

# DOS BULLETIN



NR. 6      OKTOBER 2008      37. ÅRGANG

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## **Formand**

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## **Næstformand**

Ledende overlæge  
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## **Kasserer**

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## **Redaktør**

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## **Sekretær**

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Rygsektionen, Ortopædkirurgisk  
Klinik 2162  
Rigshospitalet, Blegdamsvej 9, 2100  
København Ø  
E-mail: bennydahl@gmail.com

## **Betingelser for optagelse i DOS**

Alle læger med dansk autorisation kan optages i Dansk Ortopædisk Selskab.  
Anmodning om indmeldelse i DOS kan kun ske via hjemmesiden:  
[www.ortopaedi.dk](http://www.ortopaedi.dk)  
Aktivér linket "Meld dig ind i DOS" og udfyld ansøgningen sammen med oplysninger om personlige data.

## **DOS-Bulletin**

### **Udgiver**

Dansk Ortopædisk Selskab

### **Ansvarshavende redaktør**

Sajida Afzal

### **Web-page**

[www.ortopaedi.dk](http://www.ortopaedi.dk)

### **Redaktion og annoncer**

c/o Annette van Hauen  
HovedOrtoCentret, 3342  
Rigshospitalet  
Blegdamsvej 9  
2100 København Ø  
e-mail: [annette.van.hauen@rh.regionh.dk](mailto:annette.van.hauen@rh.regionh.dk)

### **DTP & Tryk**

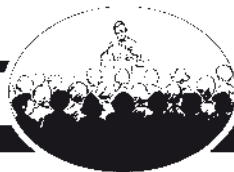
Kandrup Bogtryk  
Århusgade 88, 2100 København Ø  
Tlf. 3543 6000 · Fax 3543 6008  
[tryk@kandrup.dk](mailto:tryk@kandrup.dk) · [www.kandrup.dk](http://www.kandrup.dk)

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## **DEADLINES FOR NÆSTE BULLETIN**

**ANNONCER: Fredag den 21. november 2008**

**TEKST: Fredag den 5. december 2008**



**Møder i forbindelse med Årsmødet  
Hotel Scandinavia København**

Torsdag d. 23.10.2008

Dansk Selskab for Håndkirurgi 09:00 – 12:00

DSHK (Dansk Selskab for Hofte-  
og Knæalloplastikkirurgi) 09:00 – 12:00

SAKS 09:30 – 12:00

DOTS: Dansk Ortopædisk  
Traumeselskab 10:00 – 12:00

**Andre Faggruppemøder omkring  
DOS mødet:**

**Dansk selskab for håndkirurgi**

Generalforsamling i Dansk Selskab for Håndkirurgi afholdes onsdag 22.10.2008 kl. 15:30 – 17:00, umiddelbart efter mødet om scaphoideum-frakturer.

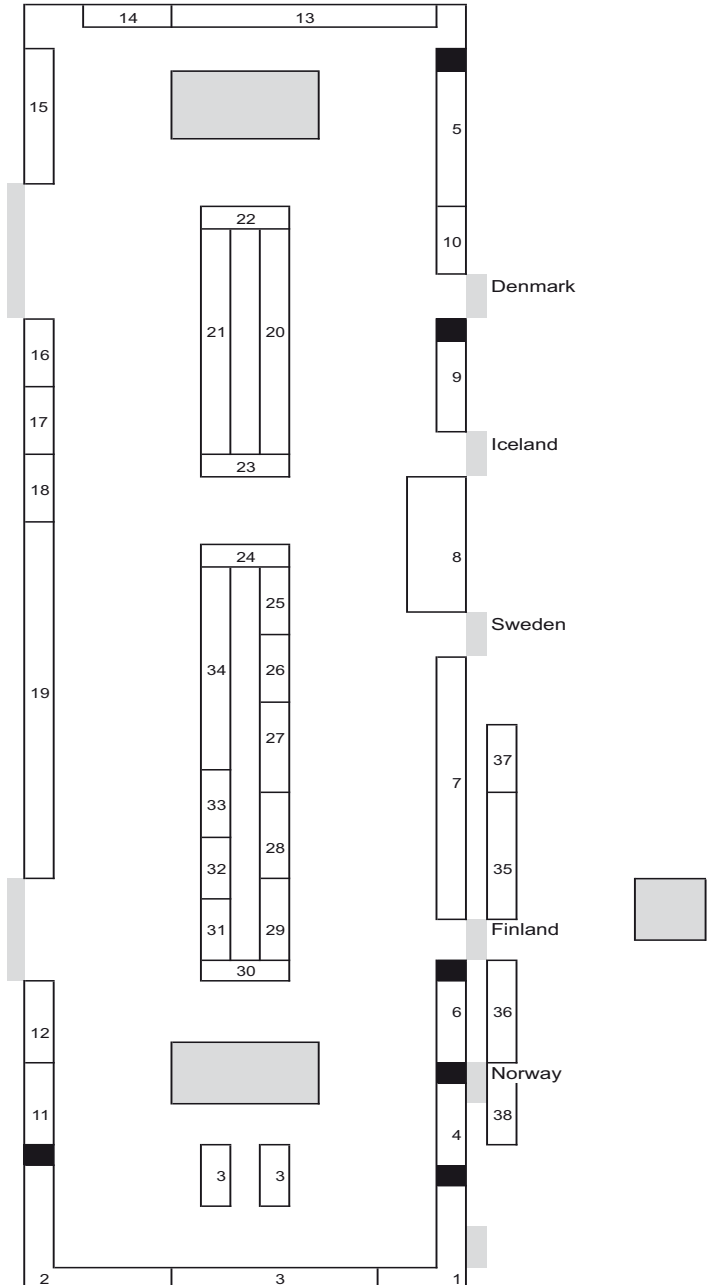
Sted: Radisson SAS Scandinavia Hotel København.

*Pernille Leicht  
Dansk Selskab for Håndkirugi*

## **Udstillere**

| <i><b>Firma</b></i>                   | <i><b>Stand nr.</b></i> | <i><b>Areal</b></i> |
|---------------------------------------|-------------------------|---------------------|
| Allergan                              | 31                      | 3                   |
| AstraTech                             | 33                      | 3                   |
| Biomet                                | 7                       | 12                  |
| Boehringer Ingelheim DK A/S           | 15                      | 6                   |
| B.Braun Aesculap                      | 18                      | 3                   |
| ConvaTec                              | 17                      | 3                   |
| Creamer Medical                       | 16                      | 3                   |
| dj Orthopedics Nordic A/S             | 4                       | 4                   |
| Fischer Medical ApS                   | 25                      | 3                   |
| Hemax Medical ApS                     | 30                      | 3                   |
| Karl Storz Endoskopi Danmark          | 32                      | 3                   |
| KCI Medical ApS                       | 12                      | 4                   |
| KEBO MED A/S                          | 6                       | 4                   |
| LJ Medical Orthopadics A/S            | 35                      | 6                   |
| Medtronic Danmark A/S                 | 11                      | 4                   |
| Mærsk-Andersen A/S                    | 38                      | 4                   |
| Mølnlycke Health Care ApS             | 10                      | 3                   |
| Nordic Medical Supply OP              | 1                       | 7                   |
| Nordic Medical Supply ORTO            | 3                       | 13                  |
| Nordic Medical Supply ENDO            | 2                       | 10                  |
| Noscomed                              | 23                      | 3                   |
| Ortoconcept Scandinavia               | 14                      | 3                   |
| Ortos AS                              | 37                      | 3                   |
| Ortotech                              | 20                      | 10                  |
| Osmedic ApS                           | 36                      | 4                   |
| Ossano Scandinavica                   | 5                       | 6                   |
| Otto Bock Danmark                     | 28                      | 4                   |
| Proteseкомпagniet                     | 19                      | 16                  |
| RSA Biomedical AB                     | 26                      | 3                   |
| Santax Medico AS                      | 22                      | 3                   |
| Scandinavian Customized Prosthesis as | 24                      | 3                   |
| Simonsen & Weel A/S                   | 27                      | 4                   |
| Smith & Nephew A/S                    | 13                      | 9                   |
| Stryker Danmark                       | 8                       | 12                  |
| Swemac Orthopaedics AB                | 34                      | 9                   |
| Synthes A/S                           | 21                      | 10                  |
| Viking Medical Scandinavia ApS        | 9                       | 4                   |
| Össur Nordic                          | 29                      | 4                   |

# Udstilling



# **Mødeoversigt**

## **Onsdag 22. oktober**

- |                      |   |
|----------------------|---|
| <b>10:00 – 15:00</b> | <b>Scaphoideumfrakturer</b>   |
| <b>13:00 – 15:00</b> | <b>DOS Symposium: Hoveduddannelsesstilling<br/>i ortopædisk kirurgi – Nye tider</b> |
| <b>15:30 – 18:30</b> | <b>DOS Symposium: Specialeplanlægning –<br/>Proces samt status</b>                  |
| <b>13:00 – 17:30</b> | <b>Workshop for turnus og<br/>læger i introduktionsstilling</b>                     |

**Her kommer annonce**

## **Mødeoversigt**

*Torsdag 23.10.08*

| <b>Room A</b>  | <b>Room B</b>   |
|--|---|
| 13:00 - 14:30<br><b>Hoftekirurgi</b><br><i>Foredrag</i>  | 13:00 - 14:30<br><b>Traumatologi, Knækirurgi,<br/>Tumorkirurgi</b><br><i>Foredrag</i> |
| 14:30 - 15:30 <i>Udstilling og kaffe</i>   |   |
| 15:30 - 16:30<br><b>Guildal forelæsning</b><br><b>"How to improve the chance of<br/>getting your manuscript accep-<br/>ted for publication"</b><br><i>Jonas Ranstam, Lund -<br/>Statistiker tilknyttet<br/>Acta Orthopaedica</i> |   |
| 16:30 - 17:00<br><b>Uddelinger Guildal Fonden<br/>og DOS Fonden</b>  |   |
| 19:00 - ?? <i>Gallafest</i>  |   |

**Indtegning på bordplan til middagen  
slutter torsdag kl. 15:00!!!**

**Påklædning: Smoking eller mørkt tøj.**

**Der fremsendes billetter til frokosten torsdag,  
men ikke til middagen.**

**Frokostbilletten skal afleveres til betjeningen.**



## **Mødeoversigt**

*Fredag 24.10.08*

| <b>Room A</b>  | <b>Room B</b>   |
|--|---|
| 08:30 - 10:00<br><b>Rygkirugi og<br/>Overekstremitetskiurgi</b><br><i>Foredrag</i>   | 08:30 - 10:00<br><b>Hoftekirurgi</b><br><i>Foredrag</i> |
| 10:00 - 11:00 <i>Udstilling og kaffe</i>   |   |
| 11:00 - 11:30<br><b>Presidential Guest Lecture</b><br><b>“Strategy, Experience and Results<br/>on using non-cemented, distal<br/>fixation femoral stems at<br/>revision total hip arthroplasty”</b><br><i>Professor Roberto Binazzi, Bologna</i> |   |
| 11:30 - 12:30<br><b>Foredragskonkurrence</b>   |   |
| 12:30 - 13:30 <i>Frokost</i>   |   |
| 13:30 - 14:15<br><b>Professoral tiltrædelses-<br/>forelæsning</b><br><i>Professor Finn B. Christensen</i><br><b>”Forskning i bevægelse –<br/>bevægelse i forskning”</b>  |   |
| 14:15 - 14:45 <i>Udstilling og kaffe</i>   |   |
| 14:45 - 16:15<br><b>Poster Session</b>   |   |
| 16:15 - 16:30<br><b>Uddelinger</b>   |   |

## **Program onsdag 22. oktober**

# **HOVEDUDDANNELSESSTILLING I ORTOPÆDISK KIRURGI – NYE TIDER**

**Onsdag den 22. oktober 2008 kl. 13:00-15:00**

**Radisson SAS Scandinavia Hotel**

DOS's Bestyrelse ønsker at præsentere de nye "Faglige bedømmelseskriterier til Hoveduddannelsesstilling i Ortopædisk Kirurgi" et symposium. Symposiumet har interesse for alle yngre læger som overvejer eller er på vej ind i en uddannelsesstilling / samt ikke mindst for alle speciallæger i vores afdelinger.

**Moderator: Finn Bjarke Christensen**

## ***Præsentation af Faglige bedømmelseskriterier til Hoveduddannelsesstilling i Ortopædisk Kirurgi"***

**Søren Overgaard & Per Kjærsgaard-Andersen**

*Med venlig hilsen  
Per Kjærsgaard-Andersen  
Formand for DOS*

# **SPECIALEPLANLÆGNING – Proces samt status**

**Onsdag den 22. oktober 2008 kl. 15:30-18:30  
Radisson SAS Scandinavia Hotel**

DOS's bestyrelse ønsker ved ovenstående session at præsentere foreningens medlemmer for status - samt debattere processen i forbindelse med den pågående Specialeplanlægning af vores speciale – ortopædisk kirurgi.

Panel: Arbejdsgruppen nedsat af Sundhedsstyrelsen

*Moderator: Benn Duus, næstformand i DOS*

|                                     |                         |
|-------------------------------------|-------------------------|
| Baggrund for specialeplanlægningen: | Per Kjærsgaard-Andersen |
| Involvering af de 9 fagområder:     | Per Kjærsgaard-Andersen |
| Redegørelse for forløbet:           | Per Kjærsgaard-Andersen |
| Specialerapporten:                  | Benn Duus               |
| SST's Specialeudmelding:            | Per Kjærsgaard-Andersen |
| Manglende afklaringer:              | Per Kjærsgaard-Andersen |
| Hvad sker der så nu??               | Benn Duus               |
| Debat                               | Benn Duus               |

Vi håber at mange møder op og deltager i debatten.

**Der er efterfølgende (for de tilmeldte) Buffet i de "tilstødende" lokaler.**

**Tilmelding via hjemmesiden inden den 10. oktober 2008.**

*Med venlig hilsen  
Per Kjærsgaard-Andersen  
Formand for DOS*

# **Workshop for turnus- og introduktionslæger i ortopædkirurgi**

**Onsdag den 22. oktober 2008 kl. 13:00-17:30  
Radisson SAS Scandinavia Hotel**

**Indhold:** 2 sideløbende workshops, hver à 2 timer. Der deltages i begge workshops med skift midtvejs.

Begge workshops indledes med et teoretisk oplæg, hvorefter der vil være opstillet arbejdsstationer hvor deltagerne i praksis på modeller kan afprøve principperne.

**Emner:** Knæ-artroskopi- arbejdsstationer leveres af NMS og Stryker i fællesskab.

Foredragsholder fra Dansk Selskab for Artroskopisk kirurgi og sports-traumatologi

**Ankel-frakturer** og intern fiksektion heraf. Arbejdsstationer leveres fra Synthes.

Foredragsholder fra Dansk Traumeselskab

**Deltagere:** Målgruppen er kommende ortopædkirurger med kort eller slet ingen operativ erfaring, niveauet vil være tilpasset dette. Der er plads til 30 deltagere, 2 hold à 15. Ved overtegning vil introduktionslæger få plads før turnus-kandidater. Ved manglende tilmeldinger vil der blive mulighed for deltagelse af stud.med.'er.

**Tilmelding:** Til Michael Brix, DOS' Uddannelsesudvalg, på e-mail: michaelbrix@mail.dk. Spørgsmål kan ligeledes stilles på denne mail-adresse.

**Betaling:** Kursusgebyr 100,00 kr., indbetales på konto nr. 30010003086895. Skriv "Tilmelding til work-shop" og **husk navn!**

*Uddannelsesudvalget*

# **Torsdag 23. oktober**

13:00 - 14:30 SAL A

## **Hoftekirurgi I**

**Chairmen: Benn Duus & Thomas K Poulsen** **Side**

**MEDIUM TERM OUTCOME OF PERIACETABULAR  
OSTEOTOMY AND PREDICTORS OF CONVERSION  
TO TOTAL HIP REPLACEMENT** **30**

*Anders Troelsen, Brian Elmengaard, Kjeld Søballe.*

**THE EFFECT OF SOAKING ALLOGRAFT IN  
BISPHOSPHONATE – A DOSE-RESPONSE STUDY** **31**

*Thomas Jakobsen, Jørgen Baas, Brian Elmengaard,  
Joan E. Bechtold, Kjeld Søballe*

**A COMPARISON OF PATIENTS AND OUTCOMES  
FOLLOWING TOTAL HIP ARTHROPLASTY TREATED  
IN PUBLIC AND PRIVATE HOSPITALS IN DENMARK.** **32**

*Marianna Krause, Maja Sparre Kristensen, Alma Becic Pedersen,  
Frank Mehnert, Søren Overgaard.*

**CARTILAGE THICKNESS IN THE HIP JOINT  
MEASURED BY MRI AND STEREOLOGY BEFORE  
AND AFTER PERIACETABULAR OSTEOTOMY** **33**

*Inger Mechlenburg, Jens R. Nyengaard, John Gelineck,  
Kjeld Søballe*

# **Torsdag 23. oktober**

13:00 – 14:30 SAL A (cont.)

## **Hoftekirurgi I**

| <b>Chairmen: Benn Duus &amp; Thomas K Poulsen</b>   | <b>Side</b> |
|---|-------------|
| <b>RESULTS AFTER PERIACETABULAR OSTEOTOMI (PAO) IN +35 YEAR OLD PATIENTS WITH HIP DYSPLASIA – A CASE CONTROL STUDY.</b><br><i>Annie Primdahl, Ole Ovesen, Søren Overgaard.</i>  | 34          |
| <b>PATIENT- RELATED RISK FACTORS FOR VENOUS THROMBOEMBOLISM FOLLOWING TOTAL HIP REPLACEMENT IN DENMARK: A NATIONWIDE POPULATION-BASED COHORT STUDY</b><br><i>Alma B. Pedersen, Frank Mehnert, Søren Overgaard, Henrik T. Sørensen and Søren P. Johnsen</i>  | 35          |
| <b>THE NORDIC ARTHROPLASTY REGISTER ASSOCIATION. THE FIRST REPORT FROM A UNIQUE COLLABORATION BETWEEN THE TOTAL HIP ARTHROPLASTY REGISTRIES INCLUDING 280, 201 PROCEDURES</b><br><i>Søren Overgaard, Alma Pedersen, Leif I. Havelin, Anne M. Fenstad, Roger Salomonsson, Frank Mehnert, Ove Furnes, Peter Herberts, Johan Kärrholm, Göran Garellick</i> | 36          |
| <b>CRACK VERSUS REAM REVISION: IMPROVING FIXATION OF UNCEMENTED HA-COATED IMPLANTS</b><br><i>Jørgen Baas, Brian Elmengaard, Thomas Jakobsen, Joan Bechtold, Kjeld Soballe.</i>  | 37          |

# **Torsdag 23. oktober**

13:00 - 14:30 SAL B

## **Traumekirurgi, Knækirurgi og Tumorkirurgi**

**Chairmen: Johnny Keller & Søren Rasmussen** **Side**

**PATIENT FUNCTION FOLLOWING FEMORAL NECK SHORTENING AND VARUS COLLAPSE AFTER CANCELLOUS SCREW FIXATION OF ISOLATED FEMORAL NECK FRACTURES: A MULTI-CENTER COHORT STUDY** **38**

*Ole Brink, Michael Zlowodzki, Julie Switzer, Scott Wingerter, James Woodall Jr, Brad A. Petrisor, Philip J. Kregor David R. Bruinsma, Mohit Bhandari*

**COMPLICATIONS, REOPERATIONS AND MORTALITY IN UNCEMENTED, HA COATED VS. CEMENTED HEMIARTHROPLASTIES FOR DISPLACED FEMORAL NECK FRACTURES: REPORT FROM A COMMON ORTHOPAEDIC DEPARTMENT** **39**

*Søren Kring Hansen, Lasse Birkelund, Michael Brix, Anders Troelsen*

**DIFFERENCES IN POSTOPERATIVE COMPLICATIONS AFTER UNCEMENTED HEMIARTHROPLASTIES - ULTIMA VS. BFX** **40**

*Anders Kjørup, Henrik L. Jørgensen, Benn Duus, Jes B. Lauritzen*

# **Torsdag 23. oktober**

13:00 - 14:30 SAL B (cont.)

## **Traumekirurgi, Knækirurgi og Tumorkirurgi**

| <b>Chairmen: Johnny Keller &amp; Søren Rasmussen</b>  | <b>Side</b> |
|---|-------------|
| <b>THE IMPACT OF ORGANIZATIONAL FACTORS ON MORTALITY AFTER HIP FRACTURE SURGERY</b><br><i>Caterina Amanti Lund, Lars Hyldborg Lundstrøm, Ann Merete Møller</i>  | 41          |
| <b>NEW SURGICAL ALGORITHM IN PATIENTS WITH ACUTE SPINAL METASTASES</b><br><i>K Schöttiger, K Høy, Es Hansen, B Niedermann, P Helmig, H Li, A Grejs, T Andersen, C Bünger</i>  | 42          |
| <b>CHANGES IN BONE MINERAL DENSITY OF THE TIBIA AFTER TOTAL KNEE REVISION. PRELIMINARY RESULTS FROM A RANDOMIZED STUDY USING TRABECULAR METAL CONES OR BONE CEMENT TO RESTORE BONE LOSS OF THE PROXIMAL TIBIA</b><br><i>Claus L Jensen, Michael M Petersen, Henrik M Schrøder, Bjarne Lund.</i> | 43          |
| <b>SURVIVAL FOLLOWING JOINT REPLACEMENT BECAUSE OF METASTATIC BONE DISEASE</b><br><i>Kristine G. Gregersen, Michael M. Petersen, Tomas Grum-Schwensen, Dorrit Hovgaard</i>  | 44          |
| <b>LONG-TERM RESULTS AFTER SURGICAL TREATMENT OF PELVIC FRACTURES ASSESSED WITH SF-36</b><br><i>Niklas Tøndevold &amp; Benny Dahl</i>   | 45          |



**Torsdag 23. oktober**

15:30 - 16:30 SAL A

**Guildal forelæsning:**

**Jonas Ranstam, Lund -**  
Statistiker tilknyttet Acta Orthopaedica

**"How to improve the chance of  
getting your manuscript accepted for publication"**

16:30 - 17:00 SAL A

**Uddelinger: Guildal Fonden  
DOS Fonden**

19:00 - ???

**Gallamiddag**

# **Fredag 24. oktober**

08:30 - 10:00 SAL A

## **Rygkirurgi og overekstremitetskirurgi**

| <b>Chairmen: Pernille Leicht &amp; Karsten Thomsen</b>  | <b>Side</b> |
|---|-------------|
| <b>2D IMAGE FUSION IN PATIENTS WITH SUSPECTED SCAPHOID FRACTURE</b><br><i>Otto M. Henriksen, M. N. Lonsdale, Tina D. Jensen, Katrine L. Weikop, Ole Holm, Benn Duus, Lars Friberg</i>                 | 46          |
| <b>LONG-TERM FOLLOW-UP OF MINI-OPEN STABILIZATION OF THE STERNO-CLAVICULAR JOINT USING AN TENDON AUTOGRAFT. PRELIMINARY REPORT OF A NEW TECHNIQUE</b><br><i>Klaus Bak &amp; Carolina Malta Hansen</i> | 47          |
| <b>STPI PROSTHESIS - A SOLUTION FOR THE TREATMENT OF STT JOINT ARTHROSIS - A FOUR YEARS FOLLOW-UP</b><br><i>Niels H. Søre, Merete Nielsen, Nina Vendel Jensen</i>                                     | 48          |
| <b>TRANSPEDICULAR CLOSED WEDGE OSTEOTOMY IN ANKYLOSING SPONDYLITIS: RESULTS OF SURGICAL TREATMENT AND PROSPECTIVE OUTCOME ANALYSIS</b><br><i>Thomas Kiær, Martin Gehrchen</i>                         | 49          |
| <b>MRI IS COST EFFECTIVE IN MANAGEMENT OF SUSPECTED SCAPHOID FRACTURES</b><br><i>Torben Bæk Hansen, Rikke Børthy Petersen, Jeppe Bargman, Poul Uhre and Kristian Larsen</i>                           | 50          |

# **Fredag 24. oktober**

08:30 - 10:00 SAL A (cont.)

## **Rygkirurgi og overekstremitetskirurgi**

**Chairmen: Pernille Leicht & Karsten Thomsen** **Side**

**REGIONAL BODY COMPOSITION, BONE MINERAL DENSITY, AND MUSCLE STRENGTH IN PATIENTS WITH TWO DIFFERENT SHOULDER ARTHROPLASTY DESIGNS** **51**

*Anders W. Paulsen, Kim F. Andersen, Anne Kathrine B. Sørensen, Bo Zerahn, Bo Sanderhoff Olsen.*

**PERCUTANEOUS MINIMAL INVASIVE PEDICULAR SCREW AND ROD INSERTION IN 270-DEGREE LUMBAR FUSION. A PROSPECTIVE SAFETY AND EFFICACY STUDY OF 40 PATIENTS WITH 2-YEAR FOLLOW-UP** **52**

*Sten Rasmussen, Jon Kaspersen, Søren Eiskjær*

**SAGITTAL SPINAL BALANCE AFTER LUMBAR SPINAL FUSION WITH AND WITHOUT ANTERIOR SUPPORT. RESULTS FROM A RCT WITH A LONG-TERM FOLLOW-UP** **53**

*Ts Videbaek, Fb Christensen, N Egund, A Jurik, C Bünger*

# **Fredag 24. oktober**

08:30 - 10:00 SAL B

## **Hoftekirurgi II**

| <b>Chairmen: Jens-Erik Varmarken &amp; Steen Mejdahl</b>  | <b>Side</b> |
|---|-------------|
| <b>GAIT ANALYSIS AFTER TOTAL HIP REPLACEMENT WITH HIP RESURFACING IMPLANT OR MALLORY-HEAD EXETER PROSTHESIS</b><br><i>Mette Krintel Petersen, Niels Trolle Andersen, Poul Mogensen, Michael Voigt, Kjeld Søballe</i>  | 54          |
| <b>REVISION TOTAL HIP ARTHROPLASTY USING A MODULAR TAPERED STEM WITH DISTAL FIXATION. GOOD SHORT-TERM RESULTS IN 125 REVISIONS</b><br><i>Ole Ovesen, Claus Emmeluth, Christian Hofbauer, Søren Overgaard.</i>   | 55          |
| <b>PAIN-INDUCED OSTEOPENIA IN THE KNEE REGENE-RATED 6 MONTHS AFTER SUCCESSFUL TOTAL HIP REPLACEMENT. 100 CONSECUTIVE PATIENTS FOLLOWED WITH DXA-SCANS FOR 3 YEARS</b><br><i>Anders C. Laursen, Christian M. Olesen, Malene Højbjerg and Mogens B. Laursen</i> | 56          |
| <b>CAM-DEFORMITY AS A RISK FACTOR FOR HIP JOINT OSTEOARTHRITIS.</b><br><i>Kasper Gosvig, Steffen Jacobsen, Stig Sonne-Holm, Henrik Palm</i>   | 57          |
| <b>INTRAMEDULLARY TOTAL FEMORAL ARTHROPLASTY (TFA) AS SALVAGE REVISION</b><br><i>Mohammed Jafar, Jens Stürup, Henrik Schrøder</i>   | 58          |

# **Fredag 24. oktober**

08:30 - 10:00 SAL B (cont.)

## **Hoftekirurgi II**

| <b>Chairmen: Jens-Erik Varmarken &amp; Steen Mejdahl</b>   | <b>Side</b> |
|--|-------------|
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**Fredag 24. oktober**

11:00 - 11:30 SAL A

***Presidential Guest Lecture:***

***Professor Roberto Binazzi,***

Bologna, Italy

***"Strategy, Experience and Results on using  
non-cemented, distal fixation femoral stems at  
revision total hip arthroplasty"***

# **Fredag 24. oktober**

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Chairmen: Per Kjærsgaard-Andersen & Bo Sanderhoff Olsen

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### **Professoral Tiltrædelsesforelæsning**

**Professor  
Finn Bjarke Christensen**

***”Forskning i bevægelse –  
bevægelse i forskning”***



# **Fredag 24. oktober**

14:45 – 16:15 SAL A

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***Fredag 24. oktober***

16:15 – 16:30 SAL A

***Uddelinger:***

***Bedste Foredrag***

***Bedste Poster***

# ***ABSTRACTS***

# MEDIUM TERM OUTCOME OF PERIACETABULAR OSTEOTOMY AND PREDICTORS OF CONVERSION TO TOTAL HIP REPLACEMENT

*Anders Troelsen, Brian Elmengaard, Kjeld Søballe.*  
Ortopædkirurgisk Forskningsenhed, Århus Sygehus.

**INTRODUCTION:** The periacetabular osteotomy (PAO) is applied worldwide, but little is known about medium or long term results. The aim of the present study was to assess the medium term outcome following PAO, and to analyze what radiographic and patient related factors predict a poor outcome.

**MATERIAL AND METHODS:** 116 PAO's performed by the senior author between Dec. 1998 and Dec. 2002 were eligible for inclusion. Database inquiry and evaluation of radiographic material were made. At follow-up we made an interview, clinical and radiographic examination, and patients filled in WOMAC and SF-36 questionnaires. We made Kaplan-Meier analysis and Cox proportional hazards model was used to identify factors predicting poor outcome. Mean follow-up was 6.8 years (range: 5.2-9.2).

**RESULTS:** The Kaplan-Meier analysis showed a hip joint survival rate of 81.6 % (95%ci: 69.7-89.3) at 9.2 years. At follow-up the median SF-36 Physical Component Score was 48.3, the median SF-36 Mental Component Score was 58.0 and the WOMAC total score was 84.4. The median VAS-pain score was 0 at rest and 1 after 15 min of normal walking. When adjusting for preoperative osteoarthritis (hazard ratio: 5.5 (95%ci: 1.9-16.2),  $p=0.02$ ) we identified seven factors predicting conversion to total hip replacement. Preoperative predicting factors included severe dysplasia on conventional radiography and CT-scan, reduced acetabular anteversion angle on CT-scan and the presence of os acetabuli.

**CONCLUSION:** PAO can be performed with a good outcome at medium term follow-up. To further improve the outcome, focus should be on the potential negative influence of parameters that are easily assessed, such as the preoperative grade of osteoarthritis, the presence os acetabuli and severe acetabular dysplasia.

# THE EFFECT OF SOAKING ALLOGRAFT IN BISPHOSPHONATE – A DOSE-RESPONSE STUDY

*Thomas Jakobsen, Jørgen Baas, Brian Elmengaard, Joan E. Bechtold,  
Kjeld Søballe*  
Ortopæd. Forskningslab., Århus Sygehus

**INTRODUCTION:** For arthroplasties with reduced bone stock at the implantation site, the use of morselized allograft is a well established way of optimizing early implant fixation. Treating the allograft with bisphosphonate (BP) could be one way to enhance implant fixation and osseointegration. BPs are strong inhibitors of bone resorption. The aim of this study was to investigate the dose-response relationship between implant fixation and different concentrations of BP when soaking allograft in BP and subsequently impacting it around an experimental implant.

**MATERIALS AND METHODS:** Four Ti-coated implants were inserted into each of ten dogs; two implants in each proximal humerus. The implants were surrounded by a 2.5 mm gap filled with impacted allograft soaked in either saline (control) or bisphosphonate (0.005, 0.05 or 0.5 mg zoledronate / mL saline). Observation time was 4 weeks. Implants were evaluated by mechanical push-out test and histomorphometrical analysis.

**RESULTS:** The low-dose of zoledronate increased the biomechanical fixation (1.2-1.8-fold, all  $p > 0.05$ ) compared to the control group. The middle- and high-dose of zoledronate decreased the biomechanical fixation (0.05-0.75-fold, all  $p < 0.05$ ). The low-dose of zoledronate increased the amount of new bone (1.7-fold,  $p < 0.05$ ) and allograft (1.8-fold,  $p < 0.05$ ) compared to the control group. The high-dose of zoledronate totally blocked new bone formation, but preserved all the allograft.

**CONCLUSION:** This study indicates that soaking allograft in BP can increase new bone formation while inhibiting allograft resorption. However, the study also emphasizes the importance of preclinical testing, since a too high concentration of bisphosphonate can inhibit new bone formation and potentially impair the biomechanical implant fixation.

# **A COMPARISON OF PATIENTS AND OUTCOMES FOLLOWING TOTAL HIP ARTHROPLASTY TREATED IN PUBLIC AND PRIVATE HOSPITALS IN DENMARK**

*Marianna Krause; Maja Sparre Kristensen; Alma Becic Pedersen;  
Frank Mehnert; Søren Overgaard*

Ortopædkirurgisk afd. Odense Universitets Hospital; Klinisk Epidemiologisk afd. Aarhus Universitets Hospital.

**INTRODUCTION:** We examined whether there is a difference in patients and outcomes following total hip arthroplasty (THA) between private and public hospitals.

**MATERIAL AND METHODS:** We used data from the Danish Hip Arthroplasty Registry to identify 69 249 primary THA performed between 1 January 1995 to 31 December 2006 among which we could match 3658 patients operated in private with 3658 patients operated in public hospitals on propensity score.

We used multivariate logistic regression on propensity score matched data to assess association between type of hospital and outcome by computing relative risks and 95% Confidence Interval (CI). Outcomes were perioperative complications, readmission within 3 months, reoperation within 2 years, implant failure after 5 years, and mortality within 3 months of surgery.

**RESULTS:** Private hospitals operated on older females, patients with primary osteoarthritis and low co-morbidity and Charnley category 1. But, patients in private and propensity matched controls from public hospitals showed no differences in any of the characteristics above mentioned.

Based on matched data, private hospitals had lower relative risk for perioperative complications (0.39, 0.26-0.60), reoperations (0.59, 0.41-0.83) and readmissions (0.57, 0.42-0.77) compared with public. There was no difference in mortality or implant failure. We had no data on surgeon, general health and socio-economic status of the patients.

**CONCLUSION:** We found in general substantial difference between populations operated at public versus private hospitals. Using propensity matched data, no difference was evident regarding mortality and implant failure but for complications, reoperations and readmissions between private and public hospitals.



# **CARTILAGE THICKNESS IN THE HIP JOINT MEASURED BY MRI AND STEREOLOGY BEFORE AND AFTER PERIACETABULAR OSTEOTOMY**

Inger Mechlenburg, Jens R. Nyengaard, John Gelineck, Kjeld Søballe  
Department of Orthopaedics, University Hospital of Aarhus, Denmark,  
Stereology and Electron Microscopy Research Laboratory, University  
of Aarhus, Denmark, Department of Radiology, University Hospital of  
Aarhus, Denmark

**INTRODUCTION:** As periacetabular osteotomy (PAO) is performed on dysplastic hips to prevent osteoarthritic progression, changes in the thickness of the articular cartilage are important to follow over time. We have earlier developed a precise and efficient method for estimating the thickness of the cartilage in the hip joint. This method was used in order to investigate if any changes of the thickness of the cartilage take place after PAO.

**MATERIAL AND METHODS:** After signed consent, 22 females and 4 males scheduled for PAO were consecutively included. The patients had median age of 39 (19-53) years. Preoperative, the patients were MR imaged on a 1.5 tesla MRI scanner, and this was repeated one year and 2<sup>1</sup>/<sub>2</sub> years postoperative. To show the acetabular and femoral cartilages separately, an ankle traction device was used during MRI. We used four reconstructed images through the centre of the femoral head. On each of the images a grid of 10-15 radial test lines was superimposed on the images and where the test lines intercepted the cartilage, the orthogonal distance through the cartilage was manually measured. The approximately 40-60 measured distances were summed and the mean thickness of the acetabular and femoral cartilage respectively was calculated.

**RESULTS:** Preoperative, the mean thickness of the acetabular cartilage was 1.40 mm, SD 0.16, one year postoperative 1.47 mm, SD 0.13 and 2<sup>1</sup>/<sub>2</sub> years postoperative 1.35, SD 0.16. The mean thickness for the femoral cartilage preoperative was 1.38 mm, SD 0.18, one year postoperative 1.43 mm, SD 0.13 and 2<sup>1</sup>/<sub>2</sub> years postoperative 1.38 mm, SD 0.16.

**CONCLUSION:** Cartilage thickness 2<sup>1</sup>/<sub>2</sub> years postoperative compared to preoperative was unchanged in these patients. This indicates that osteoarthritis in these patients has not progressed after PAO.

# **RESULTS AFTER PERIACETABULAR OSTEOTOMY (PAO) IN +35 YEAR OLD PATIENTS WITH HIP DYSPLASIA – A CASE CONTROL STUDY**

*Annie Primdahl, Ole Ovesen, Søren Overgaard.*

Department of Orthopaedic Surgery,  
Odense University Hospital, Denmark.

**INTRODUCTION:** Hip dysplasia is associated with a significant risk of secondary osteoarthritis (OA). Previous studies have proved that PAO is a possible joint preserving procedure. The lower age for conducting a PAO is given by closure of the y-cartilage, whereas the upper age limit is uncertain. The purpose of this study was to compare the outcome after PAO in patients over 35 years of age with younger patients.

**MATERIAL AND METHODS:** 75 patients (91 hips) with symptomatic hip dysplasia, grade 0-1 OA operated from 2003 to 2006 were included. 36 other patients were excluded, mainly due to ipsilateral femur osteotomy. Data concerning health related quality of life (EQ5D), pain (VAS), satisfaction, level of activity, HHS and radiographic correction (Lateral center edge- (LCE) and Acetabular index angle (AA)) were collected from files and a questionnaire.

**RESULTS:** There was no difference in complications and reoperations. Patients older than 35 years obtained postoperative LCE- and AA- angles of 35° and 2° compared to respectively 33° and 2° in the younger patients (NS). Significantly more patients in the older group had a grade 1 OA preoperatively. HHS was significantly higher preoperatively and at latest follow-up in the younger group, but there was no significant difference in the gain among the 2 groups. There was no significant difference in level of activities or in the gain in VAS- and EQ5D-score. Patient satisfaction expressed in terms of willingness to repeat the procedure was 79% in the younger and 86% in the older group. Generally 86% stated that their condition had improved.

**CONCLUSION:** Both patients groups had significant improvement regarding pain, HHS, quality of life and activity without difference between patients older than 35 years compared to the younger age group.

# **PATIENT- RELATED RISK FACTORS FOR VENOUS THROMBOEMBOLISM FOLLOWING TOTAL HIP REPLACEMENT IN DENMARK: A NATIONWIDE POPULATION-BASED COHORT STUDY**

*Alma B. Pedersen, Frank Mehnert, Søren Overgaard,  
Henrik T. Sørensen And Søren P. Johnsen*

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Ortopædkirurgisk afdeling Odense Universitetssygehus

**INTRODUCTION:** Venous thromboembolism (VTE) is serious complications in patients undergoing total hip replacement (THR) with reported incidence within 3 months between 1.7% and 3.2% in patients with and 20% in patients without thromboprophylaxis. We aim to determine patient related risk groups for VTE following THR in a nationwide follow-up study in Denmark.

**MATERIAL AND METHODS:** From the Danish Hip Registry, we identified 68 863 primary THR procedures between 1 January 1995 and 31 December 2006. The Cox proportional hazards analysis was used to examine the association between possible risk factors and time to hospitalization with VTE. We estimated crude 90 days hazard ratio as a measure of relative risk (RR) and 95% Confidence Interval (CI) for each factor.

**RESULTS:** The overall risk of hospitalization with VTE within 90 days after primary THR procedure was 0.96% (647 out of 67469) after a median follow-up time of 22 days. We identified several risk groups of patients, including patients with Charlson comorbidity index high and patients previously hospitalized with cardio- or cerebrovascular diseases or VTE, associated with increased risk of hospitalization with post-operative VTE. Rheumatoid arthritis patients had a reduced risk of hospitalization with post-operative VTE of 0.41 (95% CI; 0.20-0.82). Only 15.1% of patients were admitted to orthopaedic departments, whereas 84.9% of patients were admitted to different other departments.

**CONCLUSION:** This knowledge could be used for better individual risk stratification of THR patients in relation to VTE taking into account the risk factors presented and the possible interaction between these risk factors leading to better targeting of specific thromboprophylaxis modalities to these patients.

# THE NORDIC ARTHROPLASTY REGISTER ASSOCIATION. THE FIRST REPORT FROM A UNIQUE COLLABORATION BETWEEN THE TOTAL HIP ARTHROPLASTY REGISTRIES INCLUDING 280,201 PROCEDURES

*Søren Overgaard, Alma Pedersen, Leif I. Havelin, Anne M. Fenstad, Roger Salomonsson, Frank Mehnert, Ove Furnes, Peter Herberts, Johan Kärrholm, Göran Garellick*

1)The Danish Hip Arthroplasty Register, Aarhus University Hospital. 2)Department of Orthopaedic Surgery and Clinical Institute, Odense University Hospital 3)Department of Clinical Epidemiology, Aarhus University Hospital. 4)The Norwegian Arthroplasty Register, Haukeland University Hospital. 5)Department of Surgical Sciences, University of Bergen. 6)Locus of Registry Based Epidemiology, Faculty of Medicine, University of Bergen. 7)The Swedish Hip Arthroplasty Register. Sahlgrenska University Hospital, University of Gothenburg.

**INTRODUCTION:** Due to different reporting systems, the possibilities for comparing the results and pooling the data have been limited for the Nordic arthroplasty registries. We have created a common Nordic database, in order to compare demographics and results of THA, and to study results in patient groups that are too small to be evaluated in each separate country.

**MATERIALS AND METHODS:** Primary THA from Denmark, Sweden, and Norway, 1995-2006, were included. Cox multiple regression, with adjustment for age, gender, and diagnosis was used to calculate prosthesis survival with any revision as end-point.

**RESULTS:** A total of 280,201 operations were included (Denmark 69,242, Sweden 140,821, Norway 70,138). Female patients constituted 60% in Denmark and Sweden, and 70% in Norway. Childhood disease constituted 3.1%, 1.8%, and 8.7% in Denmark, Sweden, and Norway. Resurfacing hips constituted 0.5% or less in all countries. The posterior approach was used in 91% of cases in Denmark, but 60% and 24% in Sweden and Norway. Cemented THA's were used in 46% of patients in Denmark, 89% in Sweden, and 79% in Norway. Of the 280,201 primary THAs, 9,596 (3.4%) had been revised. Ten-years survival was 91.9% (95% CI: 91.5 – 92.3) in Denmark, 93.9% (95% CI: 93.6-94.1) in Sweden, and 92.6% (95% CI: 92.3-93.0) in Norway. In Denmark, 34% of the revisions were due to dislocation, compared to 23% in Sweden and Norway. Replacement of only cup or liner constituted 44% of the revisions in Denmark, 29% in Sweden, and 33% Norway.

**CONCLUSION:** This unique common Nordic collaboration has shown differences among the countries concerning demographics, prosthesis fixation and survival. The large number of patients in this database widens our perspectives for future research.

# **CRACK VERSUS REAM REVISION: IMPROVING FIXATION OF UNCEMENTED HA-COATED IMPLANTS**

*Jørgen Baas, Brian Elmengaard, Thomas Jakobsen, Joan Bechtold,  
Kjeld Soballe*

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Århus Sygehus and Midwest Orthopaedic and Minneapolis Medical  
Research Foundations, Minneapolis USA

**INTRODUCTION:** The crack procedure is a surgical technique for preparing the implant cavity at revision of loose joint replacement components. It disrupts the neocortical bone shell that typically forms around the cavity. We compared it to reaming.

**MATERIAL AND METHODS:** Twenty micromotion implants were inserted bilaterally into the knees of ten dogs according to our revision protocol, allowing formation of a standardized revision cavity (loose implant, fibrous tissue, and sclerotic bone rim). At eight weeks revision surgery was undertaken. On the control side the cavity was reamed, by which the neocortex was removed. On the intervention side the cavity was cracked, by which the neocortex was perforated but left in situ. Revision was completed with the insertion of non-motioning HA-coated plasmaspray Ti implants. Observation time after revision was four weeks.

**RESULTS:** The implants revised by the crack technique had better mechanical fixation in all mechanical parameters by push-out test ( $p < 0.05$ ). The crack revisions also gave more new bone formation around the implants compared to the reamed revisions ( $p = 0.028$ ), but had no effect on new bone ongrowth ( $p = 0.575$ ).

**CONCLUSION:** The experiment suggests that using this bone sparing technique may be superior to reaming in terms of achieving improved early implant fixation of uncemented, HA-coated revision implants.

# **PATIENT FUNCTION FOLLOWING FEMORAL NECK SHORTENING AND VARUS COLLAPSE AFTER CANCELLOUS SCREW FIXATION OF ISOLATED FEMORAL NECK FRACTURES: A MULTI-CENTER COHORT STUDY**

*Ole Brink, Michael Zlowodzki, Julie Switzer, Scott Wingerter, James Woodall Jr, Brad A. Petrisor, Philip J. Kregor David R. Bruinsma, Mohit Bhandari, Aarhus University Hospital, Trauma Research Unit, Denmark. University of Minnesota, Minneapolis, MN, USA McMaster University, Division Orthopaedic Surgery, Hamilton, ON, Canada University of Mississippi, Jackson, MS, USA Vanderbilt University, Nashville, TN, USA*

**INTRODUCTION:** Femoral neck fracture collapse and shortening has been a desired effect of parallel screw fixation to promote healing. We aimed to evaluate the effect of shortening and varus collapse after cancellous screw fixation of femoral neck fractures.

**MATERIAL AND METHODS:** The databases of four University Hospitals were screened to identify patients with a healed isolated femoral neck fracture. Patients were contacted by telephone to complete SF36 and EQ5D questionnaires. Femoral neck shortening and varus collapse were assessed by three independent reviewers blinded to functional outcome results based on the latest follow-up radiographs.

**RESULTS:** Out of 660 patients screened at all four sites 70 met the inclusion criteria and were available for follow-up. The average follow-up was 20 months. 45 fractures were nondisplaced and 25 displaced. Overall, there were 24/70 patients with none/mild femoral neck shortening, 25/70 with moderate shortening and 21/70 with severe shortening. Moderate or severe shortening occurred in displaced (68%) as well as non-displaced fractures (64%). Patients with severe shortening of their hip had significantly lower SF36 physical functioning scores. Similar important effects occurred with moderate shortening suggesting a gradient effect. Some degree of varus collapse occurred in 39% of the patients and correlated moderately with the occurrence of shortening ( $r=0.66$ ,  $p<0.001$ ), but did not independently predict low SF36 physical functioning scores. In a regression analysis femoral neck shortening was the only significant variable predictive of a poor SF36 PF score ( $p<0.001$ ).

**CONCLUSION:** The differences in function we observed represent patient important declines and suggest that uncontrolled sliding with cancellous screw fixation has limitations.

# COMPLICATIONS, REOPERATIONS AND MORTALITY IN UNCEMENTED, HA COATED VS. CEMENTED HEMIARTHROPLASTIES FOR DISPLACED FEMORAL NECK FRACTURES: REPORT FROM A COMMON ORTHOPAEDIC DEPARTMENT

*Søren Kring Hansen, Lasse Birkelund, Michael Brix, Anders Troelsen*  
Department of Orthopaedics, Aabenraa Hospital

**INTRODUCTION:** Cemented hemiarthroplasty is the preferred treatment for displaced femoral neck fractures in many orthopaedic departments. Uncemented femoral components are commonly used in total hip arthroplasty for younger patients. We wished to investigate the outcome, in terms of complications, reoperations and mortality, of an uncemented, fully hydroxyapatite (HA) coated hemiarthroplasty on introduction in a common orthopaedic department, and compare it to the previously used cemented hemiarthroplasty.

**MATERIAL AND METHODS:** Between July 2005 and December 2007, 78 cemented (CPT, Zimmer) and 97 uncemented (Corail, DePuy) hemiarthroplasties were inserted in successive time periods. The indication for surgery did not change within the time period. Baseline characteristics, complications, reoperations and mortality were assessed retrospectively through database inquiry and patient records and compared between groups.

**RESULTS:** Age at surgery and gender were comparable. ASA-score (median 2 (Corail) vs. 3 (CPT),  $p=0.02$ ) and proportion of cognitive impaired patients (9% (Corail) vs. 22% (CPT),  $p=0.02$ ) differed between groups. The rate of moderate and severe complications (fracture, luxation, deep infection, prosthetic subsidence or misplacement, possible lung embolus or neurovascular complication) was 7% (Corail) vs. 6% (CPT),  $p=0.83$ . Reoperation rates (2% (Corail) vs. 4% (CPT),  $p=0.48$ ) and mortality (27% (Corail) vs. 21% (CPT),  $p=0.37$ ) did not differ significantly.

**CONCLUSION:** Given the retrospective design the groups had comparable outcomes, and in general the results are comparable to those in literature. Introducing an uncemented, HA coated hemiarthroplasty for treatment of displaced femoral neck fractures in a common orthopaedic department seems reasonable.

# DIFFERENCES IN POSTOPERATIVE COMPLICATIONS AFTER UNCEMENTED HEMIARTHROPLASTIES - ULTIMA VS. BFX

*Anders Kjørup, Henrik L. Jørgensen, Benn Duus, Jes B. Lauritzen*  
Department of Orthopaedic Surgery Department of Clinical Biochemistry, Bispebjerg Hospital, Faculty of Health Sciences,  
University of Copenhagen

**INTRODUCTION:** We compared the rate of postoperative complications in two uncemented bipolar hip hemiarthroplasties with different distal stem fitting.

**MATERIAL AND METHODS:** Between 2004 and 2007 we performed a prospective consecutive study including 384 patients with displaced femoral neck fractures with a follow-up of one year. Primary outcome was the first postoperative complication leading to closed treatment or surgical procedure. In 2004 we used the Ultima hemiarthroplasty with the Austin Moore stem. In 2005 and 2006 we used the Biomet Fracture Stem: BFX. Mean age was 85.7.

**RESULTS:** The Ultima had a 14% (18/126) complication rate while the BFX had 11% (29/258) ( $P=0.4$ ). Dislocations (4.8 vs. 8.1 %,  $P=0.2$ ) were the most frequent complication followed by periprosthetic fractures (4.0 vs. 1.6,  $P=0.1$ ) in both groups. When the complication occurred due to a fall (40 % of all complications) we found a cross pattern with more postoperative dislocations of the BFX compared to the Ultima (8 vs. 3) and fewer periprosthetic fractures (3 vs. 5) ( $P=0.07$ ).

**CONCLUSION:** No significant differences in complications were seen in the Ultima compared to the BFX but we found an important cross pattern. When falling on a hip hemiarthroplasty the distribution of postoperative dislocations and periprosthetic fractures differs corresponding to the distal fitting of the stem. More dislocations occurred in the BFX while, oppositely, most periprosthetic fractures happened with the Ultima. Our findings indicate that the energy absorbed from a fall is more proximally absorbed in a close fitted stem as compared to a slim stem.



# THE IMPACT OF ORGANIZATIONAL FACTORS ON MORTALITY AFTER HIP FRACTURE SURGERY

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**INTRODUCTION:** The one year mortality rate after hip fracture surgery is 20-30% in Denmark. Organizational factors may be altered to reduce postoperative mortality. According to good clinical practice, hip fracture surgery should be performed within 24 hours after admission. The impact of surgical timing on mortality is inconclusive. The aim of this study is to evaluate the impact of surgical delay, length of stay and time of surgery on mortality after hip fracture surgery.

**MATERIAL AND METHODS:** From the Danish Anaesthesia Database, a cohort of 6171 consecutive operated hip fracture patients aged > 65 years was included. The mortality data was identified in The Danish Civil Registration System. Operative delay and length of stay were defined as the time from admission to operation and the time from admission to discharge respectively. Operation time was divided into day and night shift. These and several other covariates were used in uni- and multivariate logistic regression to identify risk factors associated with death within 6 months after admission.

**RESULTS:** The mortality after 6 months was 23.4 %. 3273 (54 %) and 5300 (87%) patients were operated within 24 and 48 hours respectively. We found that surgical delay ( $P = 0.22$ ) and time of surgery ( $P = 0.36$ ) were not associated with an increased risk of death in the univariate analysis. In both uni- and multivariate analysis length of stay less than 10 days was a significant risk factor ( $P < 0.001$ ) for mortality.

**CONCLUSION:** Delay and time of surgery were not associated with an increased risk of death after hip fracture surgery. Early discharge may increase mortality. Confounding by indication is a problem when using observational studies, cluster randomized clinical trials comparing different organized clinical set ups are needed.

# NEW SURGICAL ALGORITHM IN PATIENTS WITH ACUTE SPINAL METASTASES

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**INTRODUCTION:** Surgery is an evidence-based treatment-component in spinal metastases patients. Selection of surgical procedures depends on spread of disease, general health status and life expectancy. Present study aimed at analysing outcome following different surgical procedures based on a new surgical algorithm combining life-expectancy-scores with anatomical tumour-classification (Aarhus Algorithm). Efficacy of Tokuhashi-12 vs. Tomita-survival-score was assessed.

**MATERIALS AND METHODS:** 453 patients (mean age 61 years (20-87); M:F ratio 3:2; prostata (22,2%), breast (18,1%), lung (11,8%), kidney (8,4%), myeloma (6,1%), 14,5% unknown at admission (1997-2008) with spinal metastases were prospectively included.

**RESULTS:** Out of 169 patients 43 patients survived < 3 months (ROC-area: Tomita 0,6893 vs. Tokuhashi 0,7590), 84 < 6 months (ROC-area: Tomita 0,7420 vs. Tokuhashi 0,7096) and 118 < 12 months (ROC-area Tomita 0,7233 vs. Tokuhashi 0.6860). 27% were treated with posterior decompression alone (D), 60% with decompression plus post. instrumentation (PDI). Long-term survivors (Tokuhashi 9-12) were treated with post. decompression and instrumentation (PDI, 3%) or total vertebrectomy (TV, 10%). Median survival (Kaplan-Meyer) following D was 106 days (S.E. 10), PDI 254 days (S.E. 25). In long-term survivors with PDI 693 days (S.E. 78), with TV 818 days (S.E. 350).

**CONCLUSIONS:** The results demonstrate the need of individualized surgical treatment for this patient group since maximal surgery is likely to add to early death. Tokuhashi-Score showed superiority for short-term survival-estimates.

The presented Aarhus Algorithm provides a platform for further improvement of treatment in selected groups of patients utilizing new combined techniques for local and systemic tumour control.

# **CHANGES IN BONE MINERAL DENSITY OF THE TIBIA AFTER TOTAL KNEE REVISION. PRELIMINARY RESULTS FROM A RANDOMIZED STUDY USING TRABECULAR METAL CONES OR BONE CEMENT TO RESTORE BONE LOSS OF THE PROXIMAL TIBIA**

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**INTRODUCTION:** During revision surgery after total knee arthroplasty (TKA) it is some times difficult to insert a new and durable TKA because of a substantial loss of bone stock of the proximal tibia. Trabecular Metal Cone (TMC) implants were developed with the aim of solving this specific problem. The purpose was to measure Bone Mineral Density (BMD) changes around the tibial component after total knee revision (TKR) and evaluate the effect of TMC implants in a prospective randomized design.

**MATERIAL AND METHODS:** 18 patients (mean age 68 (46-81) years, F/M=10/8) with a substantial bone loss of the proximal tibia and scheduled for a TKR were randomized to receive a TKR using the NextGen (Zimmer Inc., USA) revision total knee system with (n=9) or without (n=9) the use of TMC implants (Zimmer, Inc., USA). Using a DEXA-scanner (Norland XR-46) BMD (g/cm<sup>2</sup>) was measured in 7 regions of interests (ROI) along the tibial component during the first year after surgery. Statistics: t-test for paired data (evaluation intra-group changes after 1 year) and unpaired data (evaluation inter-group differences after 1 year) were used and  $p < 0.05$  were considered significant.

**RESULTS:** In the group who had TKR with TMC, we found no significant changes in BMD in any of the 7 ROI's after 1 year of follow-up. In the group who had TKR without TMC, we found a significant decrease in BMD of 7.8% ( $p = 0.009$ ) in the ROI just below the tibial plateau, but in all the other regions the BMD only showed minor non-significant changes. We found no significant differences when comparing the intra-group changes in BMD between the two groups.

**CONCLUSION:** In this preliminary study we found no significant difference in the bone remodeling pattern of the tibia after TKR performed with or without the use of TMC implants.

# **SURVIVAL FOLLOWING JOINT REPLACEMENT BECAUSE OF METASTATIC BONE DISEASE**

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**INTRODUCTION:** Patients suffering from a pathological fracture or painful osteolytic lesion because of metastatic bone disease often would benefit from a total joint replacement. However, these are large operations, especially if bone resections are performed, and the patients often have a weak health. We have examined the patient survival following joint replacement because of metastatic bone disease.

**MATERIAL AND METHODS:** In a retrospective study we evaluated the patient files of 86 patients (F/M=49/37, mean age (at first operation)= 63(30-85)years), who had 91 joint replacements with a major resection of bone (n=76) or without resection (n=15) performed in the period 2003 to 2006. The operations were performed because of a pathological fracture (n=66), a painful metastatic bone lesion (n=24) or other cause (n=1). The joints replaced were the hip (n=70), shoulder (n=12), knee (distal femur (n=6), proximal tibia (n=1)) or elbow (n=2). The primary tumors were located in the breast (n=26), kidney or bladder (n=15), lung or mediastinum (n=13), prostate (n=10), were a myeloma or lymphoma (n=12) or had another (n=5) or unknown location (n=5). In the beginning of July 2008 patient survival (Kaplan-Meier survival analysis) was evaluated using a nation wide register.

**RESULTS:** The calculated probability of patient survival was 62%, 51%, 37% and 28% at respectively  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1 and 2 years of follow-up. 21 patients were alive beyond 2 years after the operation and the primary tumors of these patients were a myeloma or lymphoma (n=9), were located in the breast (n=7), the kidney (n=2), the prostate (n=2) or the lung (n=1).

**CONCLUSION:** Joint replacement operations because of metastatic bone disease did not seem to induce a poorer patient survival rate compared to other types of surgical treatment.

# LONG-TERM RESULTS AFTER SURGICAL TREATMENT OF PELVIC FRACTURES ASSESSED WITH SF-36

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**INTRODUCTION:** Studies using disease-specific questionnaires in patients with high-energy pelvic fractures have produced conflicting results. The purpose of the present study was to assess the results and the suitability of the generic questionnaire SF-36 in a Danish population of patients with pelvic fractures. Furthermore, the study aimed at detecting a possible difference in scores between patients with acetabular or pelvic ring injuries.

**MATERIAL AND METHODS:** Ninety patients were treated from 1994 to 1997. All patients sustained a high-energy trauma resulting in a pelvic ring fracture, acetabular fracture or combined lesions. The Danish version of the SF-36 was mailed to all patients with one reminder. Non-responders were contacted by telephone. All results were compared with the Danish norm in healthy individuals, and a difference of 10 points or more was considered significant ( $p < 0.05$ ).

**RESULTS:** Questionnaires were obtained from 62 patients (69%); 47 men and 15 women. The median age at the time of injury was 36 years and the median follow-up was eight years (6-10 years). 24 patients had sustained isolated acetabular fractures, 25 had pelvic ring fractures, and 13 had combined fractures. There was no difference between responders and non-responders. The patients had reduced scores on all SF-36 variables, and the number of logical errors corresponded to the norm. Patients with isolated acetabular fractures had higher scores than patients with pelvic ring injuries or combined lesions. This difference, however, was not significant.

**CONCLUSION:** The study confirms the feasibility of the SF-36 in patients with high-energy pelvic fractures. Further studies are needed to confirm the finding of higher scores in patients with isolated acetabular fractures.

## 2D IMAGE FUSION IN PATIENTS WITH SUSPECTED SCAPHOID FRACTURE

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**INTRODUCTION:** The aim of this study was to investigate the accuracy and the influence on image interpretation of a simple method for image registration of planar bone scintigraphy and radiographs in patients with clinical scaphoid fracture.

**MATERIAL AND METHODS:** In 24 patients with suspected scaphoid fracture a standard planar bone scintigraphy of both hands was supplemented with fusion imaging of the injured wrist. Standard and fusion images were evaluated independently by three experienced nuclear medicine physicians. In addition to the diagnosis, the degree of diagnostic confidence was scored in each case. Accuracy was assessed by measuring the wrist movement between repeated radiographs in 5 healthy subjects and the mis-registration of fiducial markers in clinical studies.

**RESULTS:** The addition of fusion images changed the interpretation of the three observers in 7, 4 and 2 cases respectively, reducing the number of positive interpretations of two of the observers from 11 and 9 cases to 6 and 7 cases respectively. The degree of diagnostic confidence increased significantly in two observers and inter-observer agreement increased in all three pairs of observers. The mean wrist movement was 0.8 mm and the mean mis-registration was 0.4mm.

**CONCLUSION:** Co-registration of planar bone scintigrams and radiographs is accurate and feasible in patients with suspected scaphoid fracture. In our study the addition of fusion images had a significant influence on image interpretation and increased both the diagnostic confidence and the inter-observer agreement.

# **LONG-TERM FOLLOW-UP OF MINI-OPEN STABILIZATION OF THE STERNO-CLAVICULAR JOINT USING AN TENDON AUTOGRAFT. PRELIMINARY REPORT OF A NEW TECHNIQUE**

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**INTRODUCTION:** Sternoclavicular injuries are uncommon and rarely result in a persistent, symptomatic instability. In these cases, the treatment options are sparse. The patients complain of restricted active motion, pain and clicking using the arm overhead and behind the frontal plane of the body. Previous surgical interventions require extensive exposure and imply a risk of fatal complications due to the proximity of vital vessels. With smaller and stronger shoulder anchors a new technique was developed to stabilize chronic, anterior sterno-clavicular instability with an autologous tendon graft.

**MATERIAL AND METHODS:** Since 2002 15 consecutive patients with more than 12 months of symptoms underwent mini-open sterno-clavicular (SC) stabilization. The mean age at surgery was 29 (18-56) years. There were 6 males and 9 females. The follow-up was mean 26 (7-54) months. The patients were evaluated with the WOSI-score. The operation was performed as an out-patient procedure in a GA and local infiltration of Marcaine. A Palmaris longus or a gracilis graft is harvested. A 5.0 mm SuperRevo anchor is placed laterally in the sternal bone. The graft is then mounted on the anchor and passed in a figure of eight through a proximal and a distal drill hole in the medial end of the clavicle. The graft is sutured back to the other suture of the anchor.

**RESULTS:** WOSI-scores showed significant improvement in arm function at four months and at follow-up. There was one failure. The patient had recurrence after performing bench press at 2 weeks postop. She fell again after revision but remained stable. Three patients had temporary median nerve paraesthesias .

**CONCLUSION:** Mini-open sterno-clavicular stabilization using a Palmaris longus or gracilis graft is a safe procedure for symptomatic instability.

# **STPI PROSTHESIS - A SOLUTION FOR THE TREATMENT OF STT JOINT ARTHROSIS - A FOUR YEARS FOLLOW-UP**

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**INTRODUKTION:** Osteoarthritis of scaphotrapezotrapezoid joint corresponds to 13% of wrist arthritis and is the second most common site in the wrist affected by degenerative arthritis. STT fusion has been the traditional treatment for patients with isolated STT arthritis but there are concerns about the complication rate. This study presents the results of an interposition arthroplasty using a scaphoid trapezium pyrocarbon implant ( STPI, BIOProfile).

**MATERIAL AND METHODS:** The study included 12 patients ( 6 men and 6 women; mean-age 60, 45-78 years) with isolated STT OA, stage 3 and 4 and continuing pain without effect of conservative treatment. The mean follow-up was 48 months (66 mo to 17 mo). Three patients were operated on both STT joints. Grib-strength, pain-score, Mayo Wrist Score, X-ray and satisfaction were recorded.

**RESULTS:** Following surgery , VAS pain scores improved significantly in all patients except one. This patient was re-operated with an STT arthrodesis because of OA between the trapezium and trapezoid seen on a CT-scan and confirmed at the operation. Most patients had minimal restrictions in function, with a mean Mayo Wrist Score of 97 after 6 months. The mean wrist flexion-extension arc was 135 degrees. Mean grip strength was 85% and pinch strength 78 % . No significant changes in carpal alignment and no luxation of the implant were noted on the radiographs. Patients were most satisfied with the results of there surgery ( mean VAS-score 3.3 after 1 year)

**CONCLUSION:** The results of this study suggest that STPI spacer arthroplasty may be a good alternative to STT fusion for isolated STT arthritis without OA between the trapezium and trapezoid.



# TRANSPEDICULAR CLOSED WEDGE OSTEOTOMY IN ANKYLOSING SPONDYLITIS: RESULTS OF SURGICAL TREATMENT AND PROSPECTIVE OUTCOME ANALYSIS

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Surgery in late stage ankylosing spondylitis (AS) most often tend to correct the sagittal balance.

Only a limited number of cases have been reported in the.. In the period from 1995 to 2005, 36 consecutive patients fulfilled the criteria where the files, radiographs and patients were available for further studies. The following data were recorded: Age, sex, comorbidity, indication, operation time, blood loss, level of osteotomy and estimated correction. Furthermore, perioperative complications and all late complications were registered. The average follow up was 50 months (3-128). The patients filled out questionnaires (SF36 and Oswestry Disability Index) preoperatively. 15 of the patients had two pedicular resection osteotomies performed, (21) had one, and 2 had polysegmental osteotomies. Mean operation time was 180 minutes, bleeding was 2450 ml., stay at the hospital was 13 days. One patient had partial paresis of the lower extremities other complications were minor. The median correction was 45 degrees. The median Oswestry score improved significantly 54 (range 20 – 94) preoperatively and 38 (range 2-94) postoperatively. The SF-36 score increased significantly, when evaluated on the major components PCS (Physical Component Summary) and MCS (Mental Component Summary).

**CONCLUSIONS:** The thoracolumbar closed wedge pedicular resection osteotomy used in this series was a safe method for correction of incapacitating kyphosis in AS. Outcome analysis showed a significant improvement in SF36 and Oswestry Disability Index, and the mental component of the Sf36 showed improvement to values near the normative population.

It is concluded that corrective osteotomy of the thoracolumbar spine in ankylosing spondylitis is an effective and safe treatment with improvements of life quality.

# MRI IS COST EFFECTIVE IN MANAGEMENT OF SUSPECTED SCAPHOID FRACTURES

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**INTRODUCTION:** Fracture of the scaphoid can be difficult to diagnose on the initial radiographs. Normally the wrist is then splinted and a follow-up radiography made after 10-14 days. The percentage of patients having a scaphoid fracture in spite of a positive clinical investigation is low and most of the patients are unnecessarily immobilised for at least 2 weeks. This may result in loss of income due to sick leave. MRI is considered the golden standard in the diagnosis of fractures of the scaphoid, but is more expensive, and the purpose of this investigation was to see if MRI is cost effective in the diagnosis of suspected scaphoid fractures.

**MATERIAL AND METHODS:** At Regional Hospital Holstebro all patients with clinical signs of a scaphoid fracture but normal initial radiographs were evaluated with MRI to exclude fracture. At Regional Hospital Herning all patients with a clinical scaphoid fracture and normal initial radiographs were immobilised in a dorsal splint for two weeks followed by radiological re-examination. At both hospitals 27 patients were included in the study.

**RESULTS:** The immobilisation time was reduced from 20 days (range, 6-54) to 4 days (range, 1-19) using MRI ( $P < 0.01$ ), and sick leave was reduced from 27 days (1-92) to 11 days (0-28) using MRI ( $P < 0.01$ ). A small cost difference in hospital costs of € 151 favouring the standard treatment was observed ( $P < 0.05$ ), whereas a large cost difference in non-hospital costs of € 2.869 favouring the MRI based treatment was observed ( $P < 0.05$ ).

**CONCLUSION:** MRI as a diagnostic tool in excluding scaphoid fracture results in a minor increase in the treatment cost at hospital but a significant reduction in immobilisation time and time off work. This reduces the total treatment costs of a suspected scaphoid fracture significantly.

# **REGIONAL BODY COMPOSITION, BONE MINERAL DENSITY, AND MUSCLE STRENGTH IN PATIENTS WITH TWO DIFFERENT SHOULDER ARTHROPLASTY DESIGNS**

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**INTRODUCTION:** To compare regional body composition, bone mineral density (BMD), and muscle strength in patients with two different shoulder arthroplasty designs (Bigliani & Copeland).

**MATERIALS & METHODS:** A cross-sectional study of 36 patients (10 men & 26 women) with a total of 42 shoulder arthroplasties due to arthrosis or fracture. Of the included were 29 Bigliani (21 fract.; 8 arth.) and 13 Copeland arthroplasties (all arth.). All underwent a one-day protocol including a regional DEXA scan and measurement of muscle strength with Isobex apparatus. Both arms were measured. Data were recorded for BMD of the distal third of the humerus, regional body composition of the upper arm, and muscle strength. Patients were divided into 3 groups according to patient history, i.e.: Bigliani+arth., Bigliani+fract. & Copeland+arth.

**RESULTS:** All three groups were comparable regarding anthropomorphological data. There was a significantly higher BMD of the distal humerus and muscle strength in the operated arm in patients with Copeland+arth. compared to patients with Bigliani+fract. There were no other significant differences between groups. There was a significant correlation (R) between muscle strength and BMD of the distal humerus in the operated arm (R= 0.39; P = 0.001). There was significantly more fat, but less BMD, tissue, muscle and lower muscle strength in the operated arm vs. the non-operated arm.

**CONCLUSION:** Muscle strength and bone mineral density in the distal humerus is apparently more dependent on patient history than arthroplasty design. However, a larger number of patients with Bigliani arthroplasty and arthrosis are needed to support this hypothesis. There is an expected, highly significant correlation between muscle strength and BMD of the distal third of the operated arm.

# **PERCUTANEOUS MINIMAL INVASIVE PEDICULAR SCREW AND ROD INSERTION IN 270-DEGREE LUMBAR FUSION. A PROSPECTIVE SAFETY AND EFFICACY STUDY OF 40 PATIENTS WITH 2-YEAR FOLLOW-UP**

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**INTRODUCTION:** Minimal invasive techniques in lumbar spine surgery are reported in uncontrolled and retrospective series to achieve excellent clinical results with less pain, morbidity and disability. The aim of this study was to investigate the safety and efficacy of the Sextant percutaneous technique in 270-degree lumbar fusion.

**MATERIAL AND METHODS:** Through 2004 to June 2006 22 women and 18 men 49 (27-62) years old were included. The diagnoses were degenerative disc disease in 47 cases and congenital spondylolisthesis in 3 cases. A left retroperitoneal approach was used for insertion of the anterior cage. A total of 188 pedicular screws were placed from L2 to S1.

**RESULTS:** A total of 3 misplaced pedicular screws and 2 broken pedicular screws were found. In 4 cases the screws and rods were removed due to local irritation and pain. Solid anterior fusion was found in 36 cases and 1 had doubtful fusion. Re-fusion was performed in 3 cases. Re-operation was performed in 1 case due to bony foraminal stenosis.

**CONCLUSION:** Minimal invasive pedicular screw and rod insertion in 270-degree lumbar fusion are safe with a minimal risk of screw misplacement and with an efficacy to achieve bony fusion.

# **SAGITTAL SPINAL BALANCE AFTER LUMBAR SPINAL FUSION WITH AND WITHOUT ANTERIOR SUPPORT. RESULTS FROM A RCT WITH A LONG-TERM FOLLOW-UP**

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**INTRODUCTION:** Sagittal balance after lumbar spinal fusion has until today not been analysed in a randomized study. The importance of sagittal alignment in degenerative spinal pathology and relation to outcome is still unclear. The aim of this study was to describe sagittal balance after fusion with or without anterior support.

**MATERIAL AND METHODS:** A total of 148 patients with severe chronic low back pain were randomly selected for either posterolateral lumbar fusion (PLF) or 360° fusion. Patients who answered questionnaires regarding outcome at long-term follow-up and fulfilled the inclusion criteria were invited, n=79. Sagittal balance parameters were examined on lateral scoliosis X-rays: pelvic incidence (PI), pelvic tilt (PT), sacral slope, thoracic kyphosis, lumbar lordosis and C7 plumb line. Lumbar lordosis was classified according to Roussouly.

**RESULTS:** The overall result showed no significant difference between randomization groups regarding sagittal balance parameters except for PT which was significantly lower in the 360° group. Looking into subgroups the PT was significantly different comparing patients with disc degeneration in relation to randomization group, but no difference was found in the group diagnosed spondylolisthesis. The type of lumbar lordosis differed significantly between sub-groups. PI ranged from 24,8-80,7° in the 360° group and from 24,3-87,3 ° in the PLF group.

**CONCLUSION:** The high degree of variability in the sagittal alignment of the spine made the possible differences between patients with and without anterior support invisible. The sub-group analysis showed significant difference between patients suffering from isthmic spondylolisthesis and disc degeneration regarding the PT and a different grouping regarding types of lordosis.

# **GAIT ANALYSIS AFTER TOTAL HIP REPLACEMENT WITH HIP RESURFACING IMPLANT OR MALLORY-HEAD EXETER PROSTHESIS**

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**INTRODUCTION:** A key to the analysis of function after joint replacement is the ability to identify gait adaptations specific to design features. In a prospective controlled design, we evaluated mechanics of gait in the hip joint after total hip replacement (THR) with use of two different types of implants. We also investigated whether adaptations to gait normalized postoperatively.

**MATERIAL AND METHODS:** Thirty patients were randomized to receive a hip resurfacing system (HRS group) or conventional hybrid prosthesis (MHE group). Twenty-two patients underwent three-dimensional gait analysis 6 and 12 weeks postoperatively. To evaluate normalization of gait parameter variables in the hip joint after THR, we used data from 22 age- and sex-matched healthy controls.

**RESULTS:** We found similar postoperative improvements in mechanics of gait in the hip joint between the groups, except for peak abductor moments, which improved more in the MHE group. HRS and MHE groups were similar with respect to level of peak values. Three months after surgery, most peak values were significantly different between operated and non-operated hip in all THR patients. Mean curves of kinetic and kinematic variables of THR patients and healthy controls showed that gait adaptations in the hip joint were not normalized after 3 months.

**CONCLUSION:** We found no evidence for the hypothesis that one implant was superior to the other in normalizing gait adaptation. Although THR patients improved considerably and significantly in almost all gait parameter variables of the hip, gait impairments persisted. Our results may indicate the need of gait retraining in conjunction with intensive muscle strengthening to improve function and longevity of implants, especially among young patients.

# REVISION TOTAL HIP ARTHROPLASTY USING A MODULAR TAPERED STEM WITH DISTAL FIXATION. GOOD SHORT-TERM RESULTS IN 125 REVISIONS

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**INTRODUCTION:** Femoral revision with extensive proximal bone loss can be difficult using stems with proximal fixation. Torsional remodeling, leg length and off set may present additional problems using a monoblock prosthesis. The purpose of this study was to evaluate the short to midterm results using a modular taper stem.

**MATERIAL AND METHODS:** 125 stem revisions, using the ZMR (Zimmer Modular Revision) taper system from march 2001 to august 2006 were included consecutively. Baseline- and follow-up data were registered prospectively according to the Danish Hip Arthroplasty Registry. Radiographs were reviewed retrospectively. Median age was 68 (33-92) years, 59 women. Minimum follow up 2 years, average 50 (24-86)months. The reason for revision was aseptic loosening in 62%, deep infection in 18% and periprosthetic fracture in 10%. First time revisions in 74%. The posterior approach was used in all cases and in 70% a Wagner osteotomy was carried out.

**RESULTS:** During follow up 9 re-revisions were carried out in 8 patients due to 4 recurrent dislocations, 4 deep infections and 1 stem fracture. Survival free of any re-revision was 93%. Harris Hip Score improved from 44 (95%CI 41-48 to 85 (95%CI 84-89). Complications included 4 fractures intraoperatively, 1 late fracture, 8 dislocations, 5 deep infections, 1 stem fracture, 3 non-unions of the Wagner osteotomy and 1 transient palsy. None of the stems are considered loose. Bony regeneration around the stem was an early and significant finding in most cases.

**CONCLUSION:** The ZMR taper is very versatile, can be used in most femoral revision cases and allows a rapid bone remodeling. Compared to the literature we did not find an increased number of complications. Further long-term follow up of the modularity however is essential

## **PAIN-INDUCED OSTEOPENIA IN THE KNEE REGENERATED 6 MONTHS AFTER SUCCESSFUL TOTAL HIP REPLACEMENT. 100 CONSECUTIVE PATIENTS FOLLOWED WITH DXA-SCANS FOR 3 YEARS**

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**THE OBJECTIVE** of our study was to quantify the changes of bone mineral density (BMD) in both limbs following unilateral cementless total hip replacement (THR). i.e. the effects of relief from the osteoarthritic pains and mobility limitations, and the following normalization in physical activity. The hypothesis tested is, that postoperatively BMD of the bone on the operated side, outside the actual field of surgery, should approach that of the unaffected side.

**DESIGN:** We investigated bone remodeling in the proximal tibiae prospectively for 3 years following THR in 100 patients with primary arthrosis of the hip. In the trabecular bone below the knee joint, BMD was measured in one region of interest (ROI), using dual energy x-ray absorptiometry (DXA).

**RESULTS:** At the first point of measurement, within a few days after hip surgery, a BMD difference between the two knees of 13% was detected, BMD lower on the side of the affected hip relative to the other. Within the first 3 months post-operatively, the difference decreased to 6,2%. By the last measurement 3 years post-operatively the difference was 2,6%, but had not changed significantly since the measurement at 6 months post-op. At all points of measurement the BMD of the non-operated side was significantly greater.

**IN CONCLUSION** our study shows that the BMD-loss caused of a period of reduced weight bearing may be reversible upon return to normal activity.



# CAM-DEFORMITY AS A RISK FACTOR FOR HIP JOINT OSTEOARTHRITIS

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**INTRODUCTION:** Cam-deformity also known as pistol grip deformity has in several biomechanical studies proved to be a risk factor for hip osteoarthritis (OA).

The aims of the study were to determine the epidemiological importance of cam-deformity as a risk factor for hip OA, and to determine the distribution of cam-deformity in the COS cohort as well as in a large group of patients scheduled for primary THR.

**MATERIAL AND METHODS:** For assessing the distribution of the cam-deformity and to determine the importance of the cam-deformity for hip OA we used 3.480 subjects of the Copenhagen Osteoarthritis Study (COS) cohort and 629 patients scheduled for primary, total hip replacement surgery (THR). Cam-deformity was present when the Triangular index  $\geq 0$  mm and hip OA was present when minimum JSW  $\leq 2$  mm.

**RESULTS:** Cam-deformity was present unilaterally in 12 % of male and in 4 % of female subjects of the COS cohort. In 73 % of male patients and in 46 % of female patients scheduled for THR cam-deformity was found. 21 % of the males scheduled for THR had joint space widths in the normal range (JSW  $> 2$  mm). Of these, 58 % had cam-deformities. The odds ratio for hip OA in the presence of cam-deformity was 3.4 for men in the COS group ( $p < 0.001$ ), and 2.5 in the THR group ( $p = 0.004$ ). For women no such relationship was found in the COS cohort. The odds ratio for hip OA in the presence of cam-deformity was 2.5 in women scheduled for THR ( $p < 0.001$ ).

**CONCLUSION:** In conclusion we confirmed the importance of cam-deformity inducing pathologically reduced JSW in males but not in females. Cam-deformity is a common primarily male condition and a common finding in patients scheduled for THR. App. 20% of the males scheduled for THR had a normal JSW and of those more than half had cam-deformity.

# **INTRAMEDULLARY TOTAL FEMORAL ARTHROPLASTY (TFA) AS SALVAGE REVISION**

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**INTRODUCTION:** With growing numbers of hip and knee arthroplasties (THA/TKA) being performed, the number of patients with end-stage prosthetic disease will eventually increase. Resection and replacement of remur is well described in tumor patients. We present our results with intramedullary TFA (or Durchstick) as a salvage procedure in non-tumor patients.

**MATERIAL AND METHODS:** Six patients, where further revision of a hip and/or knee arthroplasty was considered impossible, were operated with intramedullary TFA including a Mallory-Head calcar modular component, an intercalary diaphyseal segment, and a Maxim or Vanguard constrained TKA (Biomet). The intercalary segment was custom made from radiographs with standardized markers. All patients had a THA and three a TKA. Four patients had been operated for periprosthetic fractures, and four patients had had one or more 2-stage revisions due to infection. All patients had had multiple operations and presented with severe bone loss.

**RESULTS:** Peroperatively, two fractures of the femoral condyle occurred, but this had no consequence due to a constraint knee joint. One patient had a peroneal nerve affection on the contralateral side (position damage). No hip dislocations were observed. No recurrence of infection was seen, but one patient receives lifelong antibiotics. No loosening was observed, and no components were revised. The functional outcome was good, as all patients could be mobilized.

**CONCLUSION:** Intramedullary Total Femoral Arthroplasty should be considered in patients with end-stage prosthetic disease, where amputation may be the only alternative.

# **THR IN THE CONGENITALLY DISLOCATED HIP (PAAVILAINEN TECHNIQUE). NINETEEN SINGLE-SURGEON PROCEDURES**

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**INTRODUCTION:** The surgical treatment for congenitally dislocated hips (CDH) by total hip replacement (THR) includes placement of the cup in the original acetabulum and distalisation of the greater trochanter. The purpose of this study was to evaluate the results of 19 THRs using the Paavilainen technique at Aarhus University Hospital from 1996 to 2007.

**MATERIAL AND METHODS:** Ten women and five men (19 hips) with an average age of 38 (16-73) years at the time of surgery were followed from 6 months to 9 years. 7 patients had undergone previous operation. 22 mm femoral heads were used in the first 17 cases. The patients were evaluated clinically with Harris Hip Score (HHS) and radiologically using the Gruen classification.

**RESULTS:** All patients achieved substantial improvement in walking ability and relief of pain (HHS was 44 preop and 86 postop). Leg length discrepancy was improved from 43 to 5 mm. The Trendelenburg test was positive in 18 hips preoperatively and in only one postoperative. We had only one case with transient incomplete peroneal nerve palsy. There were four cases of operative fissures of the proximal femur. They were all secured with cable wires and none of them experienced postop complications. No deep vein thromboses were observed. No incidents of aseptic loosening and no infections after primary operation. Three hips dislocated in the follow-up period; two were reduced open and one had a closed reduction. Due to polyethylene wear, three patients needed the liner replaced.

**CONCLUSION:** THR in CDH using the Paavilainen technique has only been performed in a limited number of patients in DK. The operation is very rewarding in these crippled young patients, good results with a functional hip being obtained in all cases. The operation is technically demanding and careful preoperative planning is of great importance.

# CHANGES IN PHYSICAL PERFORMANCE, BONE MINERAL DENSITY, AND PLASMA CONCENTRATIONS OF METAL DURING THE FIRST YEAR USING TWO RESURFACING HIP ARTHROPLASTIES

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**INTRODUCTION:** A prospective clinical study with the ASR (DePuy) and ReCap (Biomet) resurfacing hip implants was performed to elucidate the rate of improvement in the joint function, changes in bone mineral density adjacent to the prosthesis, and plasma concentrations of metal in response to the implant.

**MATERIALS AND METHODS:** 14 patients in each group were assessed prior to surgery and after one year with leg press (arbitrary units), bone mineral density (g/cm<sup>2</sup>) adjacent to the prosthesis prior to, within 6 weeks, and 12 months after operation, and blood samples for determination of plasma concentration of chromium and cobalt preoperatively and 12 months after surgery.

**RESULTS:** Plasma chromium was significantly higher 12 months postoperatively in the ASR group (20 (3 to 124)) versus ReCap (0.9 (0.2 to 4.5)) ( $p < 0.0001$ ). No other values differed between the two groups. There were significant increases in leg press from preoperative values to one year postoperatively for both groups ( $p = 0.003$  (ASR) and  $0.008$  (ReCap)).

The plasma concentrations of chromium showed an increase at 1 year postoperative compared to the preoperative values ( $p = 0.002$  for both prostheses). For both prostheses there was an initial postoperative decline in BMD adjacent to the prosthesis, but at one year postoperatively all BMD values had returned to pre-operative levels or higher. Metal ion concentrations were not correlated with BMD or physical performance variables.

**CONCLUSION:** Physical performance of the affected hip increased significantly after the operation. BMD adjacent to re-surfacing reaches preoperative levels or higher already one year after surgery. High plasma levels of chromium after ASR prostheses require further investigation.

# SECONDARY HIP DYSPLASIA IN ADULT LEGG-CALVÉ-PERTHES PATIENTS – A LONG-TERM CASE-CONTROL STUDY

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**INTRODUCTION:** We have evaluated the prevalence of secondary hip dysplasia (SHD) in adult patients with Legg-Calvé-Perthes disease (LCP) by applying the CE angle, acetabular index angle (AA), the acetabular depth ratio (ADR) and femoral head extrusion index (FHEI) to AP pelvis radiographs. The purpose of the study was to determine if LCP is a risk factor for developing SHD in both the affected and non-affected hip compared to a sex- and age-matched control group.

**MATERIAL AND METHODS:** From 1941 to 1962, 167 patients with LCP presented to The Community of Disabled in Kolding. All hips included were treated conservatively by a Thomas splint. At follow-up weight-bearing AP radiographs were obtained. As control group radiographs of sex- and age-matched persons were obtained from The Copenhagen City Heart Study. The following exclusion criteria were applied: bilateral involvement; emigrated persons; persons lost to follow-up; diseased persons; patients who refused to participate; surgery at pelvis or the lower limb; foramen obturator index  $<0.7$  or  $>1.8$  and missing or destroyed radiographs. 49 patients were included.

**RESULTS:** Mean values of radiographic parameters in Stulberg subclasses and the affected and non-affected hip, compared to a sex- and age-matched control group. CE AA ADR FHEI

Stulberg class I/II · Affected (n=29) 25 9 245 79

Stulberg class I/II · Non-affected (n=29) 31 5 296 85

Control (n=116) 32 3 299 83 · Stulberg class III/IV/V

Affected (n=20) 21 13 224 76 · Stulberg class III/IV/V

Non-affected (n=20) 29 7 281 82 · Control (n=80) 33 4 299 84

**CONCLUSION:** The prevalence of dysplasia was significantly increased in the affected hip and surprisingly also in the non-affected hip in Stulberg class III/IV/V, compared to the controls.

# ERYTHROPOIETIN'S OSTEOGENETIC EFFECT IN POSTEROLATERAL SPINAL FUSION

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**INTRODUCTION:** Erythropoietin (EPO) has recently been shown to improve fracture healing. We tested the hypothesis that EPO is beneficial in uninstrumented posterolateral spondylodesis (PLF).

**MATERIAL AND METHODS:** Two groups consisting of 11 mature rabbits (4 kg) underwent PLF (L5-L6). Autograft was applied (2g/side). NeoRecormon (Roche; 250 IU/kg/day) or saline were injected s.c. for 20 days starting 2 days preoperatively. Blood samples were taken before the first injection and 2, 4 and 6 weeks postoperatively. CT scan at 6 weeks was used to evaluate fusion rate and fusion volume. After CT the animals were killed and the lumbar spine removed. Manual flexion was used to evaluate motion. Post mortem x-rays were taken. Histological and İCT results are pending. All analyses were blinded. T-test was used for statistics.

**RESULTS:** Three animals died due to anesthetic complications. No motion at the fused segment was present in 67% vs. 40% in EPO and control group estimated by manual palpation (mp). X-ray and CT overestimated the fusion rate compared to mp: 100% vs. 80% and 89% vs. 80% respectively. The fusion volume of the EPO group was significantly higher than that of the control group (3,382±0,273 ccm versus 3,022±0,235 ccm; p=0.007). Hemoglobin and hematocrit were elevated and thrombocytes were decreased in the EPO as compared to the control group at all timepoints (p<0,001). Plasma concentration [rhEPO] was 116±34mIU/ml in the EPO group at 2 weeks (ELISA), while no other samples contained rhEPO.

**CONCLUSION:** EPO increased biomechanical stability, fusion rate and fusion volume in PLF determined by manual palpation, x-ray and CT. EPO had also a systemic effect. Fusion rate was overestimated by x-ray and CT compared to manual palpation.

# DECREASED RISK FOR REVISION AFTER PRIMARY TOTAL HIP ARTHROPLASTY AMONG STATIN USERS: A NATIONWIDE POPULATION-BASED NESTED CASE-CONTROL STUDY

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**INTRODUCTION:** Statins have been associated with beneficial effects on bone metabolism, inflammation and endothelial function in experimental and clinical studies. We evaluated the association between statin use and the risk of revision after primary total hip arthroplasty (THA).

**MATERIALS AND METHODS:** We conducted a nationwide population-based case-control study using medical databases in Denmark. We identified 2512 cases from the Danish Hip Arthroplasty Register (DHR) who were revised after primary THA in the period 1995-2005. Using propensity score matching, we identified 2349 non-revised THA controls. By means of conditional logistic regression we estimated the relative risk (RR) of revision according to statin use in the perioperative and postoperative period.

**RESULTS:** The 10 years cumulated implant revision rate in the underlying cohort of 57.575 THA's from the DHR was 8.9% (95% CI: 8.4-9.4). Statin use in the perioperative period was associated with an adjusted RR for revision of 0.98 (95% CI: 0.73-1.31) whereas, postoperative statin use was associated with an adjusted RR for revision of 0.34 (95% CI; 0.28-0.41) compared with non-use. Statin use was associated with a reduced risk of revision due to deep infections, aseptic loosening, dislocation and periprosthetic fracture. No difference in risk of revision due to pain or implant failure was found between statin users and nonusers. As the number of redeemed statin prescriptions increased the RR for revision decreased.

**CONCLUSSION:** The use of statins is associated with substantially decreased revision risk following THA. Further studies are warranted in order to confirm this finding and clarify the nature of the association.

# DEGENERATIVE CHANGES IN RADIOGRAPHS OF ASYMPTOMATIC SUBJECTS CAN ACCURATELY PREDICT LATER ONSET OF LOW BACK PAIN

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**INTRODUCTION:** Low back pain (LBP) will affect almost every adult at one time. The correlation between symptoms and radiographic change is slight. Radiographic degeneration in asymptomatic subjects in regard to later onset of low back pain, has, to our knowledge, not been investigated.

**MATERIAL AND METHODS:** From 1992 to 1994, standardized, lateral lumbar spine radiographs from 4.151 randomly selected adult subjects were recorded. The x-ray beam was centered at the apical midpoint of the iliac crest. Tube-to-film distance was 120 cm. Each radiograph was graded from 0° – 3° or 4° according to Kellgren & Lawrence's global radiographic degenerative classification. At a mean follow-up of 13 years, 674 men and 1.190 women scored low back symptoms according to the Roland-Morris back pain questionnaire (0 – 24). Among these participants 893 (364 men and 529 women) were asymptomatic at the index recording 13 years prior to the questionnaire.

**RESULTS:** 63,9 % had still no LBP (R-MQ score=0). However, R-MQ scores increased linearly (deviation from linearity  $p=0.9$ ) with increasing degree of osteophytosis at index radiographs ( $p = 0.000$ ). The mean RM-Q score was mean 5.5 in subjects with the highest degree of osteophytosis. The same significance was found in regard to sclerosis and intervertebral discus height. Multivariate analyses could not isolate a single radiographic feature responsible for these significant correlations.

**SIGNIFICANCE:** The often documented lack of correlation between degenerative change and pain, reported in the literature so far, is primarily based on cross-sectional investigation. However, the correlation between radiographic degenerative change and symptomatology is linearly, when longitudinal analysis is performed, as in the present study.



# TRABECULAR METAL VS. TITANIUM FIBER-MESH IN TOTAL KNEE REPLACEMENT: A RANDOMIZED RSA STUDY

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**INTRODUCTION:** Implant migration is a surrogate marker for prosthetic fixation that can be evaluated by RSA. Low porosity coatings (beads and fiber-metals) may have inferior osseointegration and decreased fixation compared to high porosity coatings with regular interconnecting pores (trabecular metal). We hypothesized increased fixation of a trabecular metal tibia implant compared to a titanium fiber-mesh tibia implant.

**MATERIALS AND METHODS:** Randomization was performed between two groups of cementless tibia NexGen components (Zimmer Inc, Warsaw, IN): Group A) 25 porous titanium fiber-mesh (Ti) metal-backings fixed by 4 titanium screws/4 short pegs, or Group B) 25 trabecular metal (TM) monoblocs fixed press-fit by two hexagonal pegs. Three to six 1-mm tantalum beads were inserted in the tibia. Total follow-up was 2 years. Implant migration was evaluated between the post-op stereo-radiograph and 6 weeks, 3 month, 1 year, and 2 years follow-up. The stereo-radiographic examinations were obtained with a fully digitized standard RSA setup. Analysis was performed with Model Based RSA vs. 3.1 (Medis Specials, Leiden, The Netherlands) by reverse engineered implant models. The signed migrations described the general motion of the implants. The total translation and rotation (absolute implant motion) was calculated using the 3-D Pythagorean theorem ( $T2=X2+Y2+Z2$ ). Mann-Whitney test at the 95% level was used.

**RESULTS:** The TM implant showed significantly less migration compared to the Ti implants at 1 year ( $p=0.01$ ) and 2 years ( $p<0.01$ ).

**CONCLUSION:** Fixation of the NexGen trabecular metal tibia plateau was significantly better compared with the NexGen porous pegged titanium fiber-mesh tibia plateau assessing the absolute values of the total translation at 2 years follow-up.

# **A PROSPECTIVE RANDOMIZED STUDY OF CONSERVATIVE VERSUS SURGICAL TREATMENT OF UNSTABLE VOLAR PLATE DISRUPTION IN PROXIMAL INTERPHALANGEAL FINGERJOINT**

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**INTRODUCTION:** The acute closed hyperextension injury of the proximal interphalangeal (PIP) joint is quite common in clinical practice. Most often we find the joint stable and the injury is treated as a sprain. Litterature search has revealed no evidence for conservative versus surgical treatment of the subgroup where the hyperextension leads to immediate unstable volar plate disruption without fracture /dorsal subluxation.

**MATERIAL AND METHODS:** The study was a prospective study where 88 patients were randomized into two groups: 1) Conservative treatment with a rigid splint for 2 week's. 2) Surgical reattachment of the volar plate in local anaesthesia followed by a plaster cast for 2 week's. In both groups followed by a dynamic splint for 3 weeks. Per protocol defomed outcome defined as: Range of motion (ROM – measured as finger tip-palmar distance), hyperextension stability and pain (VAS). All patients followed in out-patient clinic at 3. and 12. months postoperative.

**RESULTS:** 83 patients were seen at follow-up, 45 men and 38 women, median age 39 years [18-79]. Surgical group n=40, conservative group n=43 patients. Main cause of injury was sport 63% (handball 33%). Left hand injured for 61 % and the 5.th finger most often affected (36%) followed by the 4. finger (27%). At 3. and 12 months follow-up we found no significant difference with respect to pain and ROM. Fourteen patients in the conservative group (35 % CI: 22-50) developed hyperextension in-stability versus 7 (17 % CI: 9-31) in the intervention group (Fishers Exact p=0.07).

**CONCLUSION:** As we found no difference between the two treatment groups our recommandation are conservative treatment of unstable volar plate disruption without fracture / dorsal subluxation.

# OPEN WEDGE HIGH TIBIAL OSTEOTOMY - A RANDOMIZED CLINICAL RSA STUDY INVESTIGATING THREE DIFFERENT BONE GRAFTING MATERIALS

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**INTRODUCTION:** To maintain correction and axis after open wedge high tibial osteotomy (HTO), consolidation of the bone defect is mandatory. The influence of different bone grafting materials on stability and healing is unknown.

**MATERIALS AND METHODS:** 45 (3x15) patients, were randomized to three different bone grafting materials: local autograft (grp. 0), iliac crest autograft (grp. 1), and Calcibon® (grp. 2). The Dynafix® Osteotomy System was used and six weeks of partial weight bearing was prescribed. Stability of the osteotomy was evaluated with RSA postoperatively, and after 3, 12 and 24 month.

**RESULTS:** RSA after one year showed no difference in translation along the x, y and z-axis, and rotation around the x and y-axis. Rotation around the z-axis showed a significant difference between local graft (\*) and crista-graft (\*). Results are presented as means, with 95 % CI.

|                  | Group                       |                               |                      | P-value      |
|------------------|-----------------------------|-------------------------------|----------------------|--------------|
| Translation (mm) | Local (n = 15)              | Cristagraft (n = 10)          | Calcibon® (n = 14)   |              |
| X                | 0.34 (-0.03 – 0.70)         | 0.07 (-0.24 – 0.38)           | 0.31 (-0.37 – 0.98)  | ns           |
| Y                | 0.75 (0.35 – 1.15)          | 0.56 (0.05 – 1.07)            | 0.52 (0.24 – 0.80)   | ns           |
| Z                | 0.08 (-0.33 – 0.49)         | -0.33 (-.83 – 0.17)           | -0.62 (-1.16 – 0.08) | ns           |
| Rotation (dgr.)  |                             |                               |                      |              |
| X                | 0.35 (-0.2 – 0.90)          | 0.67 (-0.13 - 1.47)           | 1.27 (0.37 – 2.16)   | ns           |
| Y                | -0.44 (-1.11 – 0.24)        | -0.02 (-0.54 – 0.51)          | -0.40 (-0.90 – 0.11) | ns           |
| Z                | <b>0.75 (0.10 – 1.39) *</b> | <b>-0.58 (-1.28 – 0.11) *</b> | 0.40 (0.19 - 1.00)   | <b>0.013</b> |

**CONCLUSION:** In this RCT, translations and rotations close to zero were found, regardless of bone grafting material. Only significant difference was found in rotation around the z-axis (valgus/varus). With a stable implant and six weeks of partial weight bearing, it is tempting to conclude that no further grafting materials, besides local autografting, are needed following HTO.

# **ARTIFICIAL LUMBAR DISC REPLACEMENT IN 129 PATIENTS: EARLY RESULTS AND RESULTS OF OUTCOME ANALYSIS WITH A MEAN FOLLOW UP OF 16 MONTHS (RANGE 3 TO 48 MONTHS)**

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The patients were treated for degenerative lumbar disc disease with chronic pain.

**METHODS:** An unbiased observer evaluated this consecutive series of patients by retrieval of data from the medical files. All files were analysed and data registered and patients were contacted and filled out a questionnaire including basic parameters, Euroqol, SF36, ODI and VAS. Non-Responders were contacted, 93 % of the patients responded.

**RESULTS:** No peroperative complications were registered. No serious vascular incidents were recorded. 2 patients had a secondary operation due to lack of effect. In these cases a secondary fusion was performed. No secondary displacement of the arthroplasty was found and no revisions were performed. The outcome analysis of 120 patients (93%) showed that the pain disappeared totally in 32 (back) and 34 (leg). 97 (80%) were improved or without pain. 14 had unchanged pain, 9 worse. 82 (68%) were back in work, 16 were on pension and 12 sick. The functional status was good in 101 cases. Only one fourth used painkillers on a daily basis. VAS scoring for back was median 3 (1 to 9 ) for leg 2 (1 to 8) at follow-up. ODI was median 16 (0-84) and SF36 score was 43 (14-63) for MCS and 49 (15-64) PCS. These normal parameters for the Danish population are 54 for MCS and 51 for PCS. 88 of the patients (73%) were satisfied with the treatment, 21 (17%) were unsure and 10 (8%) were dissatisfied.

**CONCLUSION:** These data shows that the treatment is safe with a minimum of complications. The outcome was acceptable with a high rate of return to work and with an improvement of pain in 80% of the cases. The results seem comparable to or better than similar studies of lumbar fusions .These results shows that artificial disc replacement is a safe and effective treatment option for patients with DDD of the lumbar spine.

## NO CHANGE IN ACETABULAR BONE MINERAL DENSITY AFTER PERIACETABULAR OSTEOTOMY

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**INTRODUCTION:** At Periacetabular Osteotomy (PAO) the osteotomized acetabular fragment is reoriented to increase acetabular coverage. Before PAO the load is concentrated on the lateral rim of the hip joint while after PAO, the load is distributed over a larger area. We were interested in examining if the changed load distribution affects bone density of the acetabulum. Hence, the purpose of this study was to estimate acetabular bone density by Dual Energy X-ray Absorptiometri (DEXA) after PAO.

**MATERIAL AND METHODS:** After signed consent, 24 patients, 21 females and three males were consecutively included. The patients had median age of 41 (19-53) years and were all scheduled for PAO. The patients were DEXA scanned one week (baseline), one year and 2<sup>1</sup>/<sub>2</sub> years postoperative on a Hologic QDR 2000 DEXA scanner, USA. We defined two Regions Of Interest (ROI) originating from the acetabular joint line and extending 1.4 cm proximal. The one ROI was positioned lateral to the lateral screw and the other ROI was placed between the lateral and the medial screw. Double scanning and positioning of ROI were performed on five patients.

**RESULTS:** 2<sup>1</sup>/<sub>2</sub> years postoperative, no significant changes in BMD in the acetabulum had taken place. In the lateral ROI, BMD at baseline was 1.41, SD 0.52, one year postoperative BMD was 1.33, SD 0.43 and 2<sup>1</sup>/<sub>2</sub> years postoperative BMD was 1.26, SD 0.46. In the medial ROI, BMD at baseline was 1.78, SD 0.43, one year postoperative BMD was 1.84, SD 0.52 and 2<sup>1</sup>/<sub>2</sub> years postoperative BMD was 1.74, SD 0.55. Limits of Agreement (LOA) were calculated. LOA in medial ROI were - 0.17 – 0.01 g/cm<sup>2</sup> and LOA in lateral ROI were - 0.21 – 0.16 g/cm<sup>2</sup>.

**CONCLUSION:** We did not find changed acetabular bone density over time. Lack of sensitivity of the DEXA scanner and not sufficiently precise method may be the explanation.

# POLYCAPROLACTONE SCAFFOLDS FOR BONE TISSUE ENGINEERING

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**INTRODUCTION:** Autologous bone grafts are currently the gold standard in reconstructive orthopaedic surgery. Unfortunately, donor-site morbidity is extensive, and therefore tissue engineering is suggested to provide new viable substitutes. Biodegradable polymers have shown attractive properties as scaffold material, but development of scaffolds optimised specifically for osteogenic purposes persists. The aim of this study was to develop a polycaprolactone scaffold optimised for cell ingrowth and osteogenesis.

**MATERIAL AND METHODST:** wo different approaches were used to produce scaffolds – phase separation/lyophilisation and 3D plotting. Scaffolds were cylinders with  $\text{Ø} = 10$  mm and  $h = 5$  mm. Telomere-elongated human bone marrow mesenchymal stem cells were seeded onto the manufactured scaffolds ( $2 \times 10^6$  cells/scaffold) and cultured for up to 21 days in standard or osteoinductive medium (added dexamethasone, beta-glycerophosphate and ascorbic acid).

**RESULTS AND CONCLUSION:** The two preparations resulted in very diverse structures. Lyophilised scaffolds were morphological randomly structured with solvent and PCL density determining the pore size and wall structure, whereas the plotted ones were regular in comparison. The ingrowth and distribution of cells was highly dependent on the scaffold morphology - open structured, lyophilised scaffolds being preferred probably owing to readily confluence of cells with fine nutrient accessibility. Cells did, though, adhere readily on both types of scaffolds and when cultured in osteoinductive medium, they mineralised - indicating that PCL supported osteogenic differentiation. Handling during the in vitro studies was improved for plotted as compared to lyophilised scaffolds, signifying a mechanical requirement of combining the two methods in future manufacture the ideal bone tissue engineering scaffold.

# **KNEE-EXTENSION STRENGTH, POSTURAL CONTROL AND FUNCTION ARE RELATED TO FRACTURE TYPE AND UPPER-LEG EDEMA IN PATIENTS WITH HIP FRACTURE**

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**INTRODUCTION:** Post-surgery upper-leg edema, loss of knee-extension strength, and reduced physical performance are common following a hip fracture. It is not known if knee-extension strength and physical performance are related to the edema and fracture type. The aim of this study was to examine the influence of fracture type and post-surgery edema on physical performances in patients with hip fracture.

**MATERIAL AND METHODS:** Fifteen women and five men admitted from their own home to an acute orthopedic hip fracture unit were examined. Ten had cervical and ten had intertrochanteric fractures. Correlations between fracture type and upper-leg edema in the fractured leg (% non-fractured) to physical performances of basic mobility, postural control (sway), and isometric knee-extension strength were examined. All measures, except those of basic mobility, were conducted at the time of discharge, 8.5 days post-surgery.

**RESULTS:** Patients with intertrochanteric fractures had larger edema (111 % non-fractured leg) compared with cervical fractures (104 % non-fractured,  $p < .001$ ). Leg edema was significantly correlated to scores of basic mobility ( $r = -.61$ ,  $p = .004$ ), postural control ( $r = .67$ ,  $p = .001$ ), and fractured leg knee-extension strength([% non- fractured],  $r = -.77$ ,  $p < .001$ ), explaining between 32 and 59% of the variance in performances.

**CONCLUSION:** Our results indicate that fracture type and the corresponding upper-leg edema are important factors influencing physical performances after hip fracture. These findings have important implications for rehabilitation programs and for further research in patients with hip fracture.

# A COMPARISON OF RADIOGRAPHIC TECHNIQUES FOR KNEE JOINT SPACE WIDTH ASSESSMENTS

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Ortopædkirurgisk afdeling, Hvidovre Hospital

**INTRODUCTION:** Joint space width (JSW) narrowing is the established primary radiographic discriminator of osteoarthritis (OA). The aim of this study was to examine the agreement and stability of JSW assessments obtained in the preferred clinical radiographic technique for appraisal of knee joint OA; the standing extended AP view, with the other predominant radiographic technique for evaluating knee-OA markers; namely the fixed flexion 20° PA view, when subjected to rotation of the lower extremity.

**MATERIAL AND METHODS:** Two Complete lower extremity cadaver specimens with intact ligamentous apparatus and no known skeletal pathology or knee OA were obtained; one male and one female. The specimens were mounted in a purpose built frame and rotated through an arc of 90°. Consecutive radiographs were obtained at each 5° increment in two consecutive series of each protocol. JSW was measured manually at 3 predefined sites within each knee joint compartment from hard copies using a 0.1 mm optical and the minimal mean JSW was calculated using SPSS 15.0.

**RESULTS:** In the extended position in the male specimen, mean minimum JSW was 5.7 mm (5.4–6.1); in the flexed position, JSW was 5.73 (5.3–6.1). In the female extended specimen, JSW was 5.0 mm (4.4–5.6) and flexed 4.9 (4.3–5.6). We found that the absolute mean difference between the two views was in the order of 0.04 mm with 95% CI limits of agreement of -0.28–0.35.

**CONCLUSION:** We found no clinically relevant radiographic difference between minimum JSW measurements regardless of whether the knee joint was recorded in 20° of flexion or fully extended. Furthermore, the discriminative limitation of this study of 0.2 mm falls well within the limits of agreement found for the difference of the mean.



# ORAL DOSING OF NICOTINE AND TOBACCO IN ORTHOPEDIC ANIMAL RESEARCH: EFFECT OF NICOTINE ADMINISTRATION ROUTE ON BONE STRENGTH

*Hastrup Sidsel G., Chen X., Bechtold, Joan E., Kyle R., Rahbek Ole, Keyler Dan E., Skøtt Martin, Søballe Kjeld*

Ortopædkirurgisk afdeling, E, Århus Sygehus, Århus; Orthopaedic Biomechanics Laboratory, Midwest Orthopaedic Research Foundation and Minneapolis Medical Research Foundation, Hennepin County Medical Center, Minneapolis, MN, USA

**INTRODUCTION:** The influence of nicotine and tobacco extract alone and in combination on mechanical strength of closed femoral fractures in rats was investigated. It was also investigated if relevant serum levels of the nicotine metabolite cotinine could be reached using an oral nicotine model.

**MATERIAL AND METHODS:** 84 male Sprague-Dawley rats were divided into four groups: 1) saline, 2) tobacco extract, 3) tobacco extract plus nicotine in osmotic pumps and 4) tobacco extract plus nicotine in drinking water. One week prior to fracture, osmotic pumps were implanted subcutaneously in all of the animals. A closed transverse femoral diaphyseal fracture stabilized with an intramedullary pin was created. The fractures were mechanically tested after 21 days of healing.

**RESULTS:** The ultimate torque was higher in group 4) (median=0.178Nm) in comparison with 1) (median=0.124Nm) ( $p<0.05$ ), 2) (median=0.134) ( $p>0.05$ ) and 3) (median=0.146) ( $p>0.05$ ). The energy absorption was higher in group 4) (mean=1.137) in comparison with 2) (mean=0.858), 3) (mean=0.725) and 1) (mean=0.932). Ultimate stiffness was higher in 4) (median=0.0210Nm/deg) compared to 2) (median=0.0188Nm/deg) and 1) (0.0143Nm/deg) ( $p<0.05$ ). The mean serum concentrations of the nicotine metabolite cotinine: 4) 486,706ng/mL and 435ng/mL; 3) 374,444ng/mL and 317,444ng/mL.

**CONCLUSION:** This study show that tobacco extract in combination with nicotine administered orally and not via osmotic pumps, in clinically relevant doses, increases mechanical strength of healing rat femoral fractures, when administered 1 week prior to and 3 weeks after the fracture. This study also shows that relevant serum cotinine concentrations can be reached in rats by adding nicotine to drinking water.

# PROVISIONAL EXPERIENCES FROM USING FASCIA ILIACA COMPARTMENT BLOCKADE IN THE ACUTE PHASE OF HIP FRACTURE PAIN – A PILOT PROJECT INCLUDING 31 PATIENTS

*Jacobsen P, Al-Maleh A*

Ortopædkirurgisk afdeling, Svendborg Sygehus

**INTRODUCTION:** Hip fracture pain is often treated with parenterally administered opioid drugs, and this puts this category of patients at risk of adverse effects of morphine. Therefore, it is appropriate to use local analgesics. For this purpose, fascia iliaca compartment blockade (FICB) is used in the acute phase. We perform a prospective study to compare the need for morphine of FICB with that of parenterally administered morphine. The purpose of this pilot project is to learn by and disseminate our preliminary experiences.

**MATERIAL AND METHODS:** 180 hip fracture patients are randomized into three groups of 60. This abstract is based on a 31 patient pilot project. Group 1 is treated with parenterally administered morphine and groups 2 and 3 are treated with FICB. In group 2, isotonic saline is used. In group 3, Naropine is used. All three groups are prescribed morphine pro necessitate. The randomization into groups 2 and 3 is double blinded. Among other variables, the amount of morphine used and degree of pain (VAS score) are registered by nurses at six fixed times ranging from 0 to 360 minutes.

**RESULTS:** 23%; 35% and 42%, respectively of the 31 patients were distributed into group 1, 2 and 3. Mean morphine consumption for each group was 11,4 mg(SD 5,9); 4,9 mg(SD 3,4) and 4,8 mg(SD 4,14), respectively. There was a significant difference in morphine consumption between group 1 and groups 2 and 3, although groups 2 and 3 were similar. There was no significant difference for mean VAS.

**CONCLUSION:** FICB results in a reduction of morphine consumption. Surprisingly, we showed no difference between saline and Naropine. This can be due to different reasons: Placebo effect and insufficient number of patients. In conclusion, we need more patients to test our hypothesis further.

# ALLOGENEIC BLOOD TRANSFUSION AND PROGNOSIS FOLLOWING TOTAL HIP REPLACEMENT

*Alma B. Pedersen, Frank Mehnert, Søren Overgaard And Søren P. Johnsen*

Klinisk Epidemiologisk afdeling Aarhus Universitetssygehus og  
Ortopædkirurgisk afdeling Odense Universitetssygehus

**INTRODUCTION:** Allogeneic red blood cell transfusion is frequently used in total hip replacement surgery (THR), however data on safety are sparse. We determined whether blood transfusion is associated with increased risk of complications following THR, including hospitalization with cardio- and cerebrovascular events, venous thromboembolism, pneumonia, reoperation due to infection of primary THR, and mortality within 90 days of primary THR.

**MATERIAL AND METHODS:** We performed a population-based follow up study using data from the Danish Hip Arthroplasty Registry, the Danish Transfusion Database and the Danish National Registry of Patients. We identified 21 677 primary THR procedures performed between 1 January 1999 to 31 December 2006 among which we were able to match 6661 transfused patients with 6661 non-transfused patients on propensity score. We used multivariate logistic regression calculating Odds Ratio (OR) and 95% confidence interval (CI).

**RESULTS:** Of the 21 677 THR, 8 098 (37.4%) received  $\geq 1$  blood transfusion within 8 days of the surgery. Transfused patients had a higher 90-days mortality risk compared with propensity score matched non-transfused patients, i.e. the adjusted OR was 2.6 (95% CI:1.6-3.8). Blood transfusion was also associated with a higher risk of hospitalization with cardio- and cerebrovascular events, venous thromboembolism, pneumonia and reoperation due to infection of primary THR with adjusted ORs ranging from 1.5 to 2.4.

**CONCLUSION:** Blood transfusion was associated with an adverse prognosis following primary THR. Although the increased risk estimates may partly reflect unmeasured bias, they indicate the need for further examination of the safety of allogeneic blood transfusion in orthopaedic patients.

# SCAFFOLD RELATED INJURIES IN COPENHAGEN 1999-2007

*Kira Lundin, Henrik Grønborg, Michael Mørk Petersen*  
Rigshospitalet TraumaCenter (RHTC), Department of Orthopedic  
Surgery, Copenhagen#

**INTRODUCTION:** Use of scaffolds presents an occupational risk to manual labourers, in densely populated areas also to pedestrians and furthermore is a potential platform for suicide. This study presents data on how often scaffolds are involved in adverse incidents.

**MATERIAL AND METHODS:** Incidence and severity of trauma related to scaffolding, as recorded in RHTC from 1.1.1999 - 31.12.2007, were retrospectively evaluated. Further information was drawn from Trauma Audit & Research Network (TARN). For occupational injuries additional information was obtained from the National Board of Industrial Injuries.

**RESULTS:** 160 cases were identified. Seven patients (4%) were workers without a Danish social security number. Falls were the most frequent cause of scaffold-related trauma (55%). Twenty cases involved a falling object (13%). Collapsed scaffolds caused 12 accidents (7%) and 36 cases were of miscellaneous nature, including 2 suicidal attempts. Fifteen patients (9%) were under the influence of alcohol. Epileptic attacks primed the accident in 2 cases. RHTC TraumaTeam was activated according to ACS-guidelines in 67 (42%) cases; TARN inclusion criteria were met by 40. Head/face was the most frequently injured region (42%) followed by the extremities (32%). A total of 59 patients were admitted; 24 and 22 to neurosurgical and orthopaedic departments respectively. Seventy percent of incidents were work related (n=113). Forty-nine patients reported an occupational injury to the National Board of Industrial Injuries.

**CONCLUSION:** Scaffolding constitutes a hazard to the involved workforce and the public. Falls were the most frequent mechanism of injury, followed by falling objects. Injuries caused by intoxication and epilepsy were also recorded.

# **EQUINE BONE MATRIX PROTEIN LYOPHILISATE DECREASES FIXATION AND OSSEOINTEGRATION OF TI IMPLANTS – A STUDY IN 20 SHEEP**

*Jørgen Baas, Thomas Jakobsen, Anders Lamberg, Kjeld Søballe*  
Ortopædkirurgisk Forskningslaboratorium E, Århus Sygehus

**INTRODUCTION:** Joint replacements should be firmly anchored in vital bone to avoid early implant subsidence and late aseptic loosening. However, uncemented pressfitted implants are only partially in contact with the surrounding bone after insertion. We tested whether the early implant fixation could be improved by adding an osteoinductive extract of equine cortical bone, Colloss E (Ossacur AG, Germany), between the implant and the surrounding bone to promote healing of periimplanteric defects.

**MATERIAL AND METHODS:** In a paired study we implanted a cylindrical porous-coated Ti implant surrounded by a 2 mm coaxial defect in each proximal humerus of twenty sheep observed for 4 weeks. On the intervention side, the implant was treated with 20 mg Colloss E in the gap around the implant. The implant in the contra-lateral humerus was not treated and served as control.

**RESULTS:** By mechanical push-out test, the control implants were better fixed than the Colloss E-treated implants ( $p=0.02$ ). By histomorphometry, both groups were almost completely covered by a dense fibrous membrane. The volume fraction of fibrous tissue in the gap was higher in the Colloss E-treated implants ( $p<0.001$ ). There was a trend towards less newly formed bone around the treated implants ( $p=0.053$ ).

**CONCLUSION:** The experiment contradicts previous results with Colloss E in canine, ovine and murine models of bone healing and implant fixation. One explanation could be that a biologically derived device such as Colloss E provokes different host responses in different species. If so, positive preclinical results will not necessarily be reproducible in humans.

The results suggest caution and further experimental research before augmenting clinical joint arthroplasties with xenograft devices such as Colloss E.

# **EQUINE BONE MATRIX PROTEIN LYOPHILISATE AUGMENTS FIXATION AND OSSEOINTEGRATION OF HA-COATED TI IMPLANTS – A STUDY IN DOGS**

*Jørgen Baas, Thomas Jakobsen, Brian Elmengaard, Joan Bechtold,  
Kjeld Søballe*

Ortopædkirurgisk Forskningslaboratorium E, Århus Sygehus og  
Midwest Orthopaedic and Minneapolis Medical Research Foundations,  
Minneapolis, USA

**INTRODUCTION:** Joint replacements should be firmly anchored in vital bone to avoid early implant subsidence and late aseptic loosening. We investigated whether the mechanical fixation of orthopedic implants could be improved by adding an osteoinductive extract of lyophilized equine cortical bone proteins (Colloss E, Ossacur AG, Germany), between the implant and the surrounding bone.

**MATERIAL AND METHODS:** Eighteen uncemented HA-coated implants were operated pairwise into the proximal tibia of nine dogs. All implants were surrounded by a 2 mm concentric defect. In each dog, the intervention implant was added 20 mg protein lyophilisate. The contralateral control implant was inserted untreated. The observation time was four weeks.

**RESULTS:** The treated implants had better mechanical fixation than the untreated control implants. The treated implants were better osseointegrated, there was more newly formed bone around the implant, and fibrous tissue was eliminated. The mechanical implant fixation had a strong positive correlation to new bone formation on and around the implant, and a strong negative correlation to fibrous tissue encapsulation.

**CONCLUSION:** The results suggest that bone protein extracts such as the Colloss E device may augment early implant fixation of even HA-coated Ti implants and thereby reduce the risk of long-term failure. This may be particularly useful in revision arthroplasty with bone loss.

# **EFFECT OF GROWTH-INSTRUMENTATION ON VERTEBRAL GROWTH -A COMPARATIVE STUDY OF LOCKED VS. UNLOCKED SYSTEMS IN A PORCINE MODEL**

*Kristine Hjerimitslev, Michael Bendtsen, Zou Xuenong, Li Haisheng,  
Cody Bünger*

Ortopædkirurgisk afd.E, Århus Universitets Hospital

**INTRODUCTION:** By introducing a new surgical technique to the treatment of scoliosis with growth-instrumentation, we believe to optimize the final result by achieving close to normal vertical growth, without the current risks and discomforts associated with the need for multiple surgical lengthenings. Assuring free movement of the rods vertically allows the vertical growth that is inhibited between lengthening under current guidelines, but still provides the crucial lateral support that is needed for curve correction.

**MATERIAL AND METHODS:** 20 female Danish landrace pigs (5 weeks, 15 kgs.) underwent unilateral vertebral stapling of 3 consecutive levels, followed by a growth period to develop scoliotic deformity. The scoliosis-model pigs have growth-instrumentation inserted after two different techniques, with the fundamental difference of free vertical movement in the one construct vs. no movement in the other. The group with the locked constructs undergoes a total of 3 surgical elongations, in 3 week intervals.

**RESULTS:** Vertebral stapling did not induce scoliosis. X-rays clearly show the inability of the staples to restrict growth as most staples had been pulled out of its original insertion place. Growth was quantified by measuring the increase in the gap between the two rod-ends inside the connector on each side. The mean growth in the instrumented segment was 0.0237 and 0.0222 mm/GP/day in the locked group vs. 0.0606 and 0.0587 mm/GP/day in the unlocked group (P values of 0,023 and 0,034).

**CONCLUSION:** There is clear evidence of better growth achievement in an unlocked construct vs. a locked one, but as we were unable to create scoliotic deformity, it is uncertain whether this new construct will still provides lateral support.

# VASCULARISED FIBULA GRAFTS FOR RECONSTRUCTION OF BONE DEFECTS AFTER TUMOUR RESECTIONS BECAUSE OF BONE SARCOMAS

*Dorrit Hovgaard, Michael Mørk Petersen, Jens Jørgen Elberg, Cathrine Rehnitzner, Søren Daugaard, Aida Muhic*

Department of Orthopaedic Surgery, Department of Plastic Surgery,  
Department of Paediatric Oncology, Department of Pathology, and  
Department of Oncology

**PURPOSE:** To evaluate local control, survival, and complication rate after treatment of bone sarcomas (BS) with limb-sparing surgery and reconstruction of bone defects with vascularised fibula grafts.

**MATERIAL AND METHODS:** Eight consecutive patients (mean age at operation 13 (range 4-24) years, female/male= 6/2) with BS (osteosarcoma/Ewing's sarcoma/chondrosarcoma= 4/3/1) had during the year's 2000 – 2006 limb-sparing surgery and reconstruction of bone defects with vascularised fibula grafts. Seven of the patients also underwent treatment with chemotherapy. The bone defects after surgery, that was reconstructed with insertion of one (n=6) or two (n=2) vascularised fibular grafts, were: femoral diaphysis including the proximal epiphysis (n=2), humeral diaphysis (n=2), humeral diaphysis including the proximal epiphysis (n=1), femoral diaphysis (n=1), ulnar diaphysis (n=1), and tibial diaphysis (n=1).

**RESULTS:** One patient suffering from Ewing's sarcoma had an early hip disarticulation (because of poor effect of chemotherapy and only marginal tumour resection), and died 9 months after the operation. The remaining patients (n=7) were all alive 3.8 (range 1.7-7.5) years after surgery. With the exception of one patient, who had a lung metastasis removed surgically, all patients were without any signs of local recurrence or distant metastases. During the follow-up the following major complications were seen: 1-3 fractures (n=5), pseudarthrosis (n=1), and hip disarticulation (n=1).

**CONCLUSION:** Limb-sparing surgery with reconstruction of bone defects using vascularised fibular grafts in BS cases unsuitable for reconstruction with insertion of a tumour prosthesis was feasible with good results with respect to survival, but complications, especially fractures, should be expected in most patients.



# CASUALTY DEPARTMENT RUN BY SPECIAL TRAINED NURSES. IS IT RELEVANT?

*Heltoft, Sygeplejerske, Jens Ole Laursen, Læge*  
ortopædkirurgisk afdeling, Sønderborg, Sygehus Sønderjylland

**INTRODUCTION:** We present an investigation from a Casualty Department in the County of South Jutland run by special trained nurses and supervised by doctors at the Central Casualty Department.

**MATERIAL AND METHODS:** In the investigation was included 2225 patients seen during a period of four different months through 2006/2007. The total number of casualties in the whole County was 38.324. The proportion seen and treated in these clinics was 14.929 patients ( 39 % ). 89 % of these patients seen by the nurses were finally treated, and only 7,2 % had to be visited to the Central Casualty department ( run by doctors ). We looked at and registered type of accident, diagnosis, region of injury, treatment, number of x-rays taken and the number of these positive. We compared the findings in this investigation we earlier investigations where the casualty department were run by doctors ( trainees ).

**RESULTS:** There were seen no difference in the type of injuries, and the treatment of these minor injuries were as good as the treatment given earlier by doctors.

**CONCLUSION:** We can conclude, that an unexpected large number of patients with minor injuries are able to get sufficient treatment at a local Casualty Department run by special trained nurses.

## References

- 1) Skadestuemønstret på et centralsygehus. Jensen, T. T. Holm, L. og Mossing, N. B. Ugeskrift for læger d. 7. januar 1985; 147: 117-120.
- 2) Stigning i skadestuehenvendelser efter den nye lægevagtsordning. Husted, H. Laursen, J. O. Clasen, K. og Nørgaard, M. Tidsskrift for dansk sundhedsvæsen marts 2/1995; 72-75
- 3) Røntgenundersøgelser ved en åben skadestue. Holm, L. og Jensen, T. T. Ugeskrift for læger december 1985; 147: 4241-4243.



## **EFORT Travelling Fellowship i Norge i maj 2009**

DOS opfordrer vores yngre kolleger til at fremsende en motiveret ansøgning til bestyrelsen, att. Formand Per Kjærsgaard-Andersen, om deltagelse i næste forårs EFORT Travelling Fellowship som afvikles i Norge i dagene 10. – 16. maj 2009 i Bergen, Trondheim og Oslo. Fellowshipet er primært beregnet for yngre ortopæder som er ved at uddanne sig til speciallæge i ortopædisk kirurgi.

Din afdeling skal bevilge dig fri med løn, DOS betaler dine rejseomkostninger, medens Det Norske Ortopædiske Selskab betaler dine opholds- og rejseudgifter i Norge i den pågældende uge.

Se i øvrigt under [www.efort.org](http://www.efort.org) for flere oplysninger.

**Ansøgningsfrist: 25. november 2008**

### ***Rettelse:***

Det bliver **Peter Faunø**, Århus, og ikke som angivet i sidste nummer af Bulletinen, Bent Lund, som bliver delkursusleder kurset i Idrætstraumatologi.

*Uddannelsesudvalget*

# **Efterårsmøde i Dansk Selskab for Håndkirurgi arrangeret i samarbejde med Swemac**

**Onsdag 22. oktober 2008 kl. 9:30 - 15:30,  
Radisson SAS Scandinavia Hotel, København**

## **Scaphoideumfrakturer**

- 09.30 - 10:00 Registrering og kaffe  
10:00 - 10:30 Anatomi og biomekanik  
Bo Munk, Århus Universitetssygehus  
10:30 - 10:40 Diskussion  
10:40 - 11:20 Epidemiologi, diagnostik og artroskopiske erfaringer  
Peter Jørgsholm, Privathospitalet Mølholm  
11:20 - 11:30 Diskussion  
11:30 - 11:50 Billeddiagnostik  
Lone Rømer Mikkelsen, Århus Universitetssygehus  
11:50 - 12:00 Diskussion  
12:00 - 13:00 Frokost  
13:00 - 14:00 Klassifikation og behandling inkl. perkutan  
osteosyntese  
Nicolas J. Goddard. The Royal Free Hospital and  
School of Medicine, London  
14:00 - 14:10 Diskussion  
14:10 - 14:30 Pseudoartroser. Diagnostik og behandling  
Anders Ditlev Jensen. Århus Universitetssygehus  
14:30 - 14:50 Vaskulære grefter  
Peter Jørgsholm, Privathospitalet Mølholm  
14:50 - 15:15 Diskussion og afslutning

**Alle er velkomne.**

Tilmelding til: Karina Schölhammer, Swemac, tlf.: 2940 7043,  
**senest 15. oktober 2008.**

# **Generalforsamling i Dansk Selskab for Håndkirurgi**

**Onsdag 22. oktober 2008 15:30 - 17:00  
på Radisson SAS Scandinavia Hotel**

## **Dagsorden:**

1. Valg af dirigent
2. Fremlæggelse og godkendelse af bestyrelsens beretning.
3. Fremlæggelse og godkendelse af revideret regnskab.
4. Vedtagelse af kontingent for 2008.
5. Optagelse af nye medlemmer.
6. Valg af bestyrelsesmedlemmer.
7. Valg af revisorer.
8. Indkomne forslag.
9. Eventuelt.

Forslag der ønskes behandlet på generalforsamlingen bedes sendt til formanden Niels Søe Nielsen (mail: [nsn@dadlnet.dk](mailto:nsn@dadlnet.dk)) **senest 8.oktober 2008.**

Efter generalforsamlingen arrangeres spisning (for egen regning). Tilmelding til Pernille Leicht (mail: [p.leicht@dadlnet.dk](mailto:p.leicht@dadlnet.dk)) senest 8.oktober 2008.

# **Dansk Selskab for Håndkirurgi**

**Torsdag 23. oktober 2008 kl. 9:00 - 12:00**  
**Radisson SAS Scandinavia Hotel, København**

09:00 - 10:00 Håndkirurgiske udfordringer og andre, oplevelser i  
Afgghanistan.  
*Henrik Schrøder, Odense*

10:00 - 10:15 Kaffepause

10:15 - 11:15 Erfaringer og oplevelser fra mange udstationeringer i  
krigszoner og katastrofeområder.  
*Finn Warburg, Rigshospitalet*

11:15 - 12:00 Frie foredrag

Abstracts til frie foredrag skal fremsendes til formanden Niels Søren Nielsen (mail: [nsn@dadlnet.dk](mailto:nsn@dadlnet.dk)) **senest 8.10.2008.**

*På bestyrelsens vegne*  
*Pernille Leicht*

# **Åbent møde i Dansk Ortopædisk Traumeselskab (DOTS)**

**Torsdag den 23. oktober 2008 kl. 10-12.**

I forbindelse med Årsmødet i Dansk Ortopædisk Selskab holder traumeselskabet møde. Alle er velkomne, men kun medlemmer har stemmeret.

## **Program:**

### **Kl. 10-10.50 Generalforsamling med følgende dagsorden:**

- 1 Valg af dirigent
- 2 Godkendelse af dagsorden
- 3 Godkendelse af referat fra sidste generalforsamling
- 4 Formandens beretning
- 5 Medlemsstatus og tiltag for at øge antallet
- 6 Fremlæggelse af regnskab
- 7 Supplerende valg til bestyrelsen. Der ønskes suppleret med 3 yngre medlemmer. Forslag skal være formanden (Morten Schultz-Larsen, Odense) i hænde senest 15. oktober 2008.
- 8 Eventuelt

### **Kl. 11-11.30**

"Malleolfrakturer og Biomekanik" v Klaus Kjær Petersen  
Herunder hvilke strukturer sikrer et stabilt ankelled?  
hvornår er en malleolfraktur ustabil? Lauge-Hansen, osv.

### **Kl. 11.30-12**

"Diagnostisk udredning - klinisk & radiologisk" v Søren Kold  
Herunder hvordan diagnosticeres en deltoideum ruptur - syndesmoses-  
kade, hvordan udredes en "breddeøget fodsledsgaffel"?

Der vil blive serveret kaffe undervejs

***Sekretær DOTS:***

***Overlæge Annette Sylvest, Ortopædkirurgisk afdeling M  
Bispebjerg Hospital, Bispebjerg Bakke 23, 2400 København NV  
Tlf: 3531 3531 personsøger 4507, Email: asyl0004@bbh.regionh.dk***

# **DSHK**

## **Dansk Selskab for Hofte- og Knæalloplastik Kirurgi**

Torsdag 23. oktober kl. 09.00 – 12.15  
Radisson SAS Scandinavia Hotel,  
Amager Boulevard 70, København S

09:00 – 09:30 Ekstraordinær generalforsamling (se særskilt dagsorden)

09.30 – 11.00 Symposium: Metal-metal artikulation

11.00 – 11.45 Rapport DHR

11.45 – 12.15 Rapport TKR

## **Ekstraordinær generalforsamling, DSHK**

### **Dagsorden**

- 1 valg af dirigent
- 2 godkendelse af dagsorden
- 3 nye vedtægter
- 4 medlemskab af DMS
- 5 evt.

*Søren Overgaard*

# **Vedtægter for Dansk Selskab for Hofte- & Knæalloplastik kirurgi**

§ 1: Dansk selskab for Hofte- og Knæalloplastik Kirurgi, DSHK, (Danish society for hip and knee arthroplasty).

§ 2: Formål: Selskabets formål er fagligt at styrke hofte- og knæalloplastik kirurgien i Danmark, dette sker ved:

At fremme den videnskabelige forskning inden for hofte- og knæalloplastik kirurgi.

At højne den faglige standard inden for hofte- og knæalloplastik kirurgi.

At medvirke til uddannelse inden for hofte- og knæalloplastik kirurgi.

At udbygge nationale og internationale relationer inden for forskning, klinik og uddannelse i relation til hofte- og knæalloplastik kirurgi.

§ 3: Medlemskab: Som medlemmer optages medlemmer af Dansk Ortopædkirurgisk Selskab med interesse for hofte- og/eller knæalloplastik kirurgi.

**§ 3: Medlemskab: Som medlemmer optages medlemmer af Dansk Ortopædisk Selskab med interesse for hofte- og/eller knæalloplastik kirurgi.**

Medlemmer der fratræder deres stilling eller bliver 67 år, fritages for kontingent, men bevarer stemmeretten. Medlemmer over 67 år kan ikke vælges til bestyrelse eller udvalg.

Udmeldelse kan kun ske skriftligt til bestyrelsen med virkning til udgangen af regnskabsåret.

Som udmeldt betragtes den, som ikke har betalt kontingent i 2 år. Genoptagelse kan kun ske efter betaling af restancen.

Et medlem kan ekskluderes ved generalforsamlingsbeslutning med 2/3 majoritet efter motiveret indstilling fra bestyrelsen.

§ 4: Bestyrelse: Bestyrelsen i Dansk Selskab for Hofte- og Knæalloplastik Kirurgi består af 5 medlemmer og en suppleant. Suppleanten er den kandidat, der ved afstemningen får 6. højeste stemmetal. Bestyrelsen vælges af generalforsamlingen for en 3-årig periode. Genvælges kan mak-



simult finde sted 1 gang. Bestyrelsen konstituerer sig selv med formand, næstformand, sekretær, kasserer og et menigt medlem.

Hvis formanden afgår i sin valgperiode, da kan den fra bestyrelsen, der overtager formandshvervet forblive i bestyrelsen i den resterende valgperiode som den afgående formand havde tilbage.

#### **§ 4: Bestyrelse: Bestyrelsen i Dansk Selskab for Hofte- og Knæalloplastik**

**Kirurgi består af 5 medlemmer og en suppleant. Bestyrelsen vælges af generalforsamlingen for en 3-årig periode. Genvalg kan maksimalt finde sted 1 gang. Bestyrelsen konstituerer sig selv med formand, næstformand, sekretær, kasserer og et menigt medlem.**

**Hvis formanden afgår i sin valgperiode, da kan den fra bestyrelsen, der overtager formandshvervet forblive i bestyrelsen i den resterende valgperiode som den afgående formand havde tilbage.**

#### **§ 5: Bestyrelsens opgaver:**

Bestyrelsen leder selskabets daglige virksomhed.

Bestyrelsen fastsætter sin forretningsorden og sekretæren fører forhandlingsprotokol.

Bestyrelsen er ansvarlig for, at der afholdes faglige møder i forbindelse med de 2 årlige DOS møder samt generalforsamling 1 gang årligt.

Bestyrelsen er ansvarlig for, at der som minimum afholdes faglige møder i forbindelse med DOS møderne samt generalforsamling 1 gang årligt.

Bestyrelsen udnævner ad hoc udvalg m.h.p. at arrangere kurser og anden faglig aktivitet.

Bestyrelsen redigerer selskabets hjemmeside ([www.DSHK.org](http://www.DSHK.org)).

#### **§ 5: Bestyrelsens opgaver:**

**Bestyrelsen leder selskabets daglige virksomhed.**

**Bestyrelsen fastsætter sin forretningsorden og sekretæren fører forhandlingsprotokol.**

**Bestyrelsen er ansvarlig for, at der som minimum afholdes faglige møder samt generalforsamling 1 gang årligt.**

Bestyrelsen udnævner ad hoc udvalg m.h.p. at arrangere kurser og anden faglig aktivitet.

Bestyrelsen redigerer selskabets hjemmeside ([www.DSHK.org](http://www.DSHK.org)).

§6: Rejser, som bestyrelsesmedlemmer og udvalgsmedlemmer foretager på selskabets vegne, betales efter DADL's regler.

§ 7: Generalforsamling: Generalforsamlingen er selskabets højeste myndighed. Der holdes ordinært generalforsamling 1 gang årligt, indkaldt af bestyrelsen.

**§ 7: Generalforsamling: Generalforsamlingen er selskabets højeste myndighed. Der holdes ordinær generalforsamling 1 gang årligt, indkaldt af bestyrelsen.**

Generalforsamlingen er beslutningsdygtig, såfremt den er indkaldt senest 6 uger før den finder sted. Dagsorden publiceres i sidste DOS bulletin før mødet.

Dagsorden skal indeholde følgende punkter:

Valg af dirigent.

Godkendelse af referat fra forrige generalforsamling.

Formandens beretning.

Fremlæggelse af regnskab og budget til godkendelse.

Behandling af indkomne forslag.

Fastsættelse af kontingent.

Valg af bestyrelse ved valgperiodens udløb.

Valg af revisor

Eventuelt.

Indkomne forslag skal være bestyrelsen i hænde senest 2 uger før generalforsamlingen. Vedtagelse sker normalt ved simpelt flertal på generalforsamlingen, dog kræves 2/3 majoritet m.h.p. vedtægtsændringer.

**Indkomne forslag skal være bestyrelsen i hænde senest 2 uger før generalforsamlingen. Vedtagelse sker normalt ved simpelt flertal på generalforsamlingen, dog kræver vedtægtsændringer 2/3 majoritet.**

Selskabets regnskab skal være godkendt af revisor før fremlæggelse på generalforsamlingen. Revisoren vælges på generalforsamlingen for 2 år af gangen.

§ 8: Ekstraordinær generalforsamling kan indkaldes af bestyrelsen og skal indkaldes, hvis mindst 1/3 af selskabets medlemmer skriftligt har udtrykt ønske herom.

Ved ekstraordinær generalforsamling skal bestyrelsen have tilsendt medlemmerne dagsorden 4 uger før generalforsamlingen finder sted.

Vedtaget ved den stiftende Generalforsamling 2. maj 2002; revideret ved den ordinære generalforsamling 22. maj 2003; revideret og vedtaget ved 4. generalforsamling den 18. maj 2006; **revideret på ny ved ekstraordinær generalforsamling oktober 2008.**

*Søren Overgaard*

*Søren Solgaard*

*Christian Pedersen*

*Henrik Husted*

*Anders Odgaard*

# ***DSHK Minisymposium***

## **Metal – metal artikulation ved hoftealloplastik Fordele og risici**

Patientinformation og patientselektion

Anvendelse af metal-metal artikulation i forbindelse med hoftealloplastik rummer dokumenterede fordele i form af signifikant reduceret slid og slidinduceret osteolyse. Desuden indebærer konceptet mulighed for anvendelse af ”store hoveder”, både i forbindelse med resurfacing og kombineret med konventionel stem, hvilket reducerer luksationsrisikoen og øger ROM.

Potentielle risici er biologiske reaktioner på metalpartikler og metalioner. Det drejer sig om mutagen effekt, teratogen effekt og carcinogen effekt af metalioner, lokal og systemisk immunologiske response på metalpartikler og hypersensitivitetsbetingede reaktioner.

Formålet med symposiet er:

- 1 præsentere eksisterende dokumentation for fordele og risici ved anvendelse af metal/metal artikulationer i hoftealloplastik  
  
som grundlag for
- 2 drøftelse af patientinformation og patientselektion

## Program

- Introduktion  
12 min  
*Jens Retpen*
- Fordele ved metal/metal artikulation  
12 min  
*Jens Stürup*
- Mulig mutagen, teratogen og carcinogen  
effekt af metalioner  
Klinisk relevans og relevans for patientselektion  
12 min  
*Kjeld Søballe*
- Lokal og systemisk immunologisk response  
på metalpartikler, metal hypersensitivitet  
Klinisk relevans og relevans for patientselektion  
12 min  
*Arne Borgwardt*
- Alternative artikulationer  
12 min  
*Søren Overgaard*
- Diskussion  
30 min  
*Moderator Jens Retpen*



DANSK SELSKAB FOR ARTROSKOPISK  
KIRUGI OG SPORTSTRAUMATOLOGI

## ***Dansk Selskab for Artroskopisk Kirurgi og Sportstraumatologi***

### **Efterårsmøde**

23. oktober 2008 kl. 10.00 – 12.00

I forbindelse med DOS-mødet

#### **Program:**

10.00-10.30 Kaffe og velkomst

10.30-11.00 Databaser (ACL og Hoftedatabaser)  
*Bent Lund, Anders Troelsen mm.*

11.00-12.00 Status over bruskkirurgi 2008.  
*Micael Haugegaard*



Fagforum for Idrætsfysioterapi

## **Fod, ankel og løbekursus 2009**

**Dansk Idrætsmedicinsk selskab (DIMS) og Fagforum for Idrætsfysioterapi (FFI) inviterer til kursus.**

Fokus på fodens funktionelle anatomi, overbelastningsskader, skadesforekomst, traumer, løbets biodynamik, løbestilsanalyse med video, undersøgelsesteknik af fod. Fodens biomekaniske betydning for knæ-, og hofteled, forfodssmerter samt behandling af fodens belastningsskader og den instabile ankel. Løbefysiologi og ernæring, teknik, elitetræning.

**Målgruppe:** Læger, fysioterapeuter og øvrige med interesse for idrætsmedicin.

**Målsætning:** Øge kendskab til anatomi, biomekanik, fysiologi, ernæring, træning og overbelastningsskader, relevante differentialdiagnoser og løbestil m. m.

**Kursusform:** 2 dages eksternatkursus som en kombination af teori og praktiske øvelser, hvor enkelt lektion vil være udendørs. Husk praktisk påklædning.

**CME Points:** 10 CME points i DIMS regi.

**Tid og sted:** Aalborg d. 8. og 9. januar 2009, Forskningens Hus, auditoriet, Aalborg Sygehus, Sdr. Skovvej 15, 9000 Aalborg.

**Kursusleder/underviserer:** Kursusledere: Fysioterapeut Rasmus G. Nielsen og læge Marianne Nygaard Wulff. Undervisere: Ressourcepersoner inden for området.

**Pris:** 2400 kr. for medlemmer og 2800 kr. for ikke medlemmer. Frokost, kaffe inklusive. **Husk evt. løbetøj og badetøj til social aftensvømmehalsarrangement**, for de som har lyst.

**Tilmelding:** Senest d. 8. december 2008. Send e-mail med navn, adresse, navnet på kurset og eventuelt medlemskab af DIMS til kursussekretær Sisse Kay Reinholdt, e-mail: [sisse.reinholdt@webspeed.dk](mailto:sisse.reinholdt@webspeed.dk). Du kan også tilmelde dig via DIMS hjemmeside [www.sportsmedicin.dk](http://www.sportsmedicin.dk) under kurser. Betaling ved tilmelding på Danske Bank Reg. 1551 konto-nr. 160 23 337. Først tilmeldte har fortrinsret og vær opmærksom på, at tilmeldingen først gælder, når kursusafgiften er betalt.



# **8th World Symposium on Congenital Malformations of the Hand and Upper Limb**

**10 - 12 September 2009**

**Place:**

Bucerius Law School, Jungiusstrasse 6, 20355 Hamburg, Germany

**Website of the congress:**

[www.worldcongenital2009.info](http://www.worldcongenital2009.info)

**Main subjects:**

Congenital Forearm and Foot Malformations

Seldom Syndroms and Genetics

Ray Reconstruction and Prosthesis

Vascular Malformation and Tumors

**Congress presidents:**

Mr. Rolf Habenicht, MD, Katholisches Kinderkrankenhaus Wilhelmstift,  
Liliencronstrasse 130, 22149 Hamburg, Germany

**fon** +49 40 673 77-214, **fax** +49 40 673 77-255

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**Organisation of the scientific programme:**

Mr. Rolf Habenicht, MD, Katholisches Kinderkrankenhaus Wilhelmstift

**Congress organisation:**

Intercongress GmbH, Düsseldorfstraße 101, 40545 Düsseldorf  
Germany, **fon** +49 211 58 58 97-70, **fax** +49 211 58 58 97-99

[info.duesseldorf@intercongress.de](mailto:info.duesseldorf@intercongress.de), [www.intercongress.de](http://www.intercongress.de)

**Abstract deadline:**

30 April 2009

**Online-Registration:**

[www.registration.intercongress.de](http://www.registration.intercongress.de)