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Workshop Sarcopenie

Jesse Aarden
Jan Jaap Voigt
Angelique Heinen
13 December 2018

CREATING TOMORROW

Doelstellingen workshop

- Kennis opdoen van de nieuwe consensus- richtlijn sarcopenie van de EWGSOP2
- Praktisch uit kunnen voeren van testen om sarcopenie vast te stellen
- In staat zijn om sarcopenie te identificeren op basis van de testen en afkappunten
- Inzicht in behandelingen en vervolg

PLOS ONE

RESEARCH ARTICLE

Lack of knowledge and availability of diagnostic equipment could hinder the diagnosis of sarcopenia and its management

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Conclusion

The concept of sarcopenia is familiar to most Dutch healthcare professionals but application in practice is hampered, mostly by lack of knowledge, availability of equipment, time constraints and lack of collaboration.

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GUIDELINES

Sarcopenia: revised European consensus on definition and diagnosis

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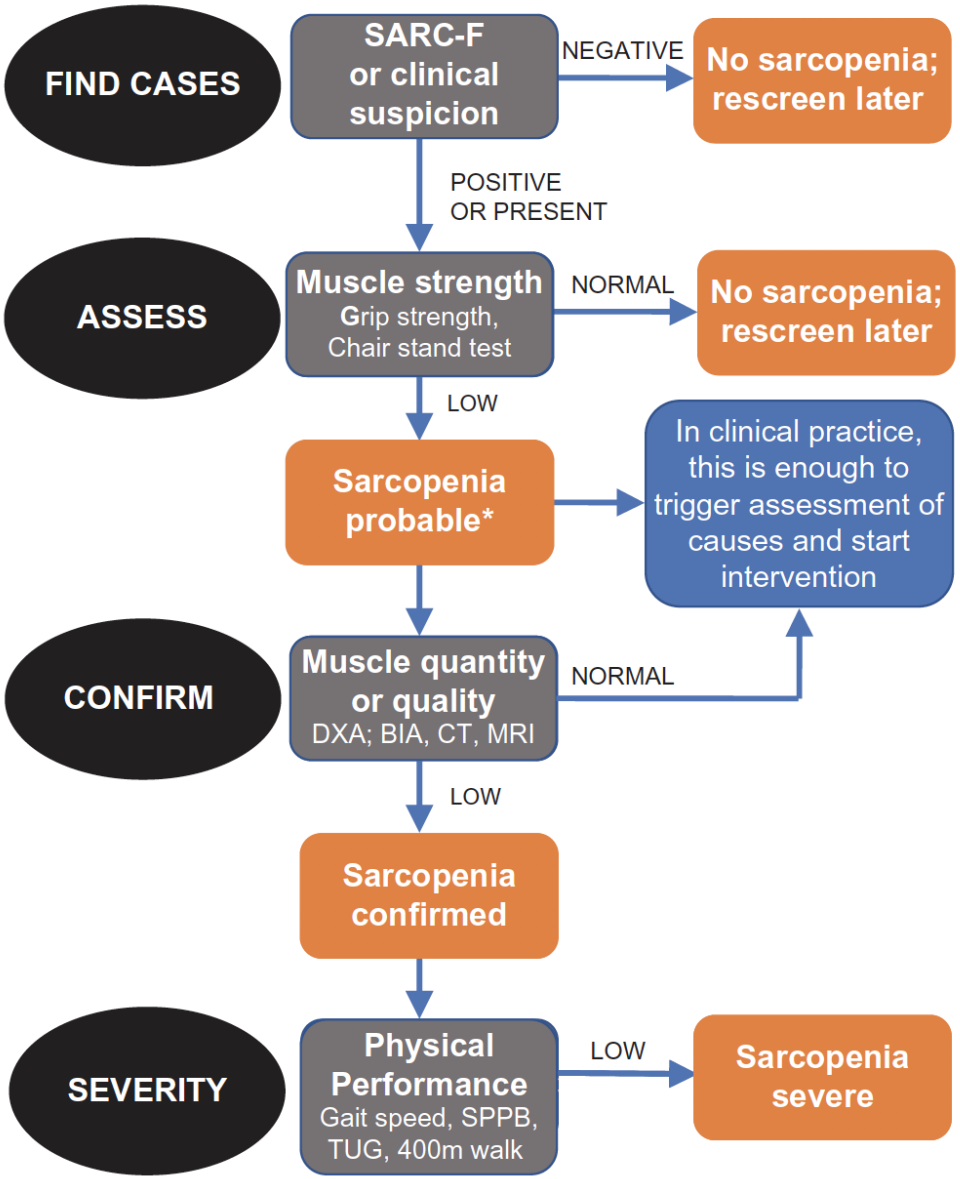
EWGSOP2



Screening Sarcopenie

SARC-F vragenlijst

Item	Vraag	Score
Kracht	Hoeveel moeite kost het u om een gewicht van vijf kilo te tillen?	geen moeite = 0 enige moeite = 1 veel moeite of niet mogelijk = 2
Lopen	Hoeveel moeite kost het u om door een ruimte te wandelen?	geen moeite = 0 enige moeite = 1 veel moeite, met hulpmiddel of niet mogelijk = 2
Opstaan	Hoeveel moeite kost het u om uzelf te verplaatsen van stoel naar bed?	geen = 0 enige moeite = 1 veel moeite of niet mogelijk zonder hulp = 2
Traplopen	Hoeveel moeite kost het u om tien traptreden op te lopen?	geen moeite = 0 enige moeite = 1 veel moeite of niet mogelijk = 2
Vallen	Hoe vaak bent het in het afgelopen jaar gevallen?	nooit = 0 1-3 keer = 1 > 4 keer = 2

Een score van > 4 punten wijst op sarcopenie

Malmstrom et al. 2016, Ishi et al. 2014, Roberts et al. 2011, Cruz-Jentoft et al. 2018

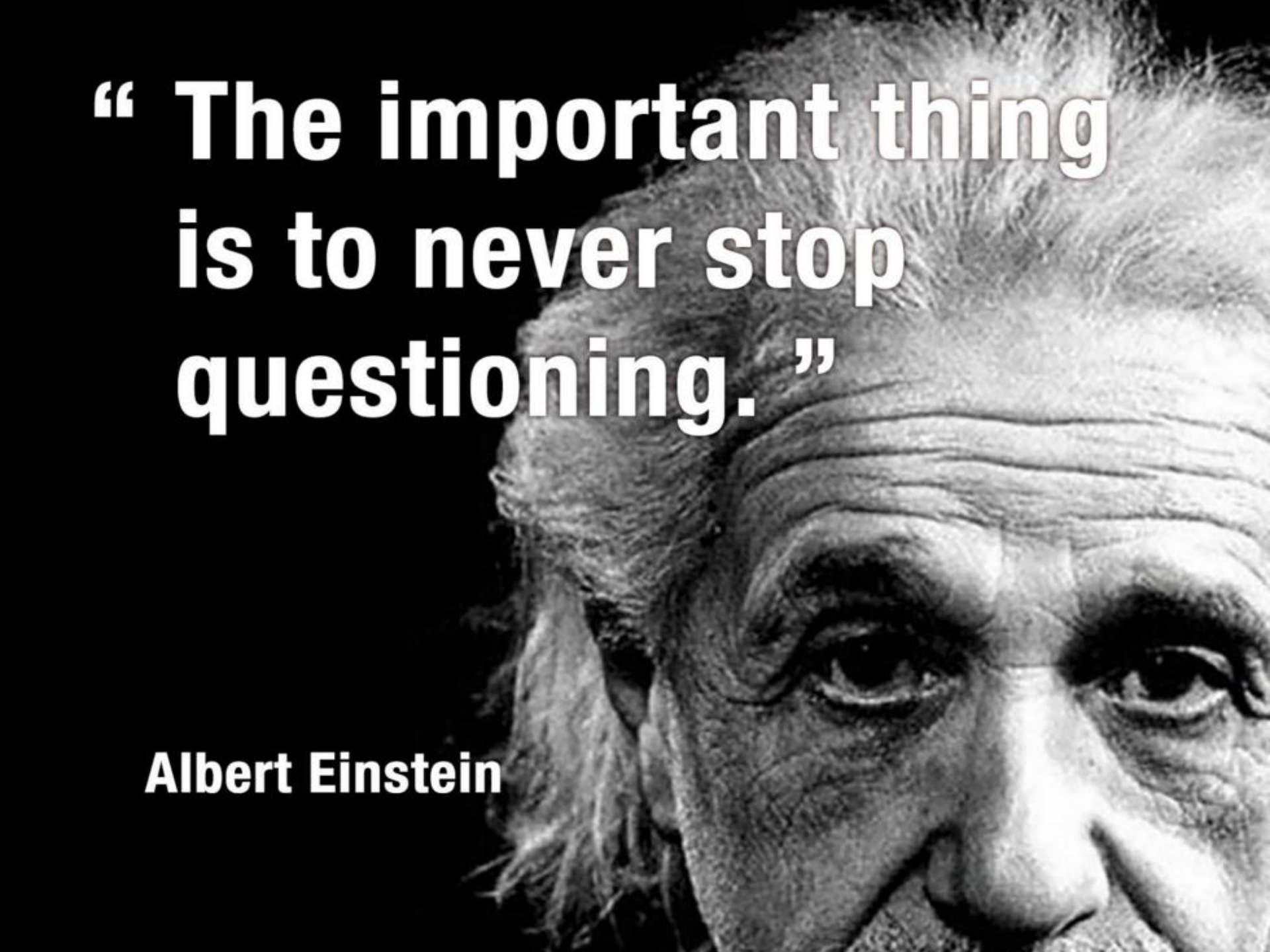
EWGSOP2 Sarcopenie afkappunten

Table 3. EWGSOP2 sarcopenia cut-off points

Test	Cut-off points for men	Cut-off points for women	References
EWGSOP2 sarcopenia cut-off points for low strength by chair stand and grip strength			
Grip strength	**<27 kg**	**<16 kg**	Dodds (2014) [26]
Chair stand	**>15 s for five rises**		Cesari (2009) [67]
EWGSOP2 sarcopenia cut-off points for low muscle quantity			
ASM	**<20 kg**	**<15 kg**	Studenski (2014) [3]
ASM/height^2	**<7.0 kg/m^2**	**<6.0 kg/m^2**	Gould (2014) [125]
EWGSOP2 sarcopenia cut-off points for low performance			
Gait speed	**≤0.8 m/s**		Cruz-Jentoft (2010) [1] Studenski (2011) [84]
SPPB	**≤8 point score**		Pavasini (2016) [90] Guralnik (1995) [126]
TUG	**≥20 s**		Bischoff (2003) [127]
400 m walk test	**Non-completion or ≥6 min for completion**		Newman (2006) [128]

Workshop: aan de slag

- Uitvoeren van testen voor spierkracht, spiermassa en performance
- Identificeren van sarcopenie
- Discussie over nut van vaststellen sarcopenie en behandelmogelijkheden


“ The important thing is to never stop questioning. ”
Albert Einstein

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PART 2: Volgende stap

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Clinical Interventions in Aging

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REVIEW

Resistance training for activity limitations in older adults with skeletal muscle function deficits: a systematic review

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Clinical Interventions in Aging
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Number of times this article has been viewed

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Abstract: Human aging results in a variety of changes to skeletal muscle. Sarcopenia is the age-associated loss of muscle mass and is one of the main contributors to musculoskeletal impairments in the elderly. Previous research has demonstrated that resistance training can attenuate skeletal muscle function deficits in older adults, however few articles have focused on the effects of resistance training on functional mobility. The purpose of this systematic review was to 1) present the current state of literature regarding the effects of resistance training on functional mobility outcomes for older adults with skeletal muscle function deficits and 2) provide clinicians with practical guidelines that can be used with seniors during resistance training, or to encourage exercise. We set forth evidence that resistance training can attenuate age-related changes in functional mobility, including improvements in gait speed, static and dynamic balance, and fall risk reduction. Older adults should be encouraged to participate in progressive resistance training activities, and should be admonished to move along a continuum of exercise from immobility, toward the recommended daily amounts of activity.

Keywords: aging, strength training, sarcopenia, mobility, balance

Older adults should be encouraged to participate in progressive resistance training activities, and should be admonished to move along a continuum of exercise from immobility, toward the recommended daily amounts of activity (Papa et al. 2017)

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ACADEMIC LITERATURE REVIEW

Systematic review of functional training on muscle strength, physical functioning, and activities of daily living in older adults

Chiung-ju Liu · Deepika M. Shiroy · Leah Y. Jones · Daniel O. Clark

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Abstract Exercise programs are often recommended for preventing or delaying late-life disability. Programs that incorporate functional training, which uses movements similar to performing activities of daily living, may be suitable for such recommendation. The purpose of this systematic review was to examine the effects of functional training on muscle strength, physical functioning, and activities of daily living in older adults. Studies in three electronic databases (MEDLINE, CINAHL, and SPORTDiscus) were searched, screened, and appraised. Thirteen studies were included in the review. These studies vary greatly in participant recruitment criteria, functional training content, and selection of comparison groups. Mobility exercises were the most common element in functional training across studies. Results show beneficial effects on muscle strength, balance, mobility, and activities of daily living, particularly when the training content was specific to that outcome. Functional training may be used to improve functional performance in older adults.

Keywords Activities of daily living · Disability · Exercise · Functional training · Older adults · Physical functioning

The ability to perform activities of daily living (ADL) is vital to living independently. Age-related loss in muscle strength can jeopardize this ability and lead to disability [19, 25, 24, 36, 41, 23]. For example, the progression of muscle weakness limits the ability to grasp an object which further impedes the ability to open a jar. Experiencing difficulty in ADL and relying on others is not only related to decreased quality of life [39, 22] but also increased likelihood of long-term nursing home placement [16, 34].

A large number of studies have shown that progressive resistance strength training improves muscle strength in older adults, including the oldest old [15, 48, 32]. Progressive resistance strength training increases load gradually over the training course to strengthen major muscle groups used for weight bearing or lifting. The training has been recommended to prevent or reduce late-life disability for older adults [2, 43].

Functional training may be used to improve functional performance in older adults (Liu et al. 2014)

Resistance Exercise for the Aging Adult: Clinical Implications and Prescription Guidelines

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ABSTRACT

Sarcopenia and weakness are known to precipitate risk for disability, comorbidity, and diminished independence among aging adults. Resistance exercise has been proposed as a viable intervention to elicit muscular adaptation and improve function. However, the reported prevalence of resistance exercise participation among US adults aged >50 years is very low. This may be largely attributable to inconsistency in study results that fail to fully inform the clinical and public health community of its overall value. Therefore, the purpose of this commentary review is to report the findings of recently published meta-analyses that systematically examined the overall value of resistance exercise among healthy aging adults for strength and lean body mass outcomes. Evidence reveals that not only is resistance exercise very effective for eliciting strength gain and increases in lean body mass, but that there is a dose-response relationship such that volume and intensity are strongly associated with adaptations. These findings reflect and support the viability of progression in resistance exercise dosage to accommodate optimal muscular adaptive response. Progressive resistance exercise should thus be encouraged among healthy adults to minimize degenerative muscular function associated with aging.

 • *The American Journal of Medicine (2011) 124, 194-198*

KEYWORDS: Aging; Meta-analysis; Muscular strength; Older adult; Resistance exercise; Sarcopenia

- Progressive resistance exercise should thus be encouraged among healthy adults to minimize degenerative muscular function associated with aging (Peterson 2010)

Literatuur: Peterson 2010

Progressive resistance training

- Review 47 studies
- 1990-2008
- 1079 eldery
- Higher intensity→ larger effect on muscle strength

Interventie spreiding in literatuur

- Duur: 6 – 52 weken
- Frequentie: 1 – 3 x per week
- Intensiteit: 40 - 85% van 1RM
- Aantal sets: 1 – 6 per spiergroep
- Aantal herh. per set: 5 – 16
- Rust tussen sets: 60 – 360 seconden

Montero-Fernandez 2013

- Per week 150 min gemiddelde of 60 min hoge intensiteit
- Intensiteit: ervaren zwaarte 5-6/10 of 7-8/10
- 3 of meer keer per week
- 8-10 oefeningen voor gehele lichaam
- Belangrijke spiergroepen: benen, heupen, borst, rug, buik, schouder en armen
- 8-12 herhalingen per spiergroep
- 2 minuten rust

Vereniging Diëtisten Geriatrie en Ouderen 2016

Voedingsadviezen

Eiwit ; 1.2 – 1.5 g/ kg huidig lichaamsgewicht per dag

Met aandacht voor:
- Gelijke hoeveelheden eiwit verdeeld over de drie hoofdmaaltijden (streven naar + 25g eiwit per maaltijd)

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JAMDA 13 (2012) 713–719

ELSEVIER

JAMDA

journal homepage: www.jamda.com

Original Study

Protein Supplementation Increases Muscle Mass Gain During Prolonged Resistance-Type Exercise Training in Frail Elderly People: A Randomized, Double-Blind, Placebo-Controlled Trial

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Keywords:
Sarcopenia
aging
frailty
hypertrophy
muscle strength

A B S T R A C T

Objectives: Protein supplementation has been proposed as an effective dietary strategy to augment the skeletal muscle adaptive response to prolonged resistance-type exercise training in elderly people. Our objective was to assess the impact of protein supplementation on muscle mass, strength, and physical performance during prolonged resistance-type exercise training in frail elderly men and women.
Design/setting/participants: A randomized, double-blind, placebo-controlled trial with 2 arms in parallel among 62 frail elderly subjects (78 ± 1 year). These elderly subjects participated in a progressive resistance-type exercise training program (2 sessions per week for 24 weeks) during which they were supplemented twice daily with either protein (2 * 15 g) or a placebo.
Measurements: Lean body mass (DXA), strength (1-RM), and physical performance (SPPB) were assessed at baseline, and after 12 and 24 weeks of intervention.
Results: Lean body mass increased from 47.2 kg (95% CI, 43.5–50.9) to 48.5 kg (95% CI, 44.8–52.1) in the protein group and did not change in the placebo group (from 45.7 kg, 95% CI, 42.1–49.2 to 45.4 kg, 95% CI, 41.8–48.9) following the intervention (*P* value for treatment × time interaction = .006). Strength and physical performance improved significantly in both groups (*P* = .000) with no interaction effect of dietary protein supplementation.
Conclusions: Prolonged resistance-type exercise training represents an effective strategy to improve strength and physical performance in frail elderly people. Dietary protein supplementation is required to allow muscle mass gain during exercise training in frail elderly people. *Trial Registration:* clinicaltrials.gov identifier: NCT01110369.

- Extra eiwit in combinatie met progressieve training verbetert spierkracht en fysiek functioneren (Tieland 2012)

Beloop spierkracht over de jaren

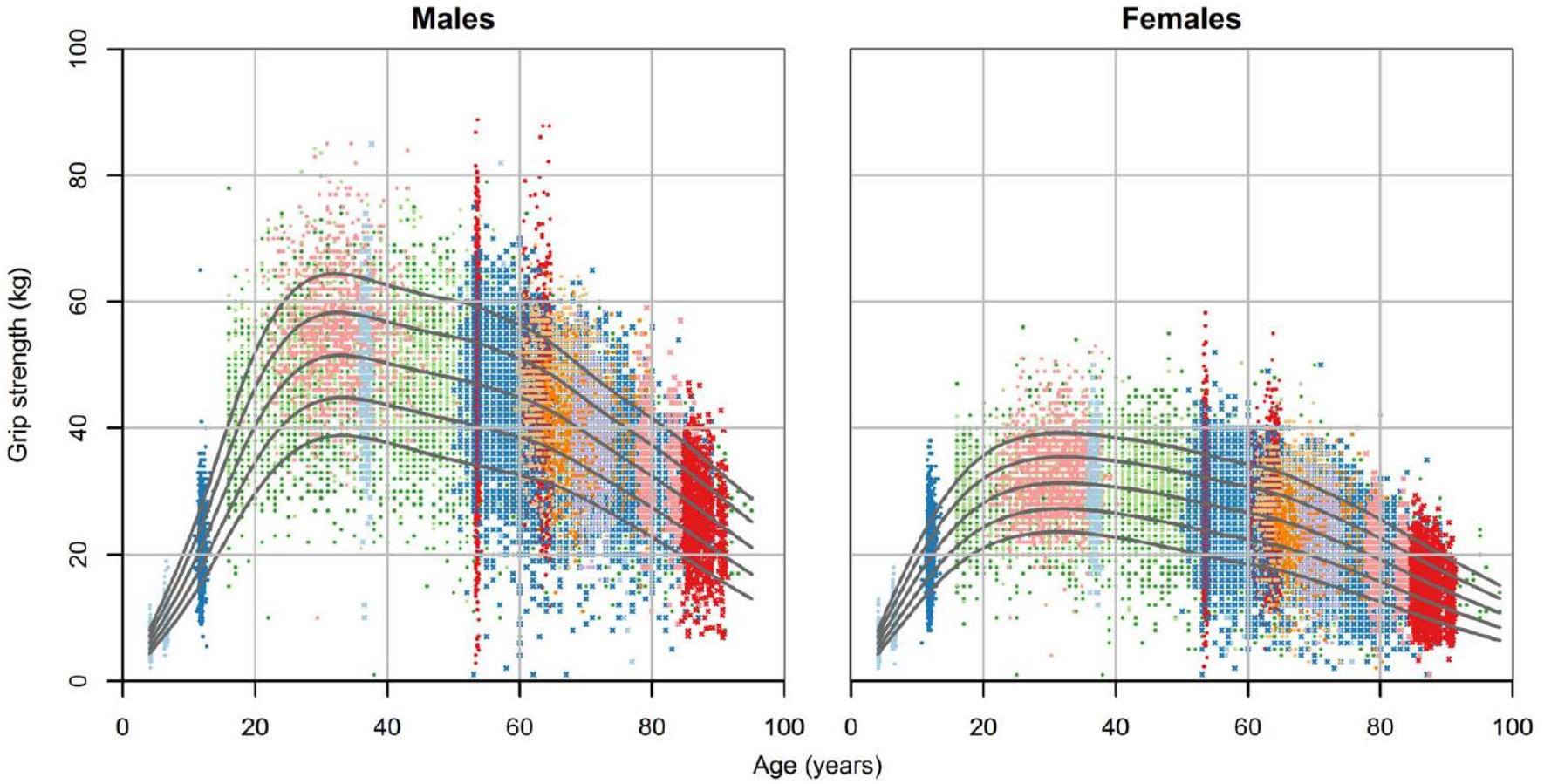

Table 2. Normative values for grip strength, stratified by gender.

		Grip strength normative values at age shown (kg)						
Age (years)	Observations *	Centiles					Mean (SD)	
		10th	25th	50th	75th	90th		
Males								
5	730	6	7	8	9	10	7.7	(2.9)
10	3222	12	15	17	20	22	17.2	(4.1)
15	288	21	25	29	33	38	29.6	(5.6)
20	354	30	35	40	46	52	41.5	(7.3)
25	574	36	41	48	55	61	48.8	(8.7)
30	984	38	44	51	58	64	51.6	(9.6)
35	1380	39	45	51	58	64	51.6	(10.1)
40	880	38	44	50	57	63	50.3	(10.3)
45	798	36	42	49	56	61	48.8	(10.3)
50	820	35	41	48	54	60	47.6	(10.1)
55	3743	34	40	47	53	59	46.2	(9.8)
60	2683	33	39	45	51	56	44.6	(9.2)
65	3947	31	37	43	48	53	42.3	(8.6)
70	3286	29	34	39	44	49	39.1	(8.1)
75	1883	26	31	35	41	45	35.6	(7.6)
80	1115	23	27	32	37	42	32.2	(7.3)
85	1134	19	24	29	33	38	28.5	(7.0)
90	431	16	20	25	29	33	24.7	(6.8)
95+	5 †							
(Total)	(28,257)							
Females								
5	700	6	7	8	9	10	8.0	(3.1)
10	3339	12	14	16	19	21	16.7	(3.8)
15	345	17	20	24	27	30	23.9	(4.5)
20	463	21	24	28	32	36	28.4	(5.1)
25	870	23	26	30	35	38	30.6	(5.6)
30	1423	24	27	31	35	39	31.4	(6.0)
35	1785	23	27	31	35	39	31.3	(6.2)
40	968	23	27	31	35	39	30.7	(6.3)
45	952	22	26	30	34	38	29.9	(6.4)
50	1019	21	25	29	33	37	28.7	(6.4)
55	4250	19	23	28	32	35	27.5	(6.4)
60	2943	18	22	27	31	34	26.5	(6.2)
65	4171	17	21	25	29	33	25.3	(6.0)
70	3473	16	20	24	27	31	23.5	(5.7)
75	2135	14	18	21	25	28	21.4	(5.4)
80	1361	13	16	19	23	26	19.1	(5.1)

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Einde

Dank voor uw aandacht!

Link naar artikel over 4 meter loopsnelheid:
(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4831727/)

de consensus statement Sarcopenie:
(https://academic.oup.com/ageing/advance-article/doi/10.1093/ageing/afy169/5126243).