formed EU Advisory Board on ERN sustainability. He had also been member of the Diagnostic Committee of the International Rare Disease Consortium (*www.irdirc.org*). Prof. Macek is currently the president of the Czech Society of Medical Genetics and Genomics (*www.slg.cz)*. Finally, he was the chief government advisor of the CZ EU Council presidency under which the EU Council recommendation on a field of action in rare diseases was been adopted in 2009. He has also been involved in the second CZ EU Council presi-

Professor Milan Macek Jr. MD, DSc, M.H.A. on the 28th Kubath's day

dency in 2022 under which he organised key meetings aimed at the development of an updated policy framework for rare diseases (for more information – https://www.mzcr.cz/towards-a-new--european-policy-framework-building-the-future-together-for-rare-diseases/).

Prof. Macek did his postdoctoral studies at the Department of Medical and Human Genetics at Humboldt University Berlin (1989–1992) followed by McKusick-Nathans Centre for Genetic Medicine, Johns Hopkins University in Baltimore (1992–1996). In 1992 he was also a fellow at Harvard School of Medicine in the field of non-invasive prenatal diagnosis of rare diseases.

His main research and clinical interests are in the field of molecular genomics of rare diseases, including their deep phenotyping, and in ways on how to bring genomics knowledge to the bedside via targeted therapies with orphan medicinal products. He has also been involved in health economics "cost of illness" studies in this regard or in establishing recommendations for next generation sequencing.

His citation index is over 11,000x with H –index of 38, with 33 peer reviewed publications within the last 5 years. He has been regularly invited as a speaker at ECFS.eu (4x) and ESHG.org (6x) conferences on various subjects within the last 5 years.

The members of the Society for Connective Tissues of the Czech Medical Association J.E. Purkynje have been cooperating professionally with Professor Milan Macek, MD, DSc, M.H.A. for many years, especially in the field of rare disease diagnostics, which has achieved rapid development in recent years with the introduction of the next-generation sequencing method. Bringing the knowledge of genomics to patients through targeted treatment with orphan drugs is our common goal. We greatly appreciate the international all-embracing activities and outstanding scientific achievements of Prof. Macek.

By awarding the Diploma of Honorary Membership in the Society for Connective Tissues of the Czech Medical Association J.E. Purkynje, we want to highlight the interdisciplinary and international importance of the results of the lifelong hard work of our colleague Milan Macek and to thank him for his cooperation in the complex care of patients with genetic skeletal diseases.

Professor Ivo Mařík, MD, Ph.D.

Chairman of the Society for Connective Tissues of the Czech Medical Association J.E. Purkynje

ORLING

ZALOŽENO ROKU 1992

BIOAKTIVNÍ KOLAGENNÍ PEPTIDY REGENERUJÍ

Kolagen je nezbytný pro pohyblivost kloubů, stabilitu kostí, odolnost a pevnost vazů a šlach a také pro zdravé svaly a hojně se vyskytuje i v cévách, meziobratlových ploténkách, hematoencefalické bariéře a rohovce, dentinu a střevní stěně – kolagen je životně důležitá složka celého těla.

Kolagenní peptidy zvyšují syntézu kloubního kolagenu a proteoglykanů

Nejen sportovci jsou ve zvýšené míře náchylní ke kloubním problémům a léčba se u nich nijak neliší od jejího zvládání u běžné populace. Hlavním cílem je minimalizovat bolestivost a zlepšit funkčnost kloubů. Klinická studie provedená v Penn State University testovala účinek kolagenních peptidů na studenty sportovních škol, kteří trpěli kloubními problémy v důsledku mechanické zátěže. V porovnání s kontrolní skupinou došlo u studentů, kteří užívali kolagenní peptidy, k **výraznému snížení kloubních potíží a také ke zlepšení pohyblivosti.** Tyto pozitivní účinky byly patrné zejména u účastníků s problémy kolenních kloubů pocházejících z mechanické zátěže. *(Clark K. , Sebastianelli W., Flechsenhar K., Aukermann D., Meza F., Millard R., Deitch J., Sherbondy P., Affiliations A., 24-Week study on the use of collagen hydrolysate as a dietary supplement in athletes with activity-related joint pain, Curr Med Res Opin, 2008 May;24(5):1485-96)*

Významný je i vliv kolagenních peptidů na hustotu kostí, zejména u osob s osteoporózou či osteopenií, potvrzeno už v roce 2010 pilotní studií s doplňkem stravy Calcidrink®.

V této studii se řešil „Vliv suplementace kolagenními peptidy, vápníkem a vitaminem D, resp. Calcidrinkem® na úbytek kostní hmoty a remodelaci kosti u postmenopauzálních žen s osteopenií“ *(Ortopedie 2010, Gabriela Šimková, Revmatologická ambulance 1. PP Kladno)*. Výsledky byly velmi nadějné. U žádné pacientky se nevyskytly během sledovaného období jednoho roku žádné nové nízkozátěžové zlomeniny. Cílem bylo prokázat účinek pravidelného užívání přípravku Calcidrink (vitamin D, kalcium a kolagenní peptidy) na snížení úbytku kostní hmoty u postmenopauzálních žen s osteopenií. Výsledky studie tento efekt potvrdily.

Doplňky stravy Geladrink® a Calcidrink® s vysokým obsahem ověřených kolagenních peptidů Gelita®

Kolagenní peptidy Gelita® jsou obsaženy ve fyziologicky účinné dávce v originálních produktech české firmy Orling, s využitím všech nových poznatků ohledně jejich působení.

Prof. MUDr. Milan Adam, DrSc. byl první, kdo objevil obrovský potenciál kolagenních peptidů a v průběhu let jej další vědci a lékaři opakovaně prokázali a ještě rozšířili oblasti použití, pro které jsou kolagenní peptidy vhodné.

Prof. MUDr. Milan Adam, DrSc. Dr.h.c.
český revmatolog, zakladatel kloubní výživy Geladrink®

GELADRINK® a CALCIDRINK®
- PRO LEPŠÍ KVALITU ŽIVOTA

VYVINUTO A VYROBENO V ČESKÉ REPUBLICE

Více informací na WWW.ORLING.CZ

Právní služby poskytovatelům zdravotních služeb:

- obchodní právo - založení společnosti, transformace soukromé ordinace na společnost, registrace poskytovatele zdravotních služeb,
- konzultace v oblasti medicínského práva – školení personálu ve věcech vedení a nakládání se zdravotnickou dokumentací, informovaný souhlas pacienta,
- smluvní agenda – nájemní smlouvy, kupní a úvěrové smlouvy, smlouvy o službách,
- smlouvy se zdravotními pojišťovnami – úprava smluvních dokumentů, korekce plateb,
- otázky náhrady škody na zdraví a z titulu zásahu do osobnostních práv – konzultace vznesených nároků, jednání s pacienty, zastupování v soudním řízení,
- a všechny další otázky, s nimiž se poskytovatelé zdravotních služeb v praxi setkávají

V případě zájmu o nezávaznou konzultaci a poskytnutí bližších informací nás neváhejte kontaktovat.

SVOBODA & KUČERA | ADVOKÁTI

AK Kučera s.r.o. | Stavitelská 1099/6, 160 00 Praha 6 | T +420 222 965 861 | M +420 731 510 675 | E kucera@sk-advokati.cz | W www.sk-advokati.cz

PROTEOR CZ

PROTEOR CZ s. r. o. – nestátní zdravotnické zařízení

Ostrava | U Parku 2/2720 | 702 00 Ostrava | tel.: 596 139 259, 596 139 295

Provozovna Olomouc | Mošnerová 7/1184 | 779 00 Olomouc | tel.: 585 414 776, 585 414 823

Provozovna Brno | Milady Horákové 50 | 602 00 Brno | tel. 733 184 083

E | ostrava@proteorcz.cz | olomouc@proteorcz.cz | brno@proteorcz.cz | **www.proteorcz.cz**

lékařská péče v oborech ortopedie a ortopedická protetika ● zdravotní péče v ortotice a protetice ● konsilia pro zdravotnická zařízení ● výjezdová pracoviště v kraji ● zakázková činnost pro zdravotnická zařízení ● skoliotická poradna pro léčbu skolióz páteře mladistvých ● aplikace a výroba individuálních ortopedických vložek pro sport ● výroba individuálních zdravotnických prostředků – protéz končetin, ortéz, ortopedických vložek ● podologická poradna pro pacienty s problémy nohou (syndrom diabetické nohy, bolesti nohou) ● specializované centrum pro aplikaci a výrobu myoelektrických protéz horních končetin