

# DOS BULLETIN



NR. 6      OKTOBER 2004      33. ÅRGANG

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## **DOS BESTYRELSE**

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### **Betingelser for optagelse i DOS**

Alle læger med dansk autorisation kan optages i Dansk Ortopædisk Selskab.

Anmodning om indmeldelse skal ske skriftligt eller via DOS's hjemmeside [www.ortopaedi.dk](http://www.ortopaedi.dk), anmodningen skal stiles til bestyrelsen og indsendes sammen med oplysninger om personlige data til sekretæren Bjarne Møller-Madsen.

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#### **Udgiver**

Dansk Ortopædisk Selskab

#### **Ansvarshavende redaktør**

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#### **Web-page**

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

#### **Redaktion og annoncer**

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### **DEADLINES FOR NÆSTE BULLETIN**

**ANNONCER: Fredag den 19. november 2004**

**TEKST: Fredag den 3. december 2004**

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**Møder i forbindelse med  
DOS årsmøde 2004**

Radisson SAS Scandinavia Hotel, København

Torsdag den 21. oktober

- 08:00 – 10:00 **Dansk Ortopædkirurgisk Traumeselskab**
- 09:00 - 12:00 **Dansk Håndkirurgisk Selskab**
- 09:00 – 12:00 **Dansk Børneortopædisk Selskab**
- 09:00 – 12:00 **Dansk fod-ankel kirurgisk selskab**  
”The Rheumatoid Foot”
- 09:30 - 12:00 **SAKS**
- 09:00 – 10:30 **Symposium:**  
**DOS’s uddannelsesudvalg**  
”Den ortopædkirurgiske Speciallægeuddannelse”
- 10:00 - 12:00 **Dansk Selskab for Hofte- og Knæalloplastik Kirurgi**
- 11:00 – 12:00 **Ryginteressegruppen**

*Se evt. program sidst i bladet.*

## **Ortopædkirurgisk Speciallægeklinik sælges**

“Klinik for Ortopædkirurgi og Sportsskader” beliggende centralt i Århus sælges.

Klinikken har fuldtidsydernummer med den offentlige sygesikring og har været drevet af nuværende ejer i 9 år.

Stor omsætning både via Sygesikringen og privatbehandling.

Er desuden godkendt af sygeforsikringen “danmark”, og har behandlingsaftaler med samtlige store forsikringsselskaber.

I år 2000 blev klinikken gennemgribende moderniseret og fremstår i dag med meget smagfuldt indrettede lokaler, 250 kvadratmeter i et plan, og direkte i forbindelse hermed 80 kvadratmeter kælder med omklædningsfaciliteter, toiletter, depotrum og vaskeri.

Klinikken er udstyret med to komplette operationsstuer, skyllerum med udstyr (autoklave), kontor med undersøgelsesleje, stort sekretariat med to arbejdspladser, venteværelse, stor opvågningsstue/skiftestue, handicapvenligt toilet, køkken og personalerum.

Klinikken er veludstyret til ortopædkirurgiske operationer med komplet artroskopiudstyr på begge operationsstuer, 3M-boremaskine/sav samt diverse instrumenter. Der er moderne operationslejer.

På begge operationsstuer og i venteværelset B&O musikanlæg.

Sekretariatet er udstyret med to fuldt monterede arbejdspladser.

Der anvendes MultiMed speciallæge EDB-program.

Telefonanlæg med omstilling. Alarmanlæg.

Klinikken er beliggende i lejede lokaler, som kan overtages.

Klinikken sælges med overtagelse sommeren/efteråret 2005.

Klinikken er beskrevet på vores hjemmeside [www.ortopaed-klinikken.dk](http://www.ortopaed-klinikken.dk)

Henvendelse til speciallæge Kjell Sølund

Telefon 8612 9732 mandag - torsdag (8-16)

Telefon 8627 7551/4062 9800 efter kl. 17

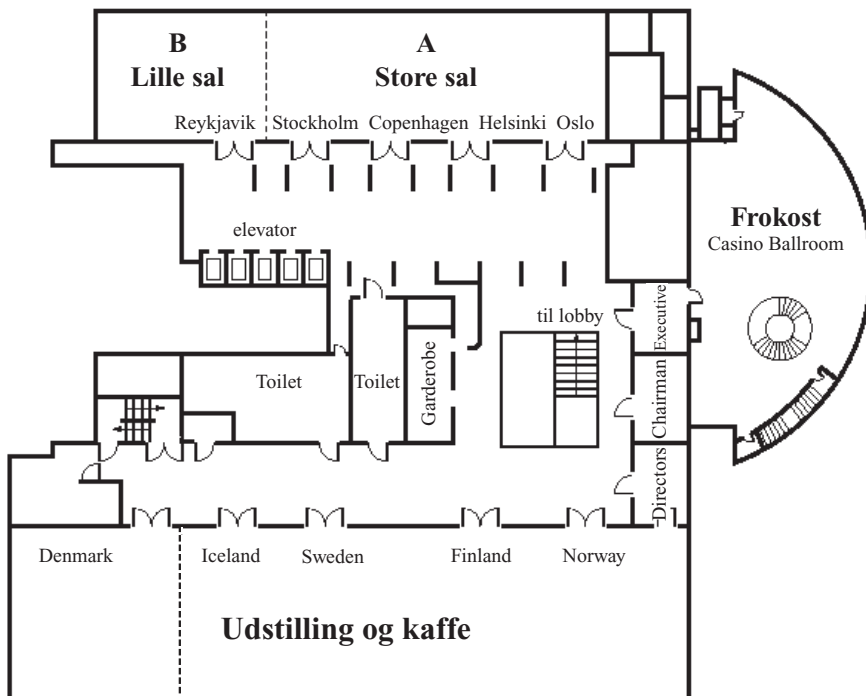
E-mail [k.solund@laege.dk](mailto:k.solund@laege.dk)

# Dansk Ortopædisk Selskabs Årsmøde

21. - 22. oktober 2004

Radisson SAS Scandinavia Hotel, København

## Oversigtsplan



## **Mødeoversigt**

*Thursday 21<sup>st</sup> October*

<b>Room A</b>	<b>Room B</b>
13:00 - 14:30 <b>Arthroplasty and Paediatric orthopaedics (papers)</b>	13:00 - 14:30 <b>Trauma (papers)</b>
14:30 - 15:30 <i>Technical exhibition, coffee</i>	
15:30 - 16:30 <b>Guildal Lecture: "Treatment of unicompart- mental osteoarthritis"</b> <i>Dr. Thomas S. Thornhill; Boston</i>	
16:30 - 17:00 <b>Uddelinger</b>	
19:00 <i>Gallafest</i>	

**Indtegning på bordplan til middagen  
slutter torsdag kl. 15:30!!!**

**Påklædning: Smoking eller mørk tøj.**

**Der fremsendes billetter til frokosterne,  
men ikke til middagen.**

**Frokostbilletterne skal afleveres til betjeningen.**

## **Mødeoversigt**

*Friday 22<sup>nd</sup> October*

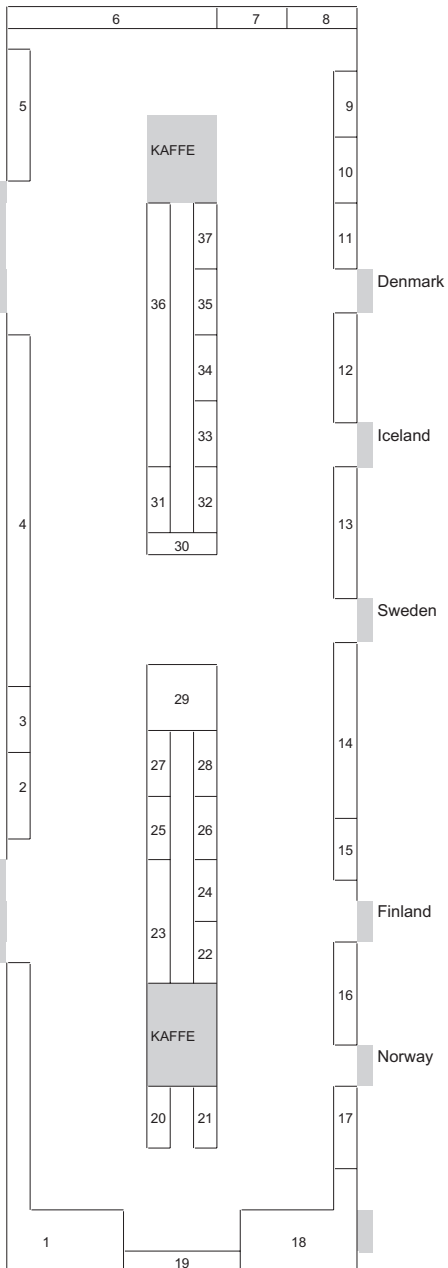
<b>Room A</b>	<b>Room B</b>
09:00 - 10:00 <b>Best Paper</b>	
10:00 - 11:00 <i>Technical exhibition, coffee</i>	
11:00 - 12:30 <b>Symposium: BJD-DK</b> <b>Osteoporose - knogleafkalkning</b> <b>Forebyggelse af fald og frakturer</b>	
12:30 - 13:30 <b>Lunch</b>	
13:30 - 14:30 <b>Poster Session;</b>	13:30 - 14:30 <b>Upper extremity (Papers)</b>
14:30 - 15:30 <i>Technical exhibition, coffee</i>	
15:30 - 17:00 <b>Høring:</b> <b>”Referenceprogrammet for diagnosticering og behandling af ledbåndsskader i knæledet”</b>	
17:00 <b>Best paper award,</b> <b>Best poster award</b>	

## **Udstillere**

<i><b>Udstiller</b></i>	<i><b>Stand nr.</b></i>	<i><b>Areal</b></i>
Aim-Max Medical	25	1 x 3 m
Aircast KB	33	1 x 3 m
Apgar Danmark A/S	17	1 x 3 m
Artek A/S	19 + 20	--
B. Braun Medical / Aesculap	7	1 x 3 m
Biomet Danmark	36	1 x 12 m
ConvaTec	22	1 x 3 m
dj Orthopedics Nordic ApS	8	1 x 3 m
Fischer Medical	24	1 x 3 m
GlaxoSmithKline	30	1 x 3 m
Hemax Medical Aps	32	1 x 3 m
Horus Medical	27	1 x 3 m
Implantec Medical ApS	9	1 x 3 m
Jørgen Kruuse A/S	15	1 x 3 m
Karl Storz Endoskopi Danmark A/S	37	1 x 3 m
KCI Medical ApS	34	1 x 3 m
Kebo Care	5	1 x 6 m
L J Medical ApS	3	1 x 3 m
Max Manus A/S	29	3 x 3 m
Meda AS	35	1 x 3 m
Medtronic-ViCare AS	2	1 x 4 m
Nordic Medical Supply	18 + 21	--
Ortotech	16	1 x 5 m
Osmedic	12	1 x 5 m
Ossano Scandinavia ApS	26	1 x 3 m
Pro-Meduc A/S	28	1 x 3 m
Protesekompagniet	4	1 x 16 m
Regent Medical	10	1 x 3 m
Sectra Pronosco A/S	11	1 x 3 m
Smith & Nephew A/S	13	1 x 6 m
Stratec Medical A/S	14	1 x 8 m
Stryker Danmark	6	1 x 9 m
Swemac Orthopaedics AB	23	1 x 6 m
Verigen A/S	31	1 x 3 m
Zimmer	1	--



# Udstilling



**DOS ÅRSMØDET 2004**



**Program**  
**DOS Årsmøde 2004**

# **Thursday 21<sup>st</sup> October**

**13:00 - 14:30: Room A:**

## **Arthroplasty and Paediatric Orthopaedics**

**Chairman: Stig Sonne-Holm**

**Side**

Limb lengthening for short stature <i>Steen Bach Christensen, Adam Hede, Hans Henrik Strange-Vognsen, Klaus Hindsø, Gert Rabek Andersen</i>	27
Surgical correction of clubfoot deformities performed at Better Life Centre, Burkina Faso <i>Niels Ellitsgaard</i>	28
Comparison of Catterall and Herring classification of Calvé-Legg-Perthes disease <i>L. Froberg and F. Christensen</i>	29
Unicompartmental and total knee arthroplasty for osteoarthritis <i>Snorre Steffensen, Torben Sandberg Sørensen</i>	30
The surface macro-structure influences the sealing effect and gap-healing around experimental implants. A randomised study in dogs comparing closed-pore versus open-pore porous coatings <i>Ole Rahbek, Søren Kold, Berrit Zippor, Søren Overgaard, Kjeld Søballe</i>	31

# **Thursday 21<sup>st</sup> October**

**13:00 - 14:30: Room A:**

## **Arthroplasty and Paediatric Orthopaedics (Cont)**

**Chairman: Stig Sonne-Holm**

**Side**

- Results of isolated tibial polyethylene insert exchange after uncemented total knee arthroplasty 32  
*Claus L. Jensen, Michael M. Petersen, Karl E. Jensen, Matthias Therbo and Henrik M. Schrøder*
- Interim report from the ESMOS study 33  
*Camilla Ryge, Søren Solgaard, Michael Rud Lassen, Stig Sonne-Holm*
- Early results after minimal invasive hip arthroplasty 34  
*Niels Krarup, Poul Hedevang Christensen*
- 14 year results on 465 total hip replacements with cemented Müller straight stem and uncemented Harris Galante I cup 35  
*Upender Singh, Kim Engfred, Vivian Petersen, Tom Lemser og Steen Mejdahl*

# **Thursday 21<sup>st</sup> October**

**13:00 – 14:30 Room B**

## **Trauma**

**Chairman: Henrik Grønberg**

**Side**

- Does radiolucency around external fixation pins lead to chronic osteomyelitis? 36  
*Lennart Snerum & Torben Bæk Hansen*
- Cephalomedullary nailing of subtrochanteric fractures caused by low-energy trauma 37  
*Shirzad Houshian, Mike Robinson*
- A First Line ER at Tall Ship Race in Aalborg 38  
*Tine Sonne Larsen og Charlotte Buch Gøthgen*
- Intramedullary Skeletal Kinetic Distractor (ISKD) Nail for Lengthening of Femur 39  
*Shizad Houshian, Hamish Simpson, Nick Short & Gary Keenan*
- Heterotopic ossification among patients with severe traumatic brain damage. 40  
*Louise Lau-Jensen, Stig Sonne-Holm, Annette Liebach, Michael Krasheninnikoff, Aase Engberg*

# **Thursday 21<sup>st</sup> October**

13:00 – 14:30 Room B

## **Trauma (Cont.)**

**Chairman: Henrik Grønberg**

**Side**

Primary total knee arthroplasty after supracondylar & intercondylar femur fractures in elderly <i>Shirzad Houshian, Mike Robinson</i>	41
Proximal Femoral Nail. Early results <i>Peter Mønsted Nørgaard &amp; Svend-Erik Heiselberg</i>	42
Hip preserving salvage procedure after mal- or non-unions of trochanteric fractures (MALNUTF). <i>Ole Ovesen and Søren Overgaard</i>	43
Mortality before and after introduction of optimized hip fracture program <i>Susanne Juhl Pedersen, Birgit Villadsen, Jes Bruun Lauritzen, Benn Duus &amp; BBH Hip Fracture Group</i>	44

***Thursday 21<sup>st</sup> October***

15:30 – 16:30 Room A:

***Guildal Lecture:***

***Treatment of  
unicompartmental osteoarthritis***

Dr. Thomas S. Thornhill; Boston

16:30 – 17:00: Room: A

***Uddelinger fra Guildal Fonden***

# **Friday 22<sup>nd</sup> October**

**09:00 - 10:00 Room A**

## **Best paper**

**Chairmen: Jes Bruun Lauritzen,  
Karsten Thomsen, Peter Helmig**

**Side**

Hip dysplasia: A significant risk factor for the development of hip osteoarthritis in women.

45

*Steffen Jacobsen, Stig Sonne-Holm, Kjeld Søballe, Peter Gebuhr, Bjarne Lund*

A prospective randomized study comparing the Trochanteric Gamma Nail (TGN) and the Dynamic Hip screw (DHS) in 146 intertrochanteric fractures.

46

*Ole Ovesen, Mikkel Andersen, Thomas Poulsen, Tine Nymark, Søren Overgaard and Niels Dieter Röck.*

Significant decrease in male and female hip fracture incidence rate in recent years. The Funen County Hip Fracture Study – 7,457 verified hip fractures from 1996 to 2003.

47

*Tine Nymark, Jens M. Lauritsen, Ole Ovesen, Bernard Jeune, Niels D. Röck.*



# **Friday 22<sup>nd</sup> October**

**09:00 - 10:00 Room A**

## **Best paper (Cont.)**

**Chairmen: Jes Bruun Lauritzen,  
Karsten Thomsen, Peter Helmig**

**Side**

- Aseptic loosening of total hip arthroplasties  
after postoperative treatment with NSAIDs  
*Per Kjærsgaard-Andersen, Søren Paaske Johnsen,  
Anders Riis, Ulf Lucht, Søren Overgaard,  
Kenneth Jensen* 48
- Regional variation in incidence of primary  
total hip arthroplasties and revisions in  
Denmark 1996-2002 49  
*Alma B. Pedersen, Søren P. Johnsen, Søren  
Overgaard, Kjeld Søballe, Henrik T. Sørensen,  
and Ulf Lucht*
- Presentation and radiological follow up  
to skeletal maturity on 135 cases of 50  
*Calvé-Legg-Perthes disease*  
*L. Froberg and F. Christensen*

# **Friday 22<sup>nd</sup> October**

11:00 - 12:30 Room A

## **Bevægeapparatets Årti, Bone and Joint Decade 2000 – 2010**

### **MiniSymposium Osteoporose – knogleafkalkning Forebyggelse af fald og frakturer**

- kl. 11.00-11.10 Velkomst, *Jes Bruun Lauritzen*
- kl. 11.10-11.20 Forebyggelsespolitik, struktur og organisation, Indenrigs- og Sundhedsministeriet, *Ib Valsborg*
- kl. 11.20-11.40 Arbejdsgruppe i Sundhedsstyrelsen vedr. forebyggelse af fald og frakturer, *Else Smith og Kirsten Nielsen*
- kl. 11.40-12.10 Diagnostik og behandling af osteoporose, *Kim Brixen*
- kl. 12.10-12.20 Fysisk aktivitet og faldforebyggelse, *Nina Beyer*
- kl. 12.20-12.30 Patienten, *Ulla Knappe*

# **Friday 22<sup>nd</sup> October**

**13:30 - 14:30 Room A**

## **Poster session**

**Chairman: Cody Bünger**

**Side**

Degeneration in dysplastic hips <i>Steffen Jacobsen, Lone Rømer, Kjeld Søballe</i>	51
Joint space width in hip dysplasia <i>Steffen Jacobsen, Stig Sonne-Holm, Kjeld Søballe, Peter Gebuhr, Bjarne Lund</i>	52
A new regime for the administration of analgesia/sedation in the Orthopaedic Emergency Room <i>Carsten Moss Jensen, Charlotte Buch Gøthgen, Claus Bredahl</i>	53
No correlation between BMD and Technetium scanning in experimental lumbar spine fusions in rabbits – failing to predict non-union. <i>Michael Nielsen, P. Martin Gehrchen, Lars Nimb, Thomas Kiær</i>	54
Injuries in public icerinks <i>Jens Kurt Johansen, Søren Rasmussen</i>	55

# Friday 22<sup>nd</sup> October

13:30 – 14:30 Room A

## Poster session (Cont.)

Chairman: Cody Bünger

Side

Use of Botulinum toxin in an Orthopaedic Clinic.  
*Gert Rahbek Andersen* 56

Atomic Force Microscopy of Osteoporotic Bone  
*Tue Hassenkam, Henrik L. Jørgensen,  
Anne H. Kourakis, Morten B. Petersen,  
Jes B. Lauritzen* 57

Seven Years Follow-up of the Cartier  
Patello-femoral Arthroplasty  
*Per Seest Jørgensen, Lars Konradsen,  
Carsten Tørholm* 58

Sealing effect of trabecular metal? A randomised  
study in dogs of experimental implants inserted  
in exact-fit and in gap-models  
*Ole Rahbek, Søren Kold, Berrit Zippor,  
Søren Overgaard, Kjeld Søballe* 59

Chemical and physical characterization and  
purity of a reinforced cross linked PE  
*Kion Norrman, Bjørn Winther-Jensen,  
Sune Lund Sporning, Klaus Bechgaard,  
Jes Bruun Lauritzen and Spacer Implant  
Research Group (SIR-Group).* 60

# **Friday 22<sup>nd</sup> October**

**13:30 – 14:30 Room B**

## **Upper Extremity**

**Chairman: Claus Hjorth Jensen**

**Side**

- Osteoarthritis of the first carpo-metacarpal joint. A radiological and clinical population study. 61  
*Stig Sonne-Holm, Ellen Sloth Andersen  
Steffen Jacobsen, Hans Rovsing, Henrik Monrad*
- Vascularized bone graft for non-union of the scaphoid 62  
*Torben Bæk Hansen*
- Scapular fractures. 7 years experience of non-operative treatment. 63  
*Peter Gaster, Lars Henrik Frich,  
Søren Skydt Kristensen.*
- Malunion of mid-shaft clavicular fractures. Clinical presentation and preliminary results of surgical treatment. 64  
*Klaus Bak*

# **Friday 22<sup>nd</sup> October**

13:30 – 14:30 Room B

## **Upper Extremity (cont.)**

**Chairman: Claus Hjorth Jensen**

**Side**

Bone quality and bone support of  
resurfacing arthroplasty of the humeral head  
*Lars Henrik Frich & Niels Christian Jensen* 65

Handedness significantly influences  
electromyographic activity of human  
shoulder muscles during movement. 66  
*Louise Pyndt Diederichsen, Jesper Nørregaard,  
Poul Dyhre-Poulsen, Annika Winther,  
Goran Tufekovic, Thomas Bandholm,  
Lars Raundal Rasmussen, Michael Krogsgaard*

# **Friday 22<sup>nd</sup> October**

15:30 – 17:00 Room A

## **Høring:**

### **"Referenceprogrammet for diagnosticering og behandling af ledbåndsskader i knæleddet"**

#### **Program:**

Diagnostik af ligamentskader i knæet	<i>Michael Krogsgaard</i>
Primær profylakse	<i>Peter Magnusson</i>
Akut behandling	<i>Michael Nielsen</i>
Rehabilitering af ligamentskader, herunder brug af bandager	<i>Peter Magnusson</i>
Ligamentrekonstruktion:	
- Forreste korsbåndsrekonstruktion	<i>Bent Wulff Jakobsen</i>
- Bageste korsbåndsrekonstruktion	<i>Poul Tordrup</i>
- Revision af korsbåndsrekonstruktion	<i>Bent Wulff Jakobsen</i>
- Flerligament læsioner	<i>Bent Wulff Jakobsen</i>
Sygemelding	<i>Michael Nielsen</i>
Kvalitetssikring	<i>Michael Krogsgaard</i>
Fri diskussion	
Afslutning	

**Programmet kan findes på adressen:**

[www.saks.nu/referenceledbaand.htm](http://www.saks.nu/referenceledbaand.htm)

**eller fra link på DOS's hjemmeside.**



Netop som uddannelsesudvalget har planlagt et opfølgende symposium med fokus på vores nye speciallægeuddannelse - erfarer vi (via Ugeskriftet og Dagens Medicin) at Amtsrådsforeningen ikke mener de har råd til at tilbyde forskningstræning og 3 måneders forskningsfri til de nye kursister.

Hvis en af de store og virkelig fremsynede nye tiltag i den kommende uddannelse bliver skrottet fordi man ikke lige kan finde de penge som vi alle (inkl. Amtsrådsforeningen) har vidst og snakket om skulle til for at den nye plan kunne gennemføres, så er det svært at blive ved med at tage disse fine planer alvorligt.

Efter deadline er det kommet frem at nu vil Amtsrådsforeningen alligevel igen prøve at ryste posen og prøve at finde nogle penge. Det bliver spændende at se hvor vi ender i denne sag.

Uddannelsesudvalget vil under alle omstændigheder holde symposium og prøve at fremlægge de planer der er for forskningstræning, evalueringssystemerne og hvad man gør, hvis en kursist ikke opfylder kravene indenfor den planlagte tid, og specielt hvis han/hun er uenig med den evaluerende i om kravene er opfyldt.

**HUSK: SYMPOSIET ER  
TORS DAG FORMIDDAG KL. 09:00**

Det bliver en travl torsdag formiddag; udover uddannelses symposiet vil ikke færre end 7 ud af DOS's 9 subspecialselskaber (fagområder) kalde til samling. Husk at møde op, alle møderne er åbne for alle, og vi håber at specielt de uddannelsesansvarlige overlæger vil vælge uddannelses symposiet i stedet for deres sædvanlige subspeciale (dette er vel også et subspeciale?)



I løbet af kort tid kan man forestille sig at onsdagen vil blive inddraget med workshops, bestyrelsesmøder o.l.

Det er blevet besluttet at ved forårsmødet 2005 vil generalforsamlingen blive flyttet fra fredag eftermiddag til torsdag eftermiddag – dette af flere forskellige årsager.

Vi forventer på den måde at lave et endnu bedre og mere vedkommende møde end de tidligere.

Og så må vi ikke glemme at efterårsmødet 2005 er DOS's 60 års jubilæumsmøde.

*D.gl.red.*

## **MSeC**

Jeg ønsker at registrere på MseC-portalen:

Navn: \_\_\_\_\_

Arbejdssted: \_\_\_\_\_

E-mail: \_\_\_\_\_

Sendes som snail – eller E-mail til DOS redaktør  
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H:S Rigshospitalet  
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[cykellaegenielsen@dadlnet.dk](mailto:cykellaegenielsen@dadlnet.dk)

# ***Abstracts***

## Limb lengthening for short stature

*Steen Bach Christensen, Adam Hede, Hans Henrik Strange- Vognsen,  
Klaus Hindsø, Gert Rabek Andersen,  
Ortopædkirurgisk Klinik, Rigshospitalet*

**INTRODUCTION:** Even though there is ethical considerations in doing limb lengthening for short stature, it is a great wish for some dwarfs, who may benefit psychologically and functionally. It is performed in centers worldwide.

**MATERIAL AND METHODS:** Since 1994, 11 patients with disproportionalt short stature have gone through limb lengthening procedures. Seven patients had achondroplasia, two had hypochondroplasia and one had Mc. Kusick. Average length before operation was 129 cm and mean age at operation was 17 years. Two patients did only wish tibial lengthening and correction af varus deformity preoperativly. Nine patients completed the procedures wirh bilateral tibial lengthening with the Ilizarov frame and subsequently femoral lenthening with Orthofix unilateral frame.

**RESULTS:** Mean tibial lengthening was 10.7 cm with a healing index of 42 days/cm or a ratio of 0.72 cm/month. Mean femoral lengthening was 10.2 cm with a healing index of 37 days/cm or a ratio of 0.81 cm/month. Problems, obstacles and complications were analysed. Following complications and obstacles were seen in the 40 lengthening procedures: Two femoral fractures after frame removal. One tibial pseudarthrosis. Four ankle valgus, two requiring supramalleolar osteotomy. Ten lengthenings of the achilles- or posterior tibial tendon, three premature consolidations requiring osteotomy.

**CONCLUSION:** The lengthening procedures in dwarfism are demanding for the patients and has a high complication rate. The indication should be made after careful evaluation of each patient and his or her family.

# **Surgical correction of clubfoot deformities performed at Better Life Centre, Burkina Faso**

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**INTRODUCTION:** Clubfeet (PEV) with late presentation is a common finding in developing countries and a physical handicap that disables walking in most cases excludes a person from work. In Burkina Faso primary PEV and PEV-like conditions caused by polio and sciatic nerve damage after injections of drugs against malaria normally aren't treated due to poor economy.

**MATERIAL AND METHODS:** Starting in October 2002, 98 PEV-patients have undergone surgical treatment by medical teams from Switzerland, Norway and Denmark. Seventy-nine patients were seen at follow up in August 2004, at 21, 12 and 9 months postoperatively. Overall age average was 13,1 years. Diagnoses (primary/acquired PEV) and surgical procedures were recorded prospectively whereas social characteristics and method of recruitment were noted at follow-up. Complications and residual deformities (Pirani scoring) were registered at follow up, where all cases were documented with photo and video of the gait. Am. Orthop. Foot and Ankle Score was obtained in cases where verbal communication was possible.

**RESULTS:** A good plantegrad foot with optimal function in available muscles and tendons was found in 60%. Thirty-five percent with some residual deformity without functional impairment were rated acceptable. Four kids age 1,2,5 and 14 showed residual deformities with symptoms acquiring further surgery.

**CONCLUSION:** Almost all patients improved their function by the treatment and the programme should continue. Follow up of the youngest patients and a better orthotic service is recommendable. Among the 100+ patients waiting for treatment, kids with no other economical options shall be the first to benefit.

# Comparison of Catterall and Herring classification of Calvé-Legg-Perthes disease

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**INTRODUCTION:** The purpose of this study has been partly to evaluate the predictive value of Catterall and Herring classification in Calvé-Legg-Perthes disease, partly to investigate the relationship between the classification of Catterall and Herring.

**MATERIAL AND METHODS:** 185 cases of Calvé-Legg-Perthes disease were found in South Jutland and Slesvig in the period 1936 to 1973. In 135 cases previous radiographs and/or descriptions still exist. The early fragmentation stage films were classified by Herring and/or Catterall classifications. The skeletal maturity films were all classified by the method of Stulberg et al.

**RESULTS:** 34 cases were only classified according to Catterall classification. In the remaining 101 cases both Catterall and Herring classifications were used.

We found that both Catterall and Herring classifications are significant predictors of Stulberg outcome ( $p < 0,001$ ). The Spearman correlation between Catterall and Stulberg was 0,88 and between Herring and Stulberg 0,86. We also found that Catterall I correspond to Herring a and Catterall IV correspond to Herring c (both Spearman correlation 1,0). The Spearman correlation was significant between Catterall II and Herring b ( $p < 0,001$ ). Catterall III mostly correspond to Herring c (Spearman correlation 0,65).

**CONCLUSION:** The Catterall and Herring classifications are both significant predictors of Stulberg outcome. Catterall I, II and IV correspond to Herring a, b and c respectively, while Catterall III mostly correspond to Herring c.

## Unicompartmental and total knee arthroplasty for osteoarthritis

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**INTRODUCTION:** Since 2000 we have performed unicompartmental knee replacement (UKA) by minimally invasive technique for patients with medial unicompartmental disease. In the present study the 6-month results for these patients are compared with that of total knee replacement (TKA).

**MATERIAL AND METHODS:** The study included patients with osteoarthritis (OA) operated from 2000 to 2003 by two experienced knee surgeons. The criteria for UKA were: 1) Medial compartmental OA. 2) Normal cartilage in the lateral compartment. 3) Varus deformity not fixed and  $< 15$  degree. 4) Flexion contraction  $< 15$  degrees and ROM  $> 110$  degrees. 5) Intact cruciate ligaments. The degree of OA in the patellofemoral joint was ignored. All patients fulfilling these criteria were replaced by UKA (Oxford) using minimally invasive surgery. The remaining patients had TKA (AGC) using standard long anterior incision. All patients were evaluated pre- and postoperatively by Knee Society clinical rating system.

**RESULTS:** 130 UKA and 207 TKA were included. Patients with UKA were younger (66 v. 72 years). The pre- and postoperative ROM was better in the UKA group (119 v. 106 degree and 122 v. 112), however 9 patients with TKA needed brisement or arthroscopic release for insufficient ROM. The two groups were equal with regard to pre- and postoperative pain score (7,1 v. 6,6 and 44 v 45). The UKA group had better function score before surgery (54 v. 47). After surgery the function scores were equal (85 v. 81). Postoperative complications were seen in 5 patients (3.8 %) following UKA, and in 18 patients (8.7 %) following TKA.

**CONCLUSION:** Short-term results of UKA and TKA were equal with regard to pain relief and functional outcome, however postoperative complications were more frequent after TKA.

# **The surface macro-structure influences the sealing effect and gap-healing around experimental implants. A randomised study in dogs comparing closed-pore versus open-pore porous coatings**

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**INTRODUCTION:** Aseptic loosening in non-cemented total hip arthroplasty is related to poor initial fixation and polyethylene wear. The surface finish of the implant influences both bone ongrowth and migration of wear debris in the bone-implant interface. We compared the effect of two different porous coatings (closed-pore and open-pore) on bone ongrowth and on peri-implant migration of polyethylene particles in an exact surgical fit and with an initial peri-implant gap. We hypothesized that open-pore coating would have an inferior sealing effect in exact fit, because the sealing effect of initial bone contact are jeopardised by the high permeability of the coating.

**MATERIAL AND METHODS:** Weight-loaded porous-coated implants with an either plasma-sprayed porous coating (PI) or titanium fiber metal porous coating (Fi) were inserted intra-articular in exact fit or with a 0.750-mm peri-implant gap in the femoral condyles of 8 dogs using a randomised paired design. Polyethylene (PE) particles were injected repeatedly intra-articular until the dogs were killed after 8 weeks.

**RESULTS:** Fiber metal-coated (open-pore) implants (n=8) had significantly more bone ongrowth 8(0-21)% compared with plasma-sprayed (closed-pore) implants (n=8) 0(0-0)% in gap situations and reduced the number of peri-implant polyethylene particles significantly (p=0.03). Exact-fitted PI implants (n=8) had significantly more peri-implant fibrous tissue compared to exact-fit Fi implants (n=8). A sealing effect against the migration of PE particles was found for both Fi and PI implants in exact fit.

**CONCLUSION:** The interfacial fluid flow and pressure was less around open-pore coatings in gap situations, thus allowing bone ongrowth. Peri-implant migration of PE particles was hereby reduced by the open-pore coating.

# Results of isolated tibial polyethylene insert exchange after uncemented total knee arthroplasty

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**INTRODUCTION:** The aim of the present study was to evaluate the clinical results after isolated tibial polyethylene insert exchange (ITPIE) after uncemented total knee arthroplasty (TKA) and to estimate the survival probability.

**MATERIAL AND METHODS:** During the period from 1997 through 2001 27 patients (27 knees) (mean age 70 (46-88) years, female/male ratio 18/9) with uncemented TKA had their first ITPIE performed at our department. The initial TKA operations were performed on average 9,4 (0,9-16,9) years prior to the ITPIE and the average follow-up after ITPIE was 40 (8-203) months.

**RESULTS:** Four patients died on average 21 (8-32) months after ITPIE but all without having had any operations of the affected knees. Two patients were treated with total knee revision after 28 and 31 months because of aseptic loosening. Furthermore two patients had additional surgery of the affected knee (an isolated patella component exchange and a patella component exchange combined with a new ITPIE) 34 months and 23 months after the initial ITPIE. Thus, 23 patients did not require additional revision surgery after initial ITPIE and the average follow-up of these patients were 42 (8-71) months. The Kaplan-Meier survival probability of the TKA's after ITPIE was 80.4% when all additional operations of the affected knees after ITPIE was considered as failure. If only an additional operation with exchange of tibial or femoral components were considered as failure the survival probability was increased to 90.2%.

**CONCLUSION:** Short term results after ITPIE showed an acceptable revision rate, but because a possible underlying cause for the development of polyethylene wear was not corrected with the ITPIE operations longer follow-up might reveal a higher future revision rate.



## Interim report from the ESMOS study

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**INTRODUCTION:** The aim of this epidemiological study of elective hip arthroplasty patients is to gain information about the number of serious complications after hip arthroplasty or hip revision surgery.

**MATERIAL AND METHODS:** Prospective cohort study on 500 consecutive patients from Hillerød and Hørsholm Hospital with total hip and revision hip arthroplasty operation. Patients were included the day before the operation and followed during hospital stay and with a telephone interview 3 and 12 months after the operation. Information about preoperative status, operation, postoperative complications and comorbidity are registered in SPSS data entry.

**RESULTS:** 164 patients are included of those 82 have been followed for full 3 months. The preliminary results are the following: 2 died in the postoperative period, 2 DVT, 1 scintigraphically verified PE, 1 clinically clear signs of PE + phlebitis in calf varicose vein, 2 AMI, 1 multiple PE's + AMI + generalised cerebral ischaemia. This gives 5,5% thromboembolic events. Orthopaedic complications are as follows: 2 deep infections and 1 bleeding leading to reoperation, 2 peroneal paralyses, and 2 dislocations. Giving 4,2% orthopaedic complications.

**CONCLUSION:** These very preliminary results show complication rates higher than we are used to think of in our daily life. The results from this study will give information about the comorbidity and complications to the hip arthroplasty operation that is not existing in the official registers. The data from the Danish Hip Arthroplasty Register only tell about complications related to the prosthesis – and the long-term data are still not very complete. We hope with this study to be able to perform a better screening, in order to minimize the rate of thromboembolic complications.

## Early results after minimal invasive hip arthroplasty

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**INTRODUCTION:** Minimal invasive hip surgery is a matter of controversy. Randomized studies have not yet been published. Minimal invasive hip surgery is a hip implant through an incision not larger than 10 cm. and with the use of instruments designed for minimal surgery. Different techniques using anterior or posterior approaches through one or two incisions have been introduced. The use of well known or newly designed implants is still unclear. The technique seems promising concerning lower morbidity and faster rehabilitation.

**MATERIAL AND METHODS:** From 15. of september 2003 to 10. maj 2004 24 hips in 23 patients were operated with minimal invasive technique. The technique is a modified posterior approach using special designed retractors and reamers to minimise the soft tissue damage. The Bimetric stem and Zimmer trilogy cup or Biomet Ranawat-Burstein cup were used in all cases. Postoperative x-ray were evaluated for fractures and positioning of the prosthesis. A clinical evaluation was performed after 3 months.

**RESULTS:** The mean age was 66 years. BMI was mean 26. Surgery was performed in mean 73 minutes. The perioperative bleeding was 560 ml, and 1,2 units of blood were used. The average hospital stay was 7.3 days. Four different surgeons performed the operation. One patient had a femoral fracture and was treated with a plate. Two other patients had small fractures in the calcaneal area without need for additional treatment. The femoral stem was in a varus position in 3 cases. All wounds healed uneventfully with no signs of infections.

**CONCLUSIONS:** One major complication and five minor in this small material, gives reason to concern. The technique is demanding and a learning curve is to be expected. The technique is relatively time consuming.

# **14 year results on 465 total hip replacements with cemented Müller straight stem and uncemented Harris Galante I cup**

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**INTRODUCTION:** Analysis of the clinical results and survival rate of a hybrid total hip replacement (THR).

**MATERIALS AND METHODS:** Retrospective study on patients who underwent surgery with Müller straight femoral stem and Harris Galante I cup in the years 1986-89. There was a total of 431 patients with 465 THR. 241 patients (261 THR) died prior to follow-up. None were lost to followup. None of these had been revised. 190 patients with 204 THR were assessed radiographically and according to the Harris Hip Score (ROM was not used). Mean followup time was 14.0 years. The survival rates were calculated using the Kaplan-Meier method.

**RESULTS:** The median age was 72 (range 41 - 88) and the male/female ratio: 0,56. Average follow-up was 14 years (range 10.9 -14.9). The primary diagnosis was osteoarthritis in 430 hips, others contributed with 35 hips. 26 patients had had a revision: 18 because of aseptic loosening, 3 because of femoral fracture, 3 because of dislocation, and 1 because of infection. One liner was revised because of polyethylen wear. After 14 years the survival rate was 88.8% for the femoral stem and 97.4% For the Harris-Galante cup.

**CONCLUSION:** Our results are comparable to the results achieved by others.

# **Does radiolucency around external fixation pins lead to chronic osteomyelitis?**

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**INTRODUCTION:** Superficial infection around external fixation pins is very common in treating fractures of the distal radius with external fixation. Radiolucency can be seen around the external fixation pins, and is often thought as being part of a deep infection, leading to removal of the pins before originally planned.

The aim of this study was to investigate if radiolucency around external fixation pins would lead to chronic osteomyelitis or other complications.

**MATERIAL AND METHODS:** In 79 patients treated in a two-year period with bridging external fixation for fracture of the distal radius, 11 (14%) patients aged 42-94 years (ten females and one male) showed signs of deep pin infection with radiolucency around one or more pins.

**RESULTS:** At follow-up 32-52 months postoperatively nine patients were without clinical signs of infection, and at x-ray examination the holes after external fixation pins with possible infection had closed without signs of chronic osteomyelitis in all nine patients. Follow-up with x-ray examination was not possible in two patients. One patient had died without clinical signs of deep infection, and one patient refused to participate, but reported to have no clinical signs of infection.

**CONCLUSION:** Radiolucency around external fixation pins in distal radius fractures does not seem to be part of a deep infection leading to chronic osteomyelitis, and simple mechanical fixation failure of the pins is a more possible explanation. 7.

# **Cephalomedullary nailing of subtrochanteric fractures caused by low-energy trauma**

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**INTRODUCTION:** Rigid internal fixation of subtrochanteric fracture (SF) is often technically difficult due to comminution at the site of the fracture and osteoporosis of the proximal femur. The purpose of this study was to evaluate prospectively audited the incidence of perioperative complications and the subsequent level of social dependency, during the year after surgery.

**MATERIAL AND METHODS:** Between February 94 and December 01, we treated 302 patients (median age 78.5, 103 males and 199 females) with SF, sustained during a low energy injury. The long Gamma Nail (LGN) was used to treat all fractures. Clinical and radiographic monitoring of postoperative fracture healing, as well as any fracture related complication was undertaken at routine out-patient clinic appointments. All patients received additional prospectively functional assessments by dedicated audit workers with a standardised assessment pre- and post-operatively at 4 months and one year post-injury, as a part of an ongoing audit of proximal femoral fractures within our unit.

**RESULTS:** of the original cohort of 302 patients, 74 (24.5%) died during the first year post-injury. non-union occurred in 5 patients. Deep infection in 5 cases. Lag screw failure occurred in 12 patients, and fracture of the femur distal to the tip of the nail occurred in 5 patients.

**CONCLUSION:** The epidemiology and functional outcome of SF are essentially the same as the other types of geriatric hip fractures. the rate of mechanical failure is the same as any other cephalomedullary nail, however fracture of the femur, distal to the tip of the nail is specific complication of LGN due to straight nail. A new version of the LGN with an increased curve in the sagittal plane would eliminate this problem.

## A First Line ER at Tall Ship Race in Aalborg

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**INTRODUCTION:** Based on experiences from a Tall Ship Race arrangement 4 years previously, a first line emergency room (ER) was established at the harbour front. The event hosted more than 1 million people during a four days period.

**MATERIAL AND METHODS:** The emergency room was located at an emergency centre, also hosting police, Falck and the Civil Defence Forces (CDF). The staff consisted of an orthopaedic surgeon, an ER nurse, paramedics and helpers from the CDF, all together 8 people working two shifts from morning to midnight. The ER was equipped to handle common injuries, surgical as medical, but also cardiac arrest and trauma. In total 184 patients were treated.

**RESULTS:** Seventy percent of patients were treated during Saturday and Sunday afternoon and evening. One hundred and forty seven of the cases were surgical, 37 medical. Mostly minor surgical injuries, with a majority of small wound and blisters needed treatment. Two fractures were diagnosed and another 7 cases suspected of having a fracture were referred to Aalborg Hospital for further assessment. The great fireworks Sunday night resulted in 17 patients treated for eye trouble due to debris. Fifteen patients sought medical attention for injuries sustained prior to the Tall Ship Race. The medical problems were mostly headaches and insect bites. No one was rejected when seeking help at the ER.

**CONCLUSION:** The teamwork of hospital staff, paramedics and helpers from the CDF secured a sufficient and time effective treatment of the patients. It is considered that most of the patients would have contacted the hospital ER. This would have increased the patient flow considerably, compared to a patient intake around 90 normally. Therefore a first line emergency room is considered valuable during major events.

## **Intramedullary Skeletal Kinetic Distractor (ISKD) Nail for Lengthening of Femur**

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**INTRODUCTION:** Distraction osteogenesis is a very powerful but a complex procedure that traditionally involves prolonged treatment with either a monolateral or a circular external fixator. There are however disadvantages of external fixation such as pin site infection, patient discomfort due to its bulk and limitation of joint motion. The ISKD nail is intramedullary device for bone lengthening. Rotatory movements as large as 9 degrees are converted into a linear extension. The purpose of the present study was to evaluate prospectively this new method of lengthening in 10 cases.

**MATERIAL AND METHODS:** From July 2002 to January 2004, 8 ISKD lengthening nails (Orthofix, UK) were implanted in 7 patients. the average age was 35 years. 6 patients required lengthening due to bone loss following trauma and one patient with a genetic form of dwarfism. Patients were evaluated clinically for pain and functional outcome, walking ability and acceptance before, during and after distraction.

**RESULTS:** The average lengthening was 48 mm. premature healing of osteotomy site occurred in one patient necessitating reosteotomy with good results. in one patient the two distal locking screws were broken and lengthening stopped and reimplantation of new ISKD nail carried out with good results. Delayed union was observed in one patient. Temporary limitation of knee motion occurred in the majority of patients during distraction but recovered rapidly after the end of lengthening. No infections were observed.

**CONCLUSION:** THE ISKD nail appears to be a safe, relatively simple and well tolerated by patients. The technique is effective, but the size of initial distraction gap and early postoperative lengthening phase is critical and further understanding of this phase is required.

## **Heterotopic ossification among patients with severe traumatic brain damage.**

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**INTRODUCTION:** The frequency of heterotopic ossification (HO) among patients with severe traumatic brain damage varies from 10-80% depending on way of registration and trial setup. About 10-20% of those being of clinical importance. As a consequence of the establishment of a database on the Department of Neurological Rehabilitation (Brain Injury Unit) it has been possible to extract reliable data concerning various parameters regarding the relationship between severe traumatic brain damage and HO.

**MATERIAL AND METHODS:** From Oct 1st 2000 to May 31st 2004 145 patients were admitted to the Department, all were included in the brain trauma database. All x-rays were examined with regards to HO and descriptive data of the ossifications found were added to the brain trauma database. Data from patient files were added as well. Conventional non-parametric statistical analyses were used.

**RESULTS:** X-rays from 16 of the 145 (11,0 %) patients showed HO. Of the 16 patients 7 patients had 2 or more heterotopic ossifications with a total of 25 locations in the 16 patients. Ossifications were found in relation to the shoulder (1), elbow (2), wrist (1), hip/gluteal muscle (7), thigh/femoral bone (10), knee (2) and lower limb/tibial bone (1). 2 of the 25 ossifications were not related to fractures. One patient had surgical resection performed. HO were compared to patient basic data (gender and age) and a number of database parameters such as ISS (Injury Severity Score) and PTA (Post Traumatic Amnesia).

**CONCLUSION:** The low frequency of 11 % of HO may be a result of the early intensive rehabilitation which is practised at the Department of Neurological Rehabilitation.



# **Primary total knee arthroplasty after supracondylar & intercondylar femur fractures in elderly**

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**INTRODUCTION:** Open reduction and internal fixation of comminuted supra- and intercondylar fractures of the femur in elderly patients who have varying degrees of osteopenia, with coexisting gonarthrosis or rheumatoid arthritis, is technically difficult, and associated with a high rate of complications, and generally yields to poor results. We have performed since 1987, primary total knee arthroplasty (TKA) for such a fracture in elderly. The purpose of this study is to report the long term follow-up with survival analysis.

**MATERIAL AND METHODS:** Between June 1987 and April 2003, we treated 53 acute comminuted supra- and intercondylar fractures of the femur in 52 elderly patients with primary TKA. AO classification was used to describe the type of fracture. All patients were reviewed on yearly basis in out-patient clinic.

**RESULTS:** the postoperative complications included periprosthetic fracture of femur in three patients, 4-8 weeks following TKA after simple fall which revised by ORIF and united unevenly 6 months post-surgery. Two patients developed deep infection which necessitate above knee amputation. Revision arthroplasty was performed in two cases, 9 and 11 years after primary surgery. All of the remaining implants were in place and functioning well at the time of follow-up or until death.

**CONCLUSION:** Based on our results, TKA has a role in the treatment of comminuted supra- and intercondylar fractures of the femur in elderly with osteoporosis, gonarthrosis and /or rheumatoid arthritis.

## Proximal Femoral Nail.Early results

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**INTRODUCTION:** Dec. 2002 we introduced the PFNail in our department as a substitution for Gamma Nail. Since then we have made a database with consecutive registration of the patients with proximal femur fractures, which was treated with a PFNail. We have up to date registered 52 non-pathologic fractures in the database. 6 patients is moved to other hospitals. We have on to now been able to follow 28 patients with a 4 month mean follow-up. We present our early results.

**MATERIAL AND METHODS:** All peritrochanteric femoral fractures are evaluated on preoperative x-ray. Among these the main part of unstable fractures was selected to PFNailing. A few osteoporosis fractures in corpus femoris were treated with a long nail to prevent possible later hip fractures. The mean follow up period for 28 patients was 4(2-8) month, evaluated on clinical symptoms and x-ray controls. 26 of 28 fractures were unstable (Evans-, Müller- and AO-classification).

**RESULTS:** All the 28 fractures healed. Four patients had complications; three of these had to be reoperated. None of the PFNails had to be removed.

**CONCLUSION:** Although the material includes a few patients and the follow up is few months, the PFNail seems to be a promising device for unstable peritrochanteric fractures. In the light of this we have decided to continue the use of PFN and continue the database registration of the patients.

## **Hip preserving salvage procedure after mal- or non-unions of trochanteric fractures (MALNUTF).**

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**INTRODUCTION:** Most intertrochanteric fractures (IF) heal after osteosynthesis, however 7-10% require secondary operation due to healing complications. Secondary arthroplasty are subject to a high frequency of intra- and postoperative complications and the clinical results are unsatisfactory compared to primary total hip replacement. The purpose of this study was to evaluate the results of intertrochanteric osteotomy for MALNUTF.

**MATERIAL AND METHODS:** Twenty-two MALNUTF were retrospectively reviewed. There were 16 females and 6 males, median age 75 years (59-90). The typical failure consisted of cut-out of the lag screw in combination with a varus mal- or nonunion. Contraindications for the procedure were central perforations of the femoral head, acetabular involvement and non ambulatory patients. Surgery consisted of a valgus intertrochanteric osteotomy, bone grafting and a new fixation with (in most cases) an angled blade plate to re-establish normal CCD angle, leg length, off set, rotation and version.

**RESULTS:** Median time interval from primary operation to salvage procedure: 3 months (1-24). Median operation time: 105 min (100-240), median intraoperative blood loss: 600 ml (200-1300). 17 patients achieved solid bony union in good position of the proximal femur. They could all walk with or without walking aid and had no or only slight pain. In 5 cases the hips were subsequently lost; 4 had a THA and 1 a Girdlestone resection.

**CONCLUSION:** We find the salvage procedure attractive since the majority of the patients had a satisfactory result. It can effectively and reliably restore hip function in MALNUTF, although the operative technique is demanding and requires routine in proximal femur osteotomies.

## **Mortality before and after introduction of optimized hip fracture program**

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**INTRODUCTION:** The objective of the hip fracture program was to improve patient care and subsequently if possible reduce patient complications associated with hip fracture surgery. We studied the mortality before and after the optimized hip fracture program.

**MATERIAL AND METHODS:** In the optimized hip fracture program fracture pain was relieved by femoral nerve catheter from the admittance until the 4th postoperative day. Patients were allowed soft drinks with carbohydrates until two hours before surgery. Verification of hip fracture was done at the Department of Radiology, and a positive X-ray for hip fracture lead to direct transfer to the hip fracture unit. Intensive physiotherapy guided mobilization at the ward was initiated immediately following surgery. Hip fracture patients admitted to Bispebjerg Hospital between January 1st and September 30th 2003 (traditional program) and between November 1st 2003 and March 31st 2004 (optimized program) were included. Informations about date of death, date of admission and discharge were obtained from the patient administrative system.

**RESULTS:** Included in the study were 410 consecutive traditional treated patients (M/F-ratio: 103/307, median age M and F: 80.9 and 85.9 years) and 217 consecutive optimized patients (M/F-ratio: 53/164, median age M and F: 78.8 and 85.9 years). The mortality after 30 days and 90 days were 9.7% and 17.1% for the optimized patients and 11.2% and 18.5% for the traditional treated patients (Chi<sup>2</sup>-test: p=0,5 and p=0,6).

**CONCLUSION:** The comprehensive optimized hip fracture care program reduced mortality by 13 % within the 1st month (actual difference 1.5 %) but this was not statistically significant. This study was designed to detect a reduction in 30 days mortality from 10% to 5%.

## **Hip dysplasia: A significant risk factor for the development of hip osteoarthritis in women.**

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Peter Gebuhr, Bjarne Lund,  
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**INTRODUCTION:** The aim of this cross sectional survey of 2.232 women (age range: 20-90 years) was to investigate individual risk factors for hip joint osteoarthritis (OA).

**MATERIAL AND METHODS:** Standardised, weight bearing pelvic radiographs were evaluated. Radiologic hip joint OA was defined as minimum joint space width (JSW)  $\leq$  2.0 mm. Hip dysplasia was evaluated according to common radiographic indices. Radiographic findings were correlated to general health and life style information. The study focused on age; self reported hip pain, occupational exposure to repeated daily lifting, body mass index, smoking, and hip dysplasia.

**RESULTS:** Hip dysplasia (HD) prevalences ranged from 5.4% to 12.8% depending on the radiographic index applied. Hip OA prevalence was 2.0% for subjects  $<$  60 years of age, and 7.9% for subjects  $\geq$  60 years of age. Of factors entered into multiple logistic regression analyses, only age ( $p < 0.0001$  for right hips, and  $p < 0.0001$  for left hips), and hip dysplasia ( $p < 0.0001$  for right hips, and  $p = 0.004$  for left hips) proved to influence prevalence of hip OA significantly.

**CONCLUSION:** Of the individual risk factors for hip OA investigated in this study, only age and hip dysplasia proved to influence hip OA prevalence significantly.

# **A prospective randomized study comparing the Trochanteric Gamma Nail (TGN) and the Dynamic Hip screw (DHS) in 146 intertrochanteric fractures.**

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**INTRODUCTION:** The main problem using first generation Gamma nail in the treatment of intertrochanteric fractures has been a high frequency of intra- and postoperative femoral fractures. The TGN was thought to represent an improvement in design and potentially a less invasive treatment.

**MATERIAL AND METHODS:** 146 fractures were randomized to either DHS or TGN. The 2 groups were comparable regarding age, gender and fracture type (AO). Follow-up was carried out after 4 and 12 months.

**RESULTS:** Average operation time in the TGN group was 63 min (SD=30 min) and 48 min (SD=23 min) in the DHS group ( $p=0,0016$ ). There was no difference in intraoperative blood loss, need for blood transfusion, length of hospital stay or mortality. Two femoral fractures occurred postoperatively in the TGN group. At follow-up 12 patients in the TGN and 6 patients in the DHS group had had a reoperation ( $p>0,05$ ). Six reoperations in the TGN and 3 in the DHS group resulted in preservation of the hip joint. The remaining patients had an arthroplasty or a Girdlestone resection. Poor reduction and/or positioning of the implant was significantly correlated to the risk of reoperation ( $p<0,001$ ). Specific technical errors could be identified among 3 fractures in the TGN group leading to reoperation. Any correlation between fracture type and reoperation could not be demonstrated.

**CONCLUSION:** In this study operation time was significantly longer in the TGN group. Among other variables no significant difference could be demonstrated. In our department, with a high number of residents performing these operations, the DHS will continue to be the standard implant. Whether the TGN has a place in a subgroup of intertrochanteric fractures, operated by specialized surgeons, needs further investigation.

## **Significant decrease in male and female hip fracture incidence rate in recent years. The Funen County Hip Fracture Study – 7,457 verified hip fractures from 1996 to 2003.**

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**INTRODUCTION:** Hip fracture incidence rates are high and increases with age. Previously a continued increase in crude as well as age standardised rates have been predicted. Published incidence rates have been based on different numerators. This study aims at estimating validated incidence rates for first hip fracture occurrence separating first from subsequent hip fractures.

**MATERIAL:** Extracts from the Funen County hospital administrative system and the Funen County Hip Fracture Register were combined to generate a complete and revised register containing verified numbers of hip fractures for the study period 1996-2003. When inconsistencies were found records were manually checked.

**RESULTS:** The validated number of first hip fractures was 6676 and 520 subsequent fractures. The incidence rate of the first hip fracture decreased significantly in the period. For males a decrease by 2.4% per year ( $p=0.017$ ) and for females by 1.8% per year ( $p=0.004$ ). The highest decrease of 3.4 % per year ( $p=0.015$ ) was found in 80-84 year old women.

**CONCLUSION:** The incidence rate of the first hip fracture has significantly decreased in both sexes, in a population previously known to have one of the highest incidence rates in the world. In most age groups the actual number of first fractures also decreased. Despite the decreased incidence rates and lower number of first fractures the demographic constitution of the elderly population as well as the continuing increase in life expectancy of old people is expected to result in increasing numbers of hip fractures. With evolving documented possibilities for prevention and the decreasing and lower incidence rates based on validated counts the study points at the need for research on projections of the burden of hip fractures in the future.

## **Aseptic loosening of total hip arthroplasties after postoperative treatment with NSAIDs**

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**INTRODUCTION:** Nonsteroid antiinflammatory drugs (NSAIDs) are frequently prescribed in the early postoperative period after total hip arthroplasty (THA) in prevention of heterotopic ossification (HO) or in for treatment of postoperative pain. Animal studies have shown NSAIDs to reduce bony ingrowth in noncemented implants. However, no clinical studies have shown NSAIDs to increase the risk of aseptic loosening of THA.

**MATERIAL AND METHODS:** Since 1995 Danish Hip Arthroplasty Register (DHR) has recorded patients undergoing THA including any treatment with NSAIDs in the early postoperative period in prevention of HO. During 1995 to 2003 total 46.844 primary THA's have been reported to DHR, 24.496 cemented, 9.050 noncemented and 13.298 hybrids. Total 7.518 cases have been treated with NSAIDs for 1 week or more in the early postoperative period. Multivariate Cox Regressions Analysis was used to estimate the relative risk (RR) for aseptic loosening if treated with NSAIDs, adjusted for possible confounding factors including sex, age, side of operation, indication for surgery and type of fixation of the implants.

**RESULTS:** In patients treated with noncemented THA, NSAIDs were associated with a significantly increased risk for revision due to aseptic loosening (RR=2.93; 95%CL: 1.30-6.60). In contrast, in patients with cemented THA, NSAIDs were associated with a reduced risk for revision due to aseptic loosening (RR=0.76; 95%CL: 0.56-1.03).

**CONCLUSION:** This is the first clinical study to document that NSAIDs increases the risk for revision of noncemented THA due to aseptic loosening. Surprisingly, NSAIDs appeared to "protect" cemented THA from aseptic loosening. Based on our data we recommend that NSAIDs are contraindicated in the early period after noncemented THA.



## **Regional variation in incidence of primary total hip arthroplasties and revisions in Denmark 1996-2002**

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**INTRODUCTION:** Incidence rates (IRs) of total hip arthroplasty (THA) procedures vary both within and between different countries. Further, Danish health care system has undergone many changes in the last decade that may have an effect on surgical activity. On that background, we estimate the IRs of THA procedures in Denmark according to counties in the period 1996- 2002. Further, we try to identify both regional variations, if any exist, and some possible explanatory factors of those variations.

**METHODS:** We identified all cases of primary THA (n=37,144) and revision (n=6,446) performed in Denmark in the Danish Hip Arthroplasty Registry (DHR) between January 1, 1996, and December 31, 2002. We also used data from the Central Personal Registry, the StatBank Denmark, the Danish Medical Association, and the Association of County Councils. Crude and age-and gender standardized regional IRs were calculated. Multivariate regression analysis was performed afterwards.

**RESULTS:** Crude IRs of THA procedures varied substantial between counties. Variation remained despite age and gender standardization. No significant correlation was found between regional IRs of THA procedures and the number of orthopaedic surgeons per 100.000 inhabitants, Harris Hip Score, proportion of patients with primary arthrosis, population density, Gross Domestic Product, or hospitals costs per counties per capita.

**CONCLUSIONS:** Plausibly, regional variation in IRs of THA procedures occurs due to physician disparities in clinical and surgery decision making. Further, more efforts should be done, to accomplish a wider consensus among patients, surgeons and politicians on the criteria for THA procedures to optimize the clinical outcomes in Denmark.

# Presentation and radiological follow up to skeletal maturity on 135 cases of Calvé-Legg-Perthes disease

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**INTRODUCTION:** The purpose of this study has been to present and characterice 135 cases of Calvé-Legg-Perthes disease from time of diagnosis to radiological skeletal maturity.

**MATERIAL AND METHODS:** In the period from 1936-1973 185 cases of Calvé-Legg-Perthes disease were found in South Jutland and Slesvig. In 135 cases previous radiographs and/or descriptions still exist. All patients had been treated with Thomas splint. At the time of diagnosis the radiographs has been evaluated according to Catterall classification. On the follow up to skeletal maturity the radiographic outcomes were evaluated according to the classification system of Stulberg et al.

**RESULTS:** There were 19 girls and 102 boys. Bilateral disease were found in 4 and 10 cases respectively. At the time of diagnosis the mean age was 6,3 years (2,8-15,9). Mean time of treatment was 2 years (0,5-4,2). According to the classification of Catterall we found 18 cases class I, 51 class II, 31 class III and 25 class IV. According to Stulberg classification we found respectively 57, 36, 29 and 13 class 1,2,3 and 4/5. Children 6 years old or younger at the onset of disease has a significant better Stulberg outcome than expected ( $p < 0,001$ ). We did not find a significant difference between Catterall classification and Stulberg outcome for children older than 9 years at age at time of diagnosis ( $P > 0,25$ ). Neither did we find any difference in outcome between girls and boys. The more head at risk sign present the higher Stulberg classification.

**CONCLUSION:** Age below 6 years at onset increases the possibility of a better result. The more head at risk sign the worse result. We did not find that age older than 9 years at début nor gender to affect the end result estimated by Stulberg classification.

## Degeneration in dysplastic hips

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**INTRODUCTION:** Hip dysplasia (HD) is considered pre-osteoarthritic causing degeneration in young individuals.

**MATERIAL AND METHODS:** Anatomy and pattern of degeneration in 197 hips with moderate to severe dysplasia was assessed by CT, and compared to 78 hips of normal morphology. The average age of patients was 35.5 years (range, 15-61 years).

**RESULTS:** In dysplastic hips the anterior acetabular sector angle was significantly and inversely associated to femoral anteversion ( $p < 0.0001$ ). The CE angle, the acetabular angle, and the acetabular depth ratio were significantly interrelated ( $p < 0.0001$ ; correlation coefficients ranging from -0.8 to 0.7). Fifty-one hips were subluxated (24R/27L). There were no cases of complete dislocation. The formation of subcondral cysts or osteophytes in dysplastic hips was significantly associated with reduced minimum joint space width (JSW) ( $p$  ranging from 0.005 to 0.02). However, in 67 hips with acetabular cysts, only 6 cases had minimum JSW  $\leq$  2.0 mm (8.9%) in the coronal plane. However, in 96 cases with acetabular cysts found in the sagittal plane, 43 cases had minimum JSW  $\leq$  2.0 mm (44.7%). Paralabral osseous avulsions were recorded in 30 hips. Twenty-three of these were dysplastic ( $p = 0.01$ ). Degenerative radiologic change was found foremost in the antero-lateral part of the dysplastic hip joint. Most cysts were paralabral in localisation, and we found a significant number of cases with paralabral osseous avulsions in dysplastic hips compared to normal hips.

**CONCLUSION:** It seems likely that the degenerative process in dysplastic hips originates in the watershed zone between the acetabular labrum and the bony acetabulum.

## Joint space width in hip dysplasia

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**INTRODUCTION:** In a longitudinal case-control study we have followed 81 subjects with hip dysplasia (HD) and 136 control subjects without HD for a decade; assessing radiographic evidence of hip joint degeneration at admission and at follow-up.

**MATERIAL:** There were no cases of subluxation in the group with HD. Neither subjects with HD nor control subjects had any radiographic signs of ongoing degenerative disease at admission. The primary radiographic discriminator of hip joint degeneration was change in minimum joint space width over time. There were no significant differences between subjects with HD and control subjects in regard to age, body mass index or occupational exposure to daily repeated lifting at admission.

**RESULTS:** We found no significant differences in joint space width reduction at follow-up between subjects with HD and control subjects. There were no significant differences of self reported hip pain between HD subjects and control subjects.

**CONCLUSION:** The association of subluxation and/or associated acetabular labral tears to hip dysplasia may be conditional factors for the development of premature osteoarthritis in mildly to moderately dysplastic hips.

## **A new regime for the administration of analgesia/sedation in the Orthopaedic Emergency Room**

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**INTRODUCTION:** We describe a new strict regime for the administration of analgesia/sedation for painful procedures in the orthopaedic emergency room, using midazolam and alfentanil. The purpose is to guide young doctors in the safe usage of potent drugs with a short period of action. The former regime involved titrating stesolid and pethedin without any dosage guide.

**MATERIAL AND METHODS:** 20 patients are included now, and twice as many are expected at the time of presentation. The regime describes exactly how to monitor the patient, counter indicators, criteria for discharging the patient from the ER, action to be taken on unwanted side effects and a weight correlated dosage schedule incorporating time in relation to the maximum effect of the two drugs in question. The following parameters were registered: Procedure, Effect (too low, satisfactory, too high), Time for discharge, Serious complications, Antidote given, Patient accept (pain +/-)

**RESULTS:** The procedures were repositioning of 12 shoulder dislocations, of 7 hip joint replacement dislocations, and of 1 dislocated patella. In 4 patients the registered effect was too low, in 15 it was satisfactory and in 1 patient too high. Mean time to discharge was 46 minutes (25-100). No serious complications were registered, and no antidotes were given. Four patients felt pain, 16 did not.

**CONCLUSION:** According to the results, the analgesia/sedation regime seemed to be a safe and useful guide to follow for the young orthopaedic doctor with no anaesthesiologic training. About 20% of patients experienced insufficient effect of the drugs, but that was considered acceptable. The alternative was the former standard with the young doctor titrating stesolid and pethedin with a much higher risk of aiming at too low or worse - too high a dosage.

## **No correlation between BMD and Technetium scanning in experimental lumbar spine fusions in rabbits – failing to predict non-union.**

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**INTRODUCTION:**  $^{99m}\text{Tc}$ -HDP technetium scanning gives information about the actual bone remodelling activity in a predesigned Region of Interest (ROI) whereas BMD (Bone Mineral Density) measures the amount of mineralized bone in the same ROI.

**AIM:** To compare the bone forming activity (TC-scan) with the bone mineral density (BMD) in experimental lumbar spine fusions in rabbits and to correlate this to actual healing of the fusion.

**MATERIAL AND METHOD:** 18 female New-Zealand white rabbits had a posterior L4/5 lumbar spine fusion using 2,5 ml of either autologous iliac crest bone grafts or bone graft from a rabbit bone bank. Two hours prior to sacrifice they received app. 50mBeq  $^{99m}\text{Tc}$ -HDP i.v. The full lumbar spine was explanted, Tech-scanned and BMD-scanned. The TC-scan-activity of the fusion level relative to the two neighbouring (non-operated) levels is correlated to the BMD measurement at the fusion level.

**RESULTS:** The  $^{99m}\text{Tc}$  count from the operated level relative to the level above and below showed no significant difference between the healed fusions and the non-unions; mean count for fusion relative to the level above: 2,351 and below: 1,969 and mean counts for non-union: 2,276 and 1,883 ( $P= 0,73$  and  $P= 0,67$ ). There was no significant difference between the BMD count of the healed fusions and the non-unions ( $P= 0,32$ ). There was no correlation between  $^{99m}\text{Tc}$  activity and BMD allowing separation of fusion from non-union.

**CONCLUSIONS:** In this preliminary study it was not possible to find a correlation between the TC- scan and BMD and it was not possible to predict healing or non-union based on the scanning results.

## **Injuries in public icerinks**

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**INTRODUCTION:** As more and more public outdoor icerinks have opened we have recorded the number of injuries in the Bispebjerg Hospital area.

**MATERIAL AND METHODS:** From 1st January to 1st March 2004 we recorded all injuries sustained while outdoor ice skating that were treated at the emergency room at Bispebjerg Hospital. The case records were continually reviewed.

**RESULTS:** 53 patients were recorded with 58 injuries. 58.5 % of the patients were aged between 21 and 50. 29 were women and 24 men. 20 patients suffered fractures, 4 of which needed surgery. 18 fractures were sustained to the upper limb, while 2 fractures were sustained to the lower limb.

**CONCLUSION:** 90 % of the fractures were sustained to the upper limb, and 15 of these were distal antebrachium fractures. The most frequent cause of injury was a fall with no other parties involved, and the person seeking to cushion the fall with his or her forearm. It is likely that a large part of the upper limb fractures as well as some of the soft tissue damage could have been avoided by the use of protective gear (helmet, wrist guards, knee and elbow pads) as used in rollerskating.

# Use of Botulinum toxin in an Orthopaedic Clinic

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**INTRODUCTION:** Botulinum toxin A is a nerveblocking agent that, after intramuscular injection, inhibits the muscle activity for 3-6 months. Musclegrowth is stimulated by passive stretching of the muscle. Cerebral palsy children's muscle length will not balance the growing bone, and therefore relatively be shorted over time. The aim of this presentation is to share the knowledge of established and future use of botulinum toxin in orthopaedic problems.

**MATERIAL AND METHODS:** We have used botulinum toxin since late 1999. Until now 467 treatments have been giving to 108 patients and 1401 muscles. Each treatment involves 1 to 8 muscles. Treatments involving flexor pollicis longus, pronator teres or the psoas muscles were giving general anaesthesia because of use of electric muscle stimulation. In all other treatments we used EMLA and midazolam as premedication.

Gastrocnemii	690	Psoas	18
Hamstrings	332	Biceps brachii	11
Adductors	115	Flex.Dig.longii.	10
Rectus femoris	71	Triceps brachii	7
Adductor pollicis	33	Erector spinae	5
Sterno cleido masteodeus	31	Tibialis anterior	4
Flex. pollicis longus	25	Deltoideus	3
Tibialis posterius	22	Pronator teres	2
Neck muscles	21	Teres major	1

**RESULTS:** Forty-one patients had only one treatment. Thirty-three children had surgery after one botulinum toxin treatment, which means failure of treatment.

**CONCLUSION:** Botulinum toxin treatment is safe and well tolerated by patients. It offers the only possibility of stimulating the growth of the muscle. It is an opportunity to examine the effect of lengthening a motor unit, thereby gives us safer planning for future surgery.



# Atomic Force Microscopy of Osteoporotic Bone

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**INTRODUCTION:** Understanding the mechanics of living bone continues to be a major scientific challenge. An important aspect of this challenge is the understanding of the nanoscopic interplay between the basic building blocks of bone. It is known that bone is primarily composed of mineralized collagen fibrils. Imaging these mineralized fibrils and their structural relations inside bone is a daunting task, since both the fibrils and the mineral plates are very small. To clarify the details in sick bone tissue, it is necessary with a method that can reveal the structural relations between the basic building blocks of bone down to the molecular level.

**MATERIAL, METHODS AND PATIENTS:** To investigate the bone tissue on the molecular level, we have used a new, in relation to bone research, technique. Atomic Force Microscopy (AFM) provides a topographic map of a surface in air as well as in liquid. The resolution of these maps is on the sub nanometer scale. We have also investigated the energy dissipation in micro cracks, using the AFM.

**RESULTS:** We have performed AFM images of the surface of a water rinsed single trabecula from a human femoral head from osteoporotic patients and osteoarthritic patients.

**CONCLUSION:** In summary, we find that a dense network of interconnected collagen fibrils covers the outside of the trabecula after rinsing with water. Preliminary data from osteoporotic patients indicate that the bone tissue is damaged on the nano scale level.

## Seven Years Follow-up of the Cartier Patello-femoral Arthroplasty

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**INTRODUCTION:** Though patello-femoral arthroplasties have been performed since the 1950s follow-up reviews are few, still leaving the place for patello-femoral arthroplasties unclearly defined.

**MATERIAL AND METHODS:** In a retrospective study the results of 31 Cartier patello-femoral arthroplasties in 26 patients were evaluated.

**RESULTS:** Lost to follow-up: Five patients had died with 7 arthroplasties in place. Three arthroplasties had been converted to total knee replacements, one due to loosening and two due to three compartmental arthritis. One patient had emigrated. Seventeen patients with 20 arthroplasties were available for clinical review. Patient age at the time of arthroplasty was 65 years (range 46-84 years). Thirteen patients were women. Median follow-up time was 6.7 years (range 3.8 – 10 years). Short term complications: Brisement force (2), and quadriceps rupture (1).

Further surgery: lateral release (3), and tibial tuberosity medialisation (1). At follow-up: Results using the American Knee Society Score were median 88 points (range 30-100) (65% excellent or good, 20% fair and 15% poor). The modified Hungerford and Kenna score showed 40% excellent or good, 25% fair, and 35% poor results.

Results from the patient administered KOOS:

KOOS	Symptoms	Pain	Activity	Quality of life
Pre-operative	62	44	46	23
Follow-up	83	72	70	50
Difference	21**	28**	24**	27***

\*\*: $p < .01$  ; \*\*\*:  $p < .001$ .

**CONCLUSION:** The Cartier patellofemoral arthroplasty shows good midterm survival. Patients experienced improvement but only a few scored excellent on the three scoring scales. The patient group was too small to provide guidelines as to who would benefit from a patello-femoral prosthesis.

## **Sealing effect of trabecular metal? A randomised study in dogs of experimental implants inserted in exact-fit and in gap-models**

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**INTRODUCTION:** The aim of the present study was to investigate the effect of trabecular metal (Tm) implants (Hedrocel) on bone ongrowth and on the peri-implant migration of polyethylene (PE) particles. Two surgical fittings (exact and gap) were applied to mimic the clinical setting, since implants, even though inserted with press fit technique, initially have large areas with no bone-implant contact. It was hypothesized that open-pore porous-structured implants with high permeability like Tm implants would increase the peri-implant migration of PE particles compared with solid implants.

**MATERIAL AND METHODS:** Weight-loaded solid glass bead blasted Ti-alloy (Gb) or highly porous Tm tantalum implants were inserted intra-articular in exact fit or with a 0.750-mm peri-implant gap in the femoral condyles of 7 dogs using a randomised paired design. Polyethylene (PE) particles were injected repeatedly intra-articular until the dogs were killed after 8 weeks.

**RESULTS:** Tm implants had significantly more bone ongrowth compared with Gb implants both in gaps (n=7) and exact fit (n=7). Gb implants inserted in exact fit had less bone-ongrowth than Tm implants inserted with a peri-implant gap and had only little bone-contact; instead a fibrous membrane containing PE particles developed. Bone had been replaced by fibrous tissue due to a flow of joint fluid adjacent to the implant surface. Tm implants reduced the number of peri-implant polyethylene particles in both surgical fits. However, fibrous tissue and PE particles were found in the pores of Tm implants.

**CONCLUSION:** The fluid pressure was less in the bone implant interface of Tm implants due to a fluid flow inside the pores. This allowed bone ongrowth to seal off the bone-implant surface against the migration of PE particles.

## **Chemical and physical characterization and purity of a reinforced cross linked PE**

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**INTRODUCTION:** Quality of polyethylene (PE) in implants has great focus in relation to wear and tear, and cross linking have been introduced. We tested a new pliable PE with considerable strength parameters. The product was tested with advanced physical and chemical characterization to study any potential toxic molecular compounds, fx. free oxygen containing radicals.

**MATERIAL AND METHODS:** The PE-acc1000 is based on modified poly(ethylene). The exterior of the implant consists of woven cloth. The outer surface was analyzed with advanced surface characterization techniques, e.g. confocal laser scanning microscopy (CLSM), X-ray photoelectron spectroscopy (XPS) and time of flight-secondary ion mass spectrometry (TOF-SIMS).

**RESULTS:** CLSM was used to visualize the 3D surface structure of the surface of a single fibre bundle. The surface element composition was determined from XPS and used to verify the chemical composition. TOF-SIMS was used to examine the purity of the surface. TOF-SIMS and XPS were employed to investigate the lateral (in plane) distribution of a potential coating.

**CONCLUSION:** The element composition of the implant material was consistent with the theoretical composition. The purity of the surface of the implant was found to be very high, and purity improves the biological compatibility of the implant.

# **Osteoarthritis of the first carpo-metacarpal joint. A radiological and clinical population study**

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The Osteoarthritis Substudy

**INTRODUCTION:** Pain in the thumb among older persons is often caused by osteoarthritis of the carpometacarpal joint. The frequency and relation between changes on x-ray and symptoms in epidemiological studies has never been described before in a Danish population.

**MATERIAL AND METHODS:** From 1992 to 1994, hand radiographs from 4151 randomly selected participants in the Copenhagen City Heart Study were studied. X-rays were performed in neutral supination-pronation of the hand. Each x-ray was graded from 0-4 regarding 4 radiographic features: joint space, osteophytosis, sclerosis and cysts. The participants were each asked: Do you have pain in the thumb wringing out a dishcloth? A pencil-test was performed. Persons with rheumatoid arthritis and/or a fracture were excluded, ending up with 3355 persons and x-rays. Only the right hand was examined. The mean age was 66.6 (range 21-90 years).

**RESULTS:** From the age 55-90 the prevalence of radiological osteoarthritis increased from 0.0 to 25 %. Of the participants with radiological osteoarthritis, 16.4% had pain. In a logistic regression analysis gender (female), cysts and narrowed joint space was significantly related to pain.

**CONCLUSIONS:** In contrast to other joints radiographic degeneration of the carpometacarpal joint is highly related to age and symptoms.

## **Vascularized bone graft for non-union of the scaphoid**

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**INTRODUCTION:** Non-union in the proximal third of the scaphoid can be a challenge just as old midshaft non-union and revision of non-union with high rates of failure. Vascularized bone graft has been reported to be of value in these cases, and the aim of this study has been to evaluate our results using this technique.

**MATERIAL AND METHODS:** 19 non-union of the scaphoid treated with a vascularized bone graft from the 4/5. extensor compartment as described by Sheetz (1995). All patients were males aged 16-44 years. The non-union was a proximal pole non-union in 13 patients, 5 patients had an old midshaft non-union, and one patient had a revision of a failed operation in a midshaft non-union.

**RESULTS:** We had one failure of the screw fixation in a patient with an old midshaft non-union with fracture of the proximal pole due to osteonecrosis, and in another patient (proximal pole non-union) we had a failure of the fixation of the proximal pole and the screw had to be changed. So far union has been achieved in 17 patients, one patient are showing signs of healing (the latest operation) and one operation has failed (the patient with fracture of the proximal pole during screw fixation).

**CONCLUSION:** Based on these results with a healing rate of at least 90% we find vascularized bone graft of value in treating non-union of the scaphoid.

## **Scapular fractures. 7 years experience of non-operative treatment.**

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**INTRODUCTION:** Scapular fractures constitute 1% of all fractures and 5% of all fractures involving the shoulder. We conducted this study to evaluate the non-operative treatment of displaced scapular fractures especially to test if a different treatment protocol for scapular fractures should be recommended.

**MATERIAL AND METHODS:** From 1996 to 2002 92 scapular fractures were treated at OUH, including 2 patients with bilateral fractures. 4 fractures were treated operatively. All x-rays were re-examined. 11 acromion fractures and 3 bony bankart lesions were not included. 1 patient was excluded due to loss of file. 3 patients had died prior to follow up. The remaining 72 patients received a questionnaire including a simple shoulder test. Fracture classification was based on intraarticular involvement, glenopolar angle(GPA) in collum fractures and the degree of medial displacement of the glenoid body.

**RESULTS:** 45 patients(63%) returned a completed questionnaire. 26 fractures had either significant glenoid cavity involvement and/or GPA < 20 degrees and/or medial displacement of the glenoid fragment > 1 cm. 44 fractures didn't have any of the above. Results from the questionnaires indicated a correlation between shoulder function and rotational malalignment of the glenoid neck. There also seemed to be a correlation between pain and the degree of medial displacement of the glenoid fragment. Glenoid fractures do not appear to cause short term problems.

**CONCLUSION:** We propose operative treatment in cases of: 1. A Glenoid fracture that involves at least one-fourth of the anterior aspect or one-third of the posterior aspect of the cavity. 2. A Fracture of the glenoid cavity with > 5 mm of displacement. 3. A GPA < 20 degrees. 4. Medial displacement of the Glenoid fragment > 1 cm.

# **Malunion of mid-shaft clavicular fractures. Clinical presentation and preliminary results of surgical treatment.**

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**INTRODUCITON:** Malunion of clavicular fractures can be described by the degree of shortening or displacement of the fragments. Clinically this change in the biomechanics of the shoulder girdle, may results in significant and disabling symptoms. Although conservative treatment may result in acceptable function, some cases present a complex clinical pattern that may be solved only by an attempt to re-establish the anatomy.

**MATERIAL AND METHODS:** From August 2002 till February 2004, 6 patients underwent surgery in a GA and an Interscalene block as day cases. The malunited fracture was exposed, osteotomized and osteosynthesis was made with a reconstruction plate. In 2 cases autologous bone grafting was used. There were 4 females and 2 males, mean age 49 (25-57) years. The mean time from injury to operation was 7 months. All patients had significant daily pain. Winging of scapula was found in 4 out of 6, 2 had brachial plexus neuropraxia, and 1 had a concomitant stiff shoulder.

**RESULTS:** Pain scores and active range of movement improved significantly. All 6 fractures healed radiographically. At follow-up, one had a slight degree of scapular winging, and one still had slight signs of neuropraxia. All patients were satisfied with the cosmetic and the functional result.

**CONCLUSION:** Malunited clavicular fractures may result in significant disability which can be improved by an osteotomy and plate fixation.



# Bone quality and bone support of resurfacing arthroplasty of the humeral head

*Lars Henrik Frich & Niels Christian Jensen,*  
Odense University Hosp. & Orthopaedic Res. Lab.  
Aarhus University Hosp.

**INTRODUCTION:** Focus on bone mechanical parameters of the humeral head (HH) has increased manifold by the introduction of non-stemmed humeral head surface replacement. This study was conducted to generate knowledge of the load bearing capacity of the subchondral bone of humeral head.

**MATERIAL AND METHODS:** A series of 14 pairs (28 specimens) of fresh complete pairs of shoulders were obtained at autopsy. Mean age was 56 yrs. (range 40–74 yrs.). Pre-test CT scans were performed to obtain density measurements and to exclude concurrent pathology. Total 116 bone cylinders were harvested from 5 specific (subchondral) regions of the humeral head. Six (6) test positions at the surface of the humeral head were chosen for topographical strength analyses. An 4302 INSTRONR material testing machine was used for material testing and to drive the penetrometer. An automated imaging technique, based upon three-dimensional serial sectioning, was used for the examination of the architecture of the humeral head in other 2 specimens

**RESULTS:** There was no statistical difference between left and right shoulder specimens. Architectural studies revealed a thin subchondral plate. Multiplanar image analysis demonstrated homogeneous tubular arranged trabecular bone structures. Anisotropy dominated the subchondral region.

**CONCLUSION:** These studies allows us to conclude that the subchondral regions of the humeral head comprises uniformly strong, rather stiff, medium density cancellous bone. No statistical difference between left and right shoulder was found. Cancellous bone strength is reduced by 50% 6 mm below the subchondral plate. Reaming beyond that level may be critical to load bearing.

*Table 1*

Test position	1 (supp)	2 (centr)	3 (inf)	4 (ant)	5 (post)
Youngs Modulus	239.8	393.5	289.6	353.1	273.1
MPa (SD)	(115.3)	(196.1)	(149.2)	(180.9)	(161.5)
Ultimate strength	3.82	6.21	4.89	6.77	3.21
MPa (SD)	(2.37)	(2.89)	(2.28)	(3.08)	(1.88)

*Table 2*

Centre of HH	1mm	2mm	3mm	4mm	5mm
Strength MPa	54.7	51.7	44.9	35.4	29.7
(SD)	(14.7)	(17.7)	(15.6)	(13.1)	(12.7)
Centre of HH	1mm	2mm	3mm	4mm	5mm

## **Handedness significantly influences electromyographic activity of human shoulder muscles during movement.**

*Louise Pyndt Diederichsen, Jesper Nørregaard, Poul Dyhre-Poulsen, Annika Winther, Goran Tufekovic, Thomas Bandholm, Lars Raundal Rasmussen, Michael Krosgaard,*  
Institute of Sports Medicine, Dept. of Rheumatology H and Dept. of Orthopaedic Surgery M, Bispebjerg Hospital, Dept. for Medical Physiology, Copenhagen University Panum Institute, Denmark

**INTRODUCTION:** The aim of the study was to examine whether there is a handedness-related difference in the electromyographic (EMG) activity of shoulder muscles during movements of the arm, as this is not known.

**MATERIAL AND METHODS:** We compared the EMG activity in eight muscles of both shoulders in twenty healthy subjects (23 to 57 years) whose hand preference was evaluated using a standard questionnaire. EMG signals were recorded during dynamic abduction and external rotation at 10% of the maximal voluntary contraction (MVC).

**RESULTS:** During abduction, the normalized EMG activity was significantly smaller on the dominant side compared to the nondominant side for all the muscles but two (infraspinatus and lower trapezius). In contrast, significantly higher EMG activity was seen in the supraspinatus, infraspinatus, lower and upper trapezius and latissimus muscles of the dominant side during external rotation.

**CONCLUSION:** We demonstrated a substantial side-difference in shoulder muscle activity, which was dependent on the type of motion carried out, suggesting a qualitative difference in the recruitment of muscles during the two types of movement. Dynamic abduction has the characteristics of a dominant arm task (i.e. task performed almost exclusively by the dominant arm) and reduced EMG activity for the dominant side during this movement indicates that there is a dominant-related advantage in arm dynamics. This new knowledge should be considered in planning of future studies on shoulder motion, and can also be used in the physical training of shoulder patients.

# MØDER I FORBINDELSE MED ÅRSMØDET 2004

## **Symposium DOS**

Årsmødet 21. oktober 2004  
09:00-10.30

### **Den ortopædkirurgiske speciallægeuddannelse**

Introduktion <i>Uddannelsesudvalget</i>	<i>Søren Overgaard</i> 5 min
Den uddannelsesansvarlige overlæge <i>Uddannelsesudvalget</i>	<i>Marianne Breddam</i> 15 min
Kompetencekort <i>Uddannelsesudvalget</i>	<i>Claus Hjorth Jensen</i> 10 min
Evalueringsystemer og ”jura” i den nye speciallæge- uddannelse <i>Sekretariatschef Region Syd</i>	<i>Steen Tinning,</i> 15 min
Forskningstræning <i>Uddannelsesudvalget</i>	<i>Søren Overgaard</i> 10 min
Diskussion:	35 min <i>Marianne Breddam,</i> <i>Claus Hjorth Jensen</i> <i>Steen Tinning,</i> <i>Søren Overgaard</i>

***Uddannelsesudvalget DOS***

# **Efterårsmøde i Dansk Selskab for Håndkirurgi i forbindelse med DOS efterårsmøde.**

Torsdag 21.10.04 kl 09:00 – 12:00

Mødeadresse: SAS Radisson Scandinavia Hotel, København

Mødelokale: se opslag

Program: **Smertebehandling i armen**  
**Peroperativt – postoperativt – kroniske smerter**

09:00 – 09:45 Fra scalenerblok til fingerblok - Baggrund og teknik  
*Zbigniew Koscielniak-Nielsen RH*

09:45 – 10:15 Bierblok  
*Niels Søe Nielsen, KAS Gentofte*

10:15 – 10:45 Kaffepause

10:45 – 11:30 Postoperativ smertebehandling, behandling af kroniske  
smerter og neurogene smerter  
*Per Rotbøll Nielsen, Rigshospitalet*

11:30 – 12:00 Frie foredrag

Alle er velkomne. Tilmelding til mødet er ikke nødvendig.

## **Generalforsamling i Dansk Selskab for Håndkirurgi:**

Onsdag 20.10.04 kl 17:00

Sted: Rigshospitalet, auditoriet 2161/2162 (opgang 2, 16. etage)  
Dagsorden i henhold til lovene.



**Dansk Selskab for  
Artroskopisk Kirurgi  
og Sportstraumatologi**

**Halvårsmøde**

**Torsdag d. 21. oktober 2004 kl. 09.30-12.00**

**Program**

09.30-10.45: **Artrofibrose: Hvad gør vi hvornår?**

Oplæg: *Bent W. Jakobsen*  
*Gert Kristensen*

10.45-11.00: Kaffepause

11.00-12.00: **Landsdækkende ACL-database**

Oplæg: *Svend Erik Christiansen*

Der serveres kaffe og brød.

*Med venlig hilsen*  
*Bestyrelsen*

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

Holder efterårsmøde  
Torsdag 21. oktober 2004 kl. 10.00  
Hotel SAS Radisson København

**PROGRAM**

Chairman: *Per Kjærsgaard-Andersen*

1. **Rapport fra Dansk Knæalloplastik Register** 30 min.  
*Henrik Schrøder*
  
2. **Rapport fra Dansk Hoftealloplastik Register** 45 min.  
*Ulf Lucht*
  
3. **Snapping Hip – diagnostik og behandling** 30 min.  
*Kjeld Søballe*

*Jens-Erik Varmarken*



## **DANSK IDRÆTSMEDICINSK SELSKABS TRIN 2 KURSUS**

### **Målgruppe:**

Et videregående kursus, der henvender sig til læger med en vis klinisk erfaring (mindst ret til selvstændig virke) samt gennemført DIMS trin 1 kursus eller fået dispensation herfor ved skriftlig begrundet ansøgning til DIMS uddannelsesudvalg.

Kurset giver 40 CME point til den idrætsmedicinske diplom uddannelse.

### **Tid og sted:**

Eksternat kursus på Bispebjerg Hospital.

Onsdag d. 27. oktober til lørdag d. 30. oktober 2004

### **Mødeledere:**

Afdelingslæge Gina Kollerup, Reumatologisk afdeling H og Idrætsklinikken, BBH.

Overlæge Marianne Backer, Ortopædkirurgisk afdeling, Amager Hospital.

### **Indhold:**

Kurset er et overvejende teoretisk kursus, som fungerer som et supplement til det mere praktiske Trin 1. Kan bruges til en eventuel opnåelse af diplomlæge anerkendelse i DIMS regi.

På kurset undervises i overbelastningskaders patofysiologi, biomekanik og behandling. Behandling af lyskeskader. Kursisterne undervises i generel idrætsfysioterapi og praktisk biomekanik. Træning i forhold til udvalgte medicinske lidelser gennemgås, samt reumatologisk og ortopædkirurgisk behandling af udvalgte idrætsskader.

Der vil indgå et besøg på Idrætsmedicinsk forskningsenhed på Bispebjerg Hospital, samt være indlæg fra en elitetræners brug af idrætslægen samt idrætslægens oplevelse af samarbejdet med træneren.

**Pris: eksternat kursus.**

3.500 kr for yngre læger medlem af DIMS,

4.500 kr for speciallæger (inkl.praktiserende læger) medlem af DIMS,

5.500 kr for ikke DIMS medlemmer.

**Tilmelding:**

Senest 20. september 2004 til uddannelsesudvalgets sekretær.

For at få størst udbytte af kurset, er der begrænsning i antal deltagere.

Først tilmeldte har fortrinsret, og vær opmærksom på, at først når kursusafgiften er betalt er man registreret tilmeldt.

Uddannelsesudvalgets sekretær Pia Søderberg på:

E mail: ps03@bbh.hosp.dk

Fax.: + 45 35 31 27 33

Indbetaling senest 20. september 2004 på giro: 1-602-3337.



# ***Symposium on Patellofemoral Joint Surgery***

November 11-12, 2004

**Danish Society for Arthroscopic Surgery and  
Sportstraumatology  
SAKS**

**Place:** Hotel Comwell Roskilde, Vestre Kirkevej 12 Himmelev DK-4000  
[hotel.roskilde@comwell.com](mailto:hotel.roskilde@comwell.com) [Roskilde www.comwell.com](http://Roskilde.comwell.com)

Registration is possible either on-line [www.saks.nu](http://www.saks.nu)

or by using the registration form within this announcement.

Mailed or faxed to Dr. Poul Tordrup, Orthopaedic dept., Silkeborg Cen-  
tralhospital, 8600 Silkeborg. E-mail: [kopto@sc.aaa.dk](mailto:kopto@sc.aaa.dk)

Fax: +45 8722 2447.

## **Main topics:**

Patellofemoral Pain Syndrome.

anatomy and biomechanics

aetiology, diagnosis and scoring systems

conservative treatment and surgical options

new trends in treatment

Patellofemoral instability

evaluation of acute and chronic types

treatment – conservative, open and arthroscopic methods

distal realignment, proximal realignment or reconstruction of MPFL

new techniques

Cartilage lesions and degeneration.

OCD and other cartilage lesion – surgical treatment

chondromalacia and arthrosis

Patella tendon problems.

# **Registration Form**

**Registration form for the Symposium on  
Patellofemoral Joint Surgery november 11-12, 2004  
On-line registration is possible and found on [www.saks.nu](http://www.saks.nu)**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode and city: \_\_\_\_\_

Institution: \_\_\_\_\_

Country: \_\_\_\_\_

Professional position: \_\_\_\_\_

E-mail: \_\_\_\_\_

**Registration Fee:**

Before September 1st. Member of SAKS 2.300 Dkr.

Non-members 2.600 Dkr.

After September 1st. Member of SAKS 2.600 Dkr.

Non-members 2.900 Dkr.

**Payment Method:**

Enclosed in cheque – addressed to Dr. Poul Tordrup, Orthopaedic Dept. Silkeborg Hospital.

Bank-account: reg.nr. 3643 account nr. 3643158701

Transferring money from foreign countries: SWIFT-BIC:DABADKKK, IBAN: DK31 3000 3643 158701

Please make sure to put your name on any bank-transfer or send a copy of the payment with the registration to ensure a correct registration.

**Registration Form should be send to:**

Dr. Poul Tordrup, Orthopaedic Dept. Silkeborg Hospital,  
DK-8600 Silkeborg, Denmark

**Mail or fax to:**

Dr. Poul Tordrup  
Orthopaedic Department  
Silkeborg Hospital  
DK-8600 Silkeborg  
Denmark

Fax: +45 8722 2447

e-mail: [kopto@sc.aaa.dk](mailto:kopto@sc.aaa.dk)

# **ISPO-TVÆRFAGLIGT KURSUS**

Foreløbigt program

## **Artrose**

Fredag den 12. november 2004

Sted - Hotel Frederik d. II, Idagårdsvej 3, 4200 Slagelse

- 09.00 - 10.00 Registrering, udstilling og kaffe
- 10.00 - 10.05 Velkomst v/ formand  
*Ellen Appelquist, ISPO Danmark.*
- 10.05 - 10.35 Hvad er artrose?  
Hvorfor får man artrose?  
*Jan Phødenphant, overlæge*
- 10.35 - 11.05 Arbejdsmæssige forhold og artroseudvikling  
*Lilli Kirkeskov Jensen, overlæge*
- 11.05 - 11.25 Medicinsk behandling mod artrose  
*Jan Phødenphant, overlæge*
- 11.25 - 11.50 Glukosamin  
*Jens Peter Kampmann, overlæge*
- 11.50 - 13.00 Frokost
- 13.00 - 13.40 Fysioterapi til artrosepatienter  
*Jens Ole Rasmussen, fysioterapeut*
- 13.40 - 14.00 Bandager til artrosepatienter  
*Kirsten Damgaard, KD innovation*
- 14.00 - 14.15 Fodtøj til artrosepatienter

- 14.15 - 14.35 Kaffe
- 15.00 - 15.20 Artrosekirurgi  
*Claus Munk Jensen, overlæge*
- 15.20 - 15.40 Håndkirurgi  
*Per Hølmer, overlæge*
- 15.40 - 16.00 Ergoterapi og hjælpemidler
- 16.00 - 16.05 Afslutning  
*Formand Ellen Appelquist*

**TILMELDING:** Hurtig tilmelding tilrådes.  
Tilmelding på nedenstående slip **vedlagt check** til  
**Bodil Jensen**, Birkeallé 34, 3630 Jægerspris,  
eller på giro 2333260 mærket **Artrosekursus** senest d. 1.10.04.  
Ved optagelse på kurset, fremsendes kursusprogram.

**Kvittering for betaling udleveres ved kursusstart**  
Ved indgangsregistrering  
Kursusafgift incl. forplejning:  
**For ISPO-medlemmer kr. 650,00 – ikke medlemmer kr. 850,00**  
Telefonisk forespørgsel vedrørende kurser på tlf. 4753 1943.

### **Klip**

Navn: \_\_\_\_\_

Profession: \_\_\_\_\_

Adresse: \_\_\_\_\_

Tlf: \_\_\_\_\_

ISPO medlem:  ja  nej • ISPO medlemsnr.: \_\_\_\_\_

# **Håndkirurgisk dissektionskursus**

Torsdag d. 2. og fredag d. 3. december 2004.

**Panum Instituttet, Anatomisk sektion.  
Københavns Universitet, Blegdamsvej 3, 2200 Kbh. N**

*Kurset afholdes for 9. gang, også denne gang i samarbejde med håndkirurgisk afdeling Malmø, Lunds Universitet, Sverige.*

**Målgruppe:** Kurset henvender sig specielt til ortopædkirurger i Danmark med interesse eller arbejdsområde indenfor håndkirurgien samt svenske læger, håndkirurgisk uddannede eller i håndkirurgisk uddannelsesstillinger.

**Kursusleder:** Overlæge Niels Søe Nielsen, afdelingsleder dr. med. Finn Bojsen-Møller og overlæge dr. med. Lars Dahlin.

**Indhold:** Kurset består af primær intensiv instruktion og efterfølgende kursist- dissektion under supervision. De enkelte anatomiske regioner og strukturer gennemgås sammen med operationsadgange.

Kurset afholdes over 2 dage med sammenlagt 12 timers undervisning. Kurset er inkl. dissektionsmappe, materiale, kaffe/the, brød, frokost. Torsdag aften middag.

Råder man over lup-briller til finere dissektion arbejde, vil det være en fordel at medtage disse.

**Kursusform:** Teoretisk + præp. hånd, underarm og albue.

**Kursuspladser:** 16 deltagere fra Danmark og Sverige.

**Akkreditering:** DK 12 CME-point  
S 10 CME-point

**Kursusafgift:** 3.275,00 DKR

**Tilmelding:** Yderligere oplysning, anmodning om tilsendelse af kursusprogram og tilmelding fås ved henvendelse til sygeplejerske Nina Vendel, E-mail: [n.vendel@c.dk](mailto:n.vendel@c.dk)

*Tilmeldt/optaget på kurset når betalingen er modtaget.*

Med venlig hilsen

**Niels Søe:** Overlæge Håndkirurgisk afsnit T1, KAS Gentofte  
Tlf.: + 45 3977 3962, E-mail: [nini@gentoftehosp.kbhamt.dk](mailto:nini@gentoftehosp.kbhamt.dk)

**Finn Bojsen-Møller:** Dr.med Afdelingsleder Panum Institutet,  
Københavns Universitet, E-mail: [F.moller@mai.ku.dk](mailto:F.moller@mai.ku.dk)

**Lars Dahlin:** Overlæge Ortopæd kir afd Malmø  
Tlf: +46 40336769, E-mail: [Lars.Dahlin@hand.mas.lu.se](mailto:Lars.Dahlin@hand.mas.lu.se)

**Nina Vendel:** Sygeplejerske Hånddkirurgisk afd., KAS Gentofte

# **SAKS og Dansk Fod- og Ankelkirurgisk Selskab**

Arrangerer i samarbejde med  
Medicinsk Anatomisk Institut, Panum

## ***Kirurgisk anatomi for ortopædkirurger*** - dissektionskursus i knæ-underben-ankel-fod

mandag 13. og tirsdag 14. december 2004  
på Panum Instituttet, København

Under demonstration og vejledning visualiseres anatomen i knæet og nedefter, og betydningen for kirurgiske procedurer gennemgås. En række operationer i knæ, underben, ankel og fod gennemgås og trænes. Hver kursist har selvstændigt præparat. Kurset henvender sig til såvel læger under ortopædkirurgisk uddannelse samt erfarne ortopædkirurger, idet dissektion og operationstræning vil blive justeret individuelt.

**Kursusledere:** Finn Bojsen-Møller, Frank Linde & Michael Krogsgaard  
Udførligt program findes på [www.saks.nu](http://www.saks.nu)  
Maximum 20 kursister. Pris 2.000,- for medlemmer af et eller begge selskaber, 2.400,- for ikke medlemmer.

**Tilmelding:** Michael Krogsgaard, Ortopædkirurgisk afd. M, H:S Bispebjerg Hospital, Bispebjerg Bakke 23, 2400 København NV.  
E-mail: [mk04@bbh.hosp.dk](mailto:mk04@bbh.hosp.dk)