

#PHC23

BREAKOUT SESSION: HEALTH @ HOME

— *Empowering independence of fragile elderly:
Integrating technology, physical activity, and
nutrition*

TU/e EINDHOVEN
UNIVERSITY OF
TECHNOLOGY

 **WAGENINGEN**
UNIVERSITY & RESEARCH



Utrecht University



UMC Utrecht

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Health**

BREAKOUT SESSION – HEALTH @ HOME

#PHC23



Pol Grootswagers
WUR



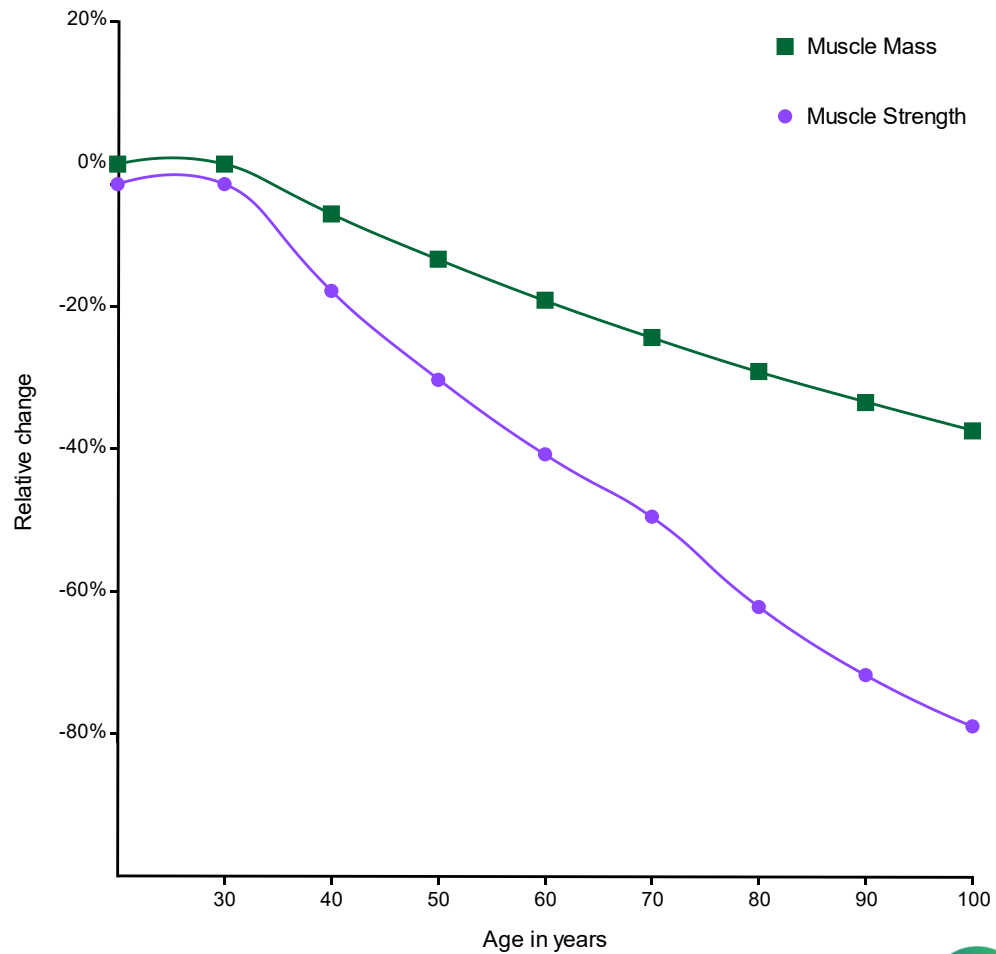
Nick Wezenbeek
Clevermove

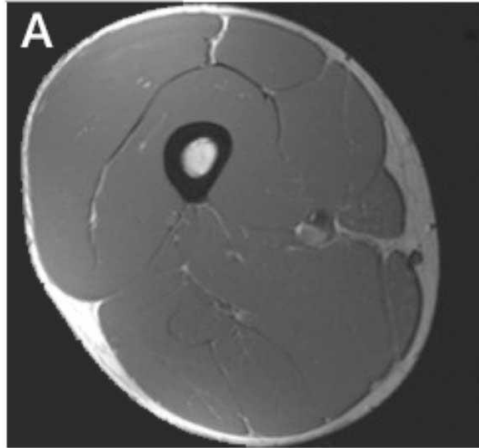
Nutrition and Exercise for Healthy Ageing

Po I Grootwagers, Assistant Professor Nutrition and Aging, WUR

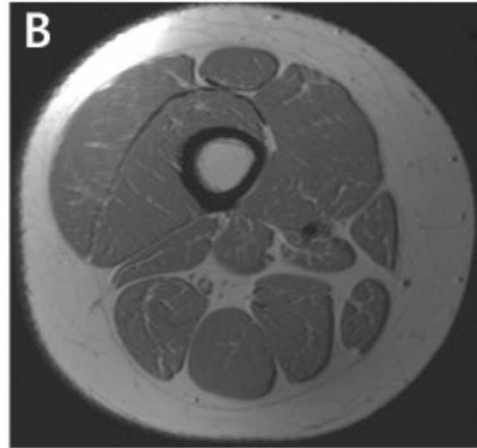
Nick Weanbek, CEO CleverMove







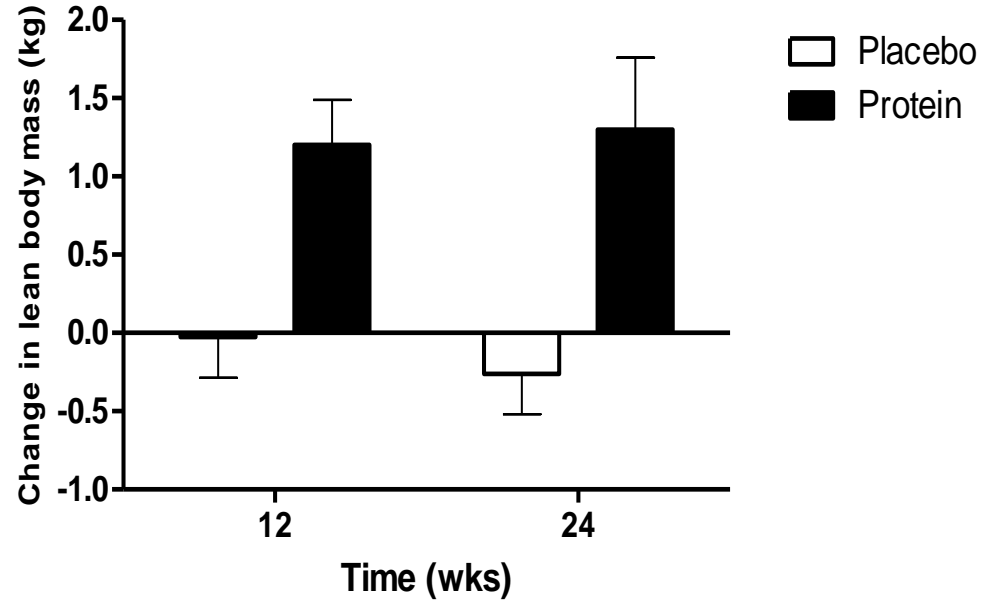
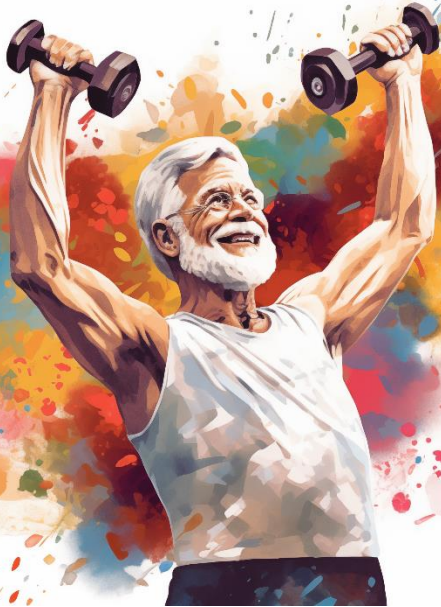
Male, 24 years old



Male, 66 years old



ProMuscle

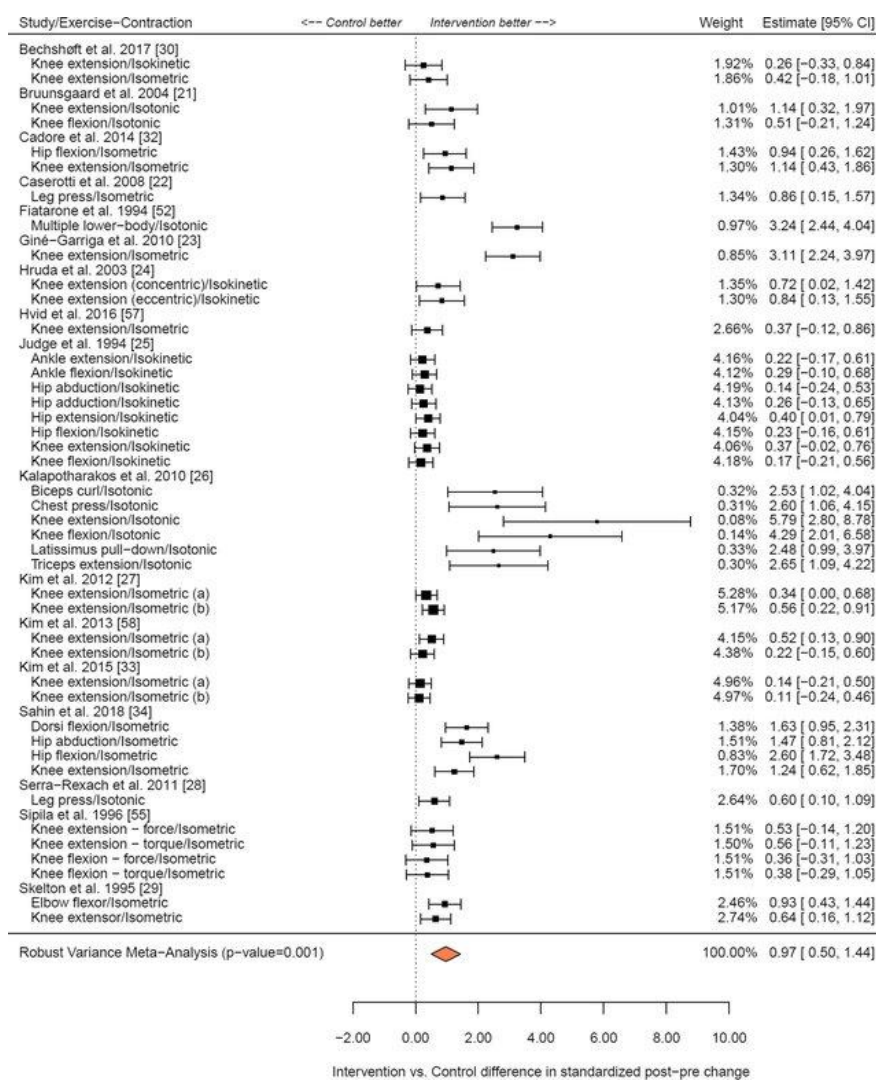


Resistance exercise always works

Grgic et al. 2020

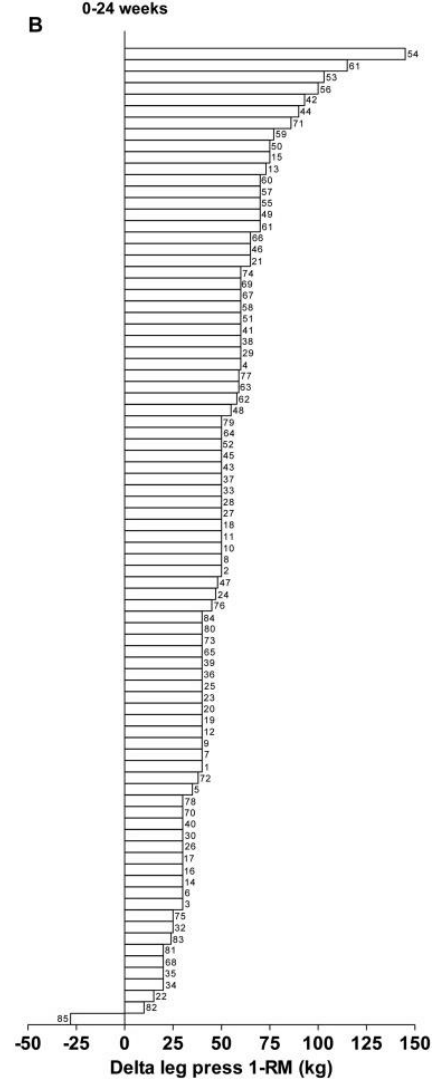
Effect of RET

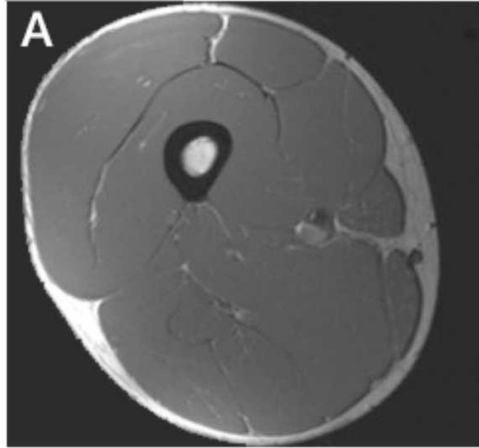
22 RCTs in >75 year olds



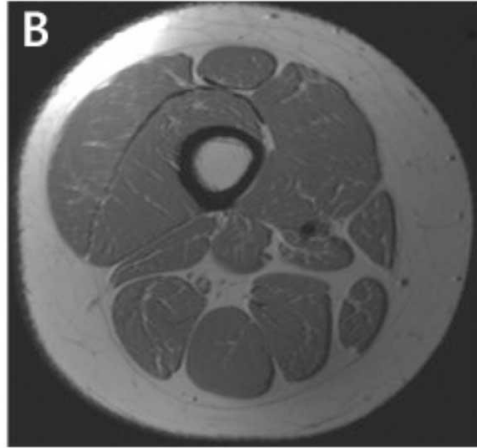
...and has no non-responders

Churchward-Venne et al 2015

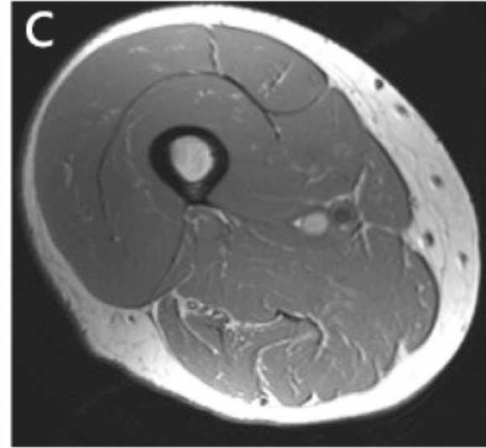




Male, 24 years old



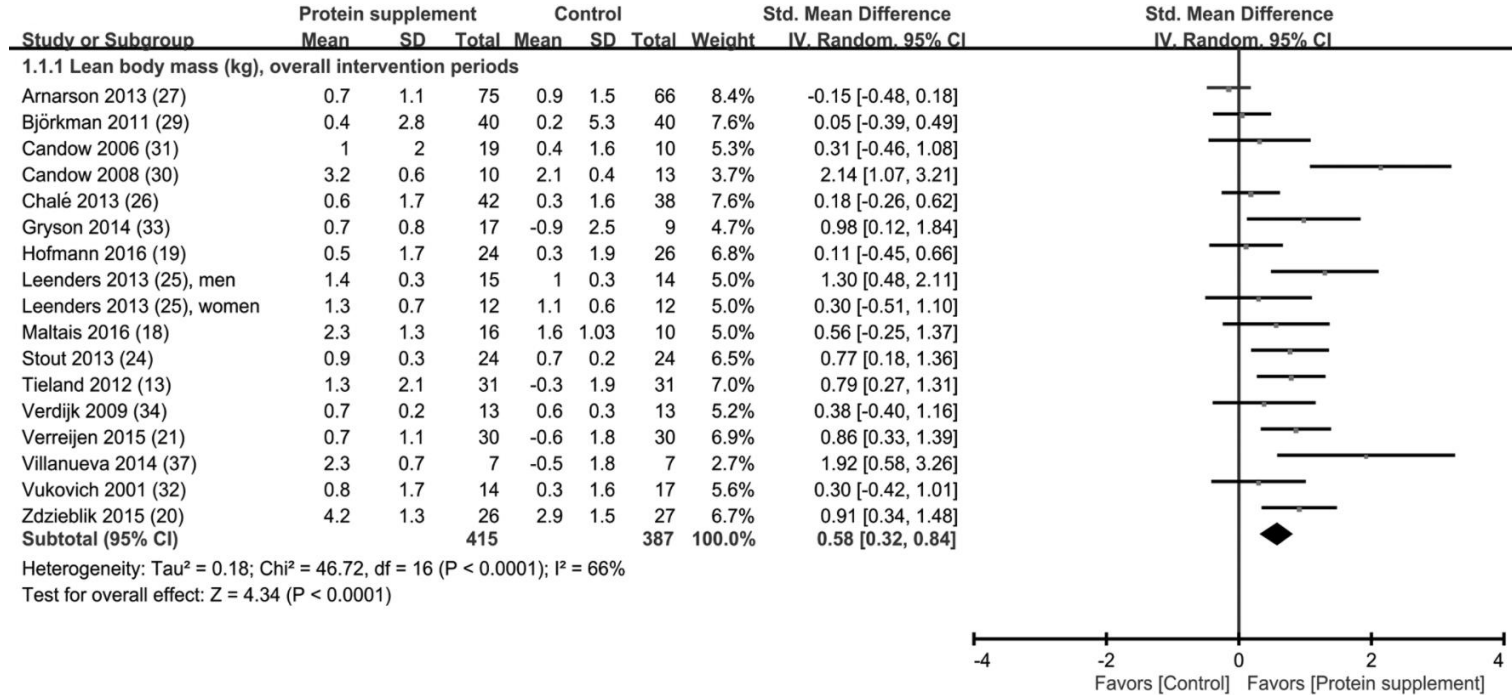
Male, 66 years old
Average daily
steps: 3141



Male, 66 years old
Average daily
steps: 12445

Additional protein works

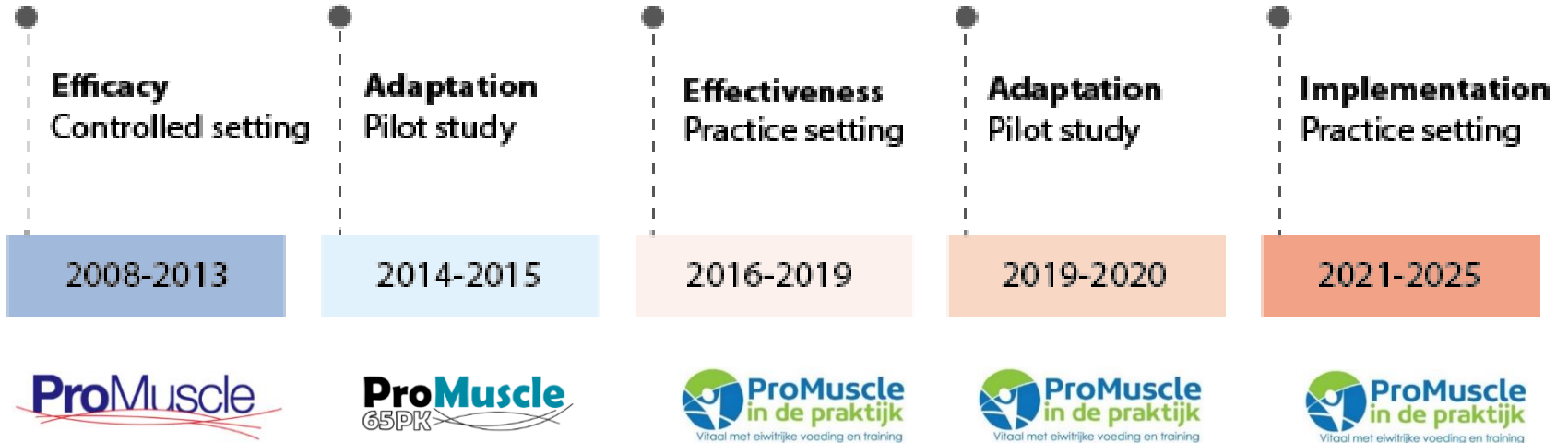
Liao et al. 2017



... especially in specific subgroups

1. Sarcopenic
2. Inactive
3. Low protein intake

From Research to Practice



Gaps between Science and Practice

- Strength Training intensity and progressive Training
- Setting
- Costs
- Social factors
- Short term studies vs Long term adherence
- Customer Experience

CleverMove (2019)



Nick Wezenbeek.

Slim om aan krachtraining te doen

Weinig mensen weten dat krachtraining tot op hoge leeftijd een gunstig effect heeft op de gezondheid. Iemand die daar in rap tempo verandering in brengt, is Wageninger Nick Wezenbeek.

WAGENINGEN - De 32-jarige afgestudeerde voedingsonderzoeker deed wetenschappelijk onderzoek naar de gezondheidseffecten van bewegen en voeding voor ouderen. Hij start de onderneming CleverMove en geeft sinds een jaar krachtraining en voedingsadvies. Inmid-

dels volgen 56 mannen en vrouwen tussen de 47 en 96 jaar een of twee keer per week een CleverMove trainingsprogramma. Uit de enquête onder de deelnemers blijkt dat 90 procent positief effect van de training ervaart in het dagelijkse leven. De krachttesten bevestigen

dit: iedereen werd sterker. "Krachtraining maakt sterker, energiever en langer zelfredzaam. Je ziet specifiek bij ouderen dat ze gigantisch aan spierkracht winnen en verval tegengaan", aldus Nick Wezenbeek. Voor geïnteresseerden is er op dinsdag 10 en zaterdag 14 maart de mogelijkheid om een gratis proeftraining te volgen. Aanmelden kan op www.clever-move.nl/ proefles.



CleverMove Method

- ❑ Accessible Strength and Balance training
- ❑ Training with peers (50+ / 70+)
- ❑ Keep effective element of progressive training
- ❑ Extra focus on social and group dynamics
- ❑ Based on a.o. ProMuscle methods
- ❑ Added effective Explosive Training elements



Progressive Strength Training



Balance Training



Indoor and Outdoor



All year long



Tailored to individual level and needs



Fun Elements



Workshops on Nutrition and Health



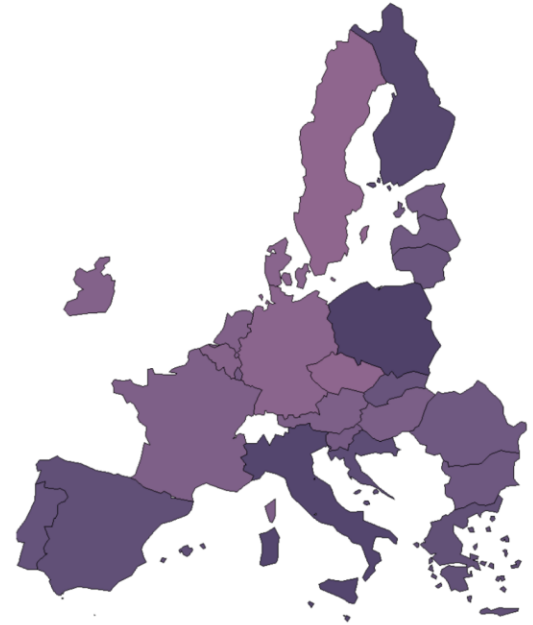
More than just sports: Social aspect and Connection



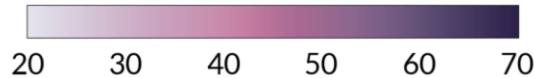
Dependency ratio 2021



Dependency ratio 2100



Health span should increase to manage demographic shift

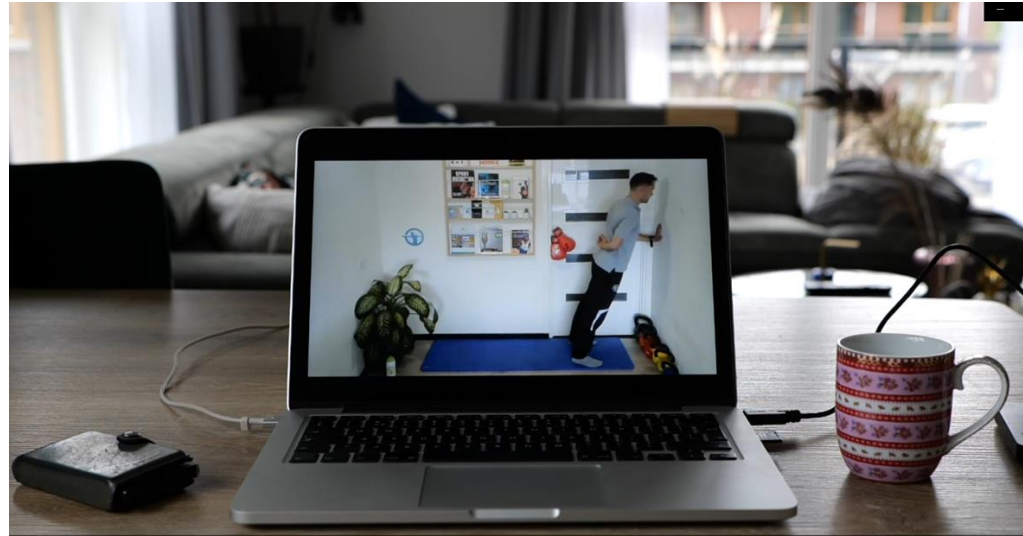


The dependency ratio is calculated as the ratio between the number of persons aged 65 and over (age when they are generally economically inactive) and the number of persons aged between 15 and 64. The value is expressed per 100 persons of working age (15-64).



March 2020 Online Sports Classes

- ❑ An improvised home setting
- ❑ Clients responded suprisingly positive



2022: Launch Online Fit 50+



2022: Idea for a practice based study

- Online variation on ProMuscle



Online Training + Online Nutrition consultations + Online Nutrition Module

UNI2MOVE

Week 4 1 Quiz Recepten Bron

Recepten

Brinta met melk

Tosti mozzarella/tomaat

Vorige Volgende

UNI2MOVE

Start

Welkom bij de online voedingsmodule van de Uni2Move studie!

Deze module staat volledig in het teken van eiwitten. Zo gaan wij het bijvoorbeeld hebben over wat eiwitten in ons lichaam doen en waarom ze belangrijk zijn bij krachttraining. Ook bespreken we in welke producten eiwitten te vinden zijn en op wat voor manieren u uw eiwitname kunt verhogen.

Deze 12-weekse module is opgedeeld in 12 stukken, waardoor er elke week een nieuw onderwerp aan bod komt. U kunt rustig op uw eigen tempo door deze onderwerpen heen gaan. Hieronder vindt u een overzicht van de onderwerpen die aan bod komen.

Welkom!

Susanne Wildemast, voedingsonderzoeker

Week 1: Wat zijn eiwitten?
Week 2: Hoeveelheid eiwitten
Week 3: Het belang van krachttraining en extra eiwitten
Week 4: Wat zijn eiwitrijke producten?

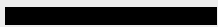
Uni2Move

□ Online Nutrition Module WUR

- 12 weeks

□ Online Sports at CleverMove

- 2x per week; 24 weeks

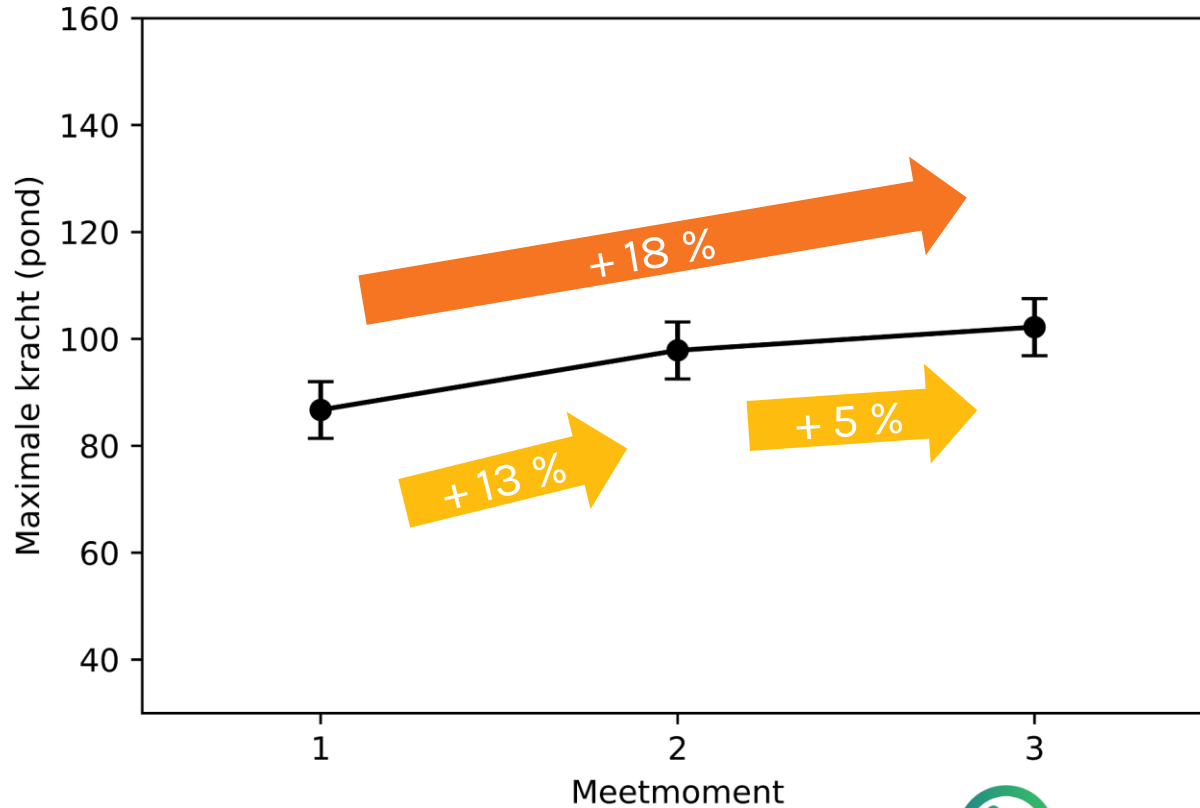


□ Online Nutrition consultations by dietitian

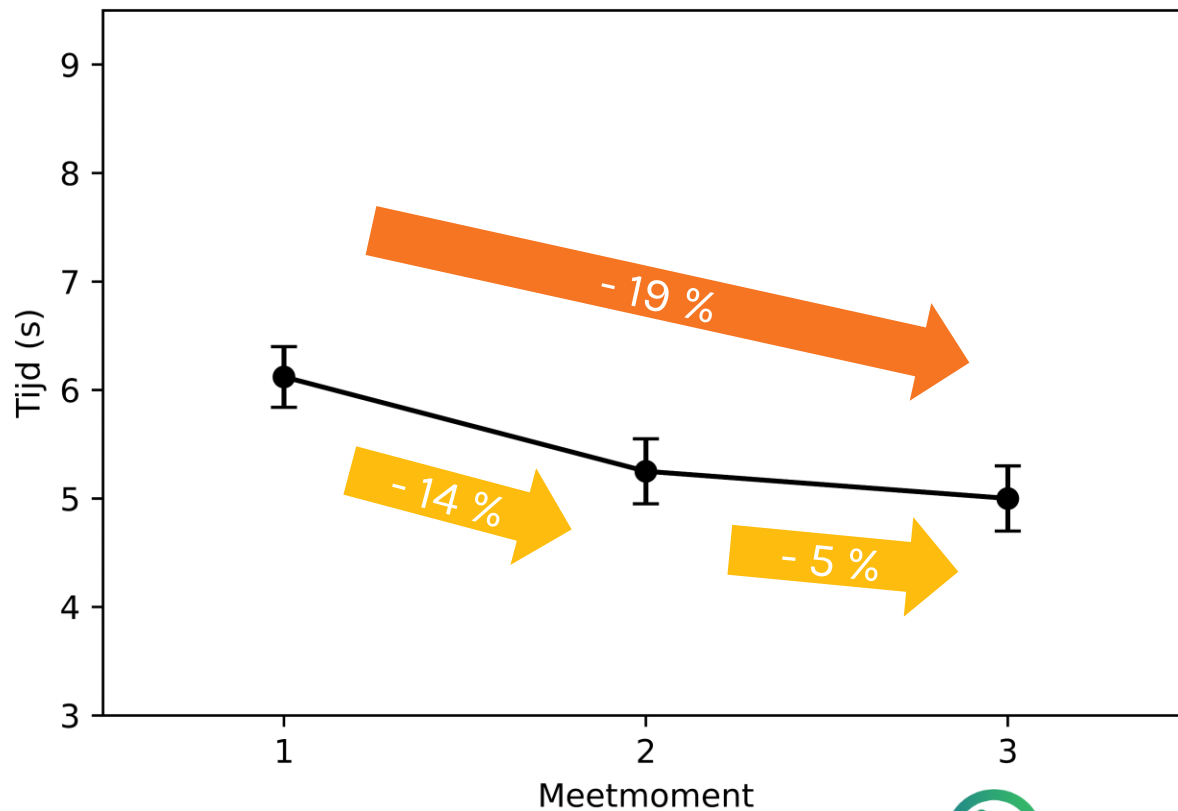
- 3 consultations



Muscle Strength



Chair rise time (standing up from a chair 5 times)



Video Intro

UNI²MOVE

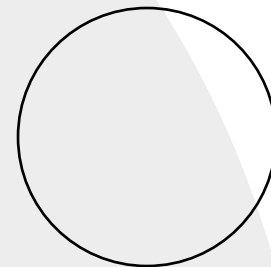
Participants Experience

"Ik heb het gevoel dat ik er betere spieren van krijg."

"Een sterk punt van het uni2move programma is dat je sterker wordt en stabiel."

"Ik merk dat ik nu makkelijker de kano op het dak van de auto kan tillen!"

Uni2Move Potential



**Effectief met minder inzet zorgprofessionals,
grotere groepen begeleiden, lagere kosten!**

Vision

- ❑ Progressive Strength Training is suitable for older adults
 - ❑ A Hybrid Program including online guidance is the future for reducing costs and maintaining effective training and social elements
 - ❑ More focus on lifestyle in maintaining independent living
 - ❑ Focus on the older adult of the future
-

Challenge: Funding for sustainable implementation (who has to pay?)

Nutrition and Exercise for Healthy Aging



THANK YOU

Pol Grootswagers, PhD

Pol.grootswagers@wur.nl

Nick Wezenbeek, MSc

nick@clever-move.nl

BREAKOUT SESSION – HEALTH @ HOME

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Nienke Bleijenbergh
UMCU



Early detection and prevention of acute events among older adults living at home: *three examples*



UMC Utrecht

Dr. Nienke Bleijenberg, associate professor Nursing Science, Julius Center UMC Utrecht and professor University Applied Sciences Utrecht



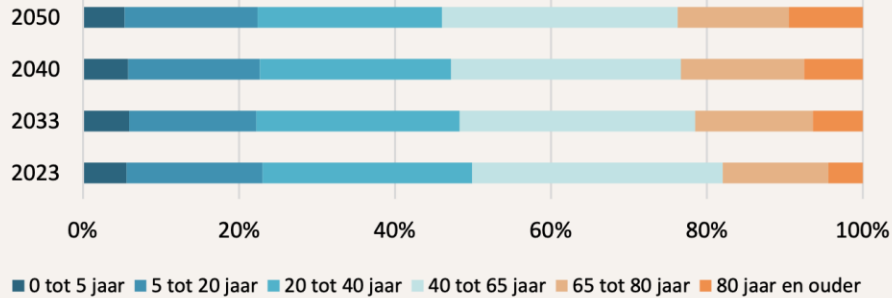
What do older people value most?

WHY

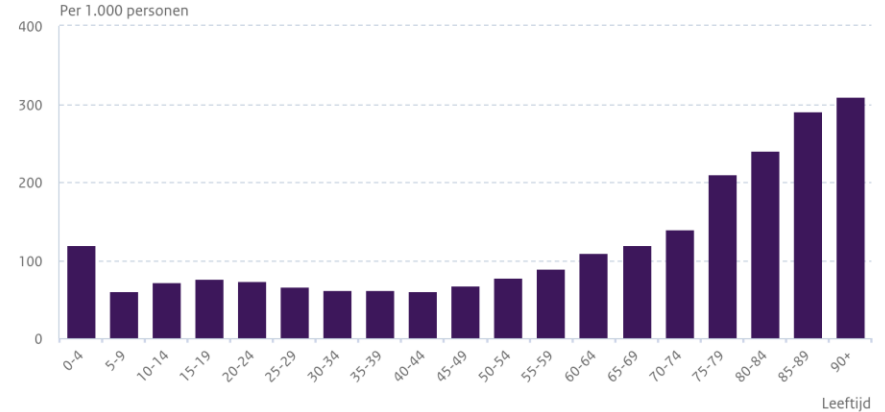
2021:
586.000 patients
receiving home care

2023:
800.000 patients
receiving home care

Prognose ontwikkeling leeftijdsopbouw regio Midden-Nederland



SEH-bezoeken naar leeftijd en geslacht 2021



800.000 ouderen bezoeken jaarlijks de SEH

2018



1.100.000 ouderen bezoeken jaarlijks de SEH

2030

+40%





~~Reactive~~

Proactive

How do we organize proactive primary care for frail older people?



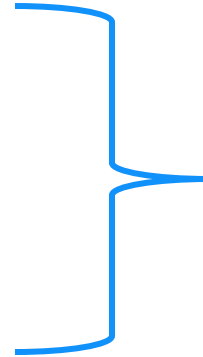
Identification of patients at risk...



+



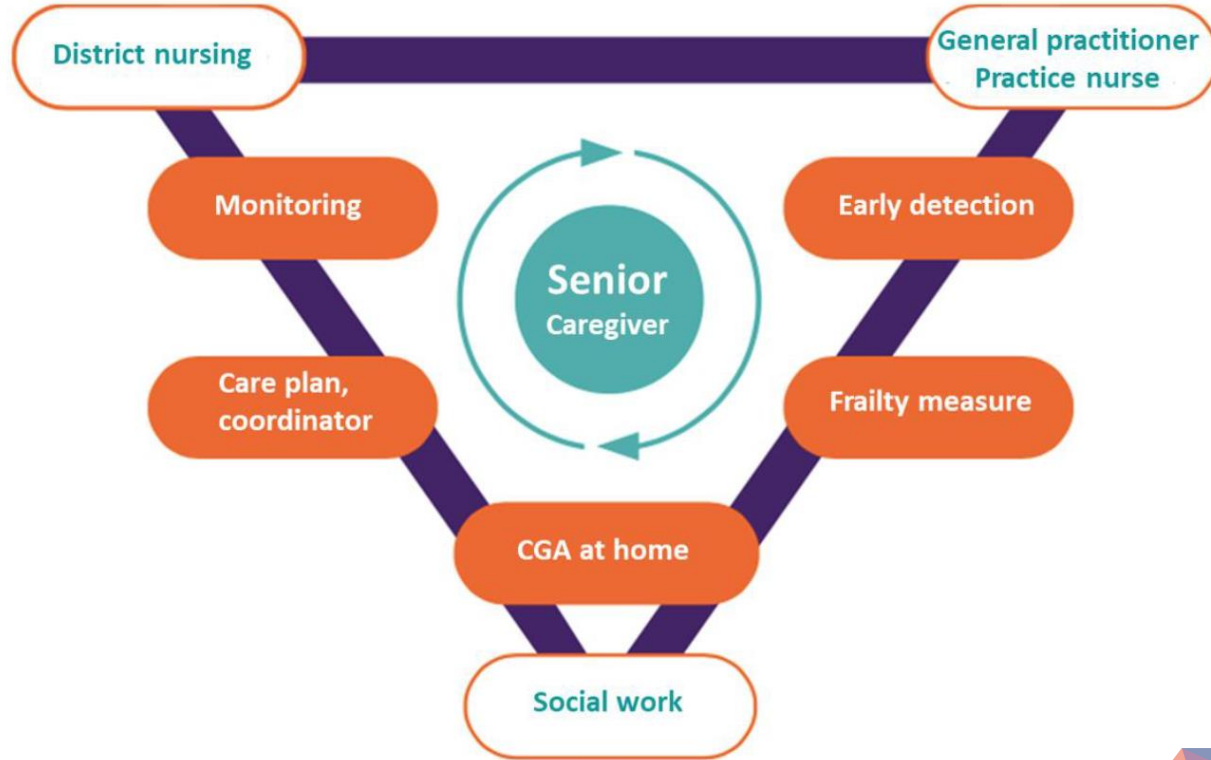
...proactive personalized care



Outcomes:

- daily functioning
- wellbeing
- health care use

UPROFIT PROACTIVE CARE PROGRAMME



Clinical Investigations

Effectiveness of a Proactive Primary Care Program on Preserving Daily Functioning of Older People: A Cluster Randomized Controlled Trial

Nienke Bleijenberg RN, PhD , Irene Drubbel MD, PhD,

Marieke J. Schuurmans RN, PhD, Hester ten Dam MD, PhD,

Nicolaas P.A. Zuithoff PhD, Mattijs E. Numans MD, PhD,

First published: 26 July 2016 [Full publication history](#)

DOI: 10.1111/jgs.14325 [View/save citation](#)

Cited by (CrossRef): 7 articles [Check for updates](#)  [Citation too](#)

 28

JAMDA xxx (2017) 1–8



ELSEVIER

JAMDA

journal homepage: www.jamda.com



Original Studies

Cost-Effectiveness of a Proactive Primary Care Program for Frail Older People: A Cluster-Randomized Controlled Trial

Nienke Bleijenberg RN, PhD^{a,*}, Irene Drubbel MD, PhD^a, Rabin EJ. Neslo PhD^b,
Marieke J. Schuurmans RN, PhD^c, Valerie H. ten Dam MD, PhD^a, Mattijs E. Numans MD, PhD^d,
G. Ardine de Wit PhD^{b,d}, Niek J. de Wit MD, PhD^a

^a Department of General Practice, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands

^b Department Health Technology Assessment, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands

^c Department of Nursing Science, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands

^d Department of General Practice, Leiden University Medical Center (LUMC), Leiden, The Netherlands



Axioncontinuu
wonen, zorg en revalidatie



'I-PROFIT



Optimal integrated care for older people



Announcing
**All-new Remington
"Hi-Speed" 22's with**
**"golden"
bullets**



*Forming speed, penetrating ability,
and accuracy equal to what there
used to be in the "Hi-Speed" 22's
and "golden" bullets. They're made to
the highest standards and tested to
the limit.*

*Golden bullets, better accuracy...
that's Remington "Hi-Speed" 22's. Big
game and jack-rabbit size game more
sure than ever before! It's always so
smooth. Satisfying, sure, and the
accuracy has made many 22's the
"golden" bullet. Better accuracy and
jack-rabbit sure. Remington's new
"golden" bullets, proving old ad
saying's true.*

*The new, sleek in look, accuracy
that's the new Remington "Hi-Speed"
22's. Big game and jack-rabbit size
game more sure than ever before! It's
always so smooth. Satisfying, sure,
and the accuracy has made many 22's
the "golden" bullet. Better accuracy
and jack-rabbit sure.*



**Look for the new
"golden" "Hi-Speed" 22's
in this all-new package**

Remington 

Remington-Union, Inc., 1000 North 10th Street, Springfield, Mass., U.S.A.
Remington-Union, Inc., 1000 North 10th Street, Springfield, Mass., U.S.A.

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PROACT

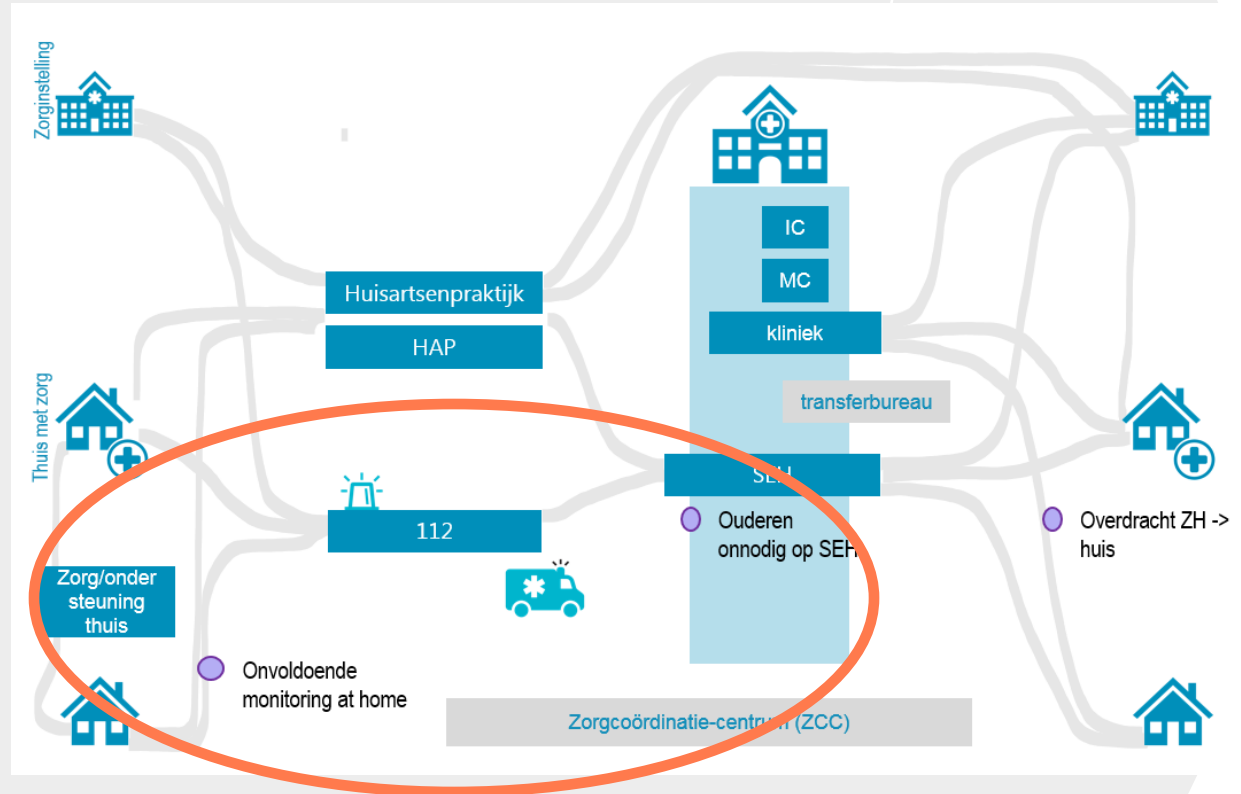
PREVENTION OF ACUTE EVENTS OF OLDER PEOPLE

Currently in the Netherlands, about 800.000 older adults visit the emergency department (ED) each year, and they are at high risk of unplanned revisits. Using various digital tools, the PROACT research team wants to test and measure how older adults can remain self-reliant for longer and what interventions are needed to prevent admission to the ED.

CARE TRAJECTORIES – FOCUS OF PROACT

Older adults high risk of readmission:

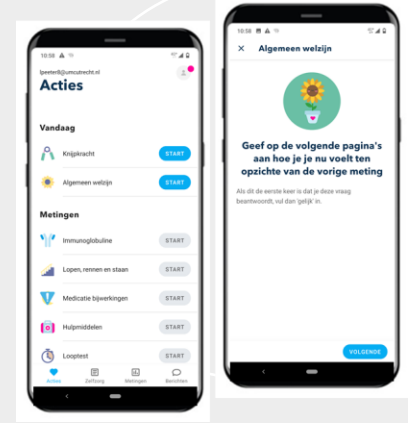
- 13% return to ED within 2 weeks
- 20% return to ED < 1 month



Aims:

- I. Examine the **feasibility** and **acceptability** of a home monitoring interventions for early identification of health deterioration after discharge from the emergency department

- II. Explore if monitoring vital signs, symptoms and activity can detect a health deterioration and can **reduce the risk of an ED** revisit within 30 days in Dutch adults aged 70 years or older





EWUU Alliance - Institute 4 Preventive Health

599 followers

1w •

AI@HomeCare is one of the projects that recently received seed money from **#i4PH**. The central question: how to prevent adverse patient outcomes in home care nursing through predictive process monitoring?

Want to learn more about this project? Check the new web page

[Nienke Bleijenberg](#) [Boudewijn Van Dongen](#) [Renata Medeiros de Carvalho](#) [Iris Beerepoot](#), PhD [Lisette Schoonhoven](#) alliance TU/e, WUR, UU, UMC Utrecht (EWUU)



AI@HomeCare - Institute 4 Preventive Health

preventivehealth.ewuu.nl • 2 min read

Longterm goal:

How can we **prevent acute events** among **older people** receiving home care nursing through **predictive process monitoring**?

- Routine care data from home care organisations
- Data from audio recordings
- Observations nurse-patient interaction



1.

How can we incorporate nursing knowledge into the model?



2.

How can we record the patient-nurse interactions in an accurate way in home care setting?

3.

How can we combine the patient and nurse perspective in the model?

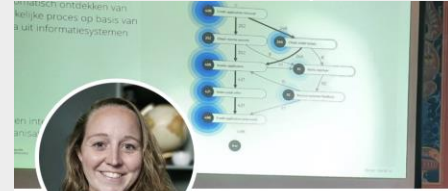
TEAM AI@HOMECARE



Renata Medeiros de Carvalho

dr.
Assistant Professor, Mathematics and Computer Science, Process Analytics
Assistant Professor, Mathematics and Computer Science, Process Science
Assistant Professor, EAISI Foundational
Assistant Professor, EAISI Health

Email



Iris Beerepoot · 1st

Assistant Professor | Process Mining | Business Process Management

dr. N. (Nienke) Bleijenberg

Associate Professor



Berfin
Duman
Elke
Loskamp



Utrecht University



Prof. dr. S. (Sjaak) Brinkkemper

Hoogleraar
Bètawetenschappen
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THANK YOU

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Susan van Hees

UU

Learnings from co-creation of values in health and ageing innovation projects

Susan van Hees, PhD
Assistant Professor Innovation Studies, Copernicus
Institute of Sustainable Development

Co-creation and responsible innovation projects



Inclusive mobile ageing
(start in '24)





ResQuMRI
MR-STAT 

Ageing & Society (2023), 43, 2022–2040
doi:10.1017/S0144686X21001483

ARTICLE

Valuation in health and ageing innovation practices

Susan van Hees^{1*} , Carla Greubel¹, Ellen Moors¹ and Alexander Peine¹ 

¹Copernicus Institute of Sustainable Development, Utrecht University, Utrecht, The Netherlands

*Corresponding author. Email: s.v.vanhees@uu.nl

(Accepted 14 September 2021; first published online 27 October 2021)



SOCIO-GERONTECHNOLOGY
INTERDISCIPLINARY CRITICAL STUDIES OF
AGEING AND TECHNOLOGY
Edited by
Alexander Peine, Barbara L. Marshall,
Wendy Marris and Louis Neven



Co-creation, responsible research and innovation, Science and technology Studies, and valuation studies - in a nutshell

“Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present.”

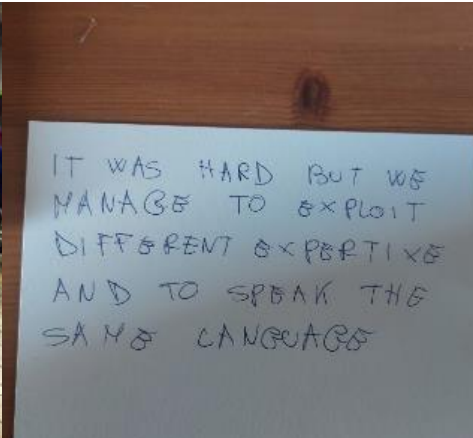
(Stilgoe et al 2023)

Values not objectifiable, depend on valuation practices, on how this is done, by whom and why (Helgesson and Muniesa, 2013)

*Technology **does not intervene** into ageing;
it becomes **co-constitutive** of it (Peine and Neven 2021).*

Our approaches

- Mapping and engaging with the ecosystem: Exploring perspectives of stakeholders and their (dynamic) values
- Creating **awareness of other and interaction between different perspectives** (co-creation, ethnographies)
- Like co-creation of (future) scenarios, innovation and implementation pathways



Zooming in on Gatekeeper

Our approach (with Carla Greubel MSc, Prof Alex Peine, Prof Ellen Moors)

Therefore we explicitly looked at values, values interaction and valuation in practices
In a context of technology and innovation (not starting from it)

- Valuation framework developed
- 2 cycles of stakeholder workshops (at 8 pilot sites) → implementation and development scenarios
- Longterm fieldwork (ethnography) at specific sites by PhD candidate Carla Greubel

Valuation framework

A practice-oriented framework – to integrate stakeholders positions to fluid and multiple values from the beginning [and onward]

Gain insight in positions to values and valuation practices

→ a more comprehensive, responsible consideration of values and value trade-offs can be made in co-creating 'ageing in place' technologies.

→ to better understand relations and interactions underlying these technologies.

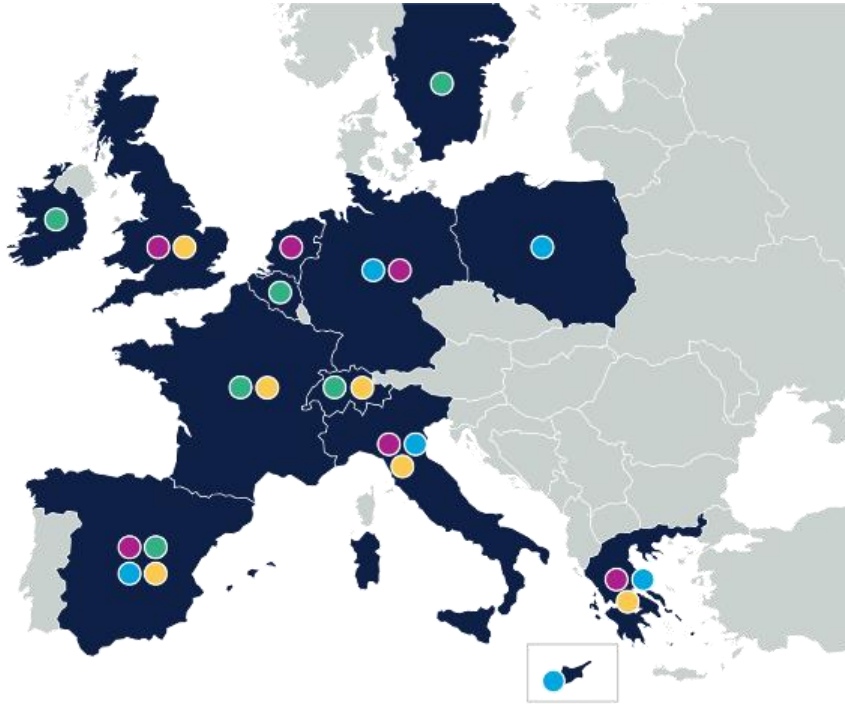
GATEKEEPER project



Focus on smart(er) living homes, part of an ageing in place ideal

“... create a GATEKEEPER [i.e. platform], that connects healthcare providers, businesses, entrepreneurs, elderly citizens and the communities they live in, in order to originate an ***open, trust-based arena*** for matching ideas, technologies, user needs and processes, aimed at ***ensuring healthier independent lives*** for the ageing populations”
(quote from project summary, emphasis added)

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement N° 857223



43 PARTNERS
7 COUNTRIES, 9 PILOT SITES (at the start)

RESEARCH INSTITUTIONS & ACADEMY

UNIVERSIDAD POLITÉCNICA DE MADRID
 UNIVERSITY OF WARWICK
 UNIVERSITY OF UTRECHT
 THE OPEN UNIVERSITY
 TECHNISCHE UNIVERSITÄT DRESDEN
 HAROKOPIO UNIVERSITY
 CENTRO INVESTIGACIÓN BIOMÉDICO EN RED
 CERTH
 FUNDACIÓN TECNALIA R&I
 UNIVERSITY OF IOANNINA
 FONDAZIONE POLITECNICO
 UNIVERSITY OF PATRAS

ECOSYSTEM ENLARGEMENT, STANDARDIZATION & IMPACT

EIP ON AHA REFERENCE SITE
 COLLABORATIVE NETWORK (RSCN)
 ECHALLIANCE
 MANDAT INTERNATIONAL
 W3C
 HL7 FOUNDATION
 ARCHIMADE SOLUTIONS SARL
 FUNKA NU AB
 OPEN EVIDENCE

HEALTHCARE PROVIDERS (PILOTS)

ARCHANGELOS M. ELDERY NURSING HOME
 INTERMUNICIPAL DEVELOPMENT COMPANY
 DIGITAL CITIES OF CENTRAL GREECE SA.
 OSAKIDETZA-SERVICIO VASCO DE SALUD
 REGIONA PUGLIA
 SERVICIO ARAGONÉS DE LA SALUD
 CYPRUS ASSOCIATION CANCER PATIENTS & FRIENDS
 ASOCIACION CENTRO DE EXCELENCIA INTERNACIONAL EN INVESTIGACIÓN SOBRE CRONICIDAD
 CARUS CONSILIUM SACHSEN GMBH
 MEDICAL UNIVERSITY OF LODZ

LARGE AND SMALL INDUSTRIES (SUPPLIERS)

ENGINEERING INGEGNERIA INFORMATICA SPA
 HEWLETT PACKARD ITALIANA SRL
 MEDTRONIC IBERICA SA
 SAMSUNG ELECTRONICS (UK) LIMITED
 STM
 MYSPHERA SL
 SENSE4CARE SL
 MEDISANTÉ AG
 IBERMÁTICA
 MULTIMÉD ENGINEERS SRLS
 BIOBEAT
 BIOASSIST
 ORTHOKEY

Source : GATEKEEPER project, overview presentation
 October 2019, <https://www.gatekeeper-project.eu/>



Impression of 'live' test-workshop, Milton Keynes, February 2020

Some lessons (from our recommendations for RRI, GK deliverable by Greubel et al 2023)

- ❖ **(...) the dominant conceptualization of trust as a matter of a secure and privacy protecting technology design is too limited. (...)**
- ❖ To maintain trust (...) it is important that technologies are **attuned to the local context and everyday lives of users.**
- ❖ (...) listen also to those who quit or disengage
- ❖ (...) systematically integrate co-creation into all phases of the study.

What matters...

- Local contexts
- Situatedness (attention for changes, interactions, dynamics)
- Attentive for individual perspectives
(e.g. different values may be prioritized, and prioritisations change over time / in interaction)

In short



Picture 'Voor elkaar in Parkstad' project: 'the "hool grub" representing ideal of lifecycle robust neighbourhoods'

What matters for 'sustainable' innovation:

- Starting from what matters for people in their everyday life, avoid a technology-push
- And importance of ongoing dialogue



**Utrecht
University**

Sharing science,
shaping tomorrow

BREAKOUT SESSION – HEALTH @ HOME

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Joep Frens
TU/e

Designing with the IoT Sandbox

exploring tangible scenarios in scale models of the smart home

Joep Frens

7.12.2023

IoT Sandbox

looking back

IoT Sandbox — research demonstrator



IoT Sandbox

designed, built and conceptualised

Joep Frens
Bastiaan van Hout
Joep Le Blanc
Taco Sieben

special thanks

DU Research Demonstrator proposal

Joep Frens
Mathias Funk
Jeffrey Braun

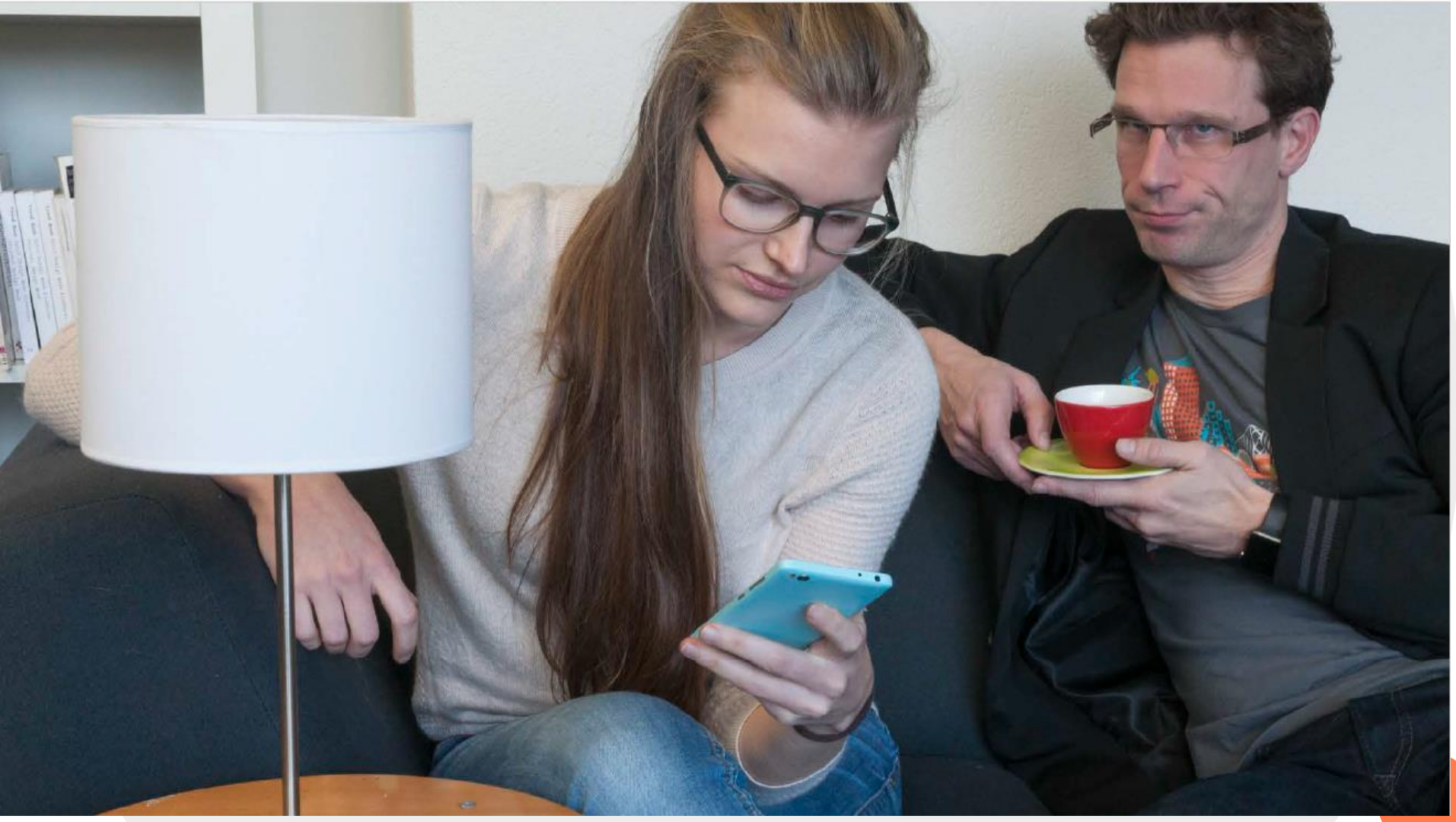
Eindhoven University of Technology

Funded by Design United

human-product interaction within IoT systems in the home







new interaction solutions

collaboration

connected products

the Internet of Things

IoT Sandbox

systems of products

meaningful interaction

focused on people



IoT Sandbox
catalyser of insights

&
combining
cooperation

one 'reality'
interventions

competition
first come, first serve

- 
1. 'design' the characters that live in the house
 2. furnish the house
 3. engage in **designing** (design interventions in the house + 1:1 interactables)
 4. bring designs into the lived reality

Mundane Characters

Mundane Characters



future everyday

diverse & realistic
relevant contexts

future everyday

characters



diverse & realistic

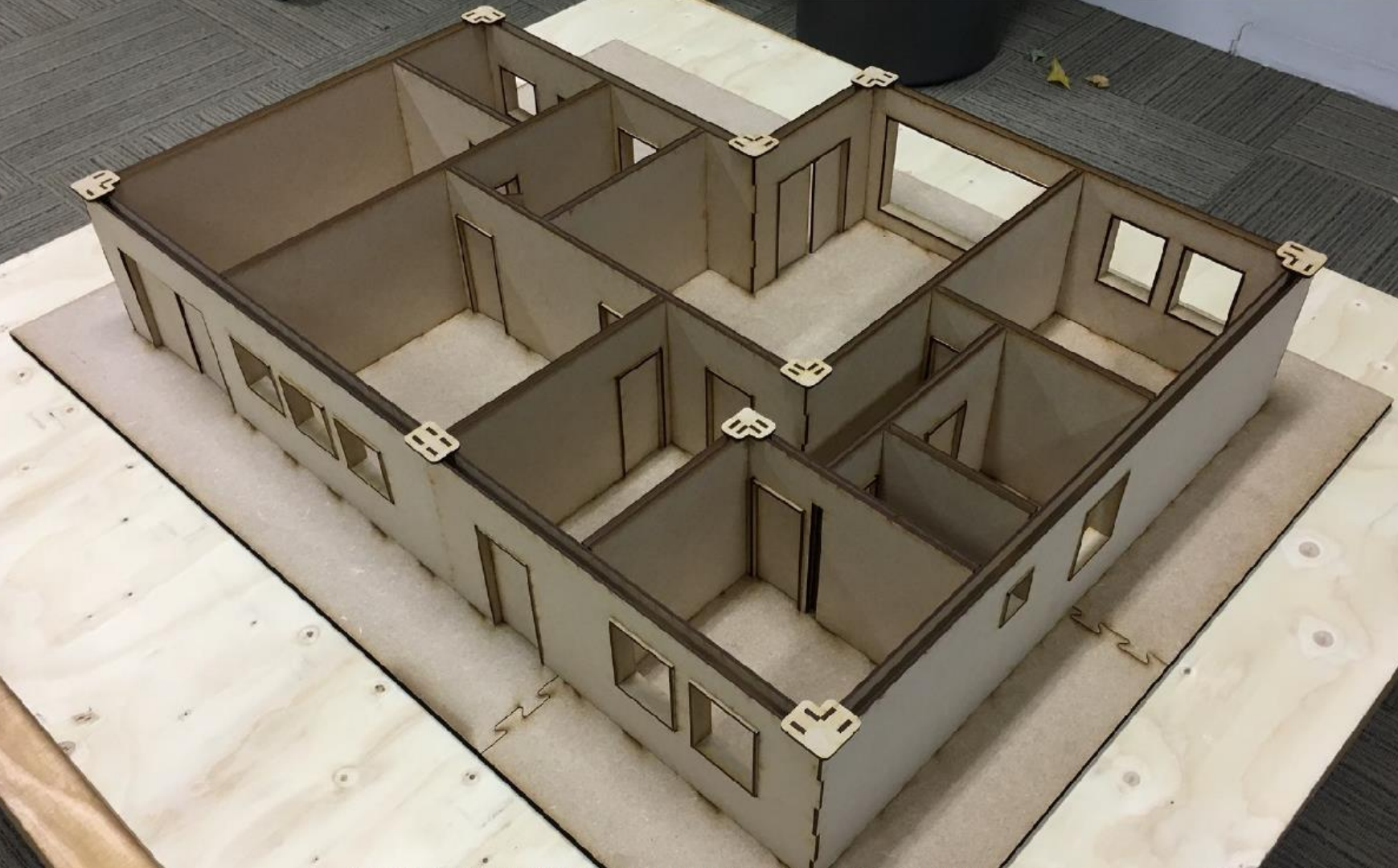
relevant contexts

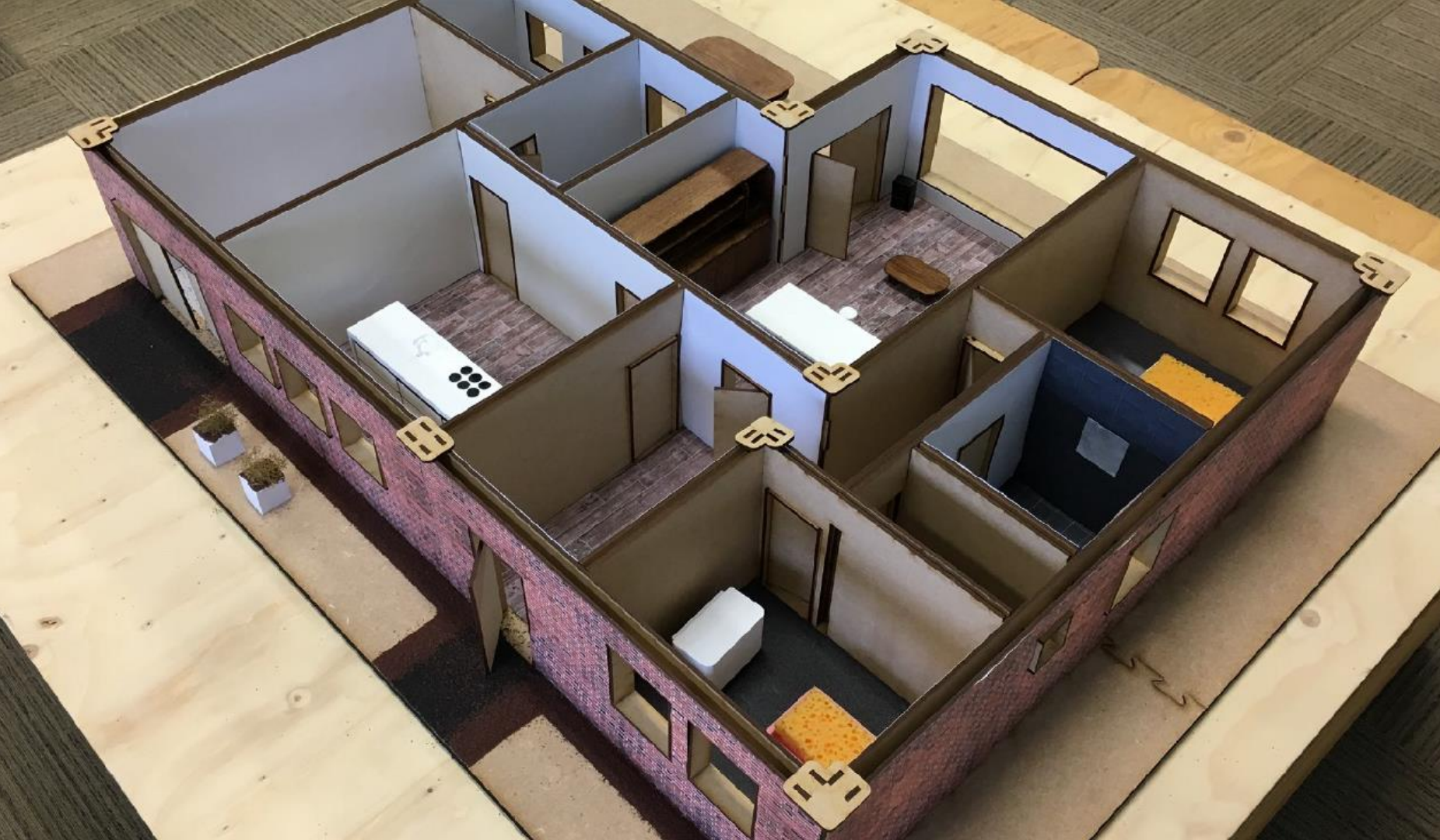


informal care home

airbnb rental

repaircafé











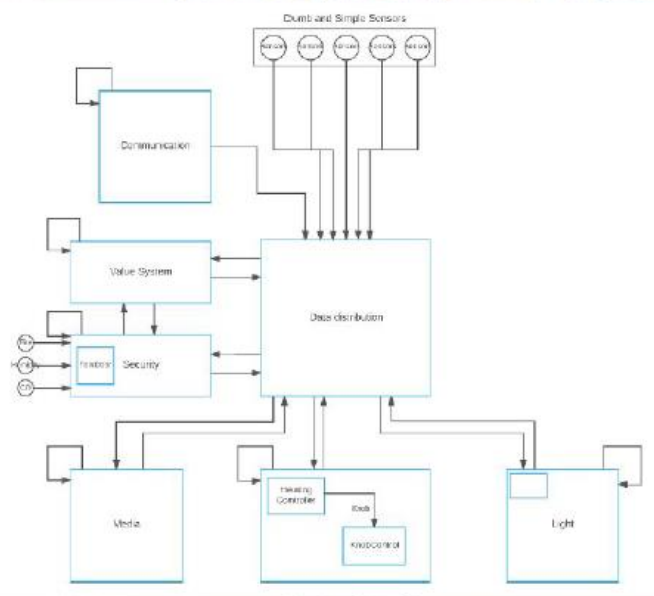
Petra Parturi - au-pair







Koen van Emden, Christian Sivertsen, Alex de Ruiter, Vincent Visser, (Marijn Romeijn), 2017





Koen van Emden, Christian Sivertsen, Alex de Ruiter, Vincent Visser, (Marijn Romeijn), 2017



Koen van Emden, Christian Sivertsen, Alex de Ruiter, Vincent Visser, (Marijn Romeijn), 2017



Alex de Ruiter — smart thermostat controls



Vincent Visser — security notifier



Christian Sivertsen — audio player



Koen van Emden — Light control



Marijn Romeijn — in-home messaging deck

IoT Sandbox

looking forward



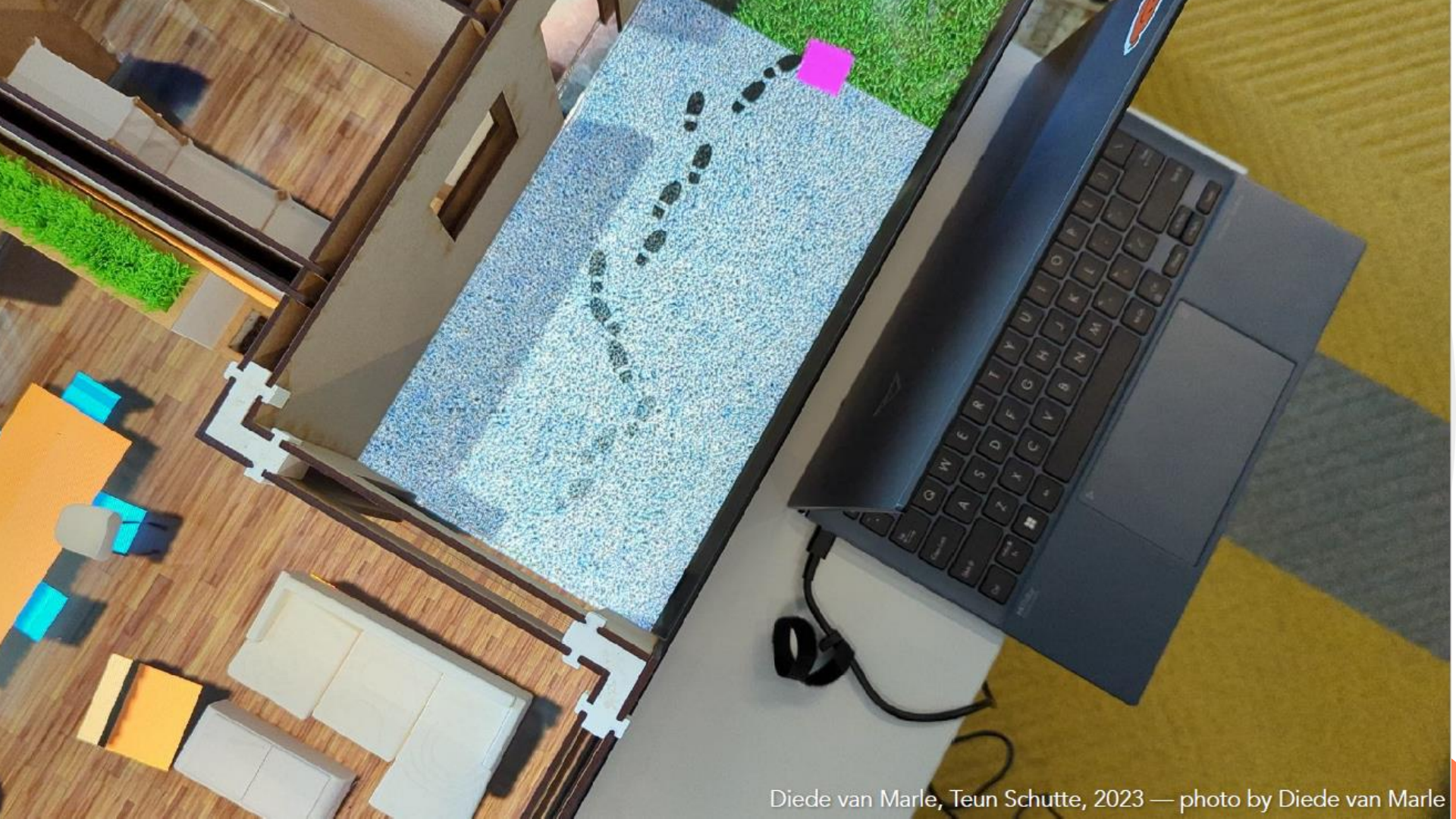
platform for multi stakeholder collaboration



Arwen Hunter, Willem Neelissen,
Daan Baas, Willem Wilke, 2021



physical IoT Sandbox & digital twin



Diede van Marle, Teun Schutte, 2023 — photo by Diede van Marle

Designing with the IoT Sandbox

exploring tangible scenarios in scale models of the smart home

Joep Frens

7.12.2023

DISCUSSION

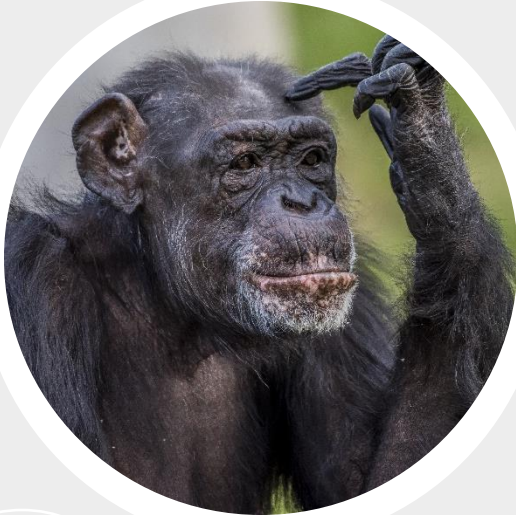
1: Every Dutch person 60 and above should be required to work on their lifestyle / Under the current financing and reimbursement structure, it is practically impossible to sustainably implement (interdisciplinary) lifestyle inventions

2: An often tech-optimist view in ageing and health projects, distracts from what really matters to older people.

3: The smart home has the potential to allow people to live independently longer

4: Stimulating independence and independent living among older adults requires maximal effort from society

KEYNOTE SESSION



14:55 – 15:45 Keynote Session

**Monkey See, Monkey Do:
coexistence versus
cooperation in an
organizational perspective**

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