

## Press release

Please fill in this form and return it to [graduateschoolhealth@au.dk](mailto:graduateschoolhealth@au.dk) in Word format no later than three weeks prior to your defence.

### Basic information

Name: Mette Holm Hjorth      Email: [Metteh20@gmail.com](mailto:Metteh20@gmail.com) Phone: 40813181

Department of: Clinical Medicine

Main supervisor: Maiken Stilling

Title of dissertation: Metal-on-Metal Hip Arthroplasty  
Investigations of activity and surgical approach in relation to pseudotumors

Date for defence: 01 at (time of day): 11 Place: 14.30

Press release (Danish)

Metal-metal hofteproteser. Undersøgelser af aktivitets niveau og kirurgisk adgangs påvirkning på hoftenære ansamlinger.

Manchet - indledning - afsluttes med ...

I ortopædkirurgiske kredse var der høje forventninger til den tredje generation af metal-mod-metal (MoM) total hofteproteser (THA) og resurfacing hofteproteser (RHA). Ved disse protesetyper forventede man en større slidstyrke og mindre risiko for hofteluksation, hvorfor proteserne hovedsagligt var tiltænkt unge og aktive patienter. I løbet af 2006-2008 blev det dog klart, at metalslidpartiklerne fra protesedelene var forbundet med uventede og uønskede bivirkninger, så som høje niveauer af metalioner i blodet og udvikling af cystiske eller solide bløddelsreaktioner i relation til hoftelæddet, betegnet "pseudotumorer". Nationale Hoftealloplastik Registre afslørede desuden, at revisionsraterne for MoM THA og MoM RHA var højere end for de traditionelle metal-mod-plast (MoP) THA, hvilket medførte en række officielle sikkerhedstiltag herunder tilbagekaldelse af nogle protesetyper/designs og udarbejdelse af forskellige udredningsprogrammer.

Det primære formål med denne ph.d.-afhandling var at estimere pseudotumorprævalensen og undersøge effekten af fysisk aktivitet på koncentrationen af metal-ioner i blodet og størrelsen af pseudotumorer i en patientgruppe opereret med MoM THA, MoM RHA eller MoP THA. Endvidere undersøgte vi to forskellige kirurgiske teknikkers betydning for proteseforankring, protesenær knogletæthed, anatomiske lokalisation af pseudotumorer og muskelatrofi efter operation med MoM RHA.

et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Mette Holm Hjorth, der forsvarede det d. 01/11

Forsvaret af ph.d.-projektet er offentligt og finder sted den 01/11 kl. 14.30 i Eduard Biermann auditorium, Aarhus Universitet, Bartholins Allé 3, 8000 Aarhus C. Titlen på projektet er "Metal-metal hofteproteser. Undersøgelser af aktivitets niveau og kirurgisk adgangs påvirkning på hoftenære ansamlinger". Yderligere oplysninger: Ph.d.-studerende Mette Holm Hjorth, e-mail: [Metteh20@gmail.com](mailto:Metteh20@gmail.com), tlf. 40813181.

Bedømmelsesudvalg:

Henrik Malchau, Professor, MD, PhD

Harvard Medical School

Massachusetts General Hospital, Boston, Massachusetts, USA

Bernd Grimm, PhD, MEng, Associate Professor

Sylvia Lawry Centre – The Human Motion Institute

Hohenlindener Str. 1, 81677 Munich, Germany

Jeppe Lange, Associate Professor, MD, PhD (Chairman)  
Department of Clinical Medicine, Aarhus University, Denmark  
Department of Orthopedics, Horsens Hospital, Denmark

Press release (English)

Metal-on-Metal Hip Arthroplasty

Investigations of activity and surgical approach in relation to pseudotumors

Lead paragraph, ending with:

The orthopedic community had big expectations to the third generation of metal-on-metal (MoM) total hip arthroplasty (THA) and resurfacing hip arthroplasty (RHA), which was considered a low-wear and dislocation-safe treatment option for young and physically active patients. Unfortunately, during 2006-2008, a growing number of reports revealed that metal wear debris generated from the bearing surfaces was associated with unexpected and undesirable side effects such as high systemic levels of cobalt and chromium metal-ions and adverse cystic, mixed, or solid soft-tissue reactions in relation to the hip joint termed "pseudotumors". In addition, National Joint Replacement Registries reported higher revision rates of MoM THA and RHA than for metal-on-polyethylene (MoP) THA, which led to official safety alerts and market withdrawal of some MoM hip arthroplasty designs. At the same time, different screening programs were launched.

The main aim of this thesis was to assess the pseudotumor prevalence and investigate the effect of physical activity on metal-ion measurements and pseudotumor dynamics in a relatively large study population of patients with MoM THA, MoM RHA, and MoP THA. Additionally, we wanted to evaluate differences between the anterolateral and the posterior surgical approach in patients with MoM RHA.

The project was carried out by Mette Holm Hjorth, who is defending her dissertation on 01/11.

The defence is public and takes place on 01/11 at 14.30 in Eduard Biermann Auditorium, Aarhus University, Bartholins Allé 3, 8000 Aarhus C. The title of the project is Metal-on-Metal Hip Arthroplasty

Investigations of activity and surgical approach in relation to pseudotumors. For more information, please contact PhD student Mette Holm Hjorth, email: [Mettehh20@gmail.com](mailto:Mettehh20@gmail.com), Phone +45 40813181.

Assessment committee: Henrik Malchau, Professor, MD, PhD  
Harvard Medical School  
Massachusetts General Hospital, Boston, Massachusetts, USA

Bernd Grimm, PhD, MEng, Associate Professor  
Sylvia Lawry Centre – The Human Motion Institute  
Hohenlindener Str. 1, 81677 Munich, Germany

Jeppe Lange, Associate Professor, MD, PhD (Chairman)  
Department of Clinical Medicine, Aarhus University, Denmark  
Department of Orthopedics, Horsens Hospital, Denmark

## Permission

By sending in this form:

- I hereby grant permission to publish the above Danish and English press releases.
- I confirm that I have been informed that any applicable inventions shall be treated confidentially and shall under no circumstances whatsoever be published, presented or mentioned prior to submission of a patent application, and that I have an obligation to inform my head of department and the university's Patents Committee if I believe I have made an invention in connection with my work. I also confirm that I am not aware that publication violates any other possible holders of a copyright.