

SOCIAL SCIENCES

Individualized Sleep Hygiene Across the Competitive Season in Female 200 m and 800–2,000 m Runners: A Narrative Review

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Abstract

Sleep is an important component of recovery in high-performance sport, but current evidence does not support treating sleep hygiene as an isolated determinant of competitive performance. This narrative review examines how individualized sleep-hygiene strategies may be incorporated across a competitive season in female runners specializing in the 200 m and 800–2,000 m events. The available literature includes studies in track-and-field athletes, female athletes, soccer players, endurance runners, and broader elite-sport populations. Across these sources, sleep education, regular sleep-wake schedules, sleep extension, strategic naps, reduced pre-sleep stimulation, and individualized monitoring are commonly discussed as practical approaches for supporting sleep opportunity and recovery. The practical emphasis may differ according to event demands: sprinting places a high premium on neuromuscular power, reaction, and high-intensity performance, whereas middle-distance preparation also involves substantial aerobic and interval-training loads. However, direct studies comparing seasonal sleep interventions in female 200 m and 800–2,000 m runners remain scarce. Recommendations should therefore be individualized and periodized, and interpreted as supportive components of training and recovery rather than as guaranteed means of improving official race times. More sport-, sex-, and event-specific research is needed to clarify the magnitude and consistency of these effects.

Keywords: sleep hygiene; female runners; sprint; middle-distance running; recovery; seasonal planning

1 Introduction

Sleep is widely recognized as a relevant component of recovery, readiness, and health in athletes. Consensus and review literature indicates that sleep quantity, quality, timing, and regularity may be influenced by training schedules, travel, competition demands, pre-competition arousal, and individual habits, while inadequate or irregular sleep can affect cognitive, physiological, and perceptual functions relevant to sport [1,3,4].

In track and field, sleep management is especially relevant because athletes often need to reconcile demanding training cycles with fixed competition schedules. Observational evidence in elite track-and-field athletes shows variability in sleep characteristics and napping behavior around major competition, reinforcing the need to consider sleep as a dynamic behavior that changes across the season rather than as a single, stable trait [2].

The practical question is not whether sleep hygiene alone determines race performance, but how sleep-related behaviors can be organized to support recovery under different event demands. The 200 m relies heavily on rapid force production, neuromuscular activation, technical execution, and high-intensity anaerobic work. Events from 800 to 2,000 m combine high-intensity running with a greater contribution from aerobic metabolism and commonly involve substantial interval and

endurance training. These differences provide a rationale for individualized sleep management, but the cited literature does not establish separate, fixed sleep prescriptions for each event group.

Accordingly, this article analyzes individualized sleep hygiene as a supportive component of seasonal recovery management in female 200 m and 800–2,000 m runners. It distinguishes evidence obtained directly in track-and-field or female athletic populations from findings extrapolated from other sports and proposes a cautious framework for integrating sleep education, monitoring, and recovery strategies without overstating their effect on official race times.

2 Background

Sleep hygiene refers to behavioral and environmental practices intended to create conditions that favor adequate sleep. In athletes, commonly discussed strategies include consistent sleep and wake times, sufficient sleep opportunity, reduced exposure to stimulating activities near bedtime, appropriate use of naps, management of light and screens, and routines that facilitate pre-sleep relaxation [3,10,11,15]. Reviews also emphasize that these measures are most useful when adapted to the athlete's schedule and when persistent sleep problems are not treated solely through general hygiene advice [3,13].

The evidence base is heterogeneous. Some studies examine broad athletic populations, whereas others focus on team sports, female athletes, endurance runners, or track-and-field competitors. Gooderick et al. investigated sleep-hygiene interventions in female athletes in relation to strength and power outcomes, while Pretorius et al. and Broodryk and Broodryk examined short-term sleep-hygiene interventions in collegiate soccer players [5-7]. These findings are relevant to recovery and performance-related capacities, but they should not be interpreted as direct evidence that the same interventions will reduce official 200 m times or produce equivalent effects in 800–2,000 m racing.

For sprint athletes, the potential relevance of sleep is primarily linked to functions such as alertness, reaction, neuromuscular power, coordination, and tolerance of repeated high-intensity efforts. Reviews on sleep and athletic recovery describe these domains as potentially vulnerable to insufficient sleep, while intervention studies suggest that improving sleep opportunity or hygiene may support selected performance measures [3-7,10]. Nevertheless, the magnitude and consistency of these effects vary according to the protocol and population studied.

For middle-distance runners, sleep management may be particularly relevant to recovery from accumulated training load. Evidence from endurance-running literature supports attention to sleep duration, quality, and recovery, although studies in marathon and ultramarathon runners should not be treated as direct substitutes for evidence in 800–2,000 m athletes because event duration, training structure, and physiological demands differ substantially [8]. Field research in elite track and field further shows that sleep behavior can change between preparation and competition periods, supporting the need for ongoing monitoring rather than a one-time intervention [9].

Female athletes also warrant individualized consideration. Several cited intervention studies include female athletic populations, but the literature remains too limited to define a single sex-specific sleep-hygiene protocol for female runners across sprint and middle-distance events [5,7,12]. Accordingly, sex and event specialization can be considered when interpreting recovery demands, but practical recommendations should remain anchored in the athlete's actual sleep pattern, training schedule, constraints, and response to intervention.

3 Methodology

This study adopts an analytical narrative literature-review design. The selected publications address sleep hygiene, sleep interventions, sleep characteristics in athletes, recovery, strength and power, aerobic and anaerobic performance, and sleep behavior in track-and-field and other athletic populations.

Because the available references do not provide a uniform body of direct research in female 200 m and 800–2,000 m runners, studies involving female footballers, collegiate soccer players, endurance runners, and broader elite-sport populations are used to discuss potentially relevant mechanisms and practical implications. Evidence is treated as indirect when the study population, sport, or outcome differs from the target events. The review therefore does not estimate a single quantitative effect of sleep hygiene on race performance and does not assume that laboratory or other-sport findings transfer directly to official track results.

The analysis is organized around three questions: which sleep-hygiene strategies are supported as practical components of athlete recovery; how those strategies may be adapted across a competitive season and different event demands; and what limitations must be considered when translating findings from heterogeneous athletic populations to female sprinters and middle-distance runners.

4 Results and discussion

The literature supports an individualized rather than prescriptive approach to sleep management. Expert consensus and systematic reviews identify sleep as a modifiable recovery behavior, but also show that athletes differ in sleep need, schedule constraints, response to interventions, and the causes of poor sleep [1,3,4,13]. Consequently, the same recommendation may be useful for one athlete and insufficient or impractical for another.

In 200 m runners, interventions that protect sleep opportunity and reduce unnecessary pre-sleep stimulation may be particularly relevant during periods of intensive speed, power, or repeated-sprint training. This interpretation is consistent with evidence linking sleep interventions to selected strength, power, aerobic, and anaerobic outcomes in other athletic populations [5-7]. However, the cited studies do not justify claiming that regular sleep schedules, a dark environment, or screen control directly produce faster 200 m race times. Their value is better framed as support for conditions that may favor recovery and readiness.

In 800–2,000 m runners, the seasonal context often includes substantial aerobic work, interval sessions, and competition blocks that can increase recovery demands. Sleep extension and strategic naps have been discussed in reviews as tools for increasing sleep opportunities when athletes accumulate sleep debt or face congested schedules [1,4,11]. Evidence from endurance runners also reinforces the importance of monitoring sleep in populations exposed to high training volumes, although direct transfer to middle-distance performance should remain cautious [8].

Sleep education is another recurring component of the literature. Education can help athletes recognize behaviors that reduce sleep opportunity and can establish a shared language for discussing sleep within the support team. However, information alone may not be sufficient to change behavior. Individualized, media-based sleep education in professional female footballers provides evidence that targeted communication can be implemented in real sporting environments, supporting the use of repeated and context-specific reinforcement rather than a single educational session [12].

Table 1 summarizes the principal intervention priorities that can be drawn from the cited evidence. The table deliberately distinguishes practical relevance from proven event-specific effects, because most available studies do not measure official performances in female 200 m or 800–2,000 m runners.

Table 1. Sleep-hygiene priorities and potential practical relevance across event contexts.

Event / context	Sleep-management focus	Potential practical relevance
200 m sprint	Regular sleep opportunity, stable sleep-wake timing, and reduced pre-sleep stimulation [3,5,10,11].	May support conditions relevant to alertness, neuromuscular readiness, and recovery from high-intensity training; direct evidence for faster official 200 m times is limited.
200 m sprint	Sleep extension or naps when sleep opportunity is restricted by training or competition schedules [1,4,11].	May help offset insufficient sleep and support readiness, but responses should be individualized and timing should avoid unnecessary disruption of nighttime sleep.
800–2,000 m	Monitoring sleep during high-volume and interval-training phases; protecting adequate sleep opportunity [1,8,9].	Potentially relevant to recovery during sustained training load; evidence from endurance populations is informative but not fully event-specific.
Competition / travel	Planned pre-sleep routines, schedule adjustment, and management of environmental or behavioral sleep disruptors [1,9,10,14].	May reduce avoidable sleep disruption when routines change, although competition outcomes remain multifactorial.
Season-long management	Repeated education, individualized feedback, and referral when persistent sleep problems exceed the scope of sleep-hygiene advice [11-13,15].	Supports continuity of sleep management while recognizing that persistent or clinically significant problems may require specialist assessment.

Source: Created by author based on the cited literature.

Seasonal planning can be organized as a sequence rather than a single intervention. During the pre-season, baseline education and observation of habitual sleep can identify obvious barriers such as inconsistent schedules or insufficient sleep opportunity. During the competitive season, brief reinforcement and targeted monitoring may be more practical than repeated broad instruction. Gooderick et al. provide an example of individualized, media-based education in professional female athletes, while track-and-field observations support monitoring across preparation and competition phases [2,9,12].

Periods of intensified training or congested competition may justify temporary emphasis on sleep extension and strategic napping when nighttime sleep is insufficient. Systematic and narrative reviews describe these strategies as potentially useful, although the quality and consistency of intervention evidence vary [3,4,11,13]. This means that naps should not be prescribed automatically; their timing, duration, and effect on subsequent nighttime sleep should be evaluated individually.

Pre-competition periods require particular caution. Anxiety, altered routines, travel, and unusual event times can disturb sleep, yet athletes may also become excessively concerned about obtaining a “perfect” night of sleep. The practical aim should therefore be to reduce avoidable disruption and maintain familiar routines rather than to imply that one suboptimal night necessarily determines performance. The broader consensus literature supports a contextual and individualized approach to pre-competition sleep management [1,10,14].

The literature also places limits on sleep hygiene as a stand-alone intervention. Systematic reviews note variability in intervention quality and outcome measures, and general sleep-hygiene advice may be insufficient when sleep problems are persistent, severe, or clinically significant [3,13]. In such cases, continued performance-focused advice without appropriate assessment could overlook an underlying sleep disorder or other problem requiring specialist care.

A final limitation concerns specificity. The strongest event-specific conclusion that can be drawn from the cited sources is that sleep management is relevant to recovery and selected performance-related functions in athletes. The evidence is not sufficient to establish that female 200 m runners require one fixed sleep protocol while 800–2,000 m runners require another, nor to quantify how much an intervention changes official race performance. Differences between events are therefore best used to prioritize monitoring and recovery concerns, not to claim deterministic physiological responses.

5 Conclusion

Individualized sleep hygiene can be integrated into the seasonal management of female 200 m and 800–2,000 m runners as a supportive recovery strategy. The cited literature supports attention to sleep opportunity, regularity, pre-sleep behaviors, sleep education, strategic naps, and individualized monitoring, particularly when training, travel, or competition disrupt habitual routines.

Event demands can guide emphasis in practice: sprinters may focus on protecting sleep opportunity around neuromuscular and high-intensity training, while middle-distance runners may require particular attention to recovery during periods of greater training volume and interval load. These distinctions are physiologically plausible and consistent with the broader literature, but the available evidence does not demonstrate event-specific causal effects on official race times.

The most defensible approach is therefore individualized and responsive to the phase of the season. Sleep strategies should be adapted to the athlete's actual schedule, response, and constraints, and persistent sleep problems should not be managed through sleep hygiene alone. Further research directly involving female sprint and middle-distance runners is needed to determine which interventions produce meaningful and reproducible changes in sleep, recovery, and competitive performance across a full season.

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