

Should we navigate?

Trochanteric Pain Syndrome is the main reason for Low Satisfaction,
But
Not related to Accuracy of supine THR with Functional Testing

Tom Hogervorst

Bergman Clinics / Netherlands



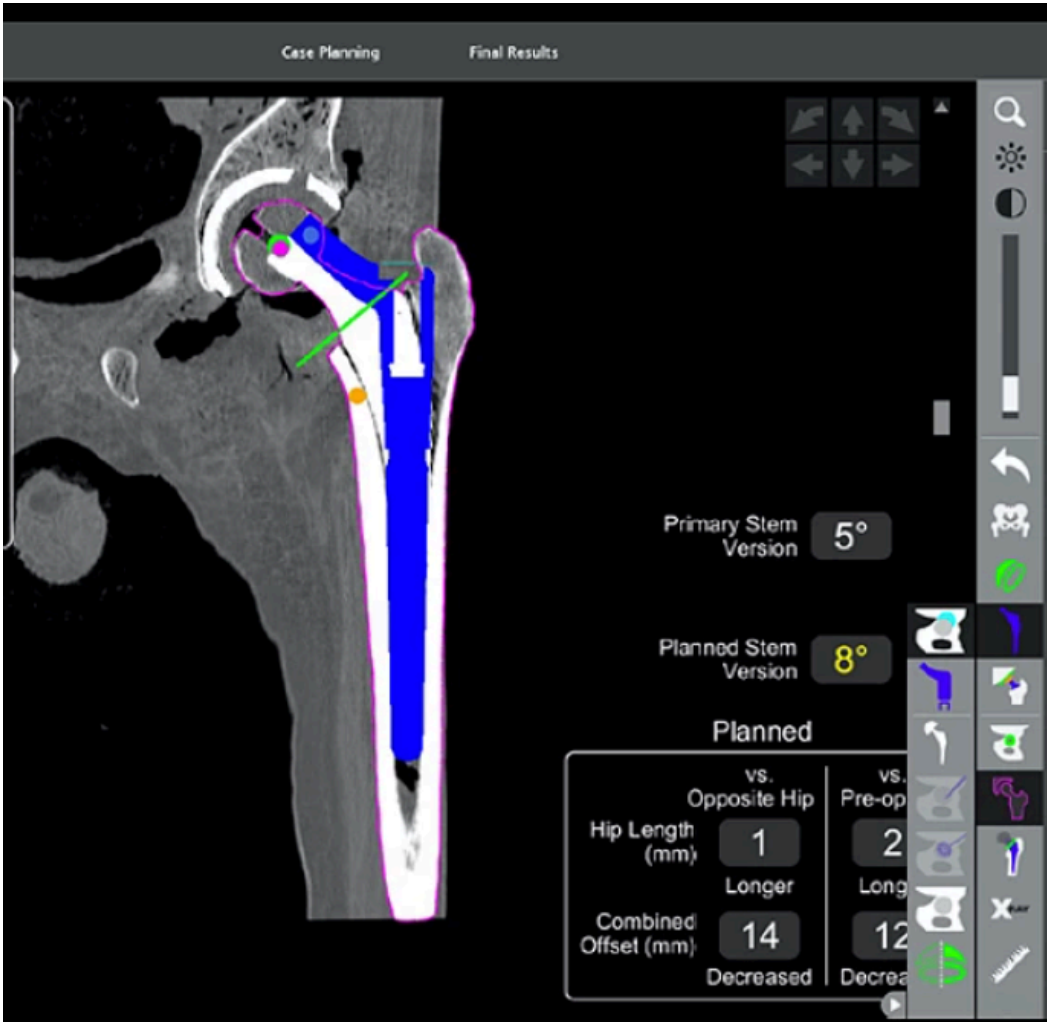
No Disclosures

Co-workers:

Maurits Oostenbroek, Jessica Barends, Paulien van Kampen

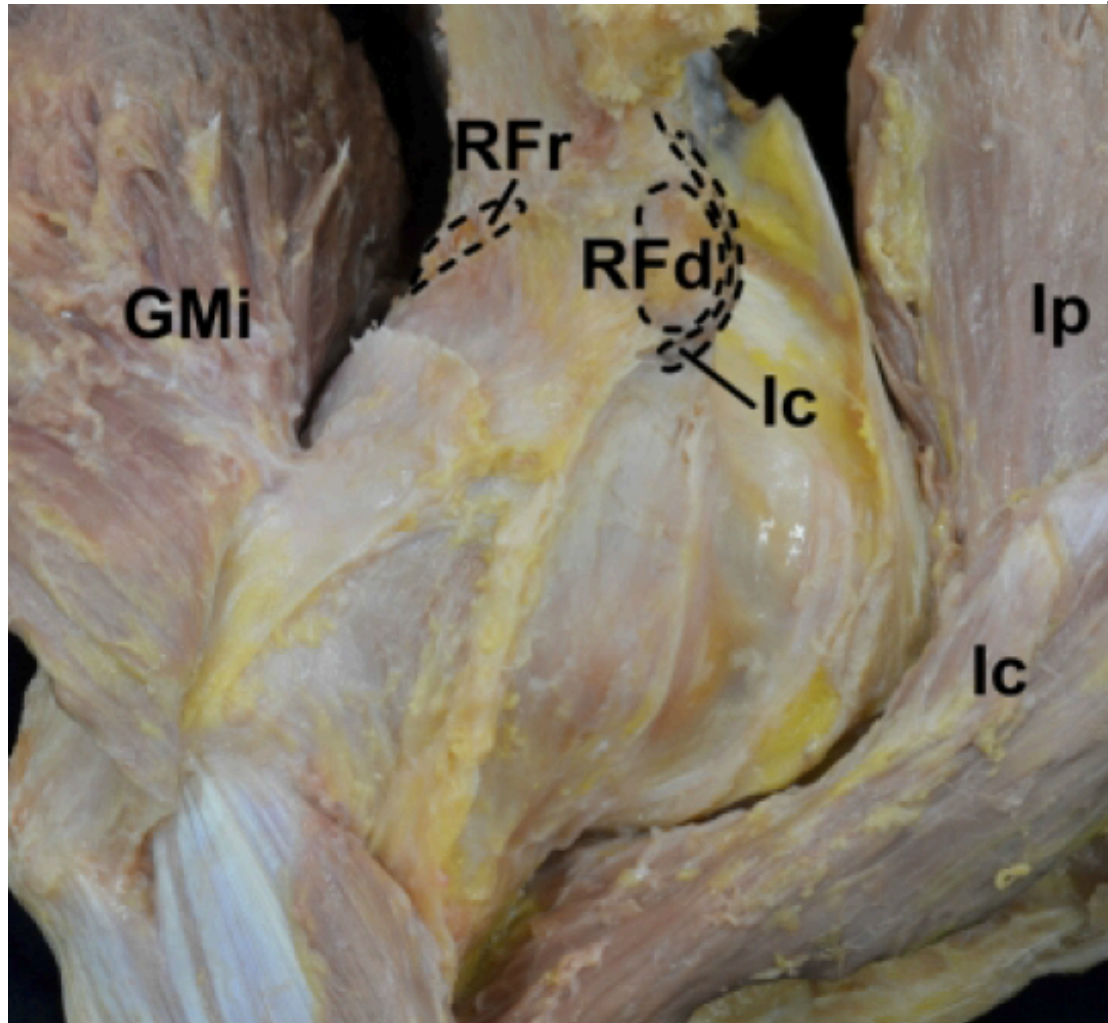


What should we do?



Replicate an image ?

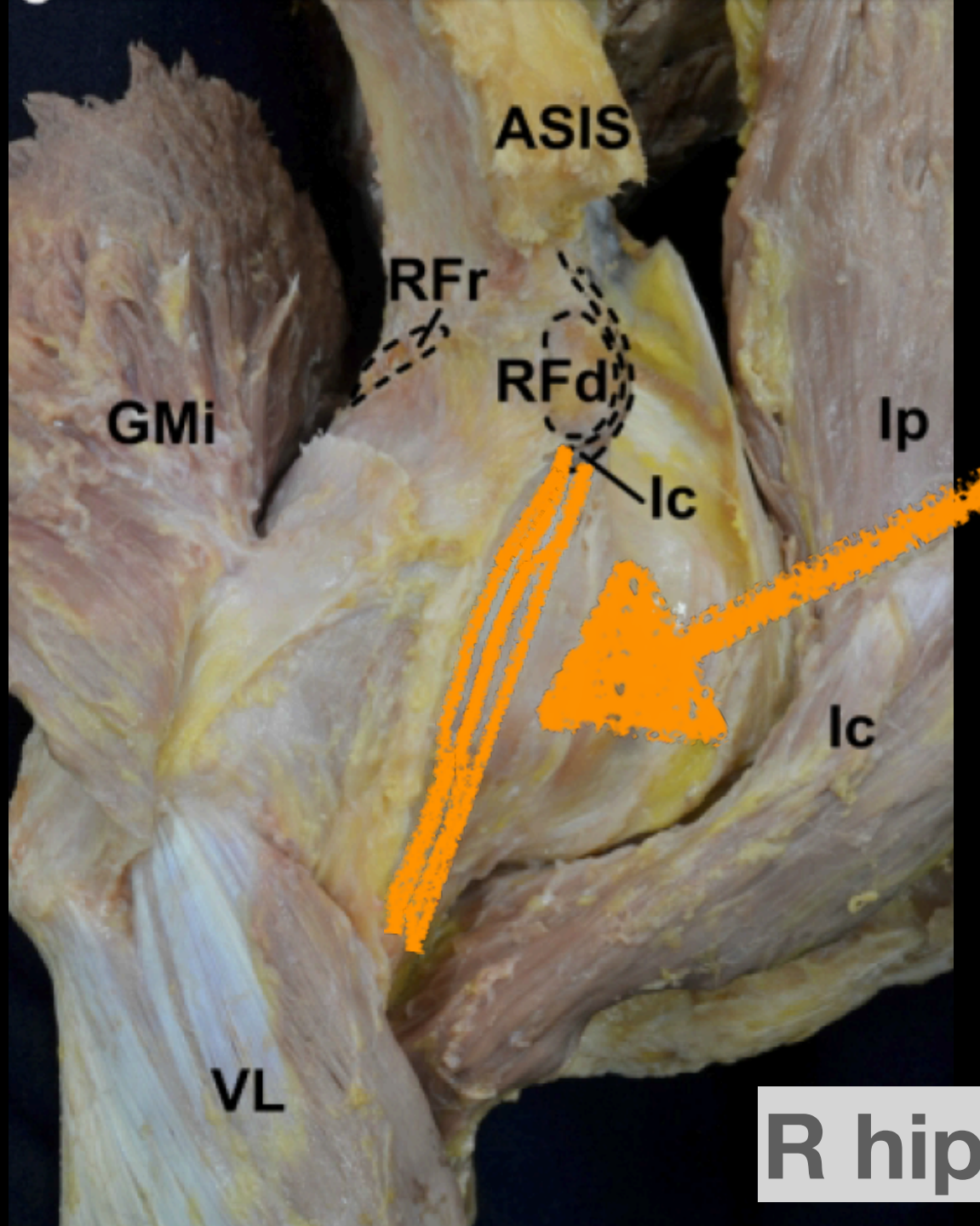
Supine surgery



Based on Anatomy



Functional Testing



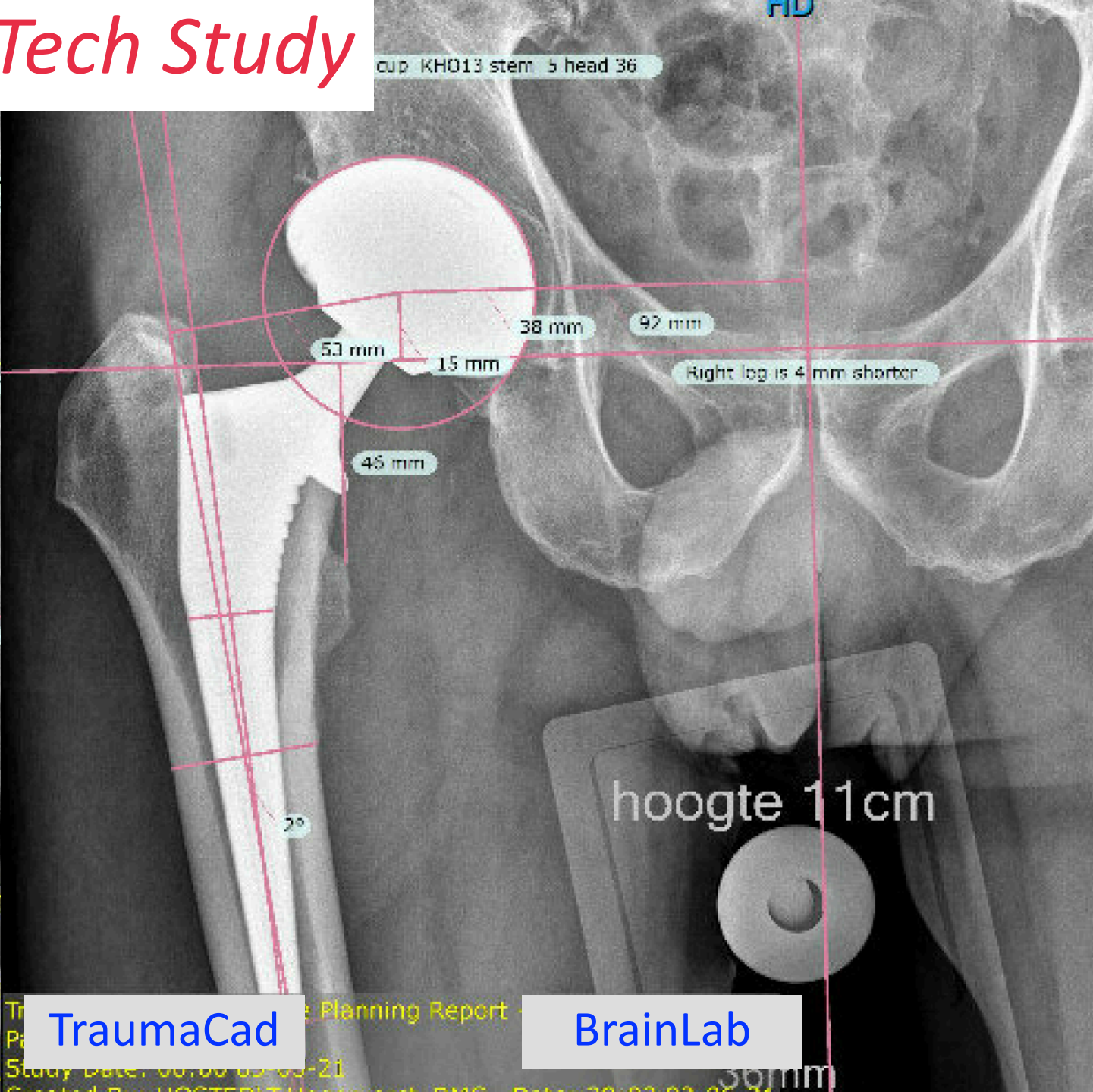
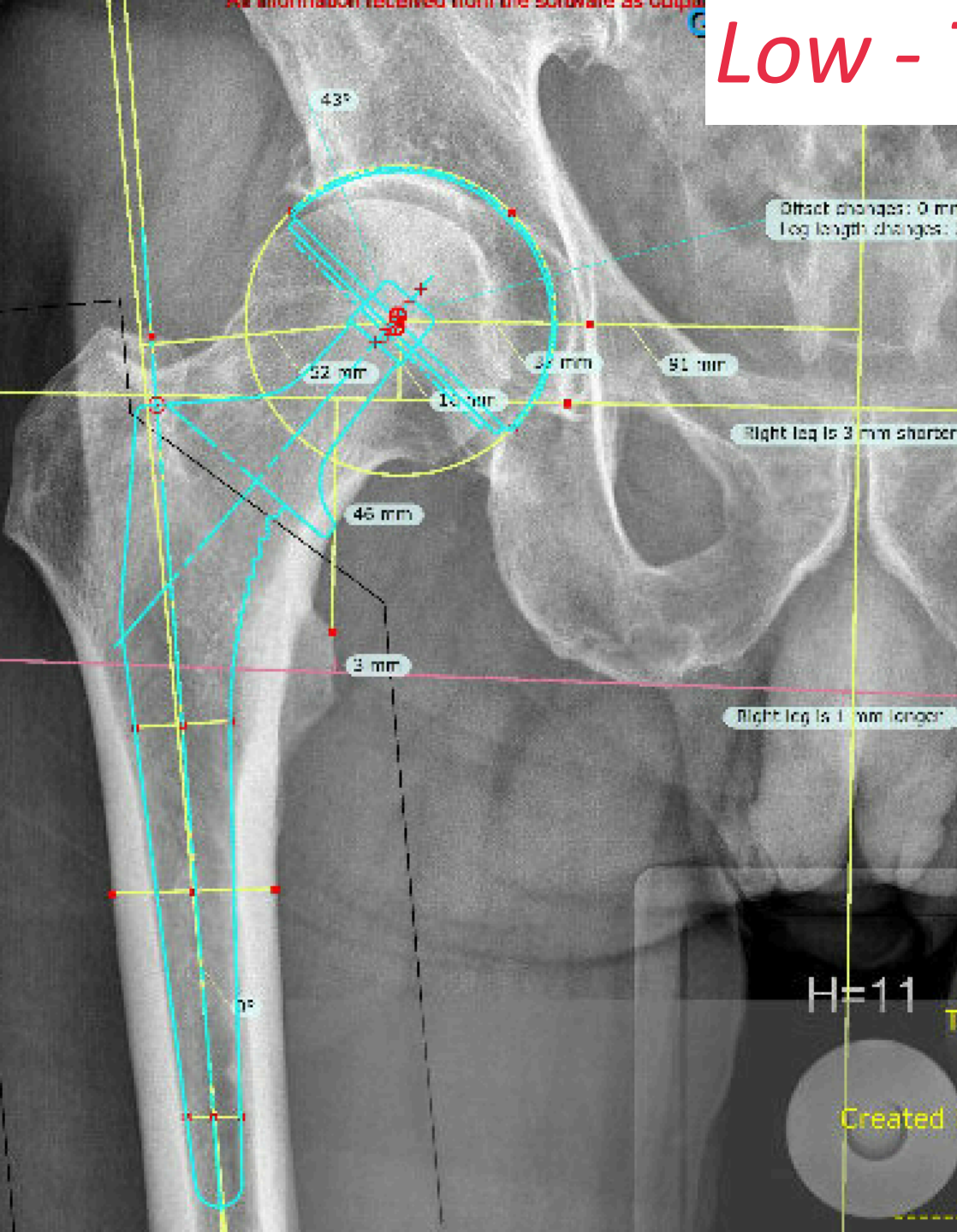
Medial Iliofemoral ligament

*Helps with tuning
Leg Length in a supine
patient*

0° flexion: ± 0 mm play

30° ± 3 mm play

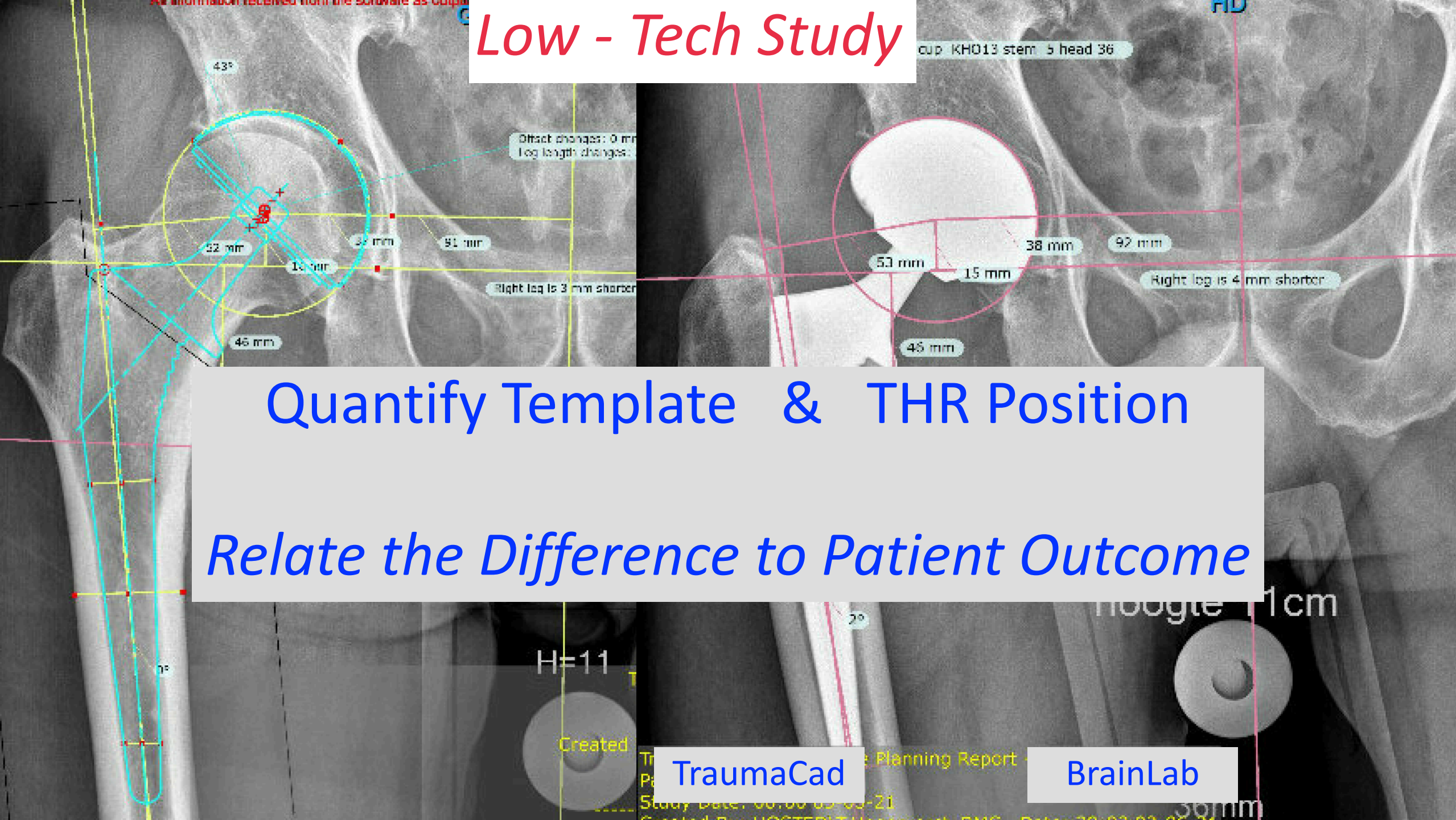
Low - Tech Study



TraumaCad

BrainLab

Low - Tech Study

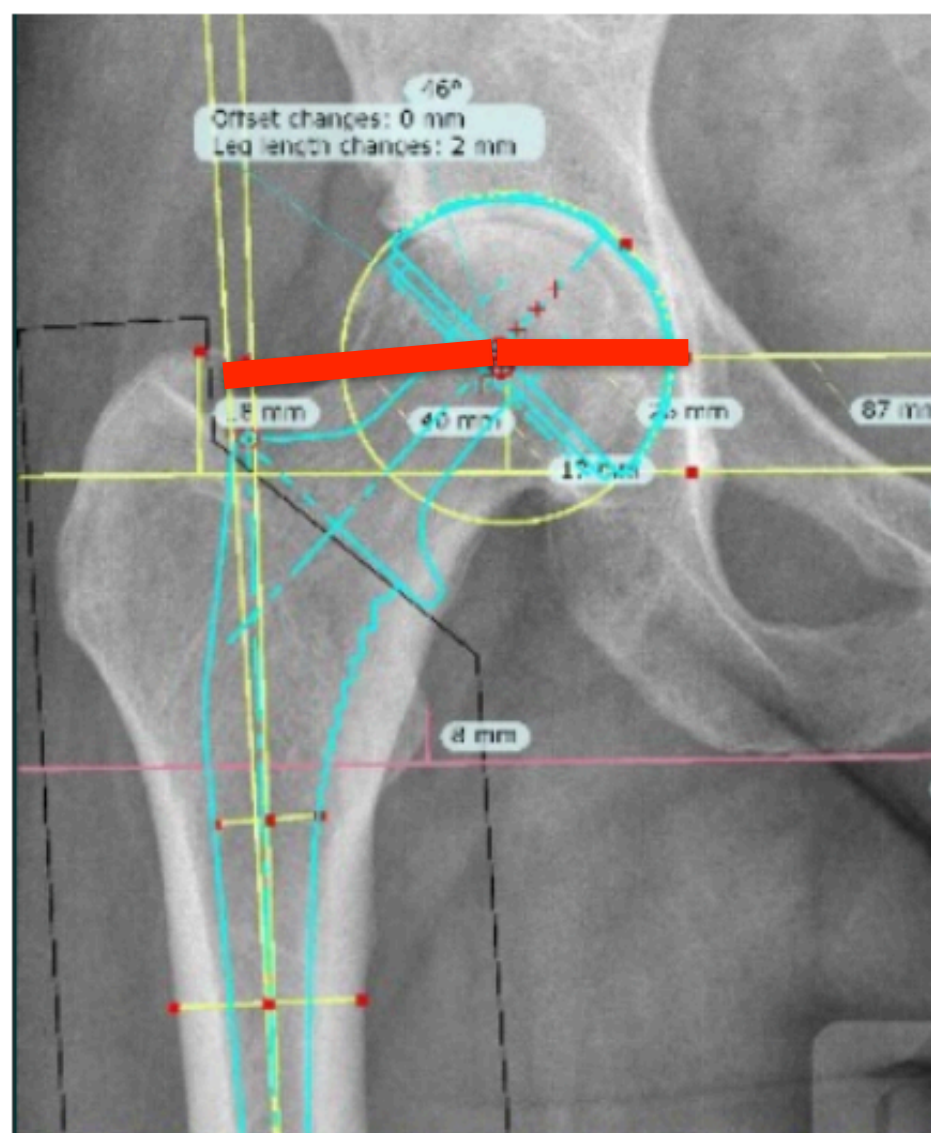


Quantify Template & THR Position

Relate the Difference to Patient Outcome

TraumaCad

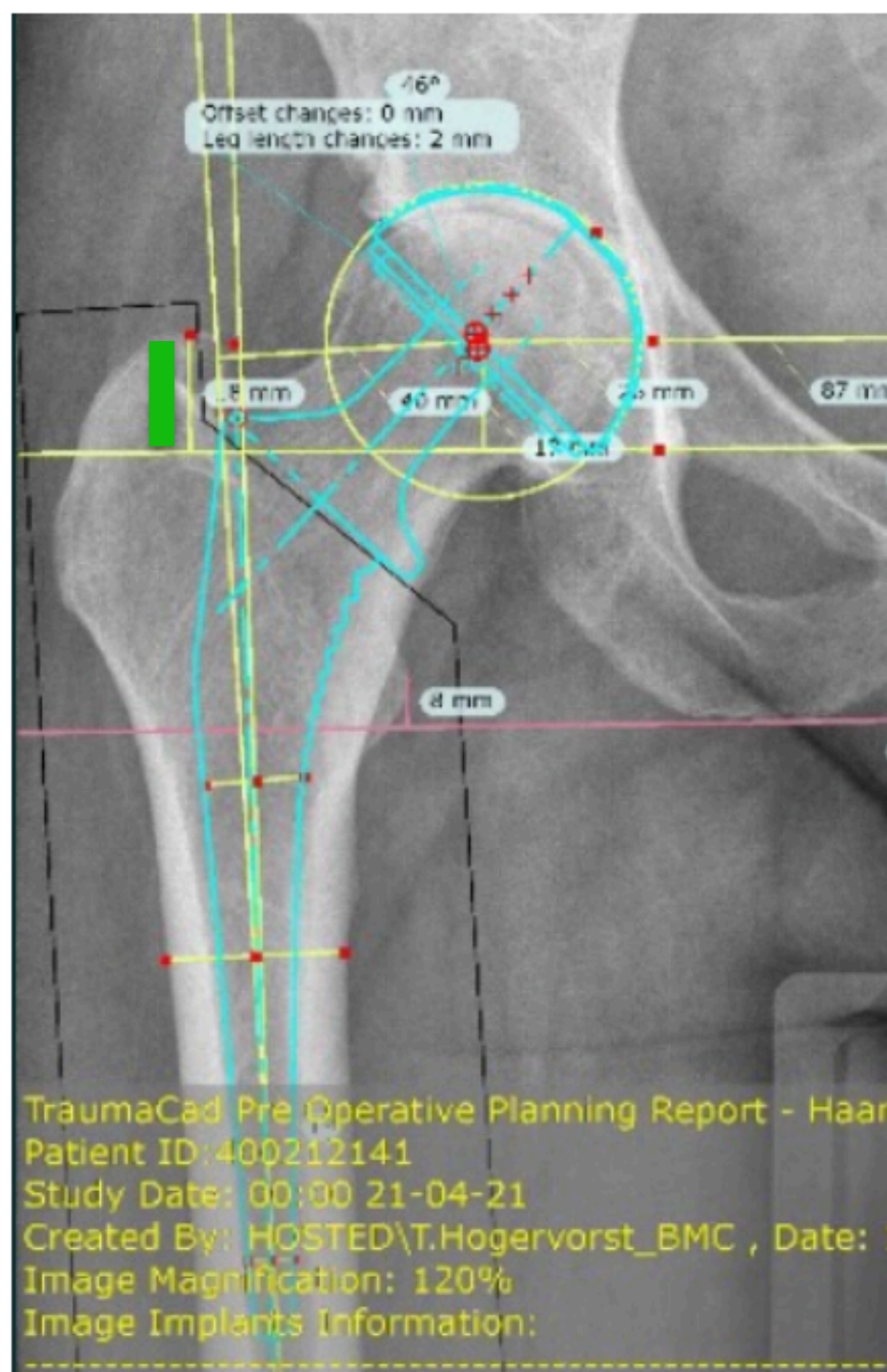
BrainLab



PRE-OP	<i>intended change</i>	
Center of Rotation	17 mm	
GLOBAL OFFSET	66 mm	<i>0 mm</i>
Leg Length	- 3 mm	

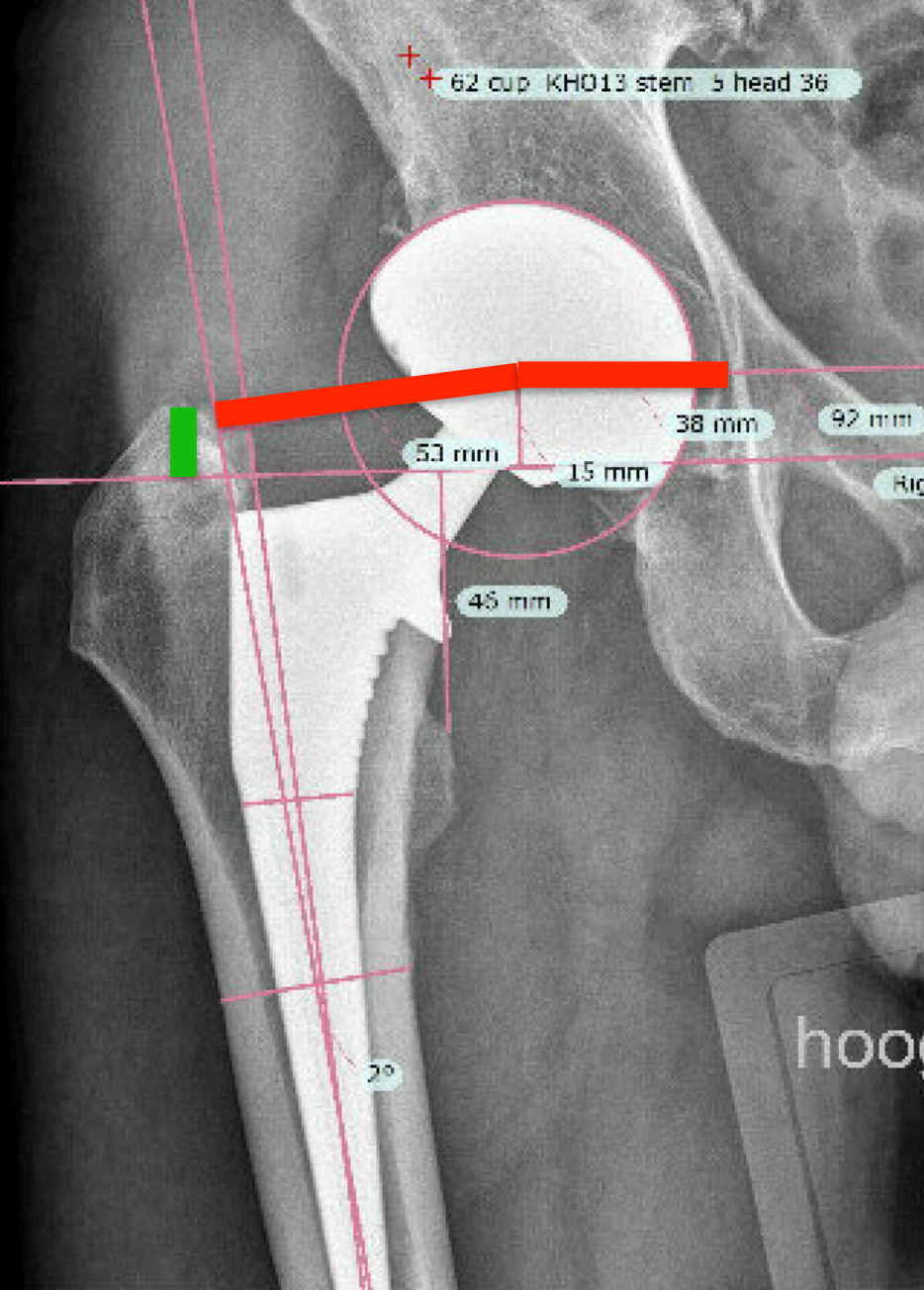
TraumaCad Pre Operative Planning Report - Haan
Patient ID:400212141
Study Date: 00:00 21-04-21
Created By: HOSTED\T.Hogervorst_BMC , Date: 1
Image Magnification: 120%
Image Implants Information:





PRE-OP	<i>intended change</i>	
Center of Rotation	17 mm	
GLOBAL OFFSET	66 mm	0 mm
LEG LENGTH	- 3 mm	+ 2 mm





PRE-OP		<i>intended change</i>	
Center of Rotation	17 mm		
GLOBAL OFFSET	66 mm	0 mm	
LEG LENGTH	- 3 mm	+ 2 mm	

Low - Tech Study

but Reproducible supine radiographs

<i>CORRELATION COEFFICIENTS</i>	Inter-observer	Intra-observer Observer 1	Intra-observer Observer 2
Leg Length preop	0.94	0.94	0.95
Global offset preop	0.93	0.93	0.99
Leg Length postop	0.94	0.94	0.90
Global offset postop	0.94	0.94	0.97

Intra- / Inter Observer, Test Re-test: All > 0,9

Research Q:

is Accuracy of anterior approach THR related to Patient Outcome

Anterior approach: *standard OR table, no traction, no fluoro*

Patient outcome: *NRS satisfaction (0 -10)*

Pain VAS (0 - 10) groin & lateral

greater trochanter

Patient Joint Perception

Oxford Hip Score



All primary THA
during study period
n= 494

Jan 2021 >
Sept 2022

Excluded: 49

Incomplete preop PROM	24
Insufficient /missing radiograph	17
Periprosthetic # in follow-up	2
Stem / cup loosening	3
Deceased / severe disease in f-up	2
Loss to follow-up	1

1 surgeon
57 Fitmore
373 Corail

Study Cohort

n= 445

Incomplete PROM at 1 year: 15

97 %
follow-up
@ 1 year

N = 430

Complete PROM at 1 year

n= 430

RESULTS

OHS & PJP not very informative due to ceiling effects

*Less ceiling effect in **Pain** and **Satisfaction***



How much PAIN did you experience in your hip (operated side) during the last week?

On the outside of your Hip

0 1 2 3 4 5 6 7 8 9 10

Painfree **Unbearable**

In the Groin

0 1 2 3 4 5 6 7 8 9 10
Painfree *Unbearable*



Satisfaction: How do you rate your hip from 0 - 10:

0 **Disastrous**, it could not be any worse

1

2

3

4

5 **Not Good, Not Bad**

6

7

8

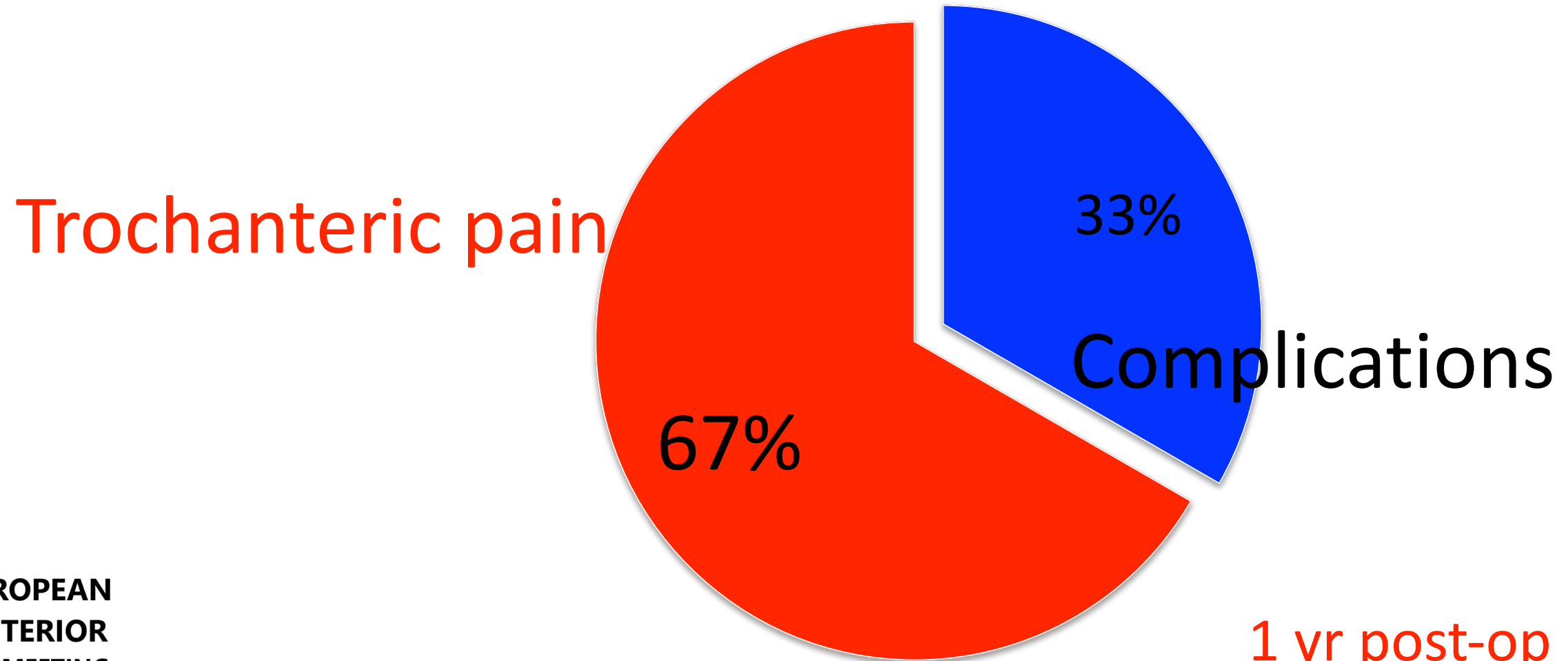
9

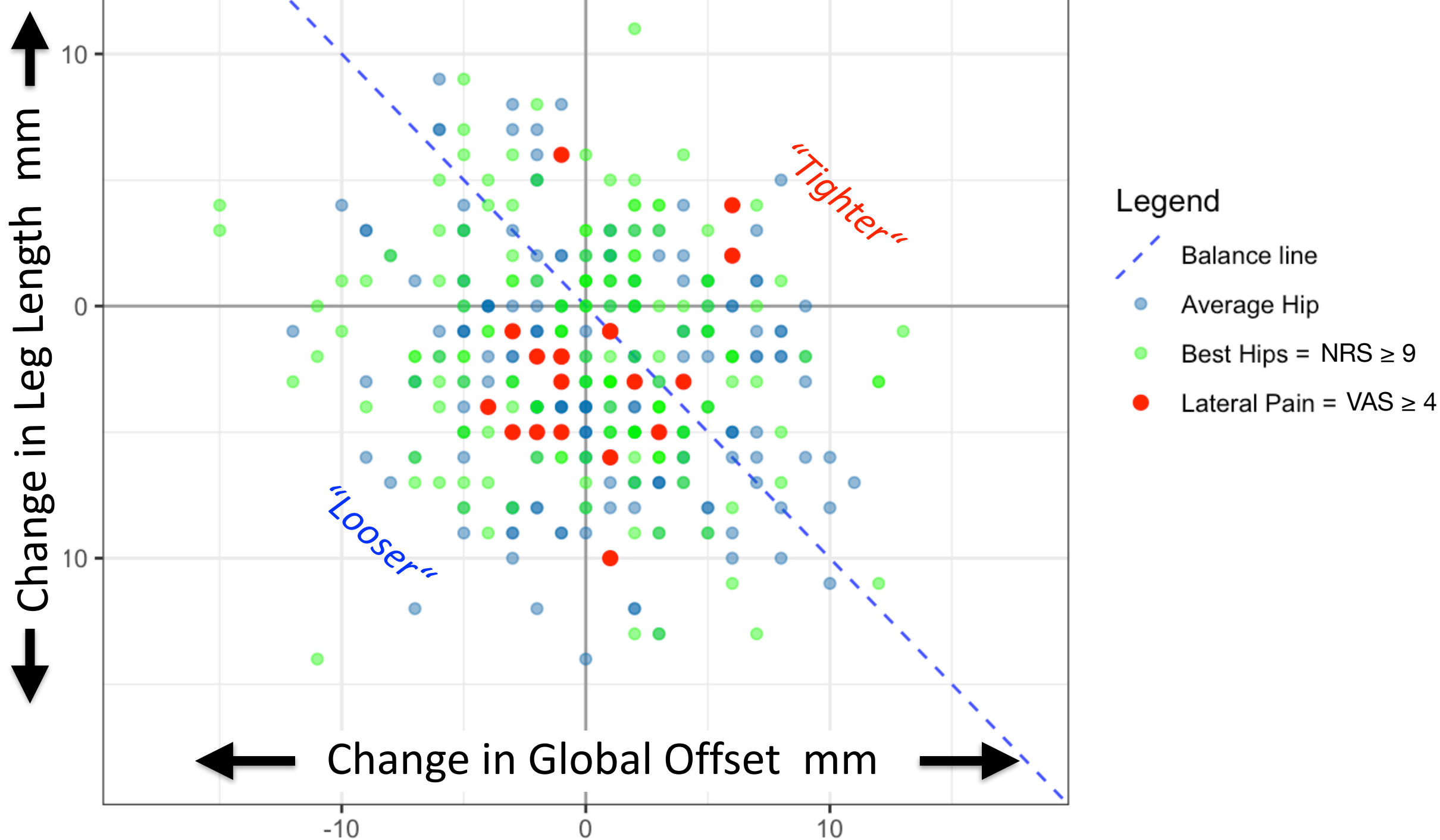
10 **Excellent**, it could not be better



Low Satisfaction ($\text{NRS} \leq 6$)

$n = 18$ (4%)





Variable	Average (N=221)	Best hips (N=190)	TPS hips (N=19)	p value
	51%	44%	4%	

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TPS

Trochanteric Pain Syndrome

Trochanteric pain > VAS 3 with:
walking & lying on side

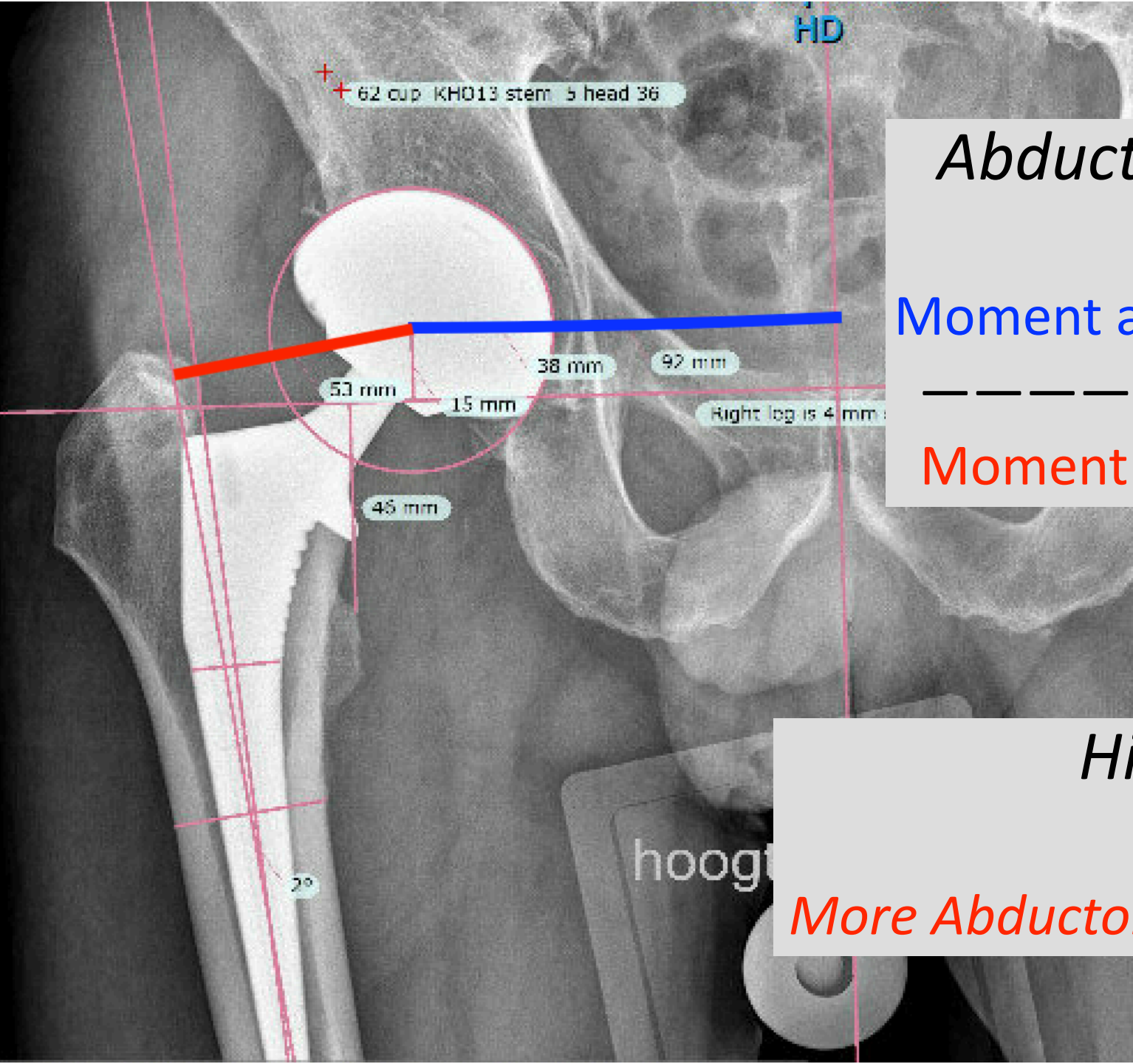
Cycle test with recognized pain

Variable	Average (N=221)	Best hips (N=190)	TPS hips (N=19)	p value
Gender (F)	65%	60%	90%	0.028
Change in leg length to plan	NO DIFFERENCE			0.18
Change in offset to plan	NO DIFFERENCE			0.40
OHS at 1 year 0-48	45.3	47.8	36.0	< 0.001
NRS at 1 year 0-10	8.4	9.6	6.0	< 0.001
Groin pain at 1 yr 0-10	0.7	0.0	2.6	< 0.001
Lateral pain at 1 yr 0-10	0.8	0.0	5.2	< 0.001
Accuracy group	NO DIFFERENCE			0.72

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Variable	Average (N=221)	Best hips (N=190)	TPS hips (N=19)	p value
<i>TPS Are YOUR LEAST HAPPY PATIENTS</i> <i>AND</i> <i>THEY ARE WOMEN</i> <i>BUT</i> <i>IT IS NOT RELATED TO YOUR RECONSTRUCTION</i>			90%	0.028
			36.0	< 0.001
			6.0	< 0.001
			2.6	< 0.001
			5.2	< 0.001

Variable	Average (N=221)	Best hips (N=190)	TPS hips (N=19)	p value
<i>TPS Are YOUR LEAST HAPPY PATIENTS</i> <i>AND</i> <i>THEY ARE WOMEN</i> <i>? OR IS IT ?</i>			90%	0.028
			36.0	< 0.001
			6.0	< 0.001
			2.6	< 0.001
			5.2	< 0.001



Abductor Ratio (AR) :

Moment arm of Body weight

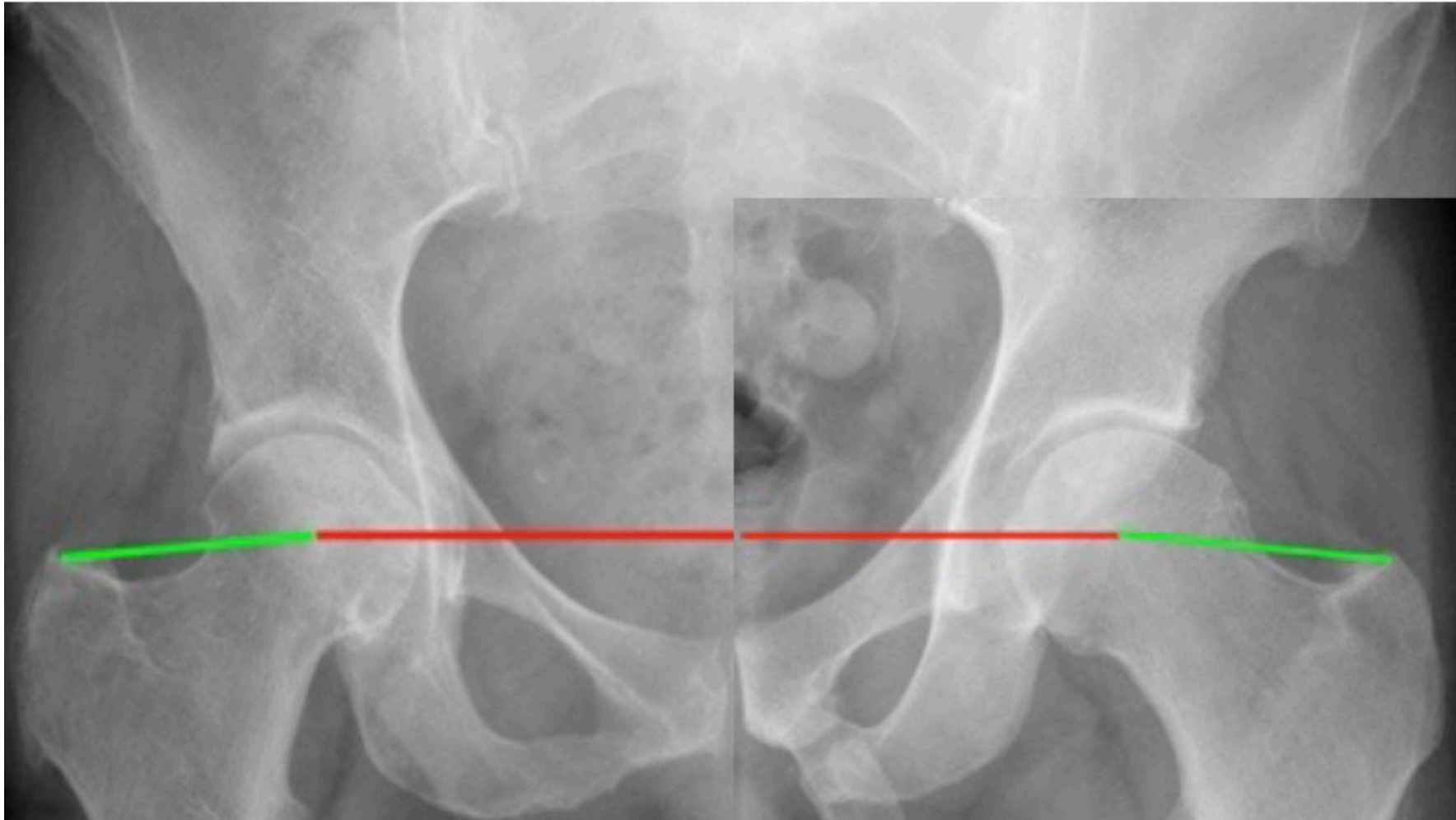
Moment arm of Abductors

Higher AR :

More Abductor Muscle Work required

female hip

male hip



2,3

2,0

15% More Abductor Work required

in 156 men



Best Hips



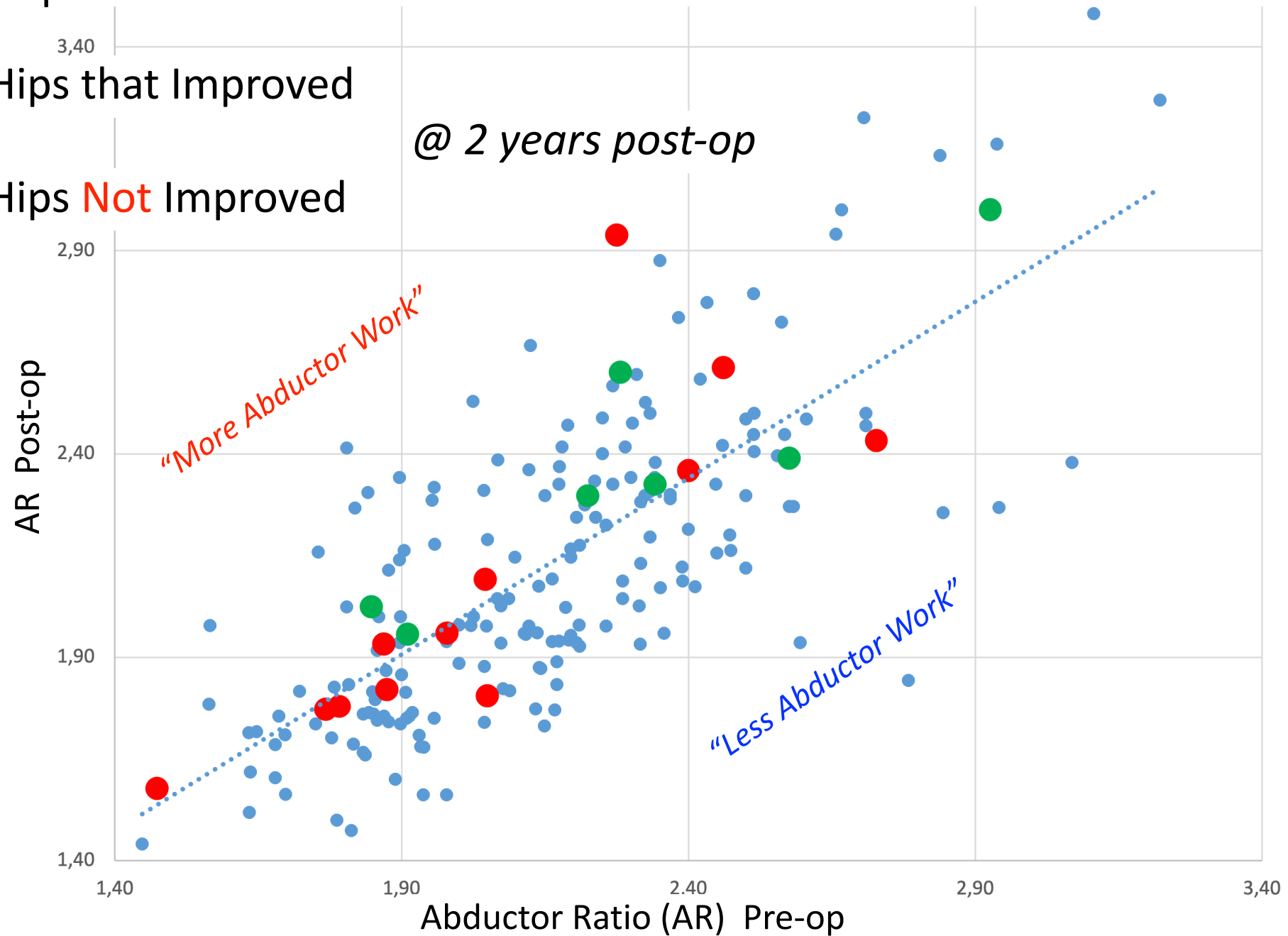
TPS Hips that Improved



TPS Hips **Not** Improved

Change in Abductor Ratio (AR)

@ 2 years post-op



TROCHANTERIC PAIN SYNDROME

The most prevalent lower limb tendinopathy

in women aged 50 - 70 years
(i.e. our prime THR Clients)

Gluteal Tendinopathy
Critical Analysis Review of Current Nonoperative
Treatments

TROCHANTERIC PAIN SYNDROME

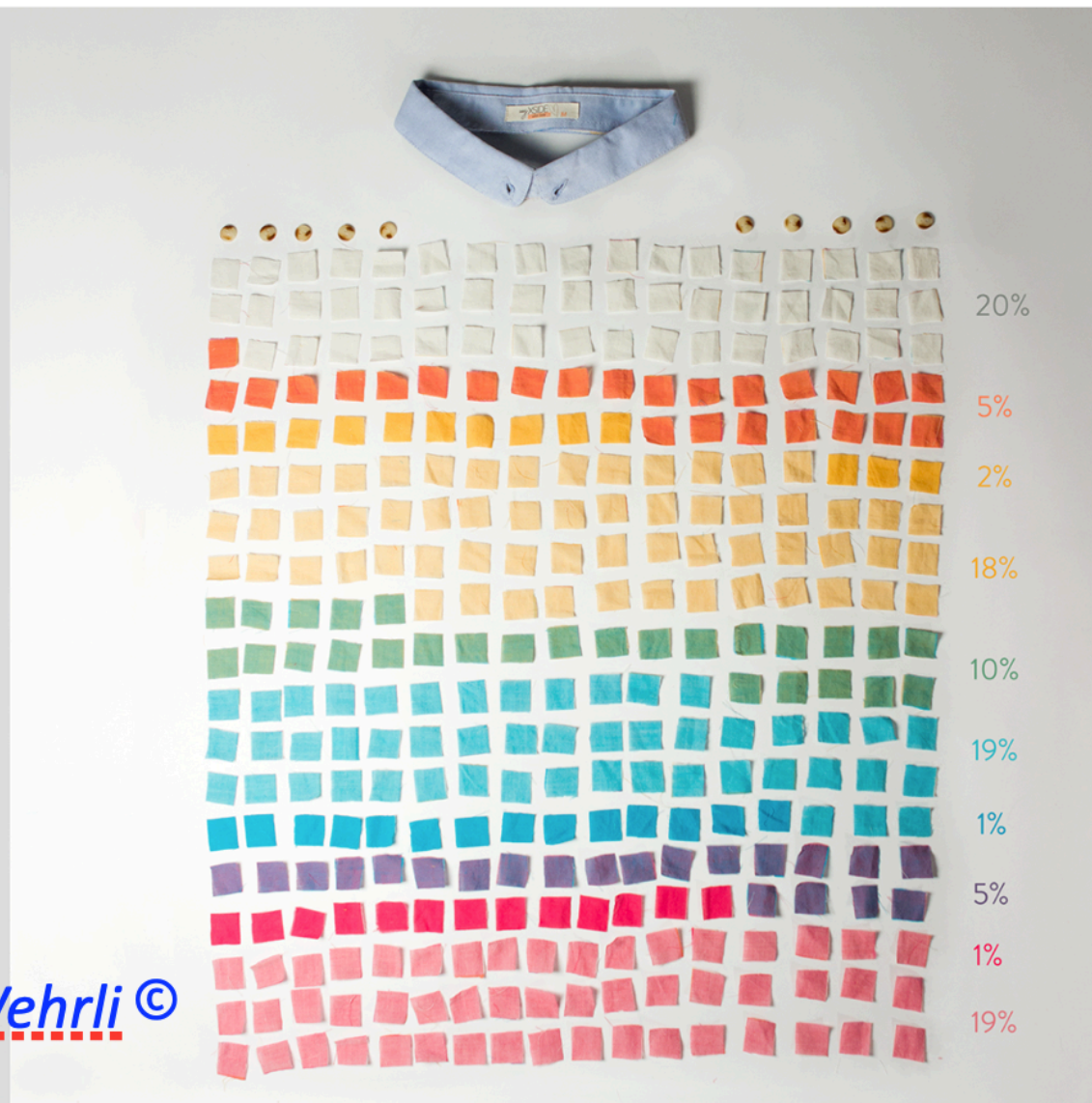
Normal Aging & Hormonal

in women aged 50 - 70 years
(i.e. our prime THR Clients)

Gluteal Tendinopathy
Critical Analysis Review of Current Nonoperative
Treatments



Ursus Wehrli ©



CONCLUSION

*Trochanteric Pain Syndrome
Main Reason for Low Satisfaction @ 1 year*

*No relation to Accuracy in Anterior Approach
with Functional Testing*



CONCLUSION

Trochanteric Pain Syndrome

Main Reason for Low Satisfaction @ 1 year

No relation to Accuracy in Anterior Approach

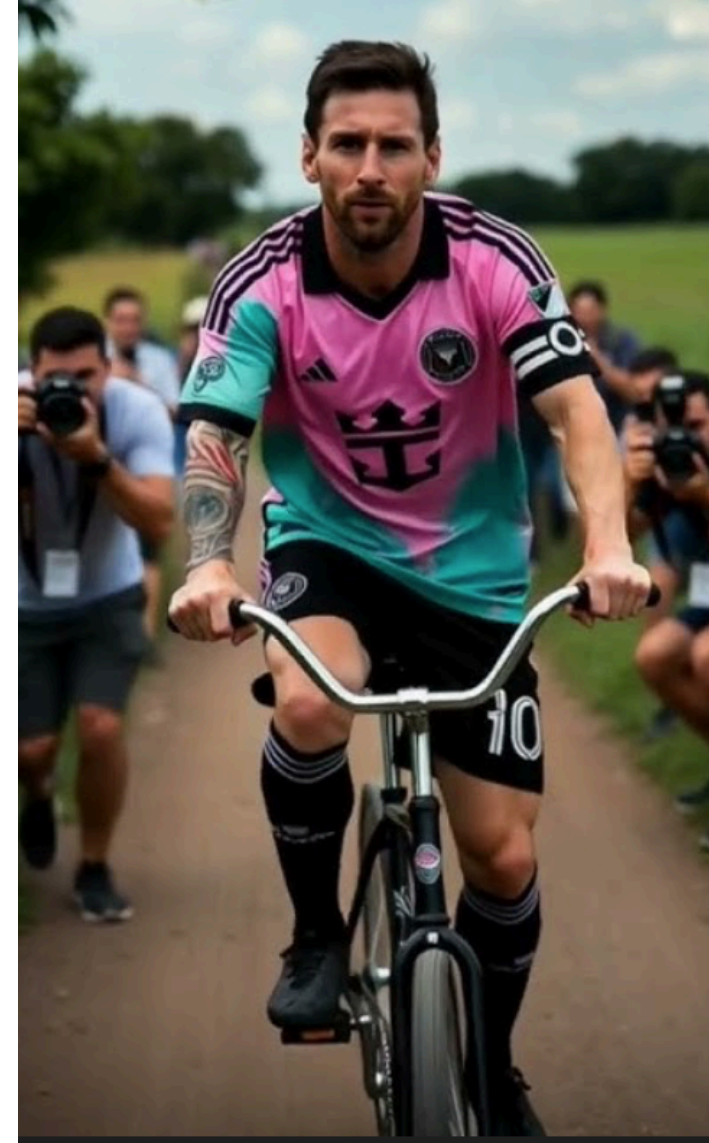
with Functional Testing



CONCLUSION

*Trochanteric Pain Syndrome
Main Reason for Low Satisfaction @ 1 year*

*No relation to Accuracy in Anterior Approach
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Thank You

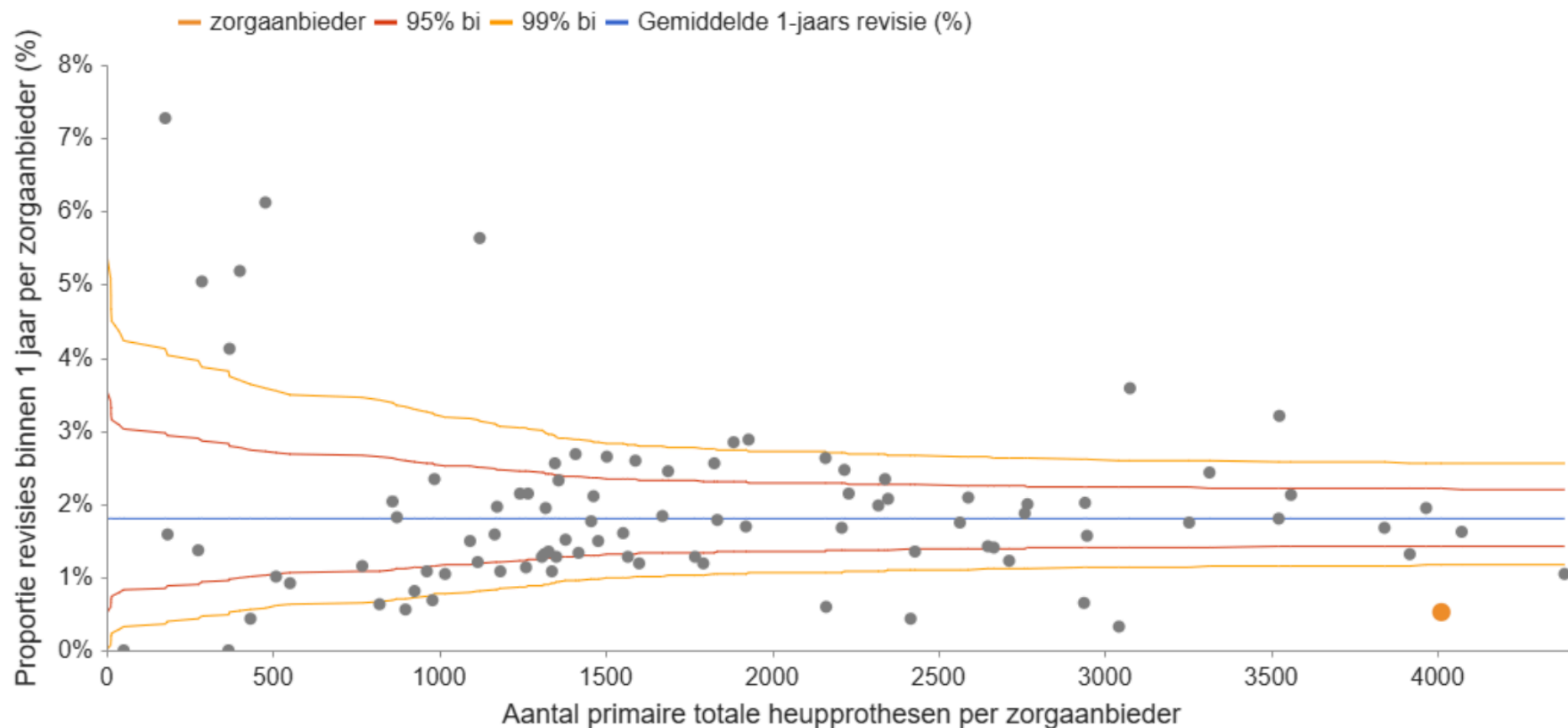
CONTACT INFORMATION

www.hogervorstheup.nl





Overall revisie binnen 1 jaar



Figuur 1 Funnelplot van casemixgecorrigeerd percentage revisie-ingrepen aan de heup binnen 1 jaar na een primaire totale heupprothese per zorgaanbieder in de periode 2019-2023. Bergman Clinics, Rijswijk is oranje gearceerd.

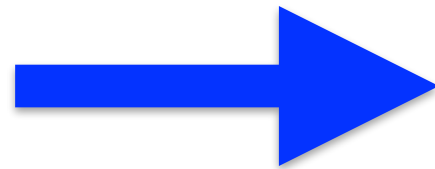
BI: betrouwbaarheidsinterval. De casemix bestaat uit geslacht, leeftijd, diagnose, ASA-score, Charnley-score, BMI en roken

Uw zorgaanbieder valt onder het 99%-betrouwbaarheidsinterval. Dit wil zeggen dat uw zorgaanbieder een lager 1-jaarsrevisiepercentage heeft dan verwacht op basis van het gemiddelde in Nederland.

Satisfaction: How do you rate your hip from 0 - 10:

PRE-OP

3,3



***1 YEAR
POST-OP***

8,8

n = 430 hips

