

Is daytime napping an effective strategy to improve sport-related cognitive and physical performance and reduce fatigue? A systematic review and meta-analysis of randomised controlled trials

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Abstract

Objective: To estimate the association between daytime napping and cognitive and physical sport performance and fatigue after normal sleep and partial sleep deprivation (less sleep duration than necessary). **Design:** Systematic review and meta-analysis. **Data sources:** The PubMed, Scopus, Web of Science, Cochrane Central, SportDiscus and PsycINFO databases. **Eligibility criteria for selecting studies:** Randomised controlled trials on the effect of daytime napping on sport performance and fatigue available from inception to 2 December 2022. **Standardised mean differences (SMD) and their 95% compatibility intervals (CI) were estimated with the DerSimonian-Laird method through random effect models. Results:** In the 22 included trials, 291 male participants (164 trained athletes and 127 physically active adults) aged between 18 and 35 years were studied. When performed after a normal night of sleep, napping from 12:30 hours to 16:50 hours (with 14:00 hours being the most frequent time) improved cognitive (SMD=0.69, 95% CI: 0.37 to 1.00; I²=71.5%) and physical performance (SMD=0.99, 95% CI: 0.67 to 1.31; I²=89.1%) and reduced the perception of fatigue (SMD=-0.76, 95% CI: -1.24 to -0.28; I²=89.5%). The positive effects of napping were also confirmed after partial sleep deprivation. Overall, the benefits were higher with a nap duration between 30 and <60 min and when the time from nap awakening to test was greater than 1 hour. **Conclusions:** After a night of normal sleep or partial sleep deprivation, a daytime nap between 30 and <60 min has a moderate-to-high effect on the improvement of cognitive performance and physical performance and on the reduction of perceived fatigue. PROSPERO registration number: CRD42020212272. © Author(s) (or their employer(s)) 2023. No commercial re-use. See rights and permissions. Published by BMJ.

Author keywords

Athletic Performance; Meta-analysis; Sleep