

Light Intensity Activity: a possible contribution to delay frailty

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Review Article

The Effectiveness of Exercise Interventions for the Management of Frailty: A Systematic Review

Previous
Next

**Olga Theou,¹ Liza Stathokostas,² Kaitlyn P. Roland,¹ Jennifer M. Jakobi,¹
Christopher Patterson,³ Anthony A. Vandervoort,⁴ and Gareth R. Jones¹**

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**Exercise Programs for Community-
w and Meta-Analysis**

isan Armijo-Olivo*

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Physical Activity as a Preventative Factor for Frailty: The Health, Aging, and Body Composition Study

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Vicki Mercer,³ Harvey J. Cohen,^{1,2} Marjolein Visser,⁵ Jennifer S. Brach,⁶ Stephen B. Kritchevsky,⁷
Bret H. Goodpaster,⁸ Susan Rubin,⁹ Suzanne Satterfield,¹⁰ Anne B. Newman,⁸ Eleanor M. Simonsick,^{11,12}
for the Health, Aging and Body Composition Study Research Group

aim

to characterize self reported light intensity activity (LIPA)
of people aged 75 and above,
and investigate its association with functional capacity.

methods

65 participants

79.48 ± 4.98

functionally independent

no cognitive impairment

geriatric outpatient clinic



Ethical Approval | November 2016 up to February 2017

Physical Function

< 10 predict frailty and falls

methods

Pavasini et al. BMC Medicine (2016) 14:215
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BMC Medicine

RESEARCH ARTICLE Open Access

Short Physical Performance Battery and all-cause mortality: systematic review and meta-analysis

Rita Pavasini^{1*}, Jack Guralnik², Justin C. Brown³, Mauro di Bari⁴, Matteo Cesari^{5,6}, Francesco Landi⁷, Bert Vaes^{8,9}, Delphine Legrand¹⁰, Joe Verghese¹¹, Culling Wang¹², Sari Stenholm¹³, Luigi Ferrucci¹⁴, Jennifer C. Lai¹⁵, Anna Arnau Bartes¹⁶, Joan Espauella¹⁷, Montserrat Ferrer^{18,19}, Jae-Young Lim²⁰, Kristine E. Ensrud^{21,22}, Peggy Cawthon²³, Anna Turusheva¹⁰, Elena Frolova²⁴, Yves Rolland^{5,6}, Valerie Lauwers²⁵, Andrea Corsonello²⁶, Gregory D. Kirk⁷, Roberto Ferrari²⁸, Stefano Volpato²⁹ and Gianluca Campo

Abstract
Background: The Short Physical Performance Battery (SPPB) is a well-established tool to assess lower extremity physical performance status. Its predictive ability for all-cause mortality has been sparsely reported, but with conflicting results in different subsets of participants. The aim of this study was to perform a meta-analysis investigating the relationship between SPPB score and all-cause mortality.
Methods: Articles were searched in MEDLINE, the Cochrane Library, Google Scholar, and BioMed Central between July and September 2015 and updated in January 2016. Inclusion criteria were observational studies; >50 participants; stratification of population according to SPPB value; data on all-cause mortality; English language publications. Twenty-four articles were selected from available evidence. Data of interest (i.e., clinical characteristics, information after stratification of the sample into four SPPB groups [0–3, 4–6, 7–9, 10–12]) were retrieved from the articles and/or obtained by the study authors. The odds ratio (OR) and/or hazard ratio (HR) was obtained for all-cause mortality according to SPPB category (with SPPB scores 10–12 considered as reference) with adjustment for age, sex, and body mass index.
Results: Standardized data were obtained for 17 studies (n = 16,534, mean age 76 ± 3 years). As compared to SPPB scores 10–12, values of 0–3 (OR 3.25, 95%CI 2.86–3.79), 4–6 (OR 2.14, 95%CI 1.92–2.39), and 7–9 (OR 1.50, 95%CI 1.32–1.71) were each associated with an increased risk of all-cause mortality. The association between poor performance on SPPB and all-cause mortality remained highly consistent independent of follow-up length, subsets of participants, geographic area, and age of the population. Random effects meta-regression showed that OR for all-cause mortality with SPPB values 7–9 was higher in the younger population, diabetics, and men.
Conclusions: An SPPB score lower than 10 is predictive of all-cause mortality. The systematic implementation of the SPPB in clinical practice settings may provide useful prognostic information about the risk of all-cause mortality. Moreover, the SPPB could be used as a surrogate endpoint of all-cause mortality in trials needing to quantify benefit and health improvements of specific treatments or rehabilitation programs.
 The study protocol was published on PROSPERO (CRD42015024916).
Keywords: Short Physical Performance Battery, All-cause mortality, Physical function, Meta-analysis

Characterization of Physical Activity			
Date: _____			code:
Day of the week _____			for researchers' use
			Classification in METs
Time of Day	What was I doing?	For how long?	
<i>example</i>			
8.30h	in the kitchen, preparing breakfast, standing	10 minutes	
10.00h	shopping groceries, walking	15 minutes	
14.30h	watching TV, sitting	2 hours	

Self Reported PA

8 hour entries valid recommended for clinical practice

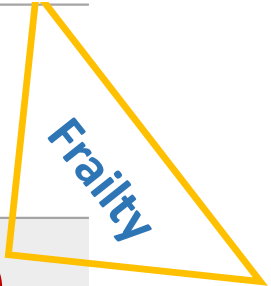
Guralnik et al., 1994; Guralnik et al., 1995; Guralnik et al., 2000; Pavasini et al., 2016; Copeland et al., 2017; Ainsworth, 2009

results

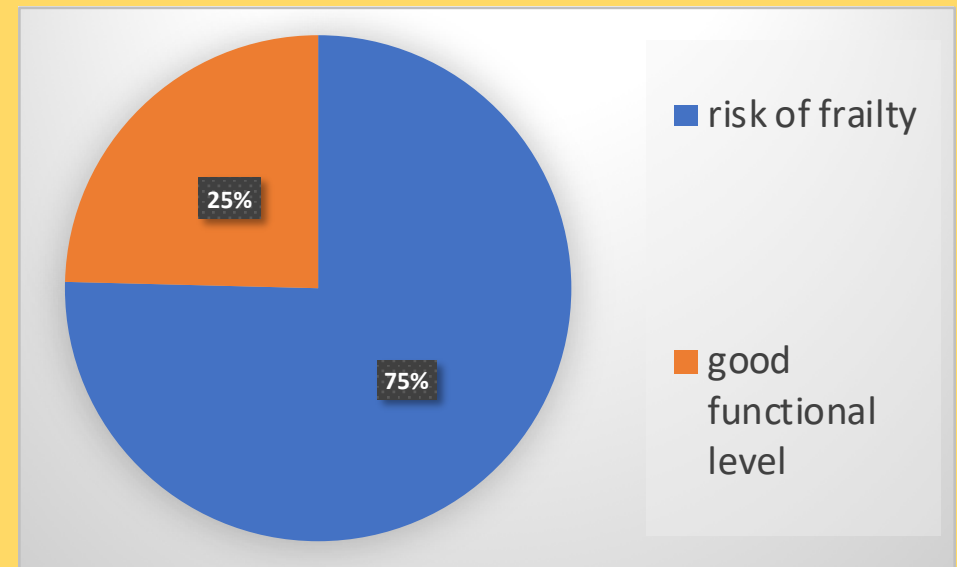
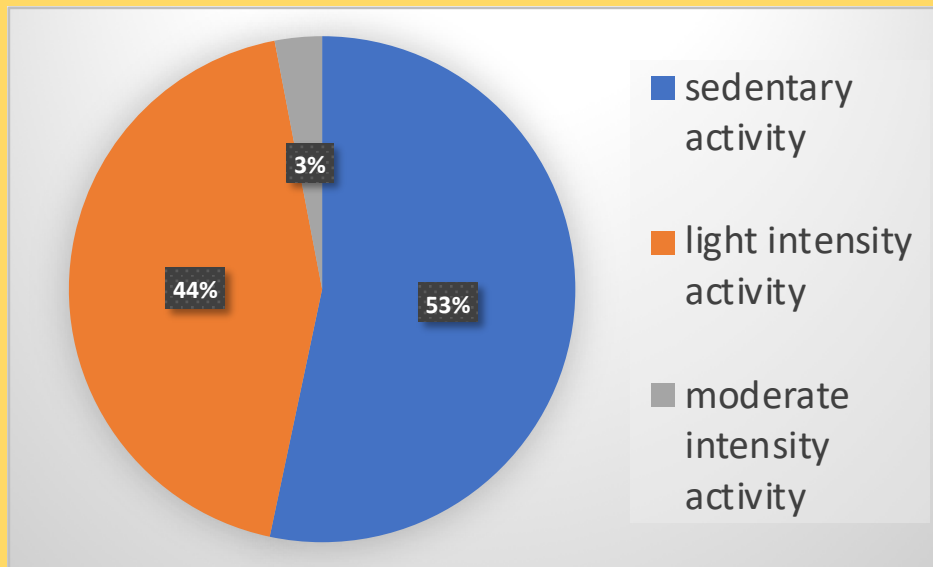


- 40 (61.5%) females & 25 males
- 50.8% were married & living with spouse
- 26.1% lived alone
- 64.6% basic education

		Light Intensity Physical Activity mean±SD	Physical Function mean±SD
Gender	Female	268.33±107.79	7.44±2.41
	Male	269.95±108.74	7.49±2.44
	P value	0.647	0.195
Age	75-79	267.60±95.94	7.43±2.43
	80-84	271.46±107.30	7.46±2.40
	85-89	304.29±114.06	8.48±2.13
	90-96	274.49±112.00	7.6±2.46
	P value	0.518	0.032*
Educational Level	Basic education (6 th grade)	268.33±107.79	7.44±2.41
	Secondary education (12 th grade)	273.28±108.74	7.48±2.40
	Higher education	326.36±100.52	7.61±2.42
	P value	0.842	0.413



results



positive low association between
time spent in light intensity PA and physical function
($\rho=0.45$, $p=0.01$)

discussion

daily average of 4h 30m in light intensity activity,
significantly associated with functional capacity

sedentary time increase due to the decrease of time spent
in **LIPA**(Sparling, Howard, Dunstan, & Owen, 2015)

LIPA may bring a **significant contribution for functional
capacity and autonomy**

limitations

Tools

self reported LIPA | lower than studies using accelerometry (Loprinzi, 2013, 2017)

well guided daily use of diaries | detailed PA routines | enable tailored interventions

Sample

Low level of physical functioning could be explained by the older mean age of the participants (Gill et al., 2016) and/or recruitment location

Future study

light intensity physical activity amongst frail older adults seems to be an alternative to moderate intensity

use activity diaries to help customize interventions



thank you

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