



The anatomical restored femoroacetabular offset does not correlate with clinical results of a short-stem in combination with a monoblock pressfit cup for THA

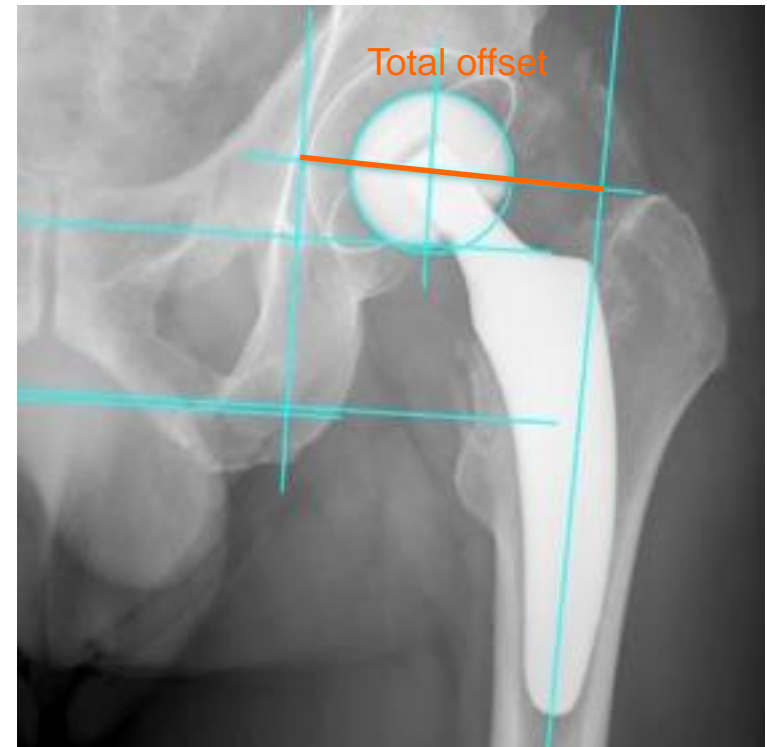
RS Camenzind, MO Schär, A Antoniadis, N Helmy

Disclosure

- N Helmy
 - Consultant for
 - Mathys Ltd, Switzerland
 - Medacta International, Switzerland
 - Bayer
 - Royalties
 - Medacta International, Switzerland
- Other authors
 - none

Introduction: Total offset

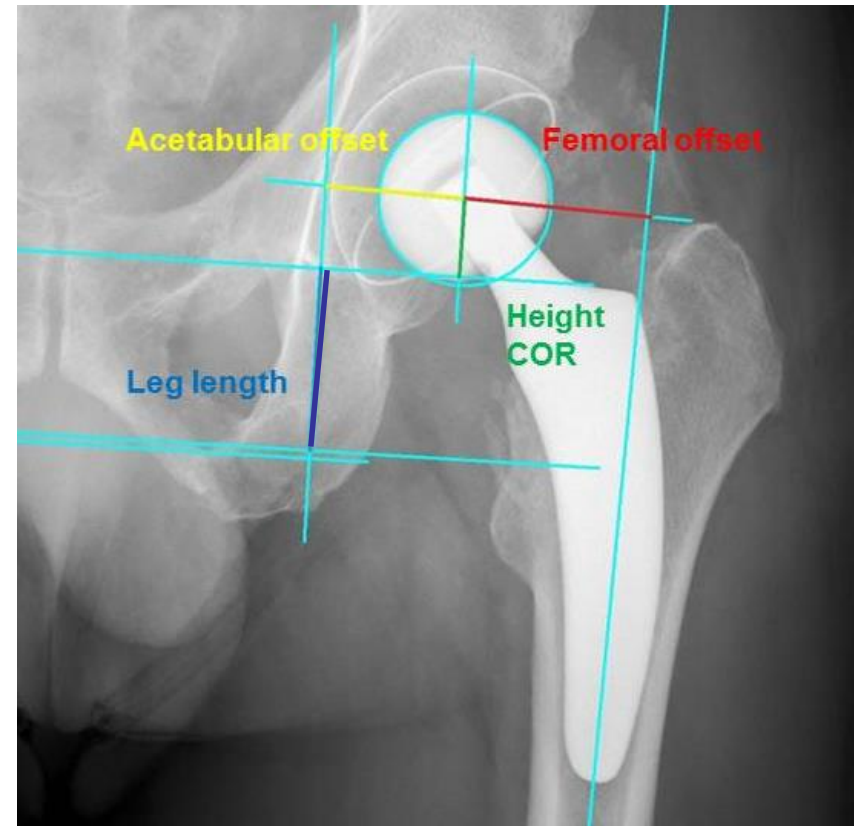
- Perpendicular distance between true floor of acetabulum and femoral long axis
- Offset alteration influence hip joint biomechanics



Frain P, Rev Chir Orthop, 1978
McGrory B, JBJS Br, 1995
Widmer KH, Clin Biomech, 2005

Surgical goal

- Reconstruction individual joint biomechanics
- Radiological parameters
 - leg length (LL)
 - total offset (TO)
 - femoral offset (FO)
 - acetabular offset (AO)
 - height of centre of rotation (COR)



Objectives

- Restoration of radiological parameters
 - a monoblock pressfit cup
 - an uncemented short hip stem
- Correlation of radiological results with short-term clinical outcome

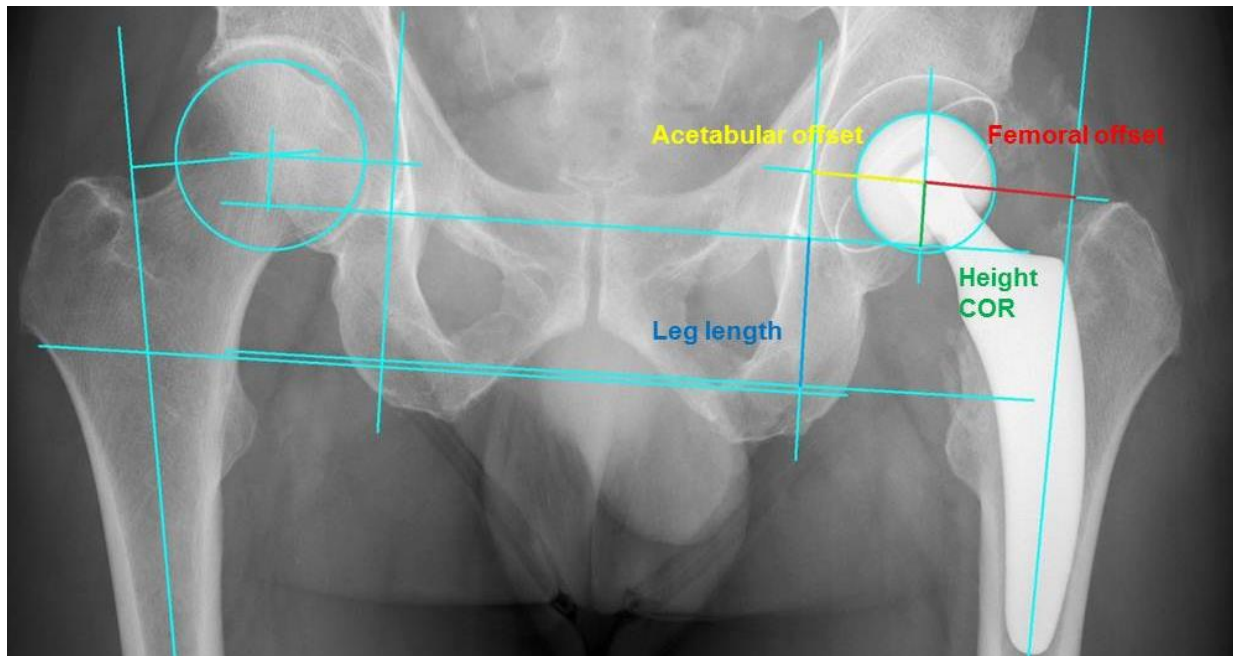


Patients

- prospective clinical follow-up multicenter study
- 119 patients (56 female, 63 male)
- mean age 66 years (range, 43 – 87)
- median follow-up (FU) of 24.5 months

Methods

- measured on standardized antero-posterior x-ray
- compared to non-operated, healthy hip



Dastane M, CORR, 2011
Waldstein W, Int Orthop, 2014

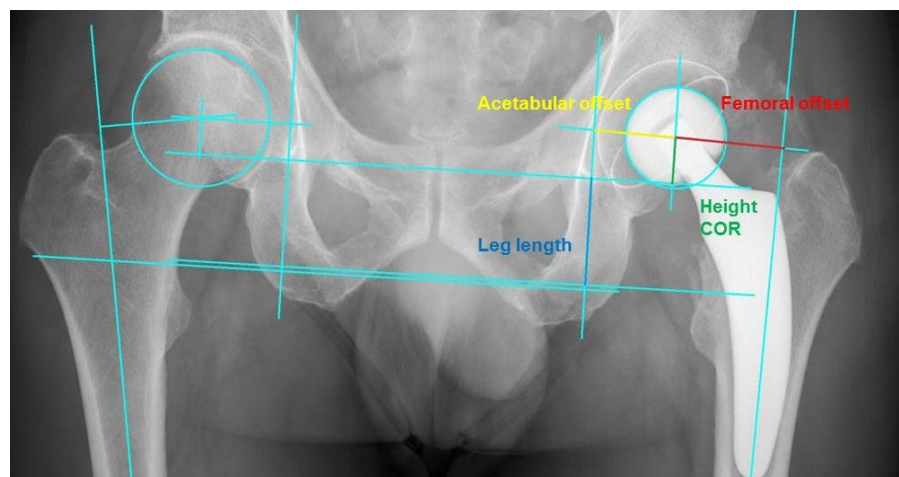
Clinical outcome

- Harris hip score (HHS; 0 – 100)
- rest pain, visual analogue scale (VAS; 0 – 10)
- load pain (VAS; 0 – 10)
- satisfaction (VAS; 0 – 10)

Harris WH, JBJS Am, 1969

Radiological results

	Result [mm]	p-value*	Acceptable differences [mm]	Restoration
Leg length	+ 1	0.045	+/- 10	89.2%
Total offset	- 1.2	0.145	N/A	
Femoral offset	- 5.8	<0.0001	+/- 4.6	43.3%
Acetabular offset	+ 4.6	<0.0001	N/A	
Centre of rotation	- 4.4	<0.0001	+/- 6.3	68.3%



*Wilcoxon signed rank test

Krishnan SP, J Arthroplasty, 2006
 McWilliams AB, Hip Int, 2013
 O'Brien S, Hip Int, 2010

Clinical results

	Last FU	Improvement	p-value*
HHS	100 (66 – 100)	+ 45 (-9 – 86)	<0.0001
Rest pain	0 (0 – 8)	- 4 (-10 – 1)	<0.0001
Load pain	0 (0 – 10)	- 6.5 (-10 – 2)	<0.0001
Satisfaction	10 (2 – 10)	+ 7 (-1 – 10)	<0.0001

*Wilcoxon signed rank test

Clinical results

- 96.7% good to excellent (HHS ≥ 80)
- 90.8% no rest pain (VAS = 0)
- 81.5% no load pain (VAS = 0)
- 79.0% very satisfied (VAS = 10)

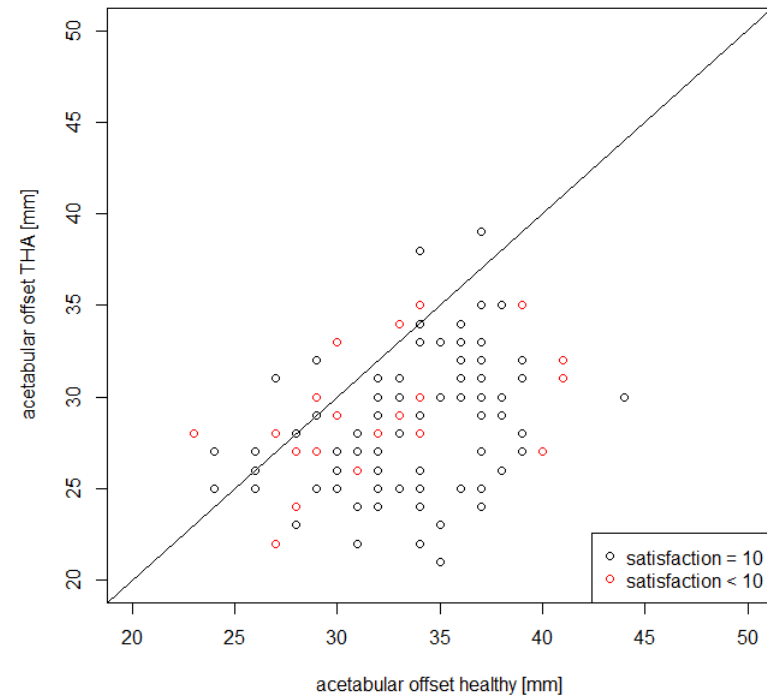
Marchetti P, J Arthroplasty, 2005

Univariate logistic regression

- No influence by any radiological parameter
 - Rest pain
 - Load pain
 - Limping (out of HHS)

Univariate logistic regression

- Decrease of acetabular offset leads to decreased probability not being satisfied ($p = 0.0127$)
- OR 1.15 (95% CI: 1.03 – 1.30)



Discussion

- Short hip stems in combination with a monoblock pressfit cup safely restore
 - leg length
 - total offset
- femoral offset is decreased
- acetabular offset is increased

Conclusion

- Implantation of a monoblock cup and an uncemented short-stem
 - shows good to excellent short-term clinical results
 - restores radiological parameters within a given threshold (leg length +/- 10 mm, femoral offset +/- 4.6 mm, center of rotation +/- 6.3 mm)
- Restoration of radiological parameters do not correlate with short-term clinical outcome

Thank you for your attention



roland.camenzind@spital.so.ch