

Wearing a backpack could limit physical performance, research suggests

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Sport and exercise academics at the University of Derby have discovered that wearing a heavy backpack during physical activity, such as that worn by the military on exercise, can significantly decrease

performance.

Participants in the study wore a 25kg backpack during a 60 minute walk, and were then asked to run as fast as they could for 2.4km time trial (British army selection standards) to investigate the impact of wearing a heavy load on respiratory [muscle fatigue](#) and [physical performance](#).

PhD student Mark Faghy, who carried out the research with Lecturer in [Exercise Physiology](#), Dr Pete Brown, said: "Carrying a heavy load presents a unique challenge to the [respiratory system](#) by combining both chest wall loading from the mass of the backpack and restriction from the straps.

"This alters breathing mechanics during exercise, increasing the effort of taking each breath, which causes the respiratory muscles to become fatigued more quickly."

"Compared to the individuals' levels of fatigue and performance on the trials when not carrying a load, we saw a significant increase in respiratory fatigue and a decrease in performance as a result of the backpack"

Dr Pete Brown added: "Effects as big as these could have life or death implications for people on active duties in the armed forces; which is why we are hoping to carry out a larger-scale study on army personnel in the near future."

Provided by University of Derby

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