

Center for Implant and Related Research Oslo

Annual Report 2022



Group Leaders



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Division of Orthopaedic Surgery, OUH, Board member of the Norwegian arthroplasty
Registry, (UXRHST@ous-hf.no), Vice president of the Int. RSA society



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Head of the research and development unit of the Division of Orthopaedic Surgery, OUH
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Group Members

Senior members:

- Anselm Schultz, MD, PhD, OUH
- Vera Halvorsen, MD, OUH
- Marianne Westberg MDT/PhD, OUH
- Jan Egil Brattgjerd, MD, OUH
- Finnur Snorrason, MD/PhD, OUH

Alumni (PhD):

- Wender Figwed, MD/PhD Bærum Hospital (2010)
- Berte Bøe, MD/PhD, OUH (2012)
- Einar Lindalen, MD/PhD Lovisenberg Hospital (2013)
- Jon Dahl, MD/PhD, OUH (2014)
- Thomas Kibsgård, MD/PhD, UiO and OUH (2014)
- Bernhard Flatøy, MD/PhD, Diakonhjemmet hospital (2018)
- Eirik Aunan, MD, Lillehammer hospital (2019)
- Justin van Leeuwen, MD, Helse Førde Lerdal hospital (2019)
- Gunnar Petursson, MD, Lovisenberg Hospital (2019)
- Ole-Christian Brun, MD, Lovisenberg Hospital (2021)
- Frank David Ørn, MD, Kristiansund Hospital (2022)
- Peder Thoen, MD, Tønsberg hospital (2022)

PhD candidates:

- Trygve Glad, MD, OUH
- Alexander Fraser, MD, Diakonhjemmet hospital
- Carl Erik Alm, MD, OUH, LIS
- Vinjar Brenna Hansen, MD, OUH
- Yasser Rehman, MD, Lovisenberg hospital
- Lars Engseth, MD, Oslo University hospital
- Engelke Randers, MD, OUH
- Magnus Poulsen, MD, OUH

Group Members (continued)

Single project candidate:

- Magnus Høgevold, MD, Diakonhjemmet Hospital

Radiographers:

- Alexis Hinohosa, CT and MRI Radiographer, OUH
- Mona Risdal, CT Radiographer, Application Specialist CT, OUH

Research coordinators:

- Marte Traae Magnusson, PT, MSc, OUH

Research profile and aims

The overall aim of CIRRO is to perform sophisticated basic and clinical research in the field of orthopaedic surgery, imaging science and bone turnover, establish a team of dedicated researchers and collaborate nationally and internationally. Our intention is:

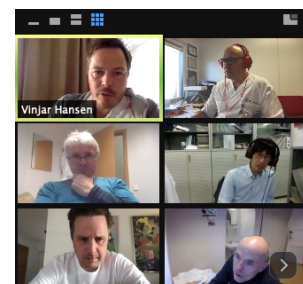
- To use and develop precise measurement methods in musculoskeletal research
- To study new treatment options (implants, surgical techniques, biotechnology, rehabilitation interventions and pharmacological treatment) and to ensure safe treatment to patients
- To study disease development (cartilage wear, bone loss, changes in body composition) together with other methods, in order to gain insight into mechanisms for disease and eventual treatment.
- To further develop CIRRO as a main research centre delivering sophisticated services to researchers in South-Eastern Norway Regional Health Authority and adjoint hospitals nationally as well as internationally.

Ongoing studies in 2022

INTRAKS study

An international multicenter study on kyphoscoliosis in adults. Around 75 patients are included so far. We have had zoom meetings with the group from Sweden, Japan and in Norway. Another meeting regarding the conservative group together with Marit Fure and Åsa Axelsson both physiotherapists at Rikshospitalet we had in September. For more comprehensive information about the study:

[HOME | Intraks](#)



NaKiD knee study

This study includes 3 work packages which focus on surgical technique (Ligament piercing), the design of the prosthesis (Medial pivot knees) and a new imaging technique (CT-RSA). In the Medacta uncemented TKR part we have 1 and 2- years follow ups ongoing. Phantom study on a porcine knee

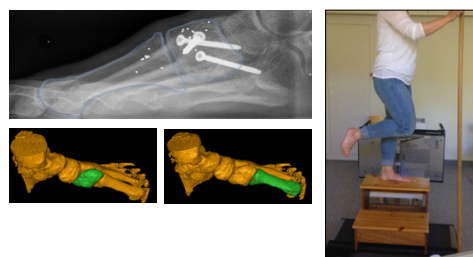
for the ligament piercing and to ensure precision of CT-RSA are performed in 2022. The 5- year follow up for 36 patients in the cemented Medacta group with the new MP knee design are almost finished.

Articles are in preparation at least one submitted. The project has been presented at the national Norwegian congress and at the international European orthopaedic congress (EFORT).



Lisfranc study

Magnus Poulsen used 2022 to sum up his RSA study on Lisfranc injuries. Aside he performed a methodological CT RSA versus standard RSA study.



Trochanteric Stabilizing Plate in Pertrochanteric fractures

A literature overview was accepted in Acta Orthopædica. Another manuscript about stability of PTFE operated with a trochanteric stabilizing plate is in preparation to be submitted by Carl Erik Alm.

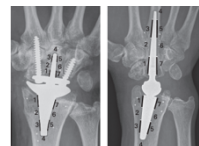
Kinematics in Total Knee Arthroplasty

Our collaboration project with Yasser Rehman from Lovisenberg hospital was analysed and put into writing.



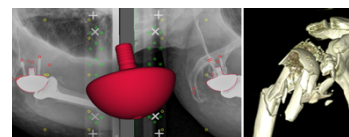
Wrist Arthroplasty

Trygve Holm Glad from the hand surgery unit at Rikshospital submitted his final paper for his PhD thesis on 2 different wrist arthroplasties. He uses RSA and DEXA to evaluate the fixation and effect on bone morphology.



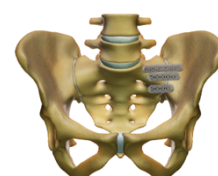
Reversed Shoulder Arthroplasty (RSA) evaluated with Radiostereometry Analysis (RSA)

This ambitious project embedded in the DELPHI research group ([https://oslo-universitetssykehus.no/Sider/Brudd-i-%C3%B8vre-del-av-overarmebeinet-\(Proximale-humerus\).aspx#om-studien](https://oslo-universitetssykehus.no/Sider/Brudd-i-%C3%B8vre-del-av-overarmebeinet-(Proximale-humerus).aspx#om-studien)) led by Tore Fjalestad, MD PhD, won some prizes at international conferences. Alex Fraser is in the final stage of PhD and has submitted his thesis for evaluation.



Surgical treatment of pelvic girdle pain

Engelke Randers from the spinal unit at Rikshospital presented her PhD project at the annual research meeting. The sham study on surgical fixation of the IS joint is finalized and put into writing.



Other activities:

A clear statement in February!

Social media

homepage: CIRRO.no

Instagram: cirro_norway

PhD defense of Frank David Øhrn

Opponent Prof. Rob Nelissen, Leiden, The Netherlands and Ass. Prof. Mona Badawy, Haukeland university.



DOKTORGRAD

Enda en doktorgrad ved SNR Kristiansund



God stemning da Frank-David Øhrn ble gratulert etter endt disputas. Otto Schnell Husby (fra

PhD defence of Peder Svenkerud Thoen

Opponent Prof. Henrik Malchau, Boston Massachusetts Hospital, USA, and Prof. Michael Dunbar, Dalhousie University, Canada.



CIRRO- meeting with Sectra in September 2022 with visitors from Sweden: Olof Sandberg and Peter Mattsson.



CIRRO- meeting with Are Hugo Pripp in February



Kleivstua 2022: 3 presenters from CIRRO:

- Midterm-evaluation for Magnus Poulsen
Advances in diagnosis and treatment of unstable, acute Lisfranc injury
- The Natural Kinematic Diagnostic (NaKiD) knee study: Improving surgical technique, design, and diagnostics in total knee arthroplasty by Lars Engseth.
- Indication and treatment of adult kyphoscoliosis (INTRAKS) by Vinjar Brenna Hansen.
- Surgical treatment of pelvic Girdle pain by Engelke Randers



CIRRO members attending at the **hip symposium from Depuy** on the Corail in Hamburg, Germany.



European Knee Society meeting in Munich, Germany.

Yasser Rehman presented his kinematic data on different types of TKP



CIRRO members Lars Engseth, Magnus Poulsen, presented at **EFORT**, Lisbon, Portugal.



Stephan M. Röhl was opponent at the PhD defence of Halldor Bergvinsson at Lund university and Janni Thillemann in Århus, Denmark.



Annual meeting of Norwegian Orthopaedic Society

Several CIRRO members presented their Work and Lars Engseth receives the price for best paper of the Norwegian Society for Hip and Knee surgery.



Winner of the CIRRO best picture award 2022:
Magnus Poulsen at Besseggen



Ongoing projects

Hip projects

- RCT on the function of the Trochanteric Support Plate (TSP) in combination with the Dynamic Hip Screw (DHS)
- Long time performance of Vit E infused poly in THP with different head sizes

Knee projects

- In vivo kinematics and performance of contemporary knee arthroplasty (PhD project OUH, in collaboration with HF Møre Romsdal)
- Kinematic RSA of three different kneedesigns (collaboration with Lovisenberg Hospital)

Methodological projects

- Motionanalysis with CTMA and IMA in the forefoot and the IS joint (part of the PhD projects)
- Precision of CTMA in the knee in collaboration with Kristiansund and the Radiology department at OUS

Ankle and foot projects

- Investigating acute Lisfranc injuries in the foot and a new surgical procedure (PhD project OUH)
- Kinematics of the midfoot after Lisfranc injury (PhD project OUH)

Shoulder project

- Stability of the glenoid implant in reversed shoulder arthroplasty (PhD project OUH)

Hand project

- A prospective randomized trial comparing two different wrist arthroplasties (PhD project OUH)

Spinal project

- INTRAKS study on spinal deformities (<https://www.intraks.org>)
- Surgical treatment of pelvic girdle pain

Most important national and international collaborators

National

International

- Norwegian Arthroplasty register (NAR)
- Kristiansund hospital
- Diakonhjemmet Hospital
- Lovisenberg Diaconal Hospital
- Regional Health Authority Møre Romsdal
- Haukeland University Hospital
- Arendal Hospital
- Leiden University, The Netherlands
- Kyoto University Orthopaedic Association, Japan
- Skåne University, Sweden
- SECTRA, Sweden
- Umeå University Hospital, Arthroplasty unit, Sweden
- UmRSA Biomedical, Sweden

Scientific production of the research group in 2022

Dissertations:

Peder Thoen: “Advancements in Total Hip Arthroplasty - polyethylene, articulation and factors associated with dislocation” for the degree of PhD.

Frank David Øhrn: Contemporary total knee arthroplasty: Designs and surgical methods.

Peer reviewed original research articles: 15

Selected publications:

1. Holm-Glad T, Røkkum M, **Röhrli SM**, Roness S, Godang K, Reigstad O (2022)
A randomized controlled trial comparing two modern total wrist arthroplasties : improved function with stable implants, but high complication rates in non-rheumatoid wrists at two years Bone Joint J, 104-B (10), 1132-114, DOI [10.1302/0301-620X.104B10.BJJ-2022-0201.R2](https://doi.org/10.1302/0301-620X.104B10.BJJ-2022-0201.R2), PubMed [36177637](https://pubmed.ncbi.nlm.nih.gov/36177637/)
2. Rehman Y, Koster LA, **Röhrli SM**, Aamodt A (2022)
Comparison of the in-vivo kinematics of three different knee prosthesis designs during a step-up movement Clin Biomech (Bristol, Avon), 100, 105824
DOI [10.1016/j.clinbiomech.2022.105824](https://doi.org/10.1016/j.clinbiomech.2022.105824), PubMed [36435077](https://pubmed.ncbi.nlm.nih.gov/36435077/)
3. Thoen PS, Lygre SHL, **Nordsletten L**, Furnes O, Stigum H, Hallan G, **Röhrli SM** (2022)
Risk factors for revision surgery due to dislocation within 1 year after 111,711 primary total hip arthroplasties from 2005 to 2019: a study from the Norwegian Arthroplasty Register Acta Orthop, 93, 593-601 DOI [10.2340/17453674.2022.3474](https://doi.org/10.2340/17453674.2022.3474), PubMed [35770369](https://pubmed.ncbi.nlm.nih.gov/35770369/)

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- Sophies Minde Health Fund (PhD program)
- The Research Council of Norway
- University of Bergen

