QUALITY IN SPORT
eISSN 2450-3118 · Open Access · Peer-reviewed
apcz.umk.pl/QS Nicolaus Copernicus University in Toruń

MIRKOWSKI, Krzysztof, MIROŃSKI, Adam, MINIK, Bartosz, CZĘCZEK, Kacper, CIEŚLEWICZ, Karolina, SZYMAŃSKA-ZDYB , Kinga, NOWACZEK, Patrycja, BRAKSAL, Barbara, SZUREK, Zuzanna and CHYŁA, Zofia. Sleep Aids in Elite Athletes: A Narrative Review. Quality in Sport. 2026.65.73806. https://doi.org/10.12775/QS.2026.65.73806

ARTICLE TIMELINE
Received: 29.06.2026 Revised: 20.07.2026
Accepted: 20.07.2026 Published: 10.08.2026

INDEXING & EVALUATION
MEiN points: 20 Unique ID: 201398
Disciplines: Economics & Finance; Management & Quality Sciences

The journal has been awarded 20 points in the parametric evaluation by the Ministry of Higher Education and Science of Poland. Annex to the announcement of the Minister of Higher Education and Science of 05.01.2024 No. 32553. Unique Journal Identifier: 201398. Scientific disciplines assigned: Economics and Finance (Field of Social Sciences); Management and Quality Sciences (Field of Social Sciences).

Punkty Ministerialne z 2019 — aktualny rok 20 punktów. Załącznik do komunikatu Ministra Szkolnictwa Wyższego i Nauki z dnia 05.01.2024 Lp. 32553. Posiada Unikatowy Identyfikator Czasopisma: 201398. Przypisane dyscypliny naukowe: Ekonomia i finanse (Dziedzina nauk społecznych); Nauki o zarządzaniu i jakości (Dziedzina nauk społecznych).

PHARMACOLOGICAL SLEEP AIDS IN ATHLETES: A NARRATIVE REVIEW

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Abstract
Sleep is essential for recovery, cognitive performance and mental health in competitive sport. Athletes may use sleep aids when insomnia, travel fatigue, jet lag or pre-competition arousal interfere with rest.
Aim. This narrative review summarizes freely available evidence on melatonin, sedative-hypnotics and related sleep aids in competitive and elite athletes, including effects on sleep, performance, safety and anti-doping risk.
Material and methods. PubMed, PubMed Central, Google Scholar and publisher websites were searched in May 2026. Open-access reviews, trials, consensus papers and official anti-doping documents were prioritized.
Results. Evidence supports structured sleep assessment and non-pharmacological strategies as first-line management. Melatonin appears most relevant for circadian misalignment and travel-related sleep disruption, but direct performance benefits remain uncertain. Evidence for classical hypnotics in athletes is limited, and potential residual sedation, psychomotor impairment, misuse and dependence require caution. Supplement contamination and product quality are important anti-doping concerns.
Conclusions. Sleep aids should be used selectively, for clear indications and under medical supervision. Athlete sleep management should prioritize behavioral, circadian and organizational strategies before pharmacological intervention.

Keywords: athlete sleep; melatonin; sedative-hypnotics; sports psychiatry; recovery; anti-doping.

1. Introduction

Sleep is increasingly recognized as a modifiable determinant of athletic health and performance. In competitive and elite sport, sleep is not merely a passive recovery period but a biological state involved in energy restoration, immune regulation, learning, memory consolidation, emotional regulation and tissue repair. These functions are particularly relevant for athletes, because high training loads, repeated competitions, travel, psychological pressure and strict daily schedules can produce a mismatch between physiological sleep needs and actual sleep opportunities. Open-access reviews and consensus papers describe a high burden of short sleep duration, poor sleep quality and circadian disruption in athlete populations (Halson 2014; Nédélec et al. 2018; Vlahoyiannis et al. 2021; Walsh et al. 2021).

The relationship between sleep and performance is multidimensional. Sleep loss can affect muscular endurance, speed, strength, accuracy, reaction time, executive function, mood and perceived exertion. A meta-analysis of acute

sleep loss reported a negative effect on physical performance, with particularly consistent impairment when exercise tasks were performed later in the day after extended wakefulness (Craven et al. 2022). Interventional studies suggest that sleep extension and planned naps may improve selected performance outcomes, especially when habitual sleep is insufficient (Mah et al. 2011; Lastella et al. 2021; Cunha et al. 2023). However, the translation of sleep science into high-performance environments is complicated by competition schedules, evening matches, early morning training, travel across time zones, media obligations, academic or employment demands and the psychological arousal associated with selection and competition.

Because sleep is closely linked to anxiety, mood regulation and recovery, the topic also belongs to sports psychiatry. Athletes experiencing pre-competition insomnia, adjustment difficulties after travel or chronic sleep restriction may seek quick solutions, including over-the-counter supplements, melatonin, antihistamines or prescription hypnotics. The use of sleep medication in sport therefore raises several questions. Can a sleep aid improve sleep without impairing next-day performance? Which agents are supported by athlete-specific evidence? How should clinicians balance potential benefits against residual sedation, cognitive slowing, dependence, tolerance, misuse and anti-doping risk? These questions are highly practical for team physicians, psychiatrists, sports medicine specialists, psychologists, coaches and athletes.

The pharmacological literature in athletes is uneven. Melatonin has received substantial attention because of its role in circadian rhythm regulation and its availability as a supplement or medicine in many jurisdictions. Recent systematic reviews suggest possible benefits for biomarkers related to exercise-induced stress and for circadian adjustment, but direct performance-enhancing effects remain uncertain (Celorrio San Miguel et al. 2024; Almendros-Ruiz et al. 2023). In contrast, athlete-specific evidence for benzodiazepines, non-benzodiazepine hypnotics and sedating antidepressants is limited, and much knowledge is extrapolated from general sleep medicine, shift-work research or travel medicine (Taylor et al. 2016; Baird and Asif 2018). This gap is important because athletes are expected to perform complex motor and cognitive tasks under pressure, where even minor residual sedation or impaired coordination may be relevant.

Anti-doping considerations add an additional layer. The World Anti-Doping Agency (WADA) Prohibited List is updated regularly and specifies substances and methods prohibited at all times or in competition (WADA 2026). Sleep aids and supplements may also carry contamination risks. The 2024 International Tennis Integrity Agency (ITIA) decision concerning Iga Świątek emphasized that even a regulated non-prescription melatonin product may become relevant to anti-doping proceedings if contaminated with a prohibited substance (ITIA 2024). Therefore, the safety of a sleep aid in athletes is not limited to pharmacology. Product quality, documentation, medical indication, current anti-doping status and batch testing must be considered.

Research Objective. The objective of this narrative review is to summarize current freely available evidence on sleep aids in competitive and elite athletes, with particular attention to melatonin, sedative-hypnotics, sleep quality, recovery, athletic performance, safety, misuse potential and anti-doping considerations.

Research Questions. The review addresses the following questions: What sleep problems are most relevant to competitive and elite athletes? What evidence exists for melatonin and sedative-hypnotic sleep aids in athlete populations? What are the possible effects of these agents on performance and recovery? What safety, psychiatric and anti-doping issues should be considered before recommending pharmacological sleep aids in sport?

2. Research materials and methods

This article was designed as a narrative review. A narrative approach was chosen because the available evidence is clinically important but methodologically heterogeneous: it includes consensus recommendations, systematic reviews, small intervention studies, observational studies, pharmacological considerations and anti-doping documents. The review focused on competitive and elite athletes; studies in physically active individuals and general sleep medicine were used only when they clarified athlete-relevant mechanisms or safety issues.

2.1. Search strategy

A literature search was conducted in May 2026 using PubMed, PubMed Central, Google Scholar and publisher websites. Search terms included combinations of: athlete, elite athlete, competitive athlete, sleep, insomnia, sleep aid, sleep medication, hypnotic, sedative-hypnotic, benzodiazepine, zolpidem, zopiclone, melatonin, circadian rhythm, jet lag, travel, recovery, performance, nap, sleep extension, anti-doping and supplement contamination. Reference lists of relevant reviews were also screened manually.

The search prioritized peer-reviewed open-access articles, articles available through PubMed Central or publisher free full text, and publicly accessible documents from anti-doping organizations. This restriction was used deliberately so that the evidence base could be checked without institutional subscriptions.

2.2. Eligibility criteria

Included sources were written in English and addressed at least one of the following areas: sleep characteristics in athletes; sleep deprivation and performance; sleep interventions in athletes; melatonin supplementation; pharmacological sleep aids; sleep screening tools; recovery practices; dietary supplement contamination; or anti-doping policy. Systematic reviews, narrative reviews, consensus recommendations, observational studies, intervention studies and official documents were eligible.

Sources were excluded when they were not freely accessible, did not address sleep or athlete-relevant performance outcomes, were not available in English, or focused exclusively on unrelated clinical populations

without relevance to sport. Due to the narrative design, no formal risk-of-bias scoring was performed. However, systematic reviews, consensus statements and open-access original studies were prioritized over opinion pieces.

2.3. Data extraction and synthesis

Information was extracted on study type, population, sleep-related exposure or intervention, main outcomes, safety considerations and relevance to competitive sport. The findings were grouped thematically into: sleep problems in athletes; melatonin and circadian adjustment; sedative-hypnotics and other pharmacological aids; effects on performance and recovery; psychiatric and safety considerations; anti-doping and contamination; and non-pharmacological alternatives.

Because this is a narrative review, the synthesis emphasizes practical interpretation rather than pooled effect sizes. Statements about the strength of evidence are presented qualitatively. Evidence was considered stronger when supported by systematic reviews, randomized trials or consistent findings across multiple open-access sources.

2.4. Use of artificial intelligence

Artificial intelligence tools were used as assistive instruments for organization of the manuscript, language editing and consistency checking. They were not used to generate or verify empirical data, replace the author's judgement, or determine the final interpretation of the literature. The author remains responsible for source selection, citation accuracy, conclusions and the final manuscript.

3. Research results

3.1. Sleep problems in competitive and elite athletes

Athletes may experience sleep difficulties for reasons that differ from the general population. Training sessions can begin early in the morning or end late in the evening; competitions may occur at night; recovery modalities, meals, media duties and travel may delay sleep onset; and pre-competition anxiety may increase cognitive arousal. Team sports and individual sports may differ in training schedules, travel and match timing. Nédélec et al. emphasized the variability of sleep among elite athletes and argued that inter-individual differences in sleep needs, chronotype, sport demands and daily schedules should be considered when designing interventions (Nédélec et al. 2018).

Poor sleep in athletes has been reported across multiple levels of competition. Reviews describe short sleep duration, fragmented sleep, poor subjective sleep quality and mismatch between sleep needs and sleep opportunities (Nédélec et al. 2018; Vlahoyiannis et al. 2021; Walsh et al. 2021). A practical challenge is that some athletes normalize fatigue and sleep restriction as part of sport culture. This may delay help-seeking and encourage reliance on quick pharmacological solutions rather than comprehensive sleep assessment.

The consequences of sleep disturbance are relevant to both sports performance and mental health. Sleep insufficiency may reduce reaction time, decision-making speed, learning, emotional regulation and pain tolerance. It may also increase perceived exertion and reduce motivation for training. In athletes with anxiety symptoms or mood vulnerability, repeated nights of poor sleep can intensify worry, irritability and reduced coping capacity. This bidirectional relationship explains why sleep management is a legitimate component of sports psychiatry and not merely a recovery issue.

Travel is one of the most specific sleep challenges in elite sport. International competitions often require rapid adjustment to new time zones, unfamiliar sleep environments and altered meal or training schedules. Jet lag can disturb sleep onset, total sleep time, alertness and gastrointestinal rhythm. Athletes may therefore use melatonin, caffeine, timed light exposure or hypnotic medication to shift the sleep-wake schedule (Baird and Asif 2018). The clinical challenge is to match the intervention to the direction of travel, competition timing, individual chronotype and risk of residual effects.

Table 1. Main categories of sleep aids and athlete-relevant considerations.

Category	Potential role in athletes	Main concerns	Example sources
Melatonin	Circadian rhythm adjustment, jet lag management, possible recovery-related biomarker effects.	Dose timing, product quality, uncertain direct performance benefit, contamination risk.	Baird and Asif 2018; Celorrio San Miguel et al. 2024; ITIA 2024
Non-benzodiazepine hypnotics	Short-term insomnia management or sleep scheduling in selected situations.	Residual sedation, psychomotor impairment, complex sleep behaviors, misuse, limited athlete-specific evidence.	Taylor et al. 2016; Baird and Asif 2018
Benzodiazepines	Rarely appropriate for short-term severe insomnia or anxiety-related sleep disturbance under medical supervision.	Tolerance, dependence, impaired coordination, cognitive slowing, respiratory risks, next-day effects.	Taylor et al. 2016
Sedating antihistamines and sedating	Sometimes used off-label or over the counter for sleep initiation.	Anticholinergic effects, grogginess, limited sport-specific evidence, individual variability.	Taylor et al. 2016; Cook and Charest 2023

antidepressants			
Non-pharmacological strategies	First-line approach: sleep hygiene, sleep extension, naps, light exposure, CBT-I principles, schedule planning.	Requires time, adherence and organizational support; may be difficult during congested seasons.	Lastella et al. 2021; Cunha et al. 2023; Walsh et al. 2021

Source: own elaboration based on the cited literature.

3.2. Melatonin in athletes

Melatonin is the sleep aid with the most athlete-relevant literature. It is an endogenous hormone involved in the regulation of circadian timing and sleep-wake rhythm. Exogenous melatonin is commonly discussed in sport because it may help athletes adapt to travel across time zones, facilitate sleep onset when circadian timing is delayed, and possibly modulate oxidative stress or inflammatory responses after exercise. Unlike classical hypnotics, melatonin is not primarily a sedative. Its effect depends strongly on timing, light exposure, dose and circadian phase.

Baird and Asif described melatonin as one of the agents that may help athletes adjust sleep schedules, particularly in the context of travel and circadian disruption (Baird and Asif 2018). However, the practical use of melatonin requires planning. Taking melatonin at an inappropriate circadian time can theoretically shift rhythm in an undesired direction or produce daytime sleepiness. Therefore, athletes should not treat melatonin as a universal sleeping pill. It is better understood as a chronobiotic intervention that should be combined with timed light exposure, meal timing and schedule management.

A 2024 systematic review of randomized controlled trials in highly trained athletes found promising findings regarding melatonin supplementation and biomarkers related to exercise-induced stress, including antioxidant and inflammatory responses, but concluded that direct effects on sports performance remain uncertain (Celorrio San Miguel et al. 2024). Another systematic review focused on professional football suggested potential benefits of melatonin but also emphasized heterogeneity in protocols, doses and outcomes (Almendros-Ruiz et al. 2023). These findings support a cautious interpretation: melatonin may indirectly support performance by improving circadian alignment or recovery conditions, but the evidence is insufficient to describe it as a direct ergogenic aid.

Original studies in soccer players have explored melatonin before or after intensive exercise. Farjallah et al. reported that melatonin supplementation could attenuate cellular damage and performance decline during an intensive training period in professional soccer players (Farjallah et al. 2022a). Another study from the same research area examined physical and biochemical responses after exhaustive running exercise (Farjallah et al. 2022b). These studies are useful because they move beyond general sleep outcomes and examine sport-specific physiological stress. Nevertheless, sample sizes are limited and protocols vary, so recommendations should remain individualized.

From a psychiatric and clinical perspective, melatonin may be attractive because it has a different risk profile from benzodiazepines and non-benzodiazepine hypnotics. It is not generally associated with dependence in the same way as classical sedative-hypnotics. However, this does not mean that use is risk-free. Side effects such as sleepiness, headache, dizziness or altered alertness may occur, and product quality can vary substantially. In elite sport, even a seemingly low-risk supplement must be evaluated through an anti-doping lens.

3.3. Sedative-hypnotics and other pharmacological sleep aids

The term sedative-hypnotics includes several drug classes, such as benzodiazepines and non-benzodiazepine hypnotics. In general clinical practice, these drugs may be used for short-term insomnia, but they can impair cognition, psychomotor performance and coordination. These effects are particularly important in athletes, where reaction time, balance, judgment, emotional control and motor precision may determine performance and injury risk. The central question is not only whether the drug increases sleep duration, but whether the athlete performs safely and effectively the next day.

Taylor et al. reviewed the evidence on sleep medication and athletic performance and highlighted the need for sport-specific research rather than extrapolation from general populations (Taylor et al. 2016). The authors pointed out that medications capable of improving sleep may still have residual effects that influence performance or perception. In practice, this means that an intervention may appear beneficial if sleep duration is measured alone, yet harmful if next-day cognitive speed, coordination, risk-taking or sport-specific skill are assessed.

Non-benzodiazepine hypnotics such as zolpidem or zopiclone are sometimes considered because they can promote sleep initiation and have shorter half-lives than many benzodiazepines. However, they still carry risks, including residual sedation, complex sleep behaviors, impaired alertness and misuse. Baird and Asif noted that non-benzodiazepine sleep aids may have a role in sleep schedule adjustment in athletes, but this role should be considered carefully and in a medically supervised context (Baird and Asif 2018). The lack of robust trials in elite athletes means that clinicians should avoid routine or unsupervised use.

Benzodiazepines raise additional concerns. They can reduce anxiety and promote sleep, which may appear useful for pre-competition insomnia. However, they can also impair psychomotor function, memory, balance and reaction time. They may cause tolerance and dependence, and abrupt discontinuation can worsen sleep and anxiety. These risks are incompatible with long-term performance health and make benzodiazepines poor first-line options for athlete sleep problems. If used at all, they should be reserved for exceptional short-term clinical indications, with clear documentation and follow-up.

Sedating antihistamines, sedating antidepressants and other off-label agents are also used by some individuals for sleep. In athletes, these options require careful consideration because next-day grogginess, anticholinergic effects, altered thermoregulation or reduced alertness may affect training and competition. Evidence specific to elite athletes is limited. For this reason, the review supports a hierarchy in which sleep education, behavioral strategies, circadian planning and medical assessment precede pharmacological treatment.

3.4. Effects on athletic performance and recovery

Athletic performance depends on both physical and cognitive components. Sleep loss can reduce sprint performance, repeated high-intensity effort, endurance capacity, sport-specific accuracy and decision-making. It may also increase perceived exertion, which can change pacing and tactical decisions. Open-access athlete-focused reviews emphasize that inadequate sleep may influence performance, learning, immune function, injury risk, recovery and mental health, although effect sizes differ by task, context and degree of sleep loss (Halson 2014; Vitale et al. 2019; Walsh et al. 2021; Craven et al. 2022).

The best evidence for improving performance through sleep-related intervention does not come from sleeping pills, but from increasing sleep opportunity. Mah et al. found that sleep extension in collegiate basketball players was associated with improvements in sprint times, shooting accuracy and subjective well-being (Mah et al. 2011). Although the study design and sample size limit broad generalization, it remains important because it demonstrates that improving sleep opportunity can influence sport-specific performance outcomes without pharmacological exposure.

Systematic reviews of sleep interventions in athletes support similar conclusions. Cunha et al. reported that sleep extension and naps were among the most representative and effective strategies for improving sleep and performance outcomes (Cunha et al. 2023). Lastella et al. reviewed napping behavior in athletes and concluded that naps may benefit physical and cognitive performance, perceptual measures and psychological state when implemented appropriately (Lastella et al. 2021). These findings are highly relevant because napping can be used strategically without the pharmacological risks of hypnotics.

Acute sleep loss remains a major performance threat. Craven et al. found that sleep loss negatively affects physical performance, particularly when exercise occurs after prolonged wakefulness later in the day (Craven et al. 2022). This has practical implications for athletes who travel, compete late, attend media events or experience insomnia before important competitions. A pharmacological sleep aid may appear to solve one night of sleep restriction, but the residual effects of the agent must be weighed against the effects of sleep loss itself.

Recovery is another critical outcome. Athletes use recovery modalities to manage fatigue and prepare for subsequent training or competition. Doherty et al. investigated sleep and recovery practices and highlighted the need for individualized support and education (Doherty et al. 2021). Sleep aids should therefore not be viewed in isolation. Their potential value depends on the entire recovery environment, including training load, nutrition, psychological stress, travel, social obligations and access to medical support.

3.5. Psychiatric and safety considerations

The use of sleep aids in athletes should be interpreted through a psychiatric safety framework. Insomnia may be a primary complaint, but it may also be a symptom of anxiety, depression, overtraining, pain, substance use, stimulant use, eating disorder pathology or adjustment difficulties. Treating sleep symptoms without assessing the underlying cause can delay appropriate care. For example, an athlete with repeated pre-competition insomnia may need interventions targeting performance anxiety, arousal regulation and cognitive patterns rather than repeated hypnotic prescriptions.

Misuse potential is a central concern. Athletes are often exposed to intense pressure to recover quickly, travel efficiently and perform despite fatigue. This culture can encourage instrumental use of medications: a stimulant to train, a hypnotic to sleep, an analgesic to compete, and a supplement to recover. Such patterns may be normalized in some environments. Even when each individual use appears minor, the cumulative behavior can increase risk of dependence, adverse interactions and reduced self-monitoring.

Residual impairment is particularly relevant. A sedative that improves sleep onset may still reduce next-day vigilance, reaction speed or motor coordination. This matters in sports requiring rapid decision-making, vehicle operation, contact, aerial movement, shooting precision or tactical awareness. Residual effects may also increase injury risk during training. Therefore, any pharmacological sleep aid should be tested away from competition and high-risk training before being considered in an important performance context.

Another safety issue is the combination of sleep aids with alcohol, opioids, anxiolytics, antihistamines or other central nervous system depressants. Such combinations can increase sedation and respiratory risk. Athletes may also use caffeine to counteract morning sedation, creating a cycle of delayed sleep and further medication use. Clinicians should ask specifically about over-the-counter agents and supplements, because athletes may not consider them medicines.

Screening tools can help identify athletes who need further assessment. The Athlete Sleep Screening Questionnaire was developed because general sleep questionnaires may not fully capture athlete-specific sleep problems (Bender et al. 2018). The Athlete Sleep Behavior Questionnaire was developed to identify maladaptive sleep practices in elite athletes (Driller et al. 2018). These tools support a structured approach: identify sleep problems, classify possible causes, intervene behaviorally when possible and refer for specialist care when indicated.

3.6. Anti-doping and supplement contamination

Anti-doping risk is not limited to substances intentionally used to enhance performance. Athletes are responsible for substances found in their samples, and contamination of supplements or medications can create serious consequences. The current WADA Prohibited List should be checked before using any medication or supplement, particularly before international competition (WADA 2026). Because the List is updated, advice that was correct in a previous season may become outdated.

The ITIA decision concerning Iga Świątek illustrates the relevance of sleep aids to anti-doping practice. The ITIA accepted that the player's positive test was caused by contamination of a regulated non-prescription melatonin medication manufactured and sold in Poland, which she had been taking for jet lag and sleep issues; the violation was considered not intentional (ITIA 2024). This case is important for sports medicine because it shows that even common sleep-related products may become anti-doping risks if product quality is compromised.

Supplement contamination has been discussed in several open-access reviews. Martínez-Sanz et al. reviewed the presence of unlabeled doping substances in dietary supplements used in sport and emphasized the risk of intended or unintended doping (Martínez-Sanz et al. 2017). Mathews discussed prohibited contaminants in dietary supplements and highlighted the role of poor manufacturing processes and intentional contamination (Mathews 2017). Mallick et al. also described dietary supplements as a possible gateway to doping due to contamination and misuse patterns (Mallick et al. 2023).

In practice, athletes should avoid purchasing sleep aids from unreliable online sources, should keep packaging and batch numbers, and should consult medical and anti-doping professionals before use. Teams should develop medication and supplement policies that include documentation, third-party testing where available, and clear procedures for travel. Even when a substance is not prohibited, contamination risk can remain. Therefore, the safest approach is to use the fewest necessary products, select reputable sources and document medical rationale.

3.7. Non-pharmacological alternatives and practical management

The literature supports non-pharmacological strategies as the foundation of sleep management in athletes. These include sleep hygiene education, consistent sleep-wake timing, planned sleep extension, strategic napping, light exposure, temperature and noise control, reduction of late caffeine intake, post-evening competition routines and cognitive-behavioral strategies for insomnia. Such strategies require cooperation between athletes, coaches, medical staff and performance directors, because sleep opportunities are often shaped by organizational decisions rather than individual motivation alone.

Sleep hygiene is sometimes criticized as too simple, but it remains useful when integrated into a broader plan. Vitale et al. described sleep hygiene as a practical approach for optimizing recovery in athletes (Vitale et al. 2019). In high-performance sport, sleep hygiene must be adapted to real schedules. For example, an athlete who trains late cannot always avoid evening arousal, but can use a structured wind-down routine, controlled light exposure, post-training nutrition planning and delayed morning obligations when possible.

Sleep extension may be particularly valuable for athletes with chronic partial sleep restriction. Rather than waiting for insomnia to appear, teams can plan increased sleep opportunity before congested competition periods or travel. Napping may complement night-time sleep, especially when early training or travel reduces total sleep time. Lastella et al. suggested that naps between 20 and 90 minutes and with sufficient time to reduce sleep inertia may benefit athletes (Lastella et al. 2021).

Cognitive-behavioral principles are relevant for athletes who develop conditioned arousal around sleep. Pre-competition insomnia is often maintained by worry about the consequences of not sleeping. Athletes may catastrophize a poor night and become more aroused. In such cases, education about normal variability, relaxation training, stimulus control, cognitive restructuring and acceptance-based strategies can reduce pressure to sleep. This can be more sustainable than medication alone.

A practical stepped-care model can be proposed. First, screen for sleep duration, sleep quality, daytime sleepiness, circadian disruption, caffeine use, alcohol, pain, mood symptoms and travel schedule. Second, implement sleep education, schedule changes and environmental adjustments. Third, use targeted interventions such as naps, light exposure or melatonin when circadian rhythm adjustment is the main issue. Fourth, consider prescription sleep medication only for selected short-term indications under medical supervision, avoiding use close to competition until individual response is known. Fifth, monitor outcomes, adverse effects and anti-doping documentation.

3.8. Clinical decision-making for pharmacological sleep aids

A practical clinical decision should begin with the mechanism of the sleep complaint. Insufficient sleep opportunity is different from insomnia disorder, circadian misalignment, pain-related sleep disturbance or anxiety-related hyperarousal. If the athlete is simply not given enough time in bed because of early training, travel or media obligations, prescribing a hypnotic does not address the primary cause. The first intervention should be schedule modification, protection of sleep opportunity and education for the coaching staff. If the athlete reports adequate time in bed but cannot fall asleep, wakes frequently or experiences daytime impairment, further assessment is needed before pharmacological treatment is considered.

The assessment should include a medication and supplement history, caffeine timing, alcohol use, pain, nocturnal breathing symptoms, restless legs symptoms, mood, anxiety, recent injury and training load. In athletes, it is also important to ask about competition timing, late evening light exposure, travel, sleeping environment, room sharing,

social media use, and pressure to maintain body composition. These questions often reveal modifiable factors. For example, an athlete may take caffeine before an evening match, use bright screens during post-match travel, eat a large meal at midnight and then describe the resulting insomnia as a need for sleeping tablets.

Pharmacological sleep aids can be considered only after this assessment, and only when the expected benefit outweighs risks. A short-term pharmacological plan may be reasonable during exceptional travel, acute adjustment insomnia or clinically significant insomnia that threatens functioning. However, the plan should specify the agent, dose, timing, indication, expected duration, known side effects, anti-doping check and criteria for discontinuation. The athlete should be warned not to first try the medication on the night before an important competition, because individual responses vary and residual effects may be unpredictable.

In sports psychiatry, the threshold for repeated hypnotic use should be high. A repeated pattern of needing a medication to sleep before performance can become psychologically reinforcing and can reduce confidence in natural sleep ability. This is particularly relevant in athletes prone to perfectionism, performance anxiety or rigid routines. Clinicians should therefore combine any short-term pharmacological intervention with behavioral sleep strategies and psychological work around arousal, expectations and coping with imperfect sleep.

A useful decision sequence is as follows. First, determine whether the athlete has adequate sleep opportunity. Second, screen for red flags such as severe daytime sleepiness, suspected sleep apnea, depression, suicidality, substance misuse, concussion, chronic pain or eating disorder symptoms. Third, identify whether the main problem is circadian, behavioral, psychiatric or medical. Fourth, select the least risky intervention that targets the mechanism. Fifth, monitor both sleep outcomes and next-day sport-specific functioning. This approach prevents a narrow focus on sleep duration alone.

3.9. Melatonin: practical interpretation for sport settings

Melatonin is often perceived as simple and safe because it is available without prescription in many countries. In elite sport, that perception can be misleading. Its value depends on correct timing relative to the athlete's circadian phase, light exposure and travel direction. A melatonin dose taken at the wrong time may produce daytime sleepiness or an unintended shift in rhythm. Therefore, melatonin is most rational when used as part of a planned circadian strategy, not as a general sedative after every poor night.

For eastward travel, athletes often need to advance their circadian rhythm, whereas westward travel usually requires a delay. Timed light exposure and light avoidance may be as important as melatonin itself. Morning light after eastward travel can help advance rhythm, while evening light may delay it. Conversely, after westward travel, evening light may support adaptation. The exact plan depends on the number of time zones crossed, arrival time, competition schedule and individual chronotype. Baird and Asif emphasized that sleep schedule adjustment in athletes can involve melatonin, caffeine and non-benzodiazepine sleep aids, but the intervention should match the schedule problem (Baird and Asif 2018).

The evidence for melatonin in sport can be interpreted in two domains. The first is circadian management. This domain has a strong physiological rationale and is relevant to jet lag, delayed sleep timing and late-night competition. The second is recovery biology. Studies have investigated antioxidant, anti-inflammatory and biochemical responses after intense exercise. Findings are promising but not definitive, and the clinical significance for performance outcomes remains unclear (Celorrio San Miguel et al. 2024; Farjallah et al. 2022a).

Dosing is another unresolved issue. Studies use different doses and timing protocols, which makes general recommendations difficult. Higher doses do not necessarily produce better circadian outcomes and may increase next-day sleepiness. In practice, athletes should use the lowest effective dose and avoid unsupervised escalation. Teams should document the exact product, dose, batch and timing. Because melatonin products can vary by country and manufacturer, athletes traveling internationally should avoid buying unfamiliar products immediately before competition.

The Świątek case is especially relevant because it involved a regulated non-prescription melatonin medication rather than an obviously risky supplement purchased from an obscure source (ITIA 2024). The practical lesson is not that melatonin should be avoided in all athletes, but that product quality and documentation matter. A team policy should specify who approves sleep aids, how products are selected, how batch numbers are recorded and what anti-doping resources are consulted before use.

3.10. Sedative-hypnotics: risk-benefit issues by drug group

Non-benzodiazepine hypnotics are sometimes viewed as cleaner or more performance-compatible than benzodiazepines because they may have shorter half-lives and more targeted receptor profiles. This assumption should be treated cautiously. Even short-acting agents can produce residual impairment, abnormal sleep behaviors and memory effects. Athletes in sports involving reaction speed, tactical decision-making, vehicle operation, contact or risk of falling may be particularly vulnerable to small decrements in alertness. If such a medication is considered, the athlete should first try it during a low-risk period and avoid combining it with alcohol or other sedatives.

Benzodiazepines present a different profile. They may reduce acute anxiety and promote sleep, but they can impair balance, reaction time, memory and coordination. They also have a clear potential for tolerance and dependence. In athletes, psychological dependence may emerge even before physiological dependence, because the athlete may begin to believe that sleep before competition is impossible without medication. This can reinforce pre-

competition anxiety and reduce self-efficacy. Therefore, benzodiazepines should generally be avoided as routine sleep aids in competitive athletes.

Sedating antihistamines are often accessible without prescription and may be underestimated. Their anticholinergic effects can include dry mouth, blurred vision, constipation, urinary retention and morning grogginess. They may also impair attention and coordination. Because they are over-the-counter in many settings, athletes may not report them unless specifically asked. Education should make clear that "non-prescription" does not equal "irrelevant to performance" or "irrelevant to anti-doping documentation."

Sedating antidepressants, including agents sometimes used off-label for insomnia, require careful clinical reasoning. They may be appropriate when insomnia occurs with a psychiatric indication that independently justifies the medication. However, using them solely as sleep aids in athletes should involve evaluation of side effects such as orthostatic symptoms, daytime sedation, appetite changes or cardiac considerations. The absence of robust athlete-specific trials means that monitoring must be individualized.

Clinicians should also consider the possibility that an athlete requesting sleep medication may actually need treatment for anxiety, depression, trauma, pain, concussion-related symptoms or overtraining. A medication that sedates may produce short-term sleep but fail to address the drivers of poor sleep. This is one reason why collaboration among sports physicians, psychiatrists, psychologists, physiotherapists, nutritionists and coaches is valuable.

3.11. Sleep aids and different sport contexts

The risk-benefit profile of a sleep aid depends on the sport context. In precision sports such as shooting, archery or golf, subtle impairments in attention, tremor, visual processing or fine motor control may be important. In combat and contact sports, residual sedation may affect defensive reactions and increase injury risk. In endurance sports, sleep loss may alter perceived exertion and pacing, while sedative effects may interfere with early morning starts. In team sports, tactical awareness and rapid decision-making are central, and a drug that produces even mild grogginess can be problematic.

Travel demands also vary by sport. Tennis players, cyclists, swimmers and track-and-field athletes may face international travel, short recovery windows and changing environments. Professional team athletes may experience late matches, charter flights, post-match obligations and compressed schedules. Student-athletes may combine training with academic stress and early classes. These different contexts mean that a universal sleep aid policy is unrealistic. Teams should develop sport-specific protocols that identify predictable high-risk sleep situations and plan non-pharmacological responses before medication is needed.

Age is another consideration. Adolescent athletes often have delayed circadian preferences and school-related early wake times. Their sleep problems may be driven by developmental biology and academic schedules rather than insomnia requiring medication. In these athletes, education of parents, schools and coaches may be more appropriate than pharmacological sleep aids. Older professional athletes may have different concerns, including pain, family responsibilities and accumulated travel burden. Individualized assessment remains necessary.

Sex-specific issues may also matter. Menstrual cycle symptoms, hormonal contraception, pregnancy considerations, iron deficiency, relative energy deficiency in sport and body composition pressure can all influence sleep in female athletes. A sleep complaint should therefore be interpreted within the athlete's broader medical and psychosocial context. A narrow medication-focused response risks missing treatable contributors.

3.12. Monitoring outcomes after sleep interventions

Any sleep intervention should be monitored. Subjective measures include sleep diaries, perceived sleep quality, daytime sleepiness, fatigue, mood and readiness to train. Objective measures may include actigraphy, wearable devices or polysomnography when clinically indicated. Wearables can be useful for trends, but their estimates of sleep stages should be interpreted cautiously. Athletes may become overly focused on device scores, which can increase sleep anxiety. The goal is to improve functioning, not to create another performance metric that produces stress.

The Athlete Sleep Screening Questionnaire and Athlete Sleep Behavior Questionnaire offer more sport-specific assessment than many general questionnaires (Bender et al. 2018; Driller et al. 2018). They can be used to identify athletes who need further sleep assessment and to guide education. Teams should consider periodic screening during preseason, before congested travel periods and after major injuries. Screening is particularly important when an athlete begins requesting repeated sleep aids.

Monitoring should include next-day performance and safety outcomes. For pharmacological sleep aids, clinicians should ask about morning grogginess, delayed reaction, dizziness, unusual dreams, nocturnal behaviors, impaired memory and changes in training quality. Coaches may notice reduced sharpness, coordination errors or slower tactical decisions. These observations should be documented, because the athlete may not connect them with the sleep aid.

3.13. Research gaps and future directions

The most important research gap is the lack of controlled studies of sedative-hypnotics in athlete populations. Existing reviews repeatedly emphasize that direct evidence is limited (Taylor et al. 2016; Baird and Asif 2018). Future trials should compare pharmacological and non-pharmacological strategies using outcomes that matter in

sport: reaction time, sport-specific accuracy, injury markers, perceived readiness, cognitive function, mood, travel adaptation and adverse effects. Sleep duration alone is insufficient.

Melatonin research also requires better standardization. Future studies should specify dose, formulation, timing, light exposure, chronotype, travel direction and competition timing. They should distinguish between acute circadian use and longer-term recovery supplementation. Trials should also report adverse events and product quality checks. Without this information, recommendations remain difficult to translate into elite sport practice.

Another priority is implementation research. Many sleep problems in sport are not caused by lack of knowledge but by schedules and culture. If a team schedules early training after late matches, athletes may be unable to follow sleep advice. Research should therefore test organizational interventions, such as protected sleep windows, travel planning, room environment optimization and coach education. Such strategies may reduce demand for medication more effectively than athlete education alone.

Finally, anti-doping research should address practical medication governance. Athletes often receive information from multiple sources, including physicians, coaches, peers, pharmacists and social media. Clear protocols are needed for checking products, documenting use and communicating risk. Sleep aids are a useful test case because they are common, often perceived as benign and may be used during travel when athletes are outside their usual medical environment.

3.14. Proposed practical algorithm for teams and clinicians

A practical sleep aid policy should begin before the competitive season rather than during a crisis. The first step is baseline education. Athletes should receive clear information on the role of sleep in recovery, the limitations of pharmacological sleep aids, the importance of product quality and the consequences of anti-doping violations. Education should be repeated because athletes often encounter sleep problems during travel, injury rehabilitation or congested schedules, when decision-making may be rushed.

The second step is baseline screening. Screening should include sleep duration, sleep quality, chronotype, daytime sleepiness, caffeine use, alcohol use, napping habits, travel history, training schedule, pain and mental health symptoms. The aim is not to label every athlete with a disorder, but to identify modifiable risk factors and athletes who require more detailed evaluation. A screening process also normalizes sleep conversations and reduces the stigma of asking for help.

The third step is schedule protection. Coaches and performance staff should identify periods when sleep will predictably be threatened: preseason overload, tournaments, late-night matches, early morning starts, long-haul flights and media events. When possible, training and recovery schedules should be designed to preserve adequate sleep opportunity. This organizational intervention may be more effective than advising athletes to sleep more while simultaneously maintaining schedules that make adequate sleep impossible.

The fourth step is non-pharmacological intervention. This includes individualized sleep routines, wind-down periods, light exposure plans, nap scheduling, bedroom environment optimization, caffeine timing, post-match routines and cognitive strategies for pre-sleep arousal. These interventions should be written into the athlete's plan in the same way as strength training or nutrition targets. Vague advice such as "improve sleep hygiene" is less useful than a concrete plan specifying bedtime routine, wake time, nap duration and travel light exposure.

The fifth step is targeted pharmacological consideration. If a circadian problem is present, melatonin may be considered as part of a travel plan. If an acute insomnia crisis occurs, a short-term medication may be considered by a qualified physician after reviewing contraindications, sport demands, anti-doping status and next-day risk. The athlete should be informed that medication is not a substitute for addressing the cause of poor sleep. The plan should include an end date and a follow-up assessment.

The sixth step is documentation. Every product should be recorded with name, dose, manufacturer, batch number, reason for use, start date, stop date and the professional who approved it. Documentation is not only an administrative task; it protects the athlete, helps detect patterns of repeated use and supports medical continuity when athletes travel or change teams. In elite sport, a medication that is not documented should be treated as a safety risk.

The seventh step is evaluation. Sleep outcomes should be reviewed together with daytime functioning, readiness to train, mood, adverse effects and performance-relevant observations. If medication improves sleep but worsens morning alertness, the overall intervention may be harmful. Conversely, if a behavioral plan improves sleep without adverse effects, it should be reinforced and continued. This evaluation should involve the athlete and, when appropriate, the medical and performance team.

3.15. Common clinical scenarios

Scenario one is the athlete traveling eastward across several time zones for a competition. The main problem is usually circadian delay relative to the destination schedule. A plan may include gradual pre-travel adjustment, timed morning light exposure after arrival, avoidance of bright light at specific times, strategic naps and carefully timed melatonin if appropriate. A hypnotic may make the athlete sleep on a plane, but it does not necessarily align circadian rhythm and may create residual impairment. The intervention should therefore prioritize circadian adaptation rather than sedation alone.

Scenario two is the athlete with insomnia before an important final. The complaint may be driven by cognitive arousal: fear of not sleeping, fear of poor performance and repeated checking of the clock. A hypnotic can appear attractive, but it may reinforce the idea that natural sleep is impossible under pressure. A better plan includes

education that one poor night does not automatically destroy performance, reduction of clock monitoring, relaxation training, stimulus control and a pre-planned response to wakefulness. Medication may be reserved for exceptional cases, but it should not become the primary coping strategy.

Scenario three is the athlete with chronic pain after injury. Sleep disturbance may be maintained by pain, reduced training, anxiety about return to play and altered daily routine. Treating this athlete with a hypnotic alone is unlikely to solve the problem. The plan should include pain management, rehabilitation scheduling, psychological support, sleep positioning, adjustment of daytime naps and monitoring for depressive symptoms. This scenario illustrates why sleep complaints should trigger broad assessment rather than automatic medication.

Scenario four is the athlete who uses caffeine heavily to train and compete but then struggles to sleep. The solution is not necessarily a sleeping medication; it may be caffeine timing, dose reduction, substitution strategies and education about half-life. In some sports, caffeine is used strategically for performance, but late use can shift the burden to night-time sleep. A cycle can develop in which caffeine compensates for sedative hangover and sedatives compensate for caffeine-related insomnia. Breaking this cycle requires planning rather than adding more agents.

Scenario five is the athlete who repeatedly asks for melatonin or sedatives during a congested season. Repetition suggests that the sleep problem is no longer an isolated event. The clinician should review training load, travel, mood, anxiety, recovery practices and product use. Repeated pharmacological use should prompt reconsideration of the athlete's broader recovery environment. In a team setting, repeated requests from multiple athletes may indicate a schedule or culture problem rather than individual pathology.

3.16. Ethical considerations in high-performance sport

Medication decisions in elite sport occur in an environment of pressure. Athletes may feel that they must accept any intervention that promises performance benefit, while support staff may feel pressure to keep athletes available for competition. Ethical prescribing requires that the athlete's long-term health remains the primary priority. A sleep aid should not be used to make an unsafe schedule appear manageable or to compensate for organizational decisions that repeatedly undermine recovery.

Informed consent is also important. Athletes should understand the expected benefit, uncertainty of evidence, possible adverse effects, anti-doping responsibilities and alternatives. Consent should be genuine, not shaped by fear of deselection or loss of playing time. Younger athletes and student-athletes require additional protection because they may be less able to question authority or recognize long-term risks.

Confidentiality is a further issue. Sleep complaints can reveal mental health symptoms, substance use, family stress or anxiety. Teams should establish clear boundaries around what information is shared with coaches. Coaches may need functional information, such as whether training schedules should be adjusted, but they do not necessarily need private diagnostic details. Protecting confidentiality encourages athletes to disclose sleep and mental health problems earlier.

Equity should also be considered. Elite athletes in well-funded teams may have access to sleep specialists, travel planning and tested products, while lower-level athletes may rely on internet advice and unverified supplements. Freely available evidence and clear education materials are therefore important. A narrative review based on open-access sources can support athletes and practitioners who do not have institutional access to subscription journals.

3.17. Evidence strength by intervention type

The strongest athlete-relevant evidence supports the importance of sleep itself and the value of non-pharmacological strategies. Sleep extension and napping have direct relevance to performance and recovery, and they avoid many medication risks (Mah et al. 2011; Lastella et al. 2021; Cunha et al. 2023). These strategies should be considered first-line when the athlete has insufficient sleep opportunity or predictable sleep restriction.

Melatonin has moderate evidence for athlete-relevant use, particularly when the clinical problem is circadian misalignment. Its biological rationale is strong, and sport-specific studies suggest possible benefits for recovery-related biomarkers. However, direct evidence for improved competitive performance remains limited and heterogeneous. Therefore, melatonin should be described as a circadian and recovery-support tool rather than a proven performance enhancer.

Evidence for non-benzodiazepine hypnotics in athletes is weak. These agents may be clinically useful in selected short-term contexts, but their sport-specific performance and safety effects remain insufficiently studied. The lack of evidence should not be interpreted as evidence of safety. Rather, it supports a conservative approach in which these drugs are avoided unless there is a clear medical indication and monitoring plan.

Evidence for benzodiazepines as sleep aids in athletes is weakest from a performance-health perspective. Their known effects on psychomotor function, memory, tolerance and dependence make them poorly suited to routine management of sport-related sleep problems. They may have a role in specific psychiatric or medical circumstances, but not as standard recovery tools.

Evidence for over-the-counter sedating agents is also limited and complicated by underreporting. Athletes may not disclose antihistamines, herbal products or combined sleep supplements because they are perceived as benign. This underlines the importance of asking specifically about all products used for sleep and recovery, including those obtained without prescription.

3.18. Practical recommendations

First, every athlete with recurrent sleep problems should undergo structured assessment rather than immediate pharmacological treatment. Assessment should include sleep timing, sleep duration, sleep quality, daytime impairment, training load, caffeine, alcohol, pain, mental health symptoms and travel schedule.

Second, sleep opportunity should be protected at the organizational level. Coaches and performance directors should recognize that repeated early starts after late competitions or travel may create sleep problems that cannot be solved responsibly with medication.

Third, melatonin should be reserved mainly for circadian indications, such as jet lag or delayed sleep timing, and should be used with attention to timing and product quality. It should not be framed as a universal sleeping pill.

Fourth, sedative-hypnotics should be used rarely, for short periods, and under medical supervision. Athletes should not first use a hypnotic before an important event, and clinicians should monitor next-day alertness, coordination and mood.

Fifth, product governance is essential. Teams should maintain records of all sleep aids and supplements, use reputable sources, avoid unnecessary products and check current anti-doping rules. The athlete should keep packaging and batch information when any medication or supplement is used.

Sixth, psychological approaches should be integrated into sleep care. Relaxation, cognitive restructuring, stimulus control and acceptance of occasional poor sleep may be especially useful for pre-competition insomnia. These methods reduce reliance on medication and support long-term resilience.

Seventh, future research should prioritize athlete-specific trials, sport-specific performance outcomes and adverse effect monitoring. Studies should compare pharmacological sleep aids with behavioral and circadian interventions rather than assuming medication is the most relevant solution.

3.19. Implications for sports psychiatry and sports medicine services

Sports psychiatry services can play a central role in preventing inappropriate sleep aid use. The psychiatrist or sports physician should distinguish sleep disturbance caused by transient schedule stress from sleep disturbance associated with anxiety disorders, depressive disorders, trauma, substance use, eating disorders or neurocognitive symptoms after concussion. This distinction matters because the same complaint, “I cannot sleep before competition,” may require different interventions depending on the underlying mechanism. A medication-focused response may be insufficient when the primary driver is fear of failure, rumination, panic symptoms or unresolved injury-related distress.

Integrated care is particularly important because athletes may present first to a coach, physiotherapist, nutritionist or teammate rather than to a physician. These support staff should be educated to recognize warning signs: persistent insomnia, daytime sleepiness, repeated medication requests, escalating caffeine use, mood changes, irritability, loss of motivation, panic symptoms, substance use and deterioration in training quality. Early identification can prevent the development of chronic sleep-medication cycles and may also uncover mental health problems that are otherwise hidden by sport culture.

Sports medicine services should also develop clear pathways for referral to sleep specialists. Symptoms such as loud snoring, witnessed apneas, excessive daytime sleepiness, restless legs, parasomnias, unexplained fatigue or persistent insomnia despite behavioral intervention should not be managed only with sleep aids. Polysomnography or specialist sleep assessment may be necessary. This is especially relevant in strength, power and contact sports, where body mass, neck circumference or concussion history may increase the likelihood of sleep-disordered breathing or other sleep pathology.

3.20. Implementation barriers

The main barriers to healthy sleep management in sport are cultural and organizational. Athletes may view sleep difficulties as personal weakness, while coaches may prioritize training logistics over recovery. Teams may travel overnight to reduce costs or return quickly after competition, even when this disrupts sleep. Athletes may share rooms in noisy environments, compete under bright lights late in the evening and then be expected to attend early recovery sessions. In such settings, sleep advice can become unrealistic unless the organization changes its routines.

Another barrier is the commercial environment surrounding recovery. Athletes are exposed to advertisements for supplements, wearable devices, sleep trackers and recovery products. Some of these tools may be useful, but they can also create an impression that sleep can be optimized through products rather than through adequate time, stable routines and appropriate load management. A review of sleep aids should therefore emphasize that medication and supplementation are only small parts of sleep care.

A further barrier is the demand for immediate solutions. During tournaments or playoffs, there may be little time for behavioral interventions to take effect. This is why preparation should occur earlier. Teams that educate athletes, test travel routines and establish product policies before the season are less likely to make rushed medication decisions during high-pressure events. Preventive planning is safer than crisis prescribing.

3.21. Summary for practice

In practical terms, sleep aids should be divided into three categories. The first category includes environmental and behavioral aids, such as scheduling, sleep routines, naps and light management. These are first-line and should be available to all athletes. The second category includes circadian aids, primarily melatonin, which may be useful

when sleep timing is the central problem. The third category includes sedative pharmacological agents, which should be reserved for selected clinical situations and used with caution. This classification helps teams avoid treating all sleep problems as if they were the same.

The safest general recommendation is to treat sleep as a planned component of training. Athletes plan nutrition, strength work, tactical preparation and recovery modalities; sleep deserves the same level of planning. When sleep is managed proactively, the need for pharmacological aids may decrease. When medication is necessary, it should be used within a structured medical, psychological and anti-doping framework.

At team level, sleep governance can be treated similarly to nutrition or injury-prevention policy. Athletes should know which staff member approves sleep-related products, how products are checked, where batch information is stored, and how adverse effects are reported. This is particularly important when athletes travel internationally and may be tempted to buy unfamiliar over-the-counter preparations in airports, pharmacies or online stores.

A conservative prescribing framework is appropriate in high-performance sport. Any medication or supplement should have a defined purpose, the lowest effective dose, a stop date, a review point and documentation of product source. The athlete should be informed about next-day impairment, interaction with alcohol or other sedating agents, and the possibility that "legal" does not mean "risk-free" under anti-doping rules. The clinician should also consider whether the request for medication is a signal of untreated anxiety, depression, overtraining, pain, concussion symptoms or unrealistic scheduling.

Before a sleep aid is recommended, the athlete's support team should clarify the indication, timing and expected duration of use. A sleep complaint should be described in functional terms: difficulty initiating sleep, early morning awakening, poor sleep opportunity, jet lag, pain-related sleep disruption, pre-competition rumination or a suspected sleep disorder. This distinction reduces the risk of treating all sleep problems with the same pharmacological response.

4. Discussion

This narrative review indicates that sleep aids in competitive and elite athletes should be approached as a performance-health issue rather than a simple pharmacological question. Athletes may seek sleep aids because sleep problems are common and consequential. However, the evidence base favors comprehensive sleep management over routine sedative use. Melatonin is the most defensible pharmacological option when the problem involves circadian timing or travel, but even melatonin requires attention to timing, dose, individual response and product quality.

The evidence for classical sedative-hypnotics in athletes is much weaker. This does not mean they have no clinical role, but it does mean their use should be limited, individualized and medically supervised. Athletic performance requires psychomotor precision, cognitive flexibility and emotional regulation. Drugs that impair these domains may undermine the very performance they are intended to protect. The lack of athlete-specific trials is a major limitation, and future research should measure not only sleep duration but also next-day sport-specific performance, reaction time, balance, mood, injury risk and subjective readiness.

The topic has clear psychiatric relevance. Insomnia in athletes can be linked to anxiety, stress, depression, pain, overtraining or maladaptive recovery culture. Repeated use of medication without assessment may mask these underlying problems. Sports psychiatry can contribute by differentiating transient situational insomnia from persistent insomnia disorder, identifying comorbid mental health conditions, reducing stigma around help-seeking and supporting safer medication decisions when pharmacological treatment is appropriate.

Anti-doping considerations are central. The Świątek case shows that a sleep aid can become relevant to anti-doping even when the athlete did not intend to dope and the product was used for jet lag or sleep issues. This does not mean athletes should fear every medication, but it does mean that sleep aid use must be documented and risk-managed. Teams should treat sleep aids as part of medication governance, not as casual wellness products.

The main practical message is that athletes need individualized sleep plans. A sprinter with pre-competition anxiety, a football player with evening matches, a tennis player crossing time zones, a swimmer with early training and a student-athlete with academic obligations may all report poor sleep, but they do not need the same intervention. The appropriate response depends on the mechanism: insufficient opportunity, circadian misalignment, insomnia, anxiety, pain, environmental disturbance or substance-related sleep disruption.

This review has limitations. It is narrative rather than systematic, and no formal risk-of-bias assessment was performed. The literature on sedative-hypnotics in elite athletes is limited, which requires cautious interpretation. Some conclusions rely on extrapolation from general sleep medicine and travel medicine. However, the use of freely available sources improves transparency and allows readers to verify the evidence directly. Future systematic reviews should focus specifically on pharmacological sleep aids in athletes and should separate melatonin, hypnotics, antihistamines and off-label sedating agents.

5. Conclusions

Sleep is a key component of athlete health, recovery and performance, and sleep problems are common in competitive and elite sport. The most evidence-supported management strategies are non-pharmacological, including sleep education, sleep extension, naps, light exposure, scheduling adjustments and screening for sleep disorders or mental health problems.

Melatonin may be useful in selected athletes, especially for circadian rhythm adjustment and travel-related sleep disruption, but direct performance benefits remain uncertain. It should be used with attention to timing, dose, individual response and product quality.

Classical sedative-hypnotics should not be routine sleep solutions for athletes. Potential residual sedation, impaired psychomotor performance, dependence, misuse and limited athlete-specific evidence support cautious, short-term and medically supervised use only when clinically justified.

Anti-doping risk management is essential. Athletes and support staff should check current WADA rules, document all medications and supplements, avoid unreliable products and consider contamination risk even for common sleep aids.

A practical model for sports medicine is to treat sleep as a core recovery and mental health domain, using pharmacological sleep aids only after assessment, behavioral strategies and anti-doping considerations have been addressed.

Disclosure

The authors declare no competing interests related to this manuscript.

Supplementary Materials: Not applicable.

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All authors have read and agreed with the published version of the manuscript.

Funding: This research received no external funding.
Institutional Review Board Statement: Not applicable. This article is a narrative review and did not involve human participants or animal subjects.
Informed Consent Statement: Not applicable.
Data Availability Statement: Not applicable
Acknowledgements: The author acknowledges the use of open-access scientific literature and editorial support tools for linguistic refinement of the manuscript.
Conflicts of Interest: The author declares no conflict of interest.

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