Author’s response to reviews

Title: The age-performance relationship in the general population and strategies to delay age related decline in performance

Authors:

Geoffroy Berthelot (gberthel@gmail.com)
Stacey Johnson (Stacey.JOHNSON@univ-cotedazur.fr)
Philippe Noirez (philippe.noirez@parisdescartes.fr)
Juliana Antero (Juliana.ANTERO@insep.fr)
Adrien Marck (Adrien.MARCK@insep.fr)
françois Denis Desgorces (f.desgorces@free.fr)
Fabien Pifferi (fabien.pifferi@mnhn.fr)
patrick carter (pacarter@wsu.edu)
Michael Spedding (michael@speddingresearchsolutions.fr)
arachana singh-manoux (archana.singh-manoux@inserm.fr)
Jean-François Toussaint (jean-francois.toussaint@aphp.fr)

Version: 1 Date: 16 Oct 2019

Author’s response to reviews:

Dear editor,

We deeply appreciate the time and effort of the editor, reviewer and gratefully acknowledge their remarks. Please find here our revised manuscript, as well as this present rebuttal letter, in which we answer the reviewer’s comments:

"Given my expertise in physical activity, I focused my attention on that section of this review. I believe the authors have done a nice job summarizing the literature. I would suggest that the authors include a statement to define what is physical activity, and that exercise is a type of pre-planned and reoccurring physical activity. I also suggest the authors consider that being active has strong benefits for maintaining functional independence and health related quality of life, in addition to extending life. So, older adults should continue to be active because their ability to
maintain independence and live in the community will be extended, even if their lifespan is not necessarily extended. Thank you for including me on this review."

We added the following text in the section "Strategies to delay performance decline" / "Physical and mental activity" (bold text marks new additions):

"There are several strategies to modify age-related health trajectory: physical activity is thought to have beneficial effects on both physical health and mental well-being [50, 51]. As defined by the World Health Organization, physical activity is 'any bodily movement produced by skeletal muscles that requires energy expenditure' whereas exercise is 'planned, structured, repetitive and purposeful'. For purposes of this review, only physical activity measured by activity monitors was considered."

and:

"It has the potential to increase lifespan while reducing the global burden of disease [52, 53]. It has an effect over the regulation of aging within and across several physiological systems [54]. For elderly subjects sarcopenia, frailty and osteoporosis can be major concerns therefore, strength training exercises may be of particular benefit [55-57]. General activity has strong benefits for maintaining functional independence and health-related quality of life, in addition to possible lifespan extensions. So, older adults should continue regular activity to maintain and extend their independence and live within the community [58,59]."

and:

"Lazurus and Harridge introduced the 'Set Point Theory' which hypothesizes that a given amount of physical activity is needed to optimize health with aging, maximizing the 'healthspan' [77]. Their analysis is based solely on the decreasing part of the [LateX symbol], but as detailed above the decrease in performance is complex in all situations studied. Given the inevitable age-related decline in functional capacity, accompanied by degeneration in multiple organ systems, it is important to identify targets that could compress morbidity. Physical activity is one such target, with benefits for health that have therapeutic and societal value."

and included corresponding new references:


and physical function in aging: An umbrella review. Medicine and science in sports and exercise 51(6), 1303–1313 (2019)
