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Effects of old and very old age on neuromuscular fatigue during isometric, concentric and cycling fatiguing tasks in men and women

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The impact of aging on performance fatigability, particularly in isometric, dynamic, and cycling tasks with absolute workloads, was investigated. Participants included 26 young, 27 old, and 23 very old adults. The study utilized isometric and dynamic quadriceps intermittent fatigue tests, along with cycling tests, adjusting workloads based on body weight increments.

Results indicated performance decline across age groups in all conditions. In men, maximal force decreased earlier in cycling for older adults compared to the young but not in isometric and dynamic tasks. However, young adults showed greater fatigability than very old adults in isometric tasks. For women, older age groups exhibited earlier maximal force decline in cycling and concentric tasks compared to the young. However, fatigability at exhaustion was similar across ages and tasks for women.

Overall, young adults outperformed older counterparts regardless of task when adjusting for body weight. Fatigability onset varied across tasks and age groups, emphasizing the need to assess fatigability not only at exhaustion but also at sub-maximal levels closer to daily activities' intensity. These findings underscore the importance of considering age-related changes in fatigability for designing effective interventions targeting functional decline.

Presenting author

Vianney Rozand

Primary authors: ROZAND, Vianney (Inserm U1093 CAPS, University of Burgundy, Dijon, France); Dr VARESCO, Giorgio (Inter-university Laboratory of Human Movement Biology, Jean Monnet University, Saint Etienne, France); Mrs BERTRAND, Mathilde (Inter-university Laboratory of Human Movement Biology, Jean Monnet University, Saint Etienne, France); Mr LUNEAU, Eric (Inter-university Laboratory of Human Movement Biology, Jean Monnet University, Saint Etienne, France); Prof. MILLET, Guillaume (Inter-university Laboratory of Human Movement Biology, Jean Monnet University, Saint Etienne, France); Prof. FÉASSON, Léonard (Inter-university Laboratory of Human Movement Biology, Jean Monnet University, Saint Etienne, France); Dr LAPOLE, Thomas (Inter-university Laboratory of Human Movement Biology, Jean Monnet University, Saint Etienne, France)

Presenter: ROZAND, Vianney (Inserm U1093 CAPS, University of Burgundy, Dijon, France)

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