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# Factors influencing the stem migration rate after implantation of a short-stem hip implant

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## **Other authors**

- ✦ none

- ✦ **Cementless short stems** have gained popularity in total hip arthroplasty (THA)
  - ✦ more physiological load transfer
  - ✦ Possibility for less invasive surgery

## ✦ Aseptic loosening

- ✦ Most common reason for implant failure

## ✦ Conventional THA

- ✦ Early migration good predictor for mechanical failure
- ✦ **Subsidence > 1.5 mm** after 2 years predictive for late aseptic loosening

Streit et al: CORR 2016

Krismer et al: JBJSB 1999

## **Aim**

2 year subsidence of a cementless anatomic short-stem

## **Hypothesis**

Short-stem shows acceptable subsidence rate that is comparable with long-stem

- ✦ Prospective single center series
- ✦ 69 consecutive patients
  - ✦ mean age: 64.5 y; range: 42.5 – 87.8 years
  - ✦ female: 25 male: 44
- ✦ Surgery between Mar 2011 and Aug 2012



# Methods

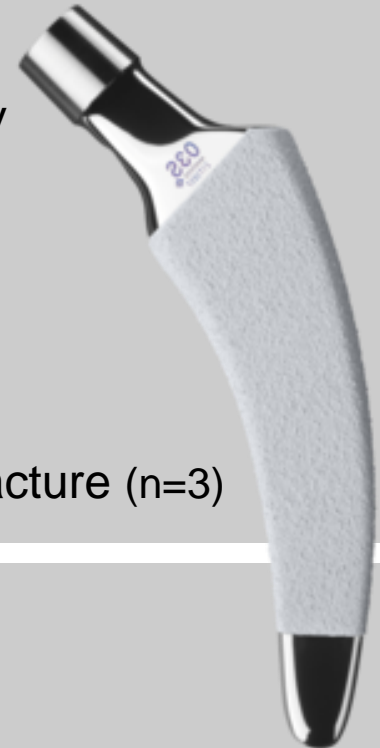
## Inclusion

Age: 18 - 85 years

-Primary OA	92.8%
-Secondary OA	4.3%
-Congenital dysplasia	1.4%
-Rheumatoid arthritis	1.4%

## Exclusion

- Revision Surgery
- Sepsis
- Cancer
- ASA >3
- Periprosthetic fracture (n=3)



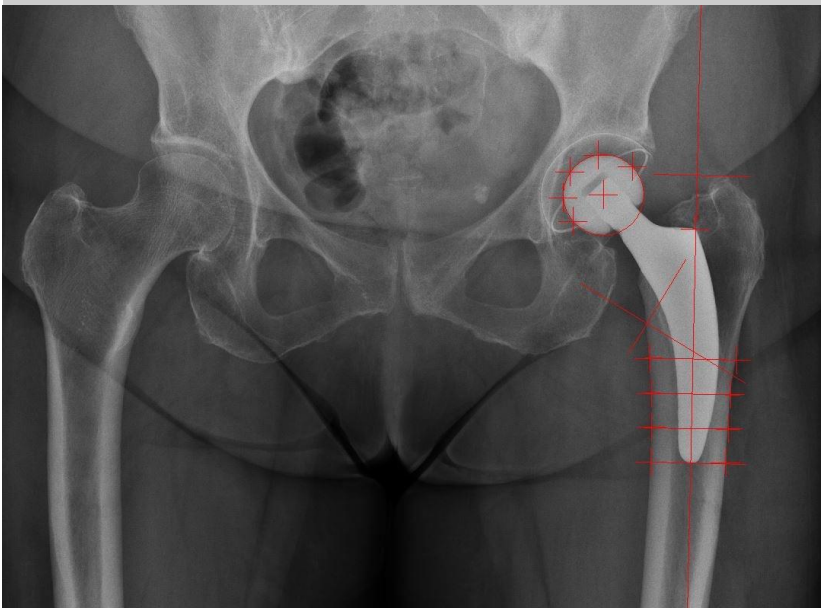
## Total hip arthroplasty (n = 69)

- 2 experienced senior surgeons
- uncemented short hip-stem (Optymis, Mathys Ltd, Switzerland)
- anterior approach

# Methods

## EBRA

One picture x-ray analysis



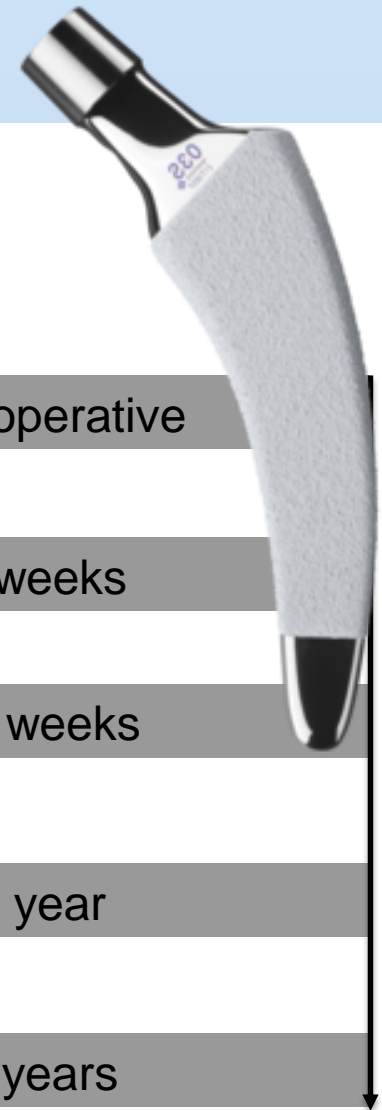
Postoperative

6 weeks

12 weeks

1 year

2 years





## **Total hip arthroplasty (n = 69)**

- 2 experienced senior surgeons
- uncemented short hip stem (Optymis, Mathys Ltd, Switzerland)
- anterior approach

## **Postoperative Regimen**

Full weight bearing according to patients tolerance

## **Primary outcome measure**

Subsidence of the stem 2 years p.o. [mm]

## **Secondary outcome measures**

Correlation between subsidence and clinical / radiographical factors

**No** intra- or postoperative complications **except...**

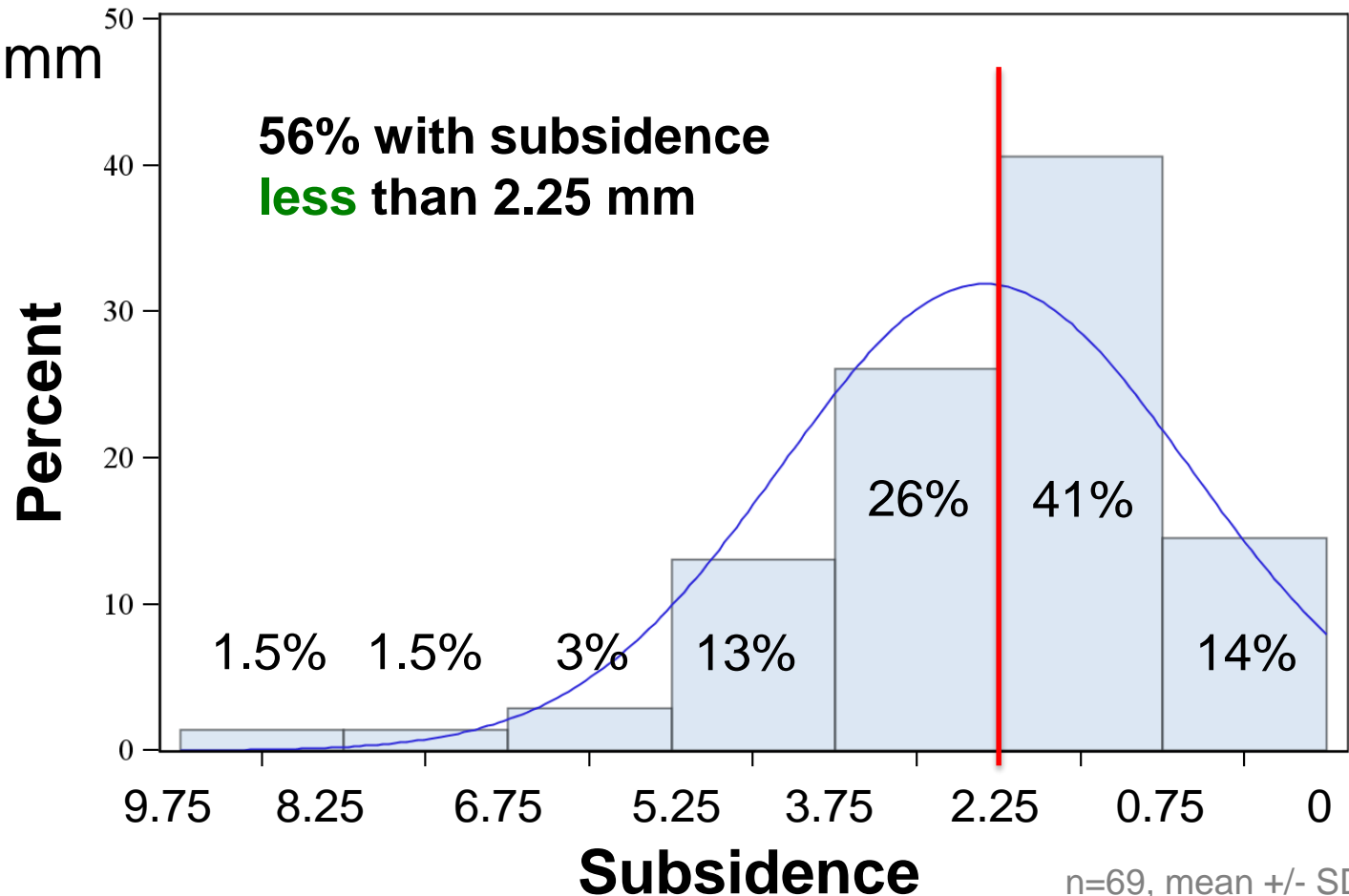
...3 intraoperative femoral fissures  
(excluded from the study)

**No** revision surgery up to 24 months

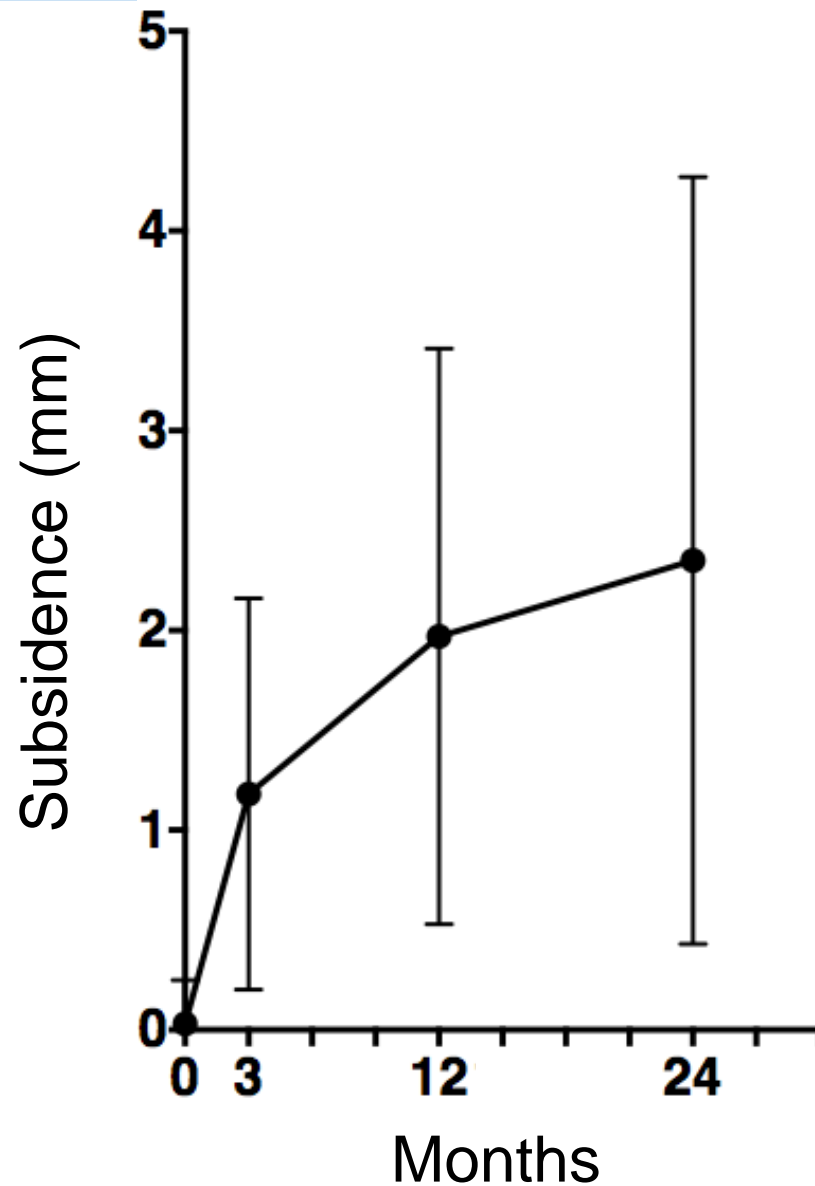
**No** infections

## Subsidence after 2 yrs

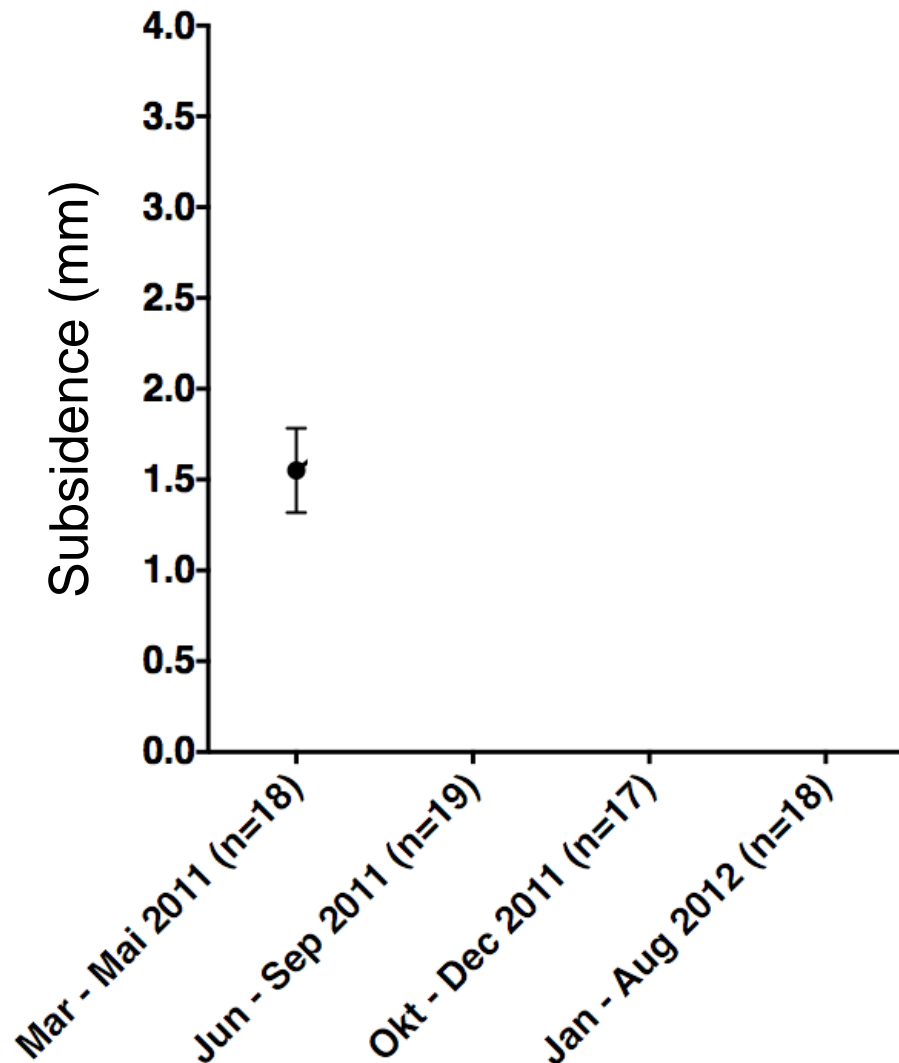
2.38 +/- 1.88 mm



## Subsidence over time



## Learning curve



## **Subsidence negatively correlated with**

stem size  $r = - 0.26$   $p = 0.02$

## **Subsidence did NOT correlate with**

Satisfaction at last FU

Pain at last FU

Leg Length difference at last FU

Weight at last FU

Age at surgery

BMI

Harris Hip Score

- ★ **The short-stem hip implant shows migration up to 2y**
- ★ **Undersized stem is significant risk factor for stem migration**
- ★ **Significant learning curve for new implant**
- ★ **Subsidence may be higher than seen in conventional stems**



Thank you



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