

# Center for Implant and Radiostereometric Research Oslo



## Group Leaders



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Head of the research and development unit of the Division of Orthopaedic Surgery, OUH (UXLANO@ous-hf.no)

## Group Members

### Senior members:

- Finnur Snorrason, MD, PhD, Orthopaedic surgeon, OUH
- Vera Halvorsen, MD, Orthopaedic surgeon, OUH
- Marianne Westberg MD, PhD, Orthopaedic surgeon OUH
- Anselm Schultz, MD, PhD, Radiologist, OUH

### Alumni (PhD):

- Wender Figwed, MD/PhD Bærum Hospital
- Berte Bøe, MD/PhD, OUH
- Einar Lindalen, MD/PhD Lovisenberg Hospital
- Jon Dahl, MD/PhD, OUH
- Thomas Kibsgård, MD/PhD, UiO and OUH
- Bernhard Flatøy, MD/PhD, Diakonhjemmet hospital
- Eirik Aunan, MD, Lillehammer hospital
- Justin van Leeuwen, MD, Helse Førde Lerdal hospital
- Gunnar Petursson, MD, Lovisenberg Hospital
- Ole-Christian Brun, MD, Lovisenberg hospital
- Jan Egil Brattgjerd, MD, OUH

### PhD candidates:

- Trygve Glad, MD, OUH, LIS
- Alexander Fraser, MD, Diakonhjemmet hospital
- Frank David Ørn, MD, Kristiansund Hospital
- Carl Erik Alm, MD, OUH, LIS
- Vinjar Hansen Myklevold, MD, Haukeland university hospital
- Peder Thoen, MD, Tønsberg hospital
- Yasser Rehman, MD, Lovisenberg hospital

## Group Members (continued)

### Single project candidate:

- Magnus Høgevold, MD, Diakonhjemmet Hospital
- Mathilde Kvamme, OUH

### Radiographers:

- Alexis Hinojosa, 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, material science and bone turnover, establish a team of dedicated researchers and collaborate nationally and internationally. Our intention is: [http://ous-research.no/home/cirro/About us/11138](http://ous-research.no/home/cirro/About%20us/11138)

- 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.

## 2021

### Planned projects:

“Ultrasound guided microsurgery – the innovative and rational next step?”

Torben Ianssen, Sandefjord ortopedi.

Custom positioning guides technique versus conventional technique in knee arthroplasty

5- års data skal analyseres av Sean Rivrud

CTMA – Phantomstudy CT – based RSA in the knee.

**Ongoing studies:**

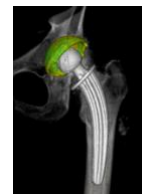
**INTRAKS** study on kyphoscoliosis in adults is ongoing. Around 50 patients are included so far.

We have had some zoom – meetings with the group from Swede, Japan, and OUH. Comprehensive information about the study is on: <https://www.intraks.org/>  
CTMA on IS-joint is in focus with a pilotstudy.



**Medacta** uncemented TKR project started inclusion in September 2021 after delay due to the pandemic restrictions for planned surgery. So far we have 18 patient included. The team is working closely with new members of the team radiologist *Anselm Schultz* and PhD candidate *Lars Engseth*.

Frank D. Øhrn and Lars Engseth completed **CTMA analysis course at SECTRA/Sweden**.



CIRRO arranged **two intern digital meetings**. One during spring for PhD-project updates and presentation of research infrastructure and one during the winter mainly to prepare for the digital congress in May 2021 and in October.

**The international RSA congress**

CIRRO proudly hosted the **international RSA meeting 2021**. After intensive preparations we can say that we were very satisfied with the congress accomplishment. We thank all the keynote speakers.

«Image technology for safe implants and surgery of our patients»

Early bird fee until 25.04.2021

Register

Preliminary program now available at <https://meeting2021.radiostereometry.org/>

Join us at the first *virtual*

**INTERNATIONAL RSA MEETING**

Online Meeting! May 10-12 2021

Gold Sponsor **SECTRA** Silver Sponsor **DePuy Synthes** **ONRT**

Knowledge and passion

Thanks to Oslo Science Park ([Forskningsparken - Forskningsparken](https://forskningsparken.no)) and the team who hosted us *Eli Aasen, Michael Tindeland, Magnus Karlsen* (OUS). Thanks to BRIK <https://brik.no/> for help with registration and valuable technical and inspirational input.

Aside the highly appreciated scientific program, the RSA world moved together during the breaks with setting motion analysis in action.



The making of the congress is also presented at the CIRRO website ([CIRRO.no](https://cirro.no)).

All presentations are still available at the “science channel” at the congress homepage <https://meeting2021.radiostereometry.org/>.

### Kleivstua 2021

Several members of the group presented their projects at the **annual research seminar at Kleivstua** in November arranged by Dept. of Orthopaedics, OUH and collaborating units.



2 PhD students **defended their Phd thesis:**

*Jan Erik Brattgjerd* with the title: "Biomechanics of locking plates in femoral neck fixation"

<https://www.med.uio.no/klinmed/english/research/news-and-events/events/disputations/2021/brattgjerd-jan-egil.html>



*Ole-Christian Laahne Brun*: Post-operative findings and patient-reported outcomes in total hip arthroplasty following the introduction of the minimally invasive direct anterior approach"

<https://www.med.uio.no/klinmed/english/research/news-and-events/events/disputations/2021/brun-ole-christian-laahne.html>



During the summer 2021 **CIRRO hosted 2 international students.** *Viktoria Obermeier* from the Technical University in Munich, Germany, and *Ines Elkeurti* from the University of Marseille, France.

## Ongoing projects

### Hip projects

- RCT on the function of the Trochanteric Support Plate (TSP) in combination with the Dynamic Hip Screw (DHS)
- Solutions for patients at risk: dislocation (PhD program)

### 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.

### 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

- Norwegian Arthroplasty register (NAR)
- Diakonhjemmet Hospital
- Lovisenberg Diaconal Hospital
- Regional Health Authority Møre Romsdal
- Kristiansund hospital
- Haukeland University Hospital
- Arendal Hospital

### International

- Umeå University Hospital, Arthroplasty unit, Sweden
- UmRSA Biomedical, Sweden
- Leiden University, The Netherlands
- Kyoto University Orthopaedic Association, Japan
- Skåne University, Sweden
- SECTRA, Sweden.

## Scientific production of the research group in 2021

Peer reviewed original research articles: 13

Multiple presentations at national and international conferences.

Selected publications:

1. Fraser AN, Bøe B, Fjalestad T, Madsen JE, **Röhrli SM** (2021)  
**Stable glenoid component of reverse total shoulder arthroplasty at 2 years as measured with model-based radiostereometric analysis (RSA)**  
Acta Orthop, 92 (6), 644-650  
DOI [10.1080/17453674.2021.1943932](https://doi.org/10.1080/17453674.2021.1943932), PubMed 34196600
2. Øhrn FD, Lian ØB, Tsukanaka M, **Röhrli SM** (2021)  
**Early migration of a medially stabilized total knee arthroplasty : a radiostereometric analysis study up to two years**  
Bone Jt Open, 2 (9), 737-744  
DOI [10.1302/2633-1462.29.BJO-2021-0115.R1](https://doi.org/10.1302/2633-1462.29.BJO-2021-0115.R1), PubMed [34493056](https://pubmed.ncbi.nlm.nih.gov/34493056/)
3. Leta TH, Gjertsen JE, Dale H, Hallan G, Lygre SHL, Fenstad AM, Dyrhovden GS, Westberg M, Wik TS, Jakobsen RB, Aamodt A, **Röhrli SM**, Gøthesen ØJ, Lindalen E, Heir S, Ludvigsen J, Bruun T, Hansen AK, Aune KEM, Warholm M, Skjetne JP, Badawy M, Høvdning P, Husby OS, Karlsen ØE et al. (2021)  
**Antibiotic-Loaded Bone Cement in Prevention of Periprosthetic Joint Infections in Primary Total Knee Arthroplasty: A Register-based Multicentre Randomised Controlled Non-inferiority Trial (ALBA trial)**  
BMJ Open, 11 (1), e041096  
DOI [10.1136/bmjopen-2020-041096](https://doi.org/10.1136/bmjopen-2020-041096), PubMed [33509845](https://pubmed.ncbi.nlm.nih.gov/33509845/)

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- NTNU
- Møre Romsdal Health Authority (PhD program)
- Medacta International AG
- Sophies Minde Health Fund (PhD program)
- Norsk forskningsråd
- Universitet i Bergen