



Lay summary: Improving Energy Expenditure Estimates From Wearable Devices: A Machine Learning Approach

Reference: O'Driscoll, R. et al. (2020). Improving Energy Expenditure Estimates From Wearable Devices: A Machine Learning Approach. *Journal of Sports Sciences* DOI: 10.1080/02640414.2020.1746088.

Why is this study important? In our previous studies we showed that the validity of activity monitors is poor. In this study, we utilise advanced statistical methods to refine these estimates. This will provide researchers

What did we do? A sample of 59 adults were invited to a laboratory to perform a series of activities which were selected to reflect typical daily activities. Concurrently, we collected gold standard measures of energy expenditure. Algorithms were trained to predict this measure of energy expenditure.

What did we find? Our developed machine learning algorithms resulted in predictions of energy expenditure which exceed the accuracy of the most accurate current device, the sensewear armband.

What does it mean? If replicated, this result indicates that new statistical methods may allow for more accurate and precise estimates of energy expenditure in free living adults.