

# DIURNAL NAP COULD ENHANCE RECOVERY PROCESS AND COUNTERACT THE NEGATIVE EFFECT OF PARTIAL SLEEP DEPRIVATION ON PHYSICAL AND COGNITIVE PERFORMANCES

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## Introduction

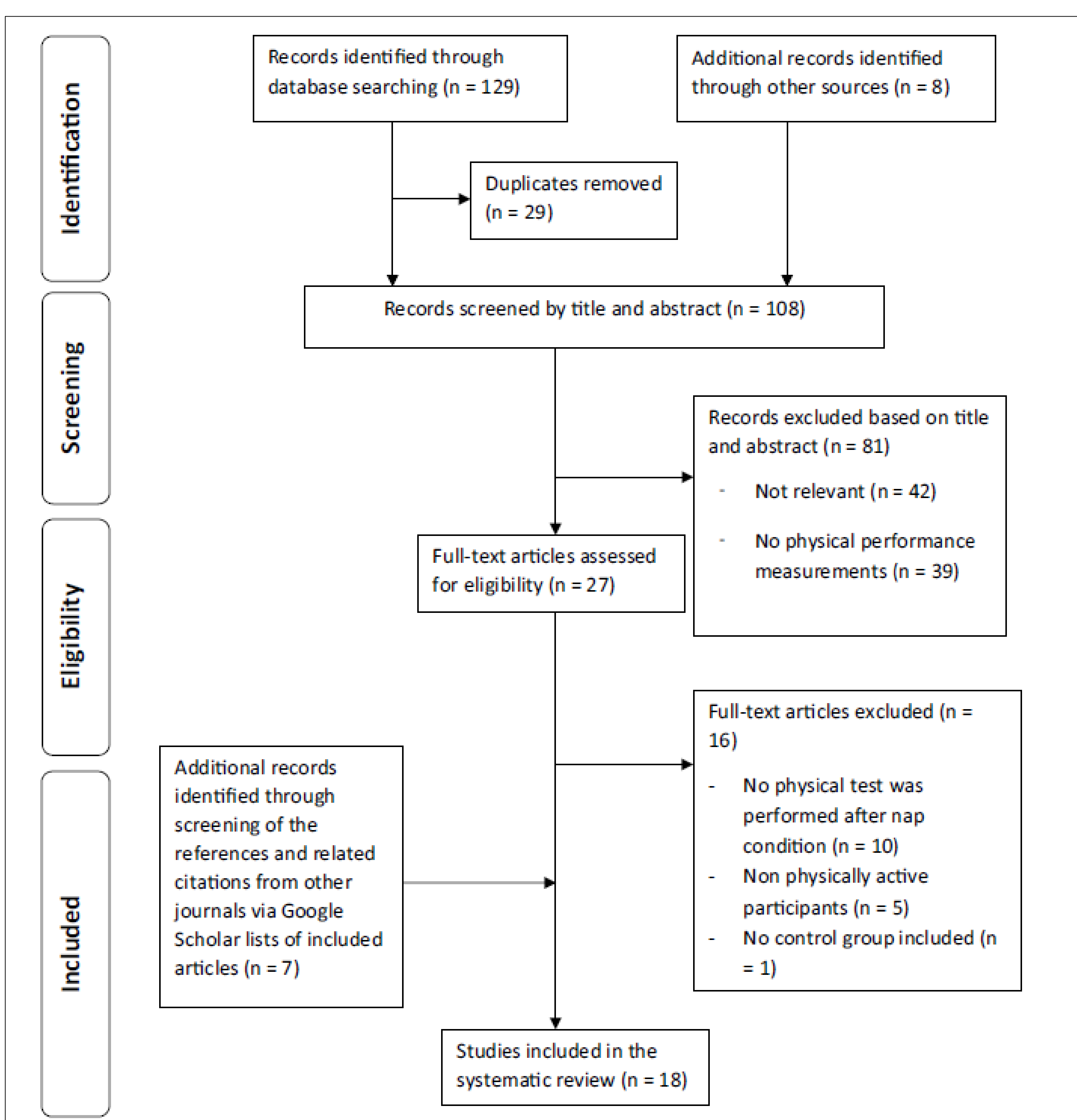
Athletes often experience chronic sleep disturbance (Walsh et al., 2020). Napping is widely recommended as a safe and non-invasive intervention to counteract the negative effects of partial sleep deprivation (Romdhani et al., 2020). This systematic review aimed to:

Evaluate the effectiveness of diurnal napping opportunities on athletes' physical and cognitive performances

Outline how aspects of the study design can influence the potential effects of napping.

## Methods

This review was conducted in accordance with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines. PubMed, Web of Science and Scopus databases were searched up to June 2020 for relevant studies investigating the effect of napping on physical and cognitive performances in physically active participants. Fourteen strong-quality and four moderate-quality studies met our inclusion criteria and were included in the final sample.



Flow chart of the systematic review process (PRISMA)

## Results

- Most studies (n=15) confirmed the beneficial effects of napping and showed that diurnal napping improved short term physical performance, endurance performance and specific skill performance. Moreover, napping improved reaction time, attention and short-term memory performances.
- “Replacement naps” showed to improve both physical and cognitive performances regardless of the type of exercise.
- Longer nap opportunities (i.e., 90 min) resulted in better improvement of physical and cognitive performance and lower induced fatigue. Romdhani

## Key Points

A diurnal nap could enhance the recovery process and counteract sleep deprivation's negative effects before and/or following competition and/or training.

Diurnal napping improved short-term memory, attention, reaction time, repeated-sprint, jumping, endurance and specific skills performances, with greater improvement following longer naps for attention, reaction time and repeated-sprint tests.

The effect of naps is strongly affected by (i) athletes' objective and subjective rating of sleep quality and duration during the nap and previous nights and (ii) exercise type.

A possible suggestion to coaches, sports scientists and medical staff in technical-based sports is to use morning training scheduled time for technical practice of various individual skills and to introduce nap opportunity in midafternoon (i.e., 13:00–14:00 h). This may consolidate learning processes and lead to better mastery of sport skills.

## Conclusions

- A diurnal nap seems to be an advantageous intervention to enhance recovery process and counteract the negative effect of partial sleep deprivation on physical and cognitive performance.
- To optimize physical performances of athletes experiencing chronic lack of sleep, findings suggest 90 min as the optimal nap duration.

## References

- Romdhani, M et al. (2020). Improved Physical Performance and Decreased Muscular and Oxidative Damage With Postlunch Napping After Partial Sleep Deprivation in Athletes. *Int J Sports Physiol Perf*, 1–10.
- Walsh, N. et al. (2020). Sleep and the athlete: Narrative review and 2021 expert consensus recommendations. *Br J Sports Med*. DOI: 10.1136/bjsports-2020-102025. Online ahead of print.