



Monza, 23-24 Novembre 2017

VENERDÌ 24 NOVEMBRE 2017

SALA A

08.00

INSTRUCTIONAL COURSE PER SPECIALIZZANDI TIPS AND TRICKS NELLA PTA DI PRIMO IMPIANTO

09.00

Moderatori: **Federico Grassi** (Novara), **Enrico Vaienti** (Parma)

COME INQUADRARE PAZIENTE E PATOLOGIA

Emilio Romanini (Roma)

COME ESEGUIRE IL PLANNING PREOPERATORIO

Luca Pierannunzii (Milano)

COME IMPIANTARE IL COTILE

Antonio Campacci (Verona)

COME IMPIANTARE LO STELO

Marco Villano (Firenze)





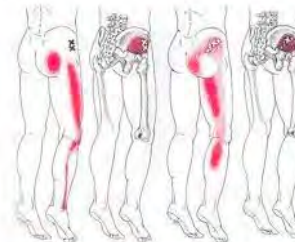
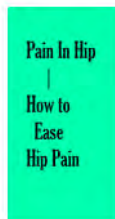
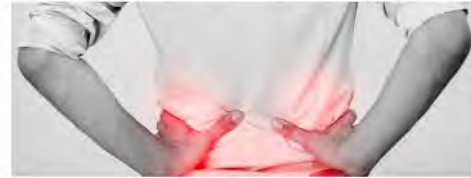
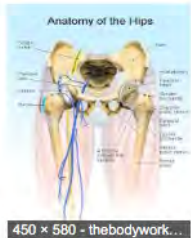
- Privato accreditato (CdC *San Feliciano, Roma*)
- Comitato Scientifico SIdA
- Comitato Scientifico RIAP
- *Consulente DePuy*



- Inquadrare il problema
- Diagnosi differenziale
- Diagnostica per immagini
- Indicazione all'artroprotesi primaria
- Fattori prognostici P/N

SUMMARY





EXTENDED REPORT

Defining hip pain for population studies

F Birrell, M Lunt, G J Macfarlane, A J Silman

Ann Rheum Dis 2005;64:95-98. doi: 10.1136/ard.2003.018788

The use of the **combined approach** for defining pain in the hip region is associated with stronger associations with the key constructs of hip disease.



Anamnesi

- Esordio, evoluzione, durata dei sintomi
- Sede e caratteristiche del dolore
(inguine 84%, gluteo 76%, coscia ant 59%, coscia post 43%, ginocchio 69%)
- Variazione della sintomatologia a riposo e con l'attività
- ADL: mettere le scarpe, entrare/uscire dalla macchina
- C-sign test



Differentiating Hip Pathology From Lumbar Spine Pathology: Key Points of Evaluation and Management

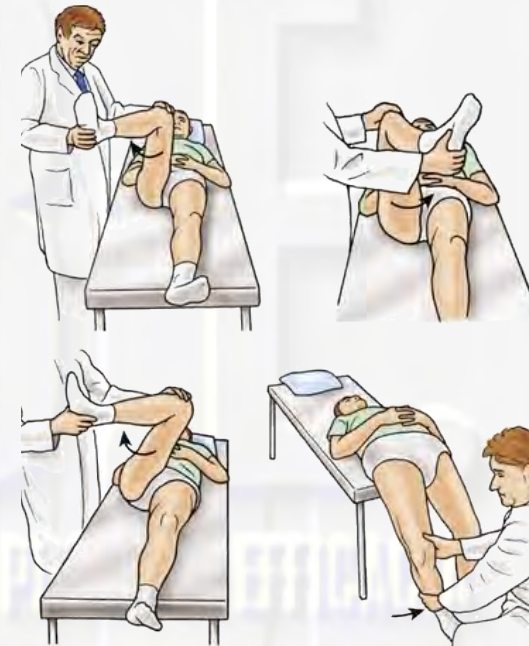
Differential Diagnoses for Hip, Spine, and Other Pathologies That May Mimic One Another

Intra-articular Hip Pathologies	Extra-articular Hip Pathologies	Spinal Pathologies	Other Pathologies
Hip osteoarthritis	Stress fracture	Lumbar stenosis with or without spondylolisthesis	Sacroiliac joint pathology
Septic arthritis	Greater trochanteric bursitis	Lumbar disk herniation	Sciatic nerve tumor
Stress fracture	Iliotibial band tendinitis	Foraminal stenosis	Intrapelvic tumors
Osteonecrosis	Gluteus medius or gluteus minimus tear	Facet cyst	Insufficiency fracture of the sacrum
Failed total hip arthroplasty	Iliopsoas tendinitis	Nerve-root sheath tumor	Peripheral vascular diseases (including Leriche syndrome)
Labral tear	Coxa saltans (internal or external snapping hip)	Spondylolysis and isthmic spondylolisthesis	Osteitis pubis
Femoroacetabular impingement	Piriformis syndrome	Iatrogenic causes (ie, misplaced pedicle screw)	Paget disease
Loose bodies (synovial chondromatosis, pigmented villonodular synovitis, osteochondritis dissecans)	Subgluteal space syndromes (deep gluteal, hamstring pathology, pudendal nerve, and ischiofemoral impingement)	Sagittal spinal malalignment	Peripheral neuropathy
Chondral damage	Adductor strain	Psoas pathology (abscess, hematoma, malpositioned hardware, transpsoas approach)	Shingles
Capsular laxity	—	—	Meralgia paresthetica
Ligamentum teres rupture	—	—	Sports hernia

Differentiating Hip Pathology From Lumbar Spine Pathology: Key Points of Evaluation and Management

Common Provocative Tests for Hip and Lumbar Spine Pathologies

Provocative Test	Description	Common Pathologies
Straight leg raise test	The examined leg is raised with the knee extended.	Lumbar radiculopathy (lower lumbar nerves), with pain elicited from 30° to 60°
Contralateral straight leg raise test	The contralateral leg is raised with the knee extended.	Lumbar radiculopathy (lower lumbar nerves), with pain elicited in the other leg from 30° to 60°
Femoral nerve stretch test	With the patient in the supine position, the hip is extended and the knee is flexed.	Lumbar radiculopathy (upper lumbar nerves)
Thomas test	In the supine position, the patient grabs one knee and flexes it to the chest. The test is positive if the examined leg does not extend fully.	Hip flexion contracture of the examined leg
Ober test	With the patient lying on the unaffected side and the knee flexed to 90°, the symptomatic hip is brought from abduction to adduction.	Iliotibial band tightness
Anterior impingement test (FADIR test)	Hip flexion to 90°, with forced internal rotation and adduction	FAI, labral tear, or piriformis syndrome with groin pain
Posterior impingement test (FABER test)	Hip flexion, abduction, and external rotation	Sacroiliac joint dysfunction with buttock pain Intra-articular hip pathology (FAI) with anterior and lateral pain
Seated piriformis stretch test	With the patient in a seated position, flexion and adduction with the internal rotation test	A positive test, which recreates posterior pain at the level of the piriformis or external rotators, indicates possible sciatic nerve entrapment.
Active piriformis contraction test	The patient pushes the heel down into the table, abducting and externally rotating against resistance as the examiner monitors the piriformis.	Pain and weakness may indicate sciatic nerve entrapment.
Trendelenburg test	With the patient standing on one leg, the opposite hemipelvis drops.	Weakness of gluteus medius on the standing leg



Hip–Spine Syndrome

C. M. OFFIERSKI, MD, and I. MACNAB, M.B., Ch.B.



Simple, complex, secondary, misdiagnosed

Simple: the primary source of symptoms is clear despite coexistent hip and lumbar spine pathologies.

Complex: no clear source of symptoms is known despite a detailed physical examination.

Secondary : both pathologies are interdependent, and the symptoms of one region are secondary to the pathology of the other.

Misdiagnosed: the primary source of pain is incorrectly diagnosed, which results in inappropriate, expensive treatment.

Posterior, Lateral, and Anterior Hip Pain Due to Musculoskeletal Origin: A Narrative Literature Review of History, Physical Examination, and Diagnostic Imaging

Patrick J. Battaglia, DC,^a Kevin D'Angelo, DC,^b and Norman W. Kettner, DC, DACBR^a

The **diagnosis** of hip conditions may be **challenging** for clinicians. Although the history and physical examination are useful, the results are often **equivocal**.

Diagnostic imaging is used routinely to achieve a differential diagnosis and thus increase the **specificity**, advance a **diagnosis**, and aid in the development of a **prognosis**.

**American College of Radiology
ACR Appropriateness Criteria®
Chronic Hip Pain**

Variant 1: Chronic hip pain. First test.

Radiologic Procedure	Rating	Comments	RRL*
X-ray pelvis	9	X-ray pelvis and x-ray hip are complementary.	☼☼
X-ray hip	9	X-ray pelvis and x-ray hip are complementary.	☼☼☼
MRI hip without IV contrast	1		○
MRI hip without and with IV contrast	1		○
US hip	1		○
CT hip without IV contrast	1		☼☼☼
CT hip with IV contrast	1		☼☼☼
CT hip without and with IV contrast	1		☼☼☼
CT arthrography hip	1		☼☼☼
MR arthrography hip	1		○
Tc-99m bone scan hip	1		☼☼☼
F-18 fluoride PET hip	1		☼☼☼
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	1		Varies

Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative
Radiation Level

DX



Association of hip pain with radiographic evidence of hip osteoarthritis: diagnostic test study

Chan Kim,^{1,2} Michael C Nevitt,³ Jingbo Niu,¹ Mary M Clancy,¹ Nancy E Lane,⁴ Thomas M Link,⁵ Steven Vlad,⁶ Irina Tolstykh,³ Pia M. Jungmann,⁷ David T Felson,^{1,8} Ali Guermazi⁹

Framingham Osteoarthritis Study Osteoarthritis Initiative

WHAT THIS STUDY ADDS

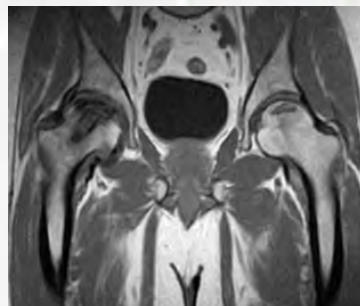
Hip pain was not present in many hips with radiographic osteoarthritis, and many hips with pain did not show radiographic hip osteoarthritis. Most older participants with a high suspicion for clinical hip osteoarthritis (groin or anterior pain and/or painful internal rotation) did not have radiographic hip osteoarthritis, suggesting that in many cases, hip osteoarthritis might be missed if diagnosticians relied solely on hip radiographs.



Evaluation of the Patient with Hip Pain

JOHN J. WILSON, MD, MS, and MASARU FURUKAWA, MD, MS, *University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin*

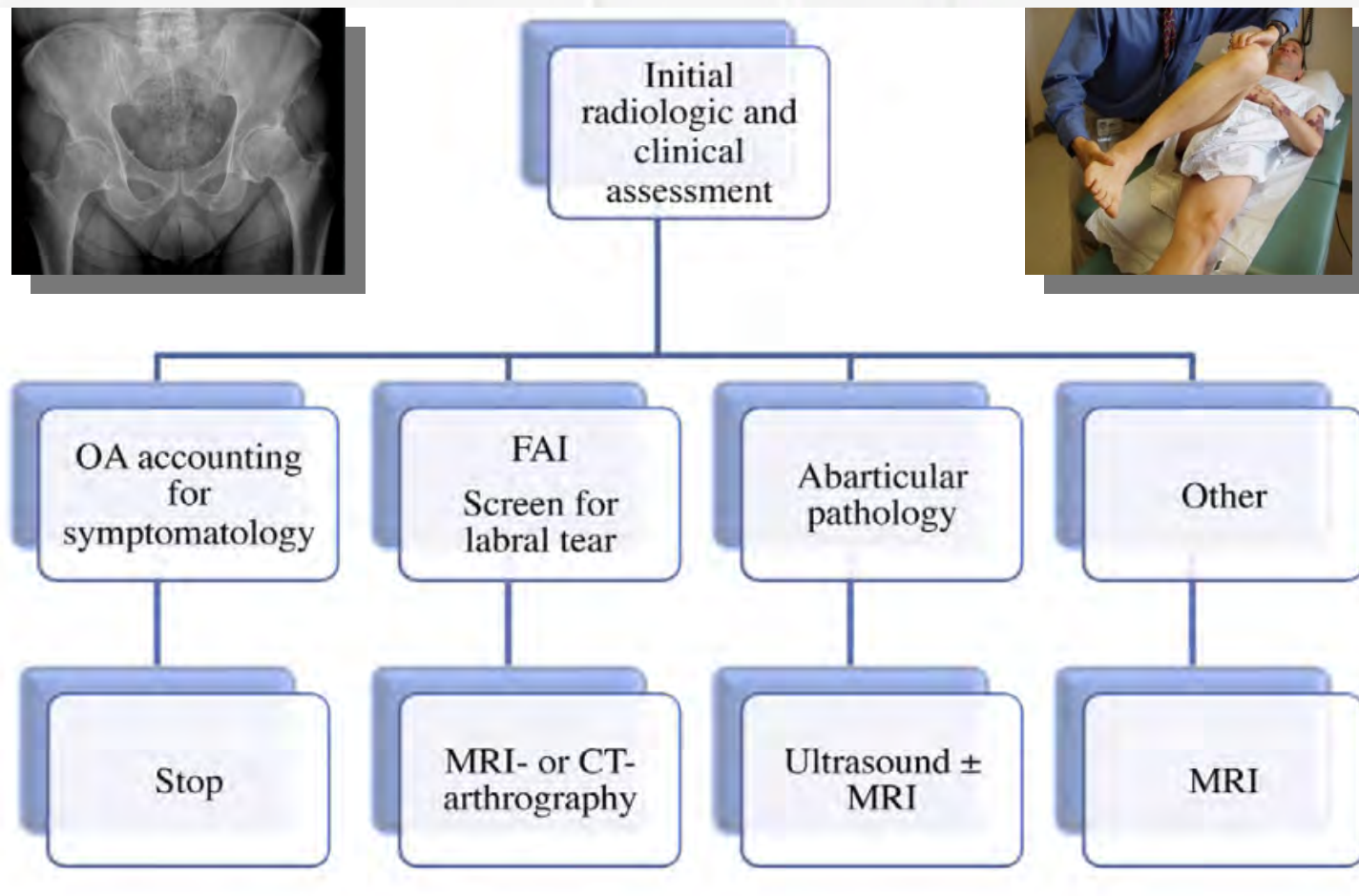
<i>Clinical recommendation</i>	<i>Evidence rating</i>
Initial plain radiography of the hip should include an anteroposterior view of the pelvis and a frog-leg lateral view of the symptomatic hip.	C
Magnetic resonance imaging should be used for detection of occult hip fractures, stress fractures, and osteonecrosis of the femoral head.	C
Magnetic resonance arthrography is the diagnostic test of choice for labral tears.	C
Ultrasonography is a helpful diagnostic modality for patients with suspected bursitis, joint effusion, or functional causes of hip pain (e.g., snapping hip), and can be employed for therapeutic imaging-guided injections and aspirations around the hip.	C



Strategy and optimization of diagnostic imaging in painful hip in adults

A. Blum *, A. Raymond , P. Teixeira

Service d'imagerie Guilloz, CHU de Nancy, 54000 Nancy, France



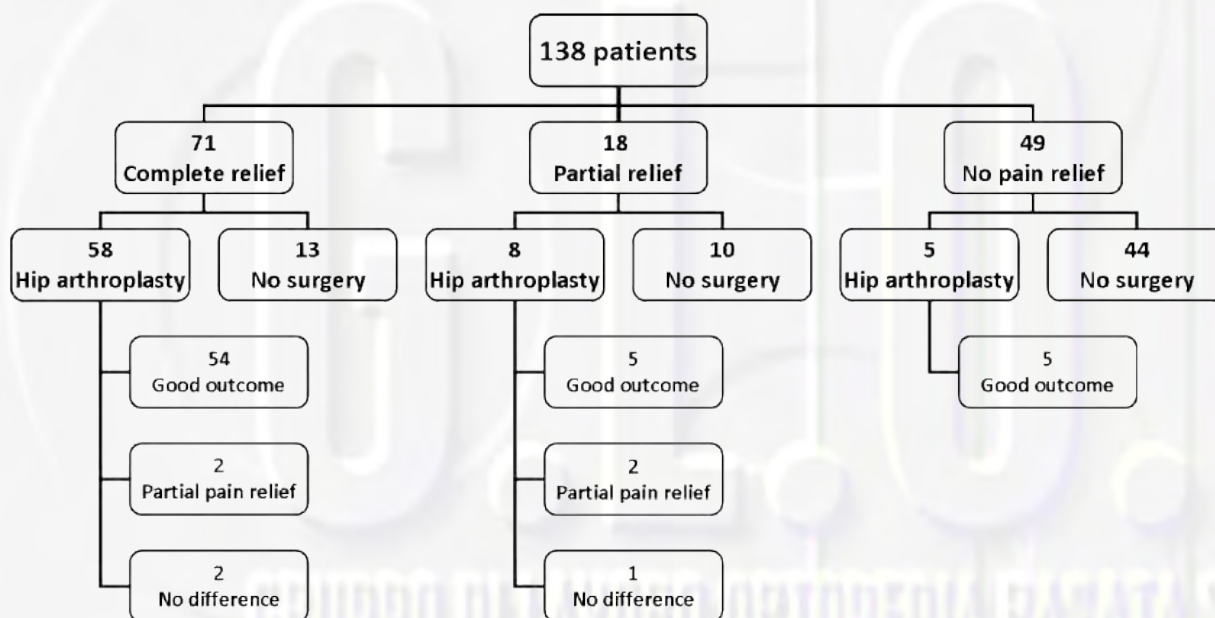
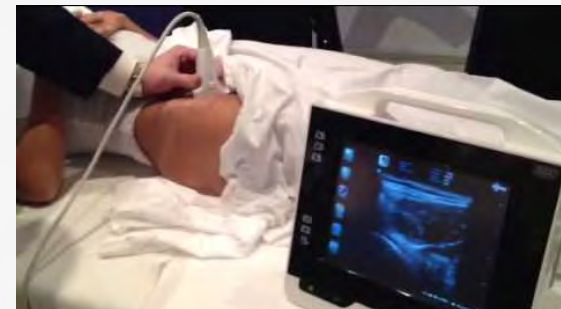
Variant 2:

Chronic hip pain. Radiographs negative, equivocal, or nondiagnostic. Suspect extra-articular noninfectious soft-tissue abnormality, such as tendonitis.

Radiologic Procedure	Rating	Comments	RRL *
MRI hip without IV contrast	9		O
US hip	7		O
Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures	5		Varies
MRI hip without and with IV contrast	3		O
MR arthrography hip	2		O
CT hip without IV contrast	1		☻☻☻
CT hip with IV contrast	1		☻☻☻
CT hip without and with IV contrast	1		☻☻☻
CT arthrography hip	1		☻☻☻
Tc-99m bone scan hip	1		☻☻☻
F-18 fluoride PET hip	1		☻☻☻
<u>Rating Scale:</u> 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

Evaluation of ultrasound-guided diagnostic local anaesthetic hip joint injection for osteoarthritis

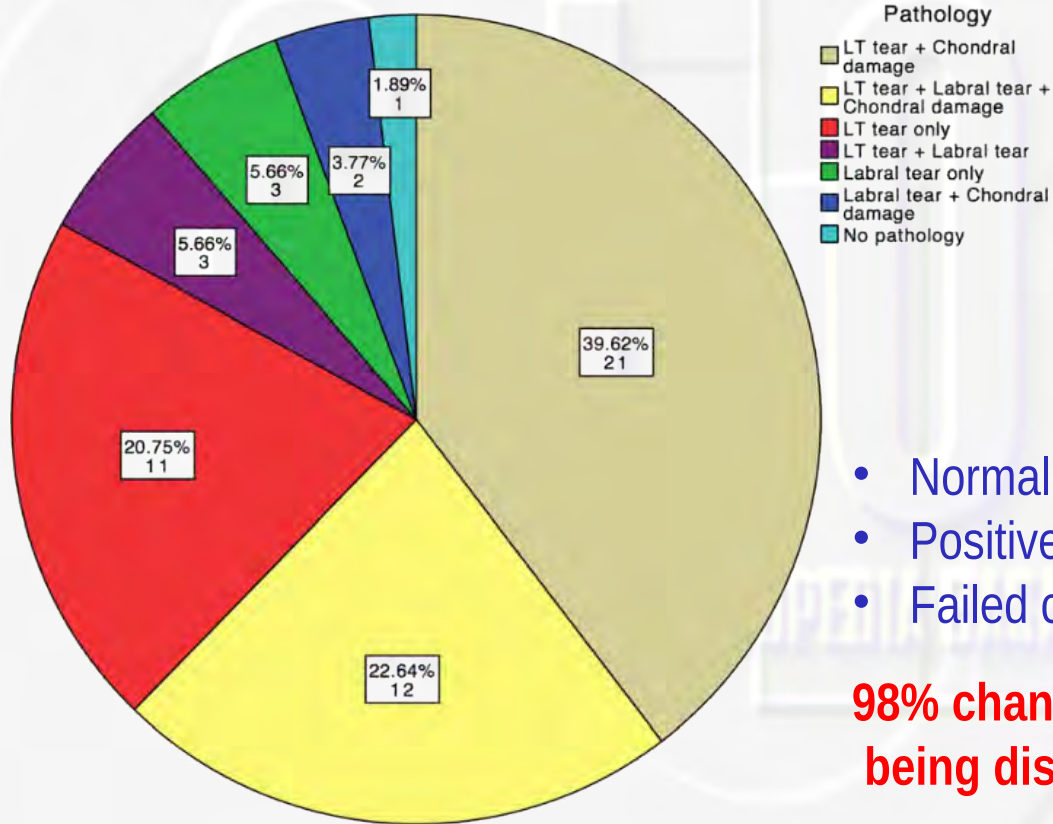
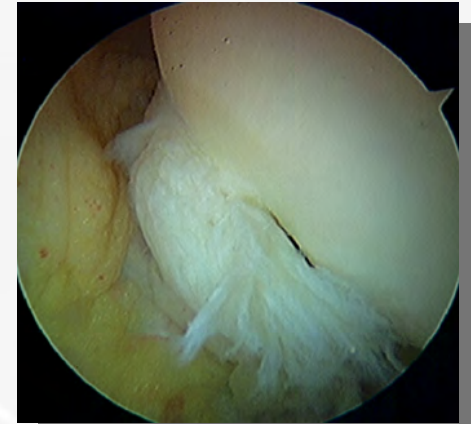
Philip Yoong • Roshdy Guirguis • Rachel Darrah •
Malin Wijerama • Matthew J Porteous



Diagnostic ultrasound-guided local anaesthetic injection of the hip joint is **a useful test** in confirming hip pathology. Complete relief of hip pain following injection is associated with good surgical outcome following THA.

Arthroscopic findings of a diagnostic dilemma- hip pathology with normal imaging

Joel Glenn Buikstra^{1*}, Camdon Fary² and Phong Tran²



- Normal XRay and MRI imaging
- Positive response to an intra-articular injection
- Failed conservative management

98% chance of intra-articular hip pathology being discovered on hip arthroscopy.

"Si riconosce ciò che si conosce"

Clinical Reasoning

Lumbar assessment
(6 movies)

Lower quarter neurologic
assessment
(5 movies)


Straight leg raise

► Movement Faults

► Associated Impairments

► Differential

Straight leg raise



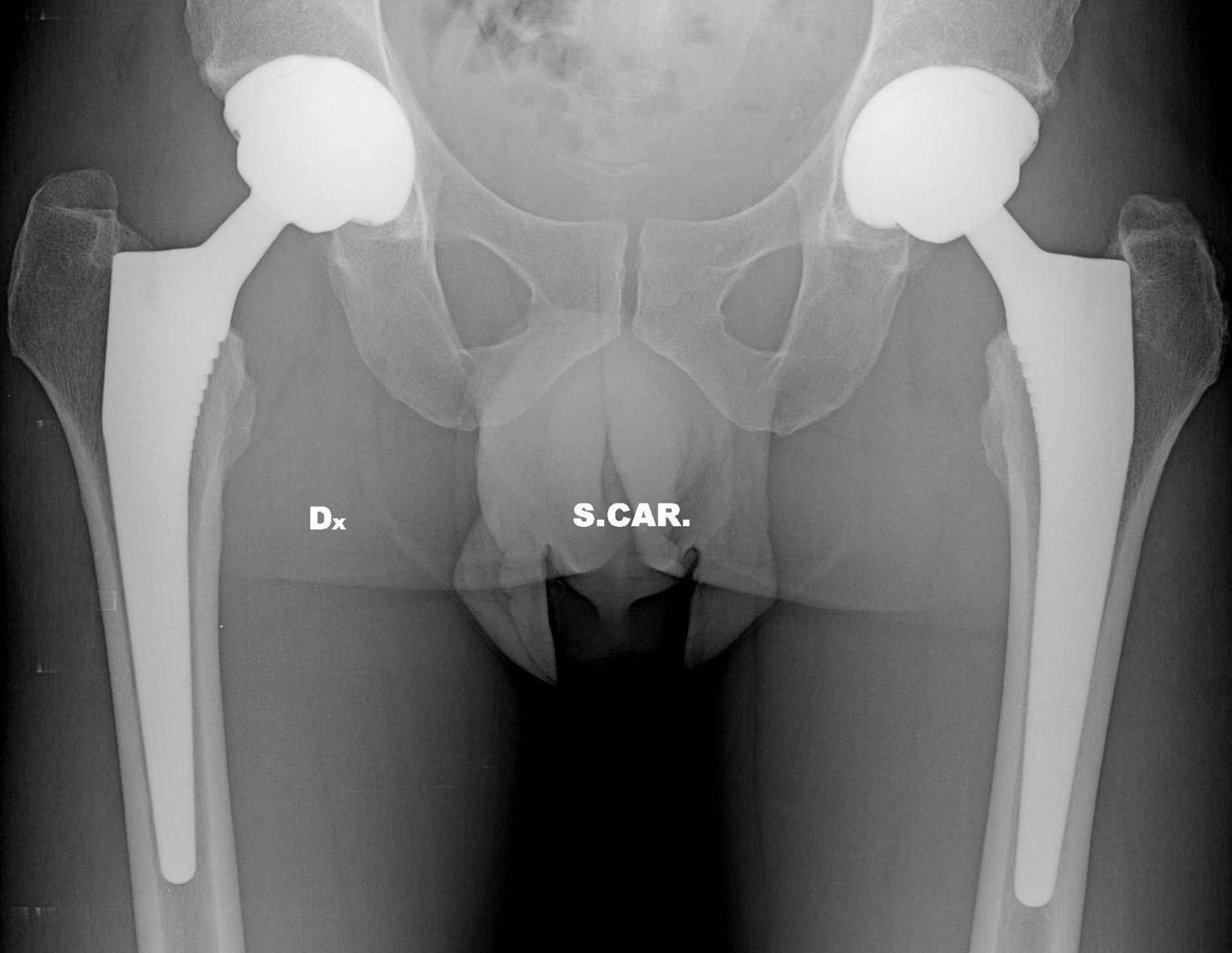
Reliability: NT
Sensitivity: 0.97
Specificity: 0.57
+LR: 2.23
-LR: 0.05

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CLINICAL PATTERN RECOGNITION: ORTHOPAEDIC SUITE

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Dx

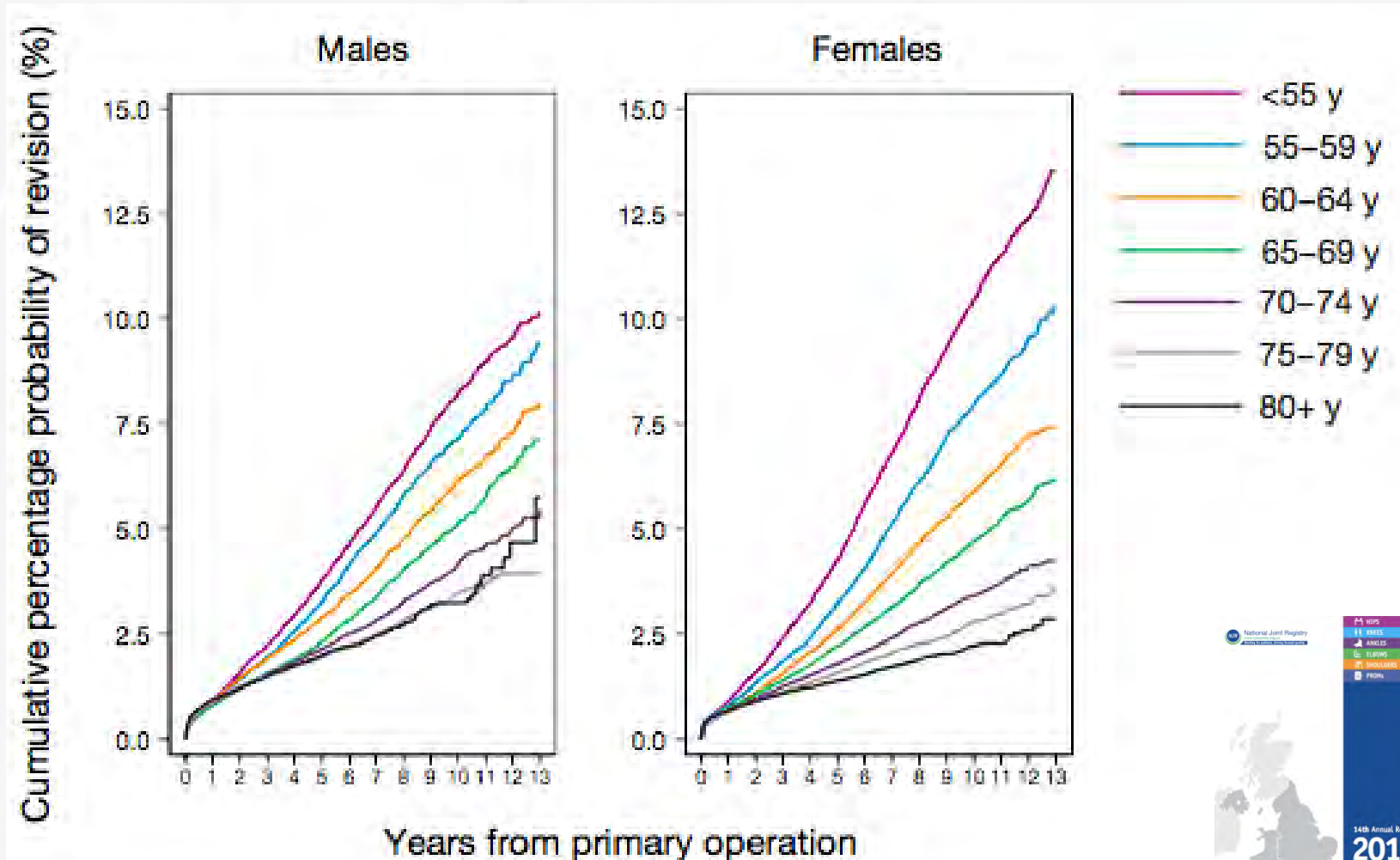
S.CAR.

Impatto del paziente



- sesso
- età
- comorbidità
- fattori psico-sociali
- aspettative

Sesso, età



Fattori di rischio

The Influence of Arthritis in Other Major Joints and the Spine on the One-Year Outcome of Total Hip Replacement

A Prospective, Multicenter Cohort Study (EUROHIP)
Measuring the Influence of Musculoskeletal Morbidity

Joerg Huber, MD, Paul Dieppe, MD, Karsten Dreinhoefer, MD, Klaus-Peter Günther, MD, and Andrew Judge, BSc, MSc, PhD

*Investigation performed at the Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences,
University of Oxford, Headington, United Kingdom*

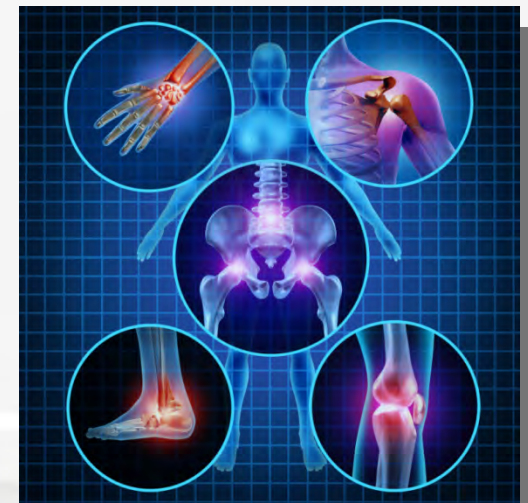


TABLE I Description of Musculoskeletal Morbidity Grades

Description	Grade	No. of Patients*
Index joint, without spine	1	416 (32.1%)
Index and other major joints, without spine	2	479 (36.9%)
Index joint, with spine	3	112 (8.6%)
Index and other major joints, with spine	4	291 (22.4%)

*Data were missing for 29 patients, leaving 1,298 patients to be evaluated.

In this study, compared with other **risk factors** (anxiety or depression, low preoperative WOMAC score, female sex, and older age), **arthritis in other major joints and the spine** had the largest impact on outcome.

The favorable response rates to hip arthroplasty declined stepwise with each grade of musculoskeletal morbidity.

Fattori psico-sociali

Original Article

CLINICAL
REHABILITATION

Preoperative psychosocial factors predicting patient's functional recovery after total knee or total hip arthroplasty: a systematic review

Clinical Rehabilitation
1-14
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DOI: 10.1177/0269215517730669
journals.sagepub.com/home/cr
SAGE

Anouck N Blettermann¹, Marcella E de Geest-Vrolijk²,
Johanna E Vriesevold³, Maria W Nijhuis-van der Sanden⁴,
Nico LU van Meeteren^{5,6} and Thomas J Hoogeboom⁴



Clinical Messages

- There is no longitudinal association between preoperative psychosocial factors and patient's postoperative functional recovery after total joint arthroplasty.
- Overall, there are no specific differences between total knee and total hip arthroplasty concerning the predictive value of preoperative psychosocial factors on patient's functional recovery.

The psychological category mental well-being seems to be the exception, as it is related to postoperative recovery >6 weeks to ≤3 months and to change score in postoperative functional recovery after total knee arthroplasty.

- Our study suggests that healthcare providers who take care of patients awaiting total joint arthroplasty should not overestimate the role of preoperative psychosocial factors.

Aspettative

RESEARCH ARTICLE

Patients' Expectations Impact Their Satisfaction following Total Hip or Knee Arthroplasty

Audrey Neuprez^{1,2*}, Jean-Pierre Delcour³, Firouzeh Fatemi⁴, Philippe Gillet⁵, Jean-Michel Crielaard², Olivier Bruyère¹, Jean-Yves Reginster¹



Preoperative **expectations** are a major contributor to the final degree of **satisfaction** one year after surgery.

These results reemphasize the need for an **optimal preoperative interaction** between the health care providers and the patients to allow the patients a chance to foresee a reasonable outcome.

Impatto della patologia



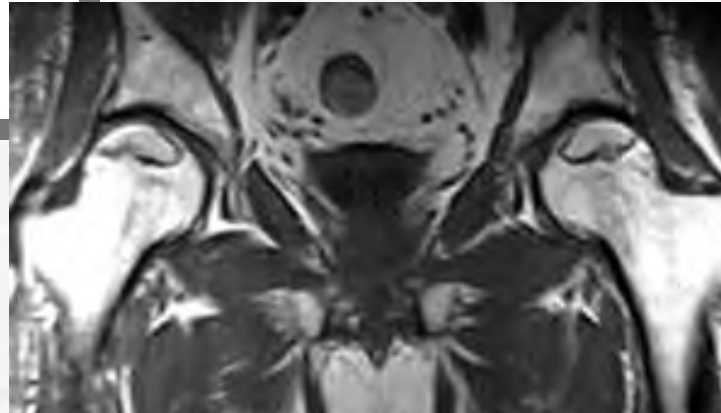
osteoartrosi vs osteonecrosi vs AR

Osteonecrosi

An underlying diagnosis of osteonecrosis of bone is associated with worse outcomes than osteoarthritis after total hip arthroplasty



Jasvinder A. Singh^{1,2,3*}, Jason Chen⁴, Maria C. S. Inacio⁴, Robert S. Namba⁵ and Elizabeth W. Paxton⁴



Compared to OA, a diagnosis of **osteonecrosis** was associated with **worse outcomes** post-THA.

A detailed preoperative discussion including the risk of complications is needed for informed consent from patients with osteonecrosis.

Artrite Reumatoide

Clement et al. *Journal of Orthopaedic Surgery and Research* 2012, **7**:27
<http://www.josr-online.com/content/7/1/27>



JOURNAL OF ORTHOPAEDIC
SURGERY AND RESEARCH

REVIEW

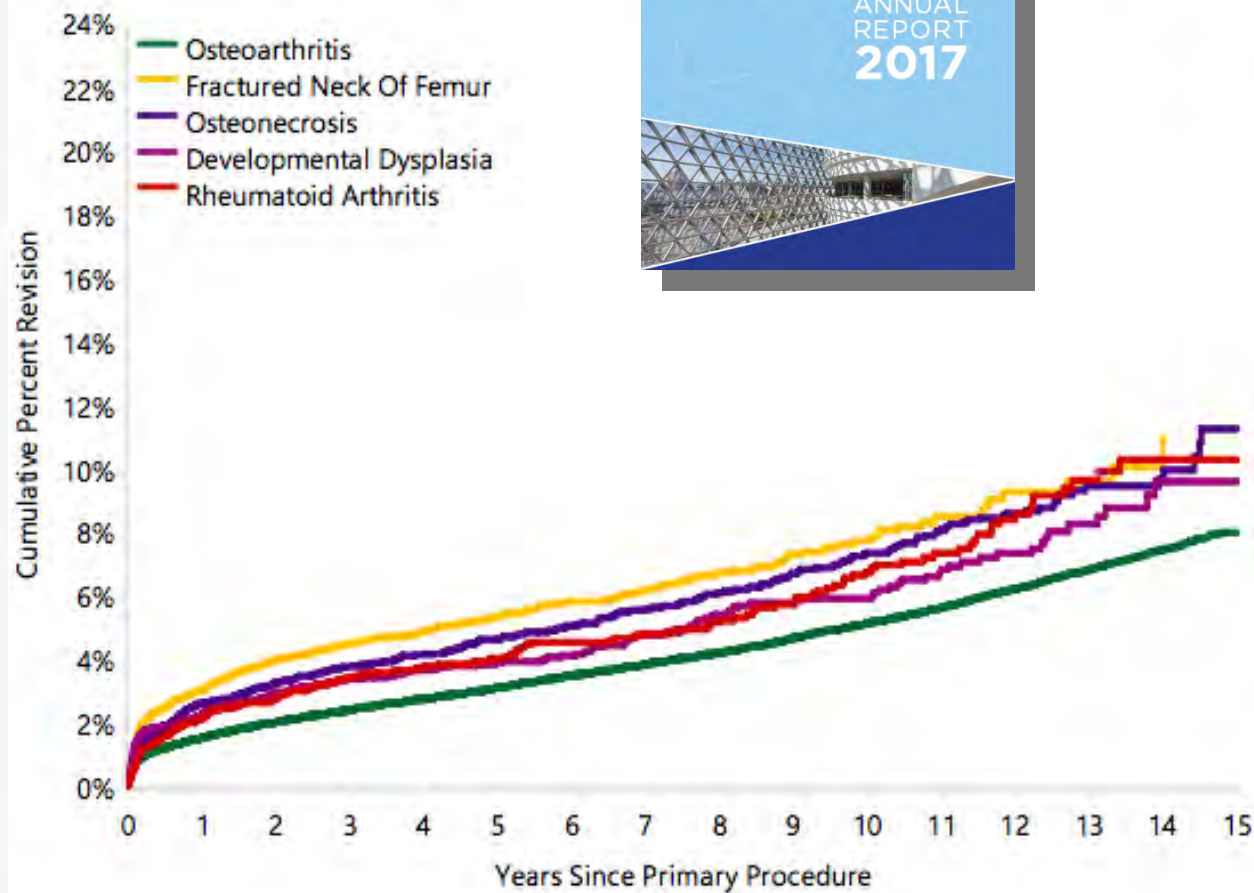
Open Access

Lower limb joint replacement in rheumatoid arthritis

Nicholas D Clement^{1*}, Stephen J Breusch² and Leela C Biant³



Those patients with active disease, raised rheumatoid titre or clinical depression do not improve to the same extent as those patients without.



HR - adjusted for age and gender

Fractured Neck Of Femur vs Osteoarthritis

0 - 2Wk: HR=1.60 (1.21, 2.11), $p < 0.001$

2Wk - 3Mth: HR=2.47 (2.16, 2.83), $p < 0.001$

3Mth - 1.5Yr: HR=1.94 (1.66, 2.26), $p < 0.001$

1.5Yr+: HR=1.36 (1.18, 1.57), $p < 0.001$

Osteonecrosis vs Osteoarthritis

0 - 6Mth: HR=1.53 (1.33, 1.77), $p < 0.001$

6Mth - 9Mth: HR=2.77 (2.07, 3.72), $p < 0.001$

9Mth - 1.5Yr: HR=1.25 (0.95, 1.66), $p = 0.117$

1.5Yr+: HR=1.30 (1.15, 1.47), $p < 0.001$

Developmental Dysplasia vs Osteoarthritis

0 - 2Wk: HR=2.42 (1.63, 3.58), $p < 0.001$

2Wk - 1Mth: HR=1.87 (1.28, 2.75), $p = 0.001$

1Mth+: HR=1.06 (0.90, 1.26), $p = 0.477$

Rheumatoid Arthritis vs Osteoarthritis

Entire Period: HR=1.33 (1.15, 1.54), $p < 0.001$

Indicazione all'intervento



GRUPPO DI LAVORO ORTOPEDIA BASATA SULLE PROVE DI EFFICACIA

Indications for total hip replacement: comparison of assessments of orthopaedic surgeons and referring physicians

K E Dreinhofer, P Dieppe, T Stürmer, D Gröber-Grätz, M Flören, K-P Günther, W Puhl, H Brenner



Ann Rheum Dis 2006;65:1346-1350. doi: 10.1136/ard.2005.047811

Box 1 Parameters affecting indication for total hip replacement

- Pain
 - Severity
 - At rest
 - At night
 - With activity
- Function
 - Walking distance
 - Need for cane/crutch
 - Need for analgesics
 - Difficulty climbing stairs
 - Difficulty putting on shoes/socks
- Physical examination
 - Range of motion
- Radiograph
 - Amount of joint space preserved on x ray

First multicentre, multinational, European survey of opinions on the indications for THR

- Opinions about the severity of joint disease differ greatly between different referring physicians and surgeons.
- There are some important differences in the opinions of these groups of doctors.
- Referring physicians tended to think more often than the surgeons that patients had to have more severe disease to warrant surgery.
- In addition, referring physicians put more emphasis on social issues and quality of life, whereas surgeons were more concerned with the extent of joint damage.

REVIEWS

Determining who should be referred for total hip and knee replacements

Lisa A. Mandl

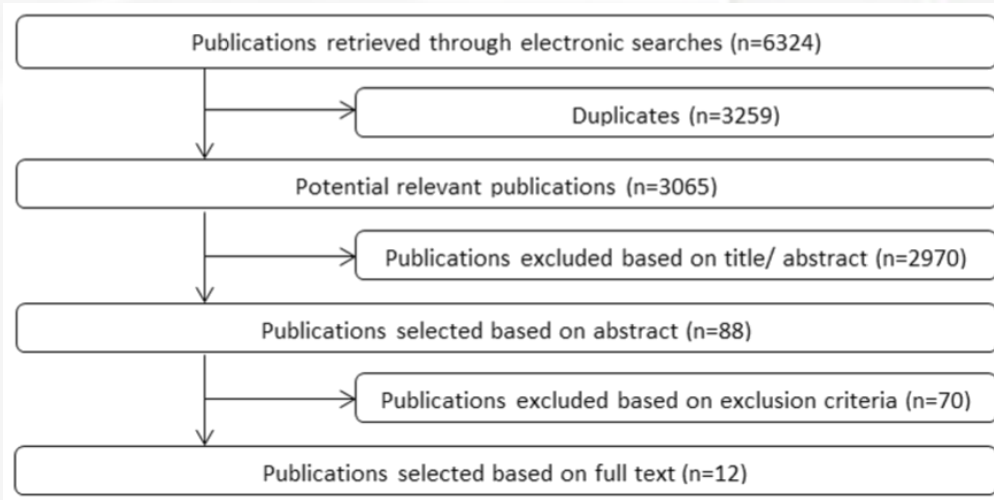
Key points

- Hip and knee replacements are the definitive treatments for end-stage arthritis, providing excellent pain relief with minimal risks
- Physicians who care for patients with chronic hip and knee arthritis function as 'gatekeepers,' determining who is referred for surgical consultation

Currently, no evidence-based criteria exist to guide physicians in this decision making process, and this situation raises the possibility that conscious or unconscious biases may influence referral patterns, potentially leading to systematic inequities regarding which patients are eventually offered TJR.

Indication criteria for total hip or knee arthroplasty in osteoarthritis: a state-of-the-science overview

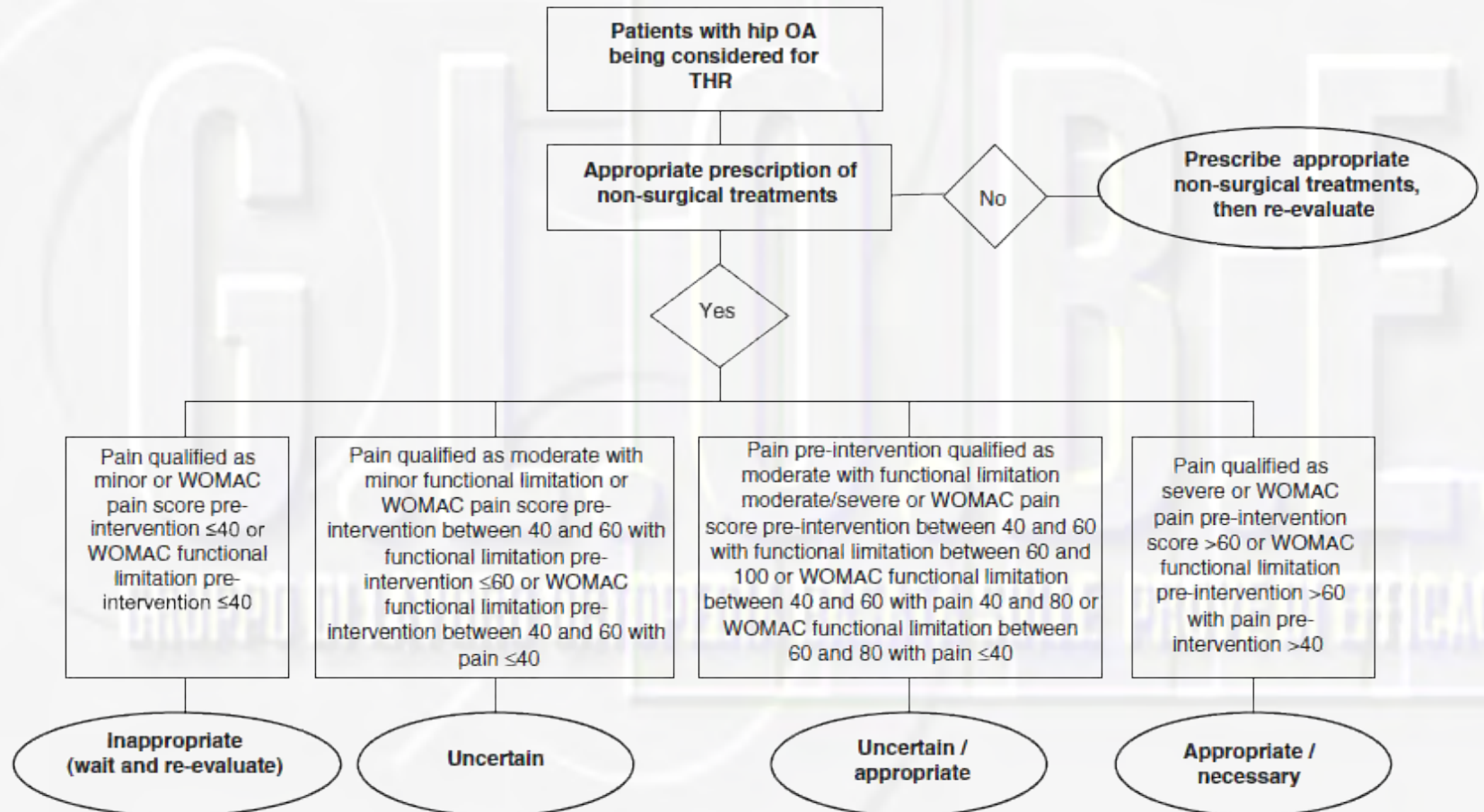
Maike G. J. Gademán^{1,2,4,5*}, Stefanie N. Hofstede¹, Thea P. M. Vliet Vlieland^{1,6,7}, Rob G. H. H. Nelissen¹ and Perla J. Marang-van de Mheen³



The indication criteria for THA/TKA are based on limited evidence. Empirical research is needed, especially regarding domain specific cut-off values or ranges at which the best postoperative outcomes are achieved for patients, taking into account the limited lifespan of a prosthesis.

Decision trees for indication of total hip replacement on patients with osteoarthritis

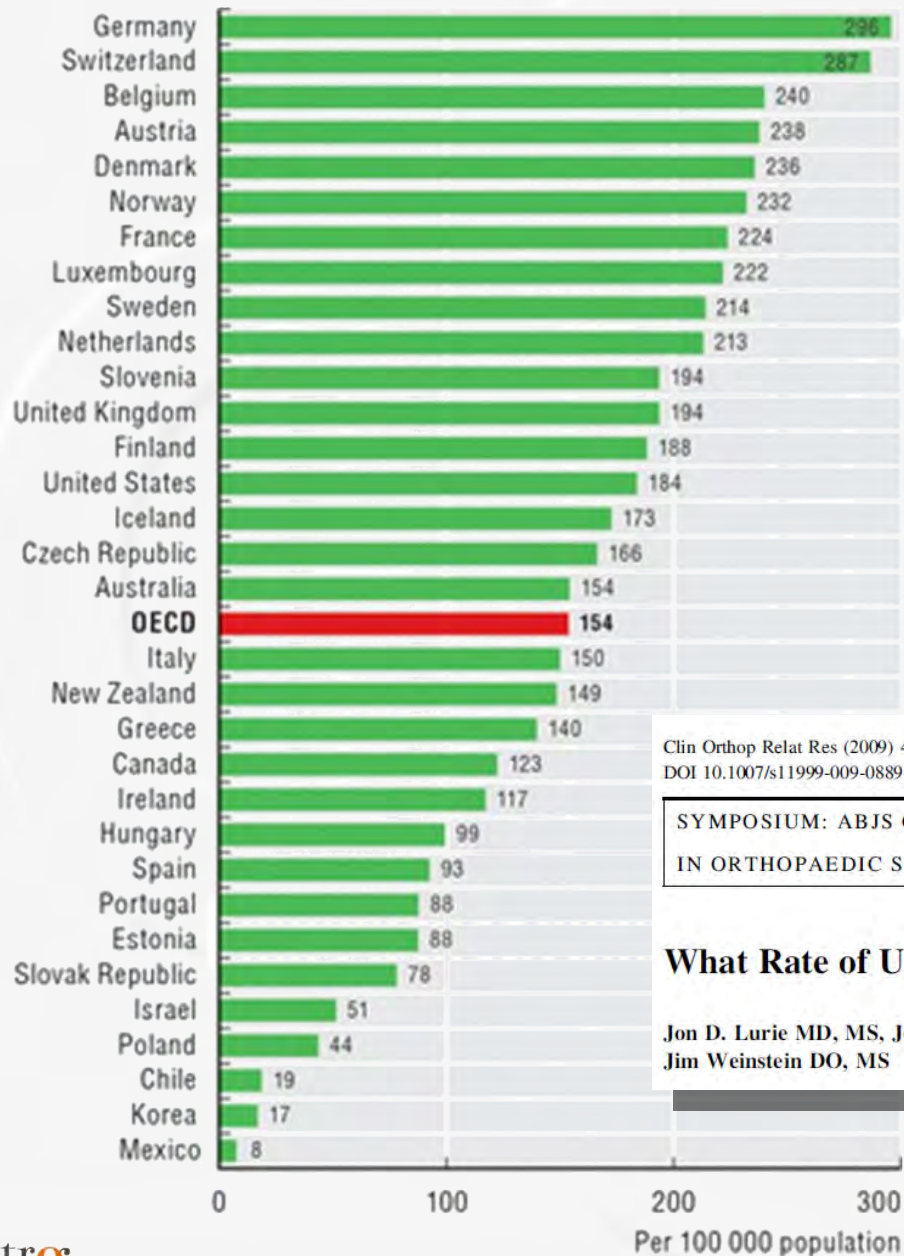
José M. Quintana¹, Amaia Bilbao², Antonio Escobar³, Jesus Azkarate⁴ and Jose I. Goenaga⁵



Profile of osteoarthritic patients undergoing hip or knee arthroplasty, a step toward a definition of the “need for surgery”

Audrey Neuprez^{1,2,3} · Arnaud H. Neuprez¹ · William Kurth² · Philippe Gillet² · Olivier Bruyère¹ · Jean-Yves Reginster¹

Site of prosthesis	Knee	Hip	<i>p</i> value
Variables	Median (P25–P75)	Median (P25–P75)	
EQ-VAS	70 (55–75)	65 (50–75)	<i>p</i> = 0.15
EQ 5D	0.56 (0.24–0.66)	0.47 (0.22–0.66)	<i>p</i> = 0.26
WOMAC total (0–96)	52 (41–63)	56 (43–67)	<i>p</i> = 0.02
Pain (0–20)	11 (9–13.5)	12 (9–14)	<i>p</i> = 0.21
Stiffness (0–8)	5 (4–6)	5 (4–6)	<i>p</i> = 0.33
Function (0–68)	38 (28.5–44.5)	40 (30–47)	<i>p</i> = 0.01
SF-36			
Physical functioning (PF)	30 (15–50)	30 (10–50)	<i>p</i> = 0.33
Physical role functioning (RP)	0 (0–50)	0 (0–50)	<i>p</i> = 0.28
Emotional role functioning (RE)	33.33 (0–100)	33.33 (0–100)	<i>p</i> = 0.72
Vitality (VT)	50 (35–60)	50 (35–60)	<i>p</i> = 0.39
Mental health (MH)	62 (44–80)	64 (48–76)	<i>p</i> = 0.86
Social role functioning (SF)	75 (50–87.5)	62.5 (50–87.5)	<i>p</i> = 0.56
Bodily pain (BP)	33.75 (22.5–45)	32.5 (22.5–45)	<i>p</i> = 0.12
General health perceptions (GH)	60 (50–75)	65 (45–75)	<i>p</i> = 0.64
Health change	50 (25–50)	25 (25–50)	<i>p</i> = 0.002

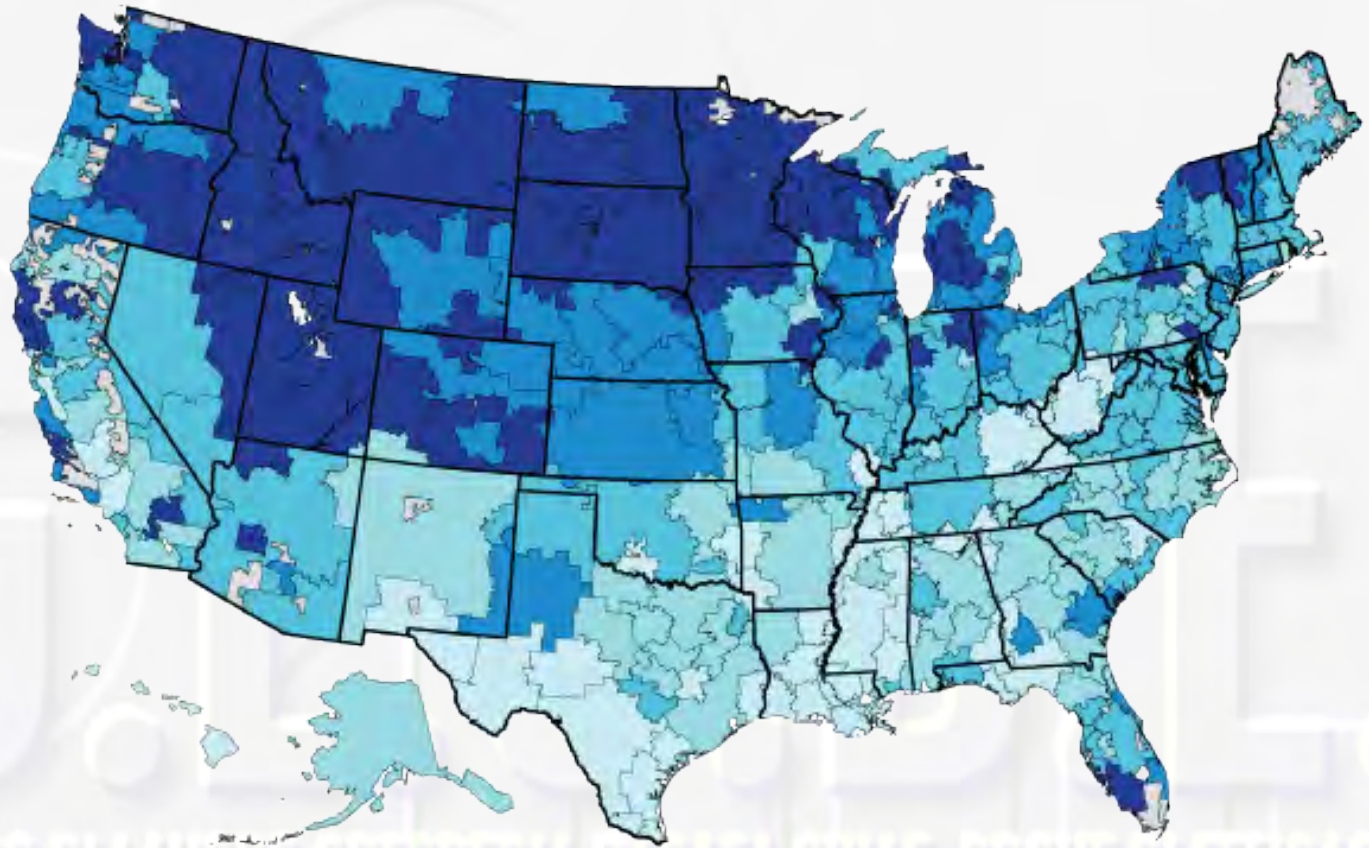


Clin Orthop Relat Res (2009) 467:2506–2511
DOI 10.1007/s11999-009-0889-4

SYMPOSIUM: ABJS CARL T. BRIGHTON WORKSHOP ON HEALTH POLICY ISSUES
IN ORTHOPAEDIC SURGERY

What Rate of Utilization is Appropriate in Musculoskeletal Care?

Jon D. Lurie MD, MS, John Erik Bell MD,
Jim Weinstein DO, MS



Ratio of Rates of Total Hip Replacement to the U.S. Average

by Hospital Referral Region (2005-06)

- 1.30 to 1.80 (54)
- 1.10 to < 1.30 (56)
- 0.90 to < 1.10 (88)
- 0.75 to < 0.90 (58)
- 0.46 to < 0.75 (50)
- Not populated

THE DARTMOUTH INSTITUTE
FOR HEALTH POLICY & CLINICAL PRACTICE

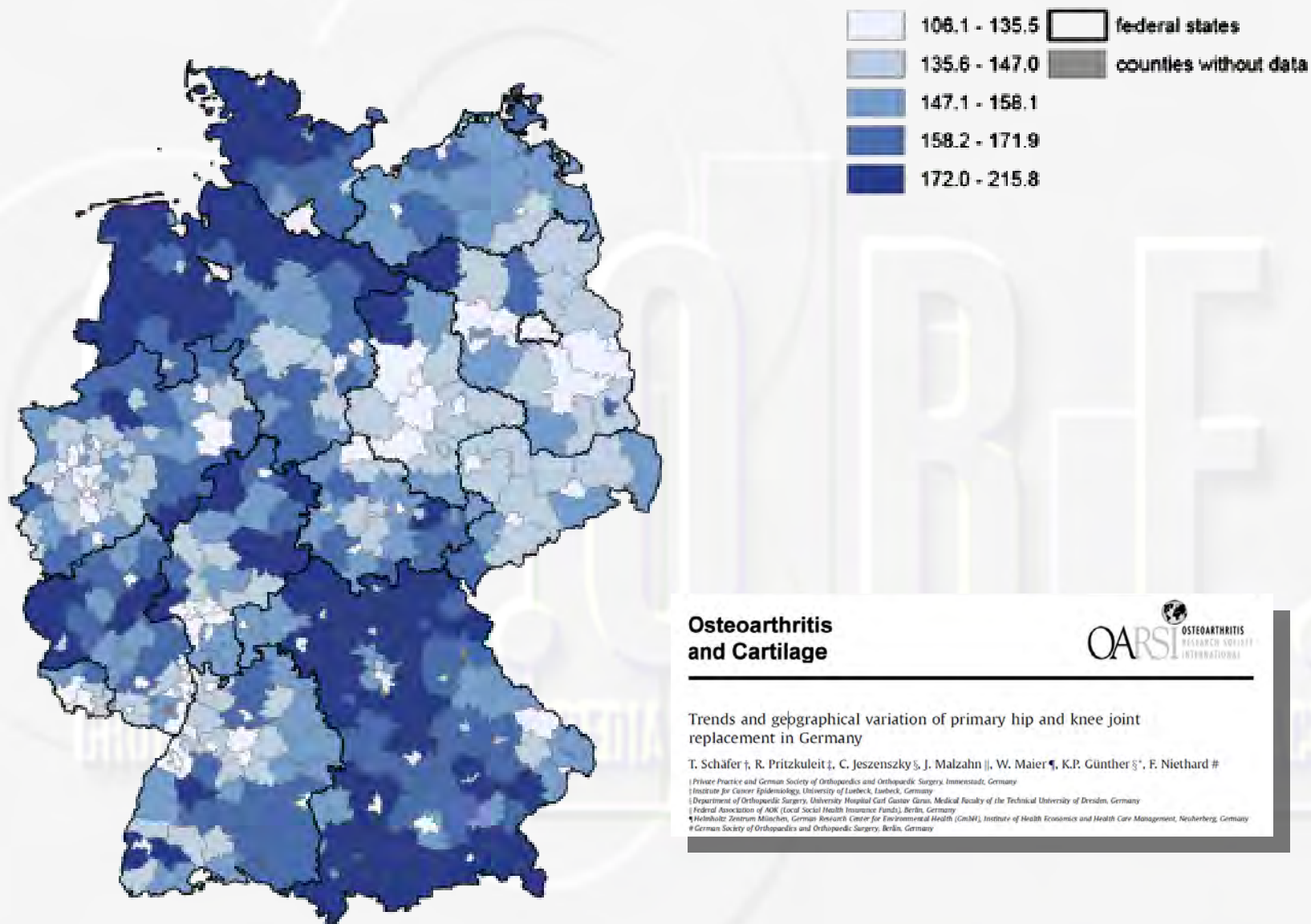
Where Knowledge Informs Change



A Dartmouth Atlas Surgery Report

Trends and Regional Variation in Hip, Knee, and Shoulder Replacement

Germania



Osteoarthritis and Cartilage



Trends and geographical variation of primary hip and knee joint replacement in Germany

T. Schäfer †, R. Pritzkeleit ‡, C. Jeszenszky §, J. Malzahn ||, W. Maier ¶, K.P. Günther §*, F. Niethard #

† Private Practice and German Society of Orthopedics and Orthopaedic Surgery, Immenstadt, Germany

‡ Institute for Cancer Epidemiology, University of Tuebingen, Tuebingen, Germany

§ Department of Orthopaedic Surgery, University Hospital Carl Gustav Carus, Medical Faculty of the Technical University of Dresden, Germany

|| Federal Association of AOK (Local Social Health Insurance Funds), Berlin, Germany

¶ Helmholtz Zentrum München, German Research Center for Environmental Health (GmbH), Institute of Health Economics and Health Care Management, Neuherberg, Germany

German Society of Orthopedics and Orthopaedic Surgery, Berlin, Germany

Inghilterra

Rate of provision per
1000 people in need

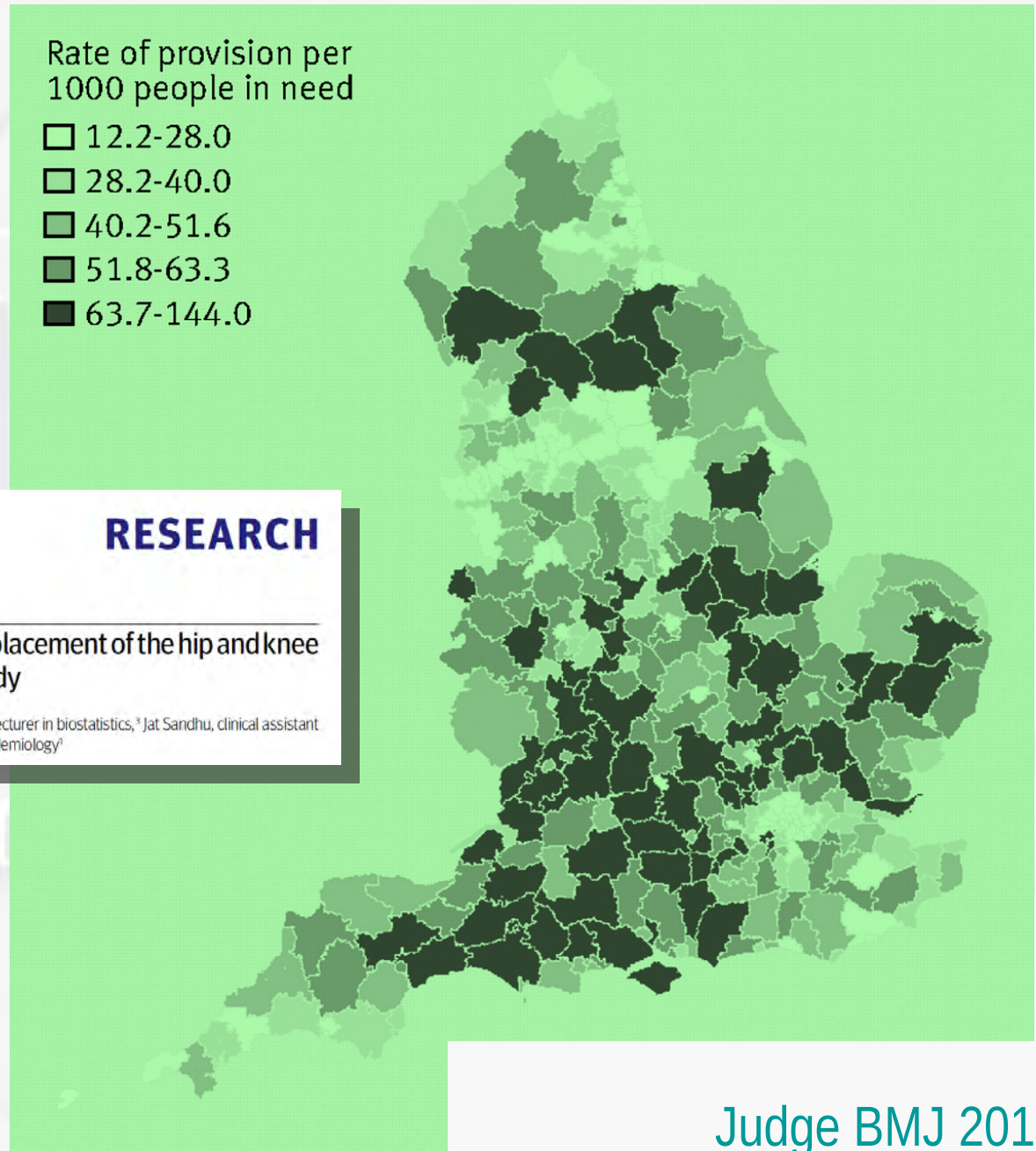
- 12.2-28.0
- 28.2-40.0
- 40.2-51.6
- 51.8-63.3
- 63.7-144.0

BMJ

RESEARCH

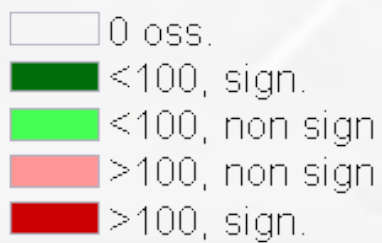
Equity in access to total joint replacement of the hip and knee in England: cross sectional study

Andy Judge, senior statistician,^{1,2} Nicky J Welton, senior lecturer in biostatistics,³ Jat Sandhu, clinical assistant professor,^{1,4} Yoav Ben-Shlomo, professor of clinical epidemiology¹



Italia

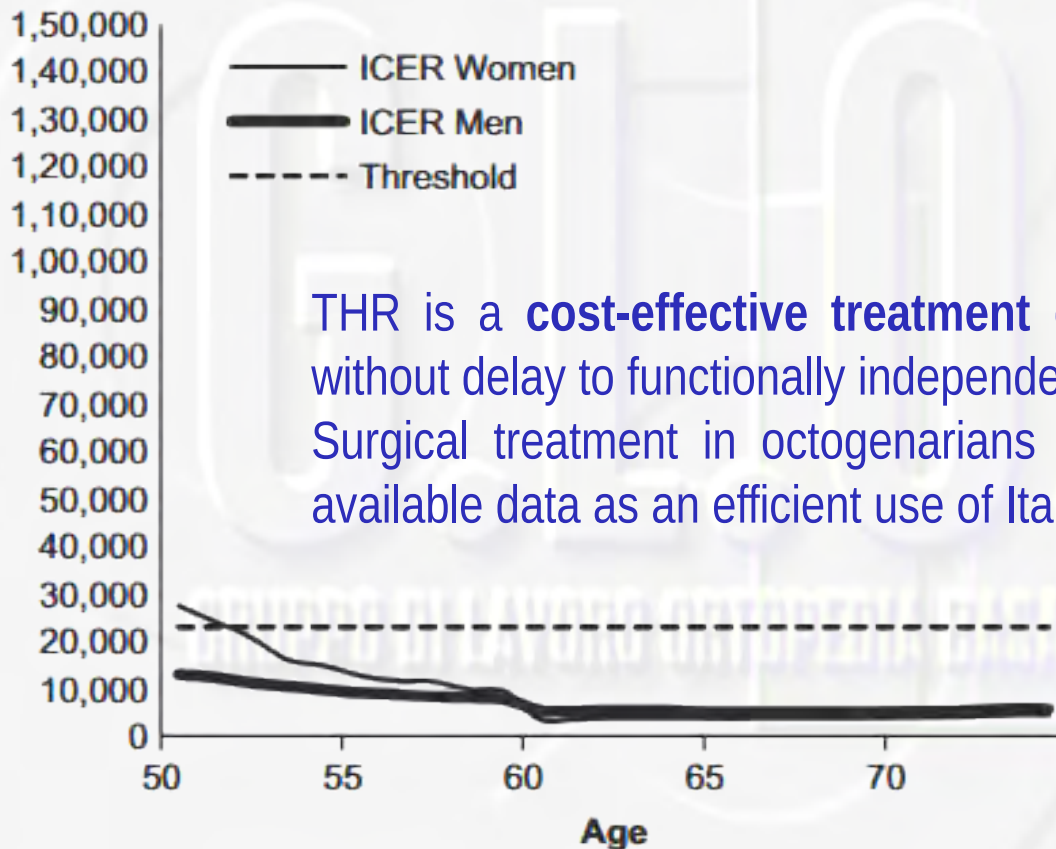
Observed/Expected controlled by Age and Gender by Region



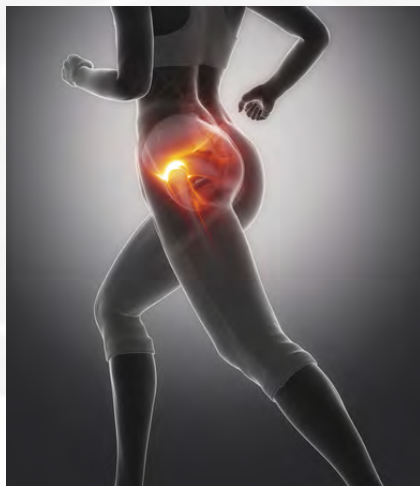
Cost-Effectiveness Analysis of Early versus Late Total Hip Replacement in Italy

Rubén Ernesto Mújica Mota, BSc, MSc, PhD*

Institute of Health Service Research, University of Exeter Medical School, University of Exeter, Exeter, UK, and European Health Technology Institute for Socioeconomic Research (EHTI), Brussels, Belgium



THR is a **cost-effective treatment** option, and should be offered without delay to functionally independent patients with severe OA. Surgical treatment in octogenarians is supported by the currently available data as an efficient use of Italian NHS resources.



- **Ascoltare** i pazienti
- **Visitarli**
- **RM** solo nei casi **dubbi**
- **Infiltrazione** articolare **diagnostica**
- Considerare le **comorbidità**
- Offrire **aspettative realistiche** **basate su dati**
- Indirizzare la **ricerca** su **indicazioni e priorità**



Monza, 23-24 Novembre 2017

VENERDÌ 24 NOVEMBRE 2017

SALA A

08.00

INSTRUCTIONAL COURSE PER SPECIALIZZANDI TIPS AND TRICKS NELLA PTA DI PRIMO IMPIANTO

Moderatori: **Federico Grassi** (Novara), **Enrico Vaienti** (Parma)

09.00

COME INQUADRARE PAZIENTE E PATOLOGIA

Emilio Romanini (Roma)

COME ESEGUIRE IL PLANNING PREOPERATORIO

Luca Pierannunzii (Milano)

COME IMPIANTARE IL COTILE

Antonio Campacci (Verona)

COME IMPIANTARE LO STELO

Marco Villano (Firenze)

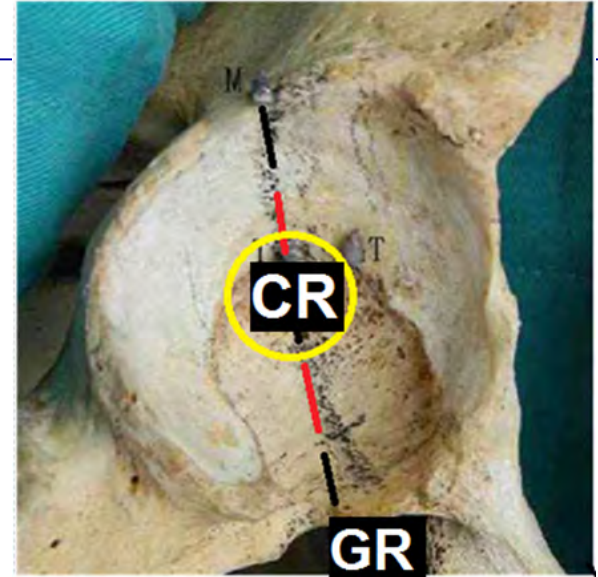
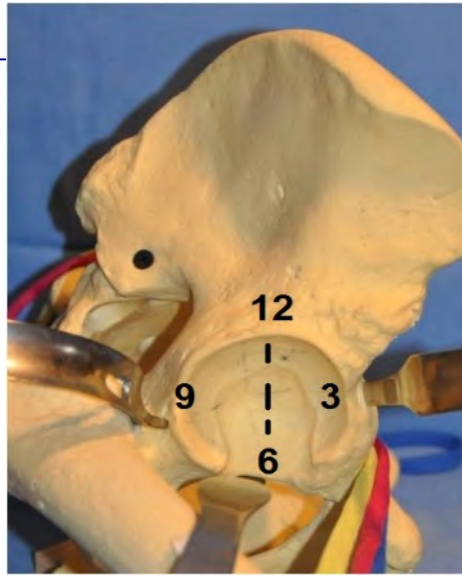
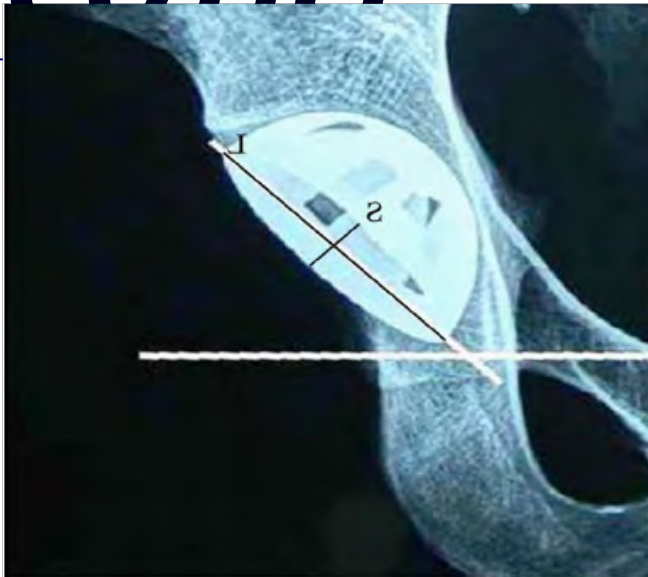


Ospedale
Sacro Cuore - Don Calabria
Negrar (Verona)

ISTRUCTIONAL COURSE PER SPECILIZZANDI TIPS and TRIKS nella PTA di PRIMO IMPIANTO Monza 23-24 Novembre 2017



COME IMPIANTARE IL COTILE



A.Campacci

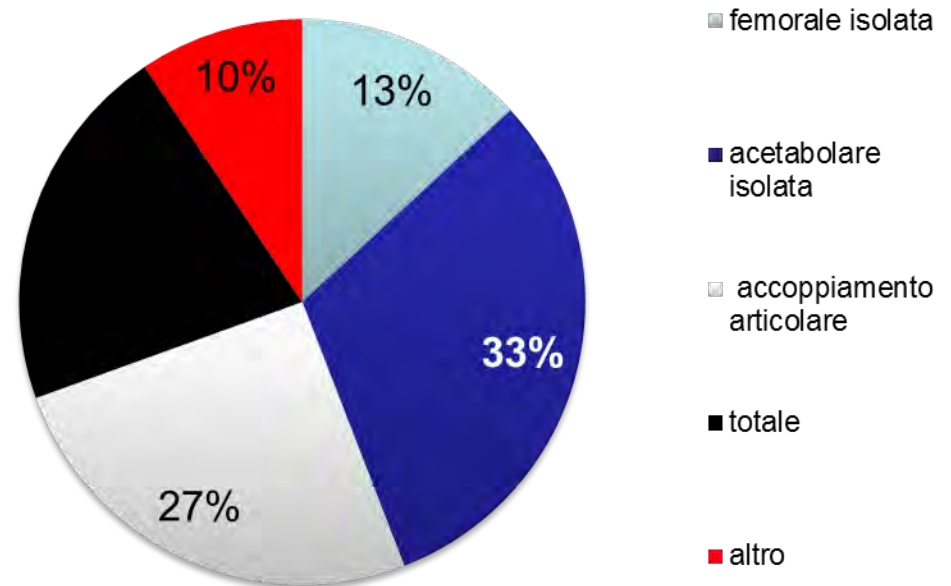
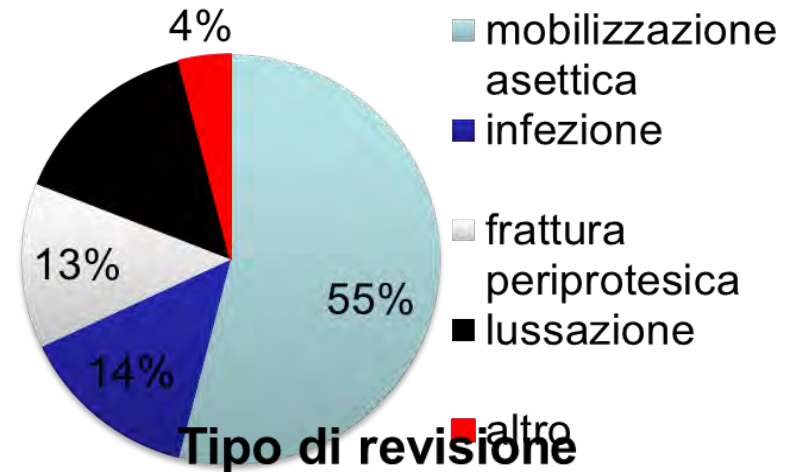
Epidemiologia

*PTA primo impianto:
aumento del 174% entro il
2030*

*PTA revisione: aumento del
137% entro il 2030*

• *Rischio relativo di ri -
revisione entro un anno
aumenta del 20%*

• *Revisioni multiple (un
paziente su 5)*



RE-Revisione di Artroprotesi

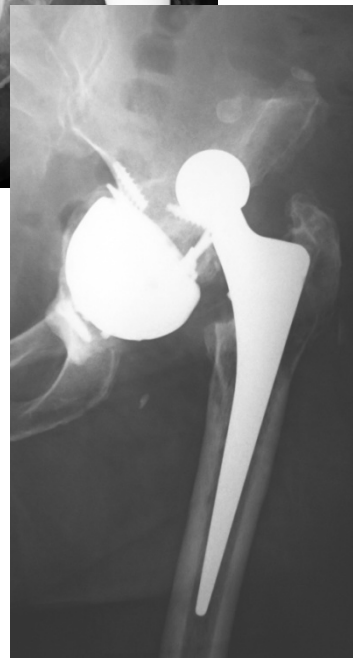
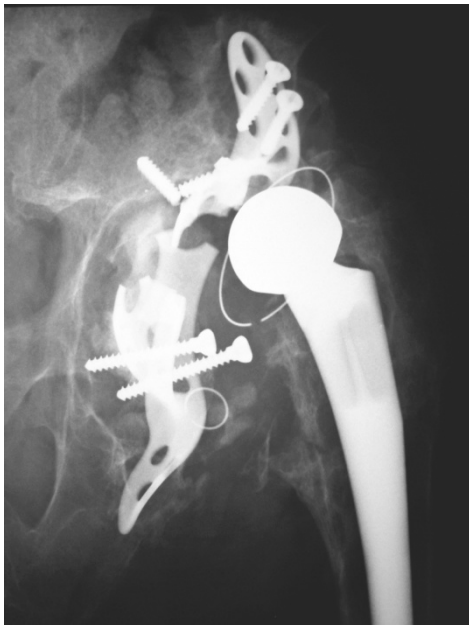
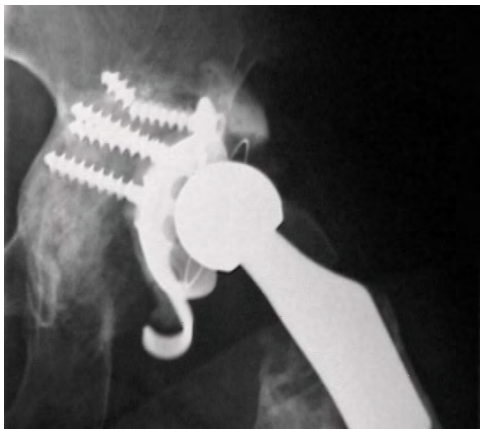
*Tasso di Fallimento su **4762** Revisioni di Artroprotesi d'anca nel Registro Protesico Norvegese*

26%

Causa di Fallimento in 10 anni

58% revisioni acetabolari

**SA Lie, LI Havelin, ON Furnes, LB Engesaeter, SE Vollset
J Bone Joint Surg (Br) 2004; 86-B:504-9.**



INTERVENTO CHIRURGICO

Bruno Munari

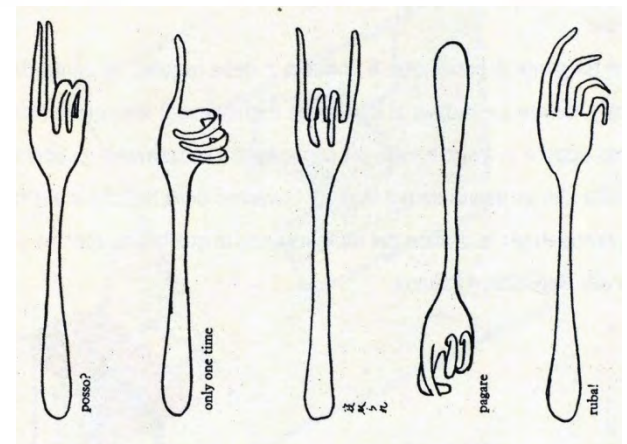


Complicare è facile,
semplificare è difficile.

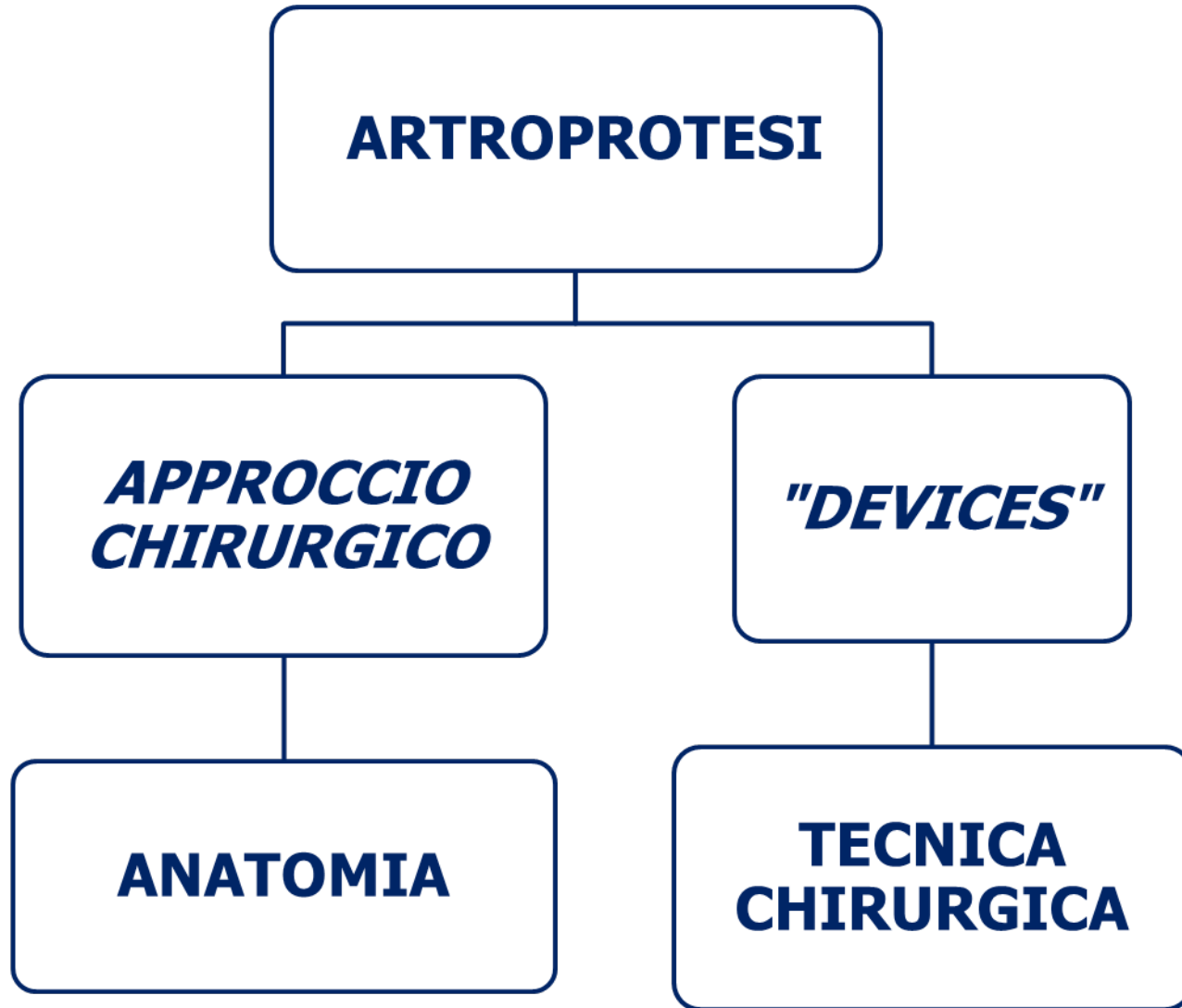
Per complicare basta aggiungere,
tutto quello che si vuole.

Tutti sono capaci di complicare.
Pochi sono capaci di semplificare.

Per semplificare bisogna togliere e, per togliere,
bisogna sapere che cosa togliere.



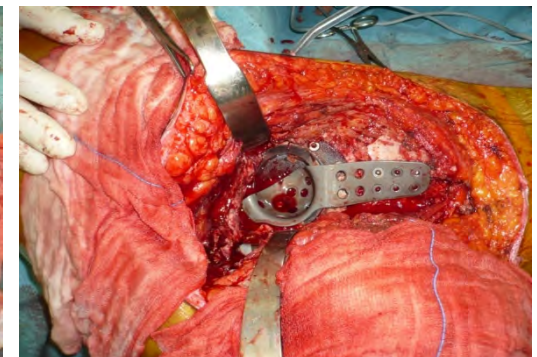
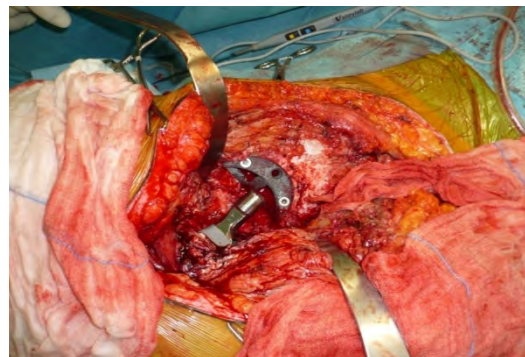
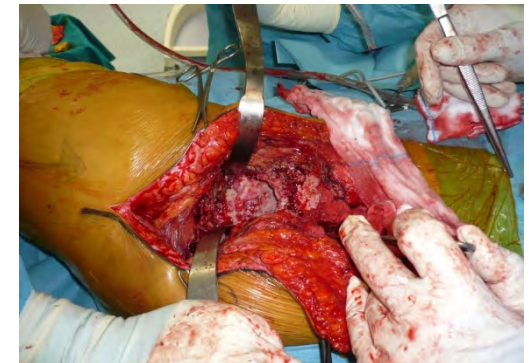
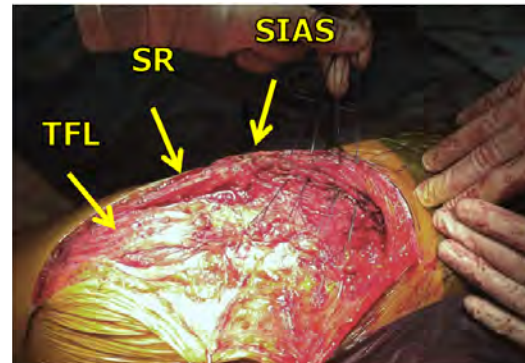
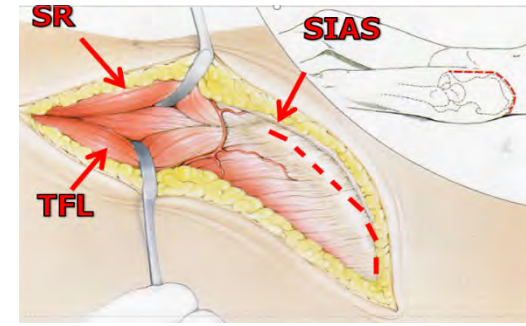
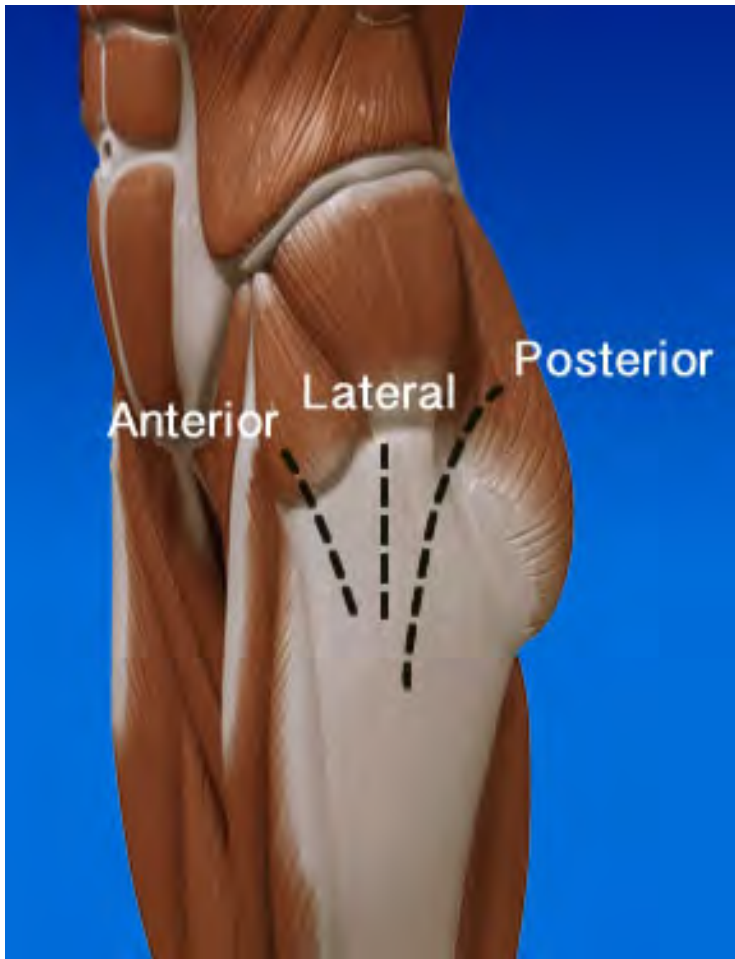
Trattamento Chirurgico



ACCESSO CHIRURGICO

**1-2 A.B.C Via Chirurgica
Convenzionale**

**3 A.B. Via di Henneking-
Campanacci**



CADAVER LAB

Cadaver Lab Barcellona
Programma preliminare

19 - 20 giugno 2014

Corso d'istruzione protesica d'anca
Approccio Anteriore Diretto MIS

Presidenti: A. Massè | G. De Marinis



Pocket guide March 2013 Lit. No. 71381720 REV0 3/13

Minimally Invasive Hip Endoprosthetics

Direct Anterior Approach for Total Hip Replacement
Michael Leunig, Switzerland



This material is not approved for use in the US



Medical Education
Advanced Surgical Devices

CORE PRINCIPLES IN TOTAL HIP ARTHROPLASTY INSTRUCTIONAL COURSE

9-10 July, 2014 - Smith&Nephew Surgical Skills Centre, York, United Kingdom

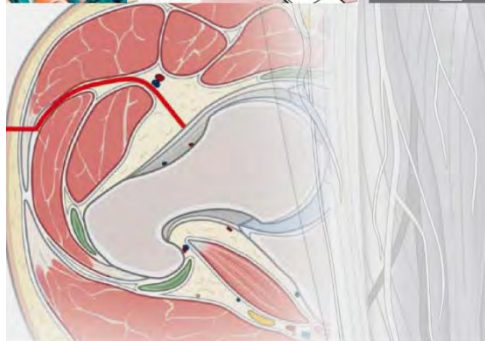
Preliminary Programme

Chairman: Dr Antonio Campacci



Minimally invasive hip endoprosthetics

Minimally invasive anterolateral approach
Univ-Prof Gerald Pflüger, Wien, Austria



European Orthopaedics

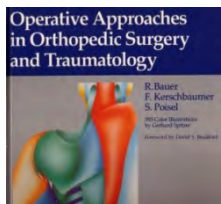
PROGRAMMA

Indicazione e Tecnica Operatoria
Nell'Artroprotesi D'Anca
1 & 2 Ottobre 2012,
Institute of Anatomy, Bern

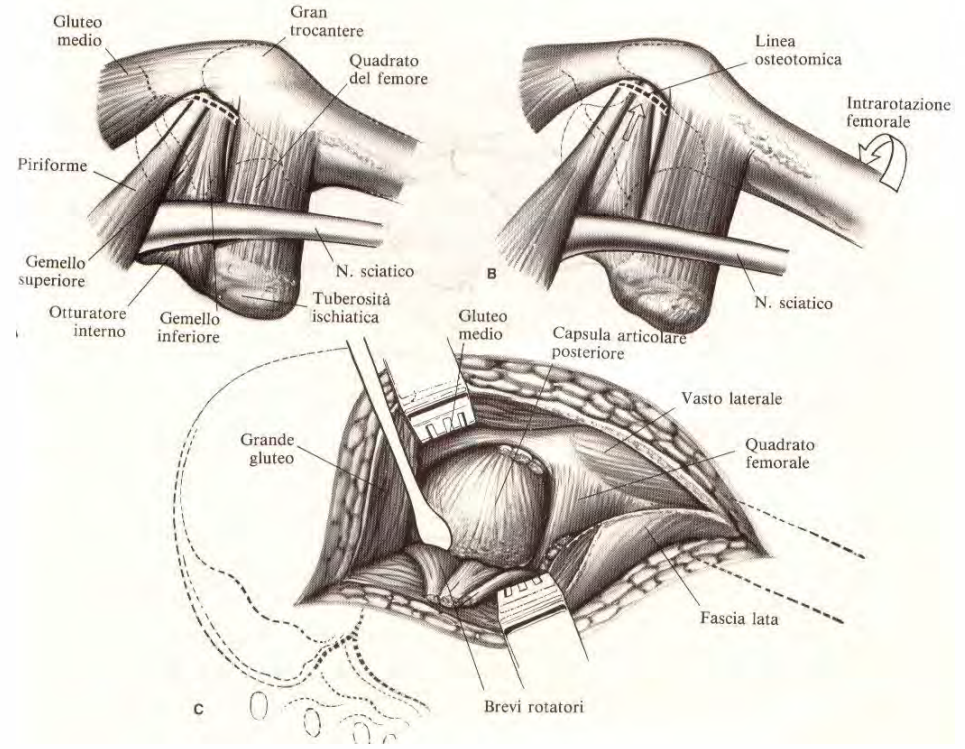
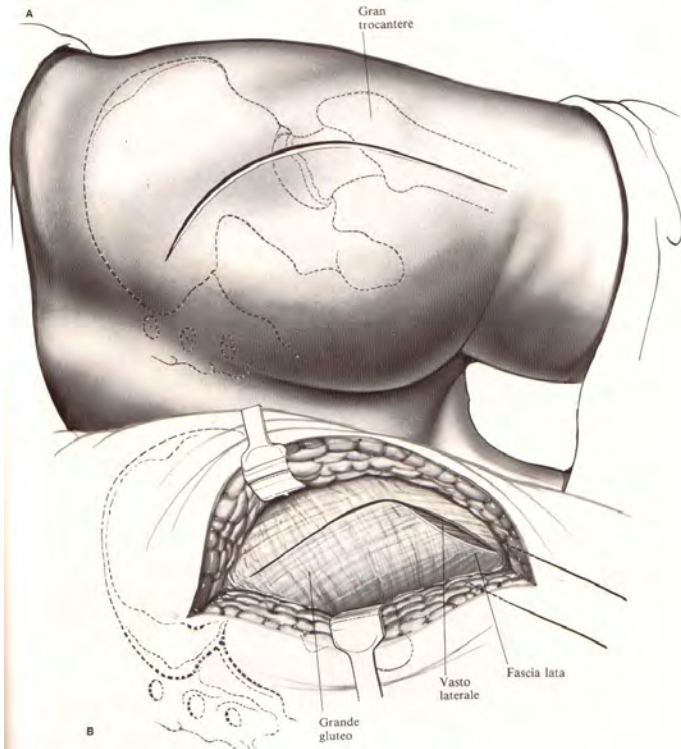


Anatomy Workshop





VIE CHIRURGICHE



•ANTERIOR APPROACH

- ANTEROLATERAL APPROACH (Watson Jones; Harris e Muller)
- LATERAL APPROACH (Hardige)
- POSTERIOR APPROACH (Moore)
- MEDIAL APPROACH (Ludloff)

ESERCIZIO CHIRURGICO=CONOSCENZA

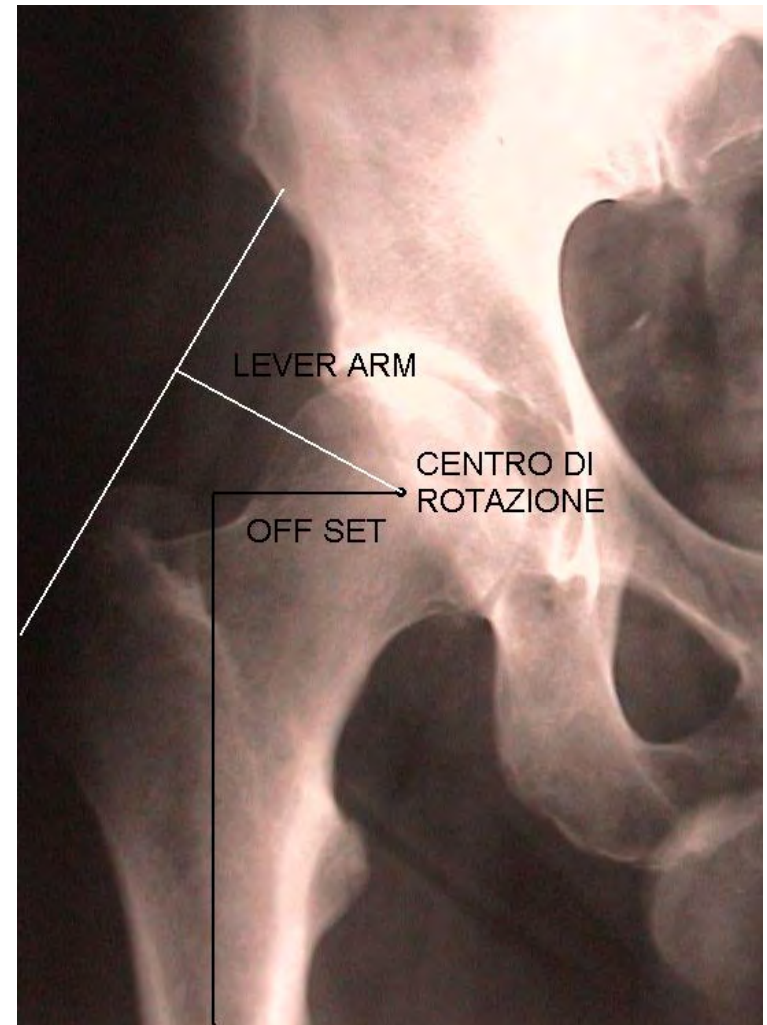
- Buona visione del campo operatorio permette di eseguire correttamente la tecnica chirurgica per qualsiasi tipo di protesi.
- Rispetto dei tessuti molli (**STS**) per la salvaguardia della vascolarizzazione della testa del femore



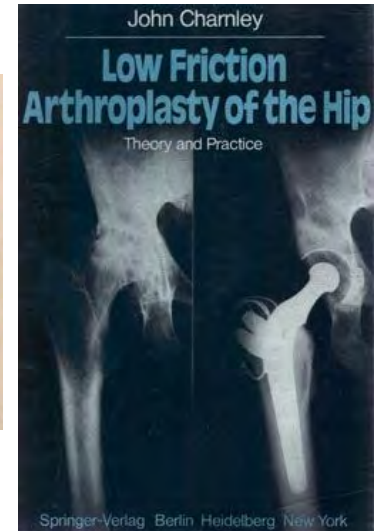
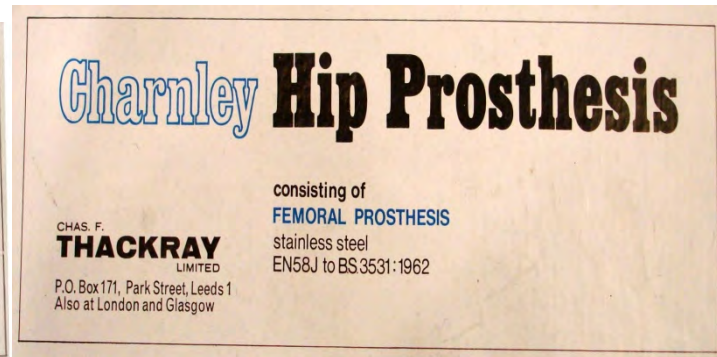
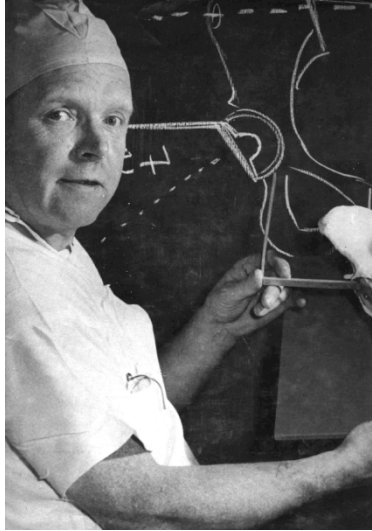
GEOMETRIA DELL'ANCA

OFF SET: distanza perpendicolare tra l'asse diafisario del femore ed il centro di rotazione della testa femorale

LEVER ARM: distanza perpendicolare tra il centro di rotazione della testa femorale e la tangente al gran trocantere



HISTORY and LESSON

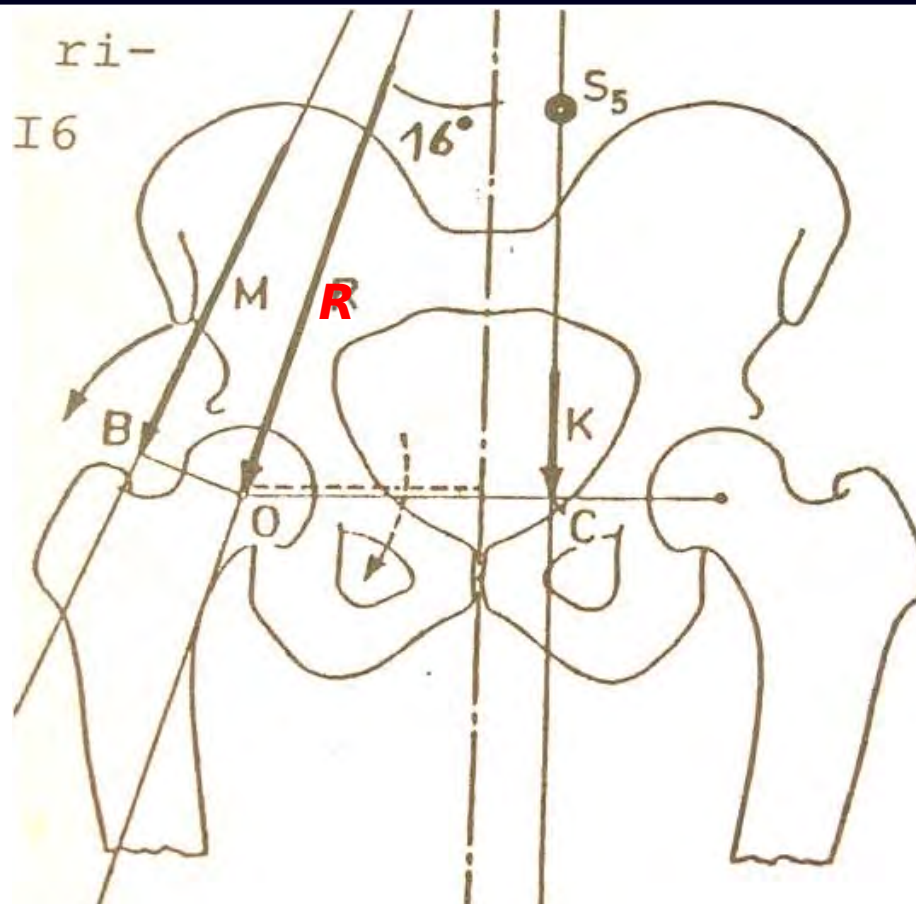


Il recupero della geometria anatomica originale con il ripristino dell'angolo cervico diafisario (CCD), il ritensionamento muscolare con la corretta latreralizzazione del femore e la corretta fissazione dell'impianto rappresentano i fattori determinanti per la longevità di una protesi d'anca.

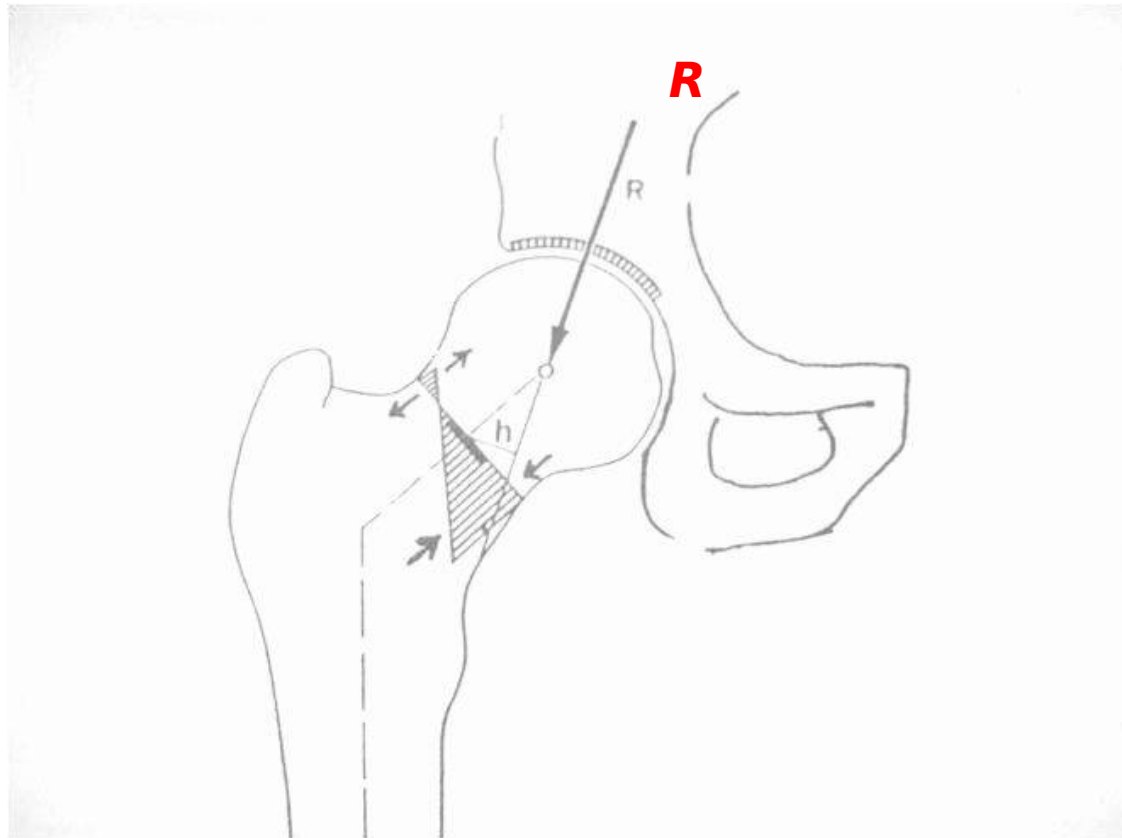
“1979 Charnley”

BIOMECCANICA

*Nel **collo femorale** si identifica il braccio di leva anatomico della bilancia di **Pauwels** che determina l'equilibrio tra pressioni sul calcare e tensioni sul gran trocantere. Ciò consente a tali strutture di non incorrere in riassorbimenti/atrofie da troppa trazione o da non uso.*



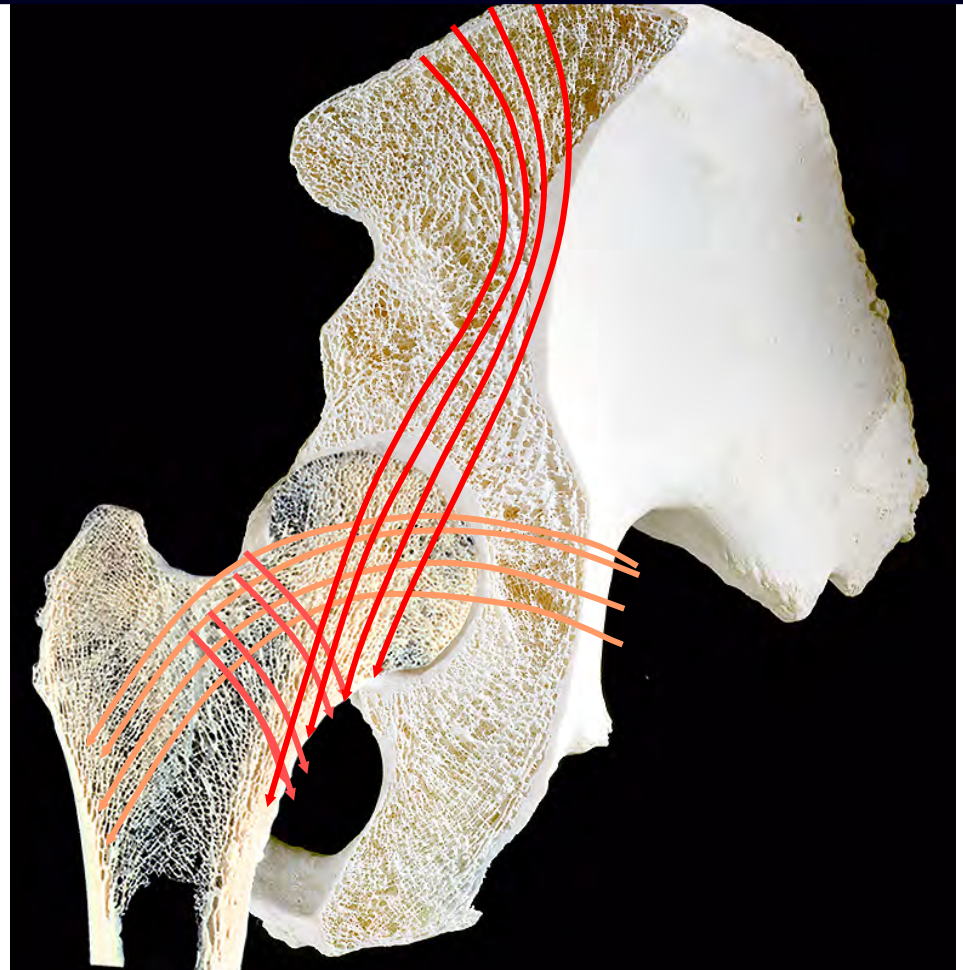
BIOMECCANICA



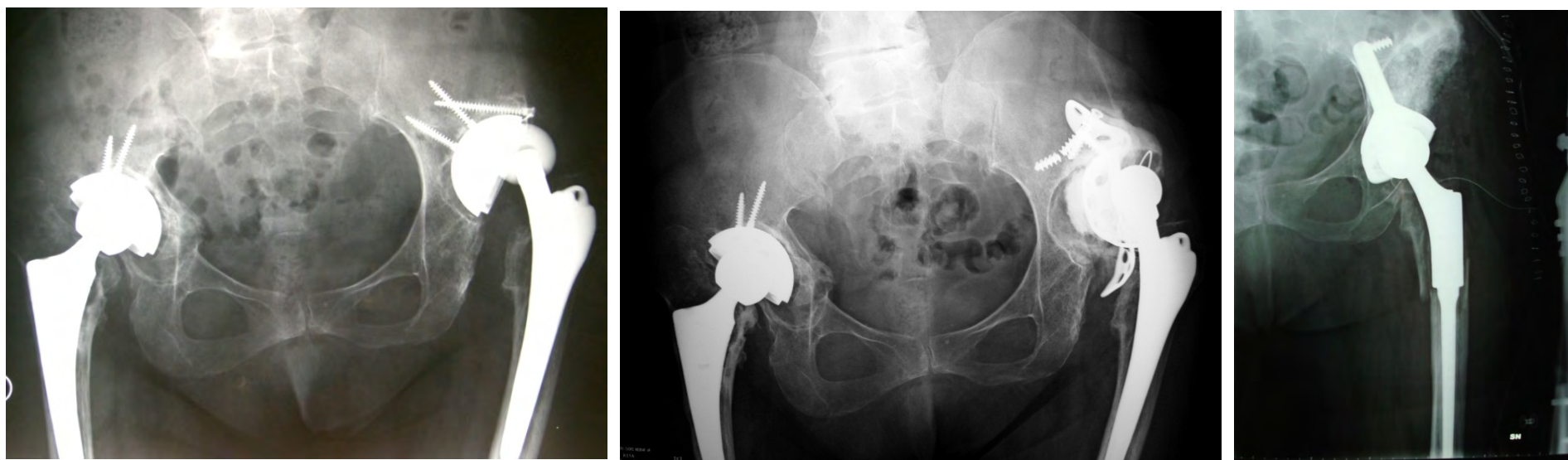
Sul Piano Frontale vi è la distribuzione delle sollecitazioni del collo femorale sotto la spinta della forza risultante R . Si nota come il campo di sollecitazione sia diviso in due parti: la superiore sottoposta a trazione e la inferiore sottoposta a compressione
“Pauwels”

BIOMECCANICA

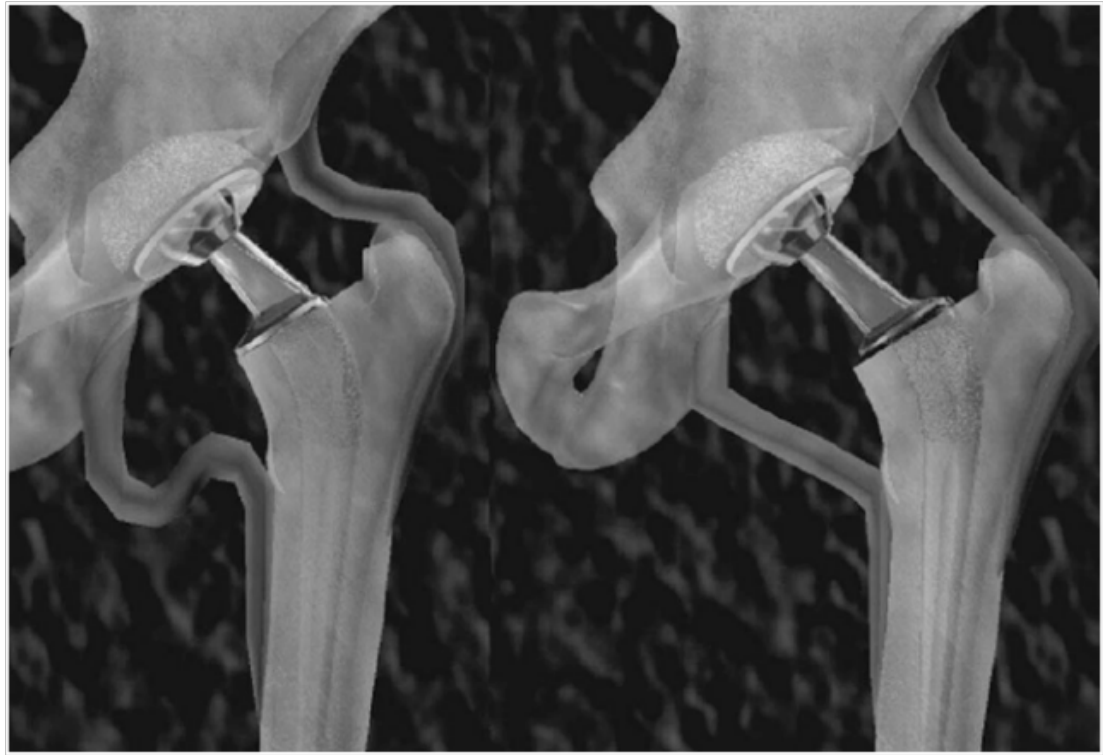
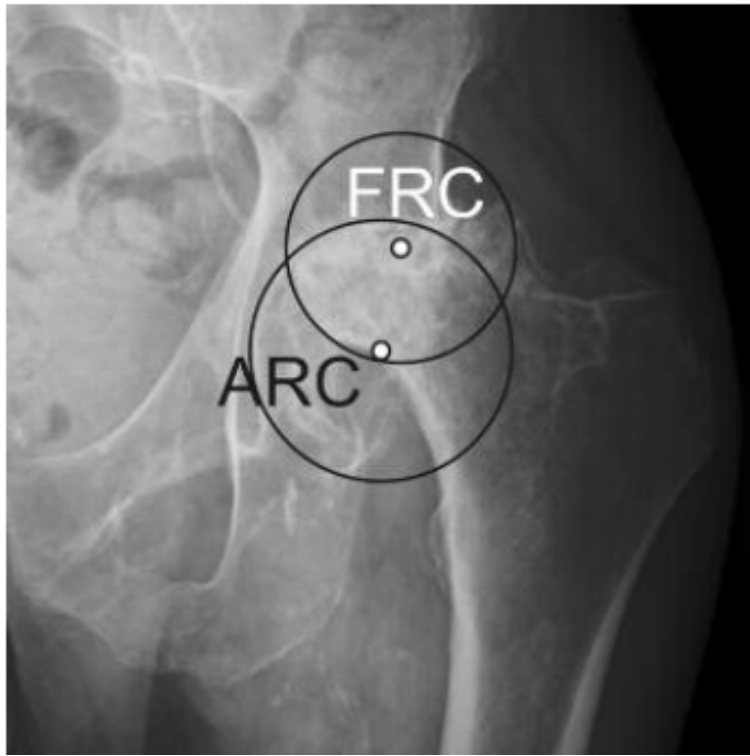
Le linee di forza passano verticalmente lungo l'osso **Iliaco**, attraversano **l'Acetabolo** e proseguono lungo la **Testa Femorale** fino alla regione **Inter Trocanterica** mediale del **Collo Femorale** : il **Calcar**.



Un off-set femorale e un braccio di leva insufficienti significano un impianto poco stabile...



L'off-set della testa femorale è funzione dell'angolo CCD (115° - 140°) e misura il grado di lateralizzazione del femore; esso influenza la lunghezza del braccio di leva degli abduttori (LEVER ARM), che esprime il grado di tensione sia dei muscoli abduttori che dei muscoli pelvi trocanterici mediali



Nonanatomical restoration of the hip center was ultimately associated with the need for revision surgery

Ranawat et al. J Arthroplasty 2008

Shortening the lever arm for the abductors by reducing the femoral offset causes Trendelenburg's limp.. and also cause impingements....

“Restoration of femoral offset during hip replacement”

J.URBAN et all

Acta Orthop Scand 1992 ;62(4):407-410

*The advantages of increasing femoral offset at THA are reported to include an increased range of motion, better mechanical advantage for the abducotor and **decreased instability** because of better soft-tissue tension...*

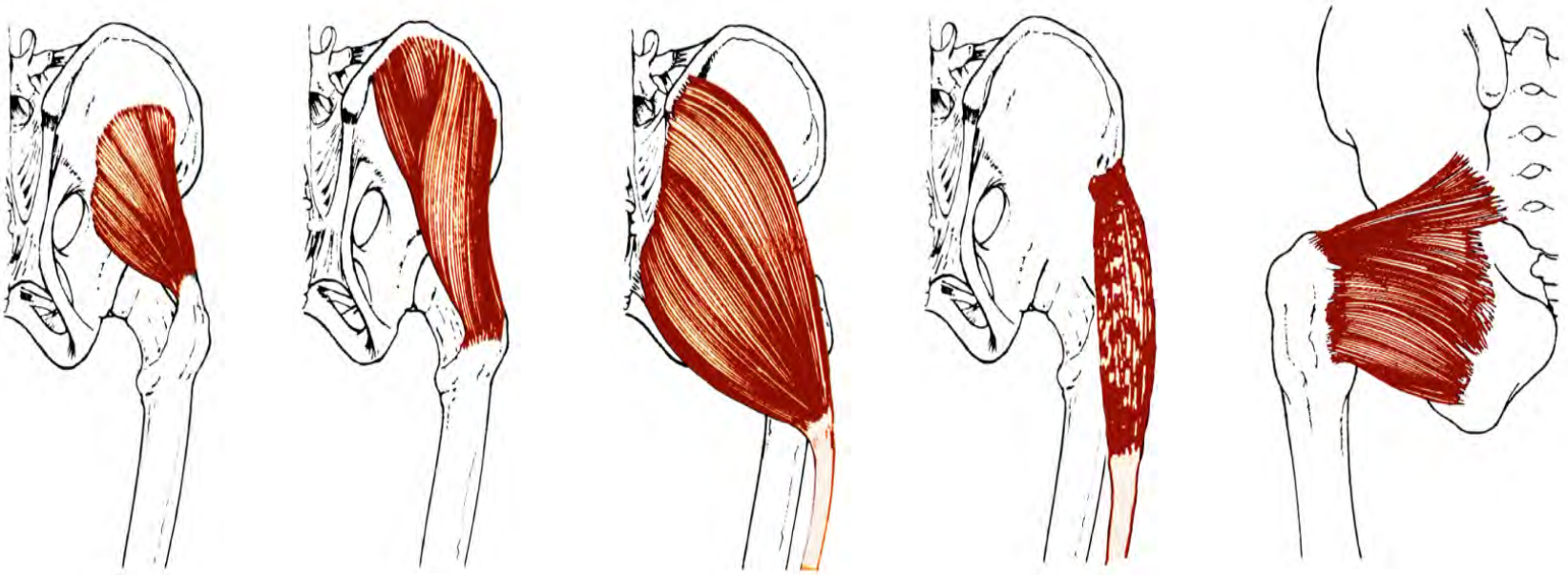
“Effect of femoral offset on range of motion and abductor muscle strength after total THA”

J.Brian et all

J.B.J.S vol 77-b 6 Nov 1995

BIOMECCANICA

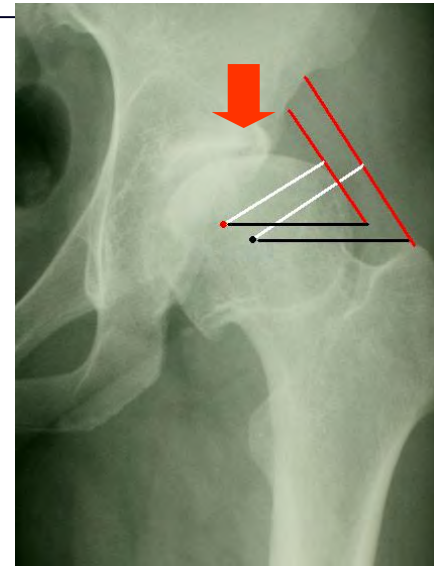
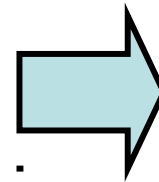
Sia i **muscoli glutei** che gli **extrarotatori**, inseriti sul bacino, mantengono la postura ed il bilanciamento del corpo quando il piede controlaterale è sollevato.



..il ripristino del corretto **braccio di leva** articolare dell'anca consente il suo buon funzionamento = stabilità dell'articolazione
(indice di **Mc Kibbin**)

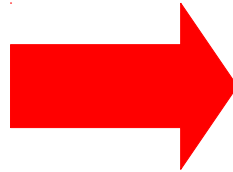
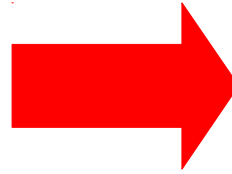
Indice di Instabilità di Mc Kbbin

Importanza di un normale orientamento sia del femore che dell'acetabolo capace di sopportare le forze ed i carichi sull'articolazione senza subirne danni: ricerca delle corrette geometrie .



Un off-set femorale e un braccio di leva errati creano una articolazione instabile...inevitabile il danno.

INSTABILITA'



..*COSA FARE*..

#

..*COME FARE!*



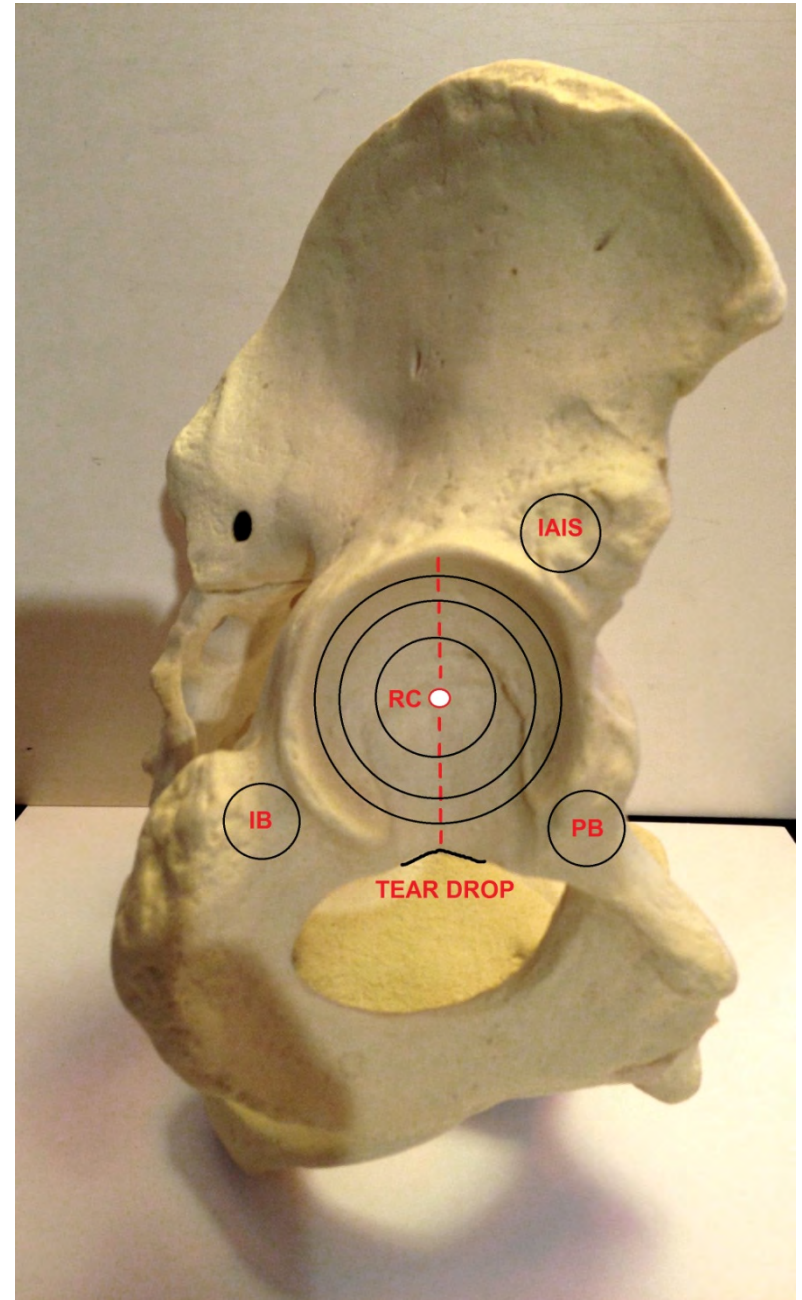
OBBIETTIVO



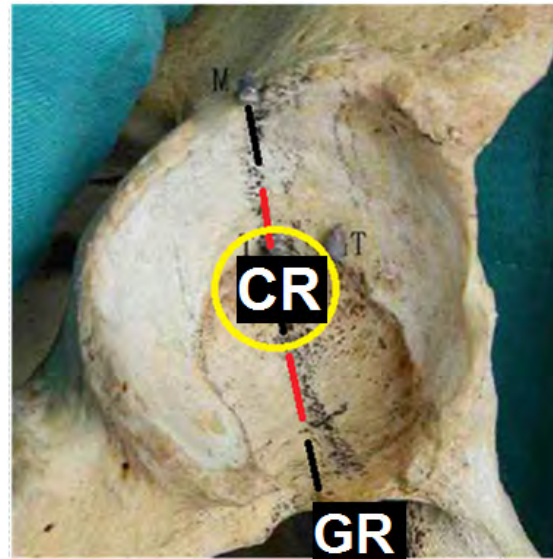
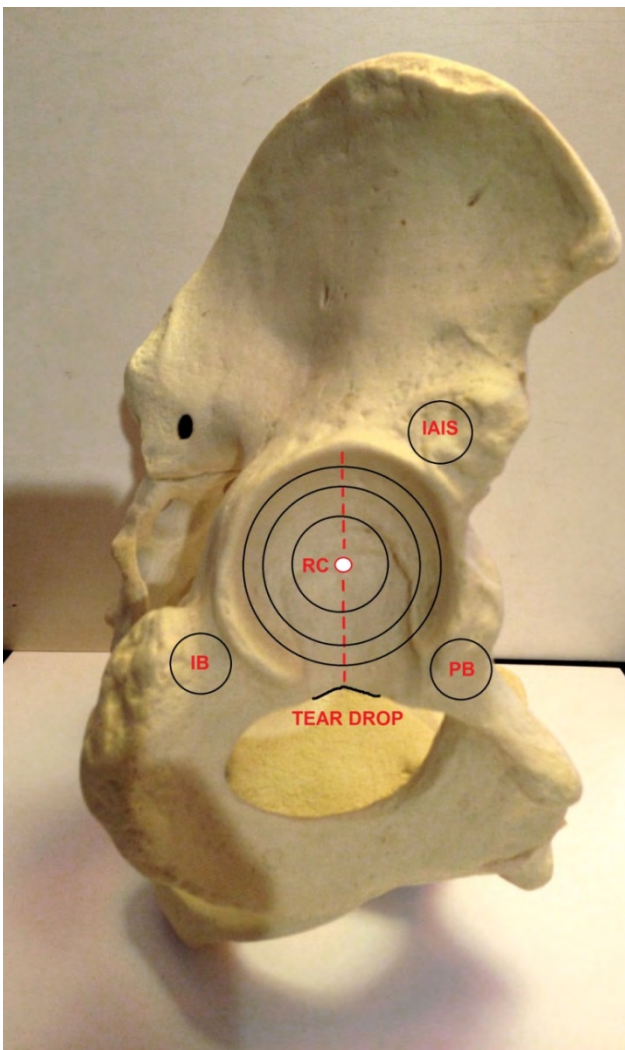
JE SUIS
BETAB-500



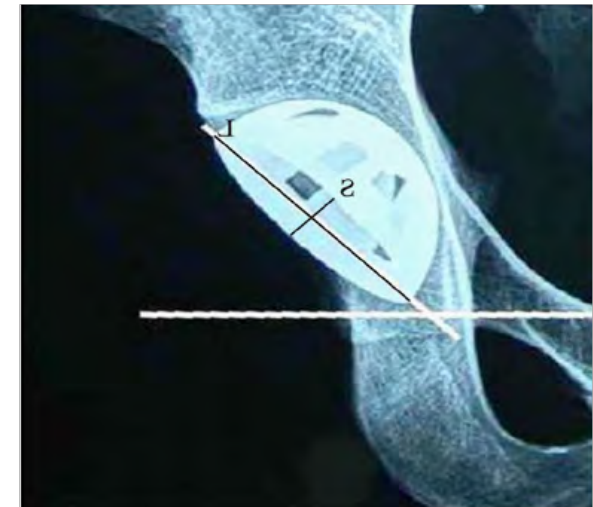
... hit the target!



Tips & Tricks



**... trovare la posizione
corretta
componente
acetabolare**



*Posizionamento della componente
acetabolare sotto il diretto controllo
del chirurgo al momento
dell'impianto*

Riferimenti spaziali sono ancora inaffidabili:

- *piano frontale e trasversale sotto controllo visivo*
- *gli strumenti di orientamento a disposizione del
chirurgo*
 - *il posizionamento del paziente*
 - *orientamento del bacino (iper o ipolordosi)*

P.Rossi et all.

G.I.O.T. 2003 ;298suppl9:s530-s534

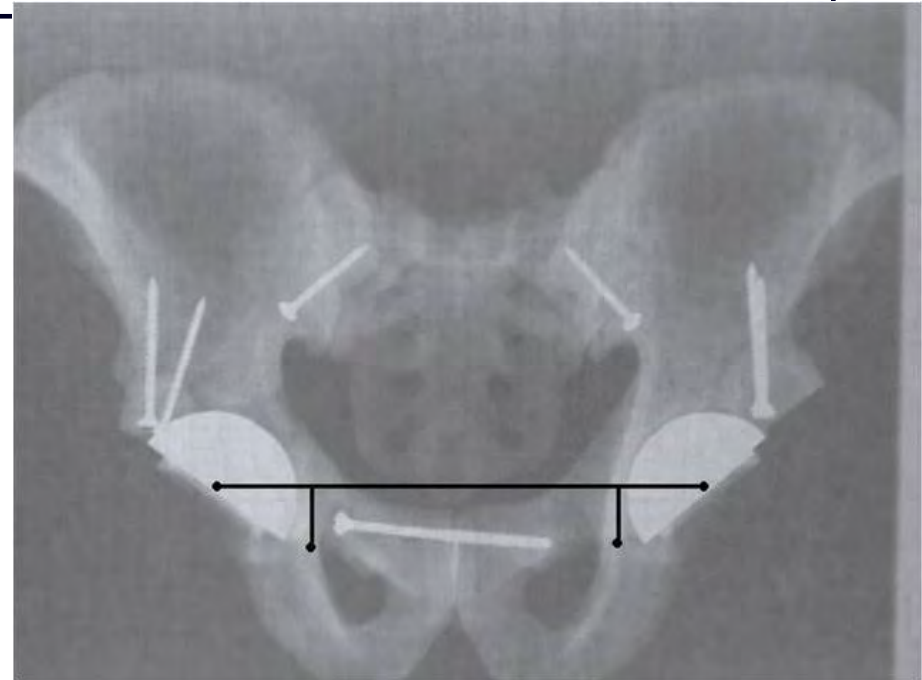
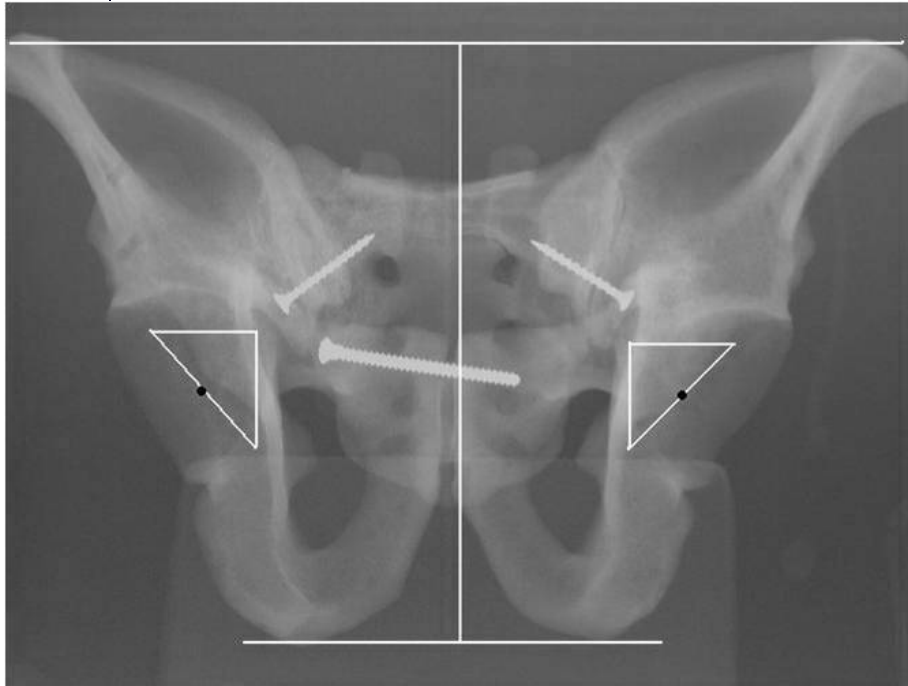
Centro di Rotazione nell'Anca Artrosica bilaterale



Triangolo di Ranawat: si calcola la misura della retta che interseca perpendicolarmente la linea bis-ischiatica e la linea passante per le ***S.I.A.S.*** e la si divide per 5. Si individua la ***Goccia Radiologica*** ed a 0,5 cm si costruisce un triangolo rettangolo

Trattamento chirurgico simulato

Costruzione geometrica del cotile definitivo Ricerca geometrica del centro di rotazione ideale



Triangolo di Ranawat

COME ORIENTARSI



The center of rotation is placed physiologically 14mm cranial and 22mm lateral to the teardrop figure

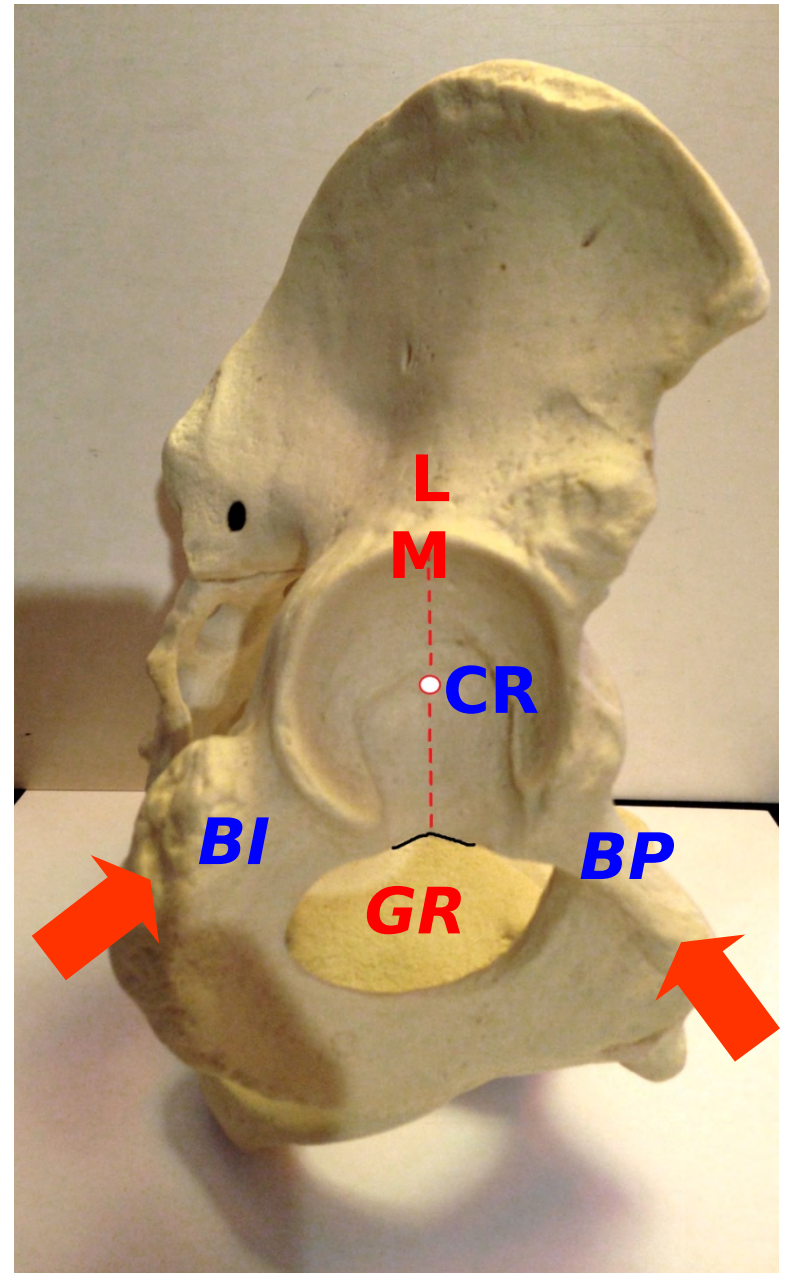
The only stable anatomic landmark in osteolytic acetabulum is the incisura acetabuli

***R.Ganz et all.
Clin Orthop 398 136-145 ,
2002***

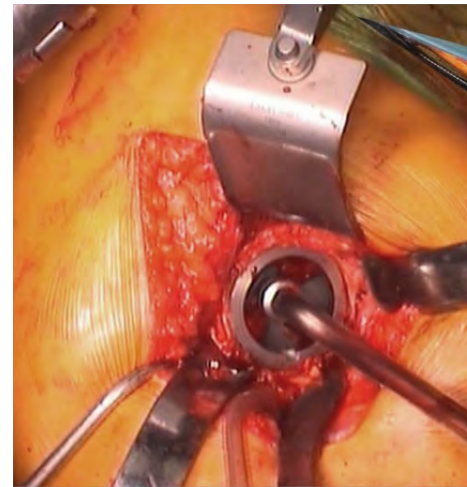
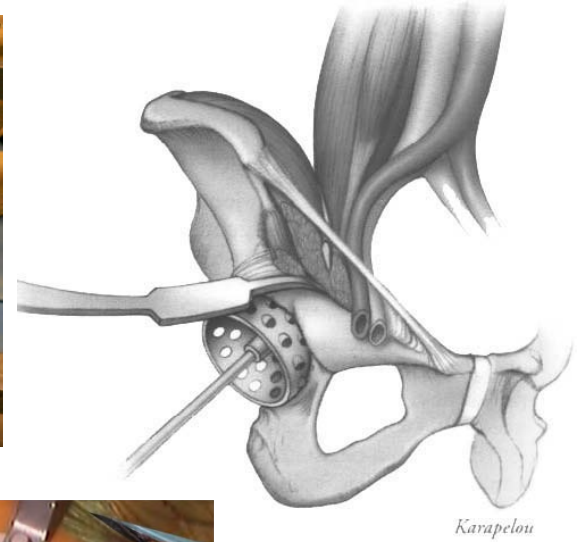
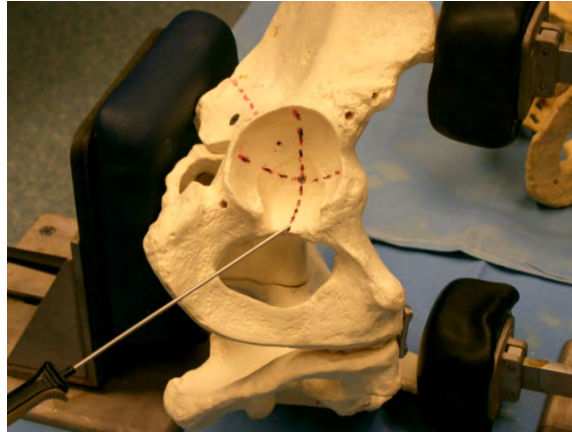
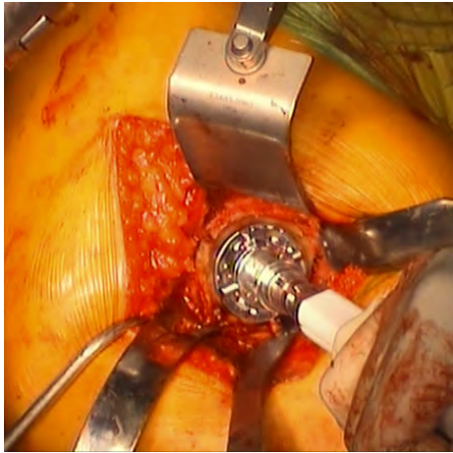
REPERI ANATOMICI

La **Goccia Radiologica** è il punto di incontro tra la **Branca Ischiatica** e la **Branca Pubica**

Sulla **Linea Mediale** che parte dalla **Goccia Radiologica** cade il **Centro di Rotazione dell'Acetabolo**

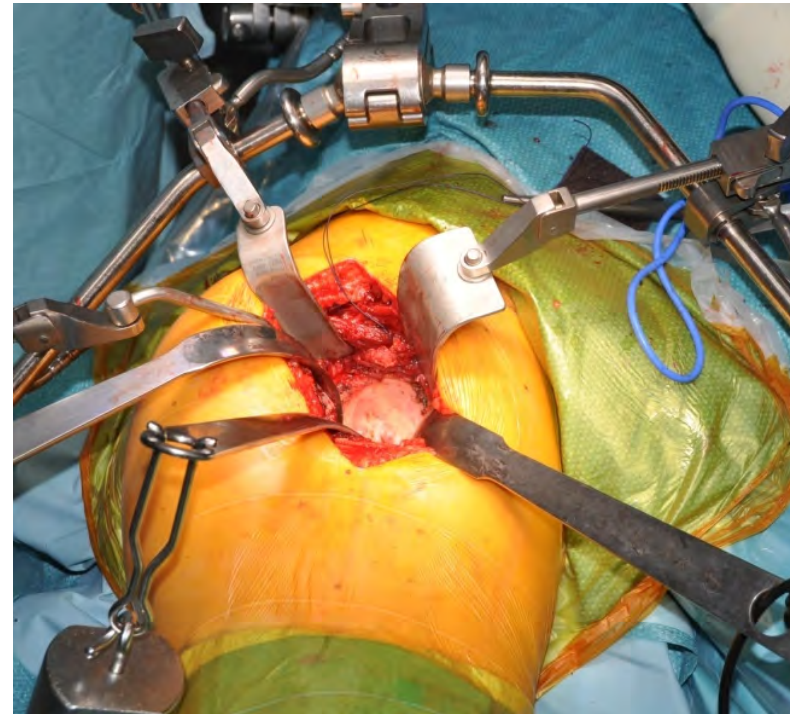
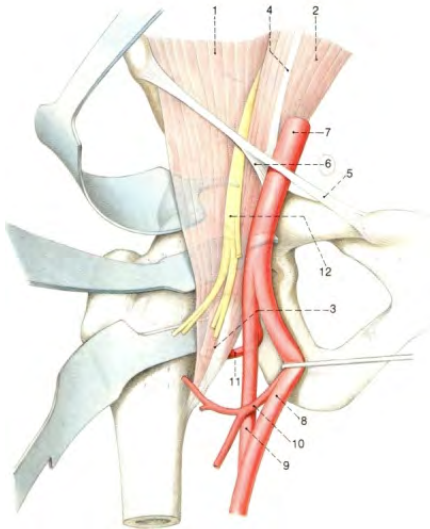


PREPARAZIONE ACETABOLARE



- **RICERCA DEL "CENTRO DI ROTAZIONE"**
- **ANTIVERSIONE/RETROVERSIONE**
- **VERTICALE / ORRIZZONTALE**

PREPARAZIONE ACETABOLARE

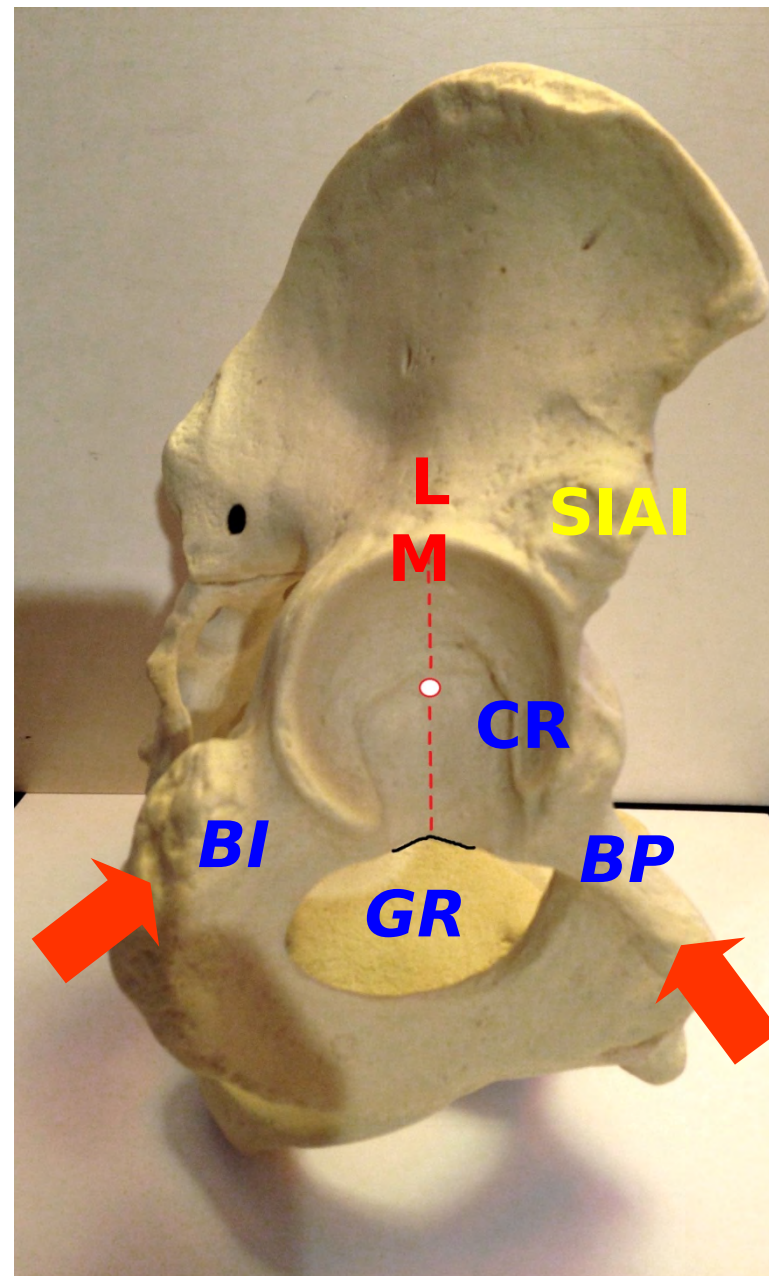
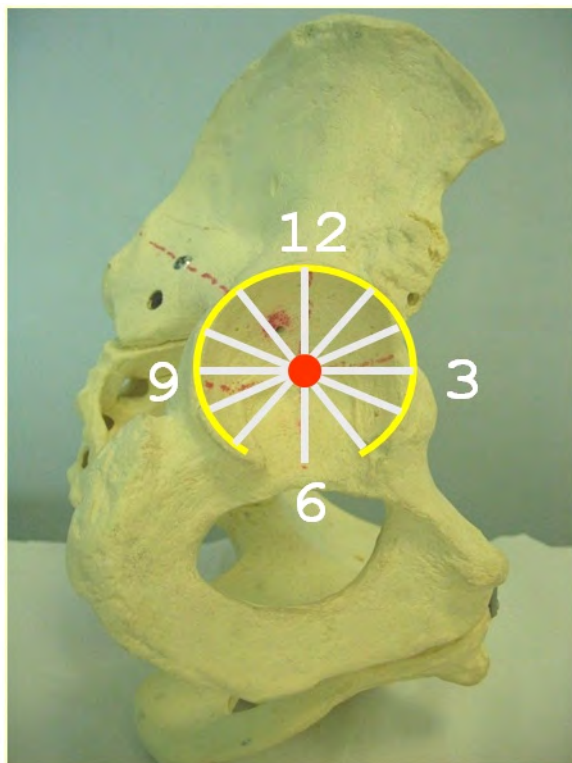


- **POSIZIONAMENTO DELLE *HOMAN* INTORNO ALL'ACETABOLO**
- **ATTENZIONE ALLE "*STRUTTURE NOBILI*"**

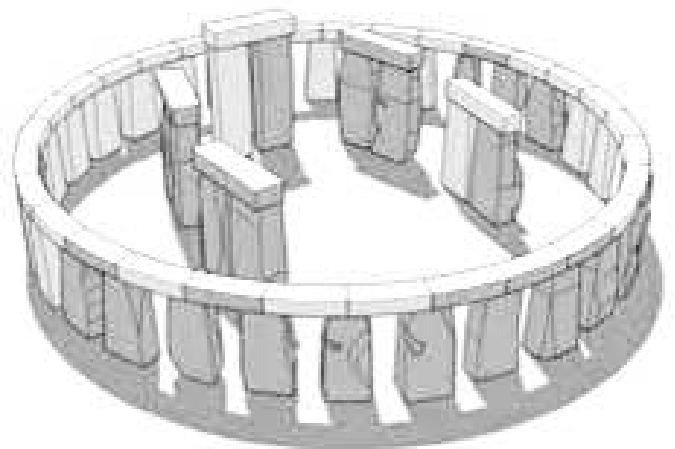
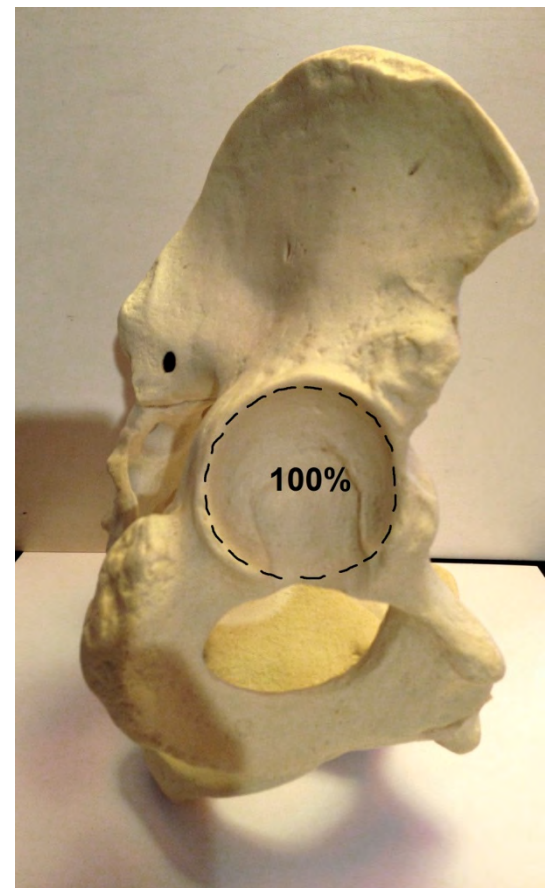
ANATOMIA dell'ANCA

La **Goccia Radiologica** è il punto di incontro tra la **Branca Ischiatica** e la **Branca Pubica**

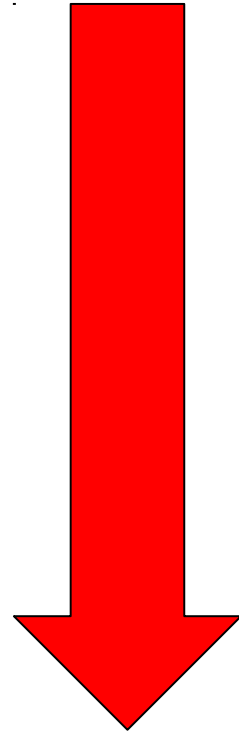
Sulla **Linea Mediale** che parte dalla **Goccia Radiologica** cade il **Centro di Rotazione dell'Acetabolo**



***Integrità
Ring
(M.Marcucci)
Stabilità
meccanica
a
(press-fit)***



DIVERSE FORME MORFOLOGICHE



CARTILAGE WEAR

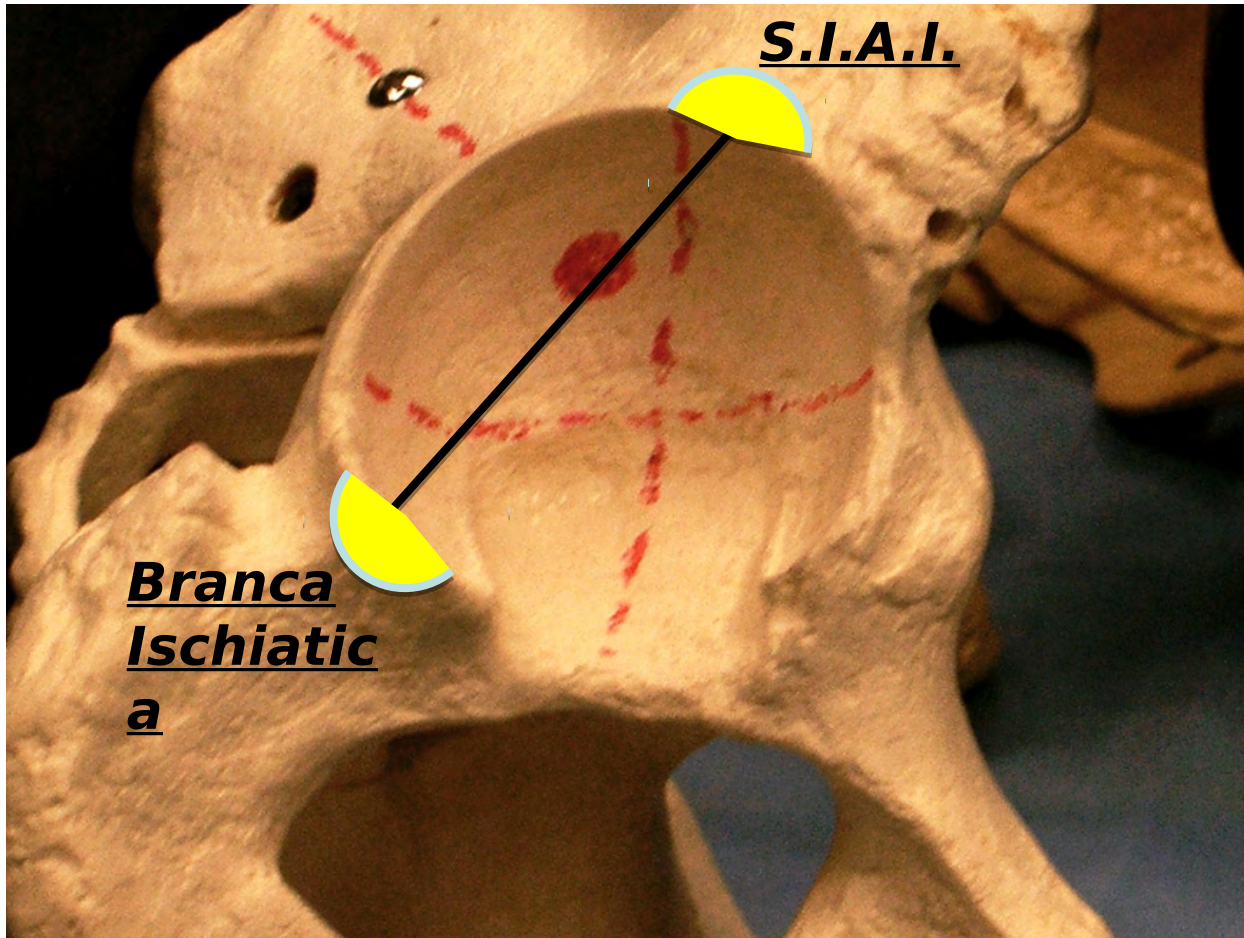
Integrità Ring (M. Marcucci)



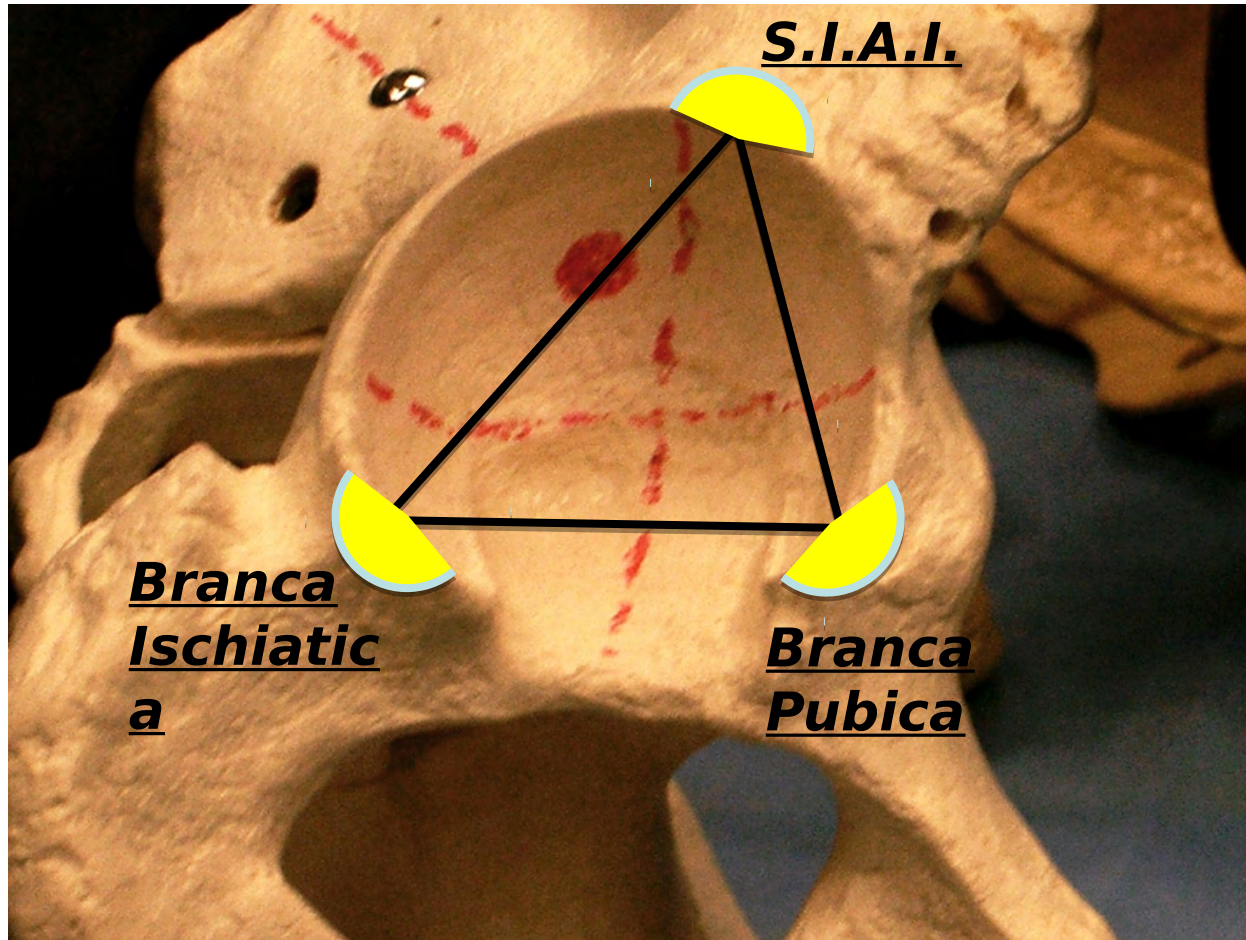
Stabilità meccanica (press-fit)



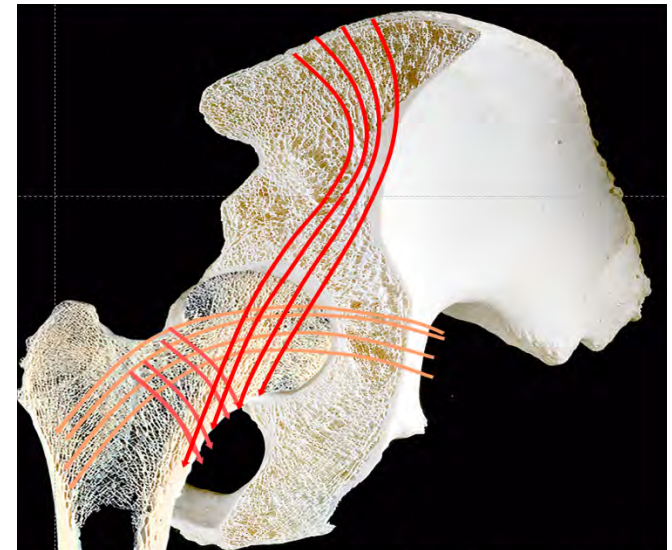
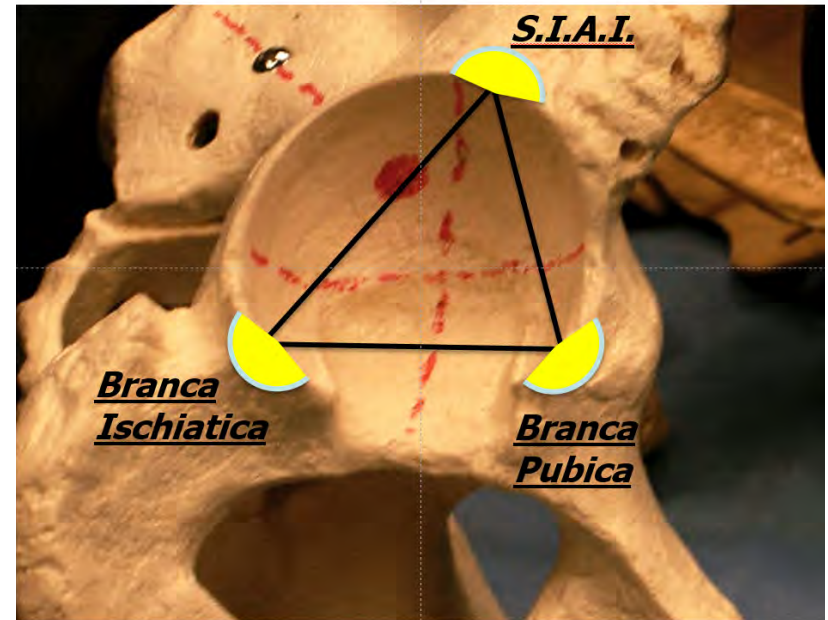
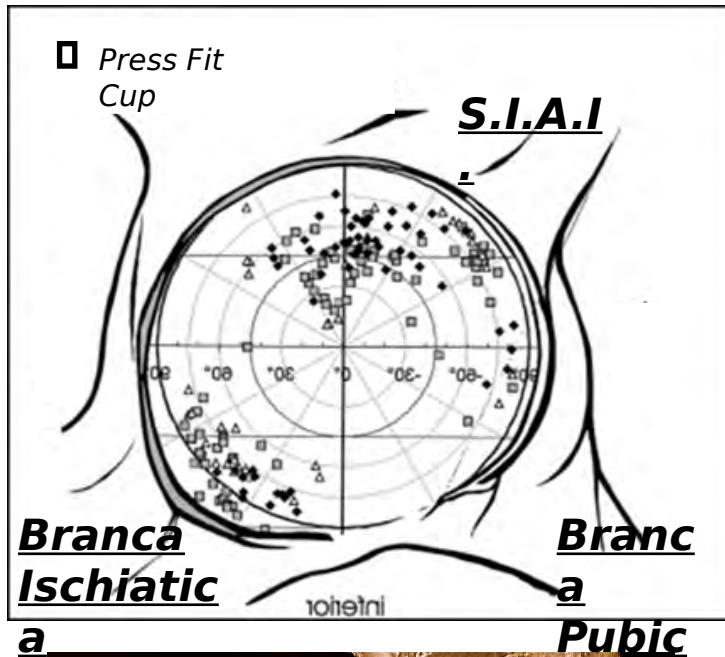
Paprosky



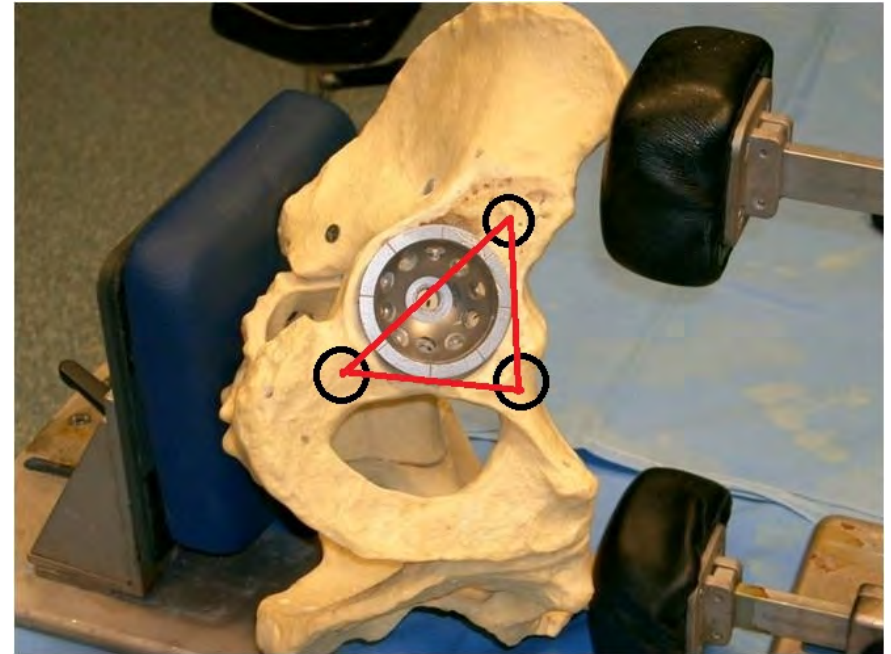
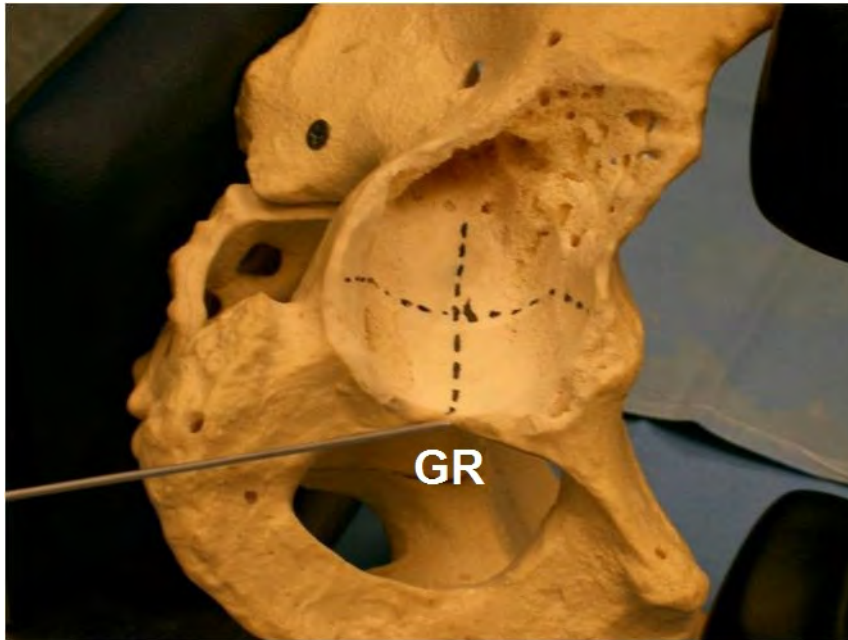
Triangolo di Salvataggio



Triangolo di Salvataggio



PREPARAZIONE DELL'ACETABOLO

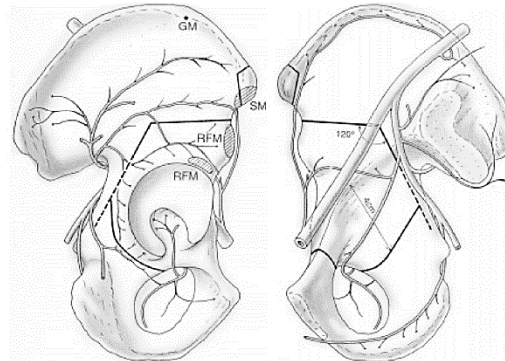
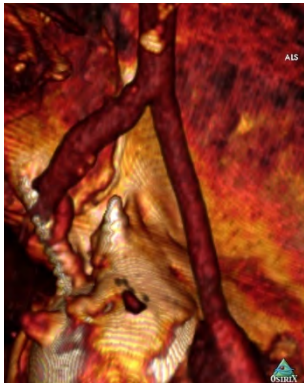
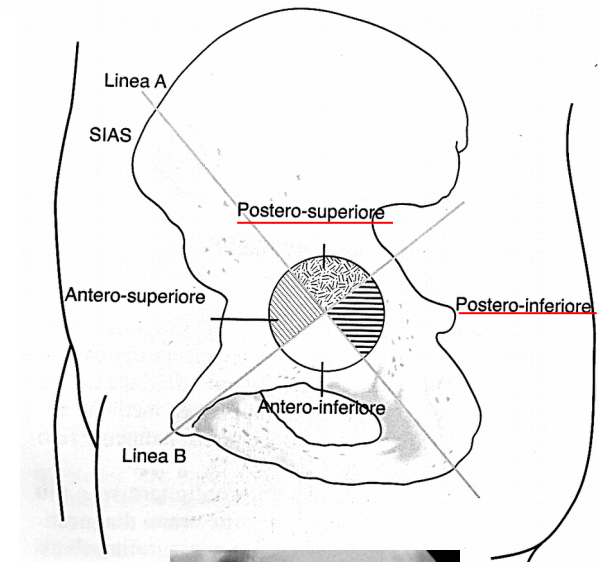
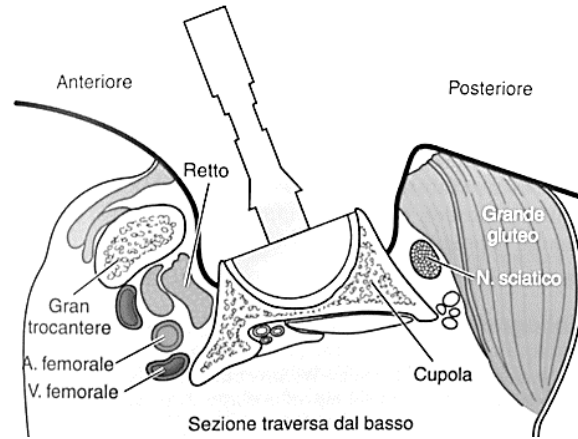
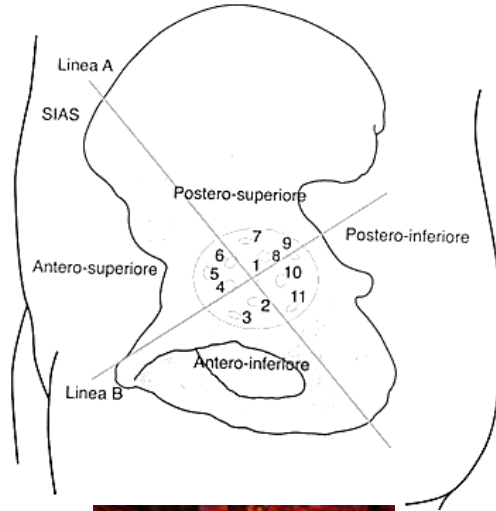


- Ricerca della "**Goccia radiologica**"
- Ripristino del "**Triangolo di Salvataggio**"



POSIZIONAMENTO DELLE Lesioni neurovascolari VITI

KEVIN L. GARVIN



Wasielowski e coll: i quadranti posteriori (superiore ed inferiore) contengono l'osso migliore e quest'area è relativamente sicura per il posizionamento trans acetabolare delle viti.

Screws are not needed when secure interference fit of uncemented acetabular components is adequate: a 5- to 15-year follow-up with clinical and radiological analysis

Authors

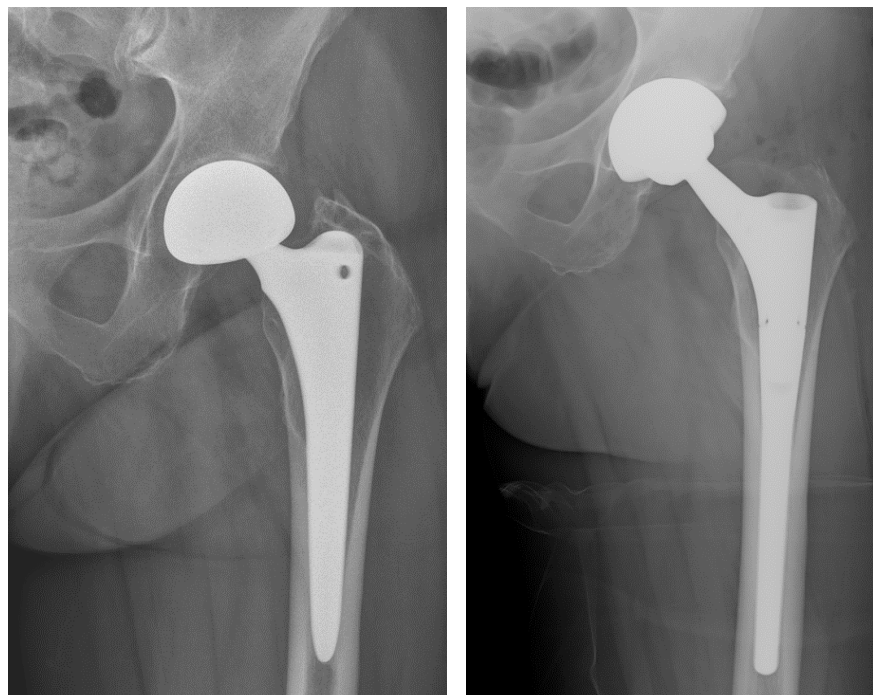
Eduardo García-Rey

Conclusions

Good intraoperative technique is not enough to avoid screw use since more accurate cup position and reconstruction of the hip rotation centre are required for an adequate interference fit. A press-fit technique can provide similar mid-term results to screw use in hips without severe deformities.

International Orthopaedics (SICOT) (2014) 38:1155–1158

DOI 10.1007/s00264-013-2271-0



Initial stability of cementless acetabular cups: press-fit and screw fixation interaction—an in vitro biomechanical study

Tomonori Tabata · Nobuhiro Kaku ·
Katsutoshi Hara · Hiroshi Tsumura

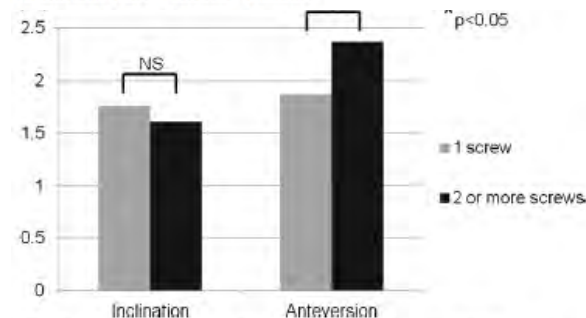
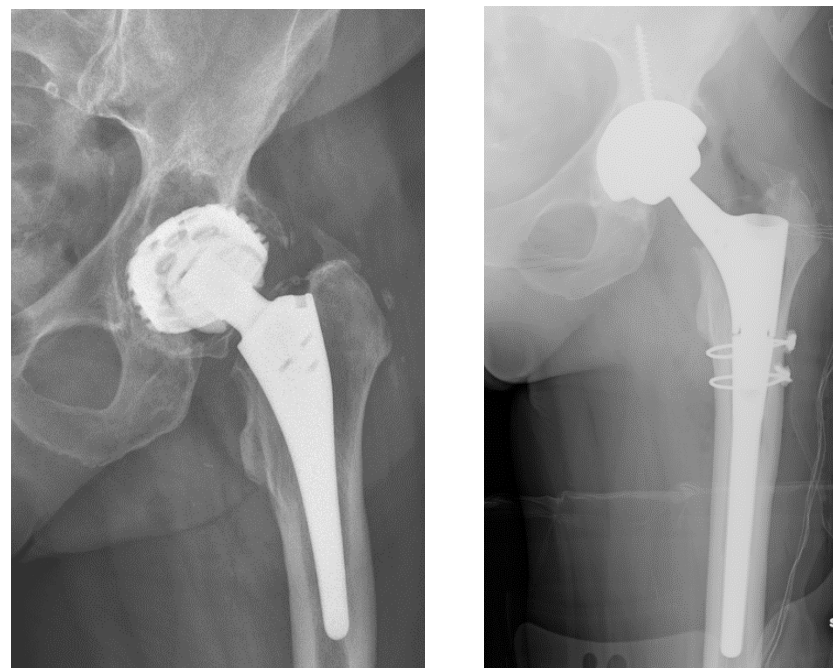


Fig. 2 There was no significant difference between patients with one screw and patients with two or more screws in intraoperative change of inclination ($1.76 \pm 1.60^\circ$, $1.87 \pm 1.46^\circ$, respectively) ($p=0.70$). While intraoperative change of anteversion in patients with two or more screws ($2.37 \pm 2.45^\circ$) was significantly greater than in patients with one screw ($1.61 \pm 1.38^\circ$) ($p=0.022$)



Initial stability of cementless acetabular cups: press-fit and screw fixation interaction—an in vitro biomechanical study

Tomonori Tabata · Nobuhiro Kaku ·
Katsutoshi Hara · Hiroshi Tsumura

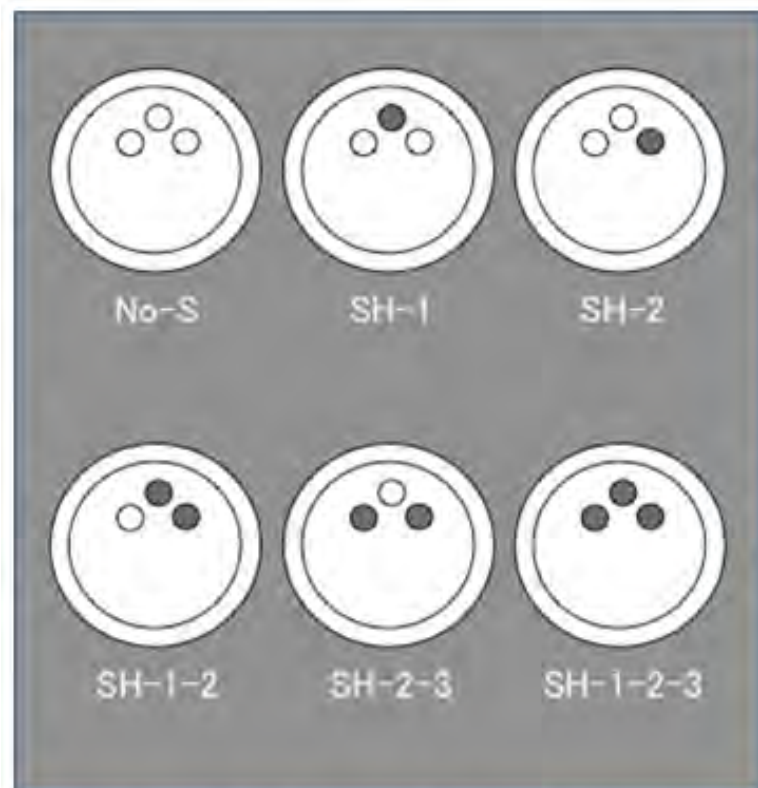


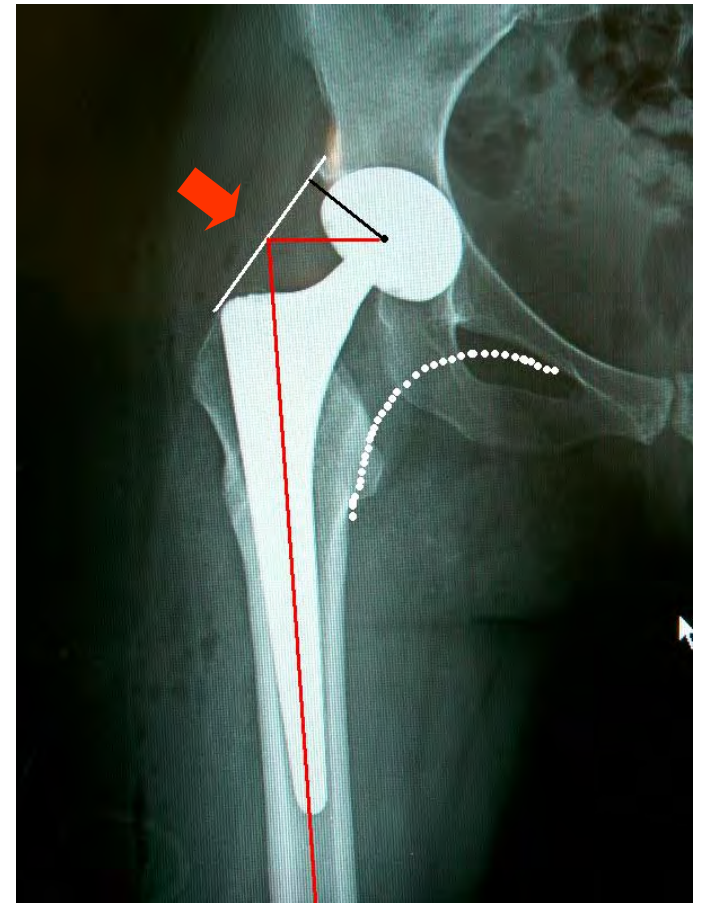
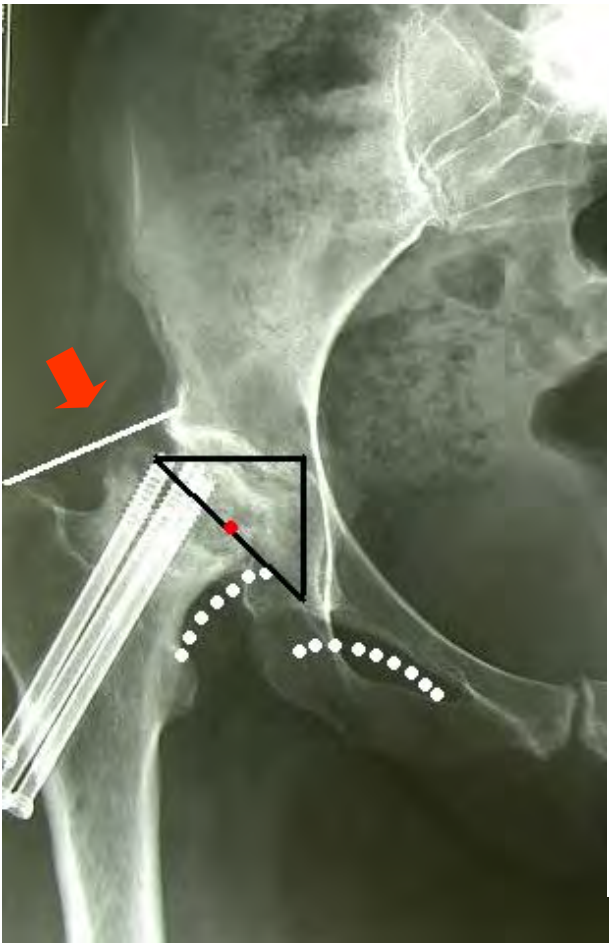
Fig. 2 The screws are inserted in the following six conditions: no screw (No-S), one screw (SH-1 and SH-2), two screws (SH-1-2 and SH-2-3), and three screws (SH-1-2-3)

Background Press-fit and screw fixation are important technical factors to achieve initial stability of a cementless acetabular cup for good clinical results of total hip

Conclusions According to our experiment, press-fit fixation of a cementless acetabular cup achieved rigid stability. Although the supplemental screws increased stability of the implant under good press-fit conditions, they showed little impact on whole-cup stability. In the case of insufficient press-fit fixation, cup stability depends on screw stability and increasing the number of additional screws increases cup stability.

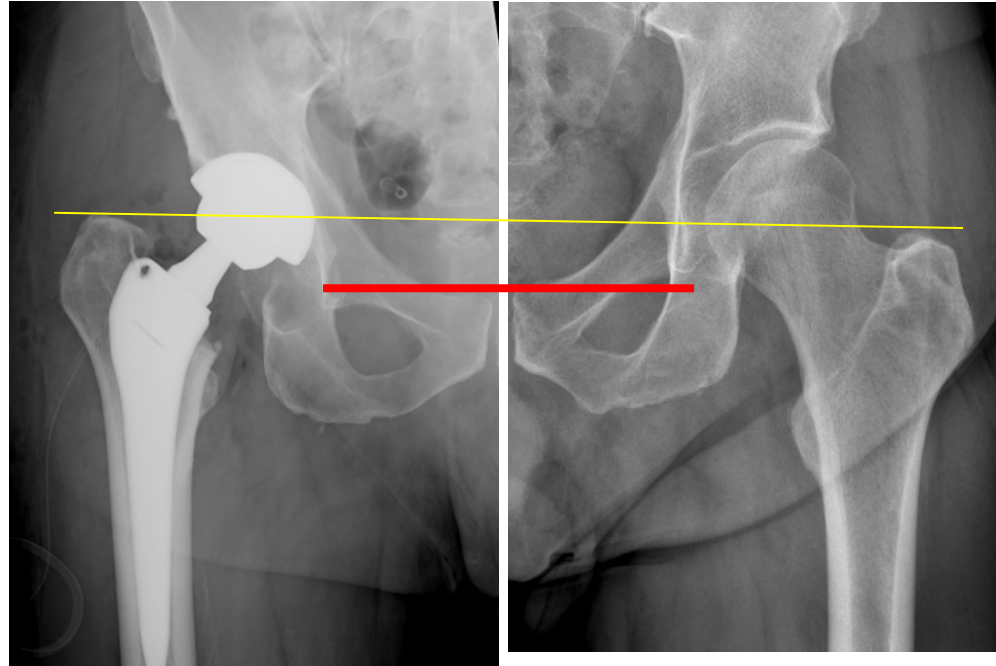
Ripristino della Geometria

..è necessario avere a disposizione "**sistemi protesici**" che abbiano più off-set tali da consentire il raggiungimento di una corretta geometria articolare



DISPLASIA

La **MODULARITA'** rappresenta una arma efficace per la ricerca del Centro di Rotazione e consente la correzione della dismetria ed il ripristino della geometria articolare

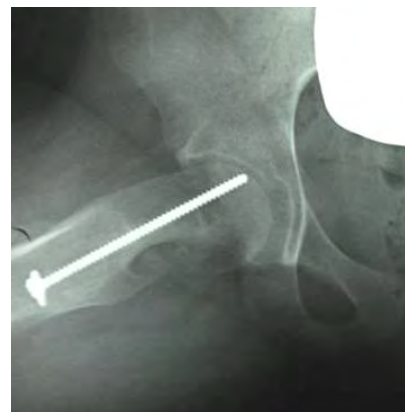


*Il posizionamento del cotile insieme alla taglia corretta contribuiscono al ripristino del **Centro di Rotazione**.*

EPIFISIOLISI



2002



2012



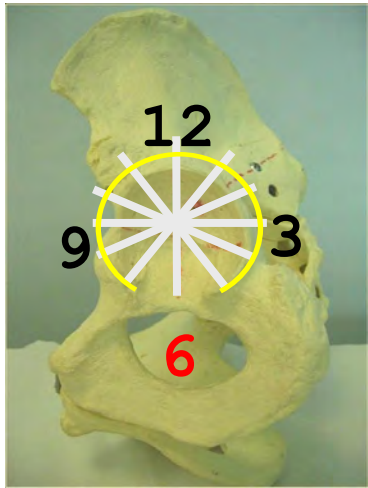
2010



....scelta corretta della protesi!

APPROCCIO CHIRURGICO

***Nella Revisione Chirurgica la
visione acetabolare spesso è***



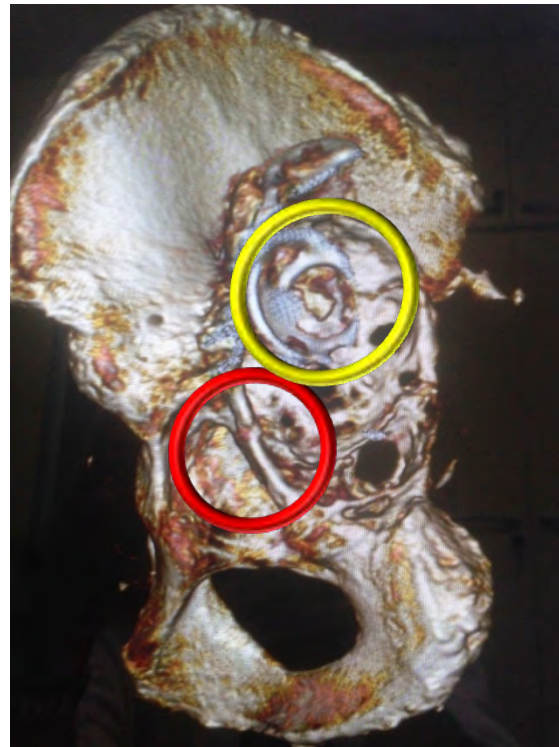
***•La visione acetabolare è
permessa senza l'ingombro del
femore che viene posto
anteriormente al cotile che
consente il posizionamento di
gabbie di contenimento (Anello
di B.S.) e/o cotili da revisione
(tipo MC MUN)***



GOAL: *ristabilire la geometria coxo-femorale*

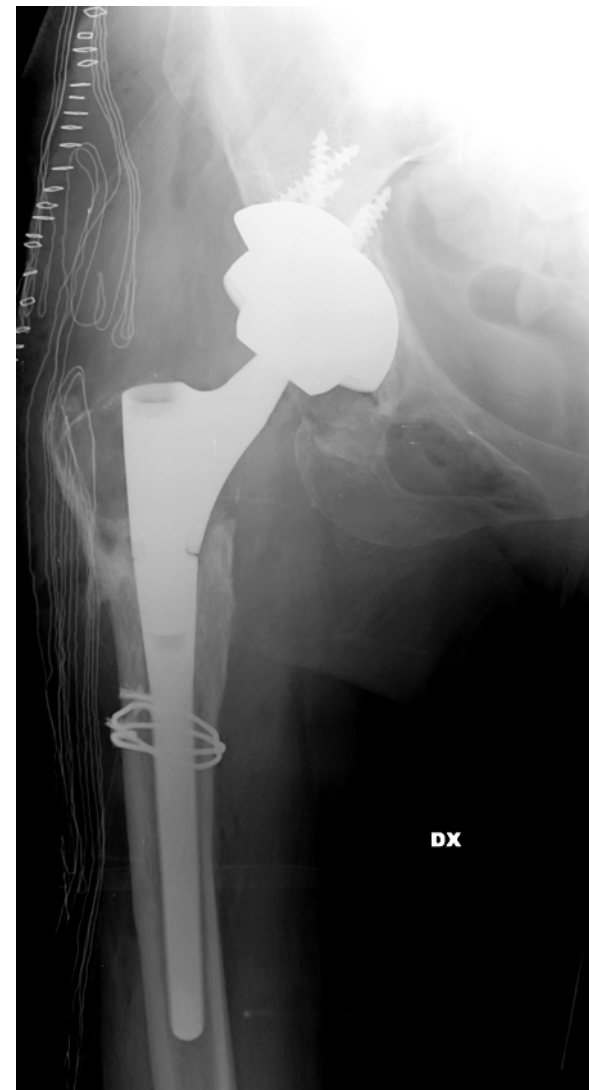
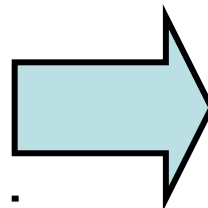
➡ ***Trovare il Centro di Rotazione***

➡ ***Corretta posizione dell'Impianto***



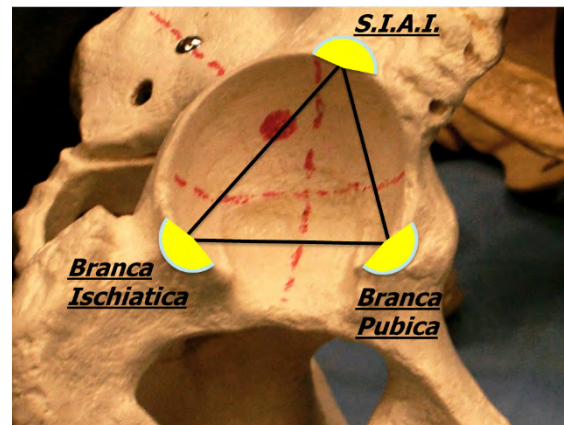
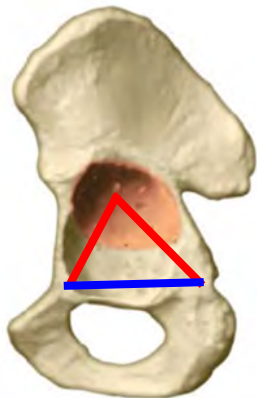
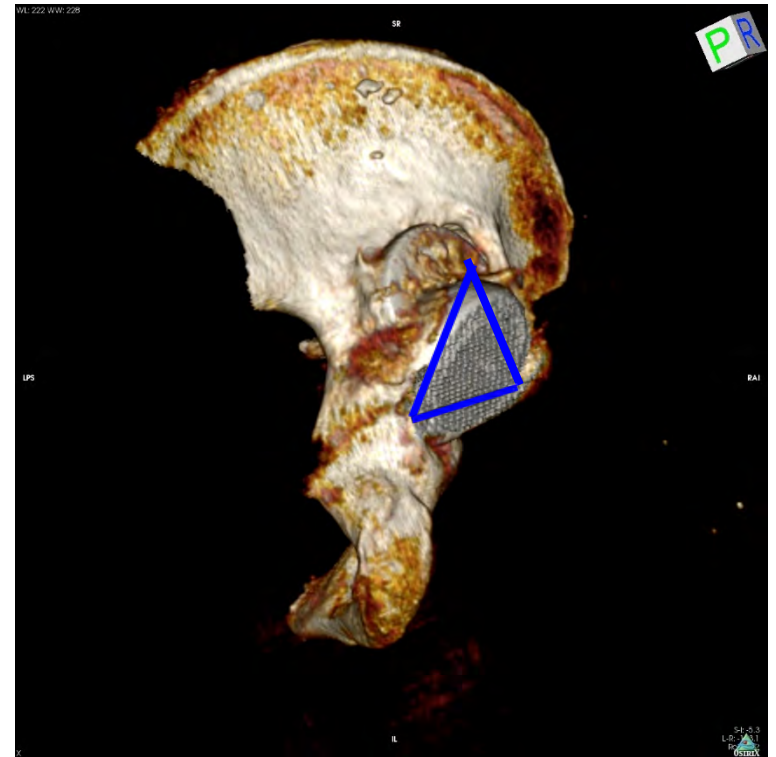
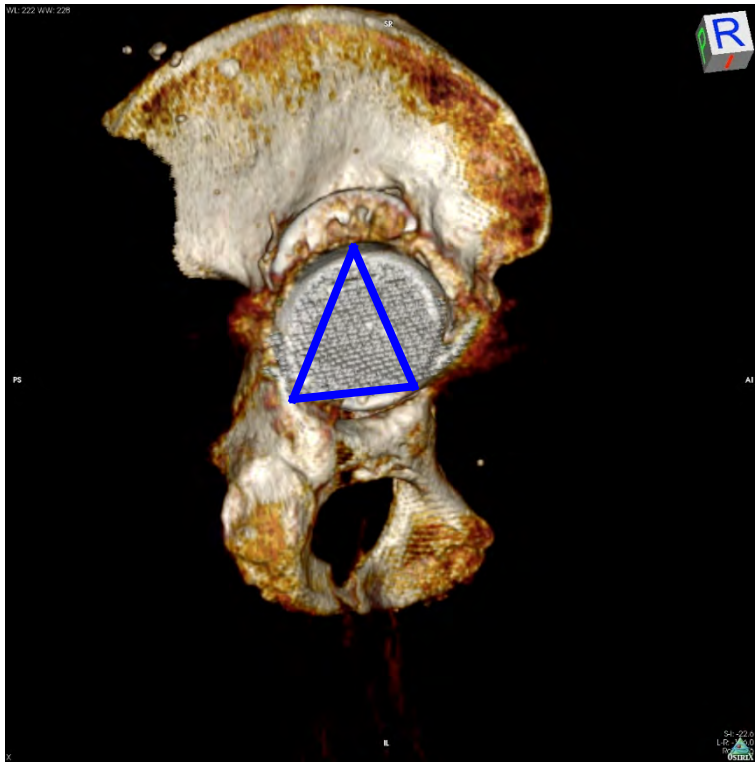
*Ristabilire il corretto "**offset**" e "**lever arm**"*

Difetto Tipo II B

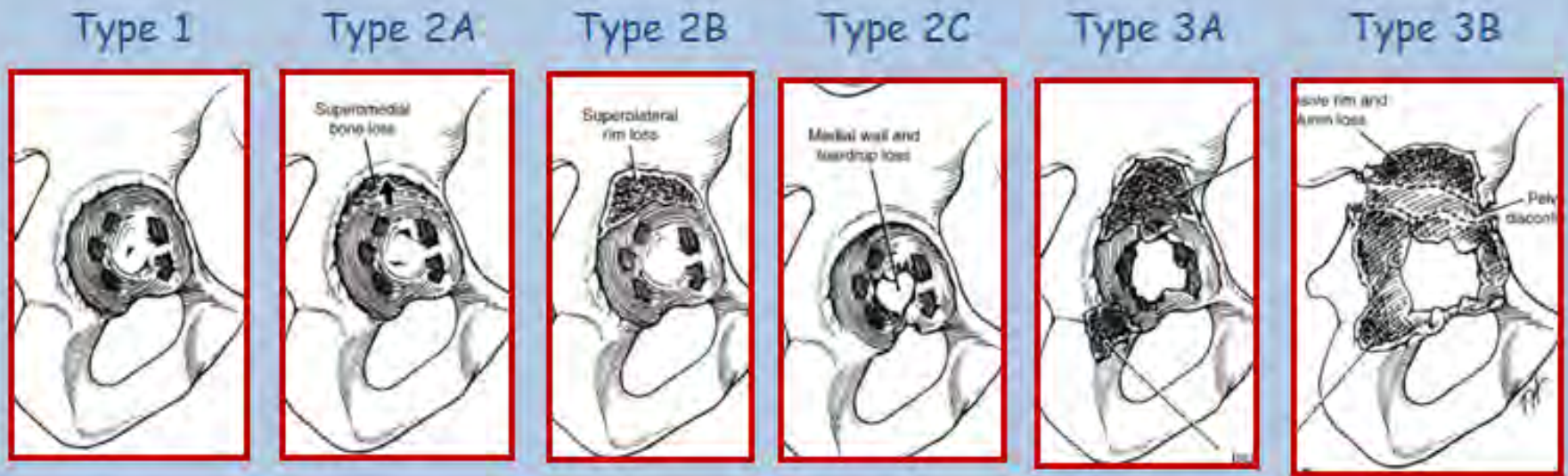


- ***Difetto Supero-Laterale con bordo deficitario***
- ***Linea di KOHLER intatta***
- ***Migrazione verticale > 1 cm***
- ***Lieve lisi dell'Ischio***

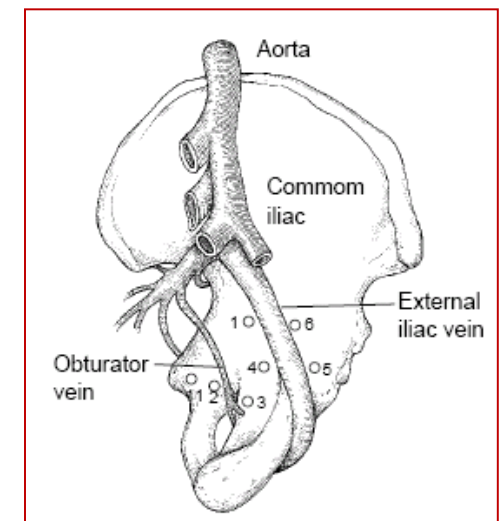
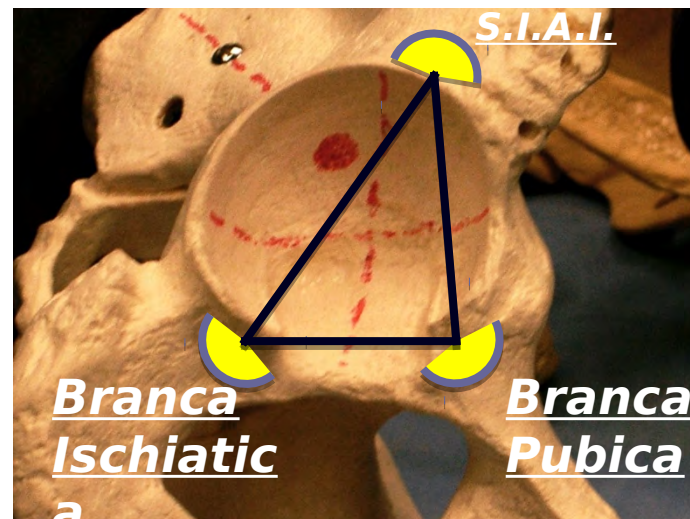
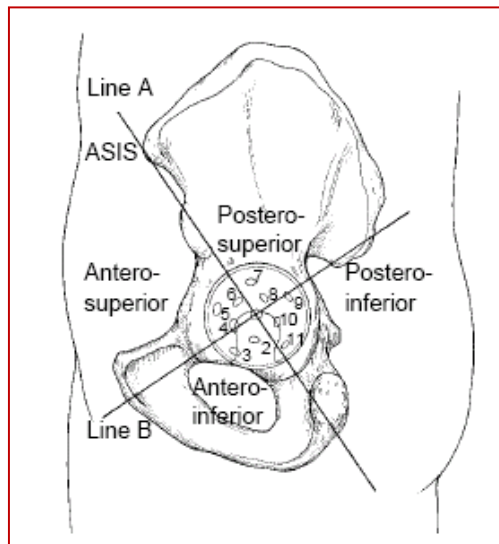
RIPRISTINO DEL TRIANGOLO DI SALVATAGGIO



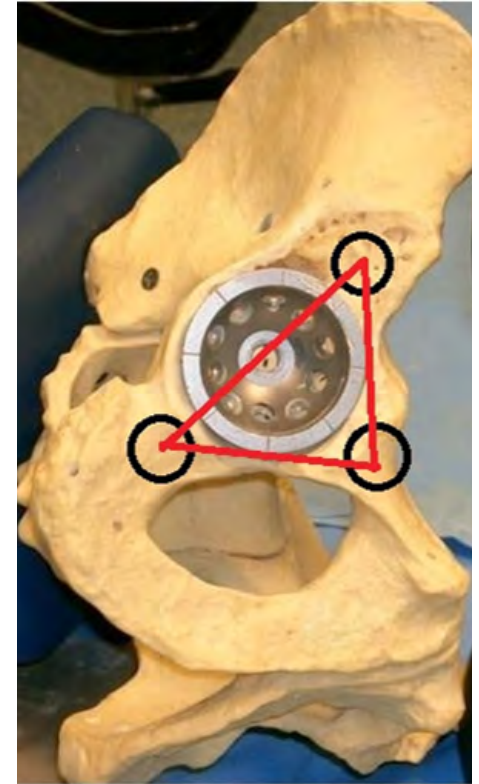
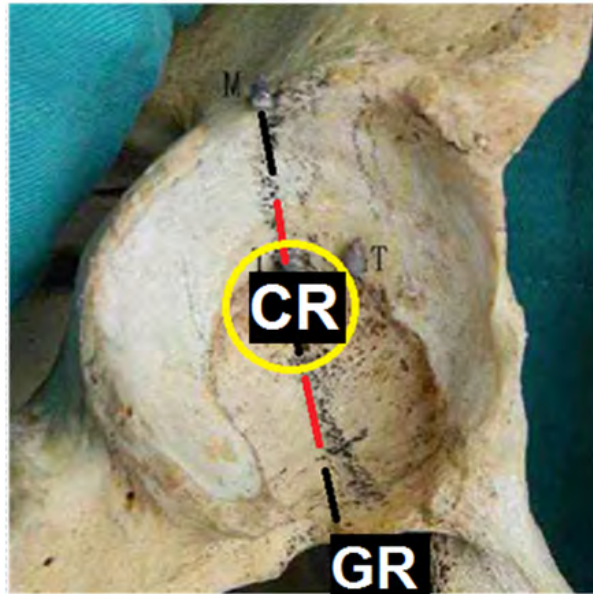
DIFETTO OSSEO



Triangolo di Salvataggio

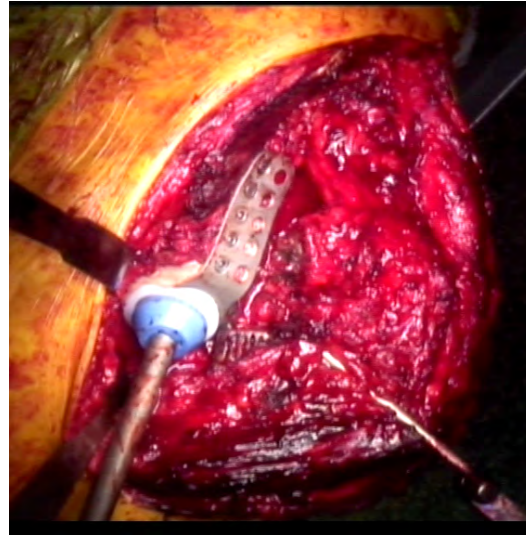
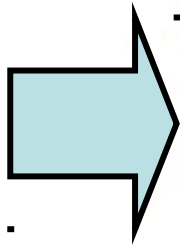


Triangolo di Salvataggio

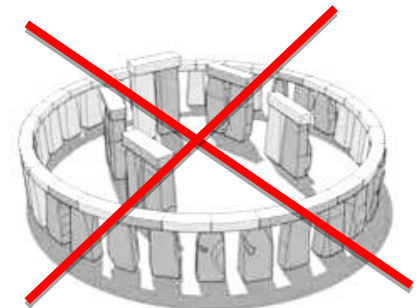


... riassorbimento osseo?

Difetto Tipo III B

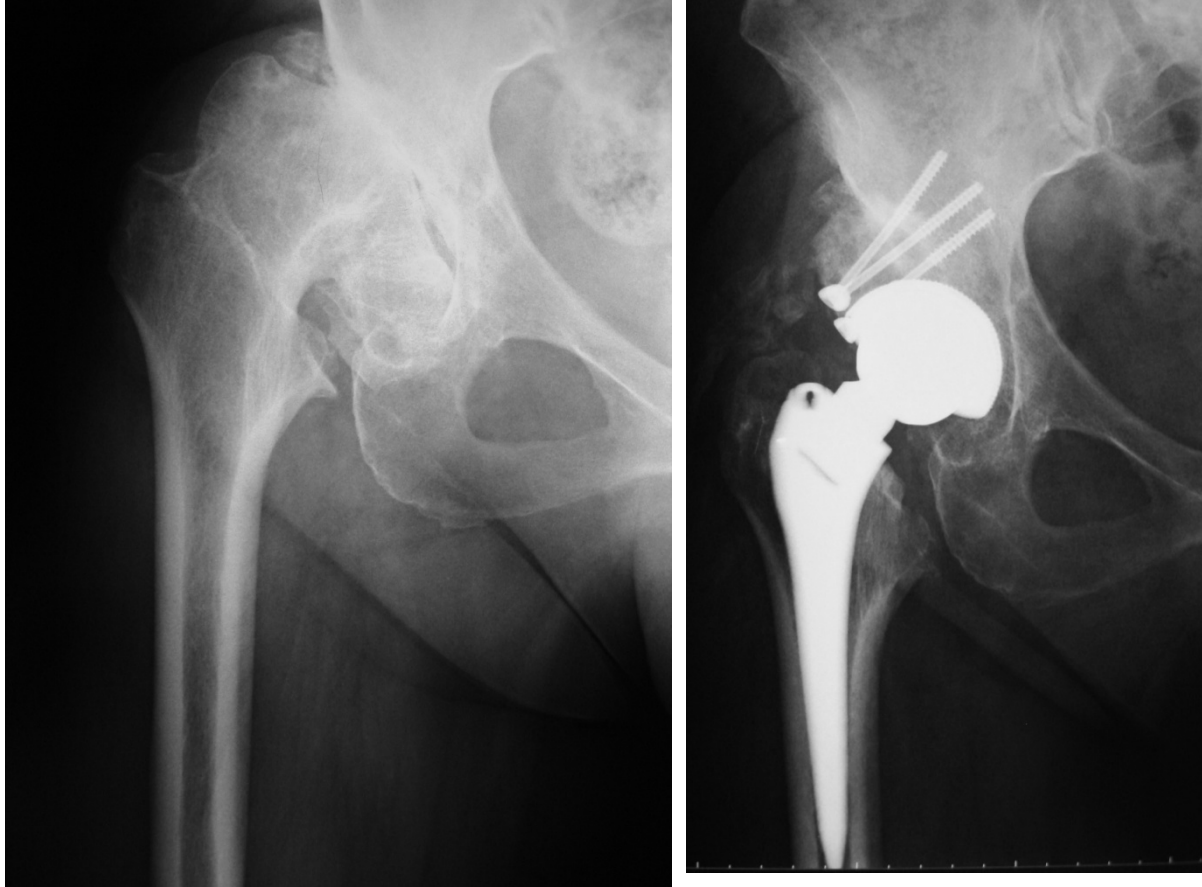


- **Migrazione verticale > 3 cm**
- **Grave lisi dell'Ischio e della "Lacrima"**
- **Potenziale discontinuità pelvica**
- **Ring e Triangolo di "salvataggio" insufficiente**



COXARTROS

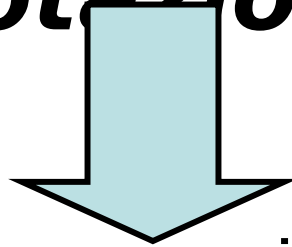
I



Obiettivo: ripristino dei corretti rapporti biomeccanici

ACETABOL O

- ***Notevole “variabilità”
geometrica***
- ***Definizione del centro di
rotazione***



scelta del disegno e taglia della protesi

***Obiettivo: ripristino dei corretti rapporti
biomeccanici***

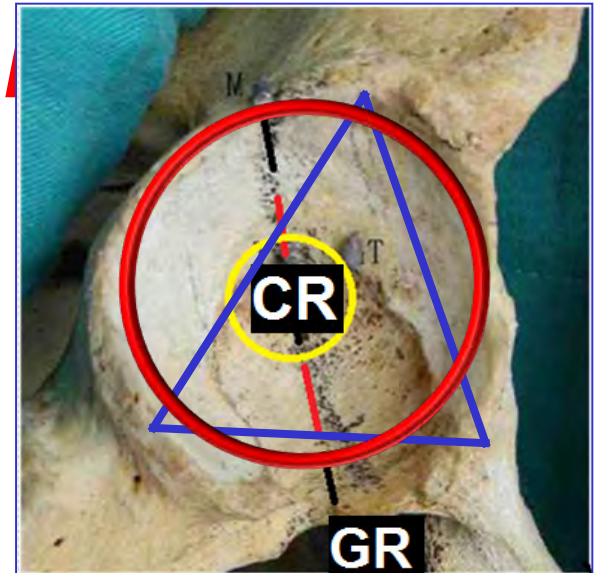
CONCLUSIONI

Ogni singolo caso va valutato attentamente in maniera da pianificare una “corretta costruzione” dell’impianto

*Ricerca della corretta posizione “geometrica” dell’acetabolo con ripristino del “**Ring**” e valutazione del “**Triangolo di Salvataggio**”*

RAZIONALE CHIRURGIA

- ❑ **Stabilire il C.R.**
- ❑ **Tecnica Chirurgica**



COME IMPIANTARE LO STELO



M. VILLANO

CLINICA ORTOPEDICA - UNIVERSITA' DI FIRENZE

COME IMPIANTARE LO STELO

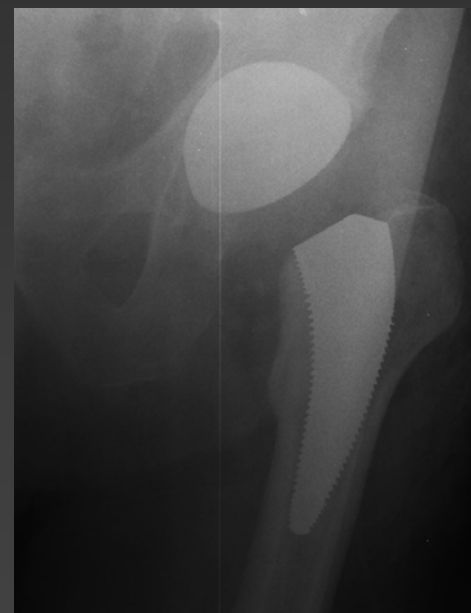
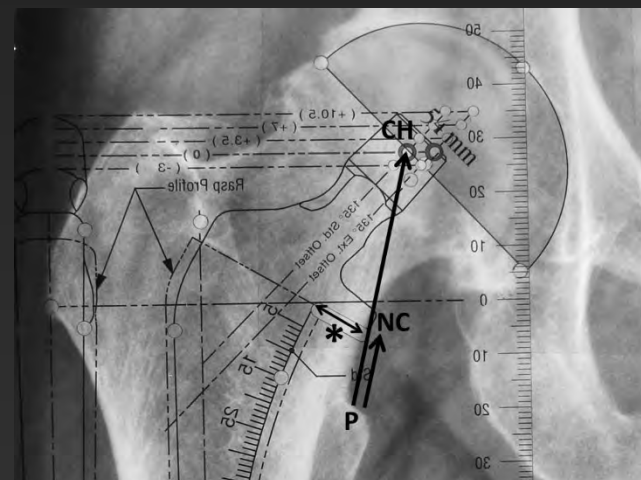
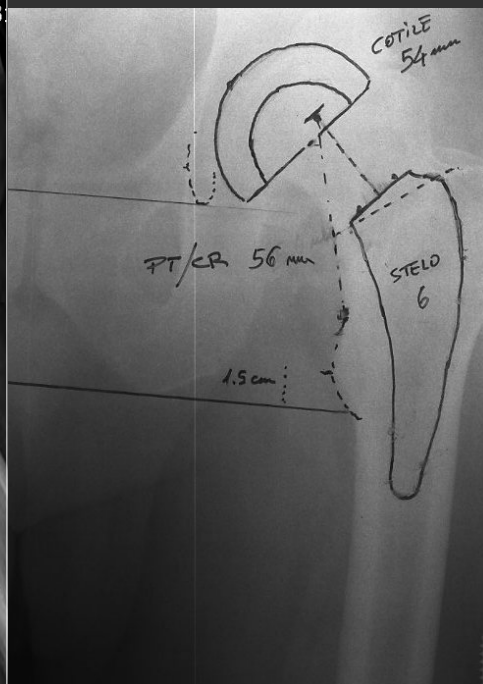
RIPRISTINO FUNZIONE ARTICOLARE

- Ripristino del centro di rotazione
- Ripristino dell' off-set globale
- Ripristino della lunghezza dell'arto

- Adattare lo stelo alla morfologia femorale

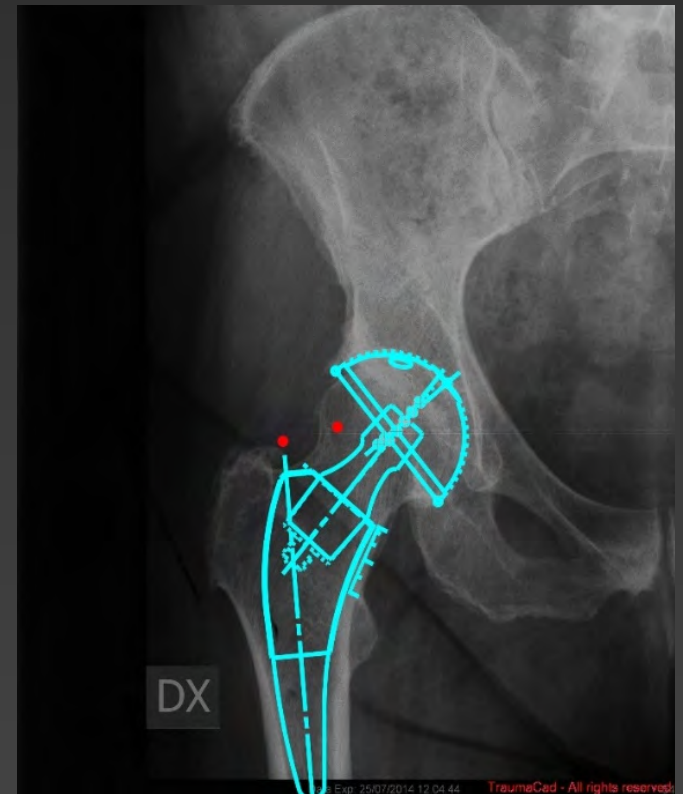
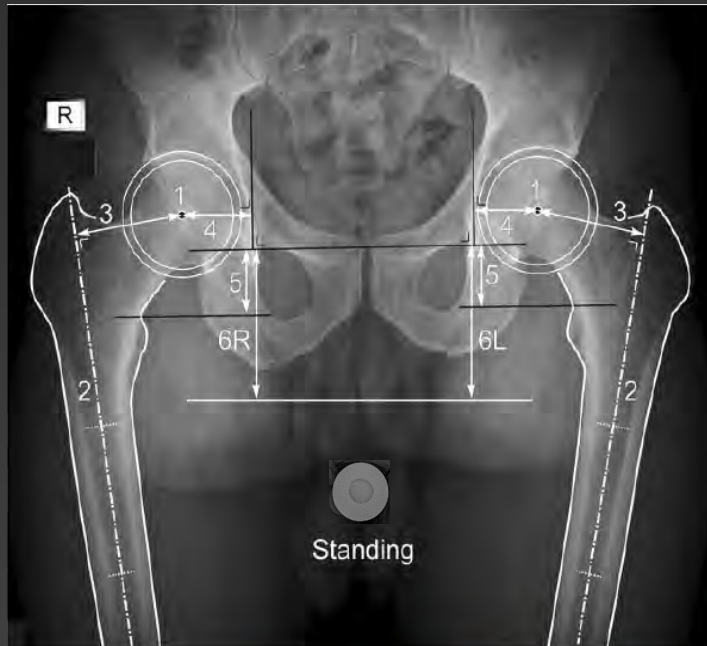
REALIZZARE UN IMPIANTO OTTIMALE PER IL PAZIENTE

PLANNING PRE-OPERATORIO



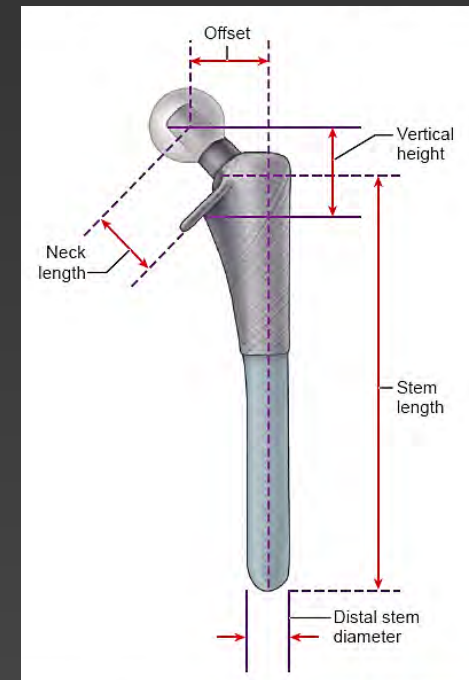
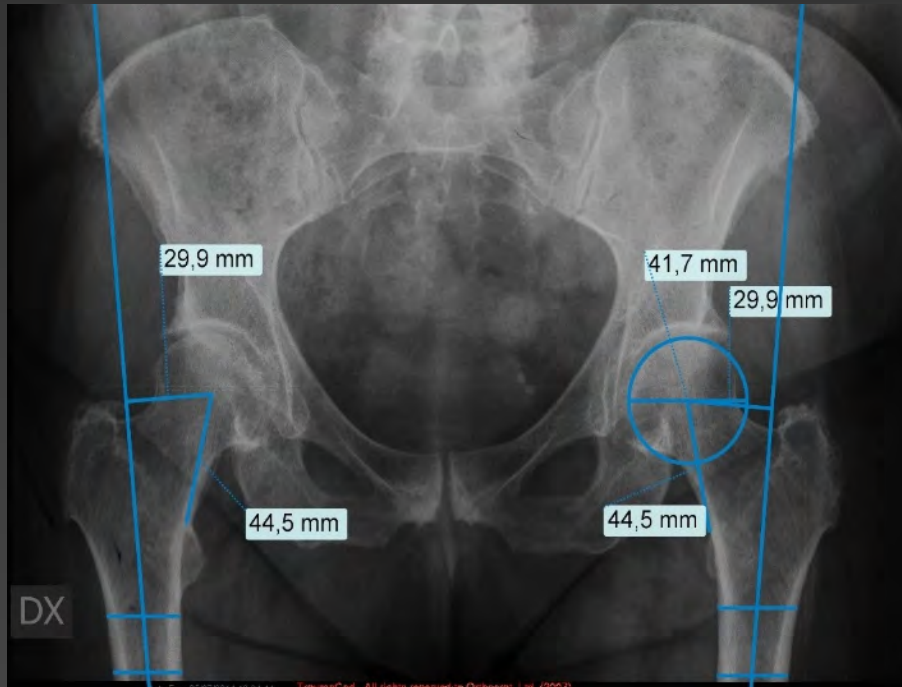
PLANNING PRE-OPERATORIO

- Con RX con Calibri
- Con TC in casi particolari



MORFOLOGIA FEMORALE

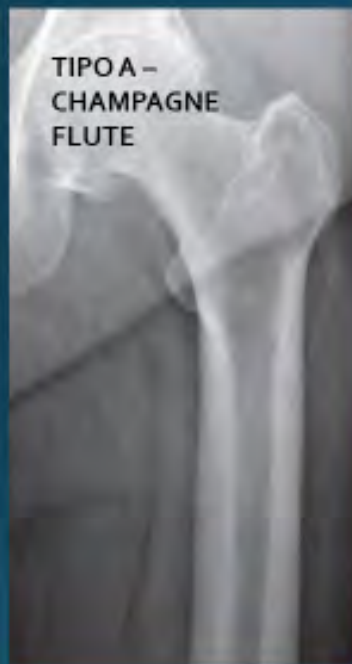
- ❖ Forma del canale femorale
- ❖ Angolo cervico-diafisario
- ❖ Versione del collo femorale
- ❖ Differenze morfologiche legate al sesso



QUALE STELO?

In funzione della morfologia femorale

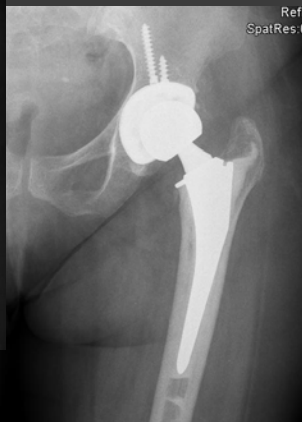
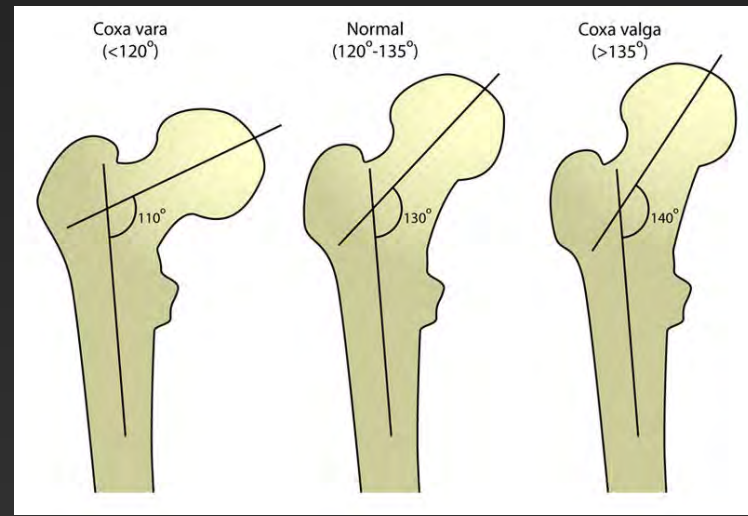
DORR CLASSIFICATION



(From Dorr LD, Faugere MC, Mackel AM, et al: Structural and cellular assessment of bone quality of proximal femur, Bone 14:231, 1993.)

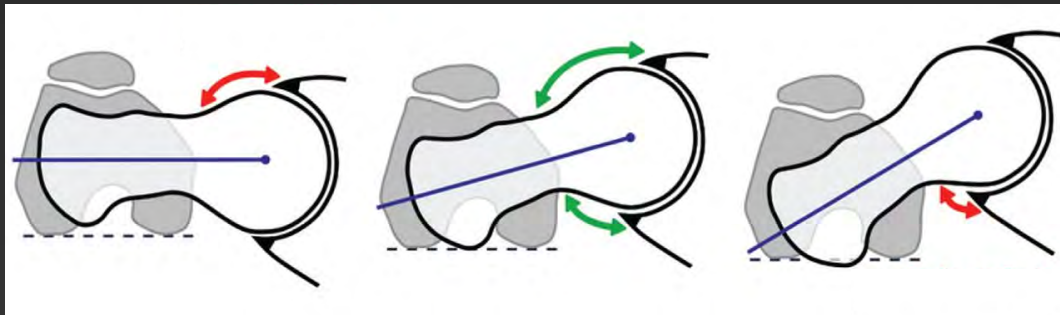
Quale stelo?

Collo varo - valgo



Quale stelo?

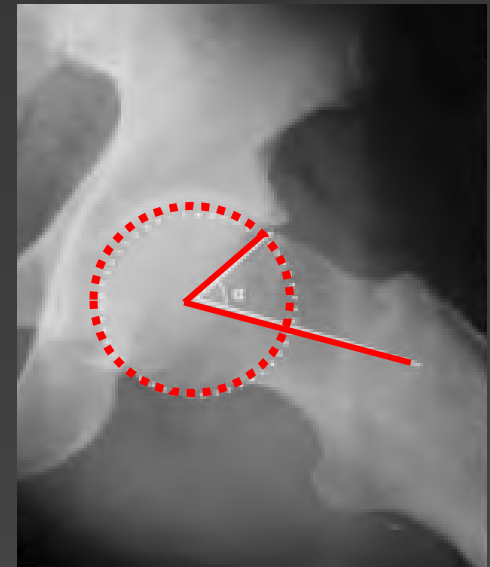
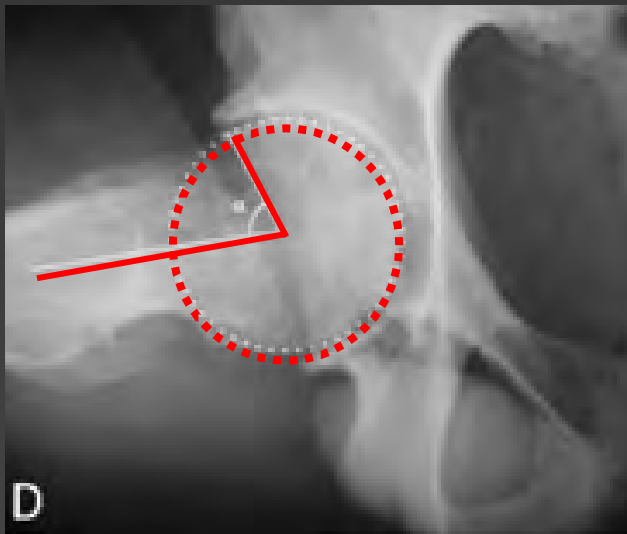
Collo antiverso – retroverso



Cotile?)



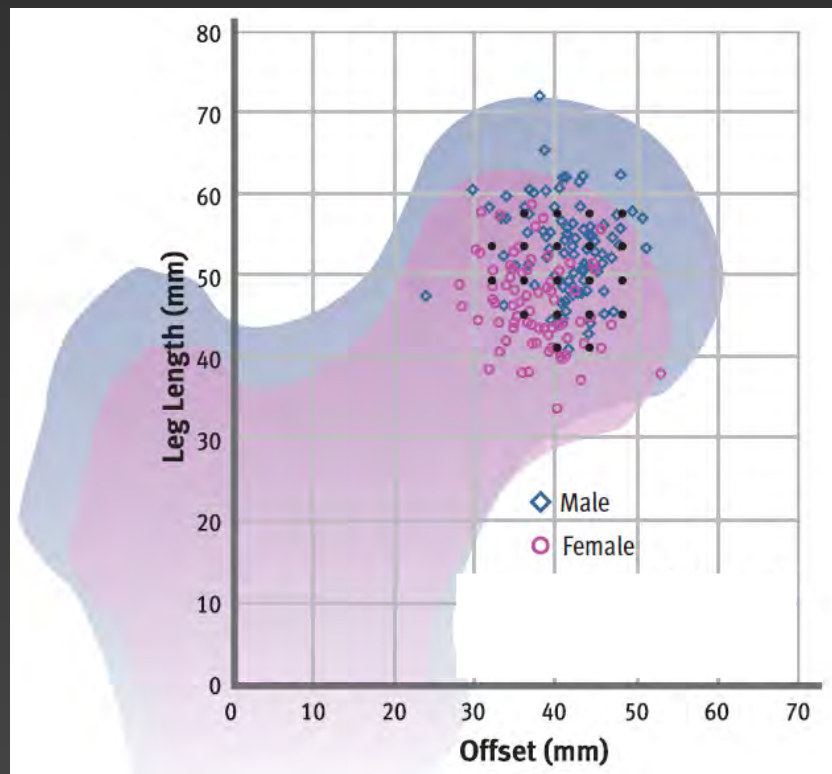
Valutare sempre rx laterale



MORFOLOGIA FEMORALE

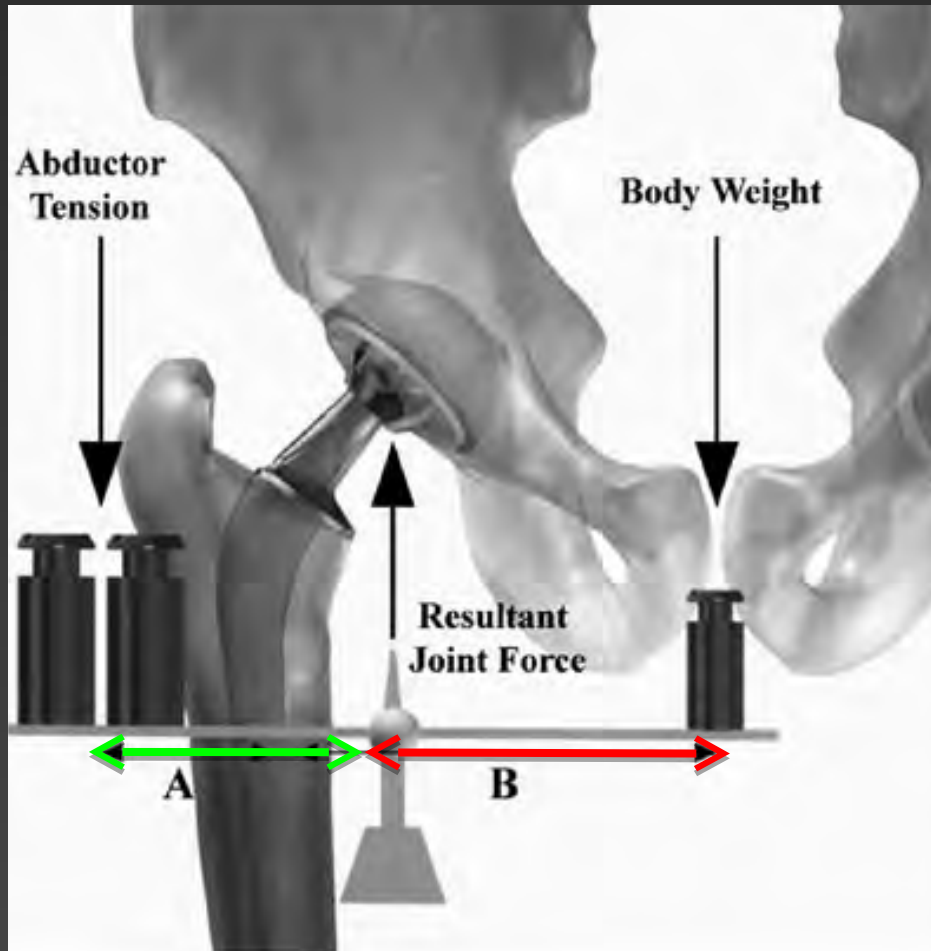
differenze "genere-specifiche"

Le donne hanno una maggiore tendenza ad avere un collo con minore off-set e più antiverso



BILANCIAMENTO DEI TESSUTI MOLLI

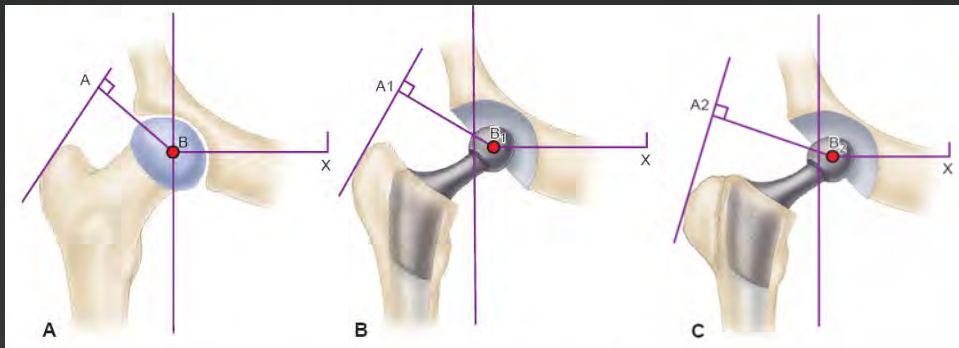
CENTRO DI ROTAZIONE - OFF-SET - LUNGHEZZA



L'anca agisce come un fulcro bilanciando la forza del peso del corpo con la forza generata dagli abduttori

BILANCIAMENTO DEI TESSUTI MOLLI

Ripristino dell'“OFF-SET”



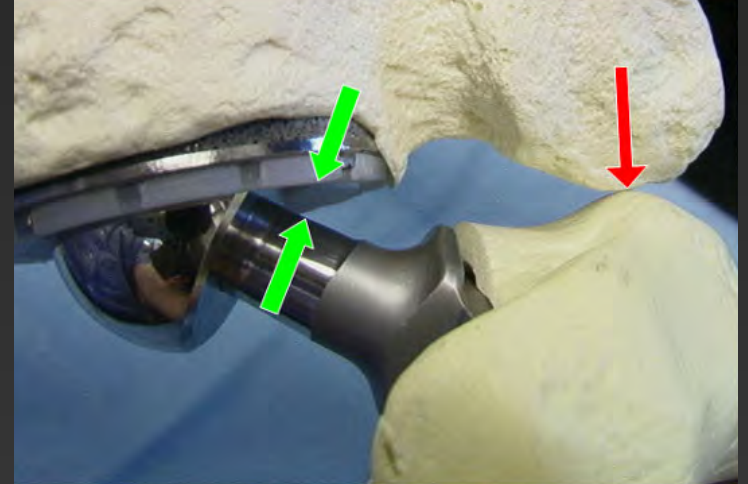
- ❖ **Aumenta la tensione e la forza degli abduttori**
- ❖ **Diminuisce il rischio di Trendelenburg**
- ❖ **Aumenta la stabilità articolare**

BILANCIAMENTO DEI TESSUTI MOLLI

Corretta versione

Ridurre il rischio

IMPINGEMENT / LUSSAZIONE



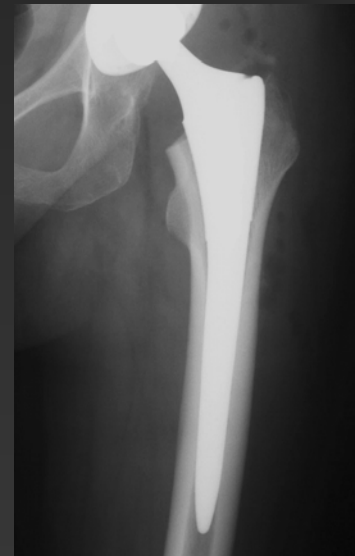
Corretta combinazione tra l'orientamento della componente acetabolare e quella del collo femorale per evitare una diminuzione dell'arco di movimento stabile

QUALE STELO ?

STELI STANDARD

VS

STELI CORTI



QUALE STELO ?



EMENTATO

VS

EMENTATO

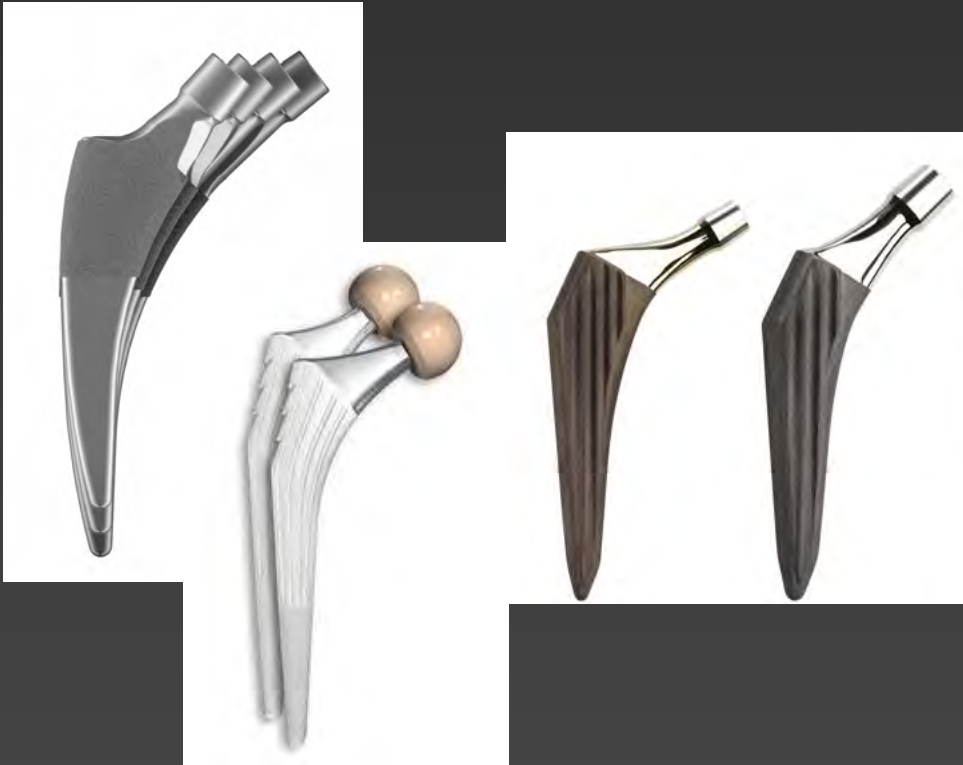


- ***Età***
- ***Valutazione della qualità ossea***
- ***Comorbidità***
- ***...***

STELI MONOBLOCCO



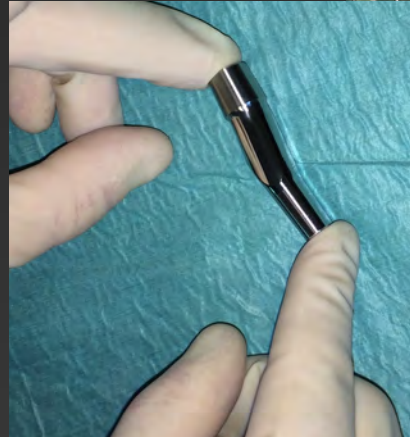
Design standard
lateralizzata
vara



stelo conico



STELI MODULARI



STELI MODULARI

- *Migliore gestione delle varie combinazioni tra lunghezza, inclinazione e versione del collo*



Collo corto varo 8°

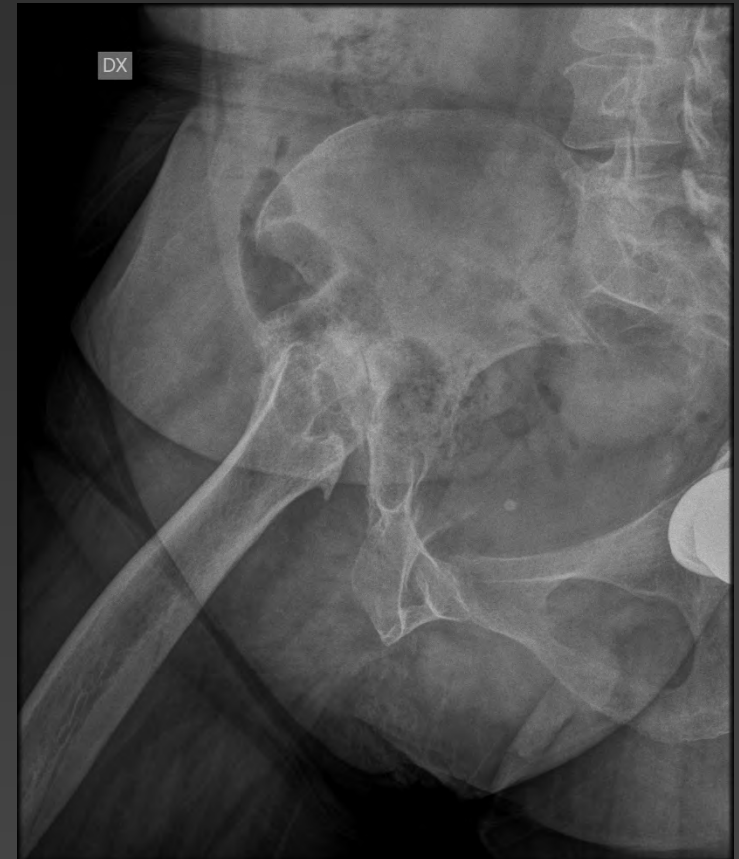


Collo A/R 8°

MODULARITA'...

♀ 65 aa

Patologia neuromuscolare spastica
Anca rigida, flessa ed extraruotata



Impianto con testa a doppia mobilità

Release dei tessuti periarticolari



1 mese

D:AN5090823

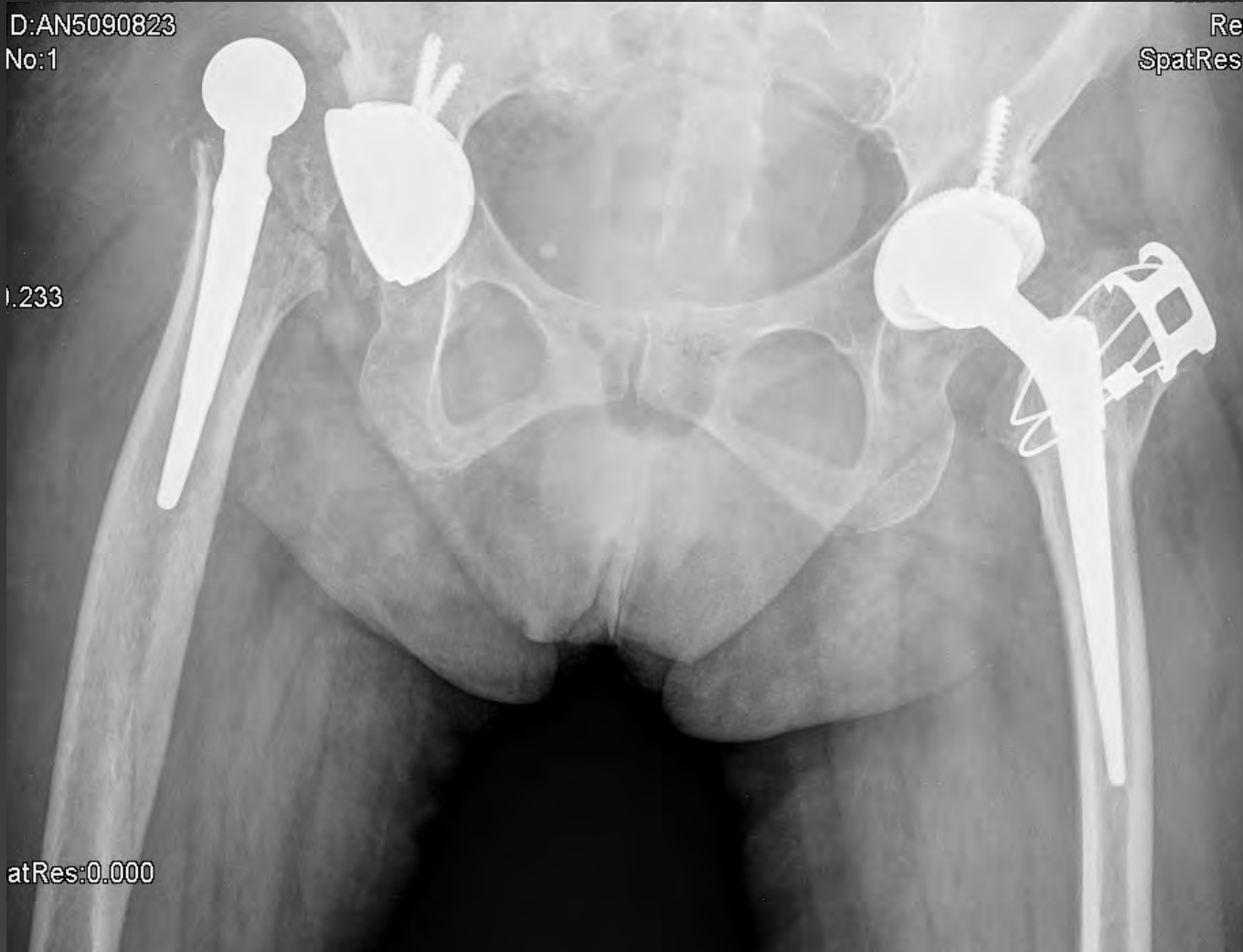
No:1

Ref

SpatRes:

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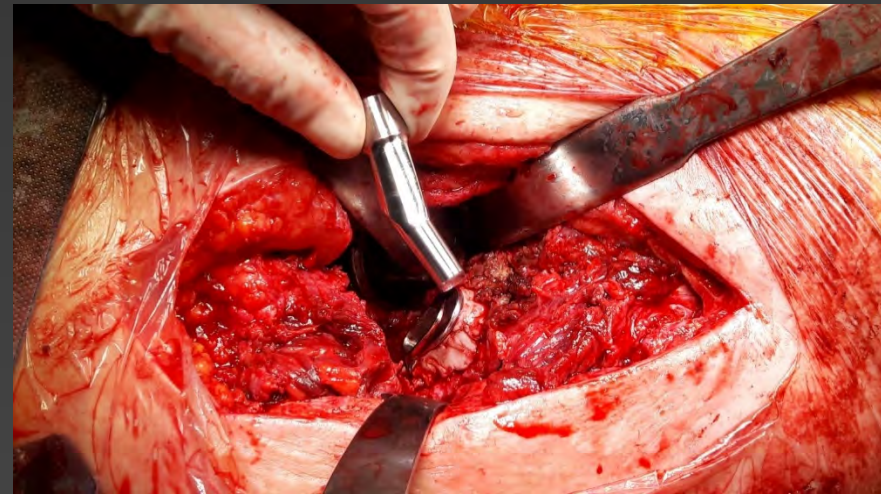
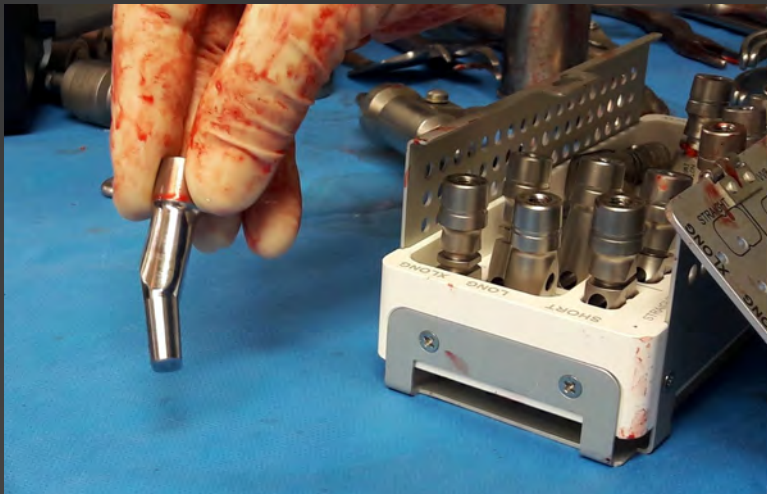
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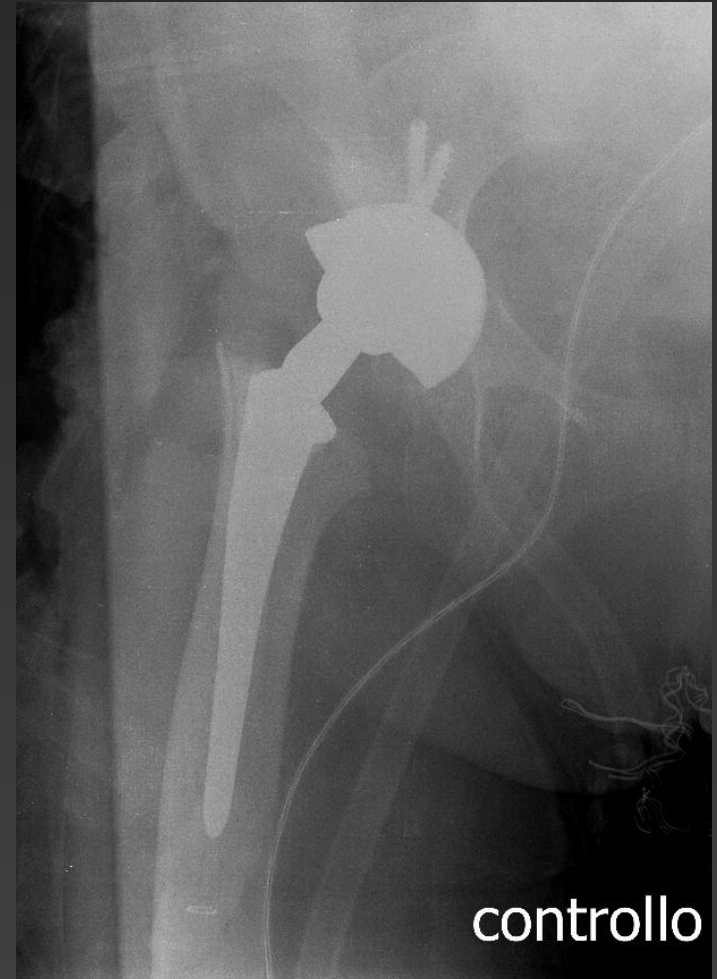
***REVISIONE con
STELO MODULARE
da 1 impianto
cementato***

intra op.

Collo lungo retroverso di 15°



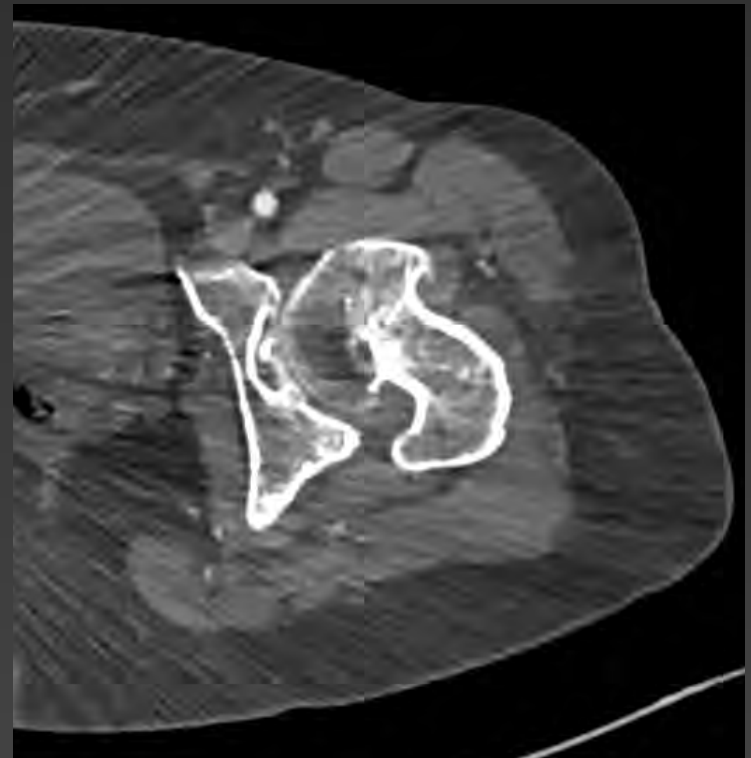
Correzione versione del collo e del cotile



MODULARITA'...oppure...

♀ 45 aa

Displasia congenita dell'anca
Anca flessa ed extraruotata



STELO CONICO per gestire la versione più idonea alla stabilità articolare

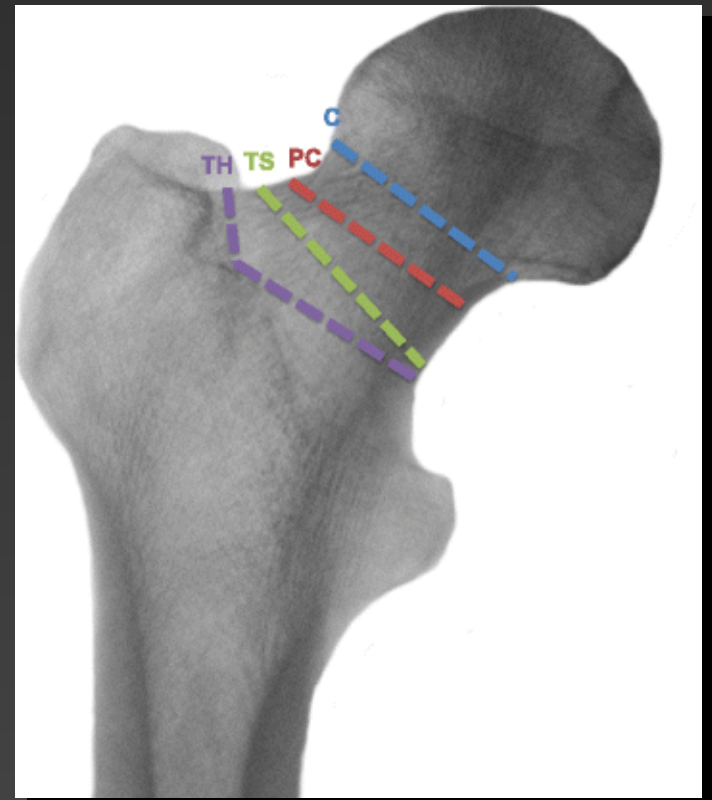


COME IMPIANTARE LO STELO

LIVELLO DI OSTEOTOMIA DEL COLLO

Classificazione
Feyen & Shimmin 2014

- *Conservazione del collo*
- *Parziale sacrificio del collo*
- *Conservazione del GT*
- *Interessamento del GT*

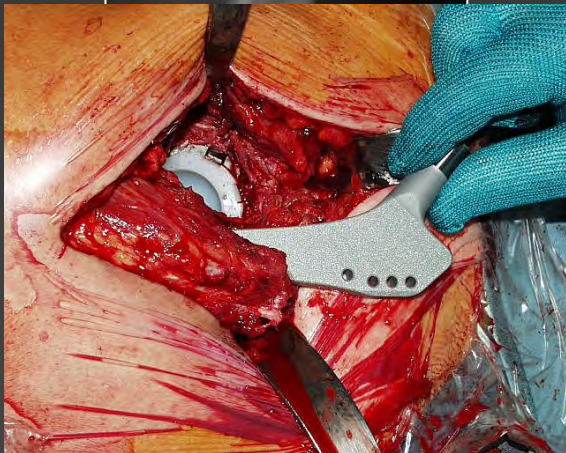


COME IMPIANTARE LO STELO

Stelo Standard



**Risparmio della
regione ossea
trocanterica**

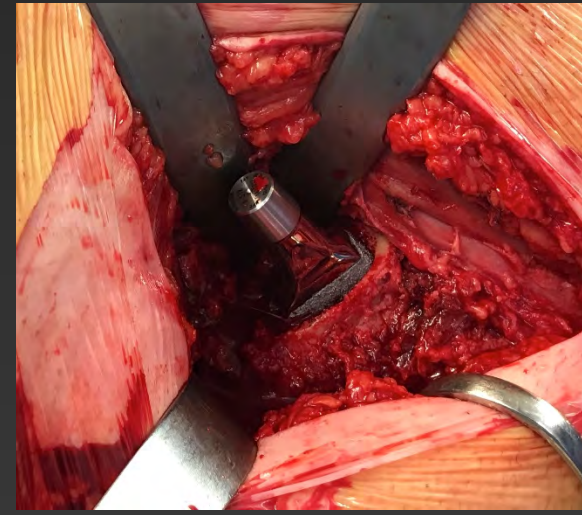
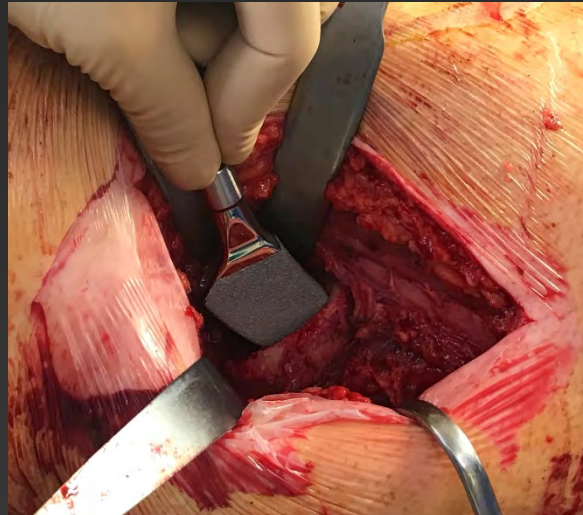
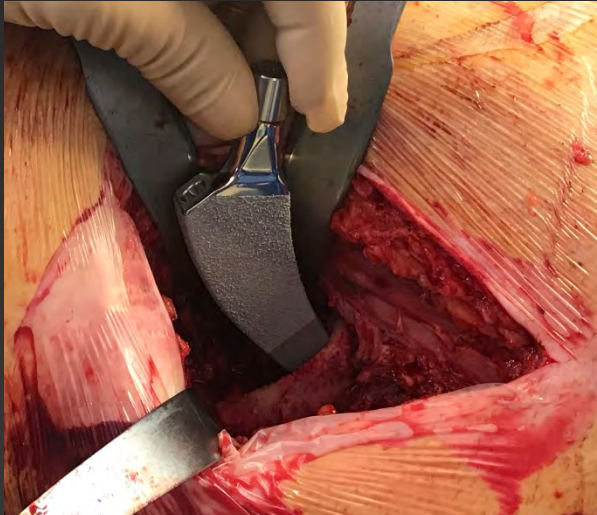


Stelo Corto



STELI CORTI...

è possibile eseguire un'introduzione curva e non lineare

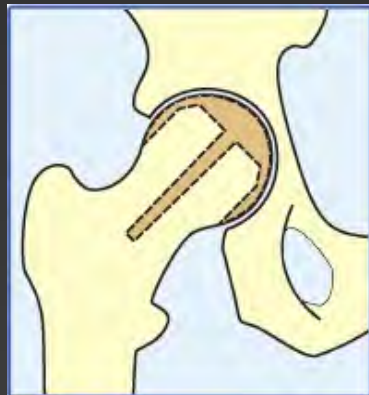


LIVELLO DI STABILIZZAZIONE

Classificazione JISRF 2014
Joint Implant Surgery & Research Foundation

1. ALLA TESTA

1A - Rivestimento



1B - Resezione metà



2. AL COLLO

2A - Corti curvi



2B - Corti con impegno laterale



2C - Fittoni

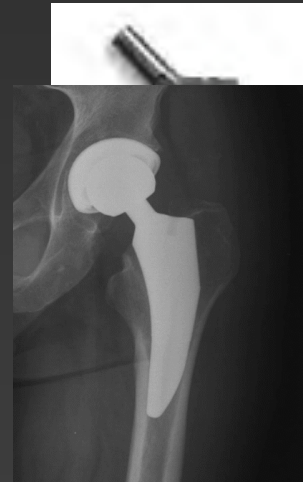


3. METAFISARIA

3A - Conici / Trapezoidali

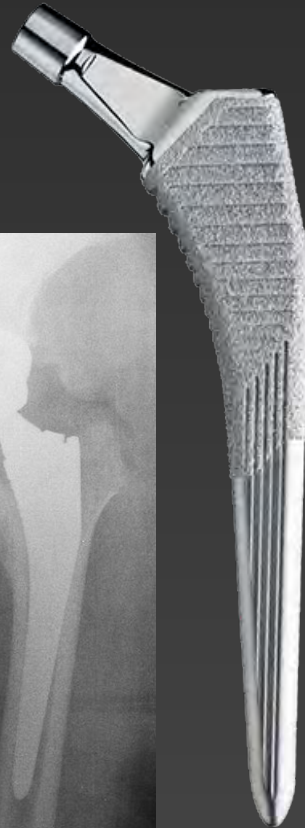


3B - a Riempimento



4. METAFISARIA E DIAFISARIA

Steli standard



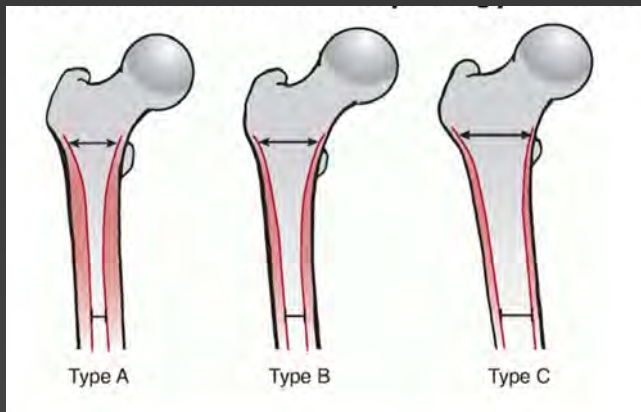
STELI STANDARD...

ma attenzione....

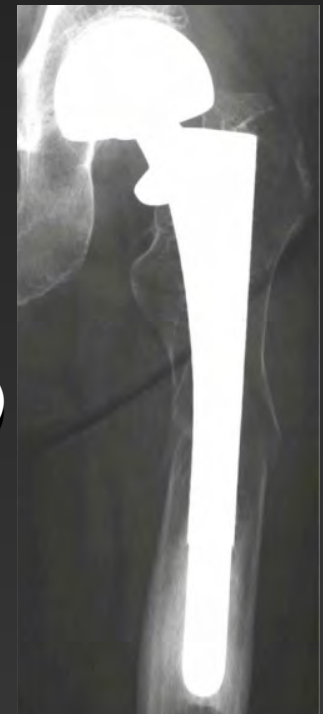
MISMATCH METADIAFISARIO (specie Dorr Tipo A)

Stress Shielding

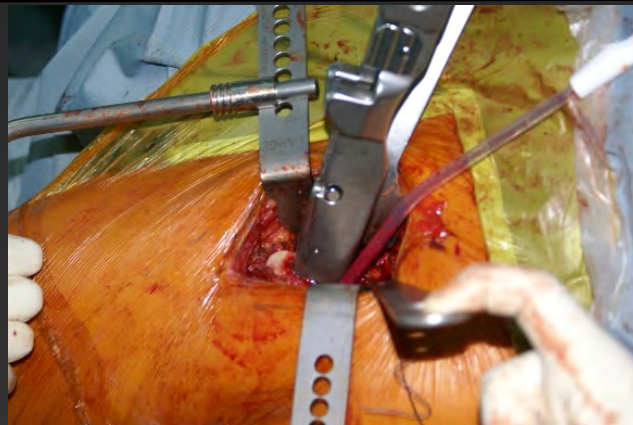
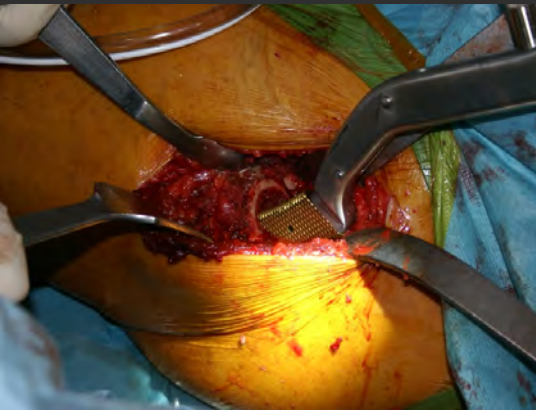
- **Allentamento protesico**
- **Dolore di coscia**
- **Rischio di fratture periprotetiche**



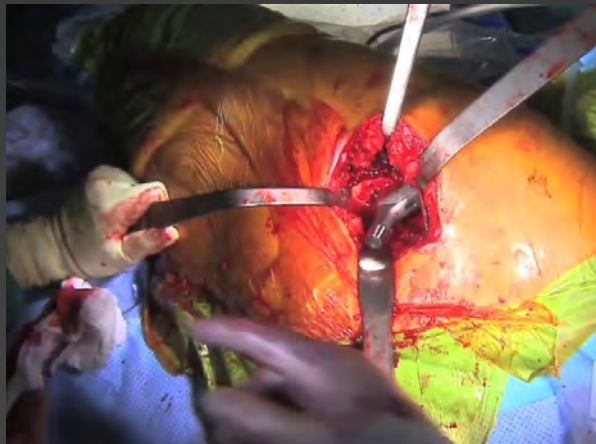
Classificazione di Dorr



SCELTA DELLO STELO - VIA DI ACCESSO

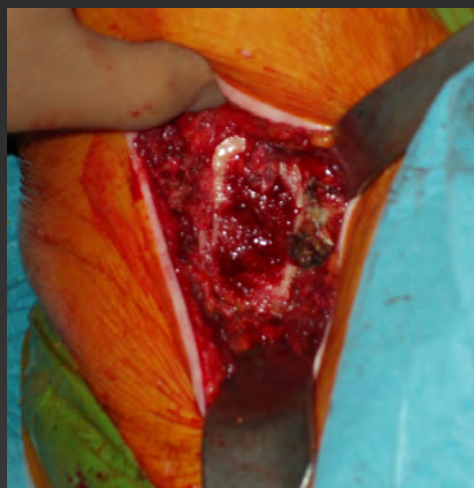


**Cambiano i riferimenti
di orientamento**



ACCESSI MININVASIVI

...non sono adatti a tutti i tipi di steli



**ANTERIORE ED
ANTEROLATERALE**

-

NO STELI RETTI



ACCESSO A DUE VIE

-

NO STELI CURVI

ORIENTAMENTO DEL COTILE

ORIENTAMENTO DELLO STELO

J Bone Joint Surg Am. 1978 Mar;60(2):217-20.

Dislocations after total hip-replacement arthroplasties.

Lewinnek GE, Lewis JL, Tarr R, Compere CL, Zimmerman JR.

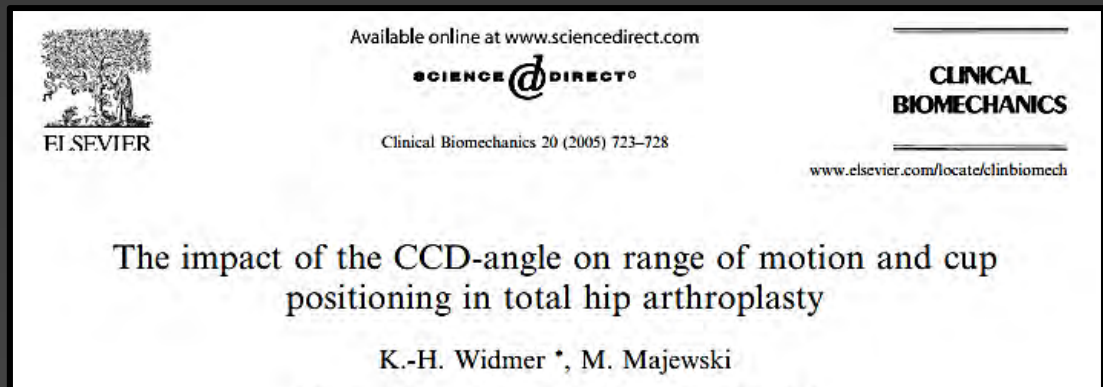
- **“Safe Zone” 30-50 ° di inclinazione e 5-25 ° di antiversione.**
- **Un malposizionamento influenza in modo significativo il ROM, la stabilità articolare, l’usura e l’allentamento**
- **L'orientamento relativo delle componenti acetabolari e femorali sembra però essere altrettanto importante come il posizionamento assoluto basato su punti di riferimento ossei.**

...FEMUR FIRST?

spesso nella conservazione del collo



**Si ottiene una
“combined anteversion”
attraverso il successivo
orientamento del cotile**



COME IMPIANTARE LO STELO

NELLA CONSERVAZIONE DEL COLLO

ATTENZIONE ! - Antiversione accentuata

- Coxa valga**
- Coxa vara**

- Il collo femorale influenza notevolmente la posizione dello stelo**
- E' fondamentale eseguire il planning sui due piani**

...in aumento dell'antiversione

- Lo stelo segue l'antiversione
- L'apice dello stelo punta posteriormente
- Fit e carico sull'osso inappropriati
- Alto rischio di fallimento



FONDAMENTALE LA SCELTA DELLO STELO !!!

Malposizionamento - STELO STANDARD

Stelo in varo o valgo varia l'off-set
varia l'angolo CD
alterata distribuzione dei carichi



Malposizionamento - STELO CORTO

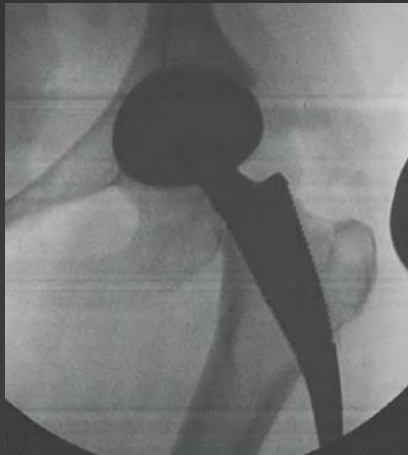
[Orthopedics](#). 2009 Oct;32(10 Suppl):18-21. doi: 10.3928/01477447-20090915-53.

Femoral neck cut level affects positioning of modular short-stem implant.

[Mihalko WM¹](#), [Saleh KJ](#), [Heller MO](#), [Mollard B](#), [König C](#), [Kammerzell S](#).

⊕ [Author information](#)

La ridotta dimensione dello stelo diminuisce il feeling nel controllo della direzione di posizionamento



CONCLUSIONI

COME IMPIANTARE LO STELO

- ✓ **Scelta dello stelo più adeguato**
- ✓ **Attenta valutazione della morfologia**
- ✓ **Ripristino della biomeccanica**
- ✓ **Risparmio tissutale**

Migliore durata dell'impianto





Grazie