



CONGRESSO NAZIONALE DELLA SOCIETÀ ITALIANA DELL' ANCA
(S.I.d.A.)

“LA DISPLASIA CONGENITA DELL'ANCA : RITORNO AL FUTURO”

BARI, 6-7 DICEMBRE 2013

Sheraton Nicolaus Hotel & Conference Center

L'HARD BEARING E IL SOFT BEARING

Luigi Zagra, Luca Bianchi



ISTITUTO ORTOPEDICO GALEAZZI
ISTITUTO DI RICOVERO E CURA A CARATTERE SCIENTIFICO
Milan, Italy

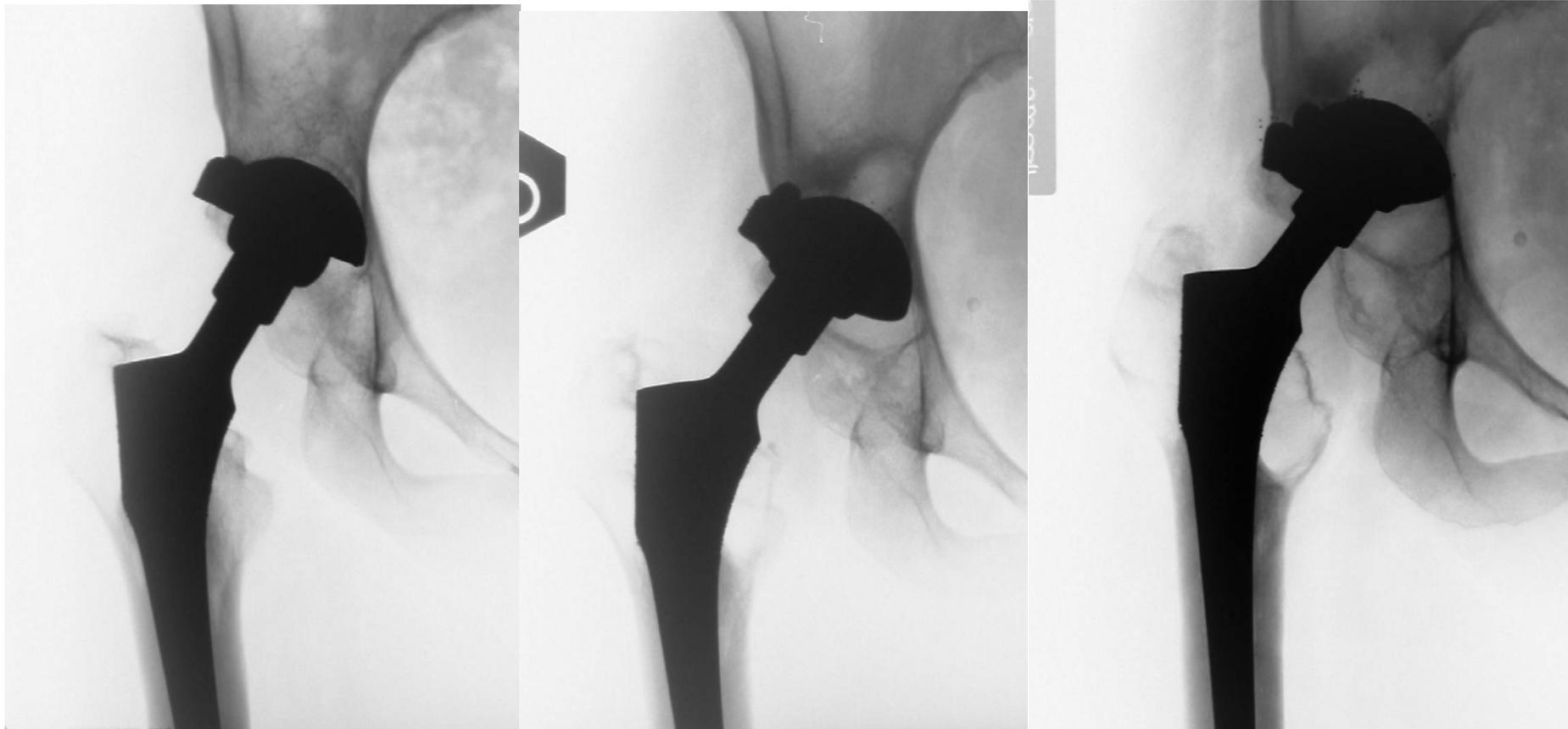


Registro Ortopedico
ROLP
Lombardo Protesi

L'usura dei materiali è la principale causa di fallimento a lungo termine

Howard JL et al JBJS Am 2011 Sep 7;93(17):1597-604

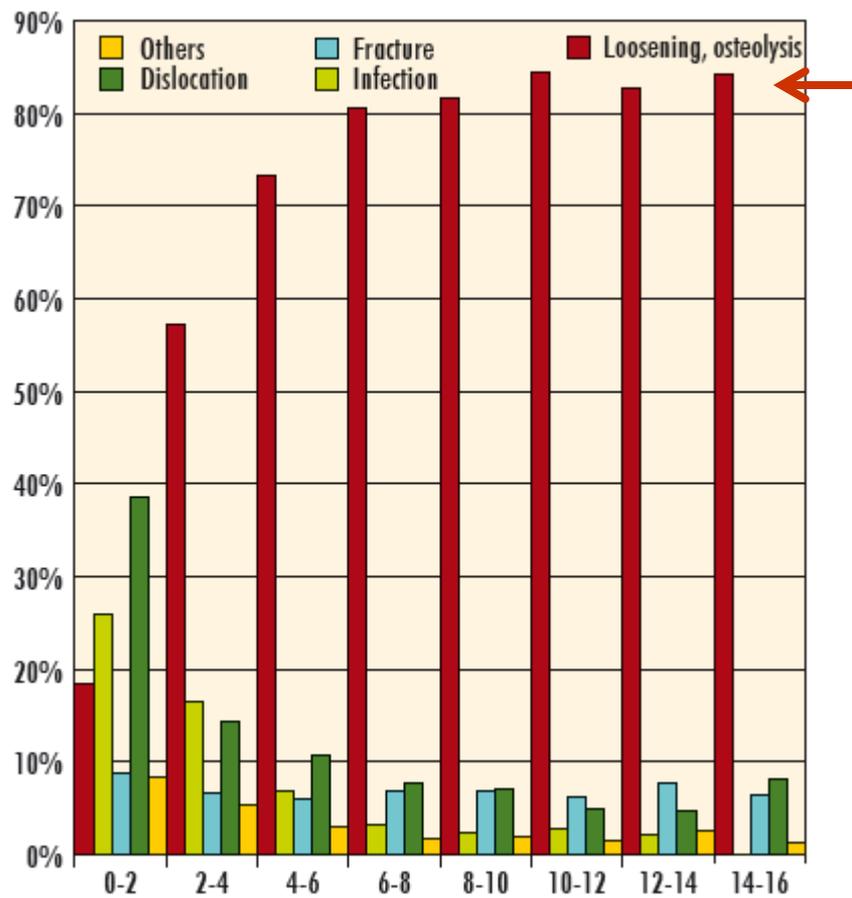
Makela et al. Acta Orthop 2011 Oct;82(5):521-9



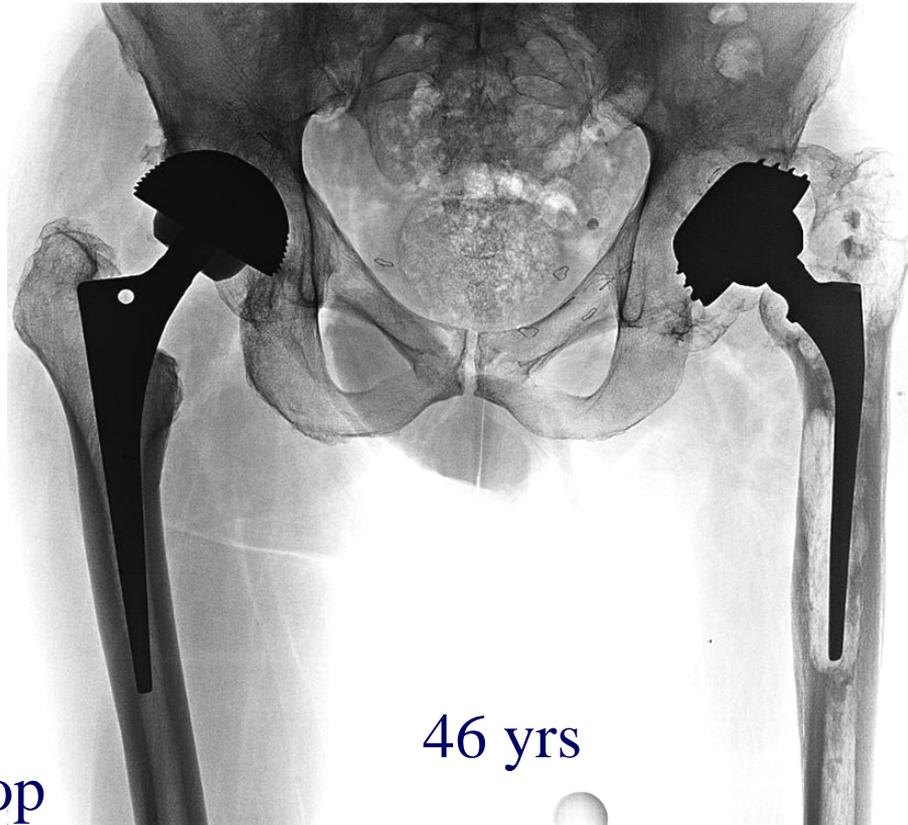
U.T., femmina, 33 anni, met-PE, evoluzione in 15 anni



Cause di revisione in relazione al tempo dal primo impianto



La tribologia è cruciale sia per la sopravvivenza dell'impianto che per preservare il bone stock



Cer-cer
5 anni post-op

46 yrs

Met-PE
9 anni post-op

Tribologia

Questo giustifica l'uso e la ricerca di materiali a ridotta usura, ma è necessario non aumentare altre cause di fallimento.

Tribologia

BMJ

BMJ 2011;343:d7434 doi: 10.1136/bmj.d7434 (Published 29 November 2011)

Comparative assessment of implantable hip devices with different bearing surfaces: systematic appraisal of evidence

 OPEN ACCESS

Art Sedrakyan *associate professor*^{1,3}, Sharon-Lise T Normand *professor*², Stefan Dabic *fellow, FDA*³, Samantha Jacobs *fellow, FDA*³, Stephen Graves *professor*⁴, Danica Marinac-Dabic *director of epidemiology, FDA*³

Conclusions There is limited evidence regarding comparative effectiveness of various hip implant bearings. Results do not indicate any advantage for metal on metal or ceramic on ceramic implants compared with traditional metal on polyethylene or ceramic on polyethylene bearings.

...Finora!

Non esiste un
accoppiamento adatto
per tutti i pazienti

Adattare la tribologia al paziente

- Età
- Richieste funzionali
- Anatomia
- Fattori di rischio
- Sicurezza del paziente
- Costi benefici

Tecnica chirurgica

Non solo materiali, ma anche:

- posizionamento dell'impianto
- bilanciamento dei tessuti molli
- maneggevolezza delle componenti

(hard bearings sono meno indulgenti).

Orthop Clin N Am 43 (2012) e23–e34

**The Importance of Acetabular
Component Position in Total
Hip Arthroplasty**

Brian K. Daines, MD^a, Douglas A. Dennis, MD^{a,b,c,d,*}

Ogni accoppiamento ha degli svantaggi

- Met-PE
 - Cer-PE
- } Usura ed osteolisi
- Met-XPE
 - Cer-XPE
- } Usura ridotta, ma osteolisi e rottura
- Cer-cer
- Bassissima usura, ma rottura e rumori
- Met-met
- Less wear, but Adverse Reaction to Metal Debris (ALVAL, high ion levels, osteolysis, pseudotumors)

Ogni accoppiamento ha degli svantaggi

- Met-PE
 - Cer-PE
- } Usura ed osteolisi
- **Met-PEX**
 - **Cer-PEX**
- } **Usura ridotta, ma osteolisi e rottura**
- Cer-cer
- Bassissima usura, ma rottura e rumori
- Met-met
- Usura ridotta, ma Adverse Reaction to Metal Debris (ALVAL, ioni metallo, osteolisi, pseudotumor)

Ogni accoppiamento ha degli svantaggi

- Met-PE } Usura ed osteolisi
- Cer-PE } Usura ed osteolisi
- Met-PEX } Usura ridotta, ma osteolisi e rottura
- Cer-PEX } Usura ridotta, ma osteolisi e rottura
- **Cer-cer** **Bassissima usura, ma rottura e rumori**
- Met-met Usura ridotta, ma Adverse Reaction to Metal Debris (ALVAL, ioni metallo, osteolisi, pseudotumor)

Ogni accoppiamento ha degli svantaggi

- Met-PE } Usura ed osteolisi
- Cer-PE }
- Met-PEX } Usura ridotta, ma osteolisi e rottura
- Cer-PEX }
- Cer-cer } Bassissima usura, ma rottura e rumori
- Met-met } Usura ridotta, ma Adverse Reaction to Metal Debris (ALVAL, ioni metallo, osteolisi, pseudotumor)

Scelta dell'articolazione

1 Negli ultimi anni è aumentato l'impiego di materiali a **ridotta usura** (eccetto Met-Met)

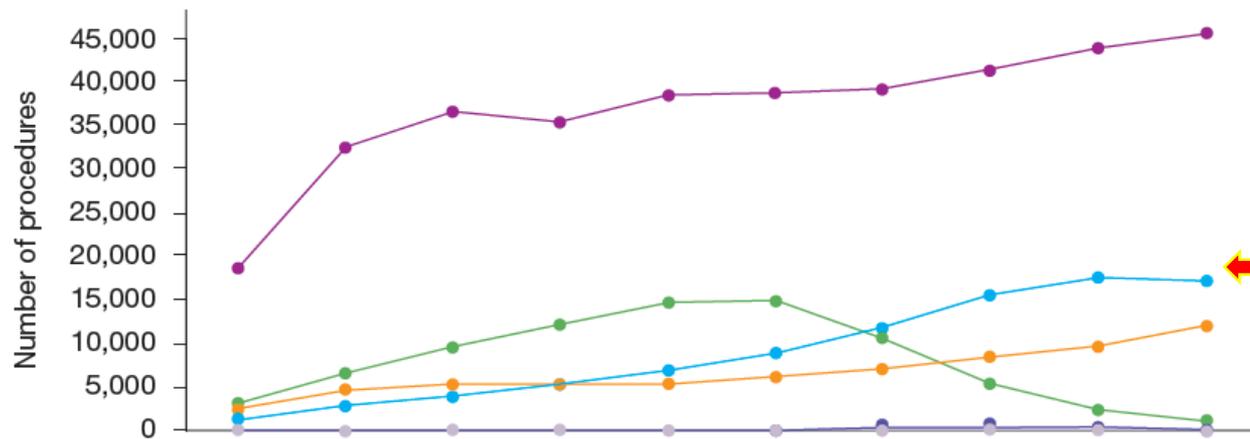




National Joint Registry

www.njrcentre.org.uk

Hip articulation, trends 2003 to 2012.



Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of procedures with hip articulation details	25,344	46,566	55,748	58,293	65,629	68,878	69,457	71,450	73,844	75,897

- Metal-on-poly
- Ceramic-on-ceramic
- Ceramic-on-poly
- Metal-on-metal
- Ceramic-on-metal
- Metal-on-ceramic*

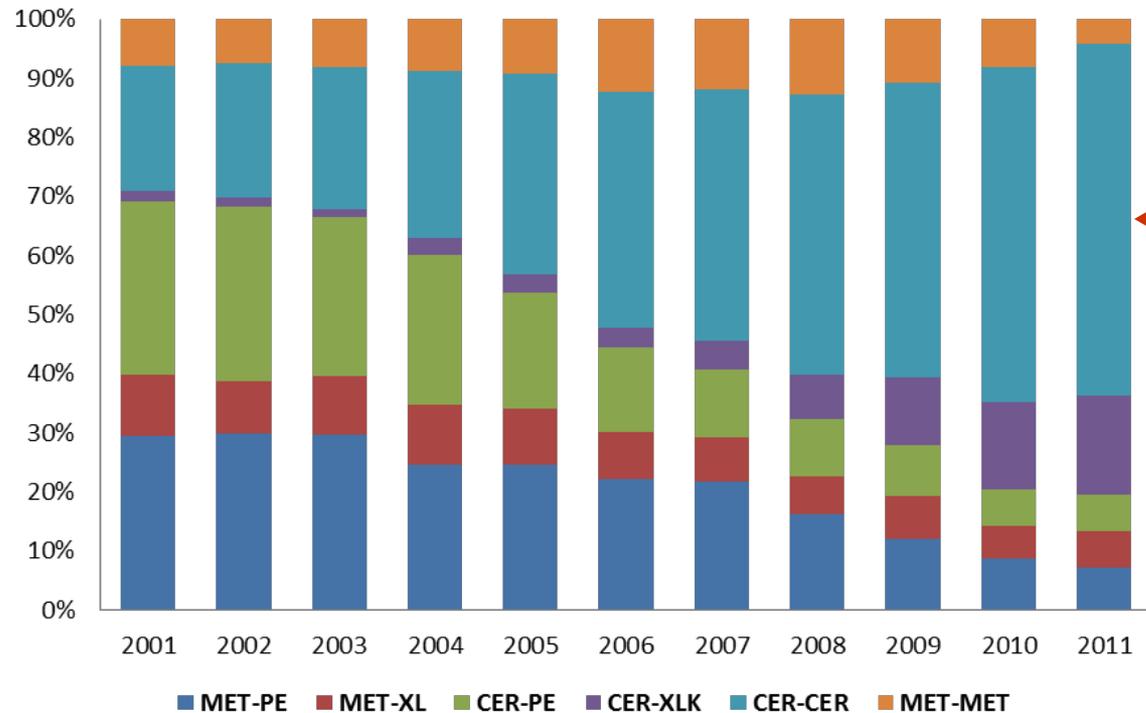
Italia (Emilia Romagna)



Total THA 67,315

- Met-PE 28.9%
- Cer-Cer 38.5%
- Cer-PE 22.9%
- Met-Met 9.1%
- Others 0.6%

Cer-Cer 60%
nel 2011



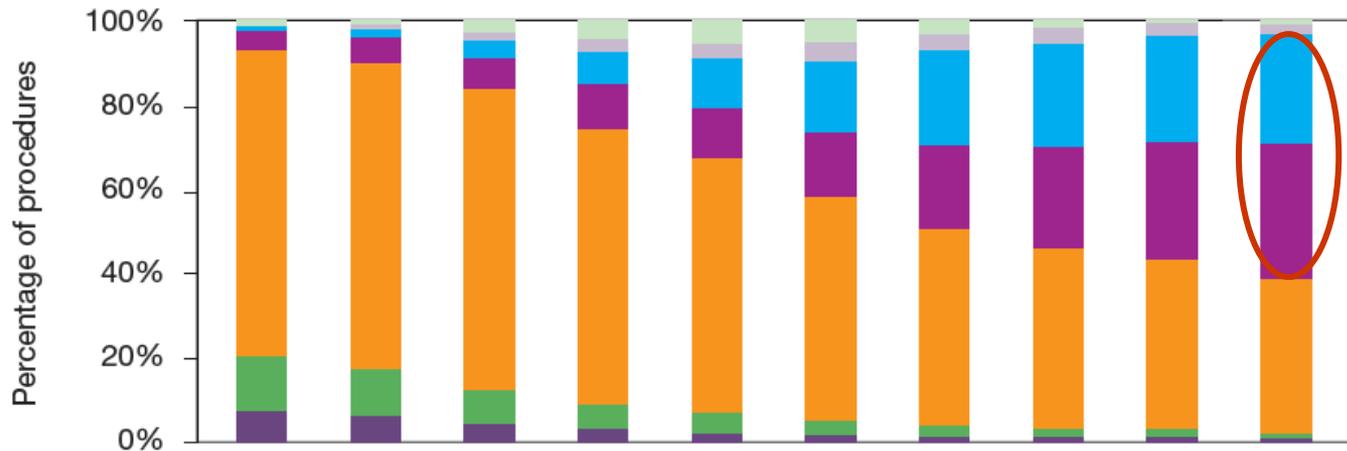
2

Aumenta l'impiego di **teste di diametro maggiore** (eccetto grandi teste Met-Met)





Femoral head size, trends 2003 to 2012.



Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of modular heads components used	18,889	36,137	45,078	48,497	56,472	61,674	63,875	67,853	71,247	74,176

- 22.25mm
- 26mm
- 28mm
- 30mm
- 32mm
- 34mm
- 36mm
- 38-44mm
- 46+mm

Polietilene standard

In molti casi il fallimento del polietilene (usura, delaminazione, rottura) è dovuto alla ossidazione causata da sterilizzazione con raggi gamma in aria.



McKellop HA et al. Effect of sterilization method and other modifications on the wear resistance of acetabular cups made of ultra-high molecular weight polyethylene. A hip-simulator study. *J Bone Joint Surg Am* 82-A(12):1708-25 (2000)

Polietilene Standard

Il Polietilene Standard, sterilizzato in Ossido di Etilene e confezionato correttamente ha mostrato buoni risultati a lungo termine.

Milosev et al. Comparison of ten year survivorship of hip prostheses with use of conventional polyethylene, metal-on-metal, or ceramic-on-ceramic bearings. *J Bone Joint Surg Am* 94(19):1756-63 (2012)

Cer-PE vs Met-PE

Orthopade. 1997 Feb;26(2):129-34.

[In-vivo wear of the slide combinations ceramics-polyethylene as opposed to metal-polyethylene].

[Article in German]

Zichner L, Lindenfeld T.

J Bone Joint Surg Am. 2001 Nov;83-A(11):1688-94.

Ceramic-on-polyethylene bearing surfaces in total hip arthroplasty. Seventeen to twenty-one-year results.

Urban JA, Garvin KL, Boese CK, Bryson L, Pedersen DR, Callaghan JJ, Miller RK.

J Bone Joint Surg Am. 2013;95:1193-7

Long-Term Performance of Ceramic and Metal Femoral Heads on Conventional Polyethylene in Young and Active Patients

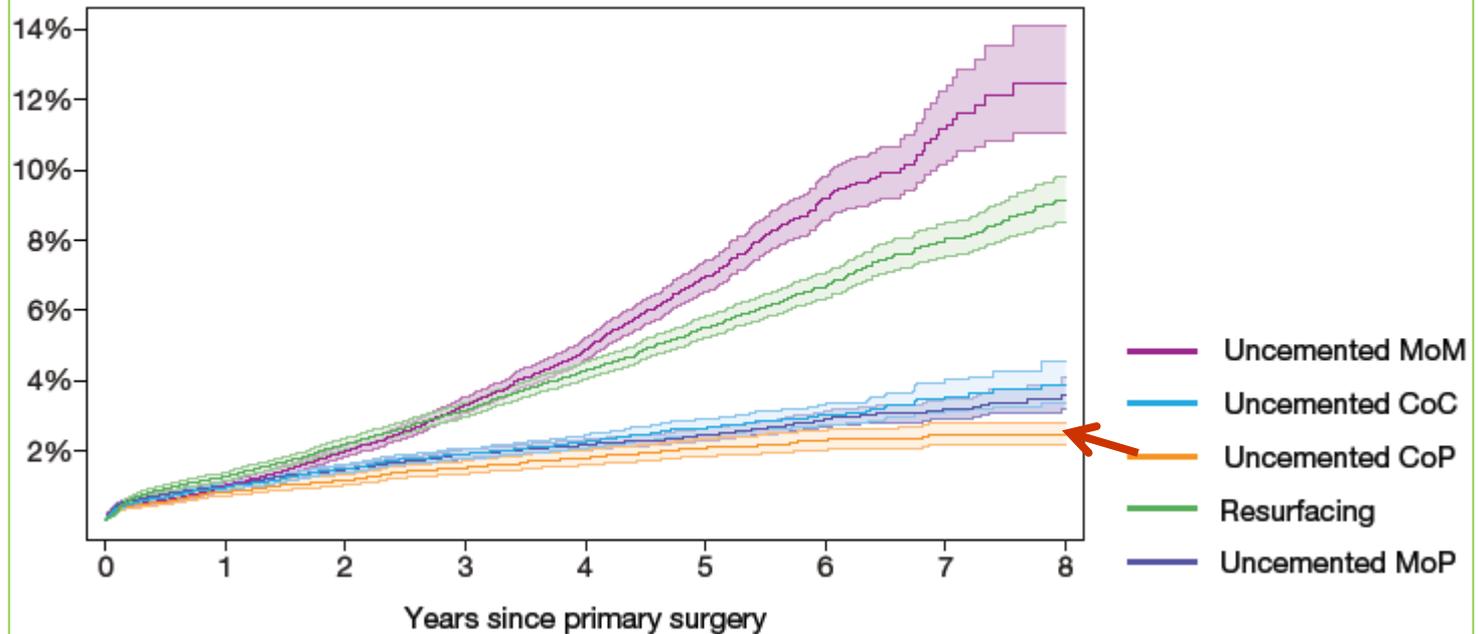
A Matched-Pair Analysis

Morteza Meilah, MD, Gregory G. Klingenstein, MD, Richard J. Yun, BS, Amar S. Ranawat, MD, and Chitranjan S. Ranawat, MD

Tutti i dati confermano che Cer-PE ha risultati almeno uguali o superiori al Met-PE (minore usura)



Risk of revision for metal and ceramic bearings (cumulative hazard with 95% confidence intervals).



Cer-PE vs Met-PE

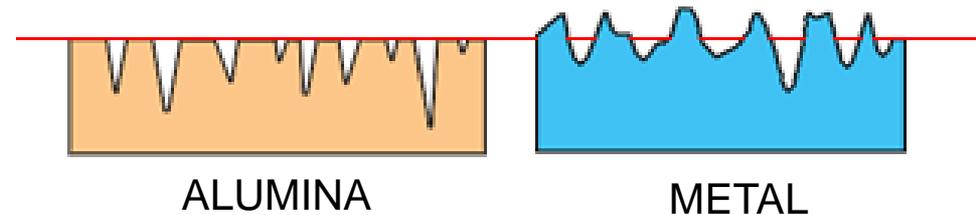
Pechè ceramica è meglio?

Maggiore durezza (5x)

Minor rischio di essere danneggiata durante l'impianto

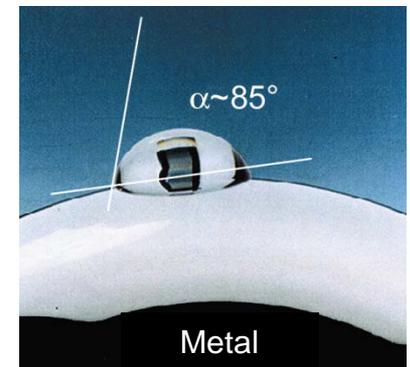
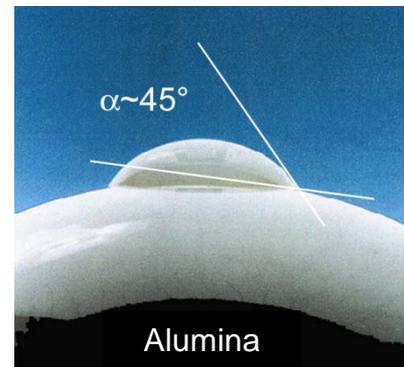
Finitura di superficie

Rugosità di superficie negativa da distacco di particelle e non da deformazione



Migliore bagnabilità

I fluidi si estendono su una superficie maggiore garantendo una migliore lubrificazione



Il Polietilene Cross-linked sta progressivamente sostituendo quello standard

Anno intervento	Polietilene standard	Polietilene crosslinked
2001	78,8	16,2
2002	82,6	14,7
2003	82,3	16,5
2004	79,1	20,3
2005	76,8	22,1
2006	76,2	23,6
2007	72,8	27,0
2008	65,5	34,3
2009	52,7	47,2
2010	42,0	57,9
2011	36,5	63,4



Cross-linked PE migliori risultati vs Standard PE

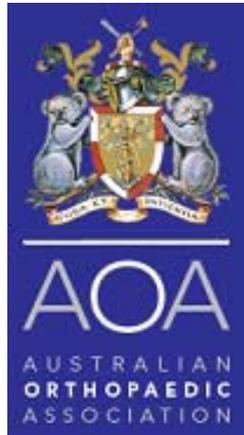
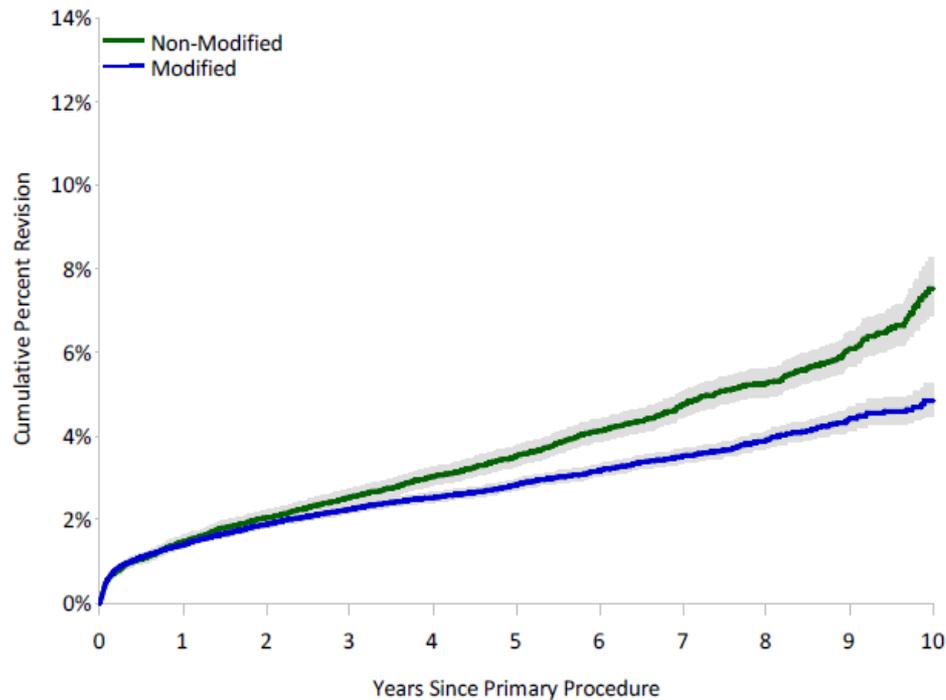


Figure HT29: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Type of Polyethylene (Primary Diagnosis OA)



HR - adjusted for age and gender

Non-Modified vs Modified

0 - 2Wk: HR=1.16 (0.87, 1.53),p=0.306

2Wk - 3Mth: HR=0.83 (0.70, 1.00),p=0.049

3Mth - 9Mth: HR=1.20 (0.97, 1.48),p=0.093

9Mth - 3.5Yr: HR=1.31 (1.15, 1.49),p<0.001

3.5Yr+: HR=1.82 (1.59, 2.09),p<0.001

Polietilene Cross-linked

La migliore resistenza all'usura rende possibile l'utilizzo di teste di diametro maggiore (32 mm and 36 mm).

Polietilene Cross-linked

Buoni risultati a breve termine (2 aa) riportati con teste di ceramica da 32 e 36 mm.

Orthopedics. 2011 Jun 14;34(6):133. doi: 10.3928/01477447-20110427-08.

Preliminary clinical and radiographic results of large ceramic heads on highly cross-linked polyethylene.

Meftah M, Ebrahimpour PB, He C, Ranawat AS, Ranawat CS.

Polietilene Cross-linked

Nessuna osteolisi e buoni risultati clinici a 7-13 anni di f.u. anche con teste da 36 mm (usura maggiore).

Clin Orthop Relat Res (2013) 471:393–402
DOI 10.1007/s11999-012-2604-0

Clinical Orthopaedics
and Related Research®
A Publication of The Association of Bone and Joint Surgeons®

SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE HIP SOCIETY

The 2012 John Charnley Award

Clinical Multicenter Studies of the Wear Performance of Highly Crosslinked Remelted Polyethylene in THA

Charles R. Bragdon PhD, Michael Doerner BS, John Martell MD,
Bryan Jarrett BS, Henrik Palm MD, Multicenter Study Group,
Henrik Malchau MD, PhD

Dal 2004 pazienti anziani

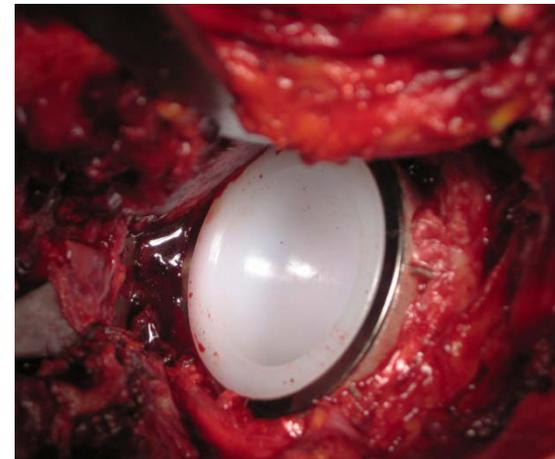
Coppa press-fit in titanio e testa in ceramica

- Da 44 a 48 mm inserto **28**
- Da 50 a 52 mm inserto **32**
- Da 54 a 66 mm inserto **36**

1.350 casi



Nessuna rottura dell'inserto,
nessuna osteolisi a breve-medio
f.u.



Polietilene Cross-linked

Preoccupazioni

Spessore del polietilene ridotto con teste di diametro maggiore (resistenza meccanica)



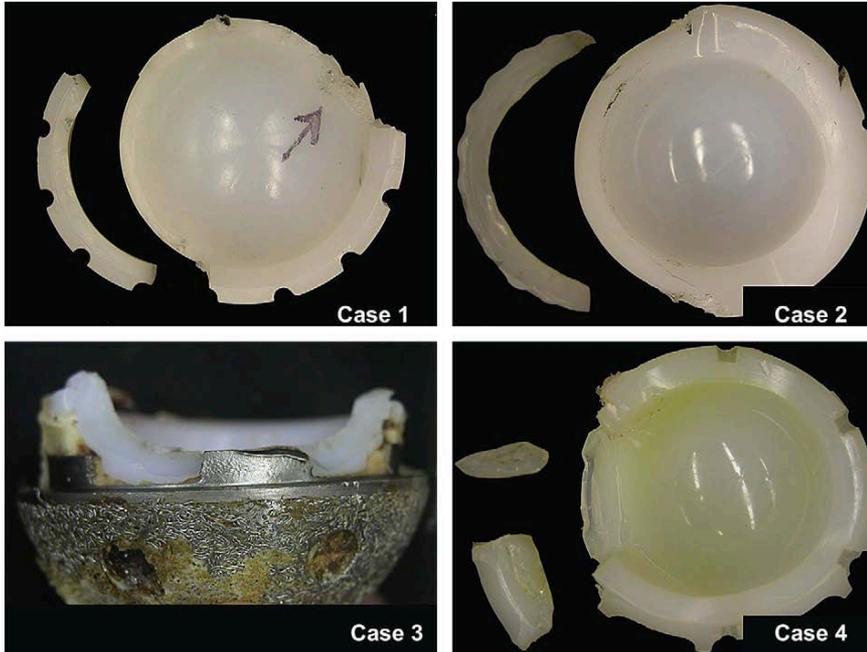
Polietilene Cross-linked

La rottura di inserti PEX è descritta specialmente in coppe verticali con bordo rialzato e uno scadente meccanismo di bloccaggio.

Tower SS et al. Rim cracking of the cross-linked longevity polyethylene acetabular liner after total hip arthroplasty. *J Bone Joint Surg Am* 89(10):2212-7 (2007)

Jacobs CA et al. Clinical performance of highly cross-linked polyethylenes in total hip arthroplasty. *J Bone Joint Surg Am* 89(12):2779-86 (2007)

Polietilene Cross-linked



Biomaterials 2009 Oct;30(29):5572-82

Clinical fracture of cross-linked UHMWPE acetabular liners

Jevan Furmanski^{a,*}, Martin Anderson^b, Sonny Bal^c, A. Seth Greenwald^d, David Halley^e,
Brad Penenberg^f, Michael Ries^g, Lisa Pruitt^{g,h}

The Journal of Arthroplasty Vol. 24 No. 1 2009

Case Report

Fracture of a Cross-Linked Polyethylene Liner Due to Impingement

Gavan P. Duffy, MD,* Keith K. Wannomae, BS, †
Shannon L. Rowell, BS, † and Orhun K. Muratoglu, PhD †

Inserti con spalla antilussante

- Non sono efficaci nel prevenire la lussazione
- Aumentano il rischio di impingement
- Rischio di rottura del bordo ed aumentata usura
- Aumentato il tasso di fallimento della coppa

Usrey MM et al. Does neck/liner impingement increase wear of ultrahigh-molecular-weight polyethylene liners?. J Arthroplasty 2006;21(6 S2):65-71.

Howard JL et al JBJS Am 2011 Sep 7;93(17):1597-604

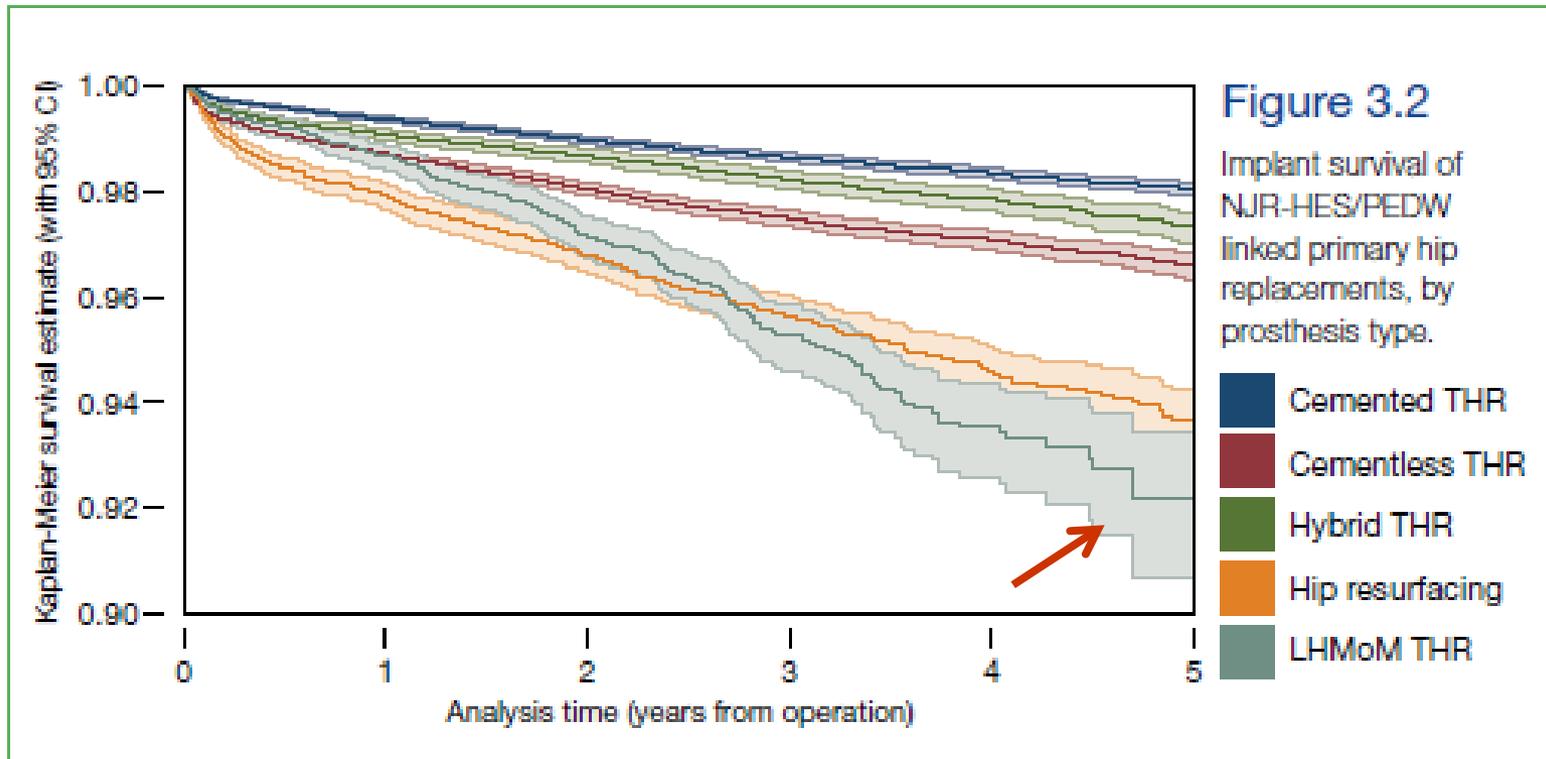


Metallo-Metallo

Le teste in metallo di grande diametro si sono diffuse dopo l'esperienza con le protesi di rivestimento



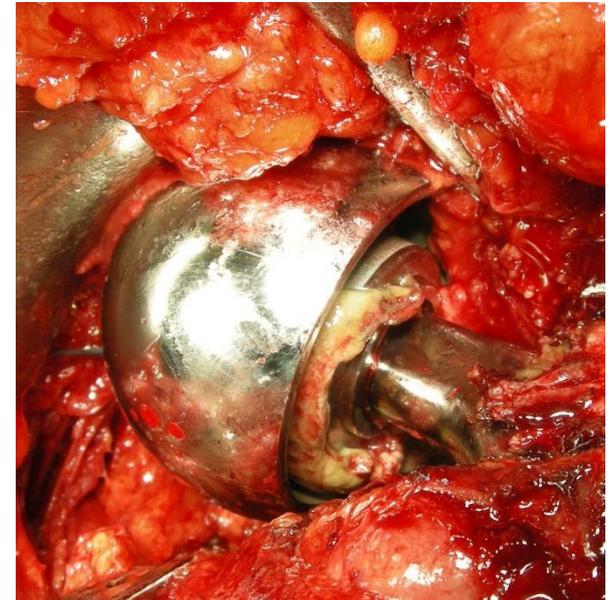
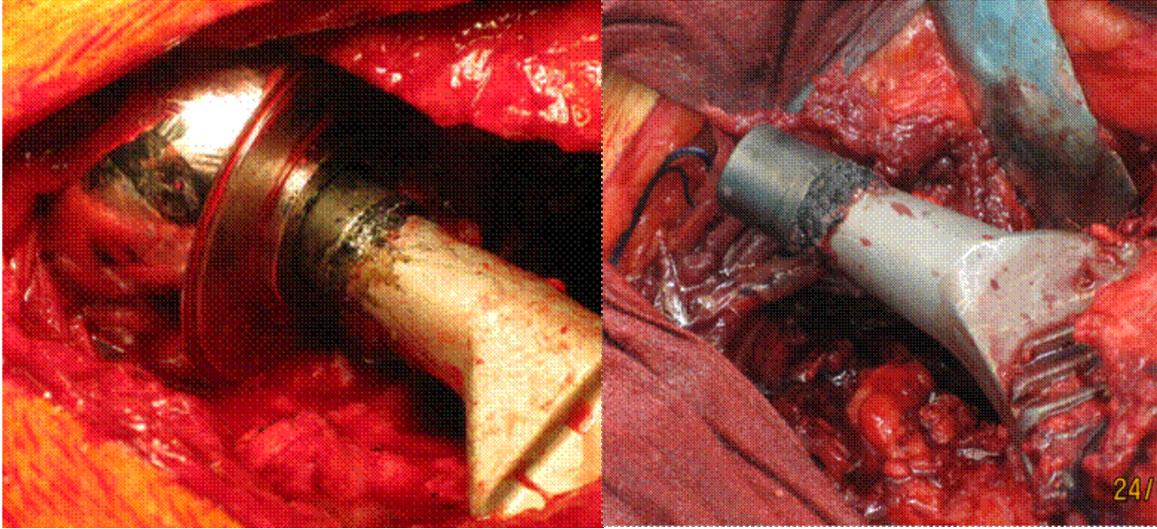
Elevato rischio di revisione con teste di metallo di grande diametro



National Joint Registry

www.njrcentre.org.uk

Usura a livello del cono Morse



Elevati momenti di frizione?

Bishop et al. High friction moments in large hard-on-hard hip replacement bearings in condition of poor lubrication. *J Orthop Res*; 2012 Dec;13;1-7

Elevato rischio di fallimento e complicanze con teste in metallo di grande diametro

J Bone Joint Surg Br. 2011 May;93(5):608-15.

High failure rates with a large-diameter hybrid metal-on-metal total hip replacement: clinical, radiological and retrieval analysis.

Bolland BJ, Culliford DJ, Langton DJ, Millington JP, Arden NK, Latham JM.

Hip Int 2010; 21 (01): 043-051

DOI: 10.5301/HIP2011.6276

ORIGINAL ARTICLE

Clinical Experience of Revision of Metal on Metal Hip Arthroplasty for Aseptic Lymphocyte Dominated Vasculitis Associated Lesions (ALVAL)

Asim Rajpura, Martyn L. Porter, Anil K. Gambhir, Anthony J. Freemont, Timothy N. Board



High incidence of pseudotumour formation after large-diameter metal-on-metal total hip replacement

B. H. Bosker,

2012;94-B:755-61.



Medical Device Alert

Ref: MDA/2012/008 Issued: 28 February 2012 at 11:00

Device
All metal-on-metal (MoM) hip replacements

Problem	Action
The MHRA is issuing updated information and advice about the management and monitoring of patients implanted with metal-on-metal (MoM) hip replacements.	Put updated systems in place for the follow-up and investigation of patients implanted with MoM hip (see appendix). Note: The recommendations in this Medical Device Alert (MDA) replace the advice previously given in MDA/2010/033 and MDA/2010/069.
Action by	
<ul style="list-style-type: none"> • Medical directors. • Orthopaedic departments. • Orthopaedic surgeons. • Staff involved in the management of patients with joint replacement implants. 	
CAS deadlines	
Action underway: 28 March 2012	
Action complete: 30 April 2012	



BHS statements on Large Diameter Metal on Metal bearing Total Hip Replacements

- The BHS advises that stemmed, large diameter metal-on-metal primary total hip replacements using bearings of 36 mm or above **should no longer be performed** until more evidence is available, except in properly conducted and ethically approved research studies.
- **This advice does not apply to hip resurfacing**



NEDERLANDSE
ORTHOPAEDISCHE
VERENIGING | NOV

Dutch Orthopaedic Association/Nederlandse Orthopaedische Vereniging (NOV)

Bruistensingel 128, 5232 AC 's Hertogenbosch, The Netherlands, E: nov@orthopeden.org

**THE USE OF METAL-ON-METAL HIP REPLACEMENTS:
MORE STRICT ADVICE TO NOV MEMBERS, 17 JANUARY 2012**

- **The utilization of all MoM with large heads (>36mm) must be suspended**

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**EFORT Executive Board Statement on use of
Large-Head Metal-on-Metal Stemmed Total Hip Arthroplasty:
“Take a time-out”**



Deutsche
Arthrose-Hilfe e.V.
DAH

**Consensus statement “Current Evidence on
the Management of Metal-on-Metal Bearings”**

April 16, 2012

Guenther KP et al. Hip Int 2013; 23(1):2-5

Failure rates of stemmed metal-on-metal hip replacements: analysis of data from the National Joint Registry of England and Wales



Alison J Smith, Paul Dieppe, Kelly Vernon, Martyn Porter, Ashley W Blom; on behalf of the National Joint Registry of England and Wales

Summary

Background Total hip replacement (THR) is extremely common. Some prostheses fail, particularly in younger patients, and need to be revised, most commonly for loosening secondary to wear or dislocation. Surgeons have tried to address these problems by implanting large diameter metal-on-metal bearing surfaces. Our aim was to assess if metal-on-metal bearing surfaces lead to increased implant survival compared with other bearing surfaces in stemmed THR and, additionally, if larger head sizes result in improved implant survival.

Published Online
March 13, 2012
DOI:10.1016/S0140-
6736(12)60353-5
See Online/Comment
DOI:10.1016/S0140-

BMJ

BMJ 2012;344:e1410 doi: 10.1136/bmj.e1410 (Published 28 February 2012)

Page 1 of 5

FEATURE

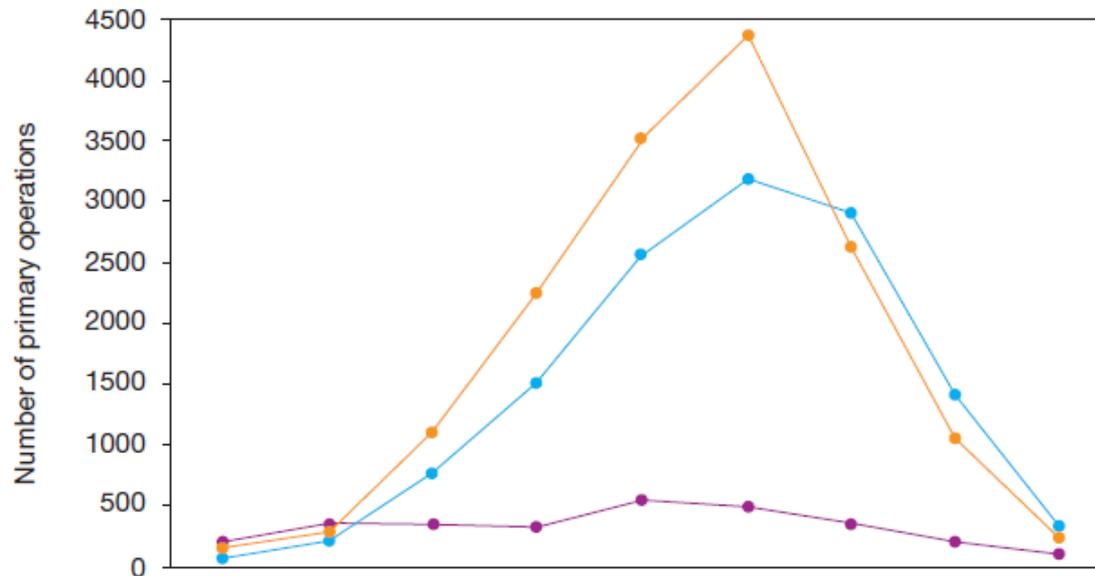
MEDICAL DEVICES

How safe are metal-on-metal hip implants?

Deborah Cohen examines the evidence of risk from metal-on-metal hips, the manufacturers' inadequate response, and how the regulatory bodies failed to give doctors and patients the information they need to make informed decisions

Diminuzione dell'impiego di teste in metallo di grande diametro

Trends in stemmed metal-on-metal by head size, 2003 to 2011.



Year	2003	2004	2005	2006	2007	2008	2009	2010	2011
22.25-32mm	200	336	351	341	534	501	352	203	101
36mm	68	204	754	1,487	2,562	3,199	2,896	1,407	327
38-60mm	136	285	1,096	2,277	3,534	4,372	2,637	1,033	245



National Joint Registry

www.njrcentre.org.uk

Metallo-Metallo

I problemi sembrano legati maggiormente alle teste in metallo di grande diametro mentre sono riportati buoni risultati con teste di piccolo diametro (< 32 mm)

Girard et al. Metal-on-metal hip arthroplasty in patients thirty years of age or younger. *J Bone Joint Surg Am* 20;92(14):2419-26 (2010)

Saito S et al. Long-term results of metal-on-metal total hip arthroplasty. *Orthopedics* 11;33(8) (2010)

Migaud et al. Cementless metal-on-metal vs ceramic-on-polyethylene hip arthroplasty in patients less than fifty years of age. *J Bone Joint Surg Am* 93 Suppl 2:137-42 (2011)

Maggiore diametro della testa > percentuale di revisione

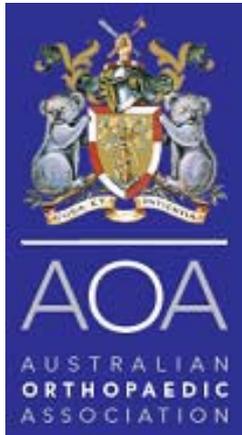
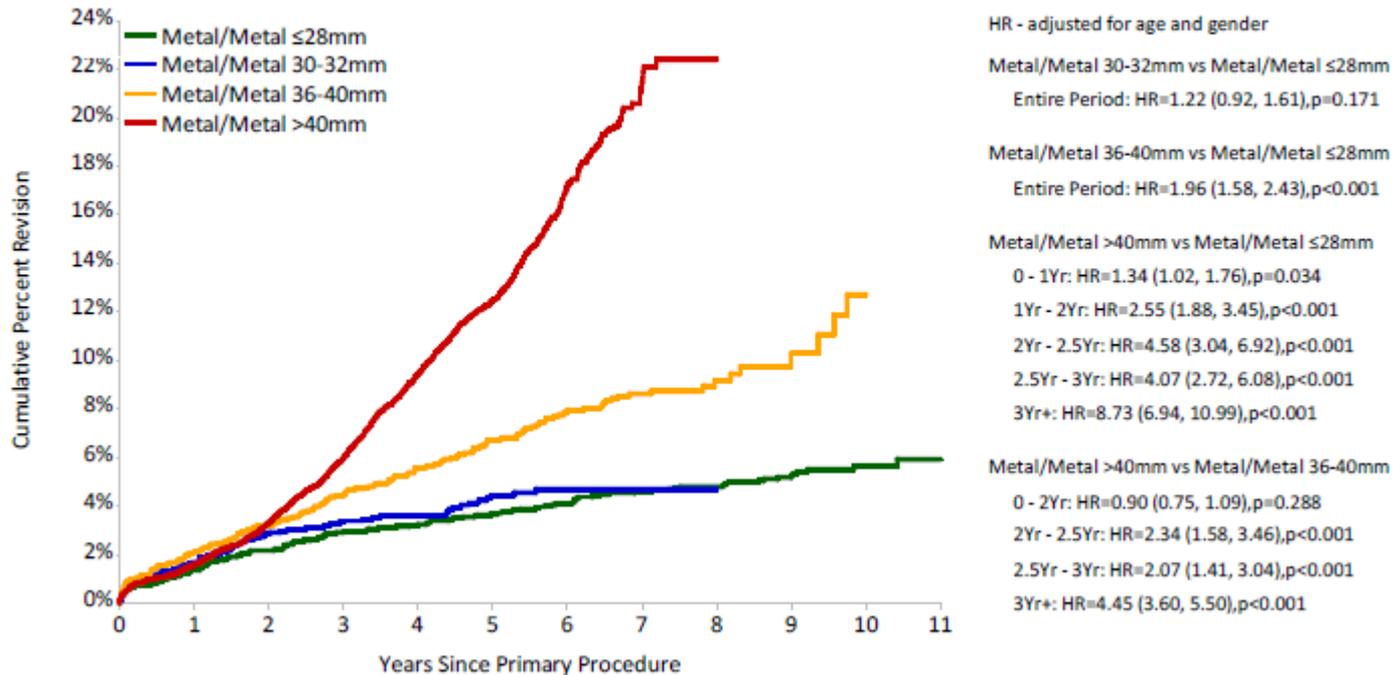


Figure HT22: Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement by Head Size (Primary Diagnosis OA)



Ceramica-Ceramica

Buoni risultati clinici a medio termine

J Bone Joint Surg Am. 2010 Jul 21;92(8):1715-9.

Alumina-on-alumina total hip arthroplasty: a concise follow-up, at a minimum of ten years, of a previous report.

Lee YK, Ha YC, Yoo JJ, Koo KH, Yoon KS, Kim HJ.

Serie consecutiva di 100 casi

Follow-up minimo 10 anni

Revisione per ogni causa: **99%** di sopravvivenza

Ceramica-Ceramica

Buoni risultati clinici a lungo termine

J Bone Joint Surg Am. 2010 Mar;92(3):639-44.

Primary cementless total hip arthroplasty with an alumina ceramic-on-ceramic bearing: results after a minimum of twenty years of follow-up.

Petsatodis GE, Papadopoulos PP, Papavasiliou KA, Hatzokos IG, Agathangelidis FG, Christodoulou AG.

Studio retrospettivo su 109 impianti:

84.4% di sopravvivenza a 20.8 anni

Ceramica-Ceramica

Buoni risultati a lungo termine

Clin Orthop Relat Res (2012) 470:3530–3536

Alumina-on-alumina THA Performed in Patients Younger Than 30 Years: A 10-year Minimum Followup Study

Hyeong Jo Yoon MD, Jeong Joon Yoo MD,
Kang Sup Yoon MD, Kyung-Hoi Koo MD,
Hee Joong Kim MD

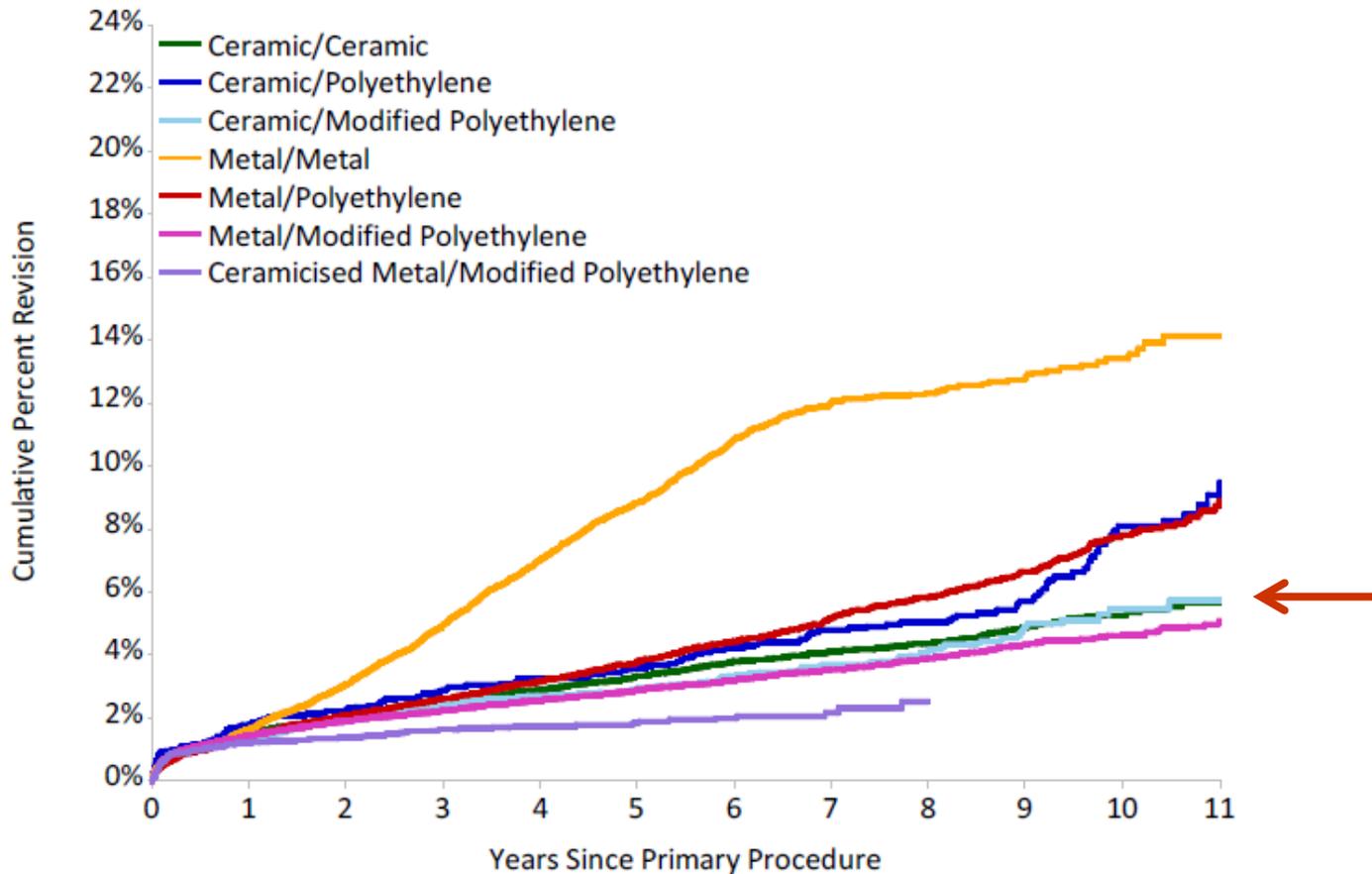
Studio retrospettivo, 75 impianti, età media 24 anni

(18-30):

98.9% di sopravvivenza a 11.5 anni (10-13.5)

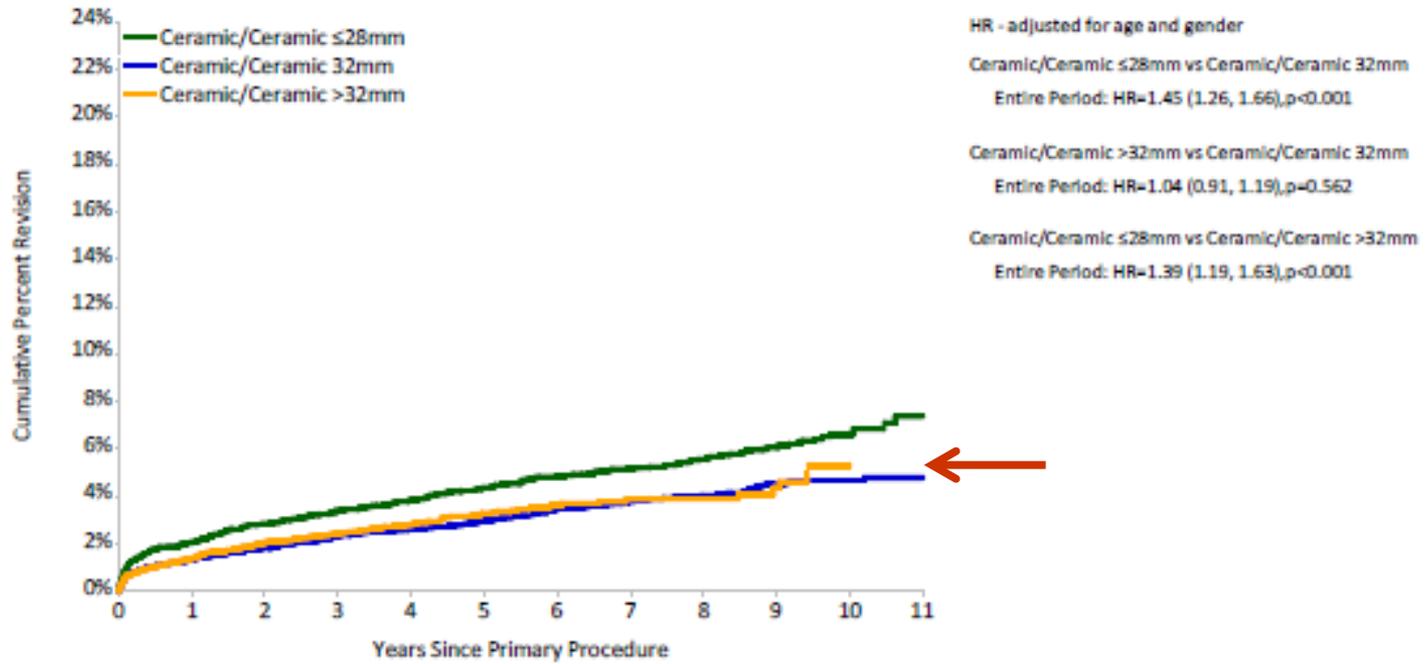
Nessuna osteolisi

Buoni risultati a medio-lungo termine



Risultati migliori con teste ≥ 32 mm

Figure HT32: Cumulative Percent Revision of Ceramic/Ceramic Primary Total Conventional Hip Replacement by Head Size (Primary Diagnosis OA)





National Joint Registry

www.njrcentre.org.uk

As metal-on-metal stemmed articulations give poor implant survival compared with other options, they should not be implanted. All patients with these bearings should be carefully monitored, particularly young women implanted with large diameter heads. This is in line with the recent recommendations by the British Orthopaedic Association and British Hip Society. Since large diameter ceramic-on-ceramic bearings seem to do well we support their continued use.

Ceramica-Ceramica

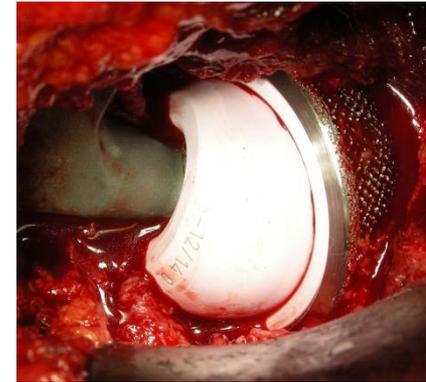
- 17 anni fa 28 mm cer-cer
- 12 anni fa 32 e 36 mm cer-cer
- 5 anni fa 40 mm

Dal 2001

Coppa press-fit in titanio

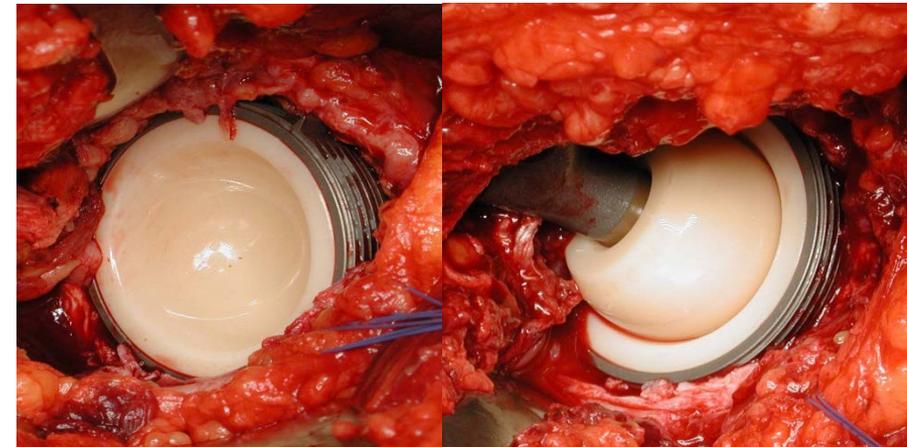
- Da 44 a 48 mm inserto **32**
- Da 50 a 52 mm inserto **36**
- Da 54 a 66 mm inserto **36** o **40**
(dal 2008)

Biolox Forte e Delta



920 casi

- Nessun caso di rottura della testa o dell'inserto
- Nessuna evidenza di osteolisi



Svantaggi della ceramica

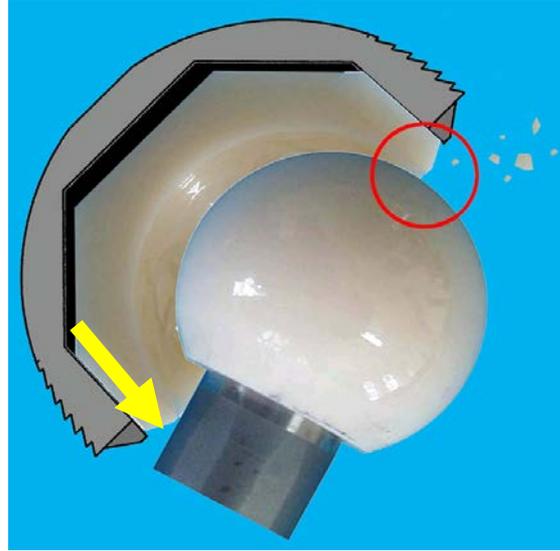
- Costo 
- Fragilità (rischio di rottura)
- Rumori (squeaking, clicking, grinding, etc.)

La ceramica è molto sensibile al malposizionamento e tollera meno errori di tecnica chirurgica

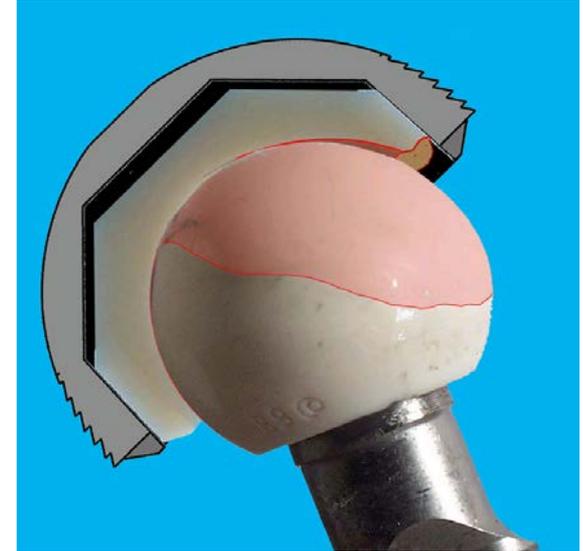
Meccanismo di rottura



- Ridotta copertura (coppa verticale e antiversa)
- Scadente disegno del bordo

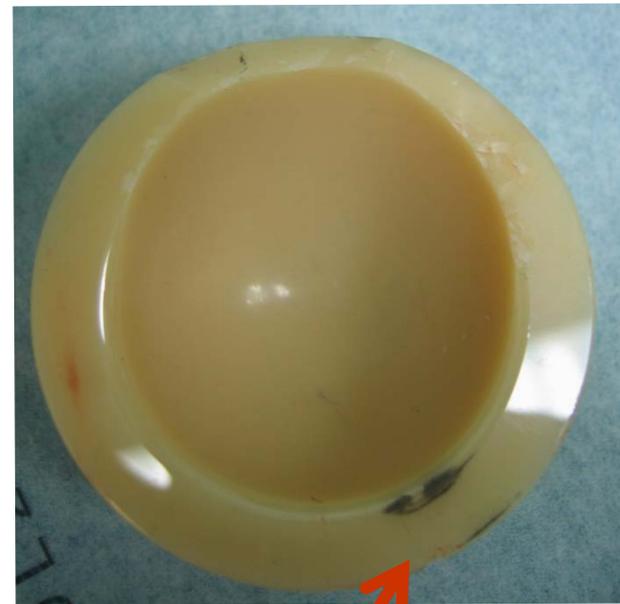


- Impingement – sub-lussazione
- Ridotta area di contatto con il margine
- Distacco di frammenti



- Usura da terzo corpo
- Propagazione della frattura

Dalla Pria P, Zagra L Breakage and noises in ceramic on ceramic couplings.
Eur Orthop Traumatol, 1:53-59 (2010)



Clin Orthop Relat Res (2011) 469:1560–1566
DOI 10.1007/s11999-010-1623-y

Does Acetabular Inclination Angle Affect Survivorship of Alumina-ceramic Articulations?

Henning R. Johansson MD, Aaron J. Johnson MD,
Michael G. Zywiell MD, Marybeth Naughton BS,
Michael A. Mont MD, Peter M. Bonutti MD

421 impianti, nessuna differenza clinica e radiografica in relazione all'inclinazione della coppa (media f.u. 5 anni)

The Journal of Arthroplasty Vol. 27 No. 4 2012

Fracture Propagation Propensity of Ceramic Liners During Impingement-Subluxation

A Finite Element Exploration

Jacob M. Elkins, MS,*† Douglas R. Pedersen, PhD,*†
John J. Callaghan, MD,*†‡ and Thomas D. Brown, PhD*†

Coppa verticale e antiversa aumentato rischio di rottura

Fattori di rischio per la rottura dell'inserto in ceramica

	Fractured group (26 hips)	Non-fractured group (49 hips)	p
Abduction angle			
mean/range	43,8(25-60,6)	40(20,1-61,9)	0,09
n° cases outside the range (%)	9(34,6%)	14(28,6%)	0,5
Anteversion angle			
mean/range	25,11(3,5-50)	22,06(10,1-48,2)	0,25
n° cases outside the range (%)	13(59,1%)	15(30,6%)	0,03
Off-set(mm)			
mean/range	39,4(19,5-60)	36(18,1-49,7)	0,08
Height of the center of rotation(mm)			
mean/range	22(7,5-38,5)	23,8(9,9-48,7)	0,3
n° cases (%)	4(15,4%)	9(18,4%)	0,7

Attenzione al corretto posizionamento delle componenti per evitare impingement e aree di sovraccarico

- Inclinazione 40° - 45°
- Antiversione 10° - 15°
- No eccessiva antiversione o retroversione dello stelo
- Ripristinare un corretto off-set

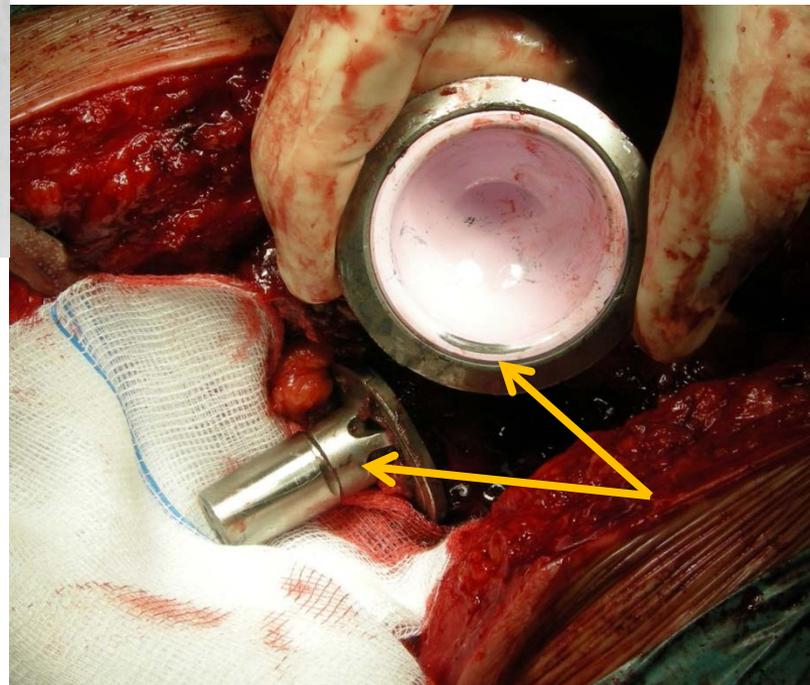
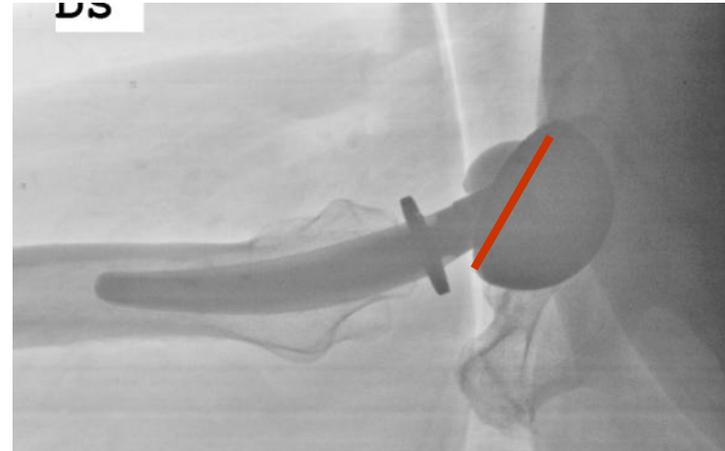
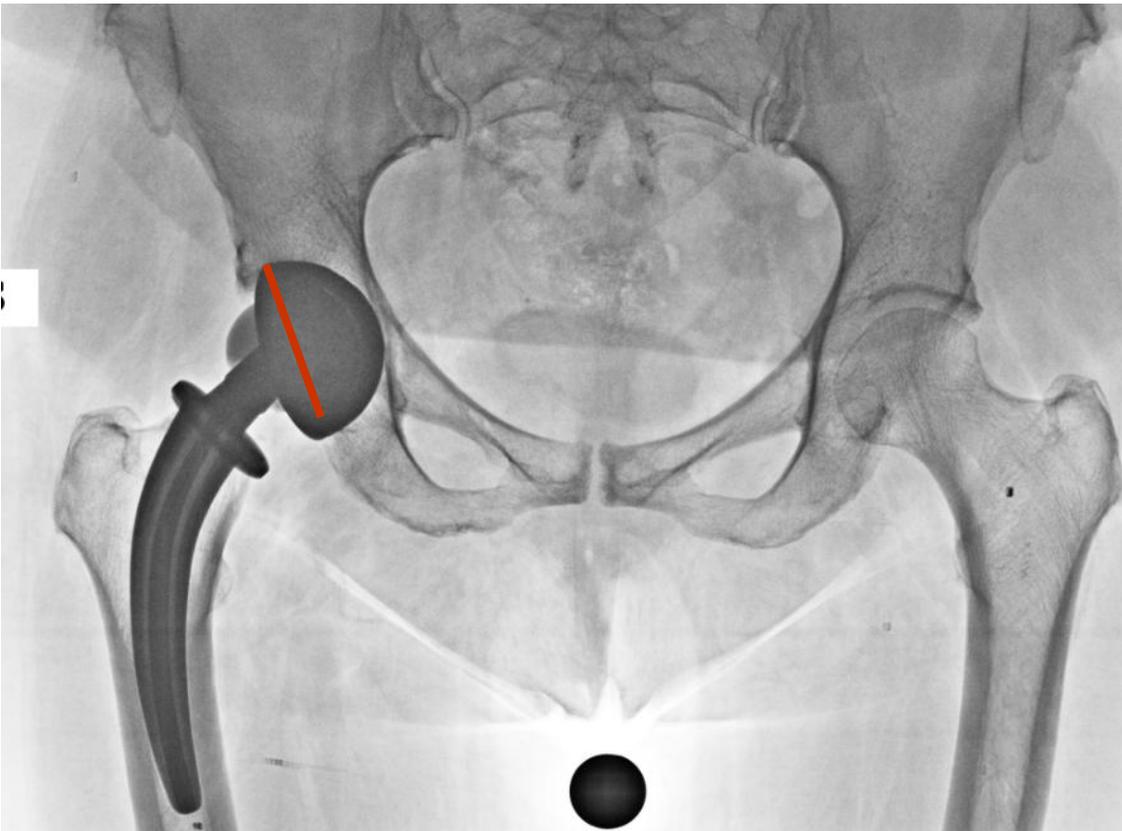
Quando qualcosa va storto...

In caso di posizionamento non ottimale

Stretto f.u. clinico e radiografico

Revisione precoce in caso di dolore, se
insorgono rumori tardivi o che
peggiorano nel tempo

Quando qualcosa va storto...

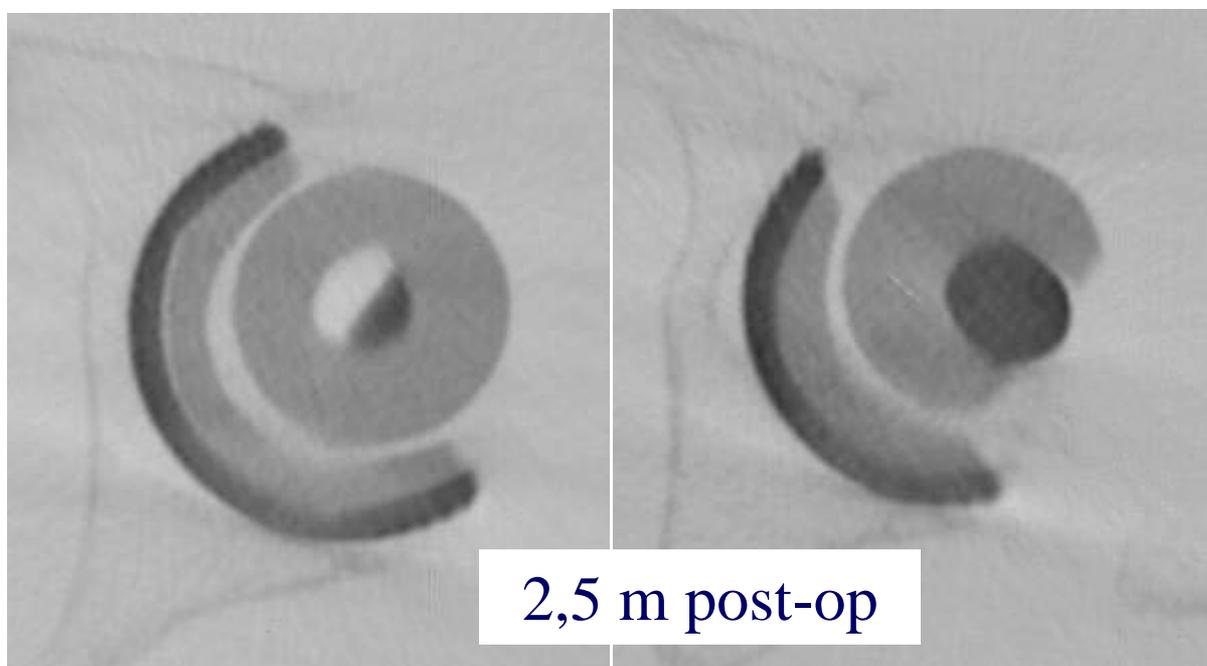


Femmina, 61 anni
1,5 anni post op. Dolore, rumori

Microseparazione

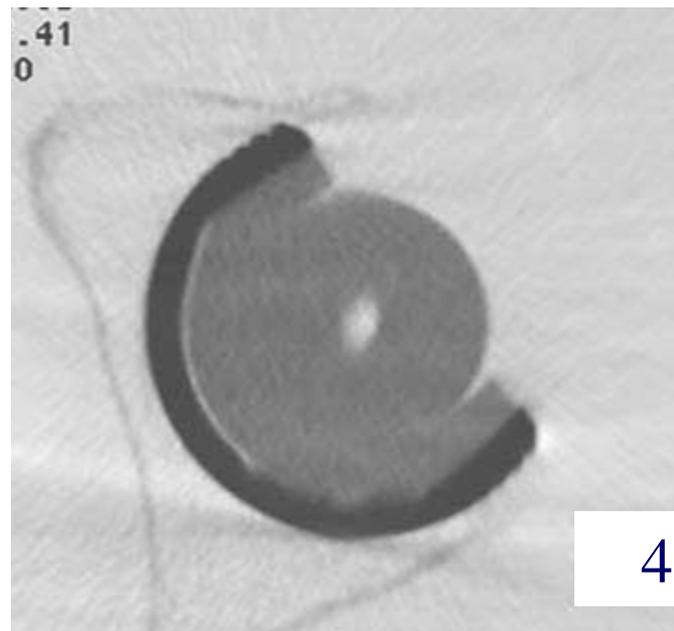
Instabilità temporanea

Usualmente si risolve in pochi
mesi



Maschio, 65 anni,
sensazione di “click”

Microseparazione alla
TC



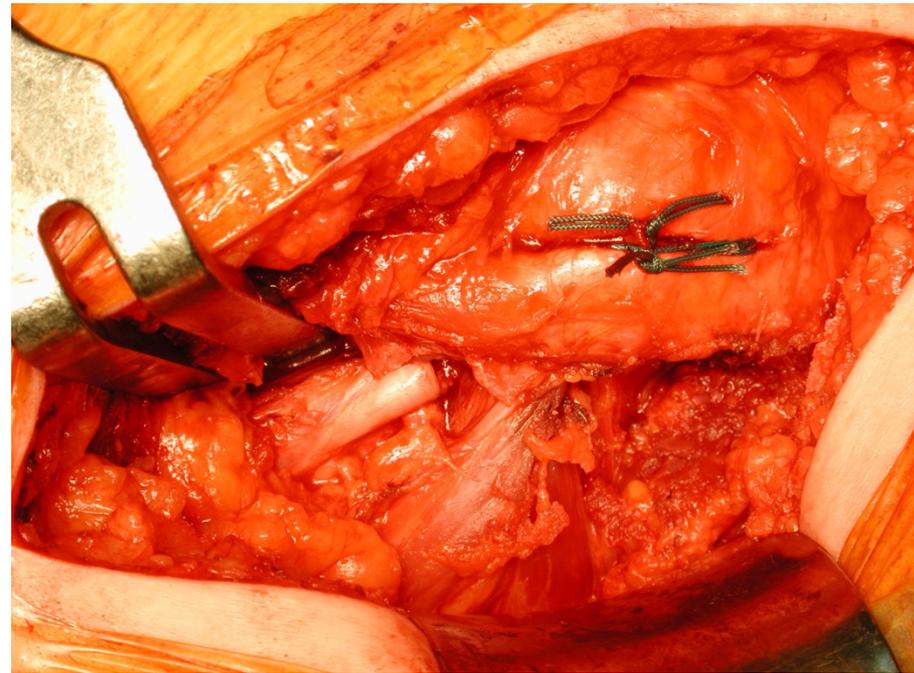
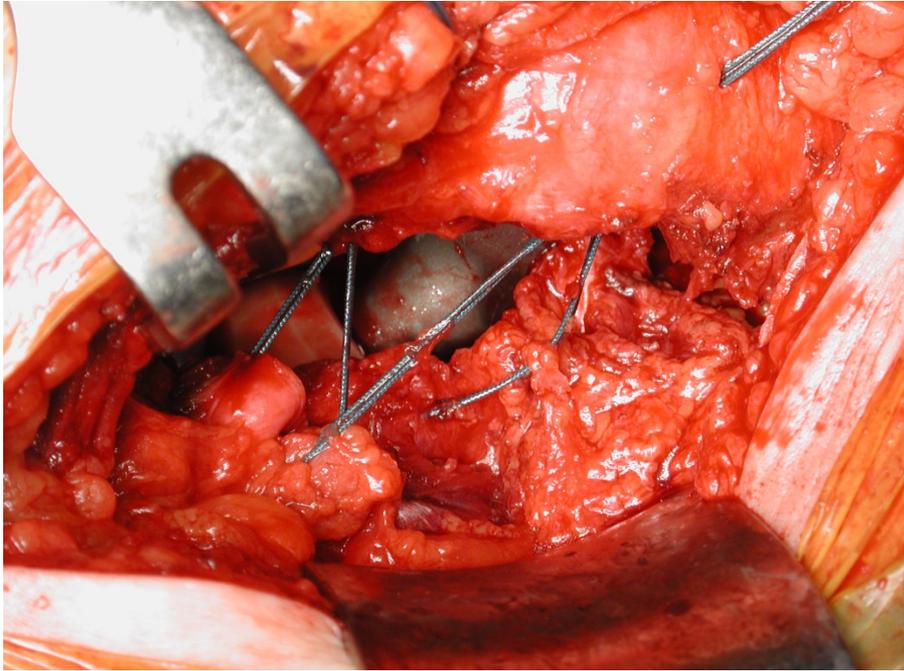
- La microseparazione è un problema
- Può riscontrarsi non solo nell'immediato post-operatorio
- Può causare la rottura del bordo dell'inserito e generare usura
- Può causare il fallimento dell'impianto

Leslie et al. High cup angle and microseparation increase the wear of hip surface replacements. *Clin Orthop Relat Res* 2009 Apr



Ripristinare l'off-set
usando colli XL se necessario

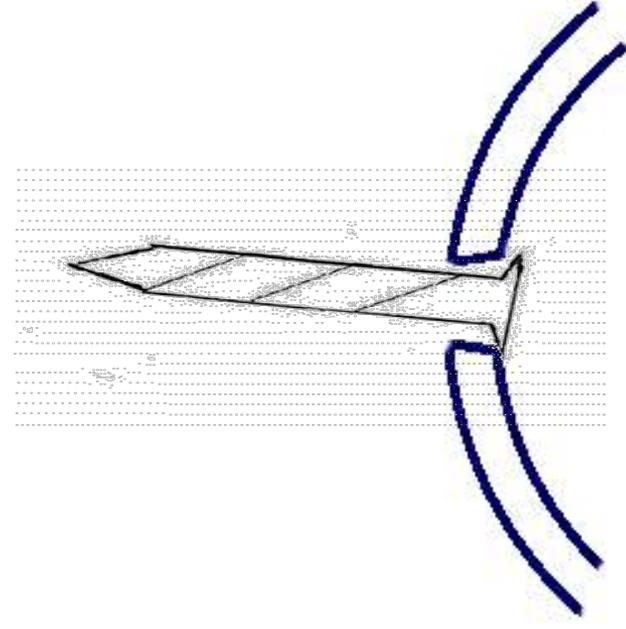
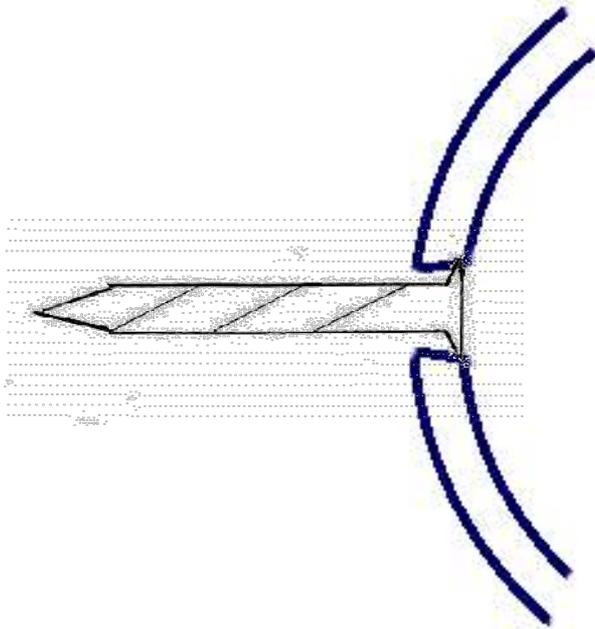
Rispettare e riparare i tessuti molli



Possibile controindicazione all'uso della ceramica è l'insufficienza muscolare del cingolo pelvico

- Pazienti che hanno insufficienza glutea, lassità dei tessuti molli o eccessivo ROM possono essere considerati a rischio

Meglio non utilizzare viti



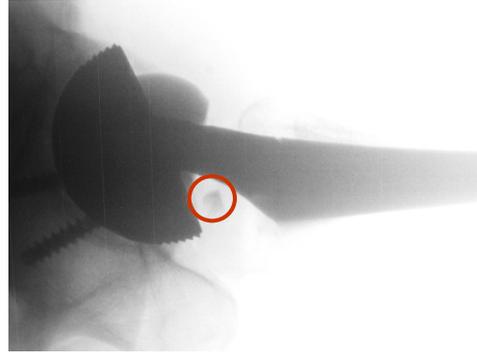
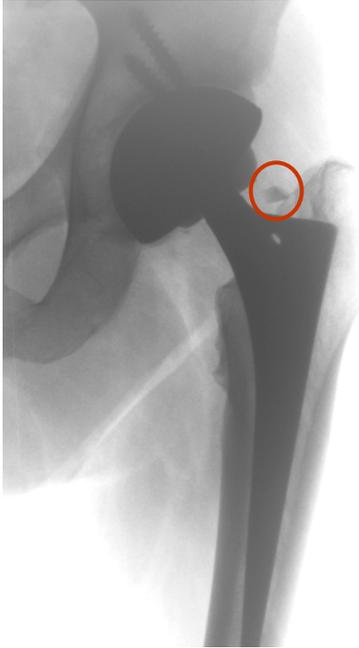
Orthopaedics MAY 2010 | Volume 33 • Number 5

Acetabular Screw Head-induced Ceramic Acetabular Liner Fracture in Cementless Ceramic-on-Ceramic Total Hip Arthroplasty

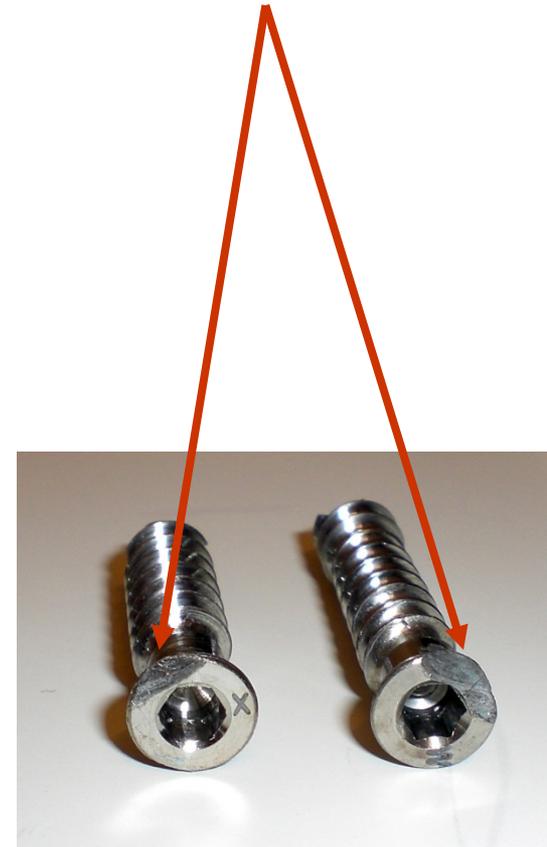
SU CHAN LEE, MD; KWANG AM JUNG, MD; CHANG HYUN NAM, MD; TEA HO KIM, MD;
NONG KYOUM AHN, MD; SEUNG HYUN HWANG, MD

Paziente proveniente da un altro ospedale:

Frattura dell'inserto causata dal malposizionamento delle viti che protrudevano all'interno del metal back



P.V. maschio, 61 aa,
4 aa post-op



Dal 2004, in accordo con la nostra esperienza, la scelta dell'accoppiamento nei casi standard è:

Sotto 55 anni Cer-Cer (32, 36 o 40 mm)

Sopra 65 anni Cer -PEX (28, 32 o 36 mm)

55 > 65 Secondo le richieste funzionali del paziente

Conclusioni

- I pazienti differiscono per età, richieste funzionali, anatomia e qualità dell'osso
- Scegliere la tribologia a seconda delle caratteristiche del paziente
- A prescindere dai materiali impiegati, la tecnica chirurgica ed il corretto posizionamento delle componenti sono cruciali per la sopravvivenza a lungo termine dell'impianto

Conclusioni

In casi di displasia grave, quando non si è certi dell'ottimale orientamento delle componenti può essere più prudente non utilizzare la ceramica anche in pazienti giovani

Grazie !

