



26TH ANNUAL MEETING OF THE DUTCH SOCIETY FOR CALCIUM AND BONE METABOLISM

Zeist, the Netherlands
November 9-10, 2016



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PROGRAM AND ABSTRACTS

26TH ANNUAL MEETING OF THE DUTCH SOCIETY FOR CALCIUM AND BONE METABOLISM

November 9-10, 2016

Woudschoten Conference Centre

Woudenbergseweg 54, Zeist
The Netherlands

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Organisation

DUTCH SOCIETY FOR BONE AND CALCIUM METABOLISM

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Bram van der Eerden, Treasurer

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PROGRAM

12.00-12.45 *Registration + lunch*

12:45-12:50 *Word of welcome, by Carola Zillikens*

SESSION I: Rare Bone Diseases

Chairs: Marelise Eekhoff & Coen Netelenbos

12.50-13.01 **Two siblings with dwarfism, X-linked hypophosphatemia and chondroid tumors** *p.17*

M. Carola Zillikens
Erasmus MC, Internal Medicine, Endocrinology

13.01-13.12 **Patient with osteoarthritis due to a gain-of-function OPG mutation have affected osteoclastogenesis** *p.17*

Sara Sprangers¹, Y. Ramos², T. Schoenmaker¹, Y. Cao¹, V. Everts¹, I. Meulenbelt², T. J. de Vries¹
¹Oral Cell Biology and Periodontology, ACTA-VU, MOVE Research Institute, Amsterdam ²Medical Statistics and Bioinformatics, Molecular Epidemiology, LUMC, Leiden

13.12-13.27 **Fibrous Dysplasia**

Natasha Appelman-Dijkstra
Center for Bone Quality Leiden University Medical Center,
Department of Medicine: Division Endocrinology

13.27-13.38 **Increased Risk of Breast Cancer in Polyostotic Fibrous Dysplasia and McCune-Albright Syndrome** *p.18*

Bas Majoor¹, Olaf M. Dekkers^{3,4}, Sander Dijkstra¹, Judith Bovee², Vincent Smit², Neveen Hamdy³, Natasha Appelman-Dijkstra³
Center for Bone Quality Leiden University Medical Center, ¹ Department of Orthopaedic Surgery, ² Department of Pathology, ³ Department of Medicine: Division Endocrinology, ⁴ Department of Epidemiology

13.38-13.49 **Quantitative Bone SPECT/CT Clinically Applied in Patients with Sternocostoclavicular Hyperostosis (SCCH)** *p.18*

Pieter Valkema^{1,2}, Martijn van Heugten¹, Marcel Segbers², Natasha Appelman-Dijkstra¹, Dennis Vriens³, Petra Dibbets-Schneider³, Floris van Velden³, Pancras Hogendoorn⁴, Neveen Hamdy¹, Roelf Valkema²
¹LUMC, Medicine, division of Endocrinology, ²EMC, Nuclear Medicine, ³LUMC, Nuclear Medicine, ⁴LUMC, Pathology

- 13.49-14.09 **Osteogenesis Imperfecta**
Gerard Pals
VUmc, Clinical Genetics, Amsterdam
- 14.09-14.24 **Fibrodysplasia Ossificans Progressiva**
Nathalie Bravenboer
VUmc, Clinical Chemistry, Amsterdam
- 14.24-14.35 **Activation of the ACVR1 (R206H) receptor by activin A in human primary dermal fibroblasts of fibrodysplasia ossificans progressiva patients** *p.19*
Dimitra Micha¹, Vinitha Kandiah¹, Coen Netelenbos², Teun de Vries³, Marelise Eekhoff², Nathalie Bravenboer⁴, Gerard Pals¹
¹ VUmc, Clinical Genetics; ² VUmc, Internal Medicine; ³ ACTA-VU, Oral Cell Biology; ⁴ VUmc, Clinical Chemistry
- 14.35-14.44 **Paradigm shift: jaw surgery in selected fibrodysplasia ossificans progressiva patients could offer better quality of life and precede drug treatment trial, a case study*** *p.19*
Coen Netelenbos*¹, Pieter Raijmakers¹, Adriaan Lammerstma¹, Nathalie Bravenboer¹, Dimitra Micha¹, Robert van Es^{1,2}, Marelise Eekhoff¹ FOP Expert Center VUmc Amsterdam, ²UMC Utrecht, The Netherlands
- 14.44-15.15 **Coffee/Tea break**

SESSION II

Chair: Bas Majoor

- 15.15-15.26 **Complete remission of mammarian parathyroid hormone related protein (PTH-rP) induced hypercalcemia of pregnancy by dopamine agonist application.** *p.20*
Elizabeth Winter, Natasha Appelman-Dijkstra
LUMC, Department of Internal Medicine: division of Endocrinology and Center for Bone Quality
- 15.26-15.37 **The association between dietary protein intake, dietary quality and physical frailty - the Rotterdam Study** *p.20*
Josje Schoufour¹, Trudy Voortman¹, Lies Lahousse^{1,2}, Guy Brusselle^{1,3}, Bruno Stricker¹ Fernando Rivadeneira^{1,3}, Oscar Franco¹
¹ Epidemiology, Erasmus MC, Rotterdam, ² Respiratory Medicine, Ghent University Hospital, Ghent, Belgium, ³Internal Medicine, Erasmus MC, Rotterdam

- 15.37-15.48 **Gingival Fibroblasts play a Role in the Retention and Survival of Leukocytes during Osteoclastogenesis** *p.21*
 Carolyn G.J Moonen¹, Elena A. Nicu¹, Hetty J. Bontkes², Bruno G. Loos¹, Teun J. de Vries¹
¹Department of Periodontology, ²Oral Cell Biology, ACTA, University of Amsterdam and VU University
- 15.48-15.59 **Genome-wide association meta-analysis identify two novel loci for second to fourth digit ratio variation an indicator of prenatal androgen exposure** *p.21*
 Enisa Shevroja^{1,2}, Carolina Medina-Gomez^{1,2}, Cindy G. Boer¹, Katerina Trajanoska^{1,2}, Vincent W. V. Jaddoe², Andre G. Uitterlinden¹, Joyce B. J. van Meurs¹, Fernando Rivadeneira^{1,2}
¹Erasmus MC, Internal Medicine, Rotterdam, The Netherlands, ²Erasmus MC, Epidemiology, Rotterdam, The Netherlands
- 15.59-16.10 **Hydroxychloroquine affects bone resorption both *in vitro* and *in vivo*** *p.22*
 Tim Both¹, Marijke Koedam², Carola Zillikens², Jan van Laar¹, Virgil Dalm¹, Hans van Leeuwen², Martin van Hagen¹, Paul van Daele¹, Bram van der Eerden²
 Internal Medicine, ¹Division of Clinical Immunology and ²Endocrinology, Erasmus Medical Center, Rotterdam
- 16.10-16.21 **The association between the use of insulin and volumetric bone mineral density, bone micro-architecture and bone strength of the distal radius –The Maastricht Study** *p.22*
 Ellis de Waard¹, Annemariëk Driessen^{2,3}, Joost de Jong¹, Tineke van Geel⁴, Ronald Henry¹, Hein van Onzenoort², Miranda Schram¹, Pieter Dagnelie¹, Carla van der Kallen¹, Simone Sep¹, Coen Stehouwer¹, Nicolaas Schaper¹, Annemarie Koster⁵, Hans Savelberg⁶, Cees Neef², Frank de Vries^{2,3,7}, Joop van der Bergh^{1,8}
¹MUMC+, Internal Medicine, ²MUMC+, Clinical Pharmacy and Toxicology, ³Utrecht Institute of Pharmaceutical Sciences, ⁴Maastricht University, Family Medicine, ⁵Maastricht University, Social Medicine, ⁶Maastricht University, Human Movement Sciences, ⁷Southampton General Hospital, MRC Epidemiology Lifecourse Unit, ⁸VieCuri, Internal Medicine
- 16.21-16.40 **Coffee/tea break**

SESSION III

Chair: Liesbeth Winter

- 16.40-16.51 **Genetic Mouse Models for Periodontitis** *p.23*
Stefano Andreotta¹, Elena Nicu¹, Bruno Loos¹, Teun de Vries¹
¹ACTA-UvA and VU, Periodontology
- 16.51-17.02 **Evolution of bone mineral density in human populations** *p.23*
Manuel Ferrando^{1,2}, Iago Maceda^{1,2}, Beatriz Cadenas^{1,2},
Carolina Medina-Gomez^{3,4}, Fernando Rivadeneira^{3,4}, Oscar
Lao^{1,2}
¹Barcelona Institute of Science and Technology, Centre for
Genomic Regulation, Barcelona, Spain. ² Universitat
Pompeu Fabra, Barcelona, Spain.
³ Erasmus MC, Department of Internal Medicine Rotterdam,
The Netherlands.
⁴ Erasmus MC, Department of Epidemiology, Rotterdam, The
Netherlands.
- 17.02-17.13 **Effects of in vivo axial mechanical loading in vitamin D
deficient and estrogen deficient rats: mRNA expression
of genes involved in phosphate metabolism in rat bone** *p.24*
Ashwini Kumar Nepal¹, Huib van Essen¹, Albert van der
Veen³, Wessel van Wieringen⁴, Gerard Pals⁵, Paul Lips²,
Nathalie Bravenboer¹
Clinical Chemistry¹, Endocrinology², Physics and Medical
Technology³, Epidemiology and Biostatistics⁴, Clinical
Genetics⁵, VUmc Amsterdam
- 17.13-17.24 **Prevalence of sarcopenia according to different
consensus definitions in patients with a recent clinical
fracture** *p.24*
Caroline Wyers^{1,2}, Lisanne Vranken^{1,2}, Robert van der
Velde^{1,2}, Piet Geusens^{1,3}, Joop van den Bergh^{1,2,3}
¹Maastricht UMC+, Internal Medicine, ²VieCuri Medical
Center, Internal Medicine, Hasselt University, Faculty of
Medicine and Life Sciences
- 17.24-17.35 **Genome-wide association study of heel bone mineral
density in the large-scale UK-Biobank Study identifies
over 376 eBMD loci** *p.25*
John P. Kemp^{1*}, Carolina Medina-Gómez^{2*}, John A. Morris^{3*},
Celia L. Gregson⁴, Vincenzo Forgetta², Katerina Trajanoska³,
Nicole M. Warrington¹, Jie Zheng⁷, Stephen K. Kaptoge⁵,
Jonathan H. Tobias⁴, Cheryl L. Ackert-Bicknell⁶, J. Brent
Richards^{2*}, Fernando Rivadeneira^{2*} and David M. Evans^{1,7*}
¹University of Queensland Diamantina Institute, Translational
Research Institute, Brisbane, Australia, ²ErasmusMC, Internal
Medicine, Rotterdam, The Netherlands, ³McGill University,
Medicine, Human Genetics, Epidemiology and Biostatistics,
Montréal, Canada, ⁴University of Bristol, School of Clinical

Sciences, Bristol, United Kingdom, ⁵University of Cambridge
Public Health and Primary Care, Cambridge, UK, ⁶University
of Rochester, Center for Musculoskeletal Research,
Rochester, USA, ⁷University of Bristol MRC Integrative
Epidemiology Unit, Bristol, UK., *Equal contribution

17.35-17.46 **Diagnosis of Thoracic Vertebral Fractures: Comparison
of X-ray, DXA and CT** *p.25*

Mayke van Dort¹, Lisette Romme², Frank Smeenk², Piet
Geusens¹, Bert van Rietbergen³,
Joop van den Bergh^{1,4}

¹ MUMC, Internal Medicine, ² Catharina Hospital Eindhoven,
Respiratory Medicine, ³ TU/e, Medical Engineering, ⁴ VieCuri
MC Venlo, Internal Medicine

18.15-20.00 ***Dinner***

20.00-21.00 ***Business meeting***

07.30-08.30 **Breakfast**

08.00-08.30 **Registration**

SESSION IV

Chair: Carolyn Moonen

- 08.30-09.20** **Key-note lecture:**
Adipose stem cells for cartilage and bone tissue engineering;
development and clinical implementation of a one-step
surgical concept
Dr M.N. (Marco) Helder
Dept. of Oral & Maxillofacial Surgery, VU University Medical
Center
- 09.20-09.31** **Tumor induced osteomalacia: a case report** p.26
Annegreet Veldhuis-Vlug¹, Peter Bisschop¹
¹AMC, Endocrinology and Metabolism
- 09.31-09.42** **Clinical Correlates and Prevalence of Sarcopenia and** p.26
Osteosarcopenia: the Rotterdam Study
Katerina Trajanoska^{1,2}, Josje D Schoufour¹, Sirwan KL
Darweesh¹, Carolina Medina-Gomez^{1,2}, Lies Lahousse^{1,3}, Guy
Brusselle^{1,3}, Bruno Stricker¹, M Carola Zillikens¹, Andre G
Uitterlinden², M Arfan Ikram^{1,4}, Oscar H Franco¹, Fernando
Rivadeneira^{1,2}
¹Department of Epidemiology, ErasmusMC, Rotterdam, the
Netherlands, ²Department of Internal Medicine, ErasmusMC,
Rotterdam, the Netherlands ³Department of Respiratory
Medicine, Ghent University Hospital, Ghent University
⁴Department of Neurology, Erasmus MC Rotterdam, the
Netherlands
- 09.42-09.53** **Improving Orthopedic Implant Surfaces; from *In Silico*** p.27
Topography Design to Enhanced Bone Bonding *In Vivo*
Nick Beijer, Frits Hulshof, Aliaksei Vasilevich, Jan de Boer
cBITE-MERLN, Maastricht university
- 09.53-10.15** **Coffee/tea break**

SESSION V

Chairs: Lisanne Vranken & Ellis de Waard

- 10.15-10.26 **Screening for Atypical Femur Fractures using extended femur scans by DXA** *p.27*
Denise van de Laarschot, Sandra Smits, Sanne Buitendijk, M. Carola Zillikens
Erasmus MC, Internal Medicine
- 10.26-10.37 **Positive Effects of Vitamin D in Bone Metastases: Role for Extracellular Vesicles?** *p.28*
Marjolein van Driel¹, Iris Robbesom¹, Resti Rudjito¹, Hans van Leeuwen²
¹Erasmus MC, Internal medicine, ²Erasmus MC, Research and Education
- 10.37-10.48 **Vitamin D Supplementation To Prevent Depression And Poor Physical Function In Older Persons: Results Of The D-Vitaal Study, A Randomized Placebo-Controlled Trial** *p.28*
Elisa de Koning^{1,2}, Natasja van Schoor^{1,2}, Harm van Marwijk^{2,3,4}, Petra Elders^{2,4}, Brenda Penninx^{2,5}, Paul Lips^{2,6}
¹ VUmc, Dpt. of Epidemiology and Biostatistics; ² VUmc, EMGO Institute for Health and Care Research; ³ University of Manchester (UK), Primary Care Research Centre, Institute of Population Health; ⁴ VUmc, Dpt. of General Practice and Elderly Care Medicine; ⁵ VUmc / GGZ inGeest, Dpt. of Psychiatry; ⁶ VUmc, Internal Medicine, Endocrine section.
- 10.48-10.59 **The Human Hypergravity Habitat, H³, research platform** *p.29*
Jack J.W.A. van Loon^{1,2,3}, Nathalie Bravenboer², Marelise Eekhoff², Dieter Felsenberg³, Gabriele Armbrecht³, Daniel Belavy⁴, Laurence Vico⁵.
¹ACTA Amsterdam, NL. ²VUmc, Amsterdam, NL, ESA-ESTEC, Noordwijk, NL. ³Charité Univ. Medicine, Berlin, DE. ⁴Deakin University, Burwood, AU. ⁵INSERM, Univ. Lyon, St-Etienne, FR.
- 10.59-11.10 **An Integrated Functional -Omics Framework To Identify Molecular Pathways Underlying Genome-Wide Association Signals Of Skeletal Traits** *p.29*
Maša Zrimšek^{1,2}, Sjur Reppe^{3,4}, John Morris⁵, Brent Richards⁵, Carolina Medina-Gomez¹, Joost Verlouw¹, Jeroen Van Rooij¹, Cindy Boer¹, Kaare Gautvik^{3,4}, André G. Uitterlinden¹, Janja Marc², Bram van der Eerden¹ and Fernando Rivadeneira¹
¹ Internal medicine, Erasmus MC, Rotterdam, ² Clinical Biochemistry, Faculty of Pharmacy, University of Ljubljana, Slovenia, ³ Institute of Basic Medical Sciences, University of Oslo, Norway, ⁴ Ullevaal University Hospital, Clinical Biochemistry, Oslo, Norway, ⁵ Human Genetics, McGill University, Montreal, Quebec, Canada

- 11.10-11.21 **Associations of serum 25-hydroxyvitamin D with markers of systemic inflammation and the influence of adiposity** *p.30*
 Rachida Rafiq¹, Hassana El Haddaoui¹, Renée de Mutsert², Frits Rosendaal², Pieter Hiemstra³, Christa Cobbaert⁴, Martin den Heijer¹, Renate de Jongh¹.
¹VUMC, Internal Medicine and Endocrinology, ²LUMC, Clinical Epidemiology, ³LUMC, Pulmonology, ⁴LUMC, Clinical Chemistry
- 11.21-11.32 **Association between vitamin D status, lung function and common cold** *p.30*
 Willemien Thijs¹, Rachida Rafiq², Renée de Mutsert³, R. Prein¹, Frits R. Rosendaal³, Christian Taube¹, Pieter S. Hiemstra¹ and Martin den Heijer^{2,3}
¹ LUMC, Pulmonology, ²VUmc, Endocrinology, ³LUMC, Clinical Epidemiology
- 11.32-11.43 **Quantification of bone marrow adipose tissue using gradient-echo MR imaging.** *p.31*
 Kerensa Beekman^{1,2}, Martine Regenboog^{1,3}, Erik Akkerman¹, Nathalie Bravenboer^{4,5}, Peter Bisschop³, Carla Hollak³, Mario Maas¹.
¹AMC/UvA, Department of Radiology, ²VUmc, Department of Endocrinology, ³AMC/UvA, Department of Endocrinology and Metabolism, ⁴Vumc, Department of Clinical Chemistry, ⁵LUMC, Department of Endocrinology
- 11.43-11.54 **TNF- α prevents osteoclast formation by mouse monocytes due to interfering with RANKL- RANK interaction** *p.31*
 Yixuan Cao¹, Ineke DC Jansen², Sara Sprangers¹, Teun J. de Vries², Vincent Everts¹
¹Department of Oral Cell Biology and ²Periodontology, ACTA, UvA and VU University, Amsterdam, MOVE Research Institute, Amsterdam, The Netherlands
- 11.54-13.00 **Lunch**

SESSION VI

Chair: Katerina Tranjanoska

- 13.00-13.50 **Key-note lecture:**
 Technology inspired solutions for bone and cartilage repair.
Prof dr H.B.J. (Marcel) Karperien
 University of Twente

- 13.50-14.01 **Genetic basis of skeletal and dental maturity in children of school age: The Generation R Study** *p.32*
 Olja Grgic^{1,2,3}, Carolina Medina-Gomez^{1,2}, Bruna Dharmo^{1,3}, Katerina Trajanoska^{2,5}, Strahinja Vucic^{1,3}, Edwin M. Ongosuwito³, Edwin H.G.Oei⁴, Janine F. Felix¹, Vincent W. V. Jaddoe¹, Andre G. Uitterlinden^{1,2}, Eppo B. Wolvius^{1,3}, Fernando Rivadeneira^{1,2}
¹EMC, The Generation R Study Group, ²EMC, Internal Medicine, ³EMC, Oral & maxillofacial surgery, special dental care and orthodontics, ⁴EMC, Department of Radiology & Nuclear Medicine
- 14.01-14.12 **Effects of chronic estrogen administration in the ventromedial nucleus of the hypothalamus (VMH) on fat and bone metabolism in ovariectomized rats** *p.32*
 Zhi Zhang¹, J. Liu^{1,5}, A.G. Veldhuis-Vlug¹, Y. Su², E. Foppen¹, B.C.J. van der Eerden³, M. Koedam³, N. Bravenboer⁴, A. Kalsbeek^{1,2}, A. Boelen¹, E. Fliers¹, P.H. Bisschop¹
¹ Department of Endocrinology and Metabolism, Academic Medical Center (AMC), University of Amsterdam, ² Hypothalamic Integration Mechanisms, Netherlands Institute for Neuroscience (NIN), Amsterdam, ³ Department of Internal Medicine, Erasmus Medical Center, Rotterdam, ⁴ Department of Clinical Chemistry, VU University Medical Center, Research Institute MOVE, Amsterdam, ⁵Child Health Institute of New Jersey, Robert Wood Johnson Medical School, Rutgers University, New Jersey, USA
- 14.12-14.23 **Human Osteoblast-derived Extracellular Matrix with High Homology to Human Bone Proteome Enhances the Osteogenic Potential of Mesenchymal Stromal Cells** *p.33*
 Marta Baroncelli¹, Siddharth Chatterji¹, Rodrigo Alves¹, Jeroen Demmers², Jeroen van de Peppel¹, Hans van Leeuwen¹
¹Erasmus MC, Internal Medicine, ²Erasmus MC, Proteomic Center
- 14.23-14.34 **The phenotype of patients with a recent fracture: a literature survey of the Fracture Liaison Service** *p.33*
 Lisanne Vranken^{1,2}, C.E. Wyers^{1,2}, P.P.M.M. Geusens^{3,4}, J.P.W. van den Bergh^{1,2,4}
¹Internal Medicine, VieCuri Medical Centre, Venlo ²Internal Medicine, NUTRIM School of Nutrition and Translational Research in Metabolism, Maastricht UMC, Maastricht ³Internal Medicine, Subdivision Rheumatology, CAPHRI, Maastricht UMC, Maastricht, ⁴Biomedical Research Centre, Hasselt University, Diepenbeek, Belgium
- 14.34-14.50 **Coffee/tea break**

SESSION VII

Chair: Zhi Zhang

- 14.50-15.40 Key-note lecture:**
Developmental Origin of Health and Disease (DOHaD):
Impact of pre- and perinatal circadian disturbance
on adult bone
Prof Dr G.T.J. (Bert) van der Horst
ErasmusMC Rotterdam
- 15.40-15.51 Effect of Pre-analysis Conditions and Performance of Different Plasma n-oxPTH Assays** *p.34*
Stan Ursem¹, Marc Vervloet², Jacquélien Hillebrand³, Renate de Jongh⁴, Annemieke Heijboer¹
¹VUmc, Clinical Chemistry, ²VUmc, Nephrology, ³AMC, Clinical Chemistry, ⁴VUmc, Endocrinology
- 15.51-16.02 Changes in Bone Micro-Architecture during CRPS-development after a distal radius fracture: A Case Report** *p.35*
Frans Heyer^{1,2}, Joost de Jong³, Paul Willems⁴, Rob Smeets⁵, Jacobus Arts⁴, Martijn Poeze¹, Piet Geusens^{3,6}, Bert van Rietbergen⁷, Joop van den Bergh^{2,3,6}
¹MUMC+, General Surgery, ²VieCuri MC, Internal Medicine, ³MUMC+, Rheumatology, ⁴MUMC+, Orthopaedic Surgery, ⁵MUMC+, Rehabilitation Medicine, ⁶UHasselt, Life Sciences, ⁷TU/e, Biomedical Engineering
- 16.02-16.13 Dissection of human mesenchymal stem cell population heterogeneity using single cell gene expression analysis** *p.35*
Jeroen van de Peppel, Hans van Leeuwen
Bone and Calcium research group, Internal Medicine, Erasmus MC, Rotterdam
- 16.13-16.24 High Expression of Osteocyte Specific Markers in Human Bone Chips Cultures** *p.36*
Huib van Essen¹, Janak Pathak², Jenneke Klein Nulend³, Astrid Bakker³, Nathalie Bravenboer¹
¹ Clinical Chemistry, VU university Medical Center, Research Institute Move; ²Molecular and Cellular Pharmacology, School of Pharmaceutical Science and Technology; ³Oral Cell Biology, ACTA, Research Institute Move;
- 16.24-16.45 Awards and Adjournment**