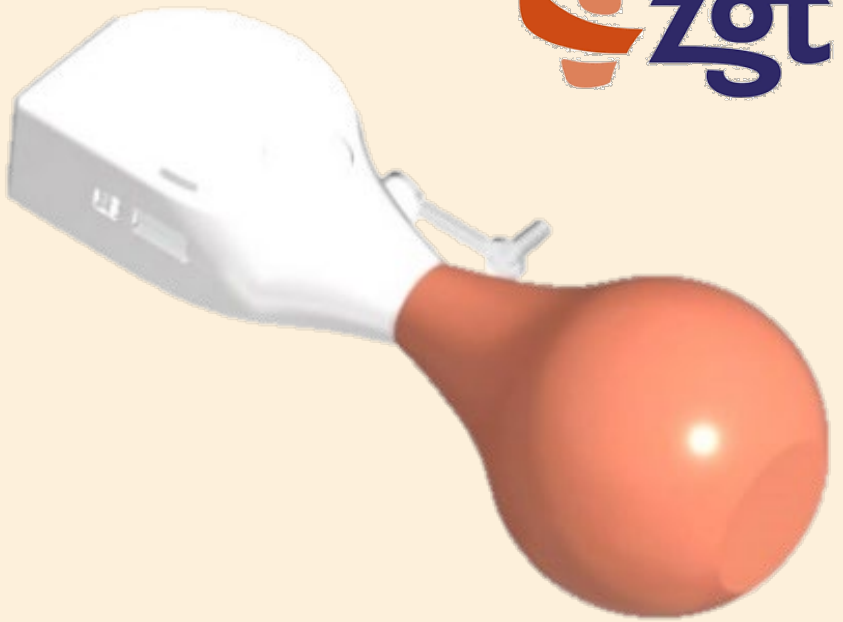


# Veerkracht in heupfractuurpatiënten gemeten met het Eforto® meetsysteem

JORINDE SPOOK, PHD

# Overzicht

- ZGT
- Centrum voor Geriatrische Traumatologie
- Herstel na heupfractuur
- FORTO
- DEMO: 13.00 – 15.00uur

# ZGT

# ZGT

ONZE ZORG
zgt
SEH-BEZOEKEN
30.058
POLIKLINIEKBEZOEKEN
391.088
TELECONSULTEN
89.950
OPERATIES
14.458
OPNAMES VERPLEEGAFDELINGEN
23.097
VERPLEEGDAGEN
108.555
652
IC-OPNAMES
(POLI)KLINISCHE BEVALLINGEN
2200

# Hoeveel Gebroken Heupen?

A) 100 per jaar

B) 200 per jaar

C) 300 per jaar

D) 400 per jaar

# Hoeveel Gebroken Heupen?

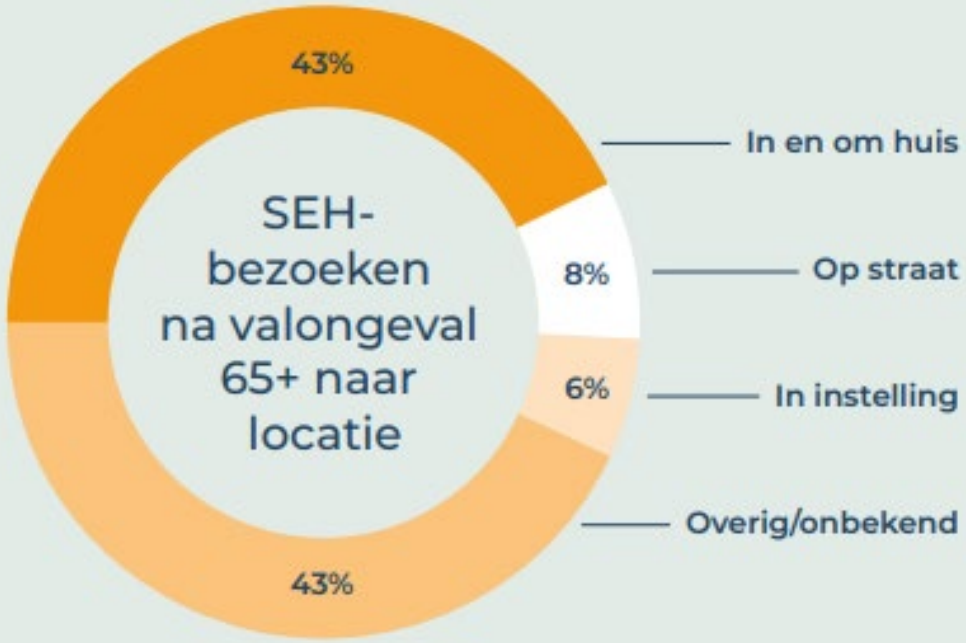
A) 100 per jaar

B) 200 per jaar

C) 300 per jaar

**D) 400 per jaar**

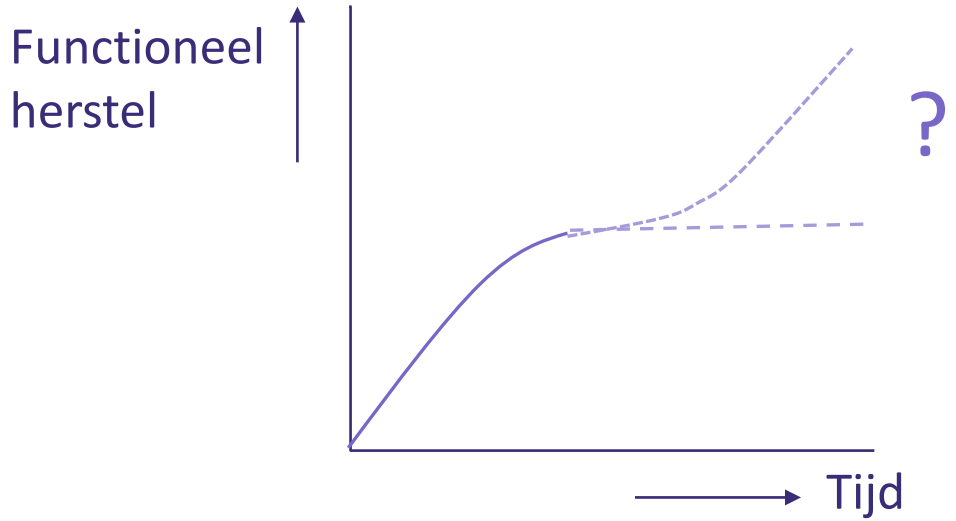
# De meeste 65-plussers vallen in en om het huis



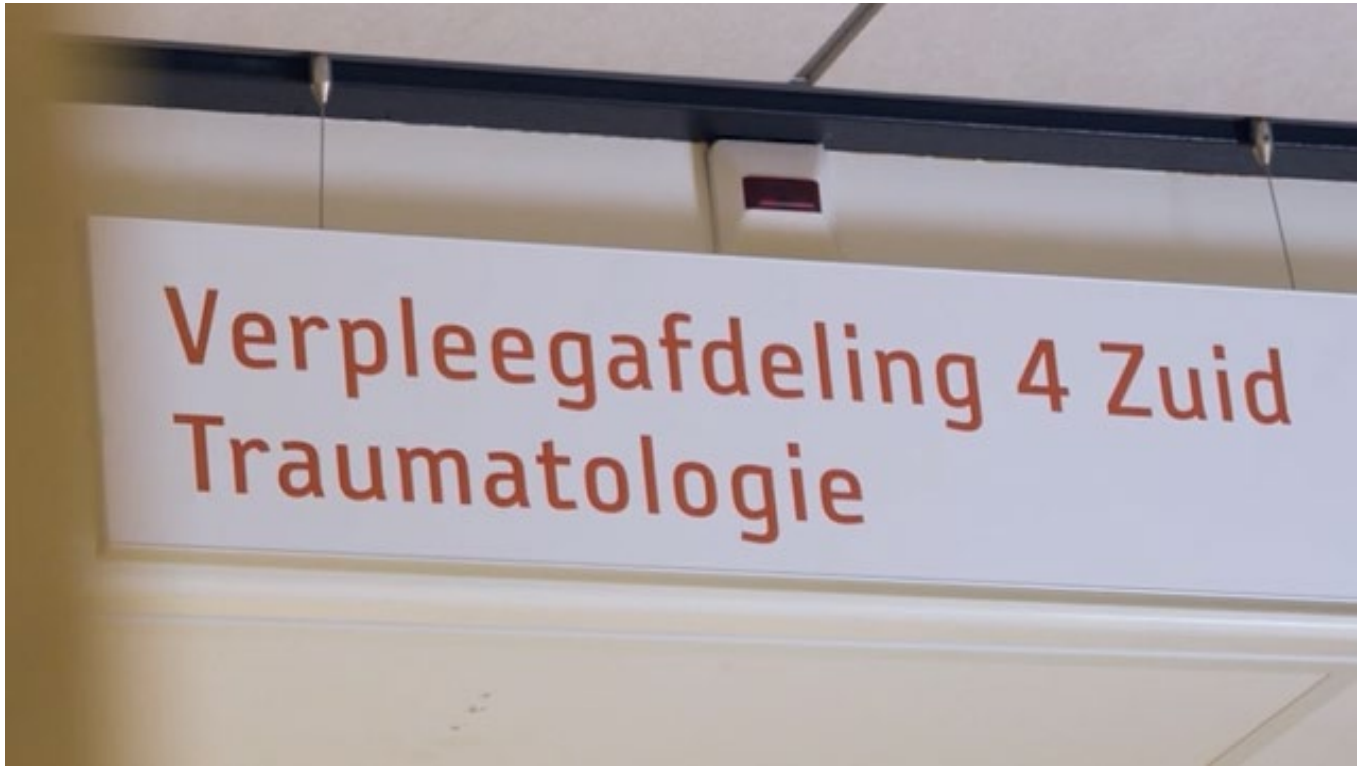

www.veiligheid.nl

# Heupfractuur

- 17.058 patiënten (DHFA, 2019)
- Complexe groep
- Onvoorspelbare hersteltrajecten



# Centrum voor Geriatrische Traumatologie



ICT&health

Nieuws

Ziekenhuisgroep Twente (ZGT) onderzoekt met het Technisch Medisch Centrum van de Universiteit Twente en diverse verpleeghuizen hoe innovaties de revalidatie van ouderen met een gebroken heup kunnen optimaliseren.

9 oktober 2023

PREMIUM

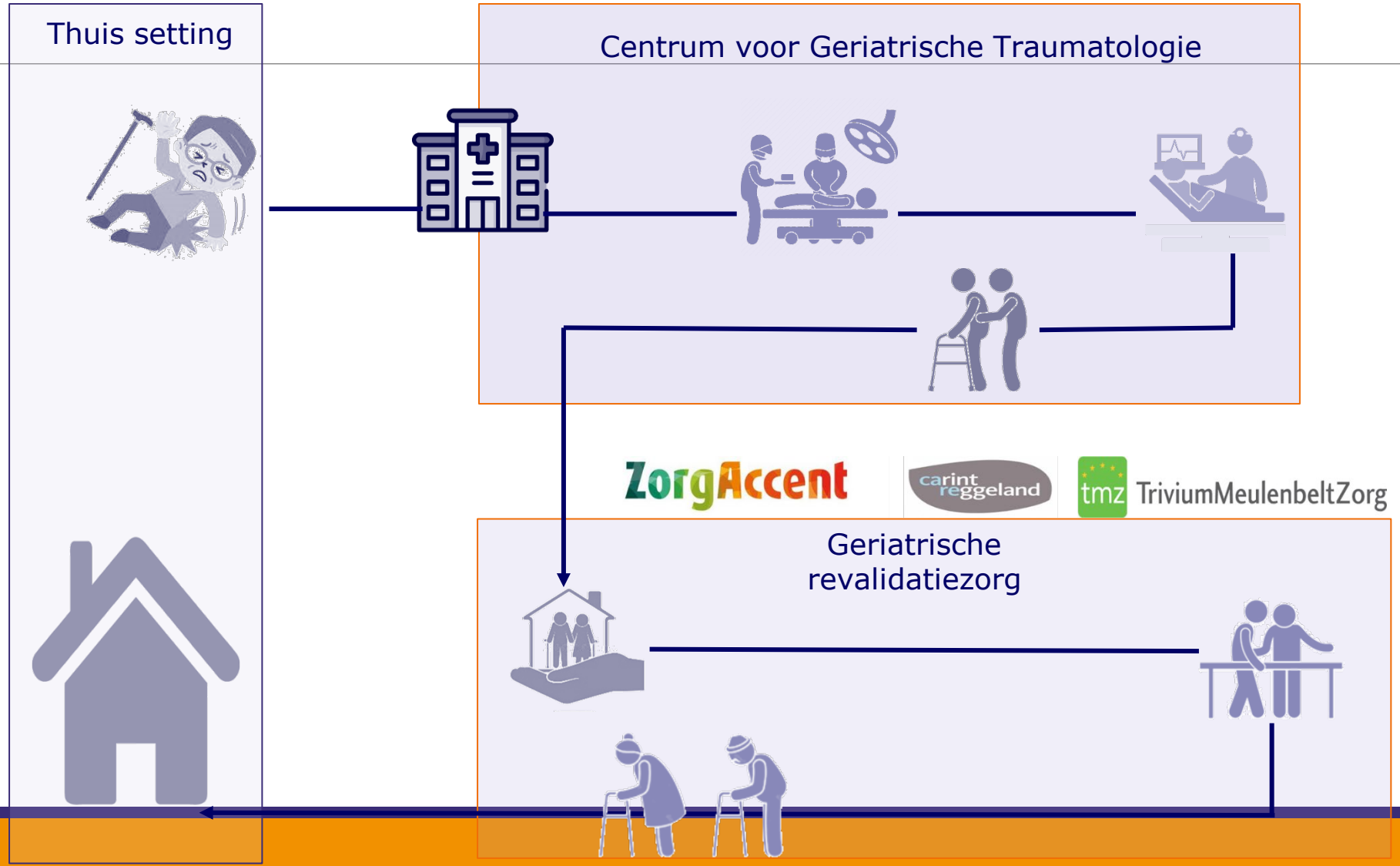
INLOGGEN

Ria Langenegger - van Heusden is weer goed in orde en praat met haar behandelend arts, traumachirurg en UT-hoogleraar Han Hegeman. © Lenneke Lingmont

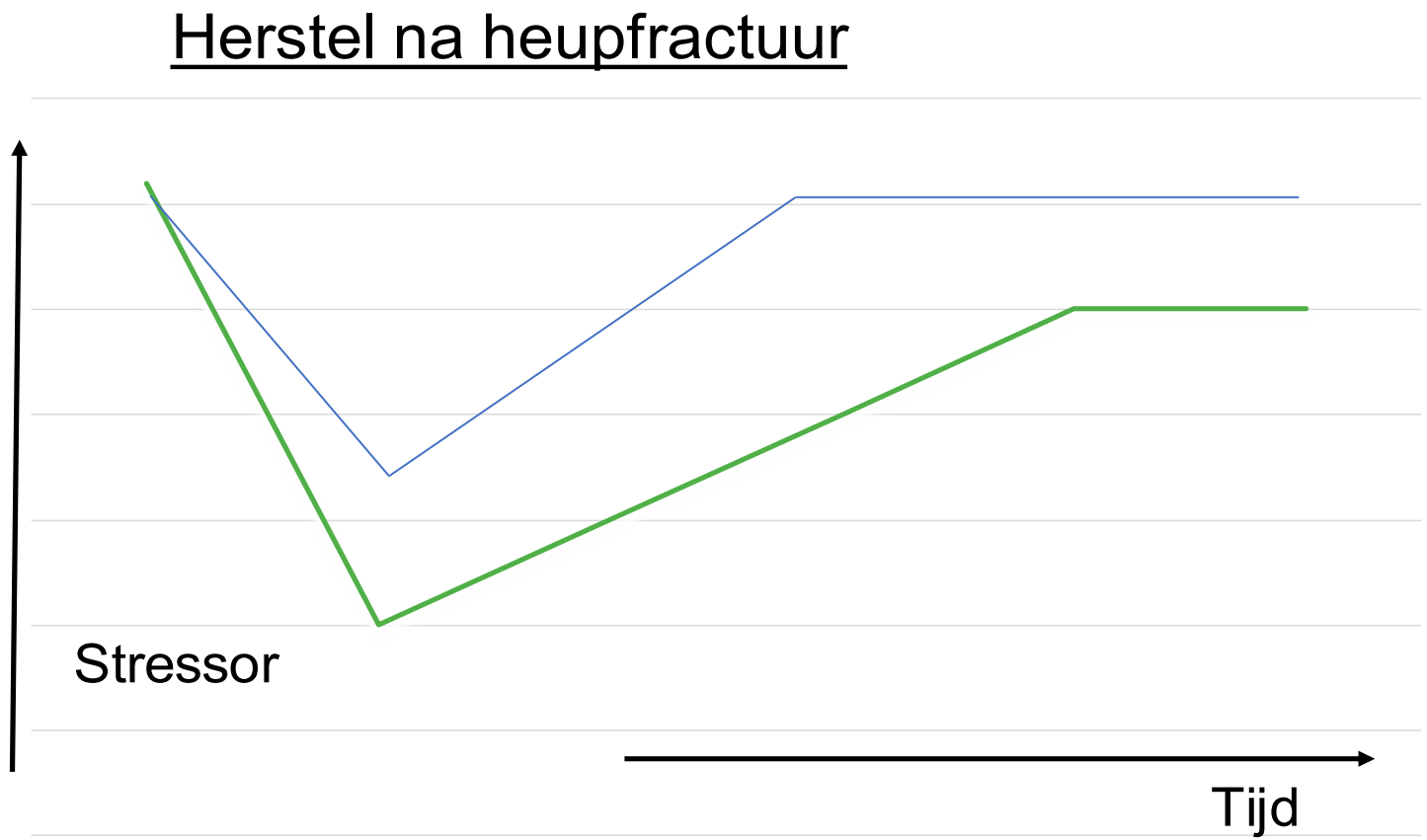
# Hoogbejaarde Ria brak haar heup en krabbelde weer overeind; dat is niet iedereen gegeven, het aantal overlijdens na een val stijgt

**Hans Brok** 10 oktober 2023, 21:00

# Transmuraal Zorgpad ZGT - GRZ



# Veerkracht



# Kunnen we het herstel monitoren met Grip work?

$$GW = \sum_{(FR100\ _\ 50)} GS * t$$

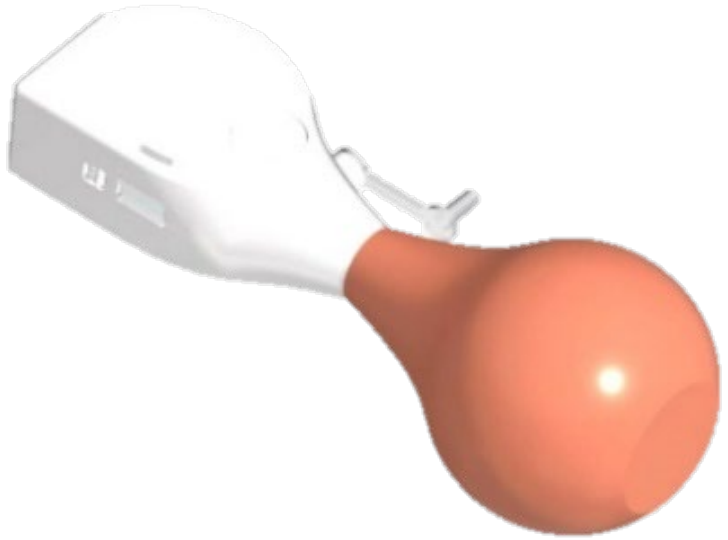
Verbanden met:

- ADL-zelfstandigheid [3]
- Spiermassa [4]
- Mobiliteit [5]
- Ontstekingswaarden [3, 6-8]
- Vermoeidheid [9]
- Kwetsbaarheid [10]

[3] Bautmans et al., 2011
[4] Navigante, 2013
[5] Bautmans, Njemini et al., 2007
[6] Bautmans, Njemini et al., 2015
[7] De Dobbeleer et al., 2017
[8] Bautmans et al., 2013
[9] Bautmans, Gorus et al., 2007
[10] De Dobbeleer et al., 2018

SAEHA
KOREA

# Eforto



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Radboudumc university medical center

zgt

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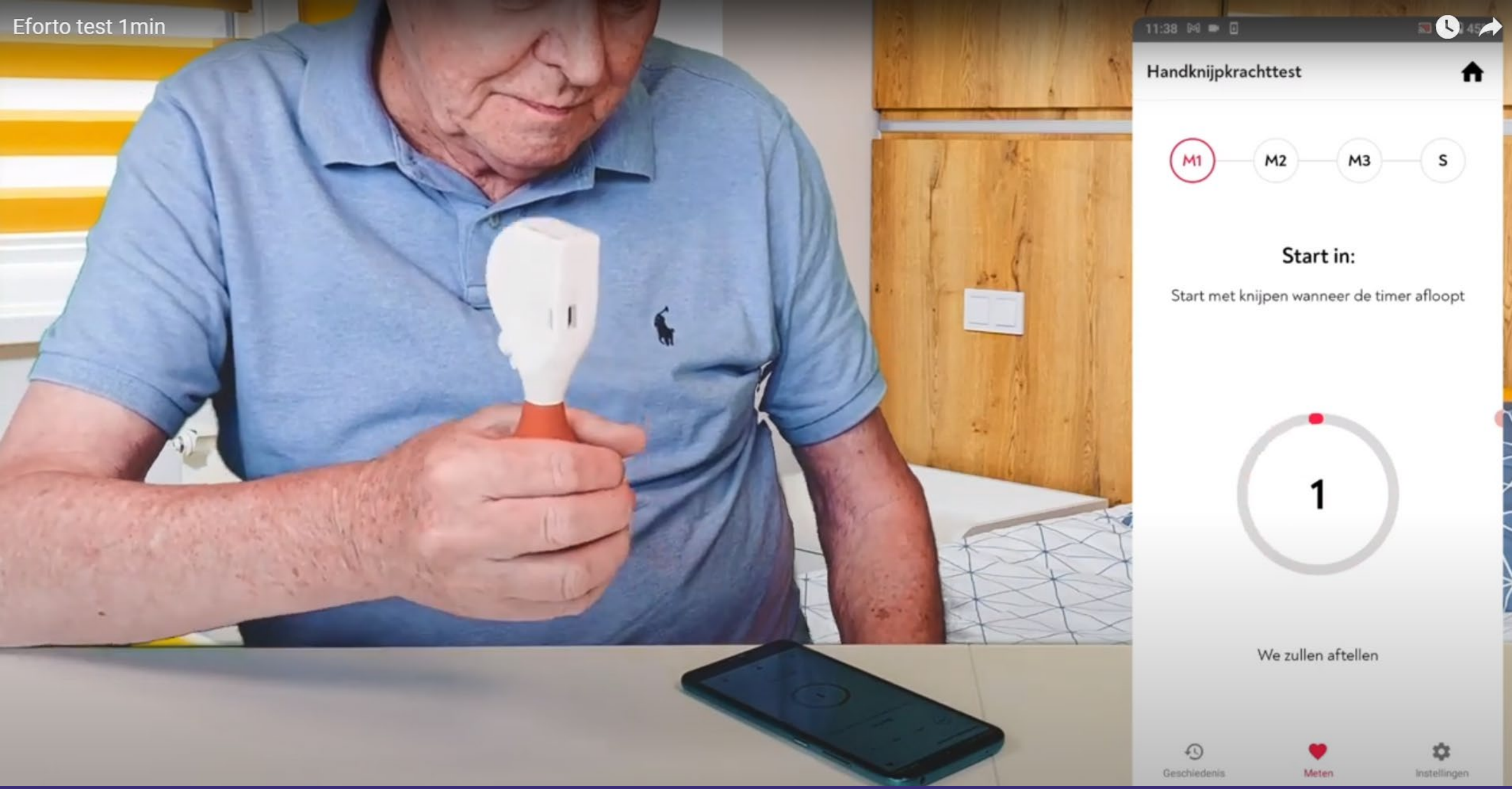
Leiehome voor warme zorg

Istituti Clinici Scientifici Maugeri

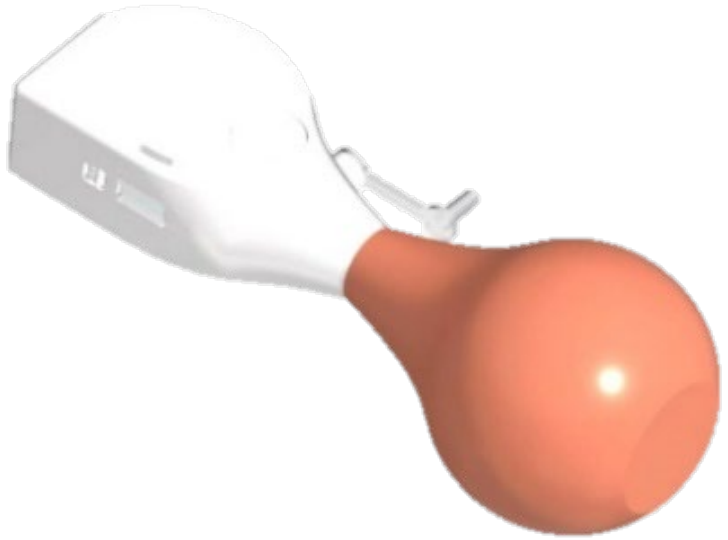
UZA

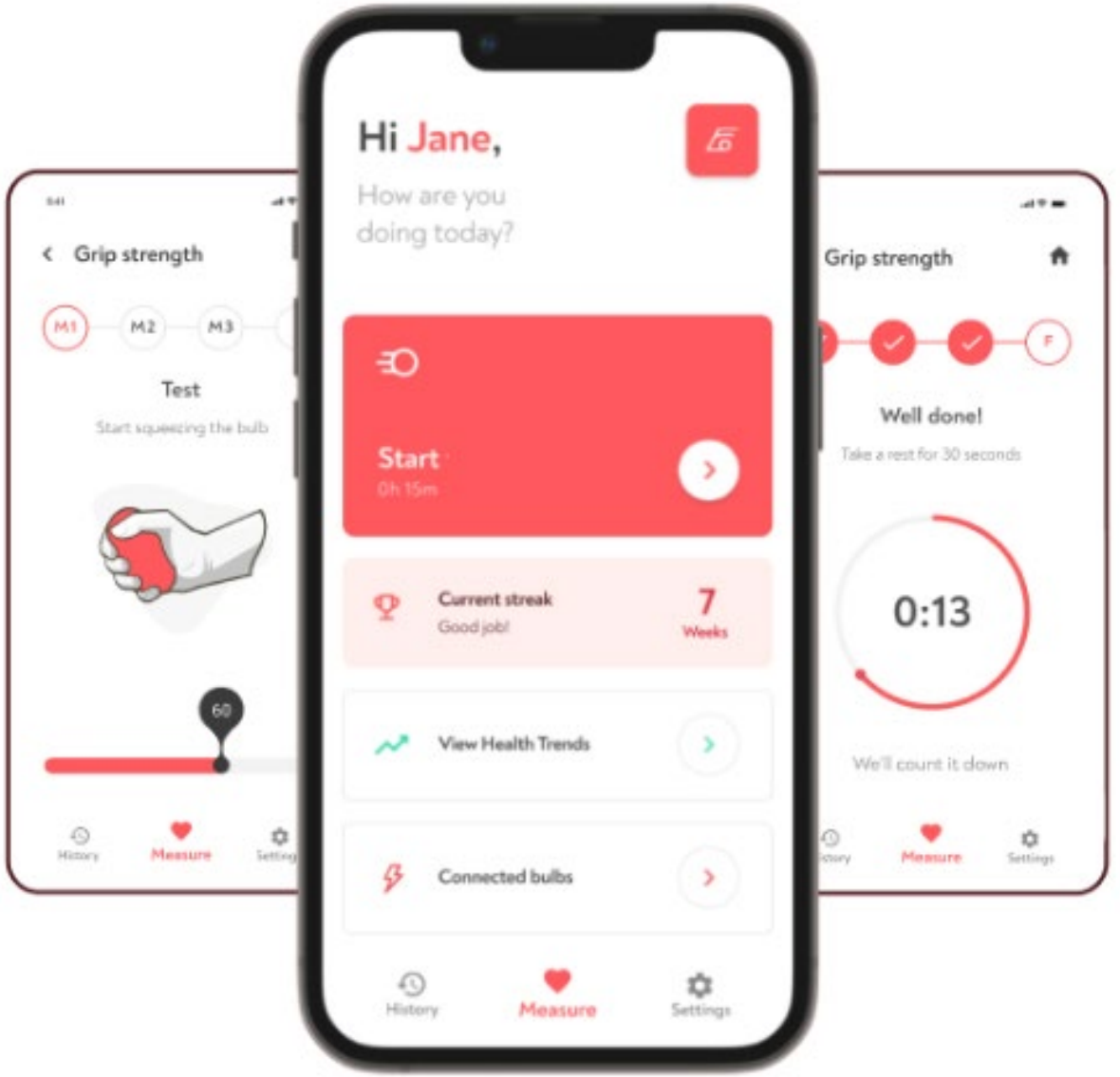
University of Antwerp

iHP National Yang Ming Chiao Tung University International Health Program 國立陽明交通大學

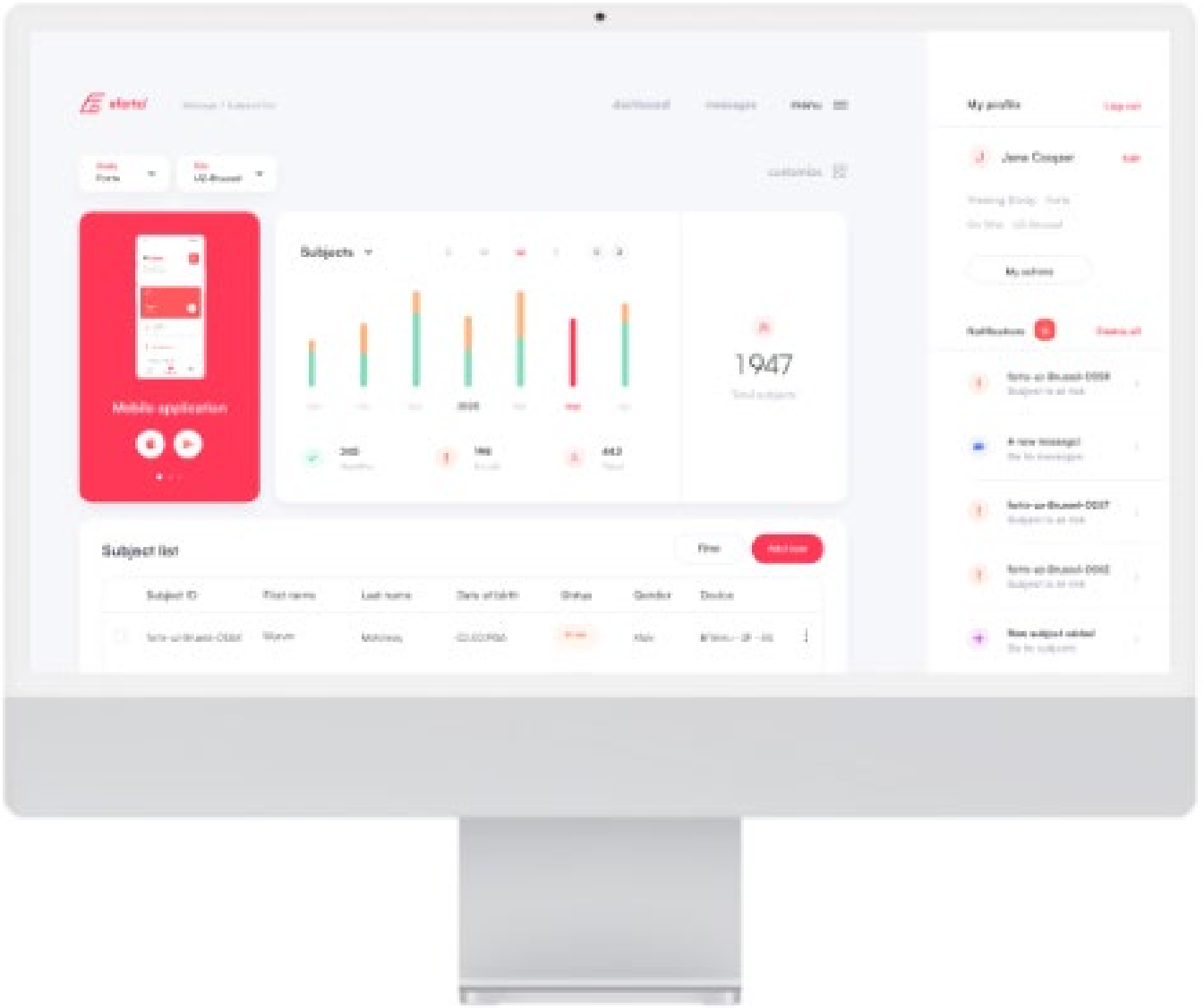

Eforto test 1min
11:38
Handknijpkrachttest
M1
M2
M3
S
Start in:
Start met knijpen wanneer de timer afloopt
1
We zullen aftellen
Geschiedenis
Meten
Instellingen

# Eforto

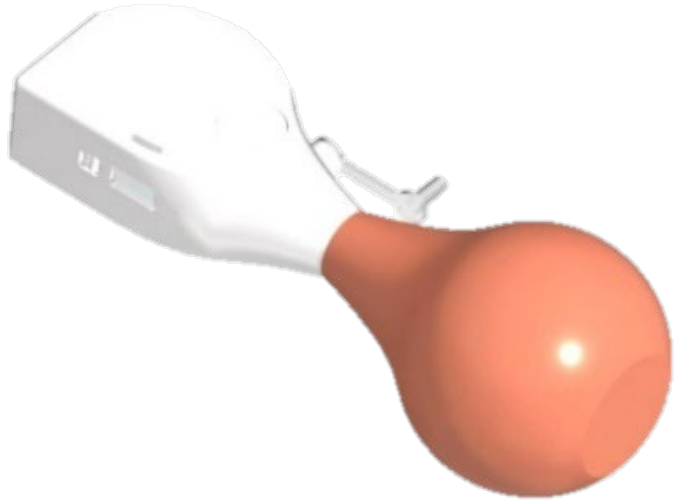


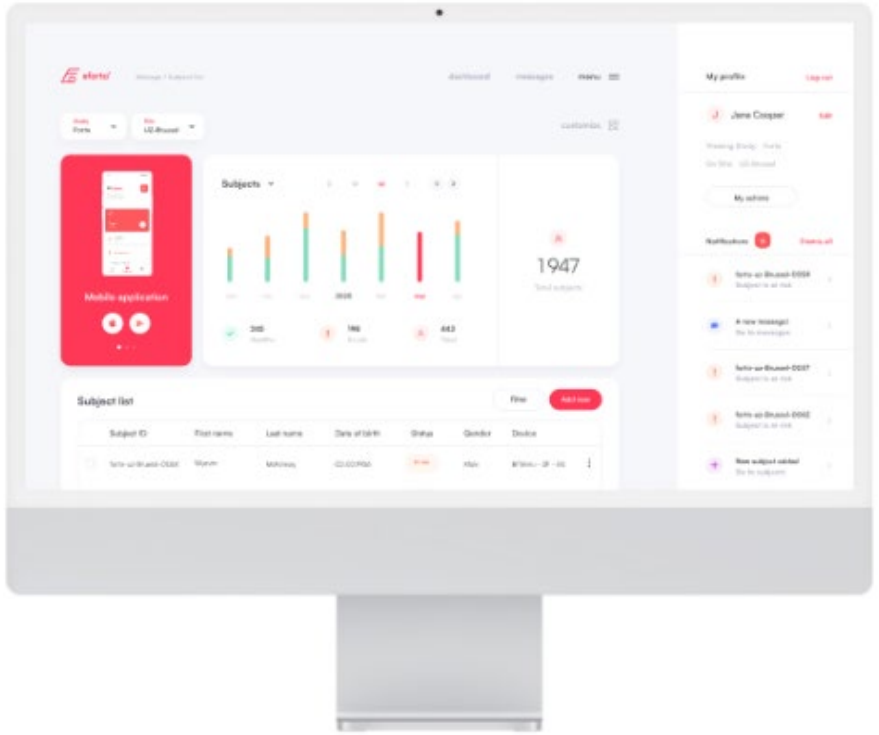

Grip strength
M1
M2
M3
Test
Start squeezing the bulb
60
History
Measure
Hi Jane,
How are you doing today?
Start
0h 15m
Current streak
Good job!
7
Weeks
View Health Trends
Connected bulbs
History
Measure
Settings
Grip strength
Well done!
Take a rest for 30 seconds
0:13
We'll count it down
Measure
Settings

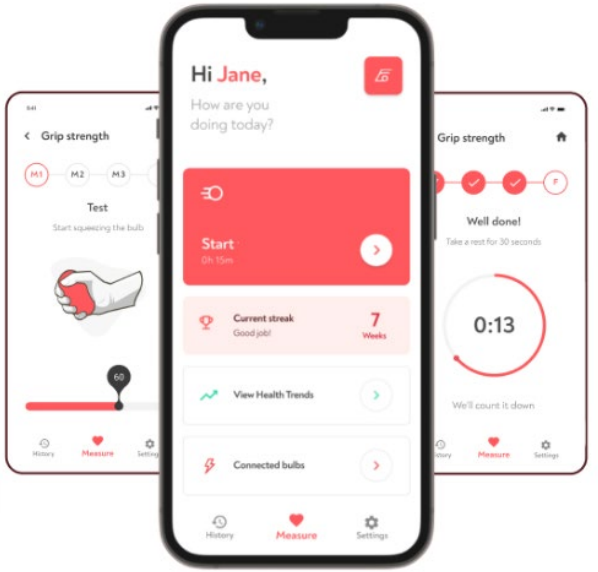
Eforto


Mobile application
Subjects
1947
Subject list
My profile
Jane Cooper

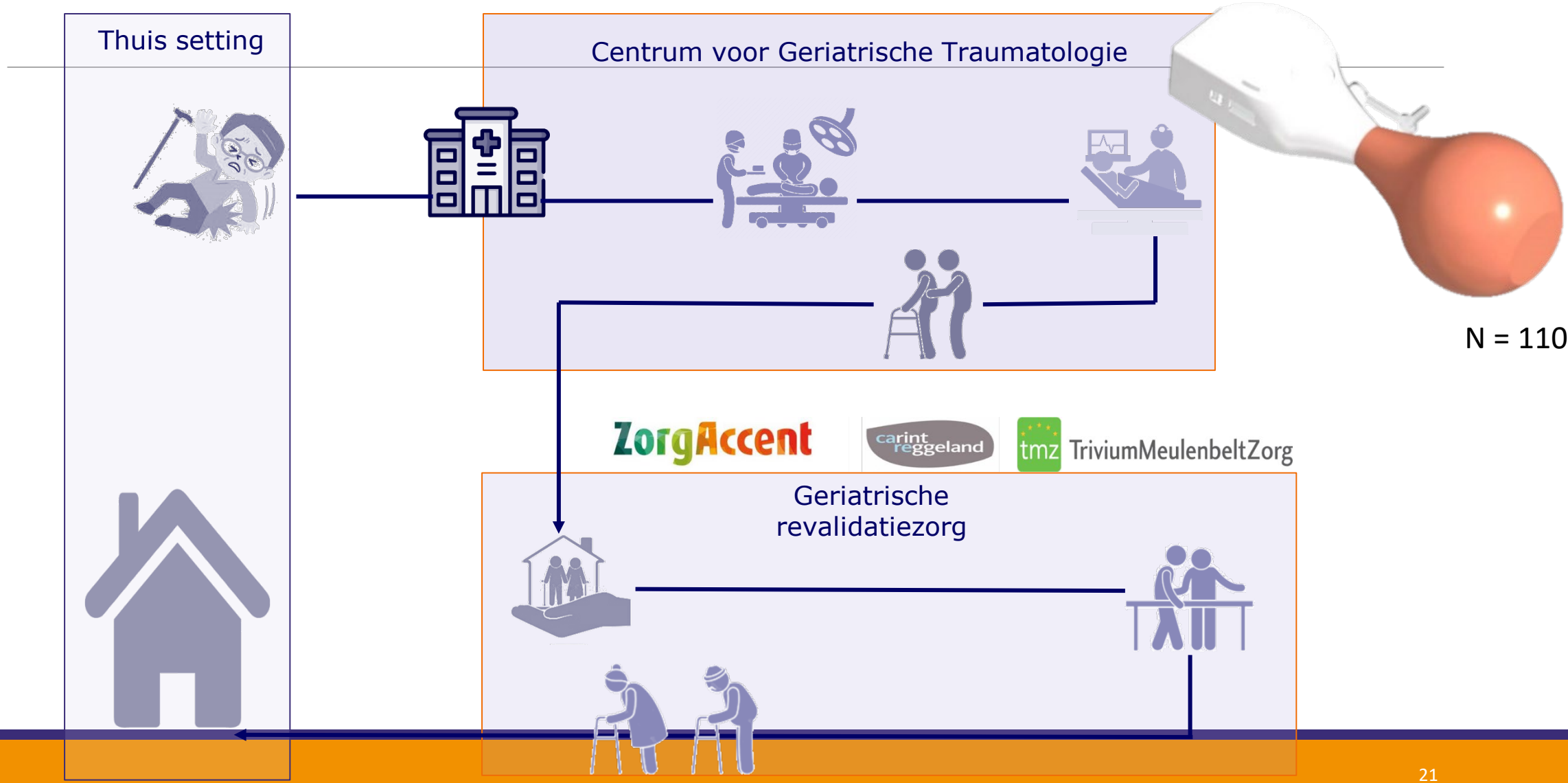
# Eforto




Mobile application
Subjects
1947
Subject list

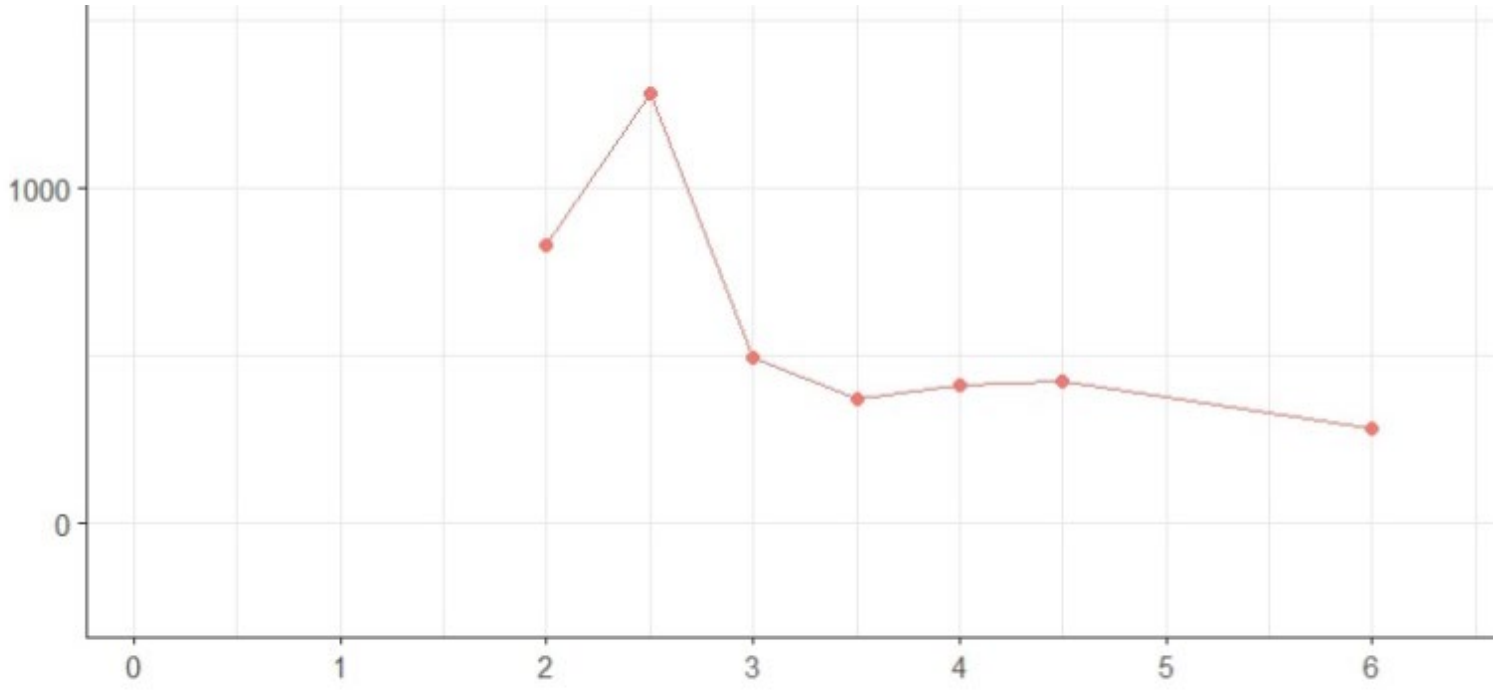

Hi Jane,
How are you doing today?
Grip strength
Test
Start
Current streak
Good job!
7
Weeks
View Health Trends
Connected bulbs
History
Measure
Settings
Grip strength
Well done!
0:13

# Transmuraal Zorgpad ZGT - GRZ



# Voorbeeld 1

Grip Work (kPa)



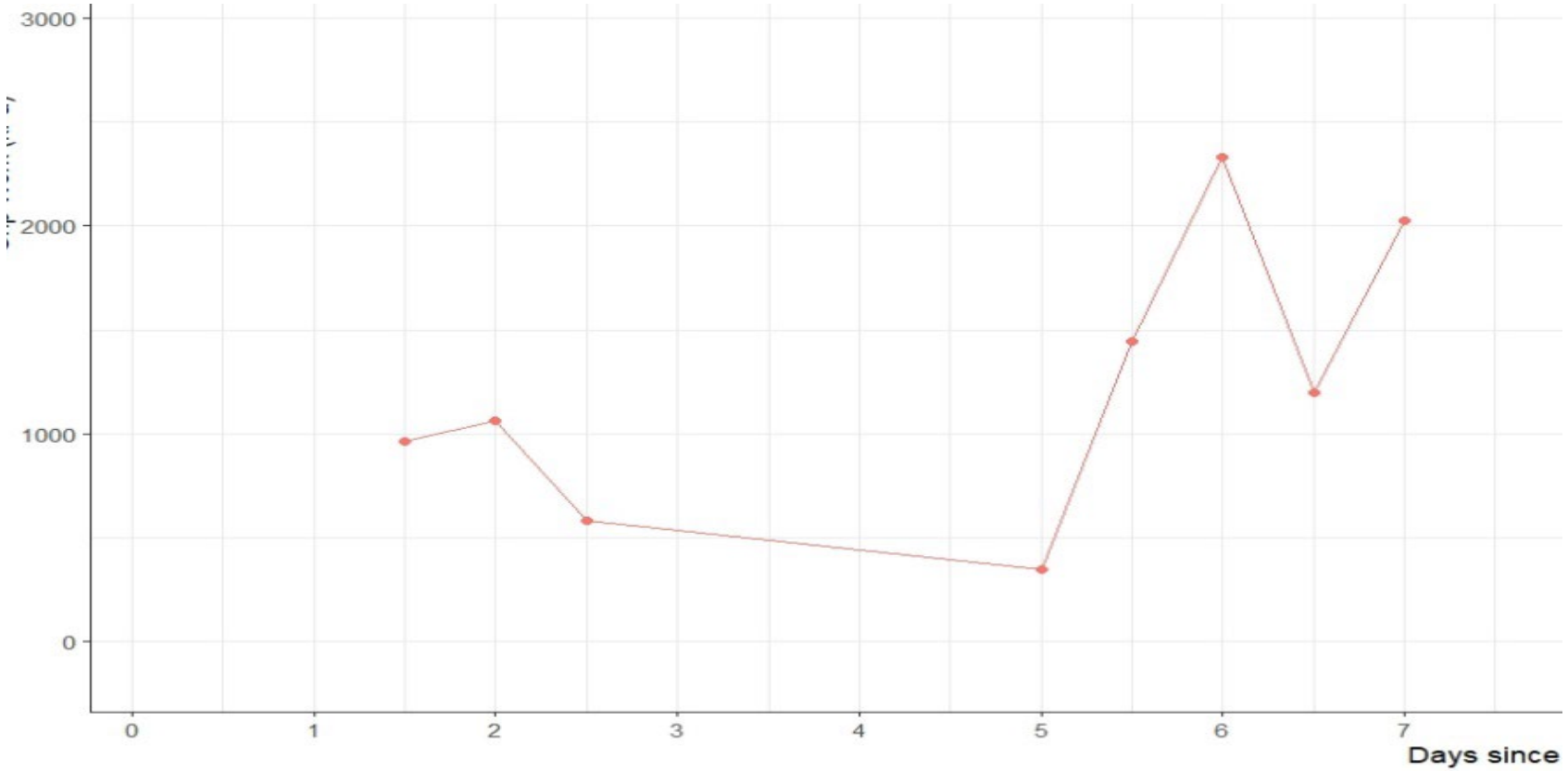

Tijd sinds operatie

# Voorbeeld 2

Grip Work (kPa)
2000
1000
0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Tijd sinds operatie

# Voorbeeld 3

Grip Work (kPa)




Tijd sinds operatie

# Eerste resultaten PILOT STUDIE

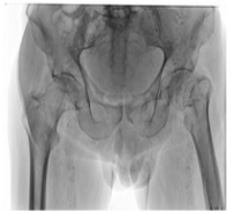
- Een verband tussen leeftijd en GRIP WORK
- Een hogere GRIP WORK score bij mannen
- Een verband tussen een hogere GRIP WORK score en Functionele Status bij ontslag
- Een verband tussen een hogere GRIP WORK score en mobiliteit bij ontslag

# Resilience in Hip Fracture Patients: Functional Status Measured with Grip Work

***A Pilot Study***


Femke Kleijsen, MSc[1], Merle Geerds, MSc MD [2,3], **Jorinde Spook, PhD[1,4*]**
Marloes Vermeer, PhD[1], Han Hegeman, PhD MD[2,3]

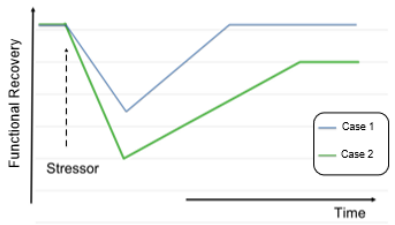
[1]ZGT Academy, Ziekenhuisgroep Twente, Almelo, The Netherlands [1]
[2] Department of Trauma Surgery, Ziekenhuisgroep Twente, Almelo, The Netherlands
[3] University of Twente Biomedical, Signals and Systems, Enschede, The Netherlands
[4] University of Twente Centre for eHealth and Wellbeing Research, Enschede, The Netherlands
*Corresponding Author; j.spook@zgt.nl | Jorinde Spook

**Background**

Hip fractures are a common health stressor in older persons, from which not all individuals can fully recover. A person's ability to withstand or recover from health stressors is called resilience. Resilience is essential for a fast and successful recovery of older persons with a hip fracture. However, there is no easy and adequate tool available that measures resilience. Therefore, this study explored if grip work (GW: grip strength x endurance) has this potential, by investigating its relationship with functional status at hospital discharge in hip fracture patients.

Recovery after Hip Fracture Surgery



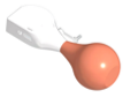

**Patients & Method**

*N=26 surgically treated hip fracture patients in the Centre for Geriatric Traumatology (ZGT)*
Mean age= 83 y/o (*SD* = 7.8) | 73% Female

Grip work measurement
- Using the Eforto® device 2x per day during admission
- Outcome parameter: functional status at discharge

Analysis
- Correlational & Univariate analyses

Eforto



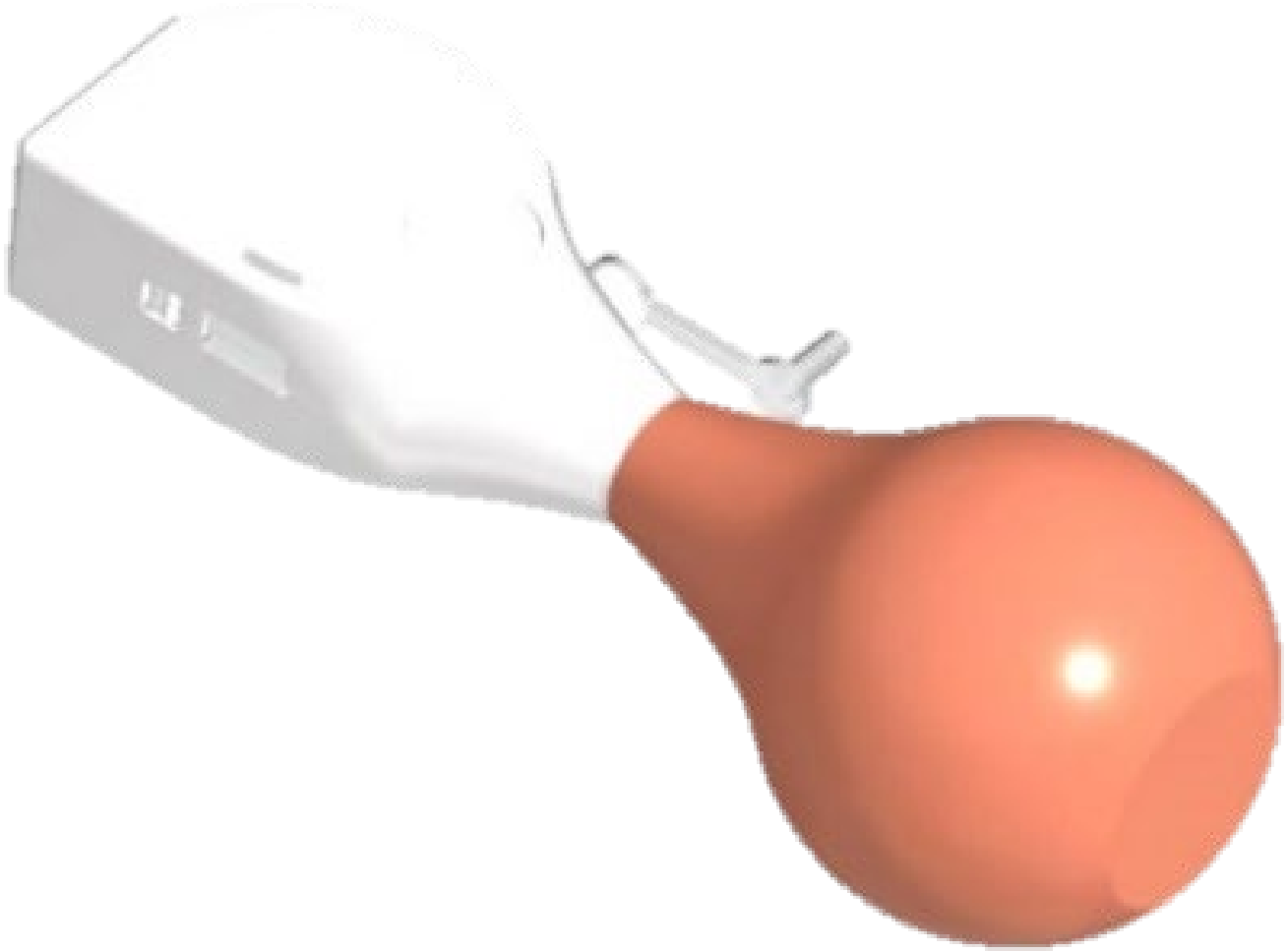
**Results**

Higher GW was correlated with lower age ($r$=-.54; $p$=.004). GW was higher in male patients ($M_{male}$=1362; $M_{female}$=573; $p$=.005). Higher GW was related to better mobility at hospital discharge (Fracture Mobility Score, $r$=.53, $p$=.007; Functional Ambulation Category, $p$=.56, $p$=.004).

**Discussion**

This exploratory study showed that GW is a marker of the functional status at hospital discharge in patients recovering from a hip fracture surgery. GW is a promising parameter to explore resilience, with future applications such as personalized care for older patients.

AAL PROGRAMME · EU · Eforto · Topzorg voor uw levenskwaliteit · zgt · UNIVERSITY OF TWENTE.



# DEMO
13.00 uur