DOS BULLETIN

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DOS-Bulletin

Udgiver
Dansk Ortopædisk Selskab

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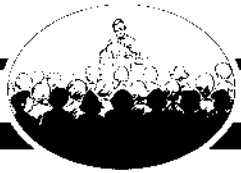
DEADLINES FOR NÆSTE BULLETIN

ANNONCER: Fredag den 13. november 2009
TEKST: Fredag den 4. december 2009



Møder i forbindelse med Årsmødet

Radisson SAS Scandinavia Hotel, København

Onsdag d. 21. oktober 2009

10 års jubilæumssymposium, SAKS	**10:00 - 17:30**
Workshop for basislæger og læger i introduktionsstilling	**13:00 – 17:00**

Torsdag d. 22. oktober 2009

Dansk Ortopædisk Traumeselskab	**09:00 – 12:00**
Dansk Selskab for Håndkirurgi	**09:00 – 12:00**
Dansk Fod og Ankelkirurgisk Selskab	**09:30 – 11:00**
Dansk Selskab for Hofte- & Knæ-alloplastik kirurgi	**09:30 – 12:15**

Udstillere

Firma	*Stand nr.*	*Areal*
Aim-Max Medical	4	3
Allergan-Danmark	13	3
ArthroCare Scandinavia ApS	14	3
AstraTech A/S	28	3
Bayer A/S	32	3
Biomet Danmark ApS	7	12
B-K Medical	15	3
Boehringer Ingelheim Danmark A/S	26	3
B.Braun Aesculap	43	3
ConvaTec	39	3
DJO Nordic AB	27	3
Fischer Medical ApS	16	4
Helios Anatomic ApS	44	3
Hemax Medical A/S	31	4
Karl Storz Endoskopi Danmark A/S	17	3
KCI Medical ApS	25	3
KEBO MED A/S	38	4
Maquet Danmark A/S	41	3
Medtronic Danmark A/S	33	3
Mærsk-Andersen A/S	22	3
Mølnlycke Health Care ApS	34	3
Nordic Medical Supply OP	1	7
Nordic Medical Supply ORTO	3	13
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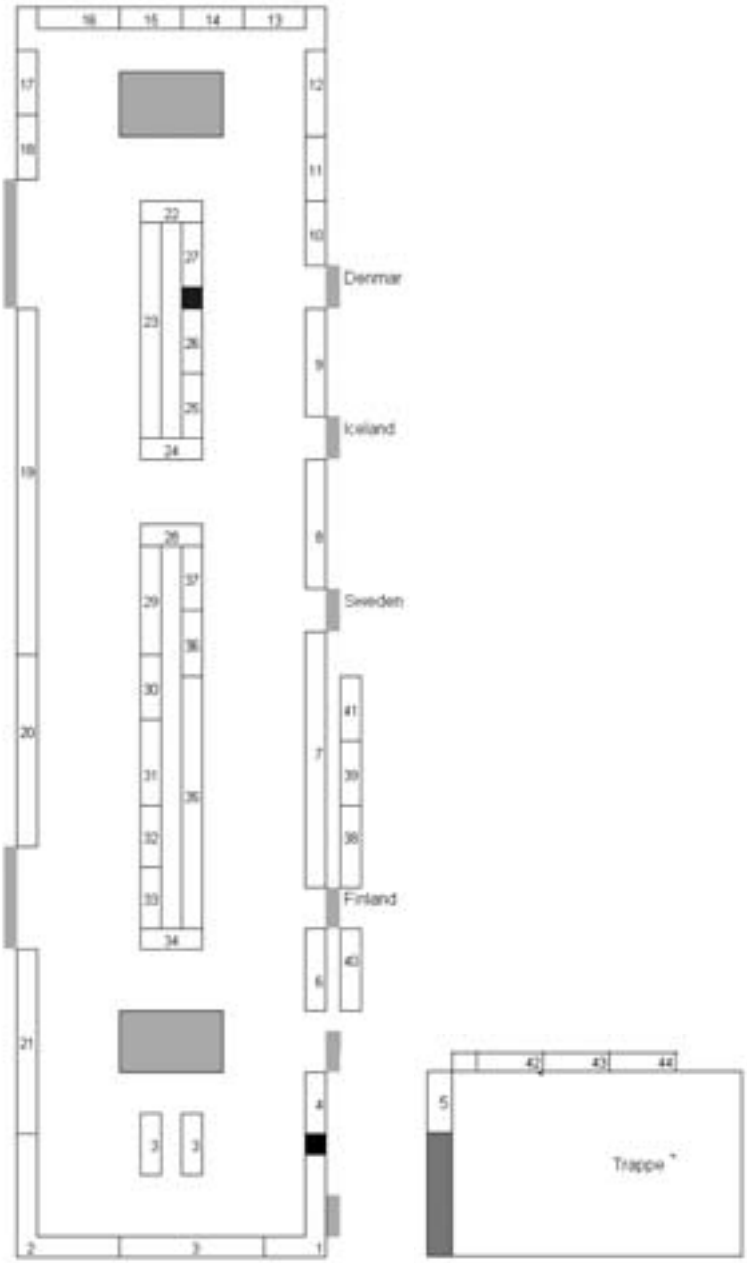
Synthes A/S	23	10
Tornier Scandinavia A/S	6	4
Viking Medical Scandinavia ApS	9	5
Össur Nordic	10	3

Udstilling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Trappe

Her kommer annonce

Mødeoversigt

Onsdag 21. oktober

10:00 – 17:30 10 års jubilæumssymposium, SAKS

13:00 – 17:00 Workshop for basislæger og læger i introduktionsstilling

Mødeoversigt

Torsdag 22. oktober 2009

08:00 - 12:00 **Møder for fagområderne**

Room A	Room B
12:00 - 13:00 ***Frokost og udstilling***	
13:00 - 13:30 **Ekstraordinær generalforsamling** *13:30 - 15:00* **Idrætskirurgi** **Foredrag**	*13:30 - 15:00* **Overekstremitets-, infektions- og tumorkirurgi** **Foredrag**
15:00 - 16:00 ***Kaffe og Udstilling***	
16:00 - 17:00 **Guildal forelæsning** **"Tumour prostheses in children and adults"** *Professor Robert Grimer, Birmingham, UK* **Uddelinger fra Guildalfonden**	
19:00 - ? ***Galla middag***	

Indtegning på bordplan til middagen slutter torsdag kl. 16:00!!!
Påklædning: Smoking eller mørkt tøj.

Mødeoversigt

Fredag 23. oktober 2009

Room A	Room B
08:00 - 10:00 **Hofte-/knækirurgi** **Foredrag**	*08:00 - 10:00* **Traume-, Fod/ankel- og eksperimentel kirurgi** **Foredrag**
10:00 - 11:00 ***Kaffe og Udstilling***	
11:00 - 11:50 **Postersession** *11:50 - 12:30* **Presidential Guest Lecture** **"Orthopaedics: Roots, Limbs, and Future"** *Professor Robert D. D'Ambrosia, Denver, USA*	
12:30 - 13:30 ***Frokost og Udstilling***	
13:30 - 15:00 **Foredragskonkurrence**	
15:00 - 15:15 ***Kaffe***	
15:15 - 15:30 **Uddelinger**	

Program onsdag 21. oktober

SAKS

10 ÅRS JUBILÆUMSSYMPOSIUM SAKS

PROGRAM:

kl. 10.00 – 10.15	**Velkomst**
kl. 10.15 – 10.30	**SAKS historie** *v. tidligere formand Michael Krogsgaard*
kl. 10.30 – 10. 50	**Meniskkirurgi – reinsertion** *v. tidligere formand Gert Kristensen*
kl. 10.50 – 11.10	**MPFL-rekonstruktion/vævsbank** *v. tidligere formand Sven Erik Christiansen*
kl. 11.10 – 11.30	**Multiligament læsioner i knæ** *v. Bent Wulff*
kl. 11.30 – 11.50	**ACL- rekonstruktion** *v. Allan Buhl*
kl. 11.50 – 12.30	**Frokost**
kl. 12.30 – 12.50	**Menisktransplantation** *v. Uffe Jørgensen*
kl. 12.50 – 13.10	**Skulderartroskopiens historie og udvikling de sidste 10 år** *v. Søren Skydt*

kl. 13.10 – 13.30	**Bicepssenens læsioner** *v. Lars Blønd*
kl. 13.30 – 13.50	**En "SAKS-patients" historie** *v. Peter Lavard*
kl. 13.50 – 14.30	**Kaffe**
kl. 14.30 – 14.50	**Bruskkirurgi** *v. Poul Tordrup*
kl. 14.50 – 15.10	**Rotatorcuff kirurgi** *v. Gunner Barfod*
kl. 15.10 – 15.30	**Hofteartroskopi** *v. Niels Mortensen*
kl. 15.30 – 17.00	**Hvilket nyt er på vej???** *Firma-medlemmerne*
kl. 17.00 – 17.30	**SAKS de næste 10 år.** *Bestyrelsen*

Da der vil blive serveret kaffe og frokost vil tilmelding være nødvendig.

Tilmelding til mødet og frokost skal ske på mail:
faunø@mail1.stofanet.dk senest 1. oktober 2009

Workshop for basis- og introduktionslæger i ortopædkirurgi

Til DOS Årsmøde vil der **onsdag d. 21. oktober 2009, kl. 13 - 17** på Radisson SAS Scandinavia Hotel, København blive afholdt endnu en spændende workshop for yngre læger med interesse i ortopædkirurgi.

Emnet vil denne gang være:

Osteosyntese principper

Workshoppen starter med et 45 min foredrag ved underviser fra Traumeselskabet om frakturlære med stikord som reponering og stabilitet, samt en gennemgang af de forskellige osteosyntesemetoder så som K-tråde, tension-band, skruer, skinner, marvsøm og ekstern fiksation.

Herefter vil der være rotation mellem arbejdsstationer med praktisk afprøvning af osteosyntesemetoderne på frakturerede kunstknogler under kyndig vejledning.

Kurset afholdes i en hyggelig atmosfære med god mulighed for at møde andre yngre læger på samme niveau og danne netværk. Kurset belønnes med kursusbevis.

Deltagere: Max 30 yngre læger med interesse for ortopædkirurgi. Niveauet vil være tilpasset kort eller slet ingen operativ erfaring.
Ved overtegning vil introduktionslæger få plads før basislæger.

Betaling: Kursusgebyr 100 kr., som indbetales på konto-nr. **3001 0003086895**
Skriv: ”Tilmelding til workshop” og husk navn!

Tilmelding: Til Henrik Palm, DOS’ uddannelsesudvalg, på e-mail hpalm@dadlnet.dk senest d. 18. september 2009.

Uddannelsesudvalget, DOS

Program torsdag 22. oktober

08:00 - 12:00 Møder i fagområderne

13:00 – 13:30 Ekstraordinær Generalforsamling i DOS, Sal A

Dagsorden

1. Valg af dirigent

2. Oplæg til ekstraordinær generalforsamling (Per Kjærsgaard-Andersen)

3. Godkendelse af tillæg til Referenceprogrammet Total Hoftealloplastik v/Dansk Ortopædisk Selskab & Dansk Selskab for Hofte- og Knæalloplastik Kirurgi: Resurfacing hoftealloplastik (Ole Ovesen)

4. Referenceprogrammerne Total Hoftealloplastik & Knænær osteotomi og primær Knæalloplastik v/Dansk Ortopædisk Selskab & Dansk Selskab for Hofte- og Knæalloplastik Kirurgi: Antibiotikaprofylakse hos patienter med hofte- eller knæalloplastik (Peter Holmberg Jørgensen)

5. Eventuelt

Torsdag 22. oktober

13:30 – 15:00 SAL A

Idrætskirurgi

Torsdag 22. oktober

13:30 – 15:00 SAL A (cont.)

Idrætskirurgi

Chairmen: Marianne Backer & Peter Lavard **Side**

Torsdag 22. oktober

13:30 – 15:00 SAL B

Overekstremitets-, infektions- og tumorkirurgi

Chairmen: Johnny Keller & Anne Kathrine B. Sørensen **Side**

Torsdag 22. oktober

13:30 – 15:00 SAL B (cont.)

Overekstremitets-, infektions- og tumorkirurgi

Chairmen: Johnny Keller & Anne Kathrine B. Sørensen **Side**

Torsdag 22. oktober

16:00 - 17:00 SAL A

Guildal forelæsning:

Professor Robert Grimer, Birmingham, UK

"Tumour prostheses in children and adults"

Uddelinger fra Guildalfonden

19:00 - ??? Gallamiddag

Fredag 23. oktober

08:00 - 10:00 SAL A

Hofte- og knækirurgi

Fredag 23. oktober

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

Hofte- og knækirurgi

Fredag 23. oktober

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

Hofte- og knækirurgi

Chairmen: Søren Solgaard & Ole Ovesen **Side**

Fredag 23. oktober

08:00 - 10:00 SAL B

Traume-, Fod/ankel- og eksperimentel kirurgi

Chairmen: Benny Dahl & Preben Lass **Side**

Fredag 23. oktober

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

Traume-, Fod/ankel- og eksperimentel kirurgi

Chairmen: Benny Dahl & Preben Lass **Side**

Fredag 23. oktober

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

Traume-, Fod/ankel- og eksperimentel kirurgi

Chairmen: Benny Dahl & Preben Lass **Side**

Fredag 23. oktober

11:00 – 11:50 SAL A

Poster session

Chairmen: Otto Kraemer, Lars Ebskov og Michael Mørk Petersen

Fredag 23. oktober

11:00 – 11:50 SAL A (cont.)

Poster session

Chairmen: Otto Kraemer, Lars Ebskov og Michael Mørk Petersen

Fredag 23. oktober

11:50 - 12:30 SAL A

Presidential Guest Lecture:

Professor Robert D. D'Ambrosia

Past President of AAOS, Department of Orthopaedics,
University of Colorado, Denver, USA

"Orthopaedics: Roots, Limbs, and Future"

Fredag 23. oktober

13:30 - 15:00 SAL A

Foredragskonkurrence

Chairmen: Per Kjærsgaard-Andersen, Niels Wisbech & Søren Kold **Side**

Fredag 23. oktober

13:30 - 15:00 SAL A (cont.)

Foredragskonkurrence

Chairmen: Per Kjærsgaard-Andersen, Niels Wisbech & Søren Kold

Fredag 23. oktober

15:15 – 15:30 SAL A

Uddelinger:

Bedste Foredrag

Bedste Poster

ABSTRACTS

Femoral bone tunnel widening after ACL reconstruction using EndoButton or EndoButton Continuous Loop

Martin Lind, Julian Feller, Kate E Webster
Sports trauma division, Dept. of Orthopedics,
Aarhus University Hospital

INTRODUCTION: The present study investigated the effect of EndoButton CLTM used for femoral graft fixation during anterior cruciate ligament (ACL) reconstruction compared with EndoButtonTM with knot fixed polyester tape, on femoral and tibial bone tunnel widening and clinical outcome.
METHODS: A retrospective case-control study design was used. 120 patients with EndoButton CLTM femoral fixation were compared with 120 patients with EndoButtonTM with knot fixed polyester tape. Tunnel widening was measured on anteroposterior (AP) and lateral radiographs at 12 months follow-up. The largest tunnel width was measured for the femoral tunnel and in the tibial tunnel above the interference screw. Clinical outcome was assessed by objective and subjective IKDC scores and KT-1000 knee laxity measurements.
RESULTS: Femoral tunnel widening in the EndoButtonTM group was 46.2% and 38.5% on the AP and lateral radiographs respectively and tibial tunnel widening was 24.9% and 33.2%. Femoral tunnel widening in the EndoButton CLTM group were 38.7% and 28.2%, and tibial tunnel widening was 10.9% and 23% for the AP and lateral radiographs respectively. The EndoButton CLTM widening was lower for both femoral and tibial tunnels ($p< 0.01$). There were no differences between the groups for any of the clinical scores or KT-1000 knee laxity.
CONCLUSION: The present study demonstrated that femoral ACL graft fixation with an EndoButtonTM and continuous polyester loop compared to an EndobuttonTM with knot-fixed polyester tape reduced the radiographic tunnel widening at one year for both the femur and tibia. The reduction in tunnel widening was not associated with differences in clinical outcome with respect to IKDC scores or KT-1000 knee laxity measurement.

Tibial bone tunnel widening is reduced by polylactate/hydroxyapatite interference screws compared to metal screws after ACL reconstruction with hamstring grafts

Martin Lind, Julian Felle, Kate E Webster
Sports trauma division, Dept. of Orthopedics,
Aarhus University Hospital

INTRODUCTION: Composite interference screws containing calcium phosphate for anterior cruciate ligament graft fixation could improve implant/ bone integration and thereby reduced tunnelwidening and graft slippage. The present study investigated the effect of polylactate/ hydroxyapatite interference screw (HA/PLLA) screw used for tibial graft fixation on tunnel widening and clinical outcomes compared with a metal interference screw. We hypothesized less tibial tunnelwidening with HA/PLLA screws compared to metal screws.
METHODS: Hundred patients with HA/PLLA screw tibial fixation was compared with 100 patients with metal screw tibial fixation. Tibial tunnel widening was measured on AP and lateral radiographs taken at 12 months follow-up. Clinical outcome was assessed by objective and subjective international Knee Documentation Committee (IKDC) scores, Noyes Sports Activity and Occupational Rating scores and KT-1000 knee laxity measurements.
RESULTS: Tibial tunnel widening at the level of the metal screw group was 36% and 38 % on AP and lateral radiographs respectively. Tunnel widening was lower in the HA/PLLA group with mean tunnel widening of 30% and 32% (p=0,012 and 0.018) on AP and lateral radiographs respectively. No differences were found for any of the clinical scores or for anterior knee laxity.
CONCLUSION: The use of a polylactate/hydroxyapatite interference screw resulted in less tibial tunnel widening than a metal screw around the screw but did not affect clinical outcome or objective knee laxity.

3D biomechanical analysis of walking before and after opening-wedge high tibial osteotomy

Martin Lind, Jodie McClelland, Jo Wittwer, Kate Webster, Julian Feller
Sports trauma division, Dept. of Orthopedics,
Aarhus University Hospital

INTRODUCTION: Openwedge high tibial osteotomy (OW-HTO) is an increasingly used surgical treatment for medial knee osteoarthritis. The purpose of the procedure is to alter the coronal alignment of the knee to normal mechanical alignment thereby reducing symptom from the medial knee compartment. These changes have significant consequences for functional knee biomechanics. The aim of the present study was to investigate knee kinematics and kinetics before and after OW-HTO and to compare with matched control subjects.
METHODS: Eight patients medial knee osteoarthritis was tested with 3D gait-analysis during walking before and 12 months after OW-HTO. Nine sex and age matched control subjects were tested with a similar gait-analysis protocol. Sagittal and coronal angles and moments were determined on both operated and non-operated knees. Also pre- and postoperative radiographic axis determinations were performed.
RESULTS: Pre-operatively reduced flexion and excursion was found during swing and stance. These were partly normalized postoperatively. An extension deficit of 2.5 degrees was found during stance postoperatively. Varus angles were well corrected and maintained during walking. Sagittal moment indicated a quadriceps sparing motion pattern that was normalized postoperatively. Coronal moments were reduced to less that normal as intended.
CONCLUSION: OW-HTO normalizes numerous aspects of dynamic knee functions of which reduced varus moments could reduce further medial compartment osteoarthitic development. The surgical procedure also induced a sagittal malcorrection which results in a minor extension deficit. Gait analysis in OW-HTO treated patient has proved important for functional outcome assessment.

Outcome of Surgical Treatment of Arthrofibrosis after Ligament Reconstruction

Sinan Said, Svend Erik Christiansen, Bent Lund, Peter Faunø, Martin Lind
Ortopædisk Afdeling Århus Universitets Hospital

INTRODUCTION: In a retrospective case-series we evaluated the clinical outcome after surgical release and intensive physiotherapy in patients having an arthrofibrotic complication to ligament reconstruction.
MATERIAL AND METHODS: Patients operated from January 2003 to December 2007for arthrofibrosis as post-operative complication after knee ligament reconstruction was included in the study. The included patients underwent surgical arthrolysis and intensive physiotherapy as a treatment for reduced range of motion. Objective examination, Pain, KOOS and Tegner scores were used to evaluate the clinical outcome at a project follow-up in 2009.
RESULTS: 32 patients were treated surgically for arthrofibrosis in the inclusion period. 2 patients underwent revision. 26 patients (7 of them were evaluated by phone) with average follow-up 47 months (18-73) were examined. There were 13 males and 13 females. Average age was 35 the average time between the primary surgery and the surgical release was 9 months. Average Range of Motion (R.O.M) was increased from 6° to 1° (-2°-7°) in extension and from 97° to 127° (100°-145°) in flexion. At follow-up average Pain VAS score at rest was 1 and in daily activity was 3. Average KOOS subscores were for symptoms 35, pain 33, ADL 26, sport 62, QOL 59. Average Tegner score was 5.
CONCLUSION: Arthrofibrosis is an uncommon but severe post-operative complication after ligament reconstruction. Surgical arthrolysis combined with intensive physiotherapy improved range of motion to nearly normal values. But subjective outcome scores revealed relatively poor outcome levels compared to uncomplicated ligament reconstructed knees

Ultrasonographically findings and the value of these in assessment of recovery time in football players with acute hamstring injuries

Jesper Petersen, Kristian Thorborg, Michael Bachmann Nielsen, Thomas Skjødt, Lars Bolvig, Niels Bang, Per Hölmich
Department of Orthopaedic Surgery, Amager Hospital,
University of Copenhagen, Denmark

INTRODUCTION: Hamstring injury is the most common injury in association football (soccer) and accounts for 12–16% of the total number of injuries. Most injuries are grade I and II injuries to the musculotendinous junction and full ruptures or avulsions (grade III) are seldom. Because of the accessibility and reduced cost ultrasonography has in the recent years been increasingly used in musculoskeletal imaging. It is therefore suspected that an increasing number of hamstring injuries will be investigated using ultrasonography. Hence, it is important to know the expected findings and the practical consequences of these.
MATERIAL AND METHODS: Players from 50 teams participating in one of the top-five Danish football divisions were followed in the period from January to December 2008. A total of 51 players sustained an acute hamstring injury and underwent an ultrasound examination of the injured thigh and were included in this study.
RESULTS: The ultrasound examinations were performed 1-10 days after the injury (mean 5.2 days, SD 3.0). Of the 51 performed ultrasound examinations rupture, haematoma and/or oedema were found in 31 (61%) cases. None full rupture injuries (grade III) were documented. The 51 acute hamstring injuries resulted in 6–74 days absence from football per injury (mean 25.4, SD 15.7). No correlation existed between injury severity and the presence of the following sonographic findings: Muscle rupture ($r=0.02$, $p=0.91$), haematoma ($r=0.12$, $p=0.41$), oedema ($r=0.13$, $p=0.38$) or verified abnormality ($r=0.13$, $p=0.36$).
CONCLUSION: This study questions the relevance of sonographically findings as predictors for recovery time in athletes with grade I or II hamstring injuries.

Increasing hip-abduction strength in the clinical setting: a randomised controlled trial investigating the efficacy of heavy versus moderate strength training

Kristian Thorborg, Thomas Bandholm, Jesper Petersen, Karen Østergaard, Christian Weinold, Bente Andersen, Andreas Serner, Peter Magnusson, Per Hölmich
Ortopædkirurgisk afdeling , Amager Hospital

INTRODUCTION: The side-lying hip-abduction exercise is commonly used in clinical practice to increase hip-abduction strength, and is often performed with no external loading. The aim of this study was to compare six weeks of side-lying hip-abduction with and without external loading (heavy [HRT] and moderate [MRT] resistance training, respectively) on hip-abduction strength in healthy subjects.
MATERIAL AND METHODS: Thirty-one healthy, physically active women and men were randomly assigned to HRT or MRT. The MRT-group trained using only the weight of the leg as resistance, whereas the HRT-group trained using external loading corresponding to a relative load of 10 RM. Hip-abduction strength was measured pre- and post-intervention.
RESULTS: Isometric and eccentric hip-abduction strength of the trained leg increased after HRT by, on average, 12% and 17%, respectively, ($p<0.05$). Likewise, isometric and eccentric hip-abduction strength of the trained leg increased after MRT by, on average, 11% and 23%, respectively, ($p<0.001$). The strength increases were not different between groups ($p>0.05$).
CONCLUSION: Six weeks of HRT and MRT performed as side-lying hip abductions seem equally effective in increasing hip-abduction strength in healthy subjects. External loading (HRT) may need to be applied subsequently for continuing strength gains to occur.

Incidence and outcome after revision acl reconstruction. Results from the danish registry for knee ligament reconstructions

Martin Lind, Frank Mehnert, Alma B Pedersen
Sportstrauma Div, Dept of Orthopedics, Dept of Clinical Epidemiology, Aarhus University Hospital

INTRODUCTION: Revision anterior cruciate ligament (ACL) reconstruction is poorly described due to rare incidence and only small case series presented in the literature. The Danish ACL Registry has since 2005 monitored development in revision ACL reconstruction. This study presents the epidemiology and outcome after revision ACL reconstruction in Denmark.
METHODS: All clinics performing ACL reconstructions in Denmark reports to the database. Revision rate was calcualted as the number of revision ACL registrereted in ACL Registry in the period from 2005-2008 (n=578) divided by the number of primary ACL registreted in the same period (n=7004). Outcome one year after revision was patient reported outcome instruments, KOOS knee score and Tegner function score and objective knee stability measurement.
RESULTS: Revision rate was 2.5 % after 3 years. The main causes for revision was new trauma (37 %), unknown cause (25 %) and poor femur tunnel placement (21 %). The KOOS scores at 1 year follow-up was 78 for symptoms, 57 for pain, 83 for ADL, 51 for Sports and 51 quality of life. Tegner function score was 3.9 after 1 year. Side ti side difference in knee laxity improved from 5.8. mm preoperatively to 2.1 mm after year postoperatively.
CONCLUSION: The early revision rate is low with a 3 year revision rate of 2.5 %. The outcome is poorer that after primary ACL reconstruction based on KOOS and Tegner scores. Since revision ACL recontruction is performed in young patients there is strong need to monitor incidence and outcome inorder to be able to improve the future outcome of the procedure.

Radiostereometric Analysis and Telos Stress Device is not a good Combination in measuring Knee Laxity after Anterior Cruciate Ligament Reconstruction

Sørensen OG, Larsen K, Jakobsen BW, Kold S, Hansen TB, Søballe K
Department of Orthopedics, Hospital Unit West & Department of Orthopedics, University Hospital of Aarhus

INTRODUCTION: Several devices for measuring knee laxity following ACL reconstruction have been used, but the precision of the measurements has never been optimal. Given the high accuracy of radiostereometric analysis (RSA), it has the potential of providing precise knee laxity measurements. In a pilot study we experienced difficulties in reproducing the knee translation with the Telos Stress Device (TSD) and RSA. We theorized that the position of the stress-arms of the TSD could not be reproduced with the original device protocol. We therefore aimed to produce a new standardized protocol (NSP) to ensure a reliable position of the TSD, which should result in precise knee laxity measurements.

MATERIAL AND METHODS: One investigator followed the official 4-stage protocol on how to apply the TSD. Another investigator followed 15-stage NSP. The TSD was applied to the knee of 30 healthy persons. Double measurements were carried out. The position of the stress-arms of the TSD was marked following each measurement. The reliability of each protocol was calculated as the difference in length between the first and second marking. The NSP-TSD was then used in a clinical study. 34 patients underwent ACL reconstruction. Double measurements of the knee laxity using RSA were performed at 3 months follow-up.

RESULTS: The precision of positioning the stress-arms of the NSP-TSD were improved at all marking sites, when using the new standardized protocol compared to the original protocol. The double measurements of the knee laxity in the clinical study resulted in a mean difference of 0.6 mm and a prediction interval of ±3.6 mm.

CONCLUSION: The combination of NSP-TSD and RSA are not able to provide reliable knee laxity measurements in a clinical setting compared to other devices on the market.

Passive immunization against Staphyloccus aureus periprosthetic osteomyelitis in rats

Niels Henrik Søe, Nina Vendel Jensen, Janne Koch, Asger Lundorff Jensen, Steen Sejer Poulsen, Gerald B. Pier, Helle Krogh Johansen
Håndkirurgisk sektion,ortopædkirurgisk afdeling T, Herlev Hospital, Afdelingen for anæstesi,operation og intensiv I, Gentofte Hospital, Afdelingen for Eksperimentel Medicin, Panum Instituttet, KU, Institut for Basal Husdyr-og Veterinærvidenskab, KU, Afdeling

INTRODUCTION: The pathogenicity of staphylococcal infection is mostly due to its ability to colonize indwelling devices and form a thick adherent biofilm which is linked to the ica-gene. We have search for a vaccine of immunoglobulin to prevent osteomyelitis around implants in a rat knee-model.
MATERIAL AND METHODS: Twenty-four Sprague-Dawley rats were operated with a non-constrained knee prostheses and divided into four groups (N=6). All four groups received a bacterial inoculum of S. aureus 10E3 MN8 in the tibia and the femur marrow before insertion of the prosthesis. Two of the four groups, one with ica+ ve and one with ica- ve received passive immunization with immunoglobulin from rabbits infected with S.aureus. Two groups were controls. After two weeks, the animals were sacrificed and the femur, tibia and synovialis with prosthesis was excised and prepared for culture and qualitative histological analysis. The clinical signs, blood analysis and radiological findings were collected 0, 1 and 2 weeks after bacterial inoculation.
RESULTS: The ica-negative group 2 showed significant effect of immunglobulin in all four parameters which also supported the clinical data. Group/n ica-gene Microbiology 1AG X-ray Pathology 1 / 5 +ve 1.7 290 5.8 7.2 2/ 6 -ve 0.5 295 2.3 2.2 1 C/6 +ve 2.3 510 8.8 9.2 2 C/4 -ve 1.7 662 8.5 7.8
CONCLUSION: This animal model is suitable to reliably induce implant osteomyelitis and to demonstrate that a passive immunization can significant reduce the implant infection in an ica- ve bacterial osteomyelitis. But also in the ica+ve group (biofilm-version) an effect is seen - but not significant.

Intramedullary knee spacer in 2-stage revision knee surgery: a new technique

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INTRODUCTION: 2-stage revision of the infected knee with extensive bone loss has traditionally included traction in a hospital bed and subsequent further shortening of the leg.
MATERIAL AND METHODS: 6 patients with infected knees and median age 61 (37-79) were included. The number of previous operations was 7 (2–15). Five were TKA patients, and one had a pseudarthrosis. 3 patients had been offered amputation. A thorough debridement with removal of all hardware was done. The infected/necrotic bone was resected (6 distal femur, 1 proximal tibia) and the remaining bone canals were debrided and reamed. Then a retrograde IM rod was in inserted in pressfit in both canals, using the full available length of the canals. In the first 2 cases one or both rods were locked, in the last 4 cases no locking screws were used. Hereafter the assistant would pull the leg into full possible length while the free ends of the rods were cemented together using 3-5 portions of cement as a spacer between the femur and tibia. In 4 cases the connection of the rods was reinforced with a screw before cementing. After closure a long plaster was applied and no weightbearing was allowed.
RESULTS: Median leg shortening was 2 cm (0-7) and ROM 20 deg. (5-50) before stage one, but 1 cm (0-4) and 55 deg. (35-105) after stage two. Spacertime was 3.5 months (1.5-6.5). One spacer broke (not screw reinforced), and was reoperated. At stage two, all patients had a tumor prosthesis. All infections were cured.
CONCLUSION: This new technique secures preservation of leg length and is more friendly to the patient than traction. Despite the use of 2 IM rods, all infections were cured. The cemented connection of the 2 rods should be reinforced with 1 screw. Pressfit of the rod without locking screw seems to be adequate.

Coccygectomy – An Effective Treatment Option For Chronic Coccygodynia

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INTRODUCTION: Coccygectomy is a surgical treatment option for cases of coccygodynia unresponsive to conservative treatment. Few studies have been published evaluating results after total coccygectomy. We report and assess the outcome of total coccygectomy for chronic coccygodynia in our department..
MATERIAL AND METHODS: 41 consecutive patients (39 women) were operated with total coccygectomy. All the patients except one were available for clinical follow-up with an average follow-up period of 4.9 months. 39 patients were available for a questionnaire at an average of 83 months after surgery. 2 patients had died in the meantime. All patients had prior to operation undergone conservative treatment for at least 6 months. Pain levels were assessed by a subjective description of any pain and a VAS score.
RESULTS: Results were classified as excellent, good, moderate and poor. Excellent or good results were obtained in 33 out of the 41 patients comprising 18 of the 21 patients with coccygodynia due to trauma, 5 of the 8 patients due to childbirth and 10 of 12 idiopathic cases. None experienced worse pain after the operation. 2 patients required a further operation to remove painful sacral exostoses. 5 patients developed cicatricial infection which was treated with oral antibiotics and wound care. A mean VAS score of 2.6 was registered from the questionnaire.
CONCLUSION: Total coccygectomy yielded an overall satisfactory reduction in the level of pain and a higher level of daily living activities in our patients. In our study, the rate of pain relief was similar in the group with traumatic coccygodynia to pain relief in the group with idiopathic coccygodynia. Complications were limited. We recommend total coccygectomy in selected cases of intractable coccygodynia.

Arthroscopic Subacromial Decompression. Results at two Years using the Western Ontario Rotator Cuff Index

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INTRODUCTION: The patient based questionnaire WORC Index was used prospectively as outcomes measure preoperatively and at two years in patients undergoing ASD to document the effect of the operations over time.

MATERIAL AND METHODS: 48 patients, 30 female and 18 male, median age 53 years (range 40-78) with shoulder pain of more than six months duration and with clinical signs of impingement were operated on. In 18 patients AC-joint resection was included in the procedure. The 21-item WORC questionnaire was filled in by the patients preoperatively, and at 3, and 24 months postoperatively. All but one patient completed the study.

RESULTS: Median preoperative WORC value was 1374 points (range 621-2006). Postoperative WORC values were median 257 (range 21-1839) at 3 months (median reduction 80%) and median 291 (range 0-2024) at 2 years (median reduction 75%). The reduction was significant ($p<0.001$) at 3 and 24 months. There was no significant difference in WORC scores 3 and 24 months postoperatively ($p=0.8$). At 3 months the WORC value was reduced > 50% in 79% of the patients. At 2 years further 6% of the patients improved, whereas 13% of the patients deteriorated giving a success rate at 2 years of 72%. Workman's compensation claim or trauma did not influence the outcome.

CONCLUSION: ASD is effective in reducing patient reported complaints as measured by the WORC Index. The effect of the procedure persists at 2 years postoperatively.

The use of knee mega-prostheses in non-tumour patients.

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INTRODUCTION: A knee joint mega-prosthesis is occasionally used for non-tumor patients e.g. when infection or aseptic loosening of a revision total knee replacement (rTKR) has caused severe bone loss or in the treatment of severe periprosthetic fractures.
MATERIAL AND METHODS: Between December 2001 and June 2008 8 patients (mean age 53 (37-75) years, F/M= 3/5) were operated on with insertion of a mega-prosthesis (implants: LINK/GMRS = 3/5). The operations were performed as a part of the treatment of an infected rTKR (n=5), other complications after TKR (n=2), or an infected pseudarthrosis of the distal femur (n=1). With the exception of two patients who died with an intact prosthesis 1 and 8 months after the operation, and one patient, who had had a new revision knee surgery performed recently, 5 patients had the result of the operation evaluated by The Knee Society clinical rating system on average 39 (13-60) months after the mega-prosthesis operation. Preoperative and follow-up knee scores were analyzed with t-test for paired data.
RESULTS: During the follow-up two patients had further revision surgery because of a loose femoral stem and a fracture of the prosthesis respectively. One patient acquired persistent fungal infection treated with lifelong antimycotics, and one patient has non-functional active knee extension. The average knee score (n=5) improved from 14 to 66 ($p=0.02$) and average functional knee score improved from 13 to 53 ($p=0.02$). All patients achieved longer walking distance, reduction of perceived pain and reduced need for aids, except one patient who had unchanged needs.
CONCLUSION: Since the primary alternative for these patients is amputation, and the clinical results are markedly positive, mega-prostheses are an appealing option in special cases of rTKR.

Treatment of bone sarcomas with limb-sparing surgery and reconstruction with tumour-prostheses

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INTRODUCTION: Limb sparing surgery for treatment of bone sarcomas can now be done in most patients and tumour-prostheses are the most frequently use mode of reconstruction.
MATERIAL AND METHODS: From 1985 to 2005 fifty patients (mean age 34 (6-78) years, F/M = 24/26) suffering from osteosarcoma (n=30), chondrosarcoma (n=9), osteoclastoma (n=6), Ewing´s sarcoma (n=4), or angiosarcoma (n=1) of the lower extremities had limb-sparing tumour resection. Reconstruction with tumour prostheses of the proximal femur (n=9), the distal femur (n=29), the proximal tibia (n=9) or the entire femur (n=3) was performed. The implants most frequently used were HMRS (Kotz)(n=34) and LINK (n=8). We reviewed the patient files focusing on later revision surgery or amputation. Patient survival (Kaplan-Meier analysis) was evaluated using a nation wide register (CPR-registret).
RESULTS: Revision surgery was done in 25 patients, and among the revised patients the total number of revisions was: one (n=10), two (n=5), or more than two revisions (n=10). The causes of revision were: exchange of polyethylene components (n=9), infection (n=11), loosening (n=15), leg lengthening/shortening procedure (n=4), dislocation (n=5), 2nd stage surgery post-infection (n=6) and others (n=7). In 6 patients an amputation was performed because of local recurrence (n=2), infection (n=3) or ischemia (n=1). Mean time to the first revision was 1332 (7-8331) days, and 21 patients died during the follow-up. The 5-year patient survival and the 5-year survival of the limb without amputation was 68% and 90% respectively.
CONCLUSION: Treatment of bone sarcomas with limb-sparing surgery and tumour-prostheses for reconstruction led to an acceptable survival and frequency of amputation, but revision surgery was necessary in many patients.

The Danish Version of the Oxford Shoulder Score

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INTRODUCTION: Modern evaluation of shoulder conditions includes patient's subjective assessment of the outcome. However, selecting the most appropriate health questionnaire is not straightforward. The Oxford Shoulder Score (OSS) is a condition-specific questionnaire for patients with degenerative or inflammatory shoulder diseases. The purpose of this study was to validate the Danish translation of OSS and to compare the OSS with the Constant Score (CS) as a reference test.
MATERIAL AND METHODS: During December 2008, 102 patients referred to the shoulder unit at OUH were recruited for the study. The OSS was translated into Danish according to the recommandations by Guillemin (J Clin Epidemiol 1993). All the tests and patients interviews were performed by 3 bachelor students of rehabilitation. According to patient interviews and patients self assessment we established the psychometric properties (Validity and Reliability) of the Score-system.
RESULTS: The Validity expressed as Spearmans rho coefficient was r = 0.76(-0.83 - -0.66) between the OSS and the CS. Reliability (test-retest) or reliability over time expressed as Spearmans rho was r = 0.98 (0.94-0.99). Interviewer's time averaged 7:10 minutes (CS) and patients time to fill out the form averaged 2:25 minutes (OSS).
CONCLUSION: The ideal scoring system should be simple, effective and easy to use. The psychometric properties of the Danish version of OSS showed good validity with a substantial correlation between the OSS and the CS. It was easy to use and the time to perform the tests and to fill out the form was acceptably short. We also found a high reliability over time. The OSS is recommended for the evaluation of patients with degenerative or inflammatory shoulder diseases.

Comparison of Two Resurfacing Prostheses for Treatment of Osteoarthritis of the Shoulder. Preliminary Results.

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INTRODUCTION: Humeral resurfacing arthroplasty is used to preserve bone stock and restore normal anatomy in the osteoarthritic shoulder joint. The aim of this study was to examine the radiological and clinical outcome after Copeland and Global Cap humeral resurface replacement.
MATERIAL AND METHODS: 21 patients (10 females) at a mean age of 64 (39-82) years and with shoulder osteoarthritis were included and randomized to a Copeland (11) or Global Cap (10) prosthesis. Both prostheses were uncemented. At 1, 6, 12 and 24 weeks migration of the prosthesis was measured with use of RSA, conventional radiographs were obtained for a geometrical analysis, and the patients were followed clinically with Constant Shoulder Score (CSS) and Western Ontario Osteoarthritis of the Shoulder Index (WOOS). At 1, 12 and 24 weeks the periprosthetic bone mineral density (BMD) was measured with DEXA.
RESULTS: At 6 months, 13 patients could be evaluated for prostheses migration. The median total translation was 0.09 mm for the Copeland prostheses and 0.33 mm for the Global Cap (p=0.20). 16 patients had BMD measured 6 months after surgery. Around the Copeland prostheses, BMD decreased from 0.55 to 0.39 g/cm2 (p= 0.02) and around the Global Cap, BMD changed from 0.46 to 0.36 g/cm2 (p=0.21). 15 patients completed CSS and WOOS at 6 months. In the group with a Copeland prosthesis, CSS increased from 55 to 68 (p=0.25) and WOOS improved from 1019 to 535 (p=0.03). For the patients with a Global Cap, CSS improved from 32 to 57 (p= 0.12) and WOSS improved from 1311 to 477 (p= 0.01). 2 of each prostheses were revised within 6 month.
CONCLUSION: Based on these preliminary results, the performance of the 2 prostheses is comparable. Yet, we consider that there is a problem with overstuffing in the Copeland prosthesis.

Postoperative use of bisphosphonates influences the risk of revision after primary total hip arthroplasty: a nationwide population-based study

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INTRODUCTION: Recently, bisphosphonates have been linked with mechanisms that may influence longevity of orthopaedic implants. We therefore evaluated the association between use of bisphosphonates and the risk of revision after primary total hip arthroplasty (THA).
MATERIAL AND METHODS: We conducted a nationwide population-based nested case-control study using medical databases in Denmark. From the Danish Hip Arthroplasty Register (DHR) we included primary THA patients with either osteoporosis or previous osteoporotic fracture (n=16145). Among these patients we identified 632 cases that were revised after primary THA in the period 1995-2006. The cases were matched on gender, age and year of primary THA surgery with 1262 non-revised THA controls. Using conditional logistic regression we estimated the risk of revision due all causes and due to specific causes according to postoperative bisphosphonate use.
RESULTS: The 10 years cumulated implant revision rate in the underlying cohort of 16145 primary THA procedures among osteoporotic patients was 8.3% (95% confidence interval (CI): 7.3-9.3). Use of bisphosphonates was associated with an adjusted relative risk of revision due to deep infections of 2.59 (95% CI; 1.30-6.53). Further, duration of bisphosphonates use up to 120 days, 120 and 240 days, and more than 240 days was associated with adjusted relative risks of revision due to all causes of 2.77 (95% CI; 1.65-4.64), 1.33 (95% CI; 0.63-2.72), and 0.58 (95% CI; 0.32-1.05) respectively.
CONCLUSION: Use of bisphosphonates following primary THA was associated with an increased risk of revision due to deep infection. However, long-term use was associated with a reduced risk of revision of any type. Further research is warranted in order to clarify whether these associations are truly causal."

Use of diuretics and risk of implant failure after primary total hip arthroplasty: a nationwide population-based study

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INTRODUCTION: Thiazid and loop diuretics have been associated with changes in bone mineral density and fracture risk. However, data on survival of prosthesis implants are lacking. We evaluated the association between diuretic use and the risk of revision after primary total hip arthroplasty (THA).
MATERIAL AND METHODS: We conducted a nationwide population-based case-control study using medical databases in Denmark. In the Danish Hip Arthroplasty Register, we identified 2491 cases that were revised after primary THA in the period 1995-2005 and who could be matched on age, gender and year of primary operation with 4943 non-revised THA controls. By means of conditional logistic regression, we estimated the relative risk (RR) of revision due to all causes and due to specific causes according to postoperative use of thiazid and loop diuretic, respectively.
RESULTS: The 10-year cumulated implant revision rate in the underlying cohort of 57,575 THA procedures from the Danish Hip Arthroplasty Register was 8.9% (95% CI: 8.4-9.4). Postoperative thiazid diuretic use was not associated with neither the overall risk of revision nor revision due to specific causes compared to non-use. Postoperative loop diuretic use was associated with an adjusted RR of revision of 1.14 (95% CI; 0.98-1.32) compared with non-use. The adjusted RR of revision due to deep infection and periprosthetic fracture in loop diuretic users was 1.71 (1.15-2.55) and 6.39 (1.84-22.21), respectively. Loop diuretic use was not associated with risk of revision due to aseptic loosening, dislocation or miscellaneous causes.
CONCLUSION: Loop diuretics but not thiazides may be associated with an increased risk of revision following primary THA.

Meniscal tears, popliteal cysts and fluid-filled bursae among workers in a knee-demanding occupation: a magnetic resonance imaging study in floor layers

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INTRODUCTION: Studies have shown an increased frequency of knee complaints and radiographic knee osteoarthritis (OA) among floor layers. However, the high prevalence of knee complaints observed among workers in this profession cannot be explained by knee OA alone and knee morbidity may be attributable to pathologies other than OA. Yet, there has been a lack of studies evaluating the association between occupational loading and the risk of other knee disorders than OA. The objective of this study was to evaluate the association between occupational kneeling and MRI-detected knee disorders among two trade groups, with and without knee-straining exposures in their work tasks.
MATERIAL AND METHODS: MRI of both knees was conducted in 92 male floor layers and 49 male graphic designers (referents), with a mean age of 55.6 years (range 42-70 yrs). The presence of cysts, fluid-filled bursae and meniscal tears were recorded. Risk estimates with 95% confidence intervals (CI) were computed among floor layers relative to graphic designers.
RESULTS: Analyses revealed a significant higher prevalence of degenerative tears in the medial meniscus among floor layers compared to graphic designers (OR=2.3, 95% CI=1.1-5.0), and significantly more floor layers had medial tears in both knees (OR=3.5, 95% CI=1.4-8.5). Floor layers also had a significant higher prevalence of Baker cysts, fluid-filled bursae, and cysts around the popliteus tendon and muscle compared to graphic designers.
CONCLUSION: Results suggest that certain occupational knee loads and not actual pivoting knee traumas may be associated with a high frequency of meniscal tears, and furthermore that altered internal knee stress in deep knee flexion may increase the risk of cysts and bursitis in the posterior part of the knee joint.

Microdialysis in the knee joint with osteoarthritis: Local measurements of Aggrecan and Cartilage Oligomeric Matrix Protein - effect of mechanical loading

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INTRODUCTION: The pathogenesis of osteoarthritis (OA) remains to be elucidated which may be partly related to limitations in the investigative methods of early OA. Microdialysis is a minimally invasive method which allows for local in vivo measurements over a time period. We have examined intraarticular levels of 2 biomarkers of cartilage, Cartilage Oligomeric Matrix Protein (COMP) and Aggrecan, and the effect of mechanical loading on these biomarkers in female subjects with OA of the knee.
MATERIAL AND METHODS: Twentytwo subjects with confirmed OA (Kellgren-Lawrence grade 1-3) were randomized to non-exercise and exercise groups. Following regional anaesthesia, a microdialysis catheter was positioned intraarticularly in the suprapatellar pouch. The microdialysis catheter was perfused at a slow rate (2 ml/min) with a solution of Ringer-acetate and radioactively labelled glucose allowing for determination of relative recovery (RR). Samples were collected over a period of 3 hours and the catheter was hereafter removed.
RESULTS: No difference between groups was observed at timepoint t1 with regards to levels of Aggrecan and COMP. Levels of Aggrecan decreased significantly over time ($p<0.05$) independently of exercise (t1: 63.2 ± 14.7, t2: 39.3 ± 9.8 ng/ml (mean ± SEM)). Concentration of COMP at t1 was 6.4 ± 1.3 U/l and a significant decrease ($p<0.05$) was found at timepoint t2 for the exercise group, whereas no significant changee was found in the non-exercising group.
CONCLUSION: Levels of Aggrecan and COMP were measured for the first time in female subjects with OA of the knee with an in vivo method that allows incorporation of time. Exercise lead to a significant decrease of the intraarticular concentration of COMP, suggesting a delayed removal of the biomarker following exercise.

Acetabular reconstruction utilizing cage in primary and revision hip arthroplasty

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INTRODUCTION: To recreate stable and durable conditions of the acetabulum following fractures, metastasis or during revision surgery in total hip arthroplasty is a challenge. Severe bone loss of the acetabulum and loss of pelvic continuity may require a cage to provide the necessary support for bone grafting and stability for cup fixation. The aim of the study was to evaluate cases that had undergone reconstruction of the acetabulum with massive bone grafting, using a cage and cemented cup.
MATERIAL AND METHODS: 41 patients, 43 hips, between 2000 and 2007. Follow up > 24 months, mean 31 months. Indications were severe bone loss, mainly due to cup loosening. Cages were the Burch-Schneider antiprotrusio cage (BS), or the Ganz acetabular roof reinforcement ring. Endpoint was revision of the acetabular reconstruction. Postoperative complications, Harris Hip Score (HHS) and radiological status were assessed.
RESULTS: The majority of the hips had type IV bone loss according to Danish Hip Registry/ Saleh & Gross Classification, at an average age of 70 years (46-95). Previous surgery to the same hip ranged between 0 and 5 operations. Mechanical failure of the cage was seen only in one case, and one came loose due to metastasis. In 2 patients only the cup was revised due to dislocations. 30 BS and 13 Ganz were used. At time of follow up the average HHS was 70 (19-100), and neither significant continuous radiolucent lines nor signs of migration were seen. Most cases showed good incorporation of the bone graft.
CONCLUSION: In this demanding patient group with severe bone loss it might be difficult to use a standard cup. A cage seems to provide a reliable surgical option in the included patient group, in agreement with previous international studies of cage utilization.

Stem design has no effect on long-term bone loss. A prospective randomised study using DEXA with more than 10 years follow-up after uncemented THA. A presentation of preliminary data-analysis

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INTRODUCTION: Periprosthetic bone loss is a well-documented phenomenon after uncemented total hip arthroplasty (THA). However, only few long-term studies have been performed.
MATERIAL AND METHODS: Forty-one patients (mean age = 58 (40-67), F/M ratio ~ 1/3) were after informed consent randomised to either a Bi-Metric (B) or Ranavat/Burstein (R) uncemented THA. Only variable in the study was stem design. Thus both stems in this study featured a collar-less, cobalt chromium substrate with a proximal porous titanium alloy (Ti6A14V) plasma spray coating. The acetabular component was the same in the two groups. Using dual energy X-ray absorptiometry (DEXA) the patients had bone mineral density (BMD) measured in Gruens zones 1-7 after implantation and repeated after 3, 6, 12, 24, 60, and 120+ months. Statistics: 95%-confidence limits (intragroup changes) and unpaired t-test (intergroup changes).
RESULTS: Thirty-four data sets (B/R = x/x) were available for analysis at the more than 10 years follow-up. An almost continuos decrease in BMD was seen in Gruen zone 7 reaching 29% (R) to 32% (B). Correspondingly the loss in Gruen Zone 1 reached 10% (R) to 14% (B). There were signs of a net gain or minor decrease in Zone 3-5, but from 5 years to last follow-up a loss of 2.5% (R) to 4.7% (B) was seen. The adaptive bone remodelling pattern was identical in the two study groups.
CONCLUSION: Stem design did not influence the continuos loss of bone stock especially seen in the proximal regions (Gruen zone 1 and 7) after uncemented THA in this prospective randomised study with more than 10 years of follow-up.

Assessment of in vivo mechanical muscle function in patients with osteoarthritis (oa) of the hip; reliability

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INTRODUCTION: Muscle function in patients with hip OA is not well-studied. We established a new setup of tests in order to monitor patients before and after surgery with total hip arthroplasty (THA). A test-retest protocol was designed to evaluate the reproducibility of single- and multi-joint strength and power a novel setup.

MATERIAL AND METHODS: Isokinetic contractions for both knee and hip muscles were performed. Reliability for isometric muscle contractions in vivo was recorded and evaluated by use of within subject variability (CVW-S), Spearman correlation and Limits of Agreement (LoA). Both explosive muscle force characteristics (Rate of force development) and maximal isometric force (MVC) were obtained for the affected (aff) and non-affected (n-aff) leg (only data MVC for affected side in this abstract). 20 patients, (age 55.9 ± 4.8; height 174 ± 8; BMI 27.1 ± 4.5) with unilateral hip OA participated in a test-retest after 8w at 10w post op.

RESULTS:

Table 1: Patient test – retest reliability (Maximal Isometric Muscle Torque) for aff-side

AFF-leg	Test (8W) Mean ± SD ($Nm \cdot kg^{-1}$)	Test (10W) Mean ± SD ($Nm \cdot kg^{-1}$)	Δmean ($Nm \cdot kg^{-1}$)	CV_{ws}	Spearman ± SE	LoA
Knee EXT	1.32 ± 0.38	1.41 ± 0.35	-0.09 ± 0.16	-6.5 %	0.88 ± 0.05	-0.40 : 0.20
Knee FLX	0.63 ± 0.23	0.65 ± 0.17	-0.02 ± 0.10	-3.8 %	0.87 ± 0.05	-0.22 : 0.17
Hip ADD	1.28 ± 0.32	1.34 ± 0.37	-0.07 ± 0.12	-5.1 %	0.93 ± 0.03	-0.29 : 0.16
Hip ABD	1.35 ± 0.28	1.47 ± 0.35	-0.11 ± 0.14	-8.0 %	0.84 ± 0.07	-0.39 : 0.16
Hip EXT	1.86 ± 0.44	2.07 ± 0.57	-0.20 ± 0.24	-9.9 %	0.82 ± 0.07	-0.67 : 0.26
Hip FLX	1.09 ± 0.31	1.23 ± 0.33	-0.15 ± 0.13	-12.8 %	0.82 ± 0.06	-0.40 : 0.11

Test-retest showed good CV's for all except hip flexion.

CONCLUSION: Our novel setup of muscle tests showed overall good CV's, which is promising for further studies on the patient group.

Clinical Outcome of Hybrid Fixation in Revision Knee Surgery

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INTRODUCTION: The use of cementless or cemented fixation in Revision Total Knee Arthroplasty (rTKA) is controversial. The aim of this study was to evaluate the clinical and radiological outcome of the use of a hybrid-revisionsprothesis, HRP (cemented fixation of the femoral stem and an uncemented porous-coated tibial implant with screw holes).

MATERIAL AND METHODS: Patients who had rTKA with HRP at the Department of Orthopaedics, Rigshospitalet, from November 1997 to December 2003 (”Duracon Modular” femoral component, ”Duracon Universal” tibia component, Stryker Howmedica) were extracted from a nation wide register (Det Grønne System; Scandinavian Healthcare Informatics A/S, Århus Denmark). 32 patients (33 knees), mean age 64 years (range 33-89), were included in the study. Outcome after rTKA were evaluated by calculation of Knee- and functional score using The Knee Society Clinical Rating System. Radiological loosening of the HRP components was evaluated on standing AP-LAT radiographs using The Knee Society total knee knee arthroplasty roentgengrapic evaluation and scoring system. Patients absent from the examination program were surveyed, using the ”Grønne System”, to identify revisions (failures) of the HRP performed at other Departments of Orthopaedics. The survial probability of the rTKA using HRP was calulated.

RESULTS: Mean observation time was 66.4 (range 5-124) months. Knee- and functional scores and evaluation of radiographs for patients with the HRP in situ was 66 - and 67 points, 5 knees showed radiological signs of loosening. 15 of 33 (45%) knees had been revised mainly because of aseptic loosening of the tibial component (n=10). The 2- and 5 years survival probability was 81 % and 67 %.

CONCLUSION: We do not recommend HRP with this design for rTKA.

Comparison of two surgical approaches on acetabular reorientation, perioperative variables and clinical outcome in relation to periacetabular osteotomy (PAO)

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INTRODUCTION: Hip dysplasia is associated with pain and development of secondary osteoarthritis. Early intervention by PAO is both pain relieving and it probably prevents or delays the development of osteoarthrosis. We compare a modified iliofemoral (MI) approach and the ilioinguinal (II) approach.
MATERIAL AND METHODS: We included 90 PAO's performed on 75 patients with symptomatic hip dysplasia operated between 2003 and 2006 at Odense University Hospital. Variables in this study are CE and AA angles, HHS, WOMAC, pain, patient satisfaction, level of activity, quality of life (EQ5D), perioperative blood loss, operating time and neurovascular complications.
RESULTS: The MI approach was used in 71 PAO's and II in 19 PAO's. Overall, patients had a significantly better result after the PAO in regard to HHS, pain and EQ5D. Reorientation in terms of pre- and post-operative CE- and AA-angles showed no significant difference between the two groups. Operating time proved the MI approach significantly faster then the II-approach. Intraoperative blood loss and pre-operative Hb-conc. was equal in the two groups. However, there was a significant lower postoperative Hb-conc. using the II-approach. The II group had one case of arterial thrombosis and none in the MI group. There were no significant differences between the two approaches in pre- and post-operative HHS, WOMAC, patient satisfaction, level of activity, EQ5D and willingness to repeat the procedure.
CONCLUSION: Although the II approach offers better access to the pubic bone, we did not find any difference in reorientation of the acetabular fragment. Both groups improved significantly in clinical outcome and quality of life. We find the MI approached safer than the II, as no arterial thrombosis was seen in that group.

Early rehabilitation in patients with resurfacing, standard and large head THA. A randomized clinical trail (RCT)

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INTRODUCTION: For patients in employment a fast rehabilitation is important. The reduced risk of dislocation when using a large head theoretically offers a faster rehabilitation than a THA with a 28 mm head as no restrictions are imposed. The larger surgical incision in the resurfacing patient may impair the early rehabilitation. We aimed to investigate early differences in rehabilitation parameters amongst 28mm THA, large head THA and resurfacing.
MATERIAL AND METHODS: We randomized to Resurfacing (n=20), standard 28 mm THA (n=19) and large head THA (n=12), and recorded operation time, blood loss, incision length, length of hospital stay and sick-absence. WOMAC, HHS, UCLA activity and steps were recorded preoperatively, at 8 w and 6 m
RESULTS: For resurfacing, 28 mm and large head THA, respectively. The incision measured 23.4 (2.9), 14.3 (3.6) and 14.1 (1.1) cm. The blood loss amounted to 536.7 (474.9), 426.5 (175.1) and 816.7 (347.9) mL. Both differed statistically, but the length of stay did not. With WOMAC activity scores of 7.3 (8.4), 12.8 (11.1) and 3.4 (4.0) and stiffness scores of 12.2 (21.7) 21.6 (22.2) 5.0 (6.3) mm) the large head articulations fared significant better at 6 months but not at 8W. Pain scores, UCLA, HHS, step rate and sick absence did not differ statistically.
CONCLUSION: The present study indicated an advantage in performing everyday tasks as early as 8 weeks postoperatively for a large head THA compared to 28 mm THA and resurfacing. At 6 months the patients with large head implants felt less restricted than the 28 mm THA but the subjective feeling could not be supported by improvements in actual activity. The perceived ease of every day tasks may be because the large articulation patients did not worry or take precautions about dislocations. and therefore felt less restricted.

Knee arthrodesis as a salvage procedure using a proximally locked intramedullary nail

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INTRODUCTION: Arthrodesis of the knee may be necessary as a salvage procedure in cases of chronic infection of a total knee arthroplasty (TKA) or after infected severely comminuted fractures. This review presents the indications for and the outcome of knee arthrodesis using a long intramedullary nail.
MATERIAL AND METHODS: Twentyfour (24) patients (13 M / 11 F, median age 62 years (17-83)) were treated with arthrodesis of the knee using a long intramedullary nail in the period 2000-2008. All were treated with a proximally locked "Knee Fusion Nail" (Smith & Nephew). The indications were: Previous infected TKA (19), previous fractures around the knee (4) and neurological illness (1). In 7 patients previous attempts of arthrodesis with other techniques had failed.
RESULTS: There was one intraoperative distal tibial fracture. All patients except one were allowed weight bearing immediately postop without bracing/cast. There were no implant failures. There was evidence of radiological healing in 18 patients. Four patients had clinical but not radiological healing. One patient died of pulmonary embolism 8 days postoperatively and 1 died after 3 months. Six patients underwent further surgical procedures: Two patients because of infection necessitating nail removal (both had previous infected TKA), 2 patients because of pseudarthrosis (1 patient had a locking screw removed, 1 had local revision and additional bonegrafting), 1 patient had the nail removed after healing due to pain at the tip of the nail and 1 patient was amputated 3 years after surgery due to ischemia. Twenty patients reported no pain at the final follow-up visit.
CONCLUSION: The use of a long intramedullary nail is a reliable salvage procedure, both as a primary method and secondary to failure of other methods.

Intramedullary nailing is superior to the dynamic hip screw in pertrochanteric hip fractures with a fractured major trochanter

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INTRODUCTION: The use of intramedullary nailing (IMHS) has increased at the expense of the dynamic hip screw (DHS), although the outcome is not different in the studies of pertrochanteric fractures (PTF), known as AO/OTA type 31A1-2 fractures with a preoperative intact lateral femoral wall (LFW). We therefore investigated the two implants in the subgroup of PTF with a fractured major trochanter.
MATERIAL AND METHODS: 635 consecutive patients with PTF fixated by a 4 hole DHS or a short IMHS were prospectively included 2002-2008. The fractures were preoperatively classified according to AO/OTA and Evans-Jensen. The integrity of the LFW, fracture reduction and implant positioning were assessed postoperatively. Reoperations due to technical failures were recorded for one year.
RESULTS: Among the 311 patients sustaining a PTF with a fractured major trochanter, 4% (6/158) operated with an IMHS were reoperated compared to 14% (22/153) with a DHS (p=0.001). Multivariate logistic regression analysis combining demographic and biomechanical parameters showed the IMHS to have a lower rate of reoperation (p=0.002). During the operative procedure, the LFW was fractured in 6% (9/158) of patients, in which an IMHS was performed vs. 28% (42/153) operated with a DHS (p<0.001). Among the DHS, a fractured LFW was confirmed to be a predictor of a reoperation (31% (13/42) vs. 8% (9/111), p<0.001). As in other studies, the different reoperation rate would have been overseen in the main group of PTF (4% (6/164) IMHS vs. 6% (30/471) DHS, p=0.196).
CONCLUSION: The IMHS seems to have a lower reoperation rate than the DHS in the subgroup of PTF with a fractured major trochanter. In contrast to the DHS, the IMHS presumably keeps the integrity of the LFW. In future studies, PTF must be divided into subgroups.

Can junior doctors in orthopedic surgery interprete MRI scans of the scaphoid bone?

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INTRODUCTION: Can junior doctors in orthopedic surgery interprete MRI scans of the scaphoid bone, thereby preventing patients suspected of scaphoid fracture from unnecessary immobilization and repeated ambulatory controls?
MATERIAL AND METHODS: Patients suspected of having a fracture of the scaphoid bone and who had negative x-ray were included in the study. The MRI scan was performed within a few days, and the patient received the results of the MRI scan the same day from the junior doctor in the ambulatory. The junior doctor had received training in MRI diagnosis and was not allowed to confer with another doctor. Subsequently, the junior doctor's medical opinion was reviewed by a radiologist, and the treatment was adjusted if there was a discrepancy in diagnosis. Of the 98 eligible patients, 13 had their MRIs reviewed by the junior doctor in tandem with a specialist, therefore only 85 patients were included in the study.
RESULTS: Junior doctors found 3 out 5 scaphoid fractures and misinterpreted 6. They achieved a negative predictive value of 97% and positive predictive value of 33%. Specificity and sensitivity were of 92.5% and 60%. The junior doctors as well as the radiologists found 11 fractures of the distal radius that had not been detected before the MRI scan. In this case the junior doctors obtained a sensitivity and specificity of 100%.
CONCLUSION: Junior doctors in orthopedic surgery can interprete the initial interpretation of MRI scans. There was great accuracy in interpreting negative findings, thus a large patient group can avoid unnecessary immobilization. If, however, there are positive findings or if there are any doubts in the evaluation, the junior doctors should confer with a radiologist in radiology.

Mechanical and microarchitectural properties of synthetic materials for bone implantation

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INTRODUCTION: Hydroxyapatite and β-tricalcium-phosphate (HA/β-TCP) mineral for implantation in bone is rigid and brittle and the mechanical properties of the material are not comparable to those of natural healthy bone. Biocompatible polymers such as poly-lactic acid (PLA) and hyaluronic acid (HyA) have been added to HA/β-TCP mineral in order to increase the mechanical strength of the bone substitute without lowering the porosity of the final bone substitute material. This study compares selected 3D-microarchitectural and mechanical properties of synthetic bone substitute materials with those of the pure HA/β-TCP substitute material.
MATERIALS AND METHODS: Seven groups of different synthetic bone substitute materials and 1 group of pure calcium-phosphate material (Table 1) were produced and prepared in cubes (10x10x10 mm) by The Danish Technological Institute, and micro-CT scanned followed by microarchitectural analysis. Mechanical testing of the same synthetic bone substitute materials was performed by destructive compression test on a MTS machine.
RESULTS: Results were assessed by One-way ANOVA, and p-values less than 0.05 were considered significant. 15% PLA significantly ($p<0.05$) increased the mechanical strength of the material, while HyA had no significant effect on strength. The polymers also had a significant effect on the microarchitectural properties ($p<0.05$).
CONCLUSIONS: 15% PLA can be added to synthetic bone substitute material in order to increase the mechanical strength of the material, but without critically altering microarchitectural properties. Table 1: Composition of materials. Group Polymer 1 Pure calcium-phosphate (n = 6) 2 5 % PLA (n = 5) 3 10 % PLA (n = 6) 4 15 % PLA (n = 6) 5 HyA LMw (n = 5) 6 HyA MMw (n = 6) 7 5 % PLA + HyA LMw (n = 6) 8 5 % PLA + HyA MMw (n = 6)

Osteogenic Potential of Biphasic Calcium Phosphate with Growth Factor loaded Electrospun Polymer Fibers

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INTRODUCTION: Two widely used components in regeneration of bone are the osteoconductive CaPs and osteoinductive growth factors such as BMP-2. We aimed at achieving controlled release of BMP-2 as well as supplying osteoconductive material to the bone formation site.
MATERIAL AND METHODS: Electrospun PLGA fibers loaded with BMP-2 were mixed with two different calcium phosphate ceramics, Nanostim and Calcibon. Both ceramics are moldable during implantation. To incorporate the BMP-2 into the PLGA fibers a water-in-oil emulsion electrospinning was performed. The fiber morphology was analyzed using scanning electron microscopy and presence of protein within fibers were visualized using fluorescent proteins and confocal microscopy. hMSC-TERT cell proliferation and differentiation were analyzed on the fibers. In addition to development and characterization of the scaffold with SEM, microCT and BMP2 release kinetics, an in vitro cell study was performed to evaluate nanofibers alone without the ceramic component.
RESULTS: Fluorescence microscopy revealed uniform fibers with proteins inside. We found no increase in proliferation and differentiation into osteogenic cells, when hMSC-TERTs were seeded on the BMP-2 loaded fibers as well as when cells were affected only by the BMP-2 release from the fibers. A homogenous mixture of the fibers with the calcium phosphates were achieved, but insufficient BMP-2 were released from the fibers to be detected using BMP-2 ELISA assay.
CONCLUSION: In this study, a new scaffold comprised of electrospun fibers containing BMP-2 mixed in a moldable CaP was developed. However, impaired release of BMP-2 resulted in an inconclusive osteogenic effect of the scaffold in vitro.

Flow Perfusion Culture of Human Mesenchymal Stem Cells on Coralline Hydroxyapatite Scaffolds With Various Pore Sizes

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INTRODUCTION: Autologous bone grafts are the gold standard in reconstructive orthopaedic surgery. Unfortunately, donor-site morbidity is extensive, and therefore tissue engineering is suggested to provide new viable substitutes. Till now, mainly small scaffold sizes have been validated. The aim of this study was therefore to obtain a clinically relevant size.
MATERIAL AND METHODS: Human bone marrow-derived MSC were seeded on coralline hydroxyapatite scaffolds (ProOsteon, Interpore) with 200µm or 500µm pores (diameter=10mm, height=5mm), and resulting constructs were cultured under perfusion (1ml/min) or statically in standard medium added vit D. Histological stainings, ALP assay and real-time RT-PCR on bone markers were performed.
RESULTS: The study surprisingly revealed that the cell-number was higher in static as compared to perfused constructs, and that the final number of cells was higher in 500µm as compared to 200µm constructs. Differentiation occurred primarily in static constructs with 200µm preceding 500µm ones. Adhesion and proliferation was seen on both scaffold types, but the vitality and morphology changed unfavourably under perfusion.
CONCLUSION: In contrast to previous studies, the perfusion culture did not improve the osteogenic properties of cell/scaffold constructs. Furthermore, the surface morphology of scaffolds - causing weak initial cell adhesion - was assumed involved in the surprising preference for culturing with low shear stress impact, as the static constructs were superior to perfused. Concluding that the specific scaffoldsurface microstructure and culturing system flow dynamics highly interact on synergizing on osteogenic properties, the presented results warrant careful selection of in vitro culture settings, especially when natural biomaterials with varying morphology are implicated.

Coagulation activity in elderly patients with fracture of the hip based on measurements of prothrombin fragment 1+2 in urine

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INTRODUCTION: Prothrombin fragment 1+2 in urine (uF1+2) is a measure of coagulation activity. The purpose of the present study was to follow the uF1+2 excretion in patients with fracture of the hip and relate it to the occurrence of vascular thrombotic complications (arterial and/or venous) and deaths.
MATERIALS AND METHODS: The study was a prospective pilot study. Spot urine samples were collected immediately after admission and every morning until surgery, after surgery urine samples were collected in the morning on days 1,5,7,14, and at follow-up on day 90 (+/-10). uF1+2 was measured using a commercially available ELISA kit. Operative fracture treatment, mobilisation and antithrombotic prophylaxis followed Danish standards.
RESULTS: 24 women and 7 men with a mean age of 83 (70–98) years completed the study. The median uF1+2 level was increased on the day of admission relative to the median level at follow-up indicating that the increased coagulation activity was induced by the fracture. Maximum levels were seen on day 1 (the day after surgery) with a decreasing tendency over the following days until follow-up. Patients with femoral neck fractures treated with a hemi-arthroplasty had higher median uF1+2 levels on all days compared with patients with neck fractures treated with cannulated screw fixation. 2 patients experienced a vascular thrombotic complication (cardiac origin) and 2 patients died. A day-to-day comparison showed a trend towards higher median uF1+2 levels in these patients compared with event-free patients.
CONCLUSION: The study showed a substantial coagulation activity in the perioperative period (high median levels of uF1+2) after a hip fracture, corresponding to the high rate of vascular thrombotic complications seen in these elderly patients.

Synergistic Effects of 3D- and Hypoxic Culturing on Cartilage-Specific Gene Expression in Human Chondrocytes

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INTRODUCTION: Articular cartilage defects are known to have a very limited potential of self-repair. Native chondrocytes reside in a 3D network and are exposed to low oxygen tensions. In vitro culturing and expansion of chondrocytes are essential in many treatment strategies of cartilage defects. We hypothesize that in vitro culturing in a native-like 3-dimentional and hypoxic environment favors expression of cartilage specific genes.

MATERIAL AND METHODS: Chondrocytes were isolated from normal cartilage of 12 individuals. The cells were divided into monolayer or 3D culturing on an MPEG-PLGA scaffolds (Aseed, Coloplast A/S). Cell seeding densities were 20,000 cells/cm2 in monolayer and 5x106 cells/mL in scaffolds. 24 hours after seeding, the cells for baseline meassurements were harvested. Remainders were divided in three groups for incubation in 21%, 5% or 1% oxygen. RNA extractions were performed after 1, 2 and 6 days after baseline. Quantitative RT-PCR was performed using assays for collagen type (COL) 1A1, 2A1, aggrecan (AGC), sox9, and beta-actin (ACTB). Results are presented relative to the hypoxia stable reference genes beta2-microglobulin and ribosomal protein L13a and baseline expression.

RESULTS: Combined culturing in 3D and severe hypoxia (1% oxygen) resulted in a significant increase in COL2A and AGC expression that was most pronounced at 6 days. ACTB expression decreased from one to six days in monolayer but increased 3D. Sox9 expression increased significantly in hypoxia, while no difference was observed between 3D and monolayer.

CONCLUSION: These new results suggest synergistic effects of 3D- and hypoxic culturing on cartilage-specific gene expression in human chondrocytes.

Prediction of wound healing complications in total ankle replacements using transcutaneous oxygen measurements

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INTRODUCTION: Postoperative skin necrosis in total ankle replacement is a matter of concern because of the thin soft tissue coverage at the front of the ankle joint. It has been noticed that especially the medial skin flap occasionally develops a necrosis.
MATERIAL AND METHODS: In order to study the possible prognostic value of measuring the oxygen tension adjacent to the incision, transcutaneous oxygen measurements (tcpO2) were performed on both sides of the incision in a distance of 2-3 cm using at TCM400 apparatus (Radiometer, Copenhagen). tcpO2 at the middle of both lower legs served as references. Twenty-five ankle replacements were included. All the patients were non-smokers with normal foot pulses. tcpO2 measurement were made on the third or fourth postoperative day.
RESULTS: Eleven ankles developed a small necrosis (less than 0.5 cm in width) and one ankle a larger one (2 cm in width). They were all treated non-operatively with prolonged casting, dry wound care, and antibiotics. All healed eventless. The average tcpO2 of the medial skin flap was 23 mmHg in the group who developed a necrosis compared to 34 mmHg in the group without necrosis ($p<0.05$). No significant difference was found between the two groups as regards the lateral skin flap. In the group who developed a necrosis, the tcpO2 at the reference point on the lower leg (37 mmHg) was significantly smaller than the tcpO2 of the non-operated leg (51 mmHg) ($p<0.05$).
CONCLUSION: tcpO2 lower than 40-45 mmHg of the medial skin flap was superior to the other measuring sites in order to identify ankles at risk of developing skin necrosis.

188 STAR total ankle replacements with a 1-11 years follow-up

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INTRODUCTION: The purpose of the study was to analyze the outcome of STAR total ankle replacements performed in the University Hospital of Aarhus between 1998 and 2008.
MATERIAL AND METHODS: 188 consecutive total ankle replacements have been followed prospectively up to 11 years with a minimum follow-up of one year. The diagnoses were primary or posttraumatic ostoarthrosis in 109 cases, rheumatoid arthritis in 71 cases and haemophilia arthropathy in 8 cases. Supplementary operations were performed as a one stage procedure in 71 cases or as a two stage procedure in 30 cases in order to achieve a stable ankle and a plantigrade foot. This included 68 hindfoot arthrodeses, 12 calcaneal osteotomies, 2 midttarsal arthrodeses, 4 first metatarsal osteotomies, 1 supramalleolar ostotomy, 18 Achilles tendon lengthenings and 5 ligament reconstructions.
RESULTS: The 5 years cumulative estimated prosthesis survival rate was 93%, and the 10 years cumulative survival rate 92%. The cumulative 5 years survival rate was lower in the rheumatoid arthritis group (88%) compared with the non-rheumatoid arthritis group (94%). Most failures occurred during the 1st postoperative year due to complications; primary infection in 4 cases, secondary septic infection in 2 cases, wound necrosis in 3 cases, primary mechanical instability in 2 cases and due to a fracture in 1 case. Revision due to late aseptic loosening has been performed in 3 cases 5, 7 and 11 years postoperatively. Nine of total 15 revised prostheses have been converted to an arthrodesis, and 6 to a new prosthesis.
CONCLUSION: STAR total ankle replacements are technically challenging with a significant number of early failures. The intermediate term results are promising.

Functional results of ankle arthrodesis, compared to STAR ankle arthroplasty

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INTRODUCTION: The aim of this study was to evaluate and compare the results of ankle arthrodesis, and the STAR ankle arthroplasty, in ankle osteoarthritis
MATERIAL AND METHODS: In this prospective study, the clinical outcome of 44 ankle arthrodesis (AA) and 100 STAR total ankle arthroplasties (TAR) was evaluated using the VAS score system and a modified AOFAS hind foot scoring system, where the maximal possible score was 78 point. Patients with rheumatic arthritis, and patients who had revised prosthesis or non union, were excluded from the study. We evaluated the following parameters: pain, limp, walking ability on different surfaces, Walking distance, and limitations in the ability to manage daily life activities. The arthrodesis was performed as an arthroscopic or an open surgery procedure with screw fixation.
RESULTS: The total AOFAS score for the AA group was preoperatively 33.5 and changed to 51.5 postoperatively. The total AOFAS score for the TAR group was preoperatively 28 and changed to 53. The pain VAS score in the AA group was preoperatively 7 and changed to 2 postoperatively. In the TAR group it was preoperatively 7.5 and changed to 2 postoperatively. The function VAS score was preoperatively 7 and changed to 2.5 postoperatively in both groups.
CONCLUSION: This study showed only minor differences in the outcome as regard, pain relief and improvement of function between technically successfully total ankle replacements and ankle arthrodesis.

Mechanical stability of ACL reconstruction in an experimental porcine model

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INTRODUCTION: ACL reconstruction is traditionally performed using Single Bundle technique with grafts/drill holes in femur of 8-9mm in diameter. Anatomical double-bundle ACL reconstruction is gaining popularity, and this technique uses two grafts/drill holes in femur and tibia of smaller diameters. The biomechanical properties of tendon fixation in smaller diameter drill holes is therefore of importance. The aim of this study is to compare biomechanical properties of fixation devices used for ACL reconstruction on the femoral side in two diameters (6 and 9mm) using a porcine in vitro model.
MATERIAL AND METHODS: ACL reconstructions were performed using two different fixation techniques in porcine femora:Endobutton CL (EB) and Hexalon interference screw (IS).Ten specimens were tested for every diameter (6 and 9mm) and technique. The specimens were tested for 1000 cycles between 50 and 250N on an MTS testing machine and subsequently tested to failure. Following parameters were determined; displacements at 50, 100, 500 and 1000 cycles, the stiffness over the first 0.5mm of the failure test, the force to failure, displacement to failure and the energy to failure.
RESULTS: No significant differences were found between the displacements of the various groups during cyclic testing. The stiffness of the IS-9mm group (364N/mm) was found to be significantly higher than the EB-9mm (266N/mm) and IS-6mm (289N/mm) groups. All groups displayed a significantly different load to failure, which could be ranked in the following order: EB-9mm (947N), IS-9mm (708N), EB-6mm (569N), IS-6mm (433N).
CONCLUSION: Fixation of the 9mm graft is superior to fixation of the 6mm graft concerning maximum load to failure.The IS offered a better stiffness of the femur/graft complex than the EB. There were no difference between EB and IS concerning elongation.

Arthroscopic deepening trochleoplasty - A technical note

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INTRODUCTION: A dysplastic trochlea can be the main factor in recurrent patellofemoral instability and trochleoplasty has become a surgical solution in some of these cases. The open trochleoplasty is performed by an arthrotomy leading to a long scar and normally a hospital stay for 3 – 5 days is needed in order to control the postoperative pain. Afterwards several month of rehabilitation is needed. In order to reduce the side effect of the open surgery, we have developed an arthroscopic technique to do a deepening trochleoplasty.
MATERIAL AND METHODS: By the use of cadavers we have developed and trained the technique before it was applied to patients. A standard arthroscopy is done and suprapatellar portals are placed. Through these, and by use of first a radio frequent device and by shaver burr, the cartilage flake is released. Beneath the flake a deeper and more lateralized trochlea is formed. The cartilage flake is then re-fixated using Vicryl tapes and anchors. To achieve stability in extension, the procedure was combined with re-insertion or reconstruction of the medial patellofemoral ligament.
RESULTS: 8 patients, median age 17 (range 13 – 34), two males, six women troubled by recurrent patella dislocations and trochlea dysplasia grade B to D, were operated using the new technique in 9 knees. All patients left the hospital the day after the operation. Median 100 mmVAS scores: after 24 hours; 29 (range 4 – 69), after 14 days; 4 (range 1 – 21), after 2 month; 2 (range 0 – 11). Three month postoperatively a negative patella apprehension test was achieved.
CONCLUSION: We have demonstrated that the arthroscopic trochleoplasty is possible. The operation seems to be less painful compared to the open method. However the technique is difficult and a long learning curve is expected.

TMC prosthetic implants can be evaluated by RSA

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INTRODUCTION: Both marker-based Roentgen stereophotogrammetric analysis (RSA) and model-based RSA have been helpful evaluation tools in hip and knee prosthesis, and the purpose of this study was to test whether both model-based and marker-based RSA may be used on a smaller implant scale, namely in the evaluation of total joint prosthesis of the trapeziometacarpal (TMC) joint.
MATERIAL AND METHODS: In a phantom study, the precision of marker-based RSA was tested with a cemented polyethylene cup and compared with the precision of model-based RSA in an uncemented Elektra screw cup. The precision of model-based RSA of the metacarpal stem was tested using an uncemented Elektra metacarpal stem. In a clinical study, a total of 11 patients (10 females and 1 male) with 11 uncemented Elektra stems, 6 uncemented Elektra screw cups, and 5 cemented cups had double stereo radiographs followed by RSA analysis.
RESULTS: The precision of translation in both marker-based and model-based RSA was less precise in the clinical setup compared to the experimental setup. The precision of the model-based RSA approach with the Elektra HA cup is high for translations, but approximately three times less precise than marker-based RSA in large implants. Overall the precision was sufficient for clinical use, but analysis of rotation cannot be estimated with sufficient precision.
CONCLUSION: The results from this study may be transferred to similar designs of TMC implants, and may form the basis for realistic power calculations in future clinical studies aimed at improving the long-term results of TMC joint total prostheses.

Interpositional resurfacing intraarticular composite cross-linked UHMWPE implant in patients with moderate hip osteoarthritits – a pilot study

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INTRODUCTION: An interpositional polymere intraarticular hip joint spacer was developed to improve pain and motion in hip joints in patients with moderate osteoarthritis of the hip joint. The composite implant cups were produced form a sandwich lay-up of two layers of DSM DyneemaPurityR long-chained polyethylene fibre fabric placed on each side of a low density polyethylene (LDPE), hence the low stiffness of the implant. The tested cups were tested according to regulatory EC-standards respecting toxicity, mutagenicity, allergy as well as strength and fatigue.
MATERIAL AND METHODS: Three patients were involved in the pilot study, autumn 2005. All gave informed consent, and the study was approved by the ethical committe. All patients were insured for the pilot study and received compensation. Three patients were offered the new implant.
RESULTS: The primary surgical outcome was clinically outstanding regarding mobility and pain relief. The first patient developed deep infection within one month and the implant was extracted and was shown to be severely delaminated along the line of the acetabular limb. The pilot study was stopped, and the two other patients were later reoperated within 3 months due to relapsing pain and impingement of the PE-cup implant. Same wear pattern was documented.
CONCLUSION: The material properties of the implants did not withstand the loads in an osteoarthritic hip joint. The primary positive clinical outcome only lasted a very few months. Other materials and a modified design may in theory overcome some of these severely failed clinical observations.

Material Properties of the Bovine Meniscus

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INTRODUCTION: Data concerning the tensile properties of the meniscus show large deviations, and measurements concerning the viscoelastic properties are scarce. The aim of this study was therefore to characterize the material properties of bovine meniscus using three general mechanical tests: a tensile to failure test, a cyclic load/unload test, and a stress relaxation test.
MATERIAL AND METHODS: The tensile to failure and the load/unload tests were done at two different ramp speeds to test for strain rate dependencies. Bovine menisci from young animals were delivered frozen attached to the tibial plateau, and specimens were tested within a time span of one month. The specimens were sorted and tested with respect to location (anterior, central, and posterior), depth (surface,middle or deep) and fibre orientation (circumferential and radial). All tests were performed on standard Instron test maschines.
RESULTS: It was found that the strain rate had no significant influence on the tensile material properties. The mean elastic modulus for the circumferential specimens at the low and high ramp speed was 192±55MPa and 271±110MPa respectively. As expected the viscoelastic properties however were greatly affected by the strain rate, and a considerable permanent strain was seen at the cyclic load unload testing at the low ramp speed. At the high ramp speed the effect was much less pronounced.
CONCLUSION: This study concludes that the strain rate should be taken into account, when testing the material properties of the menisci. This means that it is important to do the mechanical testing at a ramp speed that corresponds to for example walking. By doing this, the measured material properties correspond most accurately to the actual loading condition that the menisci are subjected to.

Highly focused ultrasound: Mild hyperthermia in bone tissue

Claus Tvedesøe, Steffen Hokland, Michael Bendtsen, Hans Stødkilde-Jørgensen, Cody Bünger
Department of Ortopaedic surgery, Aarhus University Hospital. MR Research Centre, Skejby Hospital.

INTRODUCTION: In many cancer patients, multi-drug resistent bone metastasies appears in the late stages of cancer. Chemotherapy can be limited in reaching it's therapeutic site and causes systemic side effects limiting the dose given. Heat activated anti-cancer drug carriers represents a way of acheiving a more localized delivery of anti-cancer agents reducing systemic sideeffects of conventional chemo therapy. Mild (41.5°C) local hyperthermia will not cause damage to tissue when treatment period is below one hour. Highly focused ultrasound is a safe and non-invasive way of inducing mild hyperthermia.
MATERIAL AND METHODS: We performed controlled heating to 41,5°C in the femur of New Zealand White Rabbit thighs using a custom made highly focused ultrasound transducer submerged in a waterbath. The Rabbit thighs were placed in special holders on top of the waterbath, allowing for ultrasound to pass through the tissue. Three mm. drill holes were made in the femurs on the other side of where the ultrasound beam passed in and a temperature probe was inserted prior to heating.
RESULTS: Results showed the feasibility of producing a localized mild hyperthermia in the femoral bone.
CONCLUSION: This provides a useful model for testing heat activated drug carriers in animal tumor models.

Patientskema - Preliminary report of an online based self assessment quality control for knee and shoulder surgery

J Gramkow, K Bak, T Rohde, F. Odgaard, U. Jørgensen
Parkens Privathospital

INTRODUCTION: In order to provide the best treatment for patients with joint disorders, a number of patient-based quality assessment scores exists. The purpose of this presentation is to report our preliminary results of a new online system for evaluation of patients undergoing surgery for knee disorders, shoulder pain, and shoulder instability
MATERIAL AND METHODS: All data on patients registred at "Patientskema" with one year follow-up was evaluated. The Knee injury and Osteoarthritis Outcome Score (KOOS) score was used for knee patients, the Western Ontario Rotator Cuff Index (WORCI) for patients with shoulder pain, and the Western Ontario Shoulder Instability (WOSI) score for patients with shoulder instability. The patients score themselves from a pc in the waiting room after the preoperative examination. Codes for diagnosis and procedure are entered in the OR on the day of surgery (index date). One year postoperatively the patient recieves an e-mail with a link to the one year follow-up questionnaire.
RESULTS: The preliminary results of the first 100 patients with one-year follow up are presented. Pros and cons of this type of online quality control are discussed
CONCLUSION: I order to obtain subjective quality control, a subjective online patient-assessment system may be the future solution to guarantee optimal treatment.

Cementation of femoral component with proximal centralizer. Analysis of cement penetration in cancellous bone

Juozas Petruskevicius, Thomas Lind Hansen, Ramune Aleksyniene, Poul Torben Nielsen, Kjeld Søballe
Northern Orthopaedic Division, Aalborg Hospital1,
Department of Nuclear Medicine, Aalborg Hospital,
Department of Orthopaedics, University Hospital of Aarhus

INTRODUCTION: Previous studies have shown that higher intramedullary pressure yields deeper cement penetration into cancellous bone during cementation of the femoral stem. The use of a proximal stem centralizer may prevent cement-outflow during stem cementation and increase cement penetration into the bone, particularly in the metaphysical region of the femur.
MATERIAL AND METHODS: We used eight pairs of embalmed cadaveric femora for cementation of the femoral prostheses (Bi-Metric, Biomet) with or without proximal stem centralizer. The femora were prepared by a standard procedure, and the cementation was performed according to a 3rd generation cementing technique. CAT scans of the specimens were performed after the operation, and the proximal part of each femur was transversely sectioned into nine samples. Cement penetration and the thickness of the cement mantle were both measured at eight ROIs using a stereological technique.
RESULTS: Cement penetration in the proximal femur did not differ significantly between the groups (mean value of the difference between the groups was 121.85 μm; 95% CI, from -117 to 361; P=0.3, paired t-test). The same findings were observed for the thickness of the cement mantle. However, we found deeper penetration and a thicker cement mantle at medial and posterior regions compared with anterior ROIs in both groups (manova, P=0.06 for cement penetration, P=0.01 for cement mantle), but these changes were the same in both groups (manova, P=0.97)
CONCLUSION: In this setup using cadaveric femurs, we were not able to show significantly positive effects on either cement penetration or thickness of the cement mantle during cementation of femur prosthesis with a proximal centralizer. We could not confirm the same positive findings observed when a proximal centralizer was used with other designs of the femoral stem.

Eccentric hip adduction and abduction strength in elite soccer players and matched controls

Kristian Thorborg, Christian Couppé C, Jesper Petersen, Peter Magnusson, Per Hölmich
Ortopædkirurgisk afdeling, Amager Hospital

INTRODUCTION: Eccentric hip adduction and abduction strength plays an important role in the treatment and prevention of groin injuries in soccer players. Lower extremity strength deficits of less than 10% on the injured side, compared to the uninjured side has been suggested as the clinical milestone before returning to sport following injury. The purpose of the study was to examine whether a side-to-side eccentric hip adduction or abduction strength symmetry can be assumed in non-injured soccer players and matched controls

MATERIAL AND METHODS: Nine elite soccer players 19.4(1.5) years and nine recreational athletes 19.5(2.0) years matched for gender, height and weight were included. Eccentric hip adduction and abduction strength of the dominant and non-dominant leg was tested for all the participants using an eccentric break test with a hand-held dynamometer.

RESULTS: The dominant leg was 14% stronger than the non-dominant leg for hip adduction in the soccer players($p<0.05$). No other side-to-side strength differences existed in soccer players or controls. In soccer players, hip abduction strength was 17-30% greater than controls for the dominant($p<0.05$) and non-dominant leg($p<0.001$)

CONCLUSION: Eccentric hip adduction strength was greater in the dominant leg than in the non-dominant leg in soccer players, but not in matched controls. Eccentric hip abduction strength was greater in soccer players than matched controls, but soccer does not seem to induce a similar eccentric strength adaptation in the hip adductors.

Reconstruction of femoral and tibial bone defects in ipsilateral Gustilo type III C fractures

Ivan Viladsen, Kjeld Hougaard og Kjeld Andersen
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INTRODUCTION: Gustillo type 3C lesions are rare.The amputation rate is high. Limb salvation with leg lengthening procedures are normally not an option. We report on a case with a successful outcome.
MATERIAL AND METHODS: A 39 years old male cyclist sustained an ipsilateral open femoral and tibia fracture with laceration of the femoral artery.After preliminary external fixation and arterial fem-pop bypass he had a segmental bone loss of 10 cm´s of femur and 6 cm´s of tibia.The suggested initial treatment was high femoral amputation. The patient was admitted to our department 21 days after the accident. The initial goal was to avoid femoral amputation. It therefore was necessary to repair the femoral and below knee soft tissue injuries.
RESULTS: VAC treatment of the soft tissue injuries made it possible to cover the defects with split skin transplantation. Twenty five days after the accident closed femoral nailing was performed.The tibia defect was treated by Ilizarov traction technique.The proximal tibia was osteotomized and fixated intramedullay.By a combination of elongation at and traction at the fragments the tibia was elongated 6 cm´s.The femoral fracture healed uneventfully. The Tibia subsequently.
CONCLUSION: It is possible to obtain consolidation of segmental bony defects of femur up to 16 cm´s after intramedullary nailing alone or combined with secondary cancelous bone grafting.In the actual case intramedullary performed leg lengthening proved to be successful.

Effect of intensified home-based exercise after Total Hip Replacement - a clinical randomised controlled trial

Lone Ramer Mikkelsen, Finn Bjarke Christensen
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INTRODUCTION: Total Hip Replacement (THR) is a common procedure with around 8000 operations per year in Denmark. Although a successful procedure, previous research has shown deficits in muscle strength and physical function 1-2 years after THR. There is a lack of evidence concerning the most effective rehabilitation strategy in the early phase after THR.
MATERIAL AND METHODS: Forty-four patients who underwent THR surgery between Sep 2008 and Jan 2009 completed the study (96% follow-up). Participants were randomly assigned to an intervention group (IG) receiving 12 weeks of intensified training (e.g. rubber band resistance) or a control group (CG) receiving standard rehabilitation. Both groups were instructed in the exercises during their hospital stay and continued their training at home. The participants underwent 10 m walk test, one legged stance and hip abductor muscle strength test and fulfilled 3 questionnaires before surgery and again 4 and 12 weeks after. The questionnaires measured health related quality of life (EQ-5D), physical activity (PAS) as well as patient-evaluated function, stiffness and pain (WOMAC).
RESULTS: The participants performed the prescribed exercises 12 times per week (mean) in the CG and 10 times in the IG ($p=0.37$). There were no significant differences between the groups regarding the performance in the physical tests or the outcome questionnaires ($p>0.05$). The IG tended to be more satisfied with the exercises ($p=0.095$), and they considered them to be more adequately demanding ($p=0.02$) compared to the CG.
CONCLUSION: This study did not document an additional effect of the intensified exercise program compared with standard rehabilitation. However it was proven that THR patients tolerated intensified exercises without additional pain, with high compliance and with greater patient satisfaction.

Prevalence of Malformations of the Hip Joint and their relationship to Sex, Groin Pain and the Risk of Osteoarthritis

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INTRODUCTION: Although the clinical consequences of femoroacetabular impingement have been well described, little is known about the prevalence of the malformations associated with this condition in the general population, and the risk estimates for osteoarthritic (OA) development.
MATERIAL AND METHODS: The study material was derived from a cross sectional population based radiographic- and questionnaire database of 4,151 individuals from the Copenhagen Osteoarthritis Substudy cohort. Hips were categorized as being without radiographic malformations or having the abnormalities of acetabular dysplasia, deep acetabular socket, pistol grip deformity, and combined deep acetabular socket and pistol grip deformity. Hip OA was defined by a minimum joint space width £ 2 mm. Subjects completed a questionnaire about musculoskeletal pain.
RESULTS: The prevalence (male/female) of hip joint malformations in 4,151 individuals was: Acetabular dysplasia (4.3%/3.8%); Deep acetabular socket (15.2%/19.4%); Pistol grip deformity (19.5%/ 5.2 %) and combined deep acetabular socket and pistol grip deformity (2.9%/0.9%). We found no significant increased prevalence of groin pain in subjects with these hip joint malformations (all p>0.13). Deep acetabular socket was a significant risk factor for OA development (RR: 2.3-2.9). Pistol grip deformity was a significant risk factor for OA development in males (RR: 2.7), but not in females. In individuals with hip OA the total prevalence of concomitant malformations were 71.0 % in males and 36.6 % in females.
CONCLUSION: The increased risk of OA development in some hip joint malformations suggests that increased focus on early identification of malformations should be considered. Further, it seems that so called idiopathic hip OA has been overestimated.

No correlation between shortening and clinical result after midshaft fracture of the clavicle.

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Department of Orthopedic surgery, Aarhus University Hospital.
Department of Radiology, Aarhus University Hospital.

INTRODUCTION: There has been no evidence to suggest that displacement and shortening of the clavicle after fracture was associated with a poor clinical outcome or that operative treatment conferred any benefit compared to conservatively treatment. However an increasing number of studies have reported that displacement and shortening of the clavicle after fracture induces greater disability of the shoulder. The purpose of this study was to examine the association between shortening of the clavicle after a united midshaft fracture and clinical outcome.
MATERIAL AND METHODS: This study included 136 patients (107 men and 29 women) who had sustained a midshaft clavicle fracture and was conservatively treated. Mean age was 35 years (SD ±15.0), range 15-70 years. Mean follow-up time was 55 months (SD ±12.7), range 24 to 83 months. The shortening of the clavicle was measured on a radiograph including one anteroposterior view of both clavicles on a single film. The clinical outcome was measured using Constant-Murley score. The contralateral normal shoulder was used as control.
RESULTS: The mean difference in Constant-Murley score between the injured and the contralateral shoulder was 7.3, $P<0.001$ [95% CI 5.6; 9.1]. Mean shortening was 11.6 mm, $P<0.001$ [95% CI; 10.2; 13.0]. A shortening of 20 mm or more was not associated with a poorer clinical outcome. There was no correlation between shortening of the clavicle and the clinical outcome ($r =0.14$, $P > 0.05$).
CONCLUSION: We found that conservative treatment of midshaft clavicle fractures resulted in final shortening and mild reduction of shoulder function. A shortening of 20 mm or more was not significantly associated with a poorer clinical outcome and there was no correlation between shortening and clinical outcome.

Long term survival and performance of the uncemented PROFILE hip stem – A 15 – 18 years quasi-randomized prospective series

Wolf Drescher, Per B Thomsen, Kristian Larsen
Orthopaedic Clinic, Regional Hospital Holstebro, Hospital Unit West
and Orthopaedic Research Unit, Hospital Unit West

INTRODUCTION: The aim of this study is long term comparison of hydroxyapatite (HA) coating and porous (PO) coating in an identical stem design.

MATERIAL and METHODS: 100 consecutive hips scheduled for uncemented primary arthroplasty were quasi-randomized to receive a titanium-alloy anatomic PROFILE stem, HA coated in every second hip and PO coated in the remainder 50 hips. 15 – 18 years postoperatively these patients and their hip radiographs were examined by an independent observer (WD) to establish the long term survival, clinical and radiographical performance of this stem and especially to compare the two coatings.

RESULTS: 16 years and 3 months (range 15y 0m – 17y 8m) postoperatively 21 patients with 23 hips had died and 4 hips (2HA/2 PO) had been revised. This leaves 62 patients with 73 hips (34 HA /39 PO) for evaluation. Life tables showed 17 years cumulative survival (free of revision of any reason) of 95.8% for HA and 95.5% for PO. 17 years cumulative survival (free of revision for aseptic loosening) were 95.8% for HA and 97.5% for PO. There were no infections in either group. Mean HHS was 83.4 ± 14.8 in HA and 86.8 ± 11.5 in PO (P = 0.32). Mean pain score was 39.1 ± 9.4 in HA and 40.9 ± 6.7 in PO (P = 0.69). Radiographs showed osseo-integration of the stem except in 1 HA and in 2 Po stems. Lucencies/osteolytic scalloping were only seen in zone 1 and 7. Significant bone remodeling changes were seen. Ectopic ossification developed in 1/3 of hips none-progressive stem subsidence of 2 mm were measured in a few hips.

CONCLUSION: This prospective quasi-randomized study show excellent long term performance and survival of the titanium-alloy anatomic PROFILE stem in primary hip arthroplasty in patients <66 years with no decisive differences between HA and PO coating.

No reduction in opioid requirements or pain with repeated intraarticular application of local anaesthesia after osteosynthesis of femoral neck fracture

Rune Dueholm Bech, Jens Lauritsen, Ole Ovesen, Claus Emmeluth, Peter Lindholm, Søren Overgaard
Dept. Orthopaedic Surgery, Institute of Public Health-dept. biostatistics, Dept. Anaesthesiology. Odense University Hospital and University of Southern Denmark, Denmark

INTRODUCTION: Wound infiltration with local anaesthetics has been reported effective following hip and knee arthroplasty. We hypothesized that repeated installations of intraarticular ropivacaine in patients with femoral neck fracture would give pain relief without side effects and reduced opioid usage.
MATERIAL AND METHODS: 33 patients undergoing osteosynthesis with two Hook Pins were randomized into 2 groups in a double-blinded study. In group A (Active) 19 patients received 1 peroperative (30 ml=200 mg) and 6 postoperative (10 ml=100 mg) injections of ropivacaine through an intraarticular catheter which was removed after 48 hours. In group B (placebo) 14 patients were injected with the same volume of saline water. The need for standardized opioid rescue analgesia and pain measured on a 5 point scale were recorded during the intervention period.
RESULTS: No difference in use of rescue analgesia was found between the groups on day 1 and 2 (P=0.51 and P=0.34, Mann-Whitney). Testing for insufficient use of rescue analgesia by comparing the number of pain scores exceeding a defined limit of tolerable pain showed no difference between the groups on day 1 and 2 (P=0.31 and P=0.45). We found no significant difference between the groups' max. pain-score on day 1 (P=0.41). Although not significant, the max. pain-score was higher in group A on day 2 (P=0.051). There was no difference between the median pain score on day 1 (P=0,78) but on day 2 the median pain score was significantly higher in group A (P=0,03).
CONCLUSION: Repeated intraarticular application of ropivacaine provides no reduction in opioid requirements or pain after osteosynthesis of femoral neck fracture. This suggests that the technique has no clinically relevant analgesic effect in this category of patients.

Clinical outcome of 156 surviving STAR ankle replacements with a 1-11 years follow-up

Niels Chr. Jensen, Frank Linde, Kristian Kibak Nielsen og Claus Sundstrup
Foot and Ankle Section, Department of Orthopaedics,
University Hospital of Aarhus

INTRODUCTION: From 1998 to July 2008 we performed 188 STAR total ankle replacements (TAR). The purpose of this study is to present outcome evaluation on all surviving total ankle replacements with at least one year follow up.
MATERIAL AND METHODS: After omission of failures (15) and those which did not have a systematic one year follow up (17), 156 were available for clinical evaluation. All patients were prospectively evaluated with the AOFAS hind foot scoring system and radiographs. At follow up the patients were asked to state if they were improved or worsened with respect to pain and function. Average observation period 4 years for OA patients and 5 years for RA patients.
RESULTS: The median total score for 54 RA (11 bilateral) TAR´s were preoperatively 28 and postoperatively 75 and for 102 OA (6 bilateral) they were 49 and 78 respectively. Median pain score increased from 20 preoperatively to 30 postoperatively for OA TAR´s. For RA they increased from 0 to 30 points. Three OA patients stated that they were worsened with respect to pain and 4 stated that they wore worsened with respect to function, but all RA stated that they were improved with respect to both pain and function.
CONCLUSION: In the medium term the STAR total ankle replacements are promising with respect to clinical outcome. Especially RA patients improve both with respect to total OAFAS score and pain score.

Eccentric strength training is effective in preventing hamstring injuries in football: A cluster-randomised trial including 942 football players.

Jesper Petersen, Kristian Thorborg, Michael Bachmann Nielsen, Esben Budtz-Jørgensen, Per Hölmich
Department of Orthopaedic Surgery, Amager Hospital, University of Copenhagen, Denmark

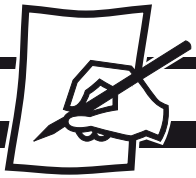
INTRODUCTION: Hamstring injury is the most common injury in football players. Eccentric strengthening of the hamstring muscles has been proposed as a method to prevent this injury. We investigated the effect of the Nordic hamstring exercise versus no additional hamstring exercise on the risk of hamstring injuries.
MATERIAL AND METHODS: A cluster-randomised trial including 50 Danish elite and sub-elite football teams was conducted. All teams were stratified according to playing level and geographically location and were cluster-randomised to an intervention (n=461) or control group (n=481). Players in the intervention group completed a 10-week training programme based on the Nordic hamstring exercise. All acute hamstring injuries were recorded in one full football season.
RESULTS: 15 acute hamstring injuries (3.3%) in the intervention group versus 52 acute hamstring injuries (10.8%) in the control group were registered corresponding to a rate ratio 3.26 (95% CI 1.52–7.00; p=0.002). Number needed to treat to prevent one injury is 13.2 players. Significantly fewer recurrent injuries occurred in the intervention group compared with the control group (rate ratio 7.28; 95% CI 1.96–27.0; p=0.003). Number needed to treat to prevent one recurrent injury is 3.2 players.
CONCLUSION: A 10-week training programme using the Nordic hamstring exercise significantly decreases the risk of acute hamstring injury in well-trained football players and is recommended for hamstring injury prevention.

Osseointegration of implants combining parathyroid hormone and bone graft

Henrik Daugaard, Brian Elmengaard, Anders Lamberg, Troels T. Andreassen, Jorgen Baas, Joan E. Bechtold, Kjeld Soballe
Orthopaedic Research Laboratory, Department of Orthopaedic Surgery, Aarhus University Hospital, Norrebrogade 44, Building 1A, DK-8000 Aarhus C, Institute of Anatomy, The Faculty of Health Sciences, Aarhus University, Wilhelm Meyers Allé, Build

INTRODUCTION: Hip and knee arthroplasty present surgeons with difficult bone loss. Impacted allografting is a way of initally securing implant stability. However subsequent bone integration can be prolonged. Intermittent administration of parathyroid hormone (PTH) is anabolic to bone. We test the hypothesis that systemic human PTH (1-34) improves early osseointegration of implants surrounded by impacted bone allograft.
MATERIAL AND METHODS: Following approval of Animal Care and use Committee a cylindrical (10x6 mm) porous coated implant was inserted in 20 canines in normal cancellous bone of the humeri. Implants were surrounded by a circumferential gap of 2.5 mm impacted with morselized allograft. Half of the animals were given daily injections of rhPTH (1-34) 5μg/kg for 4 weeks and the other half placebo. Groups were compared by stereological histomorphometry. Endpoints were bone-to-implant contact and tissue density in the gap (1500 μm). Two-sample Wilcoxon rank-sum test was applied, p-value < 0.05 considered statistically significant.
RESULTS: In the gap the tissue median (interquartile range) density was significant improved with new bone (PTH 21.1 (12.9-16.3), control 15.2 (13.9-16.2)). No significant differences were observed for old bone (PTH 8.4 (9.0-16.7), control 10.9 (7.9-12.4)). On the implant surface no significant differences were observed for new bone (PTH 11.5 (8.1-14.0), control 10.5 (7.2-14.8)) or old bone (PTH 1.5 (0.8-2.0), control 1.4 (0.8-1.7)).
CONCLUSION: PTH increases new bone formation with no significant differences in allograft and in bone-implant contact. These findings suggest that PTH (1-34) improves the bone formation initially in impacted morselized allograft around an implant and retains the graft volume without resorbing it significantly.

LEDER



Sekretariatsleder

Med ovenstående titel har Bestyrelsen per 1. oktober 2009 ansat Gitte Eggers. Bestyrelsen har igennem det sidste år arbejdet med en fremadrettet justering af hele sekretariatsfunktionen, inklusive kommende arbejdsopgaver for de enkelte bestyrelsesmedlemmer. Samtidigt er der iværksat en modernisering af bestyrelsens aktiviteter, justering af foreningens love samt ikke mindst implementering af en ny strategiplan.

Bestyrelsen har længe været bevist om, at vi ikke på sigt fortsat kan trække på Annette van Hauen som foreningens sekretær. Annette er gået på pension fra sine ansættelser i såvel Acta Orthopaedica som indenfor det offentlige sygehusvæsen. Bestyrelsen har derfor beskrevet, hvad der forventes af et kommende sekretariat, og i den proces har vi "opfundet" titlen Sekretariatsleder. I en sådan person ser Bestyrelsen en leder der, som sekretær, trækker de store linier i alle aktiviteterne omkring hver enkelt bestyrelsesperson. Vi har derfor udfærdiget en funktionsbeskrivelse for en sekretariatsleder, som har været i "høring" rundt i landet. Efterfølgende har vi haft to meget kvalificerede ansøgere til samtale, og det var en enig bestyrelse som herefter pegede på Gitte Eggers som DOS's første Sekretariatsleder.

Den nye sekretariatsleder skal også fungere som medlemmernes kontaktperson og serviceperson i forbindelse med en del af selskabets aktiviteter. Vi har ligeledes lagt afgørende vægt på, at der ved ansættelsen af en sekretariatsleder skal ske en betydende reduktion af den tiltagende

mængde bestyrelsesarbejde hos de enkelte medlemmer, således at vi på bedste vis fremadrettet kan varetage medlemmernes interesser.

Gitte Eggers er en meget rutineret sekretær, som igennem 13 år har været sekretær på KAS Gentofte i ortopædkirurgisk afdeling. Efterfølgende har Gitte været sekretær først i Medicinalindustrien siden hen for 2 private virksomheder for i en periode at hellige sig aktiviteter i egen virksomhed. Gitte har på ny ønsket at få tilknytning til det ortopædkirurgiske speciale, og vi er derfor meget glade for at kunne ansætte Gitte som sekretariatsleder for DOS.

Der vil være en glidende overgang, hvor Annette van Hauen og Gitte Eggers i fællesskab varetager dele af foreningens aktiviteter. Dog er det meningen, at Annette uforandret skal stå for Årsmødet 2009 – med Gitte på "sidelinien" – medens mødet i 2010 bliver med "omvendt fortegn".

Vi er i DOS's bestyrelse taknemmelige over at have haft Annette van Hauen, vores Æresmedlem, som en "rød tråd" for en række bestyrelser igennem mange år. Vi ved, at det vil gøre ondt hos mange af os – ikke mindst Annette – når dagen kommer, hvor der ikke længere er forpligtelser, men som Æresmedlem er vi dog sikre på, at Annette i fremtiden vil holde et skarpt øje med om "der er orden i tingene".

På vegne af Bestyrelsen

Per Kjærsgaard-Andersen
Formand

Traumeselskabet indbyder til generalforsamling og minisymposium

Torsdag den 22. oktober 2009

Programmet ser ud som følger:

Kl. 9-10 : Generalforsamling med dagsorden ifølge vedtægterne
Kaffe

Kl. 10-12 Minisymposium:
Behandling af proksimale og distale metafysære/intraartikulære tibiafrakturer med skinne eller ekstern fixation

1. Evidens for skinne eller ekstern fiksation v. Klaus Kjær Petersen, Århus
2. Intern fiksation v. Morten Schultz Larsen, Odense
3. Ekstern fiksation v. Søren Kold, Aalborg
4. Diskussion v. Michael Brix, Odense.

På bestyrelsens vegne ønskes alle velkommen.
Til generalforsamlingen, er det dog kun medlemmer, der har stemmeret.

Annette Sylvest

Efterårsmøde i Dansk Selskab for Håndkirurgi

Torsdag 22. oktober 2009 kl. 9:00 - 12:00
Radisson SAS Scandinavia Hotel, København.

Foreløbigt program:

- Fokus på distale radius frakturer.
- Frie foredrag.
- Endeligt program vil blive annonceret på Dansk Selskab for Håndkirurgis hjemmeside (www.haandkirurgi.com)
- Abstracts til frie foredrag bedes fremsendt til formanden Niels Søe Nielsen (mail: nsn@dadlnet.dk) senest 16.10.2009.

På bestyrelsens vegne
Pernille Leicht

I forbindelse med DOS-mødet 21. - 23. oktober afholdes

Møde i DFAS

Torsdag den 22. oktober 2009

Kl. 9.30 - 11.00	Fagligt møde: osteokondrale talus læsioner; behandling med særlig fokus på kondrocyt dyrkning og transplantation.
Kl. 11.00 - 11.15	Kaffe
Kl. 11.15 - 12.00	Ordinær generalforsamling iht. vedtægterne

Program DSHK møde torsdag 22. oktober 2009

Radisson SAS Scandinavia Hotel,
Amager Boulevard 70, København S

9.30 – 11.00	Symposium: Medial knæartrose: *Arrangør Per Wagner*
11.00 – 11.35	Rapport Dansk Hoftealloplastik Register: *Søren Overgaard*
11.40 – 12.15	Rapport Dansk Knæalloplastik Register: *Anders Odgaard*

Søren Overgaard
/formand DSHK

Generalforsamling i Dansk Selskab for Håndkirurgi

Onsdag 21. oktober 2009 kl. 19:00
Sted: Rigshospitalet, auditoriet 2161/2162 (opgang 2, 16. etage)

Dagsorden:

1. Valg af dirigent.

2. Fremlæggelse og godkendelse af bestyrelsens beretning.

3. Fremlæggelse og godkendelse af revideret regnskab.

4. Vedtagelse af kontingent for 2010.

5. Optagelse af nye medlemmer.

6. Valg af bestyrelsesmedlemmer.

7. Valg af revisorer.

8. Indkomne forslag.

9. Eventuelt.

Forslag der ønskes behandlet på generalforsamlingen bedes sendt til formanden Niels Søe Nielsen (mail: nsn@dadlnet.dk) senest 16.10.2009.

Efter generalforsamlingen arrangeres spisning (for egen regning) på Restaurant Told og Snaps, Toldbodgade 2, 1253 København K.

Tilmelding til Pernille Leicht (mail: p.leicht@dadlnet.dk) senest 16.10.2009.

Pernille Leicht

Fast-track hofte- og knæalloplastik – hvad er udfordringerne

5. november 2009, kl. 10.00 – 16.00
Auditorium 1, Rigshospitalet

1. Baggrund	*H Kehlet (RH)*	5 min
2. Smertebehandling		
	Status for sårinfiltration/infusion *Lasse Andersen (Hvidovre)*	20 min
	Fremtidige projekter *Troels Haxholdt Lunn (Hvidovre)*	20 min
3. Tromboembolisk profylakse		
	Hvad er problemet i fast-track regi? *Henrik Husted (Hvidovre)*	15 min
	Studiestrategi *Michael Kjær Jakobsen (Århus)*	15 min
Kaffe		20 min
4. Fysioterapi		
	Status i DK og tidlig rehabiliteringsproblematik *Bente Holm (Hvidovre)*	15 min
	Studiestrategi *Kristian Larsen (Holstebro)*	20 min
Frokost		45 min

5. Transfusionsstrategi

For og imod transfusion *Pär Johansson (RH)*	10 min
Studiestrategi *Øivind Jans (Hvidovre)*	15 min

6. Kognitiv dysfunktion

Baggrund *Lars Rasmussen (RH)*	10 min
Studiestrategi *Lene Krenk (RH)*	15 min

Kaffe	30 min

7. Sikkerhedsproblematik

Bilateral THA/TKA, dislokationsrisiko? *Henrik Husted (Hvidovre)*	10 min
Fast-track infektions-THA, *Jeppe Lange (Århus)*	10 min
Remote patientkontrol *Martin Vesterby (Silkeborg)*	10 min

8. Afrunding	*Kjeld Søballe*	5 min

Dagen er baseret på etablering af The Lundbeck Centre for Fast-track Hip and Knee Arthroplasty – en bevilling fra Lundbeckfonden på 35 mio. omkring ovenstående emner – og hvor symposiet lægger op til multicentersamarbejde omkring delproblematikkerne.

Håndkirurgisk dissektionskursus

Mandag d. 14. og tirsdag d. 15. december 2009

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

Kurset afholdes for 14. 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.

Kursusledere: Overlæge Niels Søe, Lektor dr. med. Finn Bojsen-Møller, Professor dr. med. Lars Dahlin og Operations- og forskningssygeplejerske Nina Vendel (sekretariat).

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. Mandag aften middag.
Råder man over lup-briller til finere dissektionsarbejde, vil det være en fordel at medtage disse.

Kursusform: Teoretisk + præparat/ hånd, underarm og albue.

Kursuspladser: 16-18 deltager fra Danmark og Sverige.

Akkreditering: 12 CME-point

Kursusafgift: 3975,00 d.kr.

Tilmelding: Via hjemmeside: www.handdissection.dk

Dette års kursus er på nuværende tidspunkt overtegnet. Der er mulighed for at blive noteret på venteliste.

Med venlig hilsen

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Erasmus MC VitalMed

The 6th European course on rehabilitation of the hand will take place in Hotel La Blanche (*****) in Bodrum, Turkey from 11 to 15 October 2009.
Among the lecturers are the well known "hand-group" of the Erasmus University in Rotterdam, the Netherlands, and other lecturers such as A. Gülgönen, G. Gürsu, J.J. Dias, T. Duruöz and G. Yavuzer.

Besides specialists in Physical Medicine and Rehabilitation the course is of interest to physiotherapists, occupational therapists, orthopaedists, orthopaedic and hand surgeons, and other health care professionals interested in the topic of hand rehabilitation.

The registration fee for this 5-day course (including 1 day sailing on a wooden Bodrum Gulet) is Euro 490/590/650, Assistant 250/350/400 incl. VAT. In La Blanche***** Congress Hotel rooms may be reserved from Euro 60 all inclusive. Early registration date is extended until 15th of August due to holidays in Europe.

To get to Bodrum you may either choose to use the national carrier Turkish Airlines, flying daily from Istanbul to Bodrum, or to use charter flights, from most European airports either directly to Bodrum, or to Izmir or Dalaman. The transfer price from Bodrum/Milas airport is Euro 80 for a return trip; prices for transfers from other airports are on request.

Further details such as the program, the registration and hotel reservation form can be found on our website www.vitalmedbodrum.com. For any questions do not hesitate to contact us at vitalmed@vitalmedbodrum.com or h.j.stam@erasmusmc.nl

Yours sincerely,
HM Buyruk MD., PhD
ErasmusMC & VitalMed Rehabilitation Services

Össur Kurs - Ortosbehandling - ett alternativ till knäledskirurgi vid gonartros?

Kurs
Ortosbehandling – ett alternative till knäledskirurgi vid gonartros?
En del av Össurs serier av kurser för verksamma inom ortopedi/rehabilitering.

Plats: Uppsala Universitet, Universitetshuset – sal X

Tid: 12 november 2009 Kl. 09.00-17.00

Språk: Föreläsningarna hålls på svenska och engelska

Föreläsare
Sören Toksvig Larsen, Öl, docent, specialist i ortopedi, knäledskirurgi
Behandlingsalternativ för yngre patienter med gonartros, höga tibia osteotomier och ortosbehandling

Sebastian Concaro, leg. Läkare, doktorand, Sahlgrenska Akademin, Universitetet i Göteborg samt Ortopedklin., Varberg.
Broskrekonstruktion/Tissue Engineering

Karen Briggs, Research Director, Steadman Hawkins Research foundation, Vail, Colorado Patient Evaluation of Unloader One ® Knee Brace, A Prospective Cohort Study, PRELIMINARY RESULTS

Søren B. Johansson, Ortopedingenjör- Team ortopedteknik, Jönköping
5 års funktionsutvärdering på behandling med valgiserande ortoser

Kjell G Nilsson, Öl, Prof., Inst. för kirurgisk och perioperativ vetenskap, Enheten för Ortopedi, Norrlands Univ. Sjukhus, Umeå Knä OA. Utvärdering av behandling av patientkohort med skoinlägg och knäortos
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