

CIRRO

Group Leaders



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Group Members

Senior members:

- Finnur Snorrason (OUS Ullevål)
- Vera Halvorsen (OUS Ullevål)
- Harald Steen (Rikshospital)
- Ragnhild Gundersen (Rikshospital)
- Eirik Aunan (Lillehammer hospital)

Alumni (PhD):

- Wender Figwed (Bærum hospital)
- Berte Bøe (OUS Ullevål)
- Einar Lindalen (Lovisenberg hospital)
- Jon Dahl (Rikshospital)
- Thomas Kibsgård (Rikshospital)

PhD candidates:

- Justin van Leeuwen (Betanien hospital)
- Bernhard Flatøy (OUS Ullevål)
- Gunnar Petursson (Lovisenberg hospital)
- Trygve Glad (OUS Rikshospital)
- Alexander Fraser (OUS Ullevål)
- Are Stødle (OUS Ullevål)
- Jan Egil Brattgjerd (OUS Ullevål)
- Frank David Ørn (Kristiansund hospital)
- Carl Erik Alm (OUS Ullevål)
- Anders Karlsten (OUS Ullevål)

Group Members (continued)

Radiografers:

- Alexis Hinohosa (OUS Ullevål)
- Mona Risdal (OUS Ullevål)
- Silje Klausen (OUS Ullevål)
- Kathrine Lamark (Rikshospital)
- Siri Engelstad Hemsett (Lovisenberg hospital)

Research coordinators:

- Marte Traae Magnusson (OUS Ullevål)
- Anne Christine Brekke (OUS Ullevål)

CIRRO PhD fellows:

- Masako Tsukanaka (Kyoto University Hospital)

Research profile and aims

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

- To use and develop precise measurement methods (RSA, dynamic RSA and DXA in musculoskeletal research).
- To supervise and help PhD fellows in all connected hospitals/institutions.
- To study new treatment options (implants, surgical techniques, biotechnology, rehabilitation interventions and pharmacological treatment) with precise methods to ensure benefit to patients in a short time.
- 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 that delivers sophisticated services to researchers in South-Eastern Norway Regional Health Authority and adjoint hospitals nationally.

2016

In 2016 we have enlarged our repertoire of possible joints to analyse with RSA technique. We have continued with phantom studies in the knee and shoulder and accomplished to include more patients in ongoing studies in the hand, foot and hip. We finalized collaboration and funding with Helse Møre Romsdal.

We have started to include patients for the stability study of a new design in total knee arthroplasty called GMK sphere by Medacta. We have recruited the first part of the study.

The process of switching and establishing our analyzing programs (UmRSA and RSAcore) on the new Windows 7 platform supported by Sykehuspartner has taken a lot of energy. At the end of the year 2016 the transfer of the databases to new servers as demanded by Oslo University hospital was not fully accomplished but on its way. During this long process all analyzing programs were updated to the newest version. We hope to be able to use them in 2017.

In November we celebrated the 10 year anniversary of CIRRO. It was marked by a minisymposium and the invitation of Halvard Bræin, film maker and Amanda price winner of 2015 for the film "Børning".

In November we visited Kyoto and Kansai University hospital to follow up ongoing studies with our former fellow Dr. Tsukanaka. This also opened for new collaboration and the initiative for a new PhD project in the field of spinal surgery.

A major improvement was to establish a digital solution for collecting patient reported outcome measurements (PROMS). This solution is called TSD and is supported by the University of Oslo. It has revolutionized acquiring patient data. It also enables easy integration into statistical software and databases. We use this feature in our currently ongoing knee study.

Ongoing projects

Hip projects

- Unipolar or bipolar hemiarthroplasty for the treatment of displaced femoral neck fractures. A prospective randomised controlled trial of RSA (Radiostereometric Analyses) measurements of acetabular wear. (Collaboration with Bærum hospital)
- Wear and different materials in hip arthroplasty (PhD project OUS, Ullevål)
- THR in patients under 20 years (Collaboration with Hipr registry in Bergen)
- Randomized study between operation with pins with or without plate for undisplaced dislocated femoral neck fracture. Radio stereogrammetric analysis (RSA) of stability and fracture healing and clinical endpoints. (The Pinloc Study)
- RCT on the function of the Trochanteric Support Plate (TSP) in combination with the Dynamic

Hip Screw(DHS)

- Cartilage wear in hemiarthroplasty

Knee projects

- Patellar eversion in total knee arthroplasty.
- Custom positioning guides technique versus conventional technique in total and unikondyler knee arthroplasty (PhD project OUS, Ullevål + Betanien sykehus)
- Computer navigation and conventional technique in total knee replacement (PhD project, Collaboration with Lovisenberg and Bergen)
- In vivo kinematics and performance of contemporary knee arthroplasty (PhD project OUS, Ullevål in collaboration with HF Møre Romsdal)
- Precision of RSA with different RSA systems
- Phantom study of the hip and the knee during motion

Pelvis projects

- Kinematic analysis of the pelvic girdle during straight leg rise (Continuation of former PhD project)

Ankle and foot projects

- Callotasis of the deformed lower leg (Collaboration with Rikshospital)
- Investigating acute Lisfranc injuries in the foot and a new surgical procedure (PhD project OUS, Ullevål)
- Kinematics of the midfoot after Lisfranc injury

Shoulder projects

- Stability of the glenoid implant in reversed shoulder arthroplasty
- Precision and accuracy of model shaped vs large marker model RSA of shoulder prosthesis

Hand projects

- A prospective randomized trial comparing two different wrist arthroplasties (PhD project OUS, Rikshospital and Ullevål)
- Precision and accuracy of 2 different wrist implants (Phantom study)

Most important national and international collaborators

National

- Norwegian Arthroplasty register (NAR)
- Norwegian society for hip and knee surgery (NFHKK)
- Betanien Hospital Skien
- Diakonhjemmet Hospital
- Drammen Hospital
- Elverum Hospital
- Lillehammer Hospital
- Lovisenberg Diakonale hospital
- Ringerike hospital
- Oslo Sports Trauma Research Center (OSTRC)
- Fürst Medical Laboratory
- Helseforetaket Møre Romsdal
- University of Oslo

International

- Umeå University Hospital, Arthroplasty unit, Sweden
- UmRSA Biomedical, Sweden
- Leiden University, The Netherlands
- University of Western Australia, Perth orthopaedic center, Australia
- Innovationsmanufaktur, München, Germany
- Harvard and Massachusetts General Hospital, US
- Kyoto University Hospital, Japan
- Helsinki bone and joint research group; Finland

Scientific production of the research group in 2016

Peer reviewed original research articles: 8

Doctoral thesis: none

Selected publications:

Publications 2016

1. Amlie E, Lerdal A, Gay CL, Høvik Ø, **Nordsletten L**, Dimmen S (2016)
A Trend for Increased Risk of Revision Surgery due to Deep Infection following Fast-Track Hip Arthroplasty
Adv Orthop, 2016, 7901953
PubMed [27034841](#)
2. Culvenor AG, Øiestad BE, Holm I, **Gunderson RB**, Crossley KM, Risberg MA (2016)
Anterior knee pain following anterior cruciate ligament reconstruction does not increase the risk of patellofemoral osteoarthritis at 15- and 20-year follow-ups
Osteoarthritis Cartilage, 25 (1), 30-33
PubMed [27693503](#)
3. Frederiksen M, Descamps S, Erikstad KE, Gaston AJ, Gilchrist HG, Gremillet D, Johansen KL, Kolbeinsson Y, Linnebjerg JF, Mallory ML, Tranquilla LAM, Merkel FR, Montevecchi WA, Mosbech A, Reiertsen TK, Robertson GJ, **Steen H**, Strom H, Thorarinsson TL (2016)
Migration and wintering of a declining seabird, the thick-billed murre *Uria lomvia*, on an ocean basin scale: Conservation implications
Biol. Conserv., 200, 26-35
4. Girard MP, Marchand AA, **Stuge B**, Ruchat SM, Descarreaux M (2016)
Cross-cultural Adaptation of the Pelvic Girdle Questionnaire for the French-Canadian

Population

- J Manipulative Physiol Ther, 39 (7), 494-9
PubMed 27535785
5. Hvid I, Horn J, Huhnstock S, **Steen H** (2016)
The biology of bone lengthening
J Child Orthop, 10 (6), 487-492
PubMed 27838825
 6. Johnsen MB, Hellevik AI, Baste V, Furnes O, Langhammer A, Flugsrud G, **Nordsletten L**, Zwart JA, Storheim K (2016)
Leisure time physical activity and the risk of hip or knee replacement due to primary osteoarthritis: a population based cohort study (The HUNT Study)
BMC Musculoskelet Disord, 17, 86
PubMed 26879518
 7. Johnsen MB, Vie GÅ, Winsvold BS, Bjørngaard JH, Åsvold BO, Gabrielsen ME, Pedersen LM, Hellevik AI, Langhammer A, Furnes O, Flugsrud GB, Skorpen F, Romundstad PR, Storheim K, **Nordsletten L**, Zwart JA (2016)
The causal role of smoking on the risk of hip or knee replacement due to primary osteoarthritis: a Mendelian randomisation analysis of the HUNT Study
Osteoarthritis Cartilage (in press)
PubMed 28049019
 8. Kirkhus E, **Gunderson RB**, Smith HJ, Flatø B, Hetlevik SO, Larheim TA, Arvidsson LZ (2016)
Temporomandibular joint involvement in childhood arthritis: comparison of ultrasonography-assessed capsular width and MRI-assessed synovitis
Dentomaxillofac Radiol, 45 (8), 20160195
PubMed 27383060
 9. Petursson G, Fenstad AM, Gøthesen Ø, Haugan K, Dyrhovden GS, Hallan G, **Röhrl SM**, Aamodt A, Nilsson KG, Furnes O (2016)
Similar migration in computer-assisted and conventional total knee arthroplasty
Acta Orthop, 1-7 (in press)
PubMed 27996349
 10. Reikeras O, **Gunderson RB** (2016)
Cross table lateral radiography for measurement of acetabular cup version
Ann Transl Med, 4 (9), 169
PubMed 27275482
 11. Risberg MA, Oiestad BE, **Gunderson R**, Aune AK, Engebretsen L, Culvenor A, Holm I (2016)
Changes in Knee Osteoarthritis, Symptoms, and Function After Anterior Cruciate Ligament Reconstruction: A 20-Year Prospective Follow-up Study
Am J Sports Med, 44 (5), 1215-24
PubMed 26912282
 12. Soreide E, Granan LP, Hjorthaug GA, Espehaug B, Dimmen S, **Nordsletten L** (2016)
The Effect of Limited Perioperative Nonsteroidal Anti-inflammatory Drugs on Patients Undergoing Anterior Cruciate Ligament Reconstruction
Am J Sports Med, 44 (12), 3111-3118
PubMed 27496908
 13. **Stuge B**, Sætre K, Brækken IH (2016)
Erratum to "The automatic pelvic floor muscle response to the active straight leg raise in cases with pelvic girdle pain and matched controls" [Man Ther 18 (4) (2013) 327-332]
Man Ther, 23, e17
PubMed 27117694
 14. Tsukanaka M, **Halvorsen V**, **Nordsletten L**, EngesæTer IØ, EngesæTer LB, Marie Fenstad A, **Röhrl SM** (2016)
Implant survival and radiographic outcome of total hip replacement in patients less than 20 years old
Acta Orthop, 87 (5), 479-84
PubMed 27435903
 15. Tsukanaka M, Støen RØ, Figved W, Frihagen F, **Nordsletten L**, **Röhrl SM** (2016)
Steady state acetabular cartilage wear after bipolar hemiarthroplasty: a case series of

10 patients with radiostereometric analysis

Hip Int, 0 (in press)

PubMed [27911454](#)

16. van Leeuwen JA, **Röhrl SM** (2016)

Patient-specific positioning guides do not consistently achieve the planned implant position in UKA

Knee Surg Sports Traumatol Arthrosc (in press)

PubMed [27520882](#)

17. Yang Z, **Röhrl SM, Nordsletten L** (2016)

Displaced Acetabular Fractures in Elderly Patients: Is Acute Arthroplasty an Effective Option?

West Indian Med J (in press)

PubMed [27618446](#)