

Department of Orthopedics in the Malteser Waldkrankenhaus St. Marien

Division of Orthopedic Rheumatology

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Head of Division

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Research Focus

- Arthroscopic synovectomy
- Dynamic pedobarography
- Endoprostheses for degenerative and inflammatory joint diseases
- Mechanisms of chondrocyte differentiation and endochondral ossification

Structure of the Division

Professorships: 1

Personnel: 3

- Doctors (of Medicine): 2
- Scientists: 0
- Graduate students: 0

Clinical focus areas

Clinical activities focus on arthritis surgery of patients with degenerative and inflammatory joint diseases. Besides joint preserving operations the Division of Orthopedic Rheumatology concentrates on joint arthroplasties of the lower extremities (hip and knee). Furthermore, this division treats patients with rare diseases of the synovia (synovial joint chondromatosis, pigmented villonodular synovitis, etc.). The division of orthopedic rheumatology is audited as a center for arthritis surgery since June 2015.

Research

Clinical research still focusses on the outcome of arthroscopic synovectomies as well as joint replacements of hip and knee. Basic osteoarthritis research (in cooperation with Prof. Dr. K. Gelse, department of traumatology) works on chondrocyte differentiation in human osteoarthritis. Dynamic pedographic measurements, which started on rheumatoid patients, investigate meanwhile also pathologies in soccer players.

Arthroscopic synovectomy

Project managers: Prof. Dr. B. Swoboda

Clinical studies investigated the effect of arthroscopic synovectomies in patients with rheumatoid arthritis. Arthroscopic synovectomies of the knee joint were combined with a radiosynoviorthesis. The long-term effect of this procedure was evaluated using joint

replacement as an endpoint.

Endoprostheses for degenerative and inflammatory joint diseases

Project managers: Dr. A. Jendrissek, Prof. Dr. B. Swoboda

Clinical studies are conducted on the clinical outcome of large joint arthroplasty, especially in patients with degenerative and inflammatory joint diseases. For this purpose, different preoperative findings, surgical requirements, postoperative outcome, and patient satisfaction are compared.

Dynamic Pedobarography

Project managers: Dr. T. Hotfiel,

Dynamic Pedobarography has been considered as an important measurement device and has been used in various orthopedic and biomechanic investigations. Dynamic pedobarography enables to assess various kinetic parameters such as pressure, force or contact-time in the interface between the plantar skin and the measurement surface. It can be used in different conditions such as walking, running or specific movements. Increased and asymmetric plantar pressure conditions can be seen as risk factors for the development of metatarsal stress fractures or plantar ulcers and is associated with prolonged and complicated recurrence of existing tissue damages. Moreover the assessment of foot loads can be helpful for the evaluation of orthotic devices or given weight bearing conditions in the field of rehabilitation.

- Systematic comparison of foot pressure conditions between insole and platform based pedobarography systems
- Plantar pressure distributions in adolescent and professional adult soccer players
- Assessing foot load distribution during rehabilitation and strengthening exercises

Teaching

The Division of Orthopedic Rheumatology offers lectures on obligatory and optional topics. Students can take part in orthopedic operations. The division offers hands on examination courses.

Selected Publications

Mazur F, Swoboda B, Carl HD, Lutter C, Engelhardt M, Hoppe MW, Hotfiel T, Grim C. Plantar pressure changes in hindfoot relief devices of different designs. *J Exp Orthop.* 2019; 6 (1):7

Krüger K, Schmid S, Paulsen F, Ignatius A, Klinger P, Hotfiel T, Swoboda B, Gelse K. Trefoil Factor 3 (TFF3) Is Involved in Cell Migration for Skeletal Repair. *Int J Mol Sci.* 2019; 20(17):4277.

Stolz B, Grim C, Lutter C, Gelse K, Schell M, Swoboda B, Carl HD, Hotfiel T. Assessing Foot Loads in Continuous Passive Motion (CPM) and Active Knee Joint Motion Devices. *Sportverletz Sportschaden.* 2019 Feb 21. doi: 10.1055/a-0648-

8699. Online ahead of print. PMID: 30791084

Hotfiel T, Golditz T, Wegner J, Pauser J, Brem M, Swoboda B, Carl HD. A cross-sectional study on foot loading patterns in elite soccer players of different ages. *J Back Musculoskelet Rehabil.* 2020; 33(6):939-946.

Kiltz U, Braun J; DGRh, Becker A; DEGAM, Chenot JF, Dreimann M; DWG, Hammel L; DVMB, Heiligenhaus A; DOG, Hermann KG; DRG, Klett R; DGMM, Krause D, Kreitner KF, Lange U; DGPMMR/DGRW, Lauterbach A; Physio Deutschland, Mau W, Mössner R; DDG, Oberschelp U; DGOOC, Philipp S, Pleyer U, Rudwaleit M, Schneider E, Schulte TL, Sieper J, Stallmach A; DGIM, Swoboda B; DGOOC/DGORh, Winking M; DGNC. [Long version on the S3 guidelines for axial spondyloarthritis including Bechterew's disease and early forms, Update 2019 : Evidence-based guidelines of the German Society for Rheumatology (DGRh) and participating medical scientific specialist societies and other organizations]. *Z Rheumatol.* 2019 ;78(Suppl 1):3-6

International Cooperations

Prof. Dr. T. Kirsch, PhD, Department of Orthopedic Surgery, Director of the Musculoskeletal Research Center NYU Hospital for Joint Diseases, New York City: USA