



FRA GUIDELINE TIL GULV

-SCREENING, UNDERSØGELSE OG TRÆNING

Martin Grønbech Jørgensen

Geriatrisk afdeling
Aalborg universitetshospital
Klinisk institut
Aalborg university

Steffen Wølke

Team for forebyggelse af fald
Senior & omsorg, Aalborg kommune

&

Camilla Bladsgaard og Michael Zimmerlund

Forebyggelse og rehabiliteringscenter
Ulsted,
Senior og Omsorg, Aalborg kommune.

DAGSORDEN

1. Oplæg om opsporing, undersøgelse og træning af personer i risiko for at falde (40 min)

2. Workshop (30 min)

- Vores anbefalinger til undersøgelser
 - Functional Reach Test
 - Trail Making Test / Step-Trail Making Test
 - 5 x Sit-To-Stand
 - Soleus styrke
 - Reaktionshastighed UE
- Vores anbefalinger til Træning
 - Yamada træning
 - Reaktionstræning
 - Fælles Dalcroze træning (10 min)

3. Samlet diskussion/kommentarer af undersøgelses og trænings forslag (10 min)

TAKE HOME

Tidlig opsporing: Anvend opsporings algoritme fra World Fall guideline. Evt. med opdateret Timed Up and Go (TUG) grænseværdi på 10 sekunder for mere ligelig fordeling i rød, gul og grøn risiko

Undersøgelse:

- Dynamisk balance - **Functional Reach Test**
- Kognitiv-motorisk funktion - **TMT / S-TMT**
- Styrke i Quadriceps - **5 x Sit-To-Stand**
- Styrke i Soleus - **C-station (overall + assymetri)**
- Reaktionshastighed UE - **C-station (overall + assymetri)**

Træning: Træn opgavespecifikt - dvs. gangtilpasning, reaktiv balance, Kognitiv-motorisk (eksekutive function)

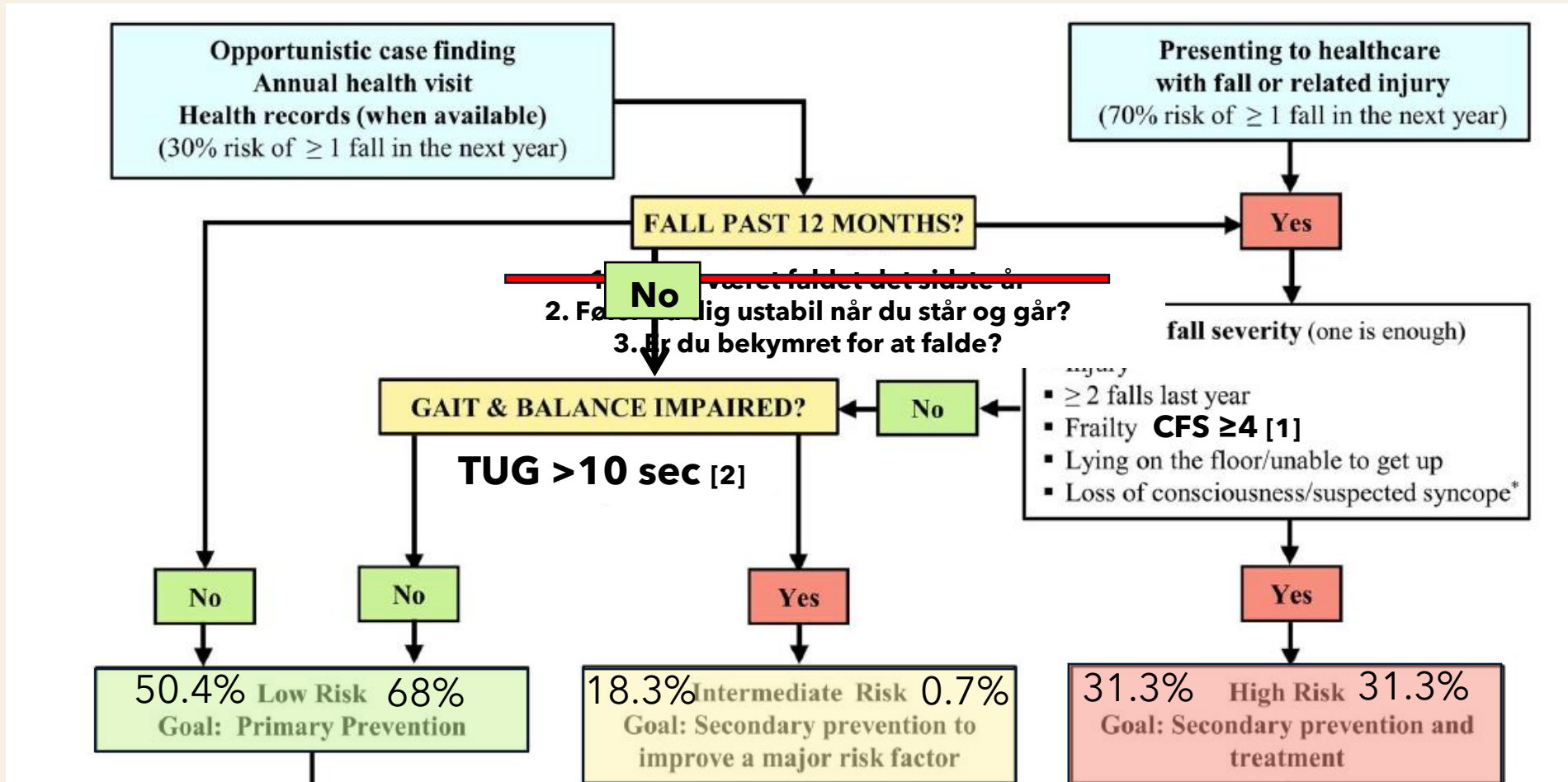
FALD RETNINGSLINJE

GUIDELINE

World guidelines for falls prevention and management for older adults: a global initiative

MANUEL MONTERO-ODASSO^{1,2,3,†}, NATHALIE VAN DER VELDE^{4,5,†}, FINBARR C. MARTIN⁶, MIRKO PETROVIC⁷, MAW PIN TAN^{8,9}, JESPER RYG^{10,11}, SARA AGUILAR-NAVARRO¹², NEIL B. ALEXANDER¹³, CLEMENS BECKER¹⁴, HUBERT BLAIN¹⁵, ROBBIE BOURKE¹⁶, IAN D. CAMERON¹⁷, RICHARD CAMICIOLI¹⁸, LINDY CLEMSON¹⁹, JACQUELINE CLOSE^{20,21}, KIM DELBAERE²², LEILEI DUAN²³, GUSTAVO DUQUE²⁴, SUZANNE M. DYER²⁵, ELLEN FREIBERGER²⁶, DAVID A. GANZ²⁷, FERNANDO GÓMEZ²⁸, JEFFREY M. HAUSDORFF^{29,30,31}, DAVID B. HOGAN³², SUSAN M.W. HUNTER³³, JOSE R. JAUREGUI³⁴, NELLIE KAMKAR¹, ROSE-ANNE KENNY¹⁶, SARAH E. LAMB³⁵, NANCY K. LATHAM³⁶, LEWIS A. LIPSITZ³⁷, TERESA LIU-AMBROSE³⁸, PIP LOGAN³⁹, STEPHEN R. LORD^{40,41}, LOUISE MALLET⁴², DAVID MARSH⁴³, KOEN MILISEN^{44,45}

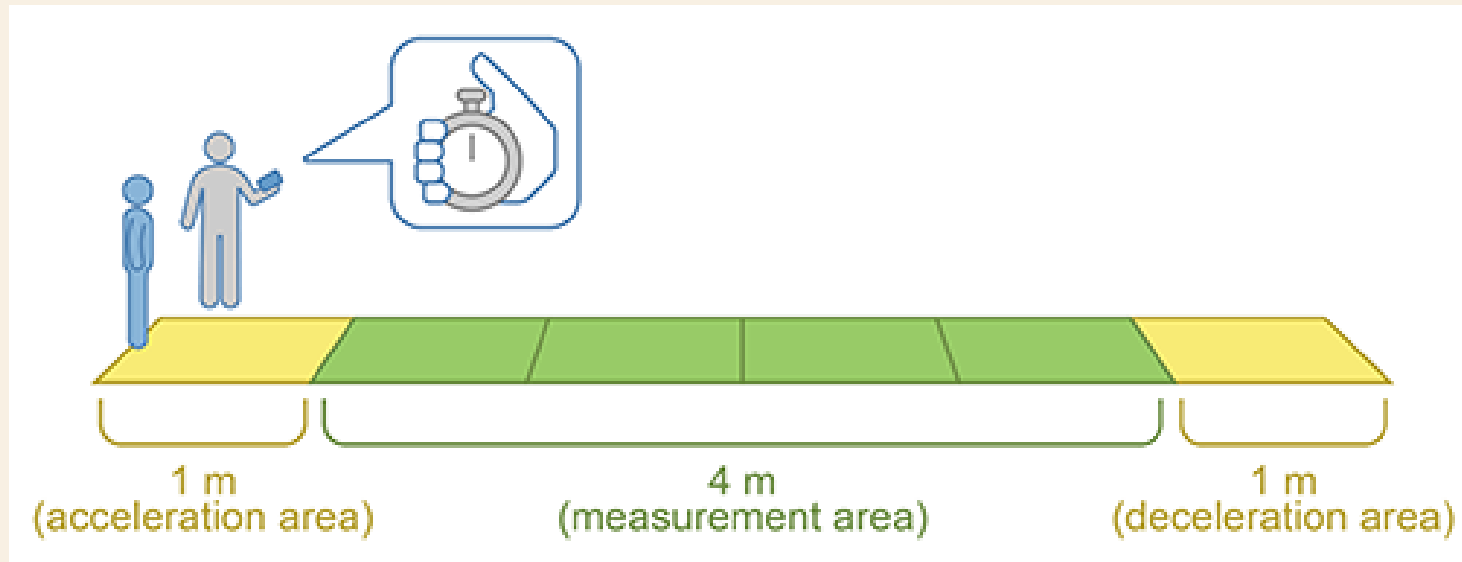
OPSPORING



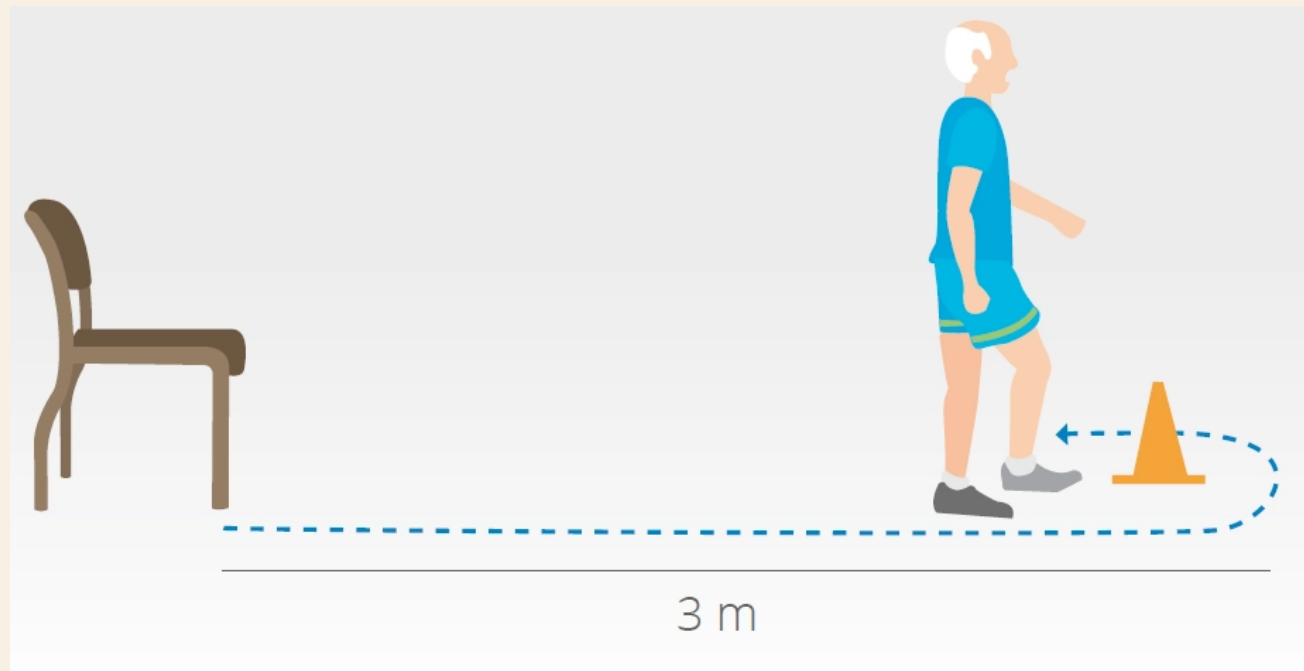
[1] www.dal.ca/sites/gmr/our-tools/clinical-frailty-scale.html

[2] Two simple modifications to the World Falls Guidelines algorithm improves its ability to stratify older people into low, intermediate and high fall risk groups. Age & Aging 2024

HVORDAN TESTER JEG GANG HASTIGHED?












HVORDAN TESTER JEG TUG?



HVORDAN TESTER JEG CFS?

CLINICAL FRAILITY SCALE

	1	VERY FIT	People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
	2	FIT	People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally , e.g., seasonally.
	3	MANAGING WELL	People whose medical problems are well controlled , even if occasionally symptomatic, but often not regularly active beyond routine walking.
	4	LIVING WITH VERY MILD FRAILITY	Previously "vulnerable," this category marks early transition from complete independence. While not dependent on others for daily help, often symptoms limit activities . A common complaint is being "slowed up" and/or being tired during the day.
	5	LIVING WITH MILD FRAILITY	People who often have more evident slowing , and need help with high order instrumental activities of daily living (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light housework.

	6	LIVING WITH MODERATE FRAILITY	People who need help with all outside activities and with keeping house . Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.
	7	LIVING WITH SEVERE FRAILITY	Completely dependent for personal care , from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).
	8	LIVING WITH VERY SEVERE FRAILITY	Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.
	9	TERMINALLY ILL	Approaching the end of life. This category applies to people with a life expectancy <6 months , who are not otherwise living with severe frailty . Many terminally ill people can still exercise until very close to death.

SCORING FRAILITY IN PEOPLE WITH DEMENTIA

The degree of frailty generally corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

In **very severe dementia** they are often bedfast. Many are virtually mute.

Clinical Frailty Scale
©2005–2020 Rockwood,
Version 2.0 (EN). All rights reserved. For permission:
www.geriatricmedicine.ca
Rockwood K et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489–495.



UNDERSØGELSE

ARBEJDSGRUPPEN HEDDER:

GAIT AND BALANCE ASSESSMENT TOOLS TO ASSESS RISK FOR FALLS



We recommend that Gait and Balance should be assessed as part of the risk assessment of falls.



UNDERSØGELSE

RECOMMENDATION 2 (Assessment)

We recommend that Gait and Balance should be assessed as part of the risk assessment of falls. **GRADE 1B.**

RECOMMENDATION DETAILS

1. There are several tests for assessing gait and balance impairment. For risk stratification we recommend use of GS, with a cut-off value of <0.8 m/s on the basis of its predictive ability and simplicity. Resources with simple instructions on how to measure gait speed can be found at www.worldfallsguidelines.com/resources.

The screenshot shows a web browser at the URL worldfallsguidelines.com/resources. The browser's address bar and tabs are visible at the top. Below the browser, the website's navigation menu includes: HOME, WHO WE ARE, PUBLICATIONS, ALGORITHM, and MORE. The main content area features a vertical list of resource cards on the left and three large partner logos on the right. The resource cards on the left are: 'IMPLEMENTATION OF RISK ASSESSMENTS OF FALLS IN OLDER PERSONS' with a 'LEARN MORE' button; 'CDC-STEADI' with a 'LEARN MORE' button; 'STOPPFall Deprescribing Tool' with a 'LEARN MORE' button; and 'NICE Assessment Tool Kit' with a 'LEARN MORE' button. The partner logos on the right are: CDC (Centers for Disease Control and Prevention) with the tagline 'CDC 24/7: Saving Lives, Protecting People™' and a blue banner for 'STEADI—Older Adult Fall Prevention'; EuGMS (European Geriatric Medicine Society) with the tagline 'Fostering geriatric medicine across Europe'; and NICE (National Institute for Health and Care Excellence).

VORES ANBEFALINGER TIL UNDERSØGELSE

Formålet med vores testbatteri er at identificere områder der kan trænes og dermed hjælpe til at skabe en individuel træningsplan til at nedbringe risikoen for fald [1,2,3]

Table 2. Risk factors for falls

Domain	Risk factor	Association
Psychosocial and demographic factors	Advanced age	***
	Female gender	**
	Race	***
	Living alone	**
	History of falls	***
	Inactivity	**
	Walking aid use	**
	Sleep disturbances	***
	ADL limitations	***
	Alcohol consumption	-
Medical factors	Stroke	***
	Parkinson's disease	***
	Dementia	***
	White matter lesions	**
	Depression	***
	Incontinence	**
	Acute illness	**
	Vestibular disorders	*
	Arthritis	**
	Foot problems	**
	Dizziness	**
	Orthostatic hypotension	*

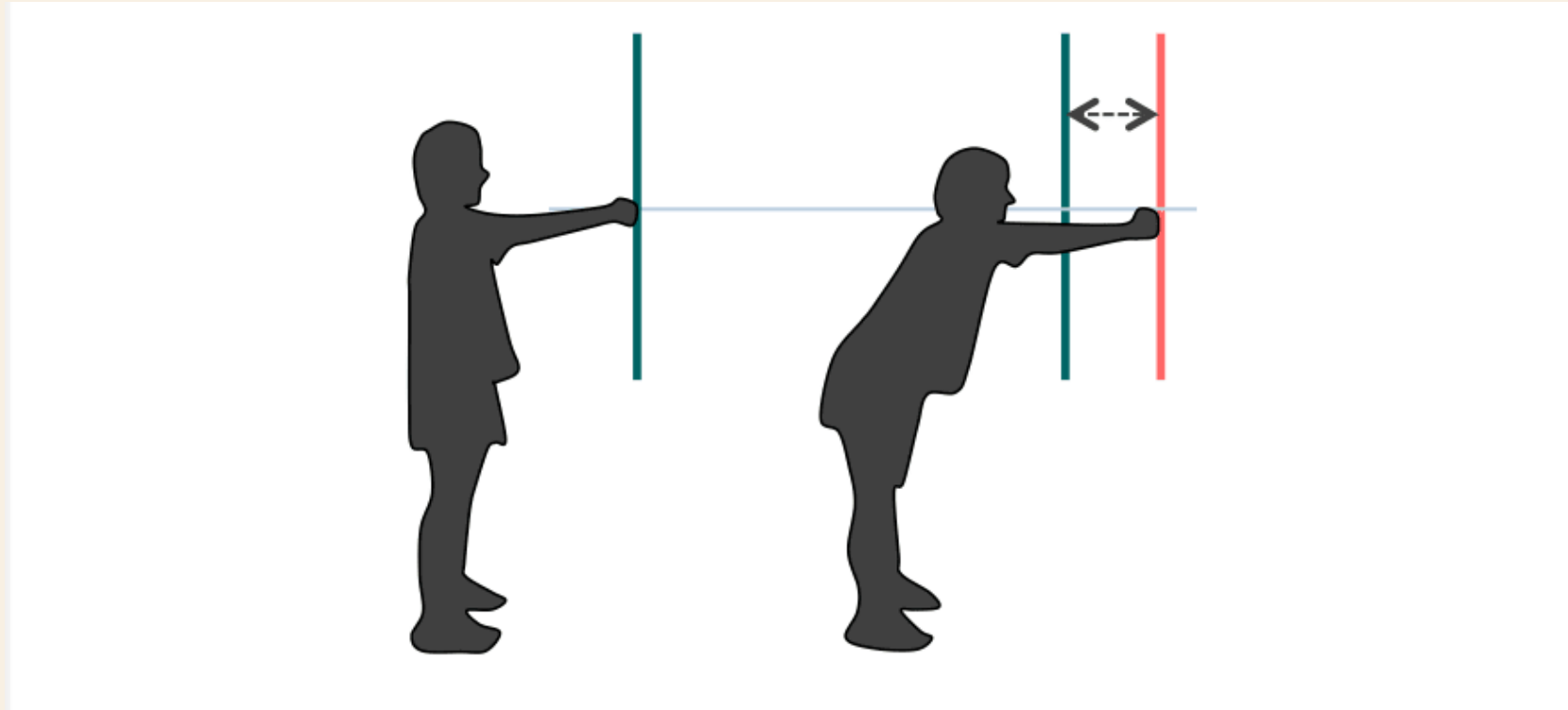
Medication factors	Psychoactive medications	***
	Antihypertensives	*
	Antiarrhythmics	*
	Opioids	**
	Anti-inflammatories	-
	Use of 4+ medications	***
Balance and mobility factors	Impaired stability when standing	**
	Impaired stability when leaning and reaching	***
	Inadequate responses to external perturbations	***
	Slow voluntary stepping	***
	Impaired gait and mobility	***
	Impaired ability in standing up	***
	Impaired ability with transfers	***
Sensory and neuromuscular factors	Poor visual acuity	**
	Reduced visual contrast sensitivity	***
	Visual field loss	**
	Poor hearing	*
	Reduced peripheral sensation	***
	Reduced vestibular function	*
	Muscle weakness	***
Psychological factors	Impaired executive functioning	***
	Reduced processing speed	***
	Impaired selective attention	**
	Anxiety	**
	Fear of falling	***
Environmental factors	Poor footwear	*
	Inappropriate spectacles	*
	Home hazards	*

[1]Jepsen B, Robinson K, Oglari G *et al.* Predicting falls in older adults: an umbrella review of instruments assessing gait, balance, and functional mobility. *BMC Geriatr* 2022; 22. [10.1186/s12877-022-03271-5](https://doi.org/10.1186/s12877-022-03271-5).

[2]David A. Ganz, M.D., Ph.D., and Nancy K. Latham, P.T., Ph.D. *Prevention of Falls in Community-Dwelling Older Adults* *engl j med* 382;8, February 20, 2020

[3]Fall in Older People - risk factors, strategies for prevention and implications for practice, third edition, Cambridge medicine, 2021

FUNCTIONAL REACH TEST (FRT)



HVORFOR ANBEFALER VI FRT?

Klinisk relevans:

FRT er en veldokumenteret test af balance og postural stabilitet.[1]

Lav score korrelerer med:

Øget risiko for **fald**, Dårlig **funktionsevne**, Begrænset funktionel **mobilitet**

Evidens og reliabilitet:

Parameter	Værdi
 Test-retest reliabilitet (ICC)	0.89 - 0.98
 Inter-rater reliabilitet (ICC)	> 0.90
 CV (%)	8-12% ~2-4 cm

[1] Psychometric properties of the Functional Reach Test in older adults: A systematic review” 2023, Archives of Gerontology and Geriatrics

KOGNITIV-MOTORISK FUNKTION

TRAIL MAKING TEST DEL A

TRAIL MAKING TEST DEL B

Element	TMT-A	TMT-B
 Kognitiv belastning	Lav	Høj - kræver eksekutive funktioner
 Måler primært	Visuo-motorisk hastighed, opmærksomhed	Eksekutiv funktion, mental fleksibilitet, opmærksomhedsskift
 Sværhedsgrad	Relativt simpel	Kompleks og mere kognitivt krævende
 Gennemsnitlig tid (ældre)	30-40 sek	70-90 sek (kan være meget længere ved kognitiv svækkelse)

HVORFOR ANBEFALER VI TMT?

Klinisk relevans: Trail Making Test A og B tester **opmærksomhed, tempo og eksekutiv funktion** - og netop disse er afgørende for at forebygge fald i dagligdagen. Langsom TMT-score indikerer øget risiko for fejlreaktioner og dermed fald.

Evidens og reliabilitet:

Para	Archives of Gerontology and Geriatrics 128 (2025) 105638	
T	Contents lists available at ScienceDirect	
C	 Archives of Gerontology and Geriatrics	
C	journal homepage: www.elsevier.com/locate/archger	
G	Review	
Para	Cognitive functioning and falls in older people: A systematic review and meta-analysis	
T	Daina L STURNIEKS ^{a,b,*} , Lloyd LY CHAN ^{a,c} , Maria Teresa ESPINOZA CERDA ^{a,d} , Carmen HERRERA ARBONA ^{a,d} , Beatriz HERRERO PINILLA ^{a,d} , Paula SANTIAGO MARTINEZ ^{a,d} , Nigel Wei SENG ^a , Natassia SMITH ^a , Jasmine C MENANT ^{a,c} , Stephen R LORD ^{a,c}	
C	^a Falls, Balance and Injury Research Centre, Neuroscience Research Australia, Randwick, NSW, Australia ^b School of Biomedical Sciences – Faculty of Medicine and Health, The University of New South Wales, Sydney, NSW, Australia ^c School of Population Health – Faculty of Medicine and Health, The University of New South Wales, Sydney, NSW, Australia ^d Hospital Universitario de Getafe, Getafe, Madrid, Spain	
G		




et al., 2004)



(od)

et al., 2004)

KOGNITIV-MOTORISK FUNKTION

STEP-TMT DEL A

Parameter for Step-TMT del A	Værdi
 Test-retest reliabilitet (ICC)	0,71
 CV (%)	8,5
 Gennemsnitstid (65-69 år)	21,5

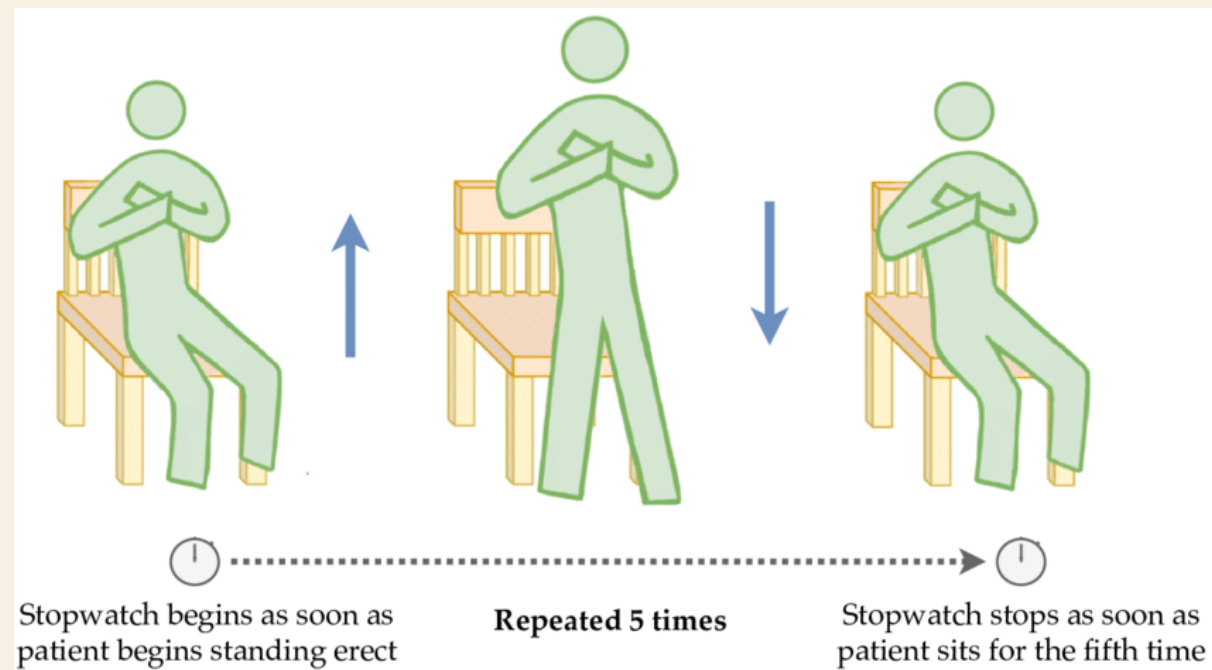
Parameter for step-TMT del B	Værdi
 Test-retest reliabilitet (ICC)	0,71
 CV (%)	8,5
 Gennemsnitstid (65-69 år)	21,5

STEP-TMT DEL B



STYRKE I QUADRICEPS




5 x sit-to-stand test



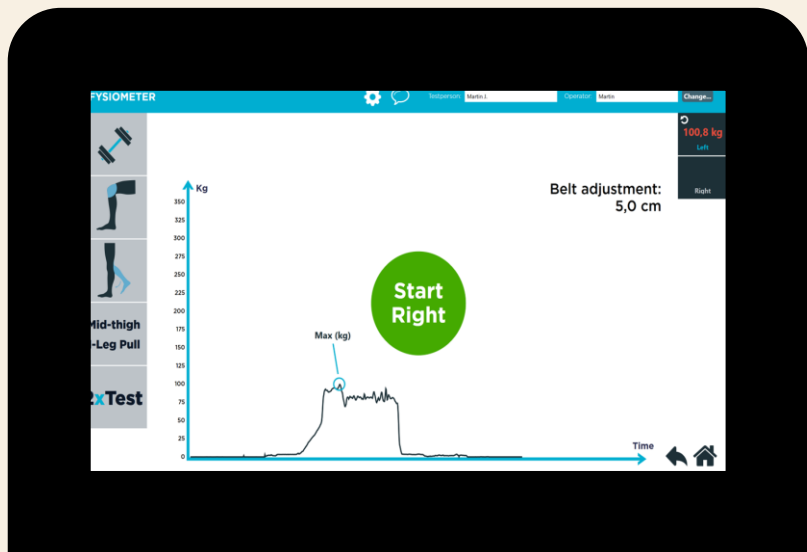
HVORFOR ANBEFALER VI 5XSTS?

Quadriceps er især nødvendig for kraftfuld knæekstension i daglige gøremål (som at **rejse sig, eller gå på trapper**), og svaghed her er bredt dokumenteret som en faldfaktor

Evidens og reliabilitet:

Element	Indhold
 Reliabilitet (ICC)	0.97-0.99
 CV (%) / SD	12-15% / ~2 sek
<input type="checkbox"/> Grænseværdi	>15 sek = øget faldrisiko
 Klinisk anvendelig	Let, hurtig, kræver kun stol og stopur





STYRKE I SOLEUS



HVORFOR ANBEFALER VI SOLEUS TESTEN?

1. Fordi **Soleus musklen** spiller en vigtig rolle i **stabilitet og fremdrift under gang**, især i sen stance-fasen.[1]
2. Fordi **Soleus styrke** er en stærk **prediktor for nedsat mobilitet og fald (kausal sammenhæng)** [1,2,3]
3. Fordi **ubalance imellem højre/venstre Soleus** kan identificeres

Evidens og reliabilitet:

Element	Indhold
 Reliabilitet (ICC)	0.91 [95%CI 0.86-0.94] [4]
 SEM (%) / SD	3,5% ~ 5 kg
 Grænseværdi (raske vs. faldtruede)	Ca. 120 kg (unilateralt)
 Klinisk anvendelig	Let, hurtig kræver dog PC og alu-ramme

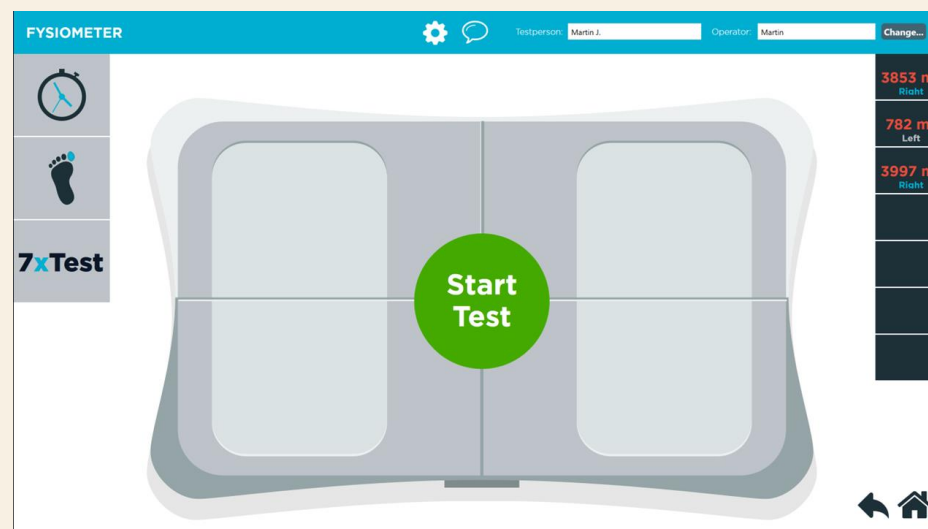
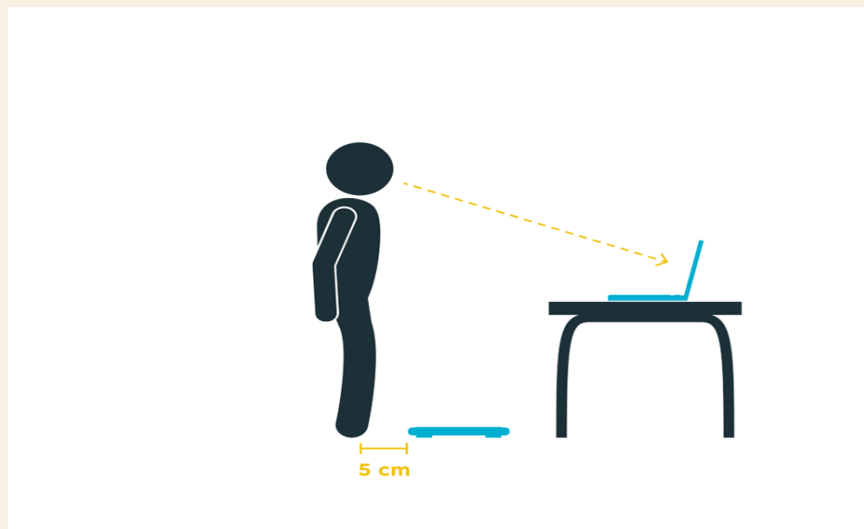
[1] Lamont A, Ainsworth E, McPhee JS. The relationships between muscle strength, gait speed and falls in older adults: a narrative systematic review. Arch Gerontol Geriatr. 2020;89:104081.

[2] Spink MJ, Fotoohabadi MR, Menz HB. Effectiveness of foot and ankle exercise programs on reducing risk factors for falls in older people: a systematic review and meta-analysis. Gerontology. 2021;67(4):411-422.

[3] Lee H, Petrofsky J, Daher N, Berk L, Berk E. Threshold levels of ankle dorsiflexion and plantarflexion strength necessary to maintain gait performance in older adults. J Geriatr Phys Ther. 2018;41(2):81-89.

[4] Seth O'Neill, Alice Weeks, Jens Eg Nørgaard, Martin Gronbech Jorgensen. Validity and intrarater reliability of a novel device for assessing Plantar flexor strength PLoS One. 2023 Mar 31;18(3):e0282395.




REAKTIONSHASTIGHED



HVORFOR ANBEFALER VI REAKTIONSTESTEN?

1. **Visuel bearbejdningshastighed** er i prospektive studier identificeret som en selvstændig faktor, der kan forudsige **skadevoldende fald** [1]
2. En veldokumenteret risikofaktor for fald er **øget reaktionstid** (RT) i både overekstremiteter og underekstremiteter [2,3]
3. Fordi **ubalance imellem højre/venstre** kan identificeres

Evidens og reliabilitet:

Element	Indhold
 Reliabilitet (ICC)	0,84 [95%CI] [4]
 CV (%)	9,8% ~ 91,8 ms
 Klinisk anvendelig	Let, hurtig, kræver kræver dog PC

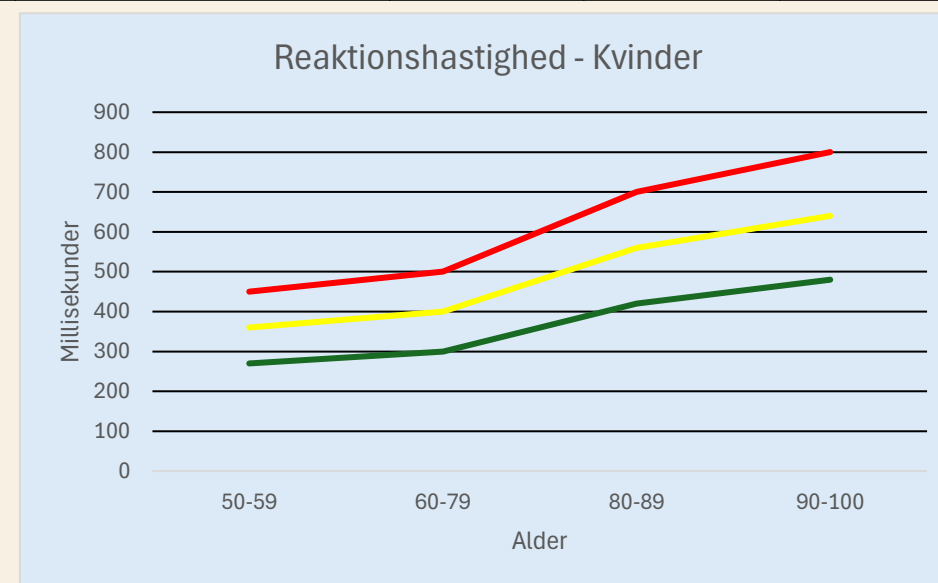
[1] Davis JC, Best JR, Khan KM, Dian L, Delbaere K, Hsu CL, et al. Slow Processing Speed Predicts Falls in Older Adults With a Falls History: 1-Year Prospective Cohort Study. *J Am Geriatr Soc* [Internet]. 2017 May; 65(5):916±923.

[2] Maver SL, Dodd K, Menz H. Lower limb reaction time discriminates between multiple and single fallers. *Physiother Theory Pract* [Internet]. 2011 Jul

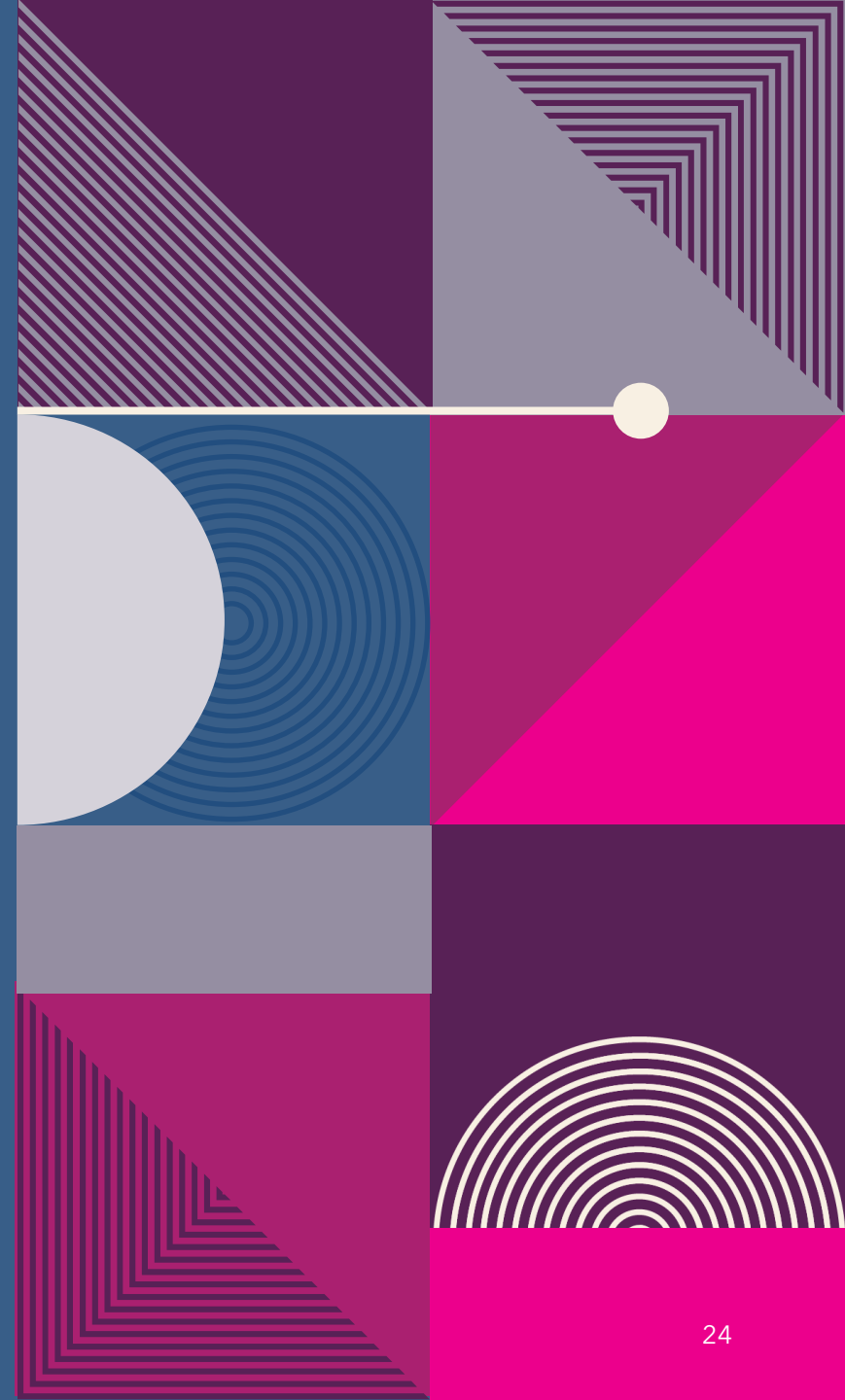
[3] Lord SR, Clark RD. Simple physiological and clinical tests for the accurate prediction of falling in older people. *Gerontology*. 1996 Jan

OVERBLIK HVORDAN?

KØN:	Alder:				
Område	Måle metode	Resultat af test	Anvend NOMOGRAM for specifik test til at bestemme farven for patienten		
Gang hastighed	4-meter gang (m/s)				
Reaktionshastighed (samlet)	FysioMeter C-station Samlet tid (ms)				
Reaktionshastighed (asymmetri)	FysioMeter C-station Asymmetri (%)				
Beslutningsevne del A	TMT del A / S-TMT del A (s)				
Beslutningsevne del B	TMT del B / S-TMT del B (s)				
Muskelstyrke (quadriceps)	5 Sit-to-Stand (s)				
Muskelstyrke (soleus) (samlet)	FysioMeter C-station Samlet styrke (kg)				
Muskelstyrke (soleus) (asymmetri)	FysioMeter C-station Asymmetri (%)				
Balancetest	Functional Reach Test (cm)				



TRÆNING



EXERCISE INTERVENTIONS FOR PREVENTION OF FALLS AND RELATED INJURIES

“We recommend exercise programmes for fall prevention for community-dwelling older adults which include balance challenging and functional exercises (e.g. sit-to-stand, stepping), sessions three times or more weekly which are individualised, progressed in intensity for at least 12 weeks and continued longer for greater effect.”

Table 2 Summary of results and subgroup analyses

Analysis/ GRADE evidence certainty rating	No. of participants / No. of Studies	Rate Ratio (95% CI)
Overall effect of exercise on rate of falls versus control		
Exercise versus control/ high certainty	14,306 / 64	0.77 (0.71 to 0.83)
Subgroup analyses		
a) Based on type of exercise^a		
Balance, and functional exercises versus control/ high certainty	7989 / 39	0.76 (0.70 to 0.82)
Resistance exercises versus control/ very low certainty	327 / 5	1.14 (0.67 to 1.97)
Tai Chi exercise versus control/ moderate certainty	3196 / 9	0.77 (0.61 to 0.97)
Dance exercise versus control / very low certainty	522 / 1	1.34 (0.98 to 1.83)
General physical activity (including walking) training versus control/ very low certainty	441 / 2	1.14 (0.66 to 1.97)
Multiple categories of exercise (often including, as primary interventions: gait, balance, and functional (task) training plus resistance training versus control/ moderate certainty	2283 / 15	0.72 (0.56 to 0.93)

b) Based on fall risk at baseline

Increased risk of falling	7872 / 32	0.76 (0.69 to 0.84)
Not using increased risk of falling as entry criterion	6434 / 32	0.78 (0.68 to 0.89)

c) Based on age

Aged ≥ 75 years	3841 / 14	0.85 (0.73 to 1.0)
Aged < 75 years	10,465 / 50	0.74 (0.68 to 0.81)

d) Based on setting of the interventions delivered

Group	8909 / 43	0.74 (0.67 to 0.83)
Individual	5397 / 23	0.81 (0.72 to 0.91)

e) Based on who delivered the intervention

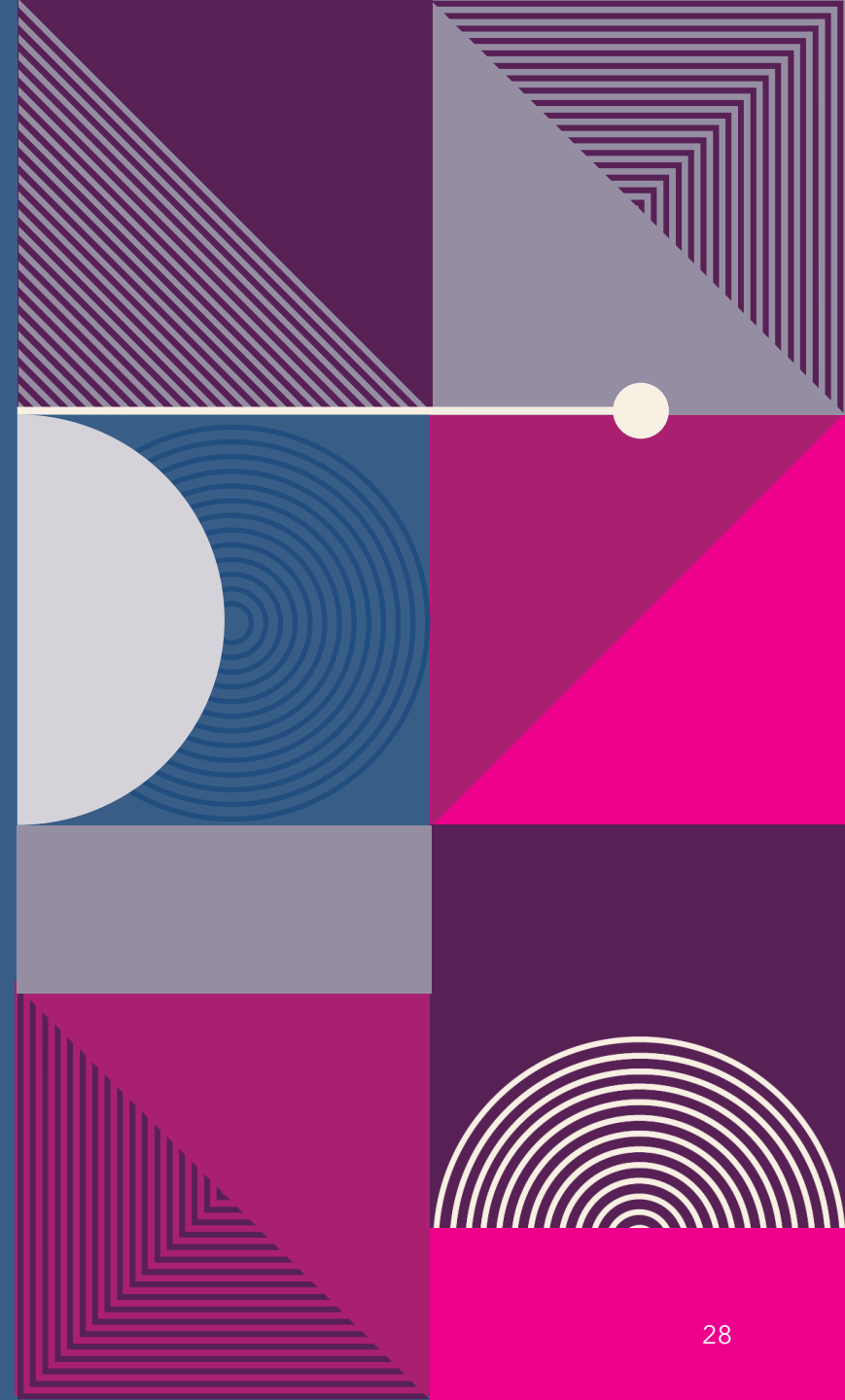
Health professionals (usually physiotherapists)	5099 / 28	0.73 (0.64 to 0.82)
Non-health professionals (trained instructors)	9207 / 36	0.79 (0.72 to 0.88)

CI confidence interval

^aFull details on classification of type of exercise and illustrative examples shown in [Additional File 2](#)

OPSUMMERET

24% effekt





Kognitiv motorisk

Gangtilpasning

Afværgereaktion

Opgave
specifik

OPGAVESPECIFIK TRÆNING



50%

1. Jens Eg Nørgaard, Martin Gronbech Jorgensen, Jesper Ryg, Jane Andreasen, Mathias Brix Danielsen, Daniel Kjærgaard Steiner, Stig Andersen Effects of gait adaptability training on falls and fall-related fractures in older adults: a systematic review and meta-analysis

2. Yoshiro Okubi, Daniels Scoene, Stephen Lord: Step training improves reaction time, gait and balance and reduces falls in older people: a systematic review and meta-analysis

GANGTILPASNINGSTRÆNING

Frivillig steptræning

Reaktiv steptræning



An instructor on the right mat demonstrates a stepping pattern.



Participants support their colleagues.

2		
	1	
2		
	1	
2		
	1	
2		
	1	
2		
	1	

No. 1

2		1
2		1
2		1
2		1
2		1
2		1
2		1
2		1
2		1
2		1

No. 7

4	2	1	3
4	2	1	3
4	2	1	3
4	2	1	3
4	2	1	3
4	2	1	3
4	2	1	3
4	2	1	3
4	2	1	3
4	2	1	3

No. 9

	3	
2	1	
6		
4	5	
	3	
2	1	
6		
4	5	
	3	
2	1	

No. 25

	6	4	5
2	1	3	
6	4	5	
2	1	3	
6	4	5	
2	1	3	
6	4	5	
2	1	3	
6	4	5	
2	1	3	

No. 39

	6	2	5
4	1	3	
6	2	5	
4	1	3	
6	2	5	
4	1	3	
6	2	5	
4	1	3	
6	2	5	
4	1	3	

No. 49

Right/left foot positions are odd/even numbers. Pattern numbers are of 200 patterns.

	2		
		1	
	2		
		1	
	2		
		1	
	2		
		1	
	2		
		1	

**Beginner
Level**

	4	2	3
	6	1	5
	4	2	3
	6	1	5
	4	2	3
	6	1	5
	4	2	3
	6	1	5
	4	2	3

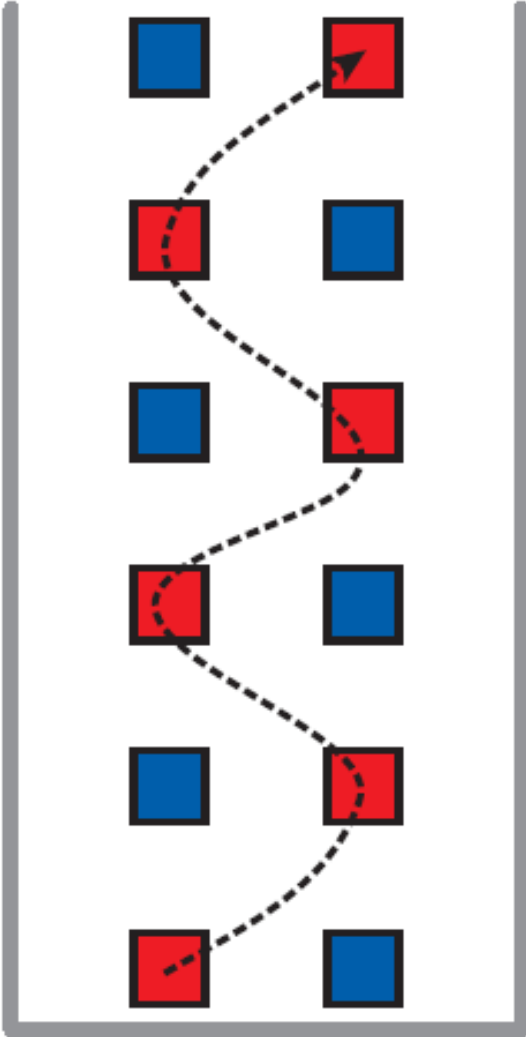
**Medium
Level**

8	4	1	5
6	2	3	7
8	4	1	5
6	2	3	7
8	4	1	5
6	2	3	7
8	4	1	5
6	2	3	7
8	4	1	5
6	2	3	7

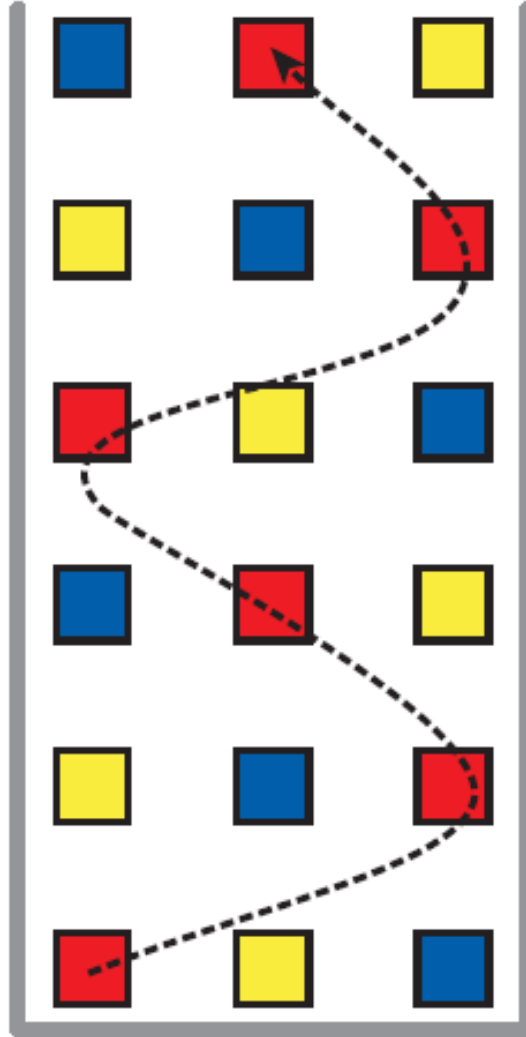
**Advanced
Level**

1 m

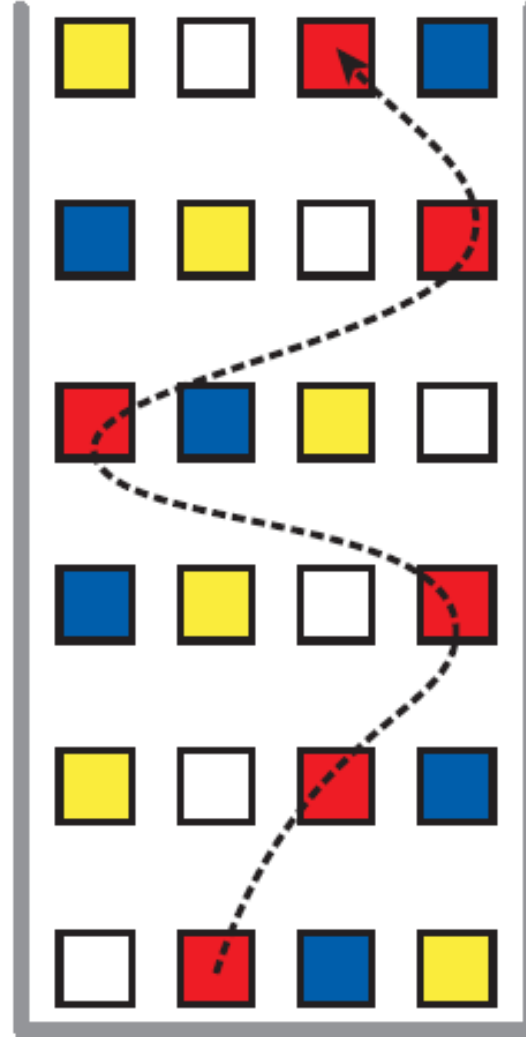
10 m



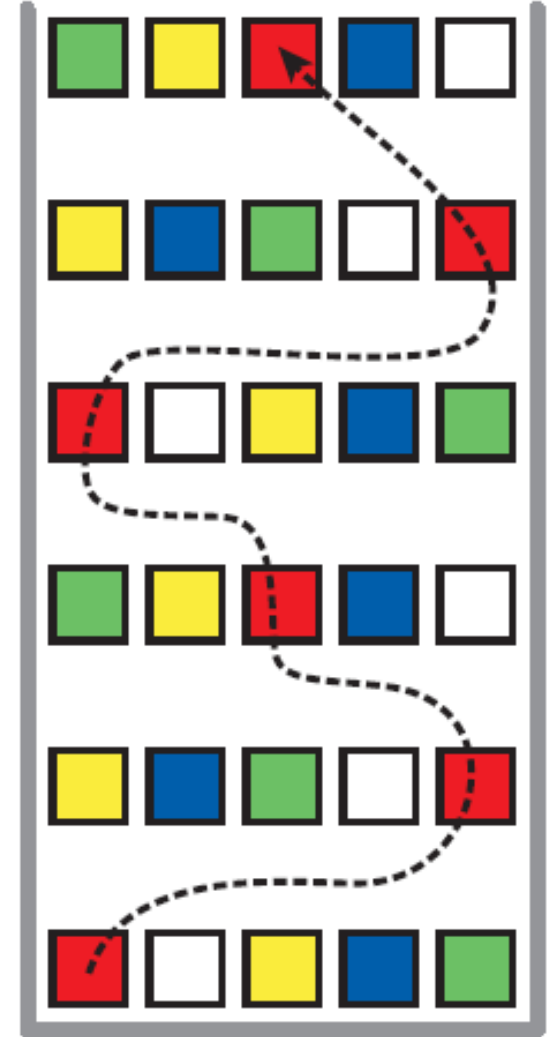
In weeks 1-6



In weeks 7-12



In weeks 13-18



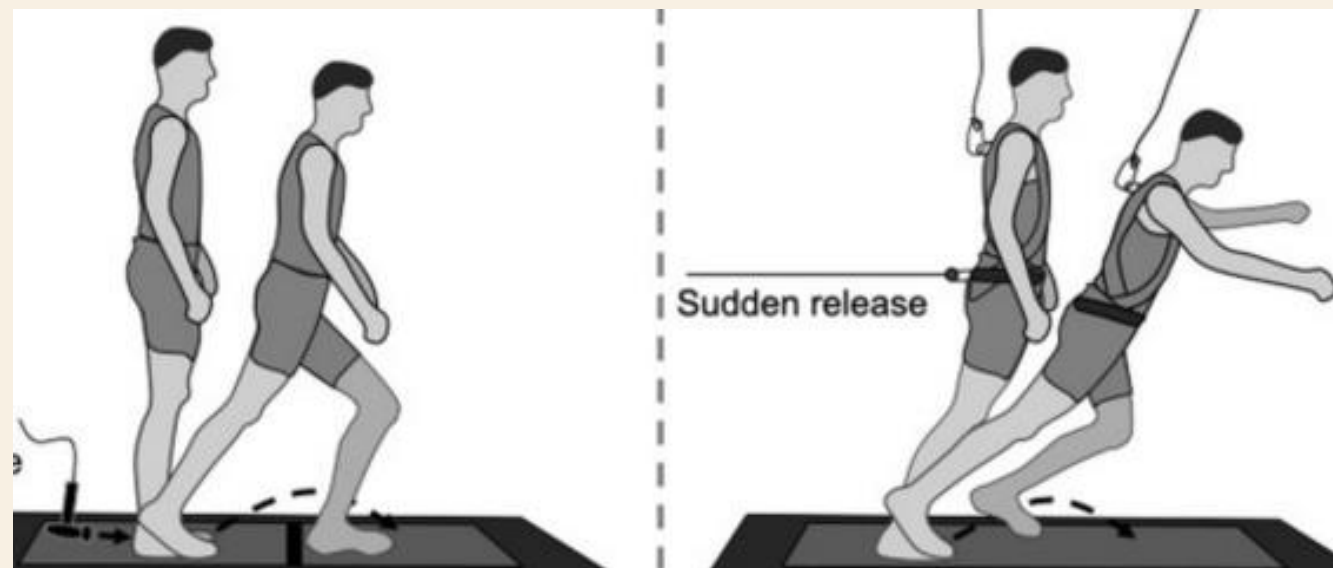
In weeks 19-24

HVAD ER VIGTIGT I FRIVILLIG STEPTRÆNING

Det skal kræve
nøjagtig fodplacering

Det skal gerne
indeholde inhibering

REAKTIV STEPTRÆNING (PERTUBATION)





Treadmill

- Belt actions
 - Accelerations
 - Decelerations / Reverse rotations
 - Lateral shifts
 - Sudden starts
- Cable pulls
 - Hip / Ankle / Toe
- Obstacles
 - Block / Foam



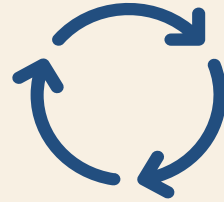
Overground

- Trips
 - Pop-up obstacles
 - Cable pulls
- Slips
 - Movable plates
 - Slippery surface
- Soft surface



Manual

- Hands
 - Push
 - Pull
 - Lean-and-release
- Device
 - Tether-release
 - Hip pulls



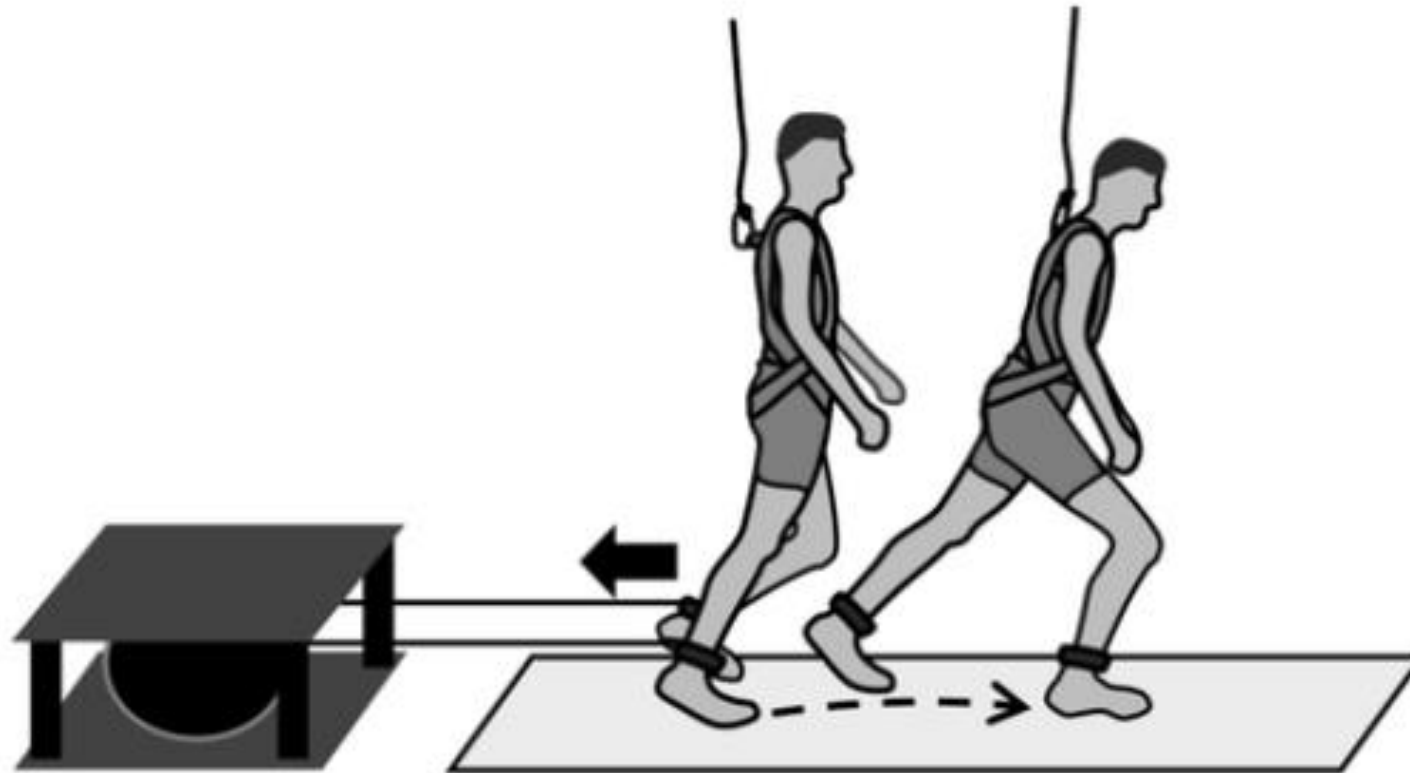
At eliminere

Forventningen om at reaktionen kommer.

Forventningen om i hvilken retning.

Forventningen om hvornår reaktion sker.

Hurtig tilpasning



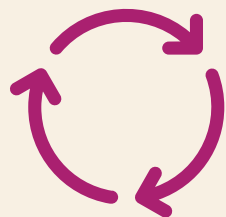
Overground trip perturbation

DOSIS - RESPON



Allin, Leigh & Brolinson, Per & Beach, Briana & Kim, Sunwook & Nussbaum, Maury & Roberto, Karen & Madigan, Michael. (2020). Perturbation-based balance training targeting both slip- And trip-induced falls among older adults: A randomized controlled trial.

HVAD ER VIGTIGT I REAKTIV STEPTRÆNING



At eliminere

Forventningen om at reaktionen kommer.

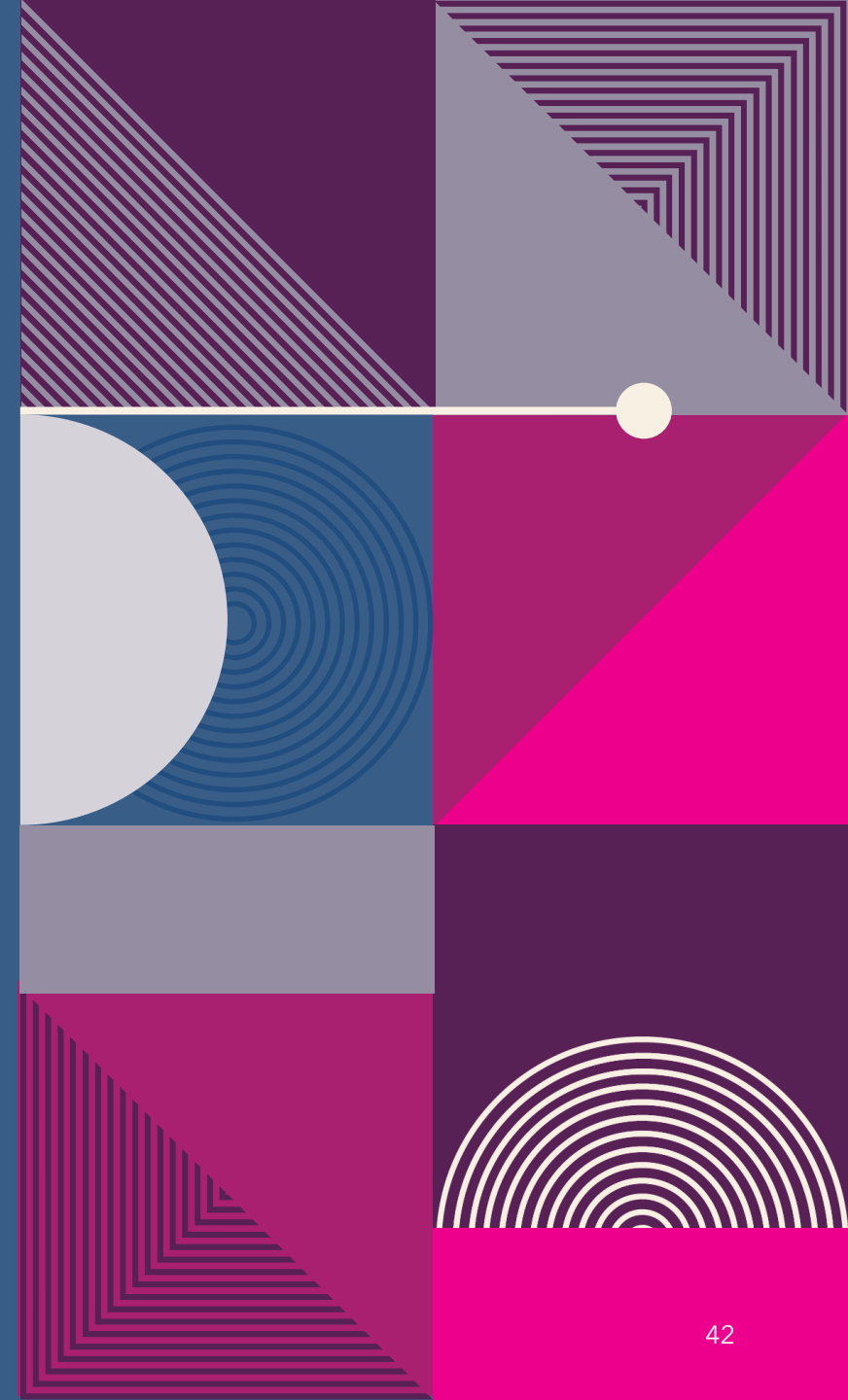
Forventningen om i hvilken retning.

Forventningen om hvornår reaktion sker.

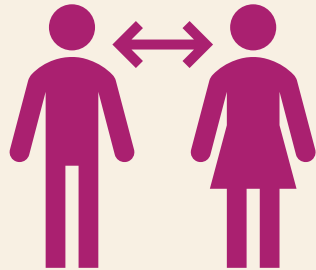


At være opmærksom dosis/respons.

KOGNITIV MOTORISK TRÆNING



KOGNITIV MOTORISK TRÆNING



På samme tid træne det kognitive, sensoriske, motoriske og sociale.



Et fysisk og kognitivt element i den samme øvelse



Uforudsigeligt

HVORDAN UDFØRES KOGNITIV MOTORISK TRÆNING



RYTME BASERET KOGNITIV TRÆNING



Trombetti A, Hars M, Herrman FR: Effect of af Music-Based Miltitask training in gait, balance and fall risk in elderly people
Hars M, Herrmann FR, Gold G: Effect of a music-based multitask training on cognition and modd in older adults.

Dalcroze eurhythmics



Trombetti A, Hars M, Herrman FR: Effect of af Music-Based Miltitask training in gait, balance and fall risk in elderly people
Hars M, Herrmann FR, Gold G: Effect of a music-based multitask training on cognition and modd in older adults.

KOGNITIV MOTORISK TRÆNING - KONKLUSION



Sensorisk, motorisk, kognitivt og sociale.

Fysisk og kognitiv element.

Skal være uforudsigelig.



Kognitiv motorisk

Gangtilpasning

Afværgereaktion

Opgave
specifik

WORKSHOP

- Workshop (30 min)
 - Vores anbefalinger til undersøgelser
 - Functional Reach Test
 - Trail Making Test / Step-Trail Making Test
 - 5 x Sit-To-Stand
 - Soleus styrke
 - Reaktionshastighed UE
 - Vores anbefalinger til Træning
 - Yamada træning
 - Reaktionstræning
 - Fælles Dalcroze træning (10 min)

SPØRGSMÅL?





TAK FOR IDAG

Martin Grønbech Jørgensen

Geriatrisk afdeling
Aalborg universitetshospital
Klinisk institut
Aalborg university

Steffen Wølke

Team for forebyggelse af fald
Senior & omsorg, Aalborg Kommune

&

Camilla Bladsgaard og Michael Zimmerlund

Forebyggelse og rehabiliteringscenter Ulsted,
Senior og Omsorg, Aalborg kommune.