

## Press release

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### Basic information

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Department of: Clinical Medicine

Main supervisor: J. Michael Hasenkam

Title of dissertation: Mitral Valve Reconstruction using Annuloplasty Rings - In vivo Biomechanical Characterization

Date for defence: 20.10.2017 at (time of day): 14.00 Place: Auditorium A, Aarhus Universitetshospital, Palle Juul-Jensens Blvd 99, 8200 Aarhus N

Press release (Danish)

Nyt studie bidrager med biomekanisk viden omkring reparation af mitral hjerteklappen

Mitralklappen er en kompleks struktur i hjertet, som sørger for en korrekt gennemstrømning af blodet på venstre side af hjertet. Ved kirurgisk reparation af mitralklappen indsætter man typisk en såkaldt mitral annuloplastisk ring, som genskaber formen og funktionen af klappen. Disse hjerteringe findes i forskellige udformninger og med varierende grad af støttende effekt.

I det aktuelle PhD projekt er de biomekaniske påvirkninger af forskellige hjerteringe blevet undersøgt i en eksperimentel grisemodel. Avancerede kraft- og geometrimålinger har vist, at hjerteringenes støtteeffekt har stor betydning for klappens bevægelighed og funktion efter operation. Projektet viser også, at meget stive ringe på sigt kan øge risikoen for, at reparationen fejler.

Resultaterne fra studiet kan bruges til udvælgelse af den optimale hjertering til den enkelte hjertepatient og dermed til at opnå det bedste behandlingsresultat.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 20/10 kl. 14.00 i Auditorium A, Aarhus Universitetshospital, Palle Juul-Jensens Blvd 99, 8200 Aarhus N. Titlen på projektet er "Mitral Valve Reconstruction using Annuloplasty Rings - Biomechanical Characterization in vivo". Yderligere oplysninger: Ph.d.-studerende Søren Nielsen Skov, e-mail: [soeren.skov@clin.au.dk](mailto:soeren.skov@clin.au.dk), tlf. 40186364.

Bedømmelsesudvalg:

Formand for bedømmelsesudvalget: Tine Engberg Damsgaard, Overlæge, Klinisk lektor. Plastikkirurgisk afdeling, Aarhus Universitetshospital.

Bedømmer 1: Theis Tønnessen, Overlæge, Professor. Hjerte-, lunge- og karklinikken, Oslo Universitetssykehus.

Bedømmer 2: Jørgen Arendt Jensen, Professor. Institut for Elektroteknologi, Danmarks Tekniske Universitet.

Press release (English)

New study contributes with biomechanical knowledge about mitral valve repair

The mitral valve is a complex structure with the ability to ensure a correct flow of the bloodstream through the left side of the heart. In surgical repair of the mitral valve a so-called mitral annuloplasty

ring is often implanted in order to reshape and correct the function of the valve. These heart rings are available in different shapes with a varying degree of remodeling effect.

The current PhD project have investigated the biomechanical properties of different heart rings in an experimental pig model. Advanced force- and geometry measurements have shown that remodeling properties of the heart rings determine the function and mobility after surgery. The project also indicates that there is an increased risk of repair failure associated with remodeling rings.

The results from this study can be used to choose the optimal heart ring for the individual heart patient and thereby improve the surgical outcome of this treatment.

The defence is public and takes place on 20/10 at 2 pm in Auditorium A, Aarhus Universitetshospital, Palle Juul-Jensens Blvd 99, 8200 Aarhus N. The title of the project is "Mitral Valve Reconstruction using Annuloplasty Rings - Biomechanical Characterization in vivo". For more information, please contact PhD student Søren Nielsen Skov, email: soeren.skov@clin.au.dk, Phone +45 40186364.

Assessment committee:

Chairman of the committee: Tine Engberg Damsgaard, Senior consultant, Associate professor. Department of Plastic Surgery, Aarhus University Hospital.

Assessor 1: Theis Tønnessen, Senior consultant, Professor. Department of Cardiothoracic Surgery, Oslo University Hospital.

Assessor 2: Jørgen Arendt Jensen, Professor. Department of Electrical Engineering, Technical University of Denmark.

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