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Metabolic profile between high versus low energy spenders during exercise on a cycle-desk

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Active-desks are emerging strategies aiming to reduce
individual variability in energy expenditure (EE) to
better optimize and individualize those strategies based on the
metabolic and physical profile of individuals. High energy
spenders (H-Spenders) based on EE during a 30-min
working in administrative positions were enrolled. Their
metabolic profile parameters were assessed. The purpose of this study
was to explore whether the chronic use of cycle-desks could
during a 30-min cycle-desk use. Participants were divided into
median of the difference between EE at rest and during exercise
mean EE ($p < 0.001$) and carbohydrate oxidation rate (CO₂)
higher values for fasting plasma insulin ($p = 0.003$), triglycerides
cholesterol ($p = 0.014$) than L-Spenders. The purpose of this study
H-Spenders ($p = 0.034$). Individuals expending more energy
presented a less healthy metabolic profile compared to L-Spenders.
to explore whether the chronic use of cycle-desks could reduce
metabolic parameters.

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Metabolic profile in women differs between high versus low energy

low energy spenders during a low intensity exercise on a cycle-desk Terry Guirado, Pierre Bourdier, Bruno Pereira, Elisa Le Roux, Audrey Bergouignan, Anthony Birat, Laurie Isacco, David Thivel, Martine Duclos & Lore Metz Sci Rep. 2022 Jun 15;12(1):9928. doi: 10.1038/s41598-022-14002-6.

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Abstract

Active-desks are emerging strategies aiming at reducing sedentary time while working. A large inter-individual variability in energy expenditure (EE) profile has been identified and has to be explored to better optimize and individualize those strategies. Thus the present study aimed at comparing the metabolic and physical profile of individuals characterized as high spenders (H-Spenders) versus low spenders (L-Spenders) based on EE during a cycle-desk low intensity exercise. 28 healthy women working in administrative positions were enrolled. Anthropometric, body composition and fasting metabolic profile parameters were assessed. EE was determined by indirect calorimetry, at rest and during a 30-min cycle-desk use. Participants were categorized as H-Spenders and L-Spenders using the median of the difference between EE at rest and during the 30-min exercise. H-Spenders had higher mean EE ($p < 0.001$) and carbohydrate oxidation ($p = 0.009$) during exercise. H-Spenders displayed higher values for fasting plasma insulin ($p = 0.002$) and HOMA-IR ($p = 0.002$) and lower values for HDL-cholesterol ($p = 0.014$) than L-Spenders. The percentage of body fat mass was significantly higher in H-Spenders ($p = 0.034$). Individuals expending more energy during a low intensity cycling exercise presented a less healthy metabolic profile compared with L-Spenders. Future studies will have to explore whether the chronic use of cycle-desks during work time can improve energy profile regarding metabolic parameters.

<https://www.nature.com/articles/s41598-022-14002-6>(<https://www.nature.com/articles/s41598-022-14002-6>)

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