

Assessment of physical performance in cardiac and pulmonary rehabilitation?



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Dansk Selskab for
hjerte og lungefysioterapi



Bispebjerg og Frederiksberg
Hospital

Chair: Nicolai Mikkelsen, ph.d.-studerende, Bispebjerg Hospital



Lars er fysioterapeut, har kandidatgrad i sundhedsvidenskab og har skrevet ph.d. om virkelignære rehabiliteringsløsninger til patienter med kompleks hjertesygdom.

Lars er ansat som postdoc hos det nationale videnscenter for rehabilitering og palliation og arbejder dagligt med fysiske træningsindsatser og kvalitetsfordringer af daglige rehabiliteringsindsats til hjerte og kræftpatienter

Rationalet for at teste fysisk funktion i daglig hjerte- og lungerehabilitering

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Dagsorden

- Effekten af hjerte- og lungerehabilitering
- Hvorfor skal vi teste fysisk funktion?
- Overvejelser i forbindelse med valg af test
- Nuværende udfordringer i kliniske praksis

Exercise-based rehabilitation for heart failure (Review)

Taylor RS, Sagar VA, Davies EJ, Briscoe S, Coats AJS, Dalal H, Lough F, Rees



THE COCHRANE COLLABORATION®

Review

The prognostic effect of cardiac rehabilitation in the era of acute revascularisation and statin therapy: A systematic review and meta-analysis of randomized and non-randomized studies – The Cardiac Rehabilitation Outcome Study (CROS)

Bernhard Rauch¹, Constantinos H Davos², Patrick Doherty³, Daniel Saure⁴, Maria-Inti Metzendorf⁵, Annett Salzwedel⁶, Heinz Völler⁶, Katrin Jensen⁴ and Jean-Paul Schmid⁷; on behalf of

Træningsbaseret hjerterehabilitering har også vist effekt på generelt dødlighed

Institute of General Practice, Heinrich-Heine University, Düsseldorf, Germany

Effekter af træningsbaseret hjerterehabilitering:

- ↓ kardiovaskulær mortalitet
- ↓ genindlæggelser
- ↑ livskvalitet
- ↑ fysisk kapacitet

Prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library*

<http://www.thecochranelibrary.com>



Cochrane Database of Systematic Reviews

Pulmonary rehabilitation disease (Review)

McCarthy B, Casey D, Devane D, Mur

DATA AND ANALYSES

Comparison 1. Rehabilitation versus usual care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 QoL - Change in CRQ (Fatigue)	19	1291	Mean Difference (IV, Random, 95% CI)	0.68 [0.45, 0.92]
2 QoL - Change in CRQ (Emotional Function)	19	1291	Mean Difference (IV, Random, 95% CI)	0.56 [0.34, 0.78]
3 QoL - Change in CRQ (Mastery)	19	1212	Mean Difference (IV, Random, 95% CI)	0.71 [0.47, 0.95]
4 QoL - Change in CRQ (Dyspnoea)	19	1283	Mean Difference (IV, Random, 95% CI)	0.79 [0.56, 1.03]
5 QoL - Change in SGRQ (Total)	19	1146	Mean Difference (IV, Random, 95% CI)	-6.89 [-9.26, -4.52]
6 QoL - Change in SGRQ (Symptoms)	19	1153	Mean Difference (IV, Random, 95% CI)	-5.09 [-7.69, -2.49]
7 QoL - Change in SGRQ (Impacts)	19	1149	Mean Difference (IV, Random, 95% CI)	-7.23 [-9.91, -4.55]
8 QoL - Change in SGRQ (Activities)	19	1148	Mean Difference (IV, Random, 95% CI)	-6.08 [-9.28, -2.88]
9 Physical capacity (6MWT)	19	1148	Mean Difference (IV, Random, 95% CI)	39.77 [22.38, 57.15]
10 Physical capacity (6MWT)	19	1148	Mean Difference (IV, Random, 95% CI)	6.77 [1.89, 11.65]
11 Physical capacity (6MWT)	19	1148	Mean Difference (IV, Random, 95% CI)	43.93 [32.64, 55.21]

↑ Livskvalitet

Samme effekter findes hos patienter med COPD efter eksacerbation (Puhan et al. 2016)

↑ Fysisk kapacitet

The New England Journal of Medicine

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VOLUME 346

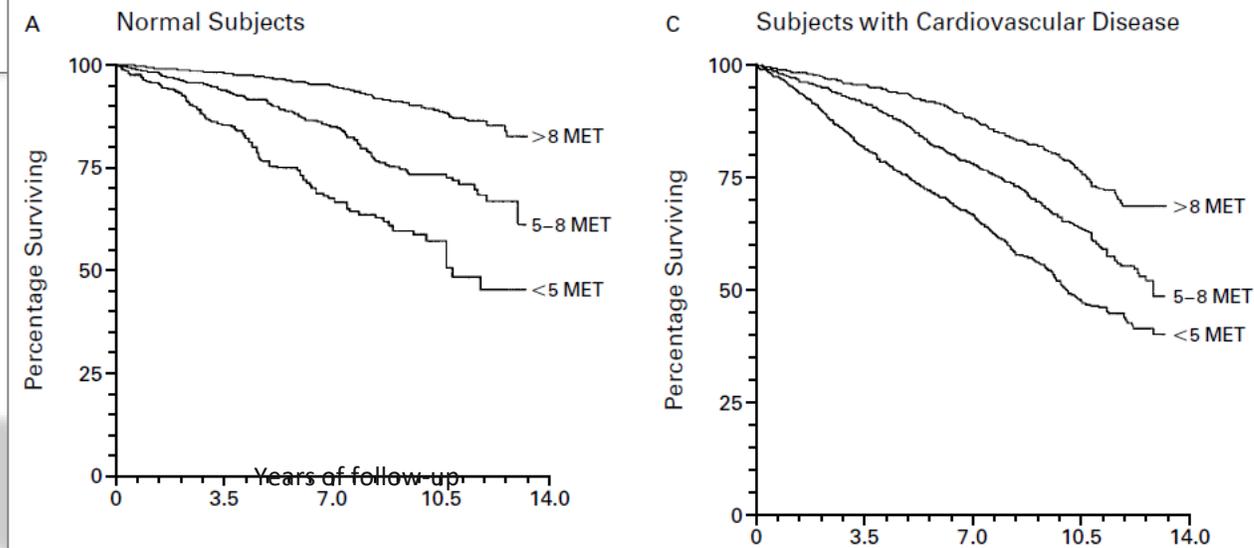
MARCH 14, 2002

NUMBER 11



EXERCISE CAPACITY AND MORTALITY AMONG MEN REFERRED FOR EXERCISE TESTING

JONATHAN MYERS, PH.D., MANISH PRAKASH



Måling af fysisk funktion

➤ Sikkerhedsmonitoring

➤ Fysisk udgangspunkt
(patientens behov)

➤ Effekt over tid

Policy statement

European Journal of
**Preventive
 Cardiology** 
 EUROPEAN
 SOCIETY OF
 CARDIOLOGY®

European Journal of Preventive
 Cardiology
 20(3) 442–467
 © The European Society of
 Cardiology 2012
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 DOI: 10.1177/2047487312460484
 ejpc.sagepub.com


Aerobic exercise intensity assessment and prescription in cardiac rehabilitation: a joint position statement of the European Association for Cardiovascular Prevention and Rehabilitation, the American Association of Cardiovascular and Pulmonary Rehabilitation and the Canadian Association of Cardiac Rehabilitation

**Alessandro Mezzani^{1*}, Larry F Hamm^{2*}, Andrew M Jones³,
 Patrick E McBride⁴, Trine Moholdt⁵, James A Stone⁶,
 Axel Urhausen⁷ and Mark A Williams⁸**

Introduction

The intensity of aerobic exercise training is a key issue in cardiac rehabilitation. **Exercise intensity is directly linked to both the amount of improvement in exercise capacity and the risk of adverse events during exercise,** and intensity ranges for aerobic training prescription are included in several guidelines and publications regarding secondary prevention and cardiac rehabilitation.^{1–4} The purpose of this joint position statement of the European Association for Cardiovascular Prevention and Rehabilitation (EACPR), American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) and Canadian Association of Cardiac Rehabilitation (CACR) is to provide professionals with a reappraisal of all aspects related to aerobic exercise intensity assessment and prescription, with specific reference to patients with heart disease.

ORIGINAL INVESTIGATION

Safety of Exercise Training for Cardiac Patients

Results of the French Registry of Complications During Cardiac Rehabilitation

*Bruno Pavy, MD; Marie Christine Iliou, MD; Philippe Meurin, MD; Jean-Yves Tabet, MD; Sonia Corone, MD;
for the Functional Evaluation and Cardiac Rehabilitation Working Group of the French Society of Cardiology*

Arch Intern Med. 2006;166:2329-2334

På baggrund af data fra 25420 patienter var den cardiovascular event rate:

1 per 8484 exercise stress tests

1 per 49565 patient-hours of exercise training

Måling af fysisk funktion

➤ Sikkerhedsmonitoring

➤ Fysisk udgangspunkt
(patientens behov)

➤ Effekt over tid

American Thoracic Society Documents



An Official American Thoracic Society/European Respiratory Society Statement: Key Concepts and Advances in Pulmonary Rehabilitation

Martijn A. Spruit, Sally J. Singh, Chris Garvey, Richard ZuWallen, Anne E. Holland, Suzanne C. Lareau, William D.-C. Man, Fabiana C. Ribeiro, Rebecca Crouch, Frits M. E. Franssen, Richard Casaburi, Jan H. B. Janssens, Enrico M. Clini, Tanja W. Effing, François Maltais, Job van der Pijl, Judith Garcia-Aymerich, Dina Brooks, Bonnie F. Fahy, Milo A. Little, Annemie M. W. J. Schols, Brian Carlin, Roberto Benzo, Paula M. F. Almeida, Andrew L. Ries, Barry Make, Roger S. Goldstein, Claire A. Doonan, and Emiel F. M. Wouters; on behalf of the ATS/ERS Task Force

THIS OFFICIAL STATEMENT OF THE AMERICAN THORACIC SOCIETY (ATS) AND EUROPEAN RESPIRATORY SOCIETY (ERS) WAS APPROVED BY THE ATS BOARD OF DIRECTORS, JUNE 2013, AND BY THE ERS BOARD OF DIRECTORS, JUNE 2013 AND FEBRUARY 2013, RESPECTIVELY



European Heart Journal (2010) 31, 1967–1976
doi:10.1093/eurheartj/ehq236

POSITION PAPER

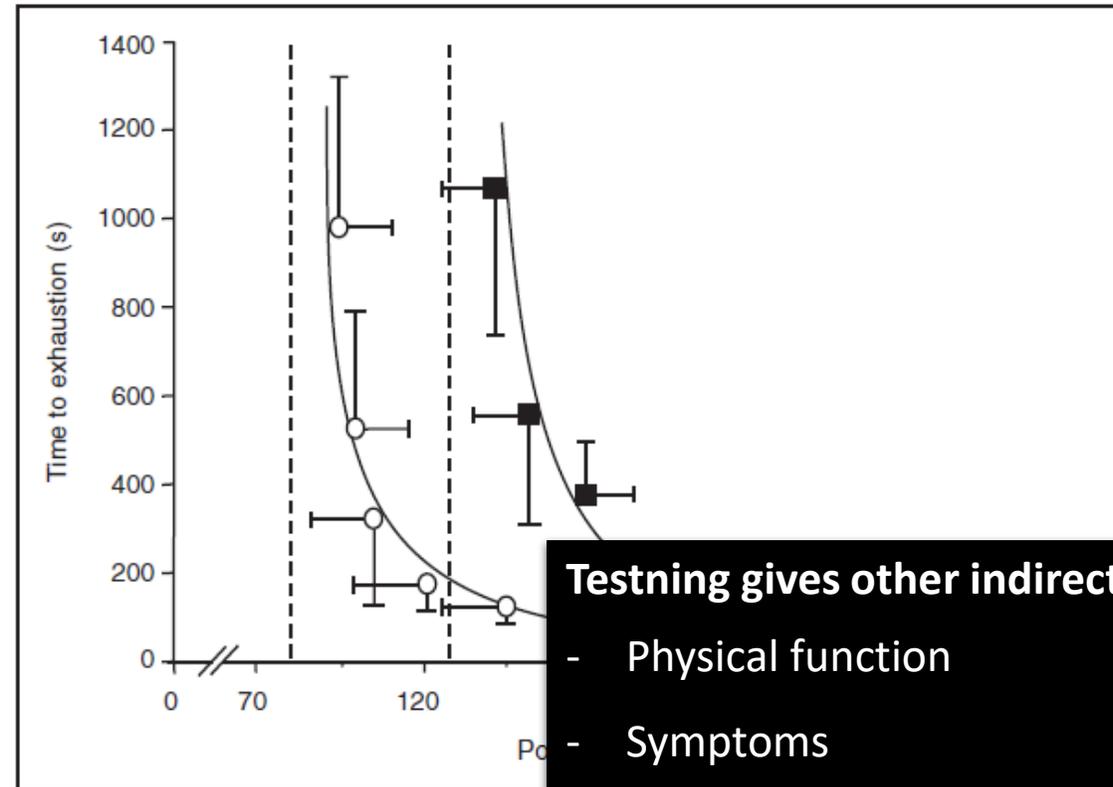
Secondary prevention through cardiac rehabilitation: physical activity counselling and exercise training

Key components of the position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation

EACPR Committee for Science Guidelines: Ugo Corrà (Chairperson), Massimo F. Piepoli, François Carré; Peter Heuschmann; Uwe Hoffmann; Monique Verschuren; Julian Halcox
Document Reviewers: Pantaleo Giannuzzi, Hugo Saner, David Wood

Massimo F. Piepoli*, Ugo Corrà, Werner Benzer, Birna Bjarnason-Wehrens, Paul Dendale, Dan Gaita, Hannah McGee, Miguel Mendes, Josef Niebauer, Ann-Dorthe Olsen Zwisler, and Jean-Paul Schmid

For physical training to be effective the total training load must reflect the individual's specific requirements, needs and preference



Testing gives other indirect clinical information:

- Physical function
- Symptoms
- Disabilities
- Anxiety
- Motivation

Måling af fysisk funktion

- Sikkerhedsmonitoring
- Fysisk udgangspunkt (patientens behov)
- Effekt over tid

Individuel niveau

Virker interventionen?

- Juster eller forsæt programmet
- Test metode – standardisering, testtype, follow-up perioden
- Baseline niveau
- Træningsadherence

Målt patientens sundhed og motivation og vil forhåbentlig opmuntre dem til at fortsætte

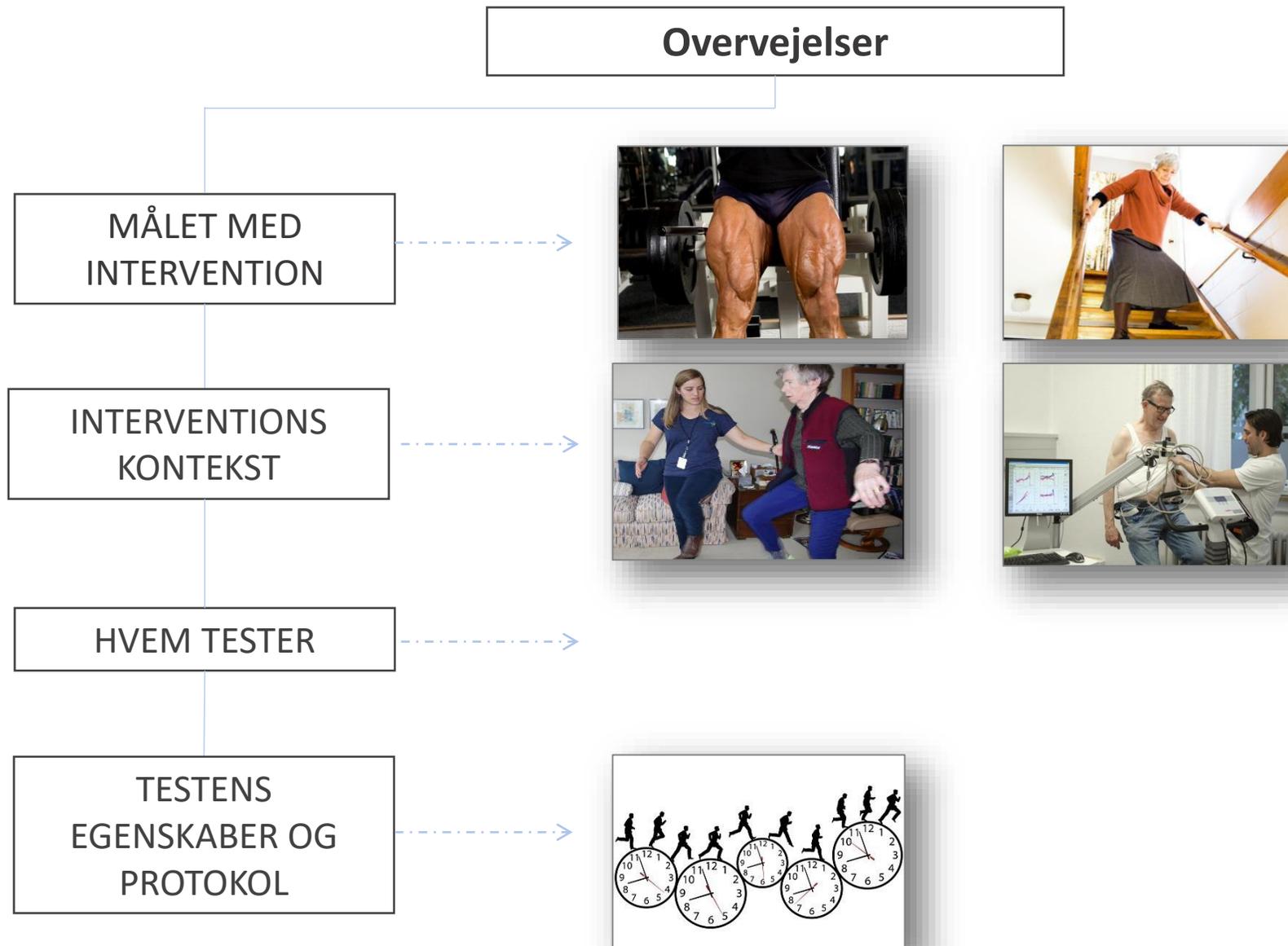
Gruppe niveau

Virker interventionen?

- Juster eller forsæt programmet
- Test metode – standardisering, testtype, follow-up perioden
- Baseline niveau
- Træningsadherence

Formålet er kvalitetsforbedring (Fokus på interessenter og kvalitetsmål)

Medarbejder motivation



Tabel 3 Tilbud og kvalitet af rehabiliteringsindsats på sygehuse og kommuner i Danmark

Kernekomponenter i hjerterehabilitering – tilbud og kvalitet på danske hospitaler og i kommuner i 2013 og 2015						
	Hospitaler 2013	Hospitaler 2015	p-værdi*	Kommuner 2013	Kommuner 2015	p-værdi**
Kernekomponenter på programniveau	n=36	n=36		n=60	n=87	
Fysisk træning	100 %	97 %	1.00	98 %	93 %	0.20
Patientuddannelse	97 %	97 %	1.00	75 %	84 %	1.00
Psykosocial støtte	89 %	89 %	1.00	63 %	63 %	0.83
Screening for angst og depression	61 %	97 %	<0.001	20 %	19 %	0.45

Halvdelen (n=1.318) af de patienter der på hospitalet får foretaget en fysisk test før og efter træningsintervention bliver ikke testet med den samme test
(DHRD - National årsrapport 2016)

Brug af valideret testmetode	28 %	33 %	0.80	7 %	7 %	0.68
Patientuddannelse omfatter alle anbefalede emner	69 %	69 %	1.00	47 %	37 %	0.04
Screening med HADS**	25 %	72 %	<0.001	8 %	12 %	1.00
Kost screening	25 %	31 %	0.79	22 %	22 %	1.00
Integreret tilbud om støtte til rygeophør	39 %	31 %	0.62	N/A	N/A	

Noter: * Beregnet ved hjælp af Fisher's Exact Test

** HADS= the Hospital Anxiety and Depression Scale

p-værdier for kommuner er udregnet for kommuner, som har besvaret spørgeskemaer i både 2013 og 2015, og som har angivet at tilbyde fase II rehabilitering i begge år (n=49). Tilbud om og kvaliteten af kernekomponenter i hjerterehabilitering for disse 49 kommuner er præsenteret i appendiks, tabel 3.

Kilde: Tilbud og kvalitet af rehabiliteringsindsats på sygehuse og kommuner i Danmark (Egholm et al. 2017) (Zwisler et al. 2016a).



**THE NATIONAL AUDIT
OF CARDIAC REHABILITATION**

Annual Statistical Report 2017

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**TABLE 14:
PERCENTAGE STARTING CR WITH A RECORD OF PRE- AND POST-ASSESSMENT BY HEALTH REGION**

COUNTRY	HEALTH REGION	STARTING REHABILITATION (N)	% WITH PRE (ASSESSMENT 1)	% WITH POST (ASSESSMENT 2)
England	C & M	2,845	83	62
	EM	3,733	86	64
	E o E	4,067	83	65
	GM, L & SC	5,872	73	56
	L	4,970	90	62
	SEC	4,304	86	65
	SW	4,303	93	60
	TV	1,732	80	69
	W	2,366	89	71
	WM	2,983	63	53
	Y & TH	3,407	90	73
Total		40,582	83	63
Northern Ireland	BHSCT	573	98	62
	NHSCT	593	90	61
	SEHSCT	610	88	67
	SHSCT	327	83	39
	WHSCT	114	74	68
Total		2,217	90	60
Wales	ABM	684	94	81
	AB	860	95	64
	BC	1,867	60	38
	C & V	299	92	73
	CT	421	78	54
	HD	363	82	52
Total		4,494	78	54
Other	Other	107	99	89
TOTAL		47,520	83	62

Opsummering

- Hjerter- og lungerehabilitering har positive effekter
- Måling af fysisk funktion er afgørende for at kende patienternes fysiske udgangspunkt og effekt over tid
- Valg af test bør baseres på grundige overvejelser og testens egenskaber
- I daglig klinisk praksis er måling af fysisk funktion stadig en udfordring

Tak for jeres opmærksomhed



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