FAST BREAK

Publication for team medical personnel

Sleep in basketball

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WELCOME to FAST BREAK!

Welcome to Fast Break, the official quarterly news bulletin of the FIBA Medical Commission. Our goal is to introduce our FIBA sports medicine and sports science community to newsworthy research topics and develop a community of practice among physicians and clinicians involved with basketball at every level of play across the globe.

We hope this publication will foster friendly communication and discussions within the world of basketball. We welcome and encourage your questions, comments, suggestions, and contributions to this publication.

MESSAGE FROM THE EDITOR

Hamlet is not the only one to contemplate the desire "to sleep, perchance to dream." We spend about one third of our life asleep, and medical science has yet to determine what the purpose of sleep is. Although sleep is a basic human need - a requirement to sustain life - studies have indicated that one in three adults do not get the recommended amount of uninterrupted daily sleep for optimal health. Sleep challenges in athletes are even more prevalent with studies suggesting that as many as 2/3 of athletes sleep poorly. "Evidence suggests that athletes are disproportionately affected by … sleep problems. Internal and external pressures contribute to psychological distress. Variable competition times, travel and stress are detrimental to sleep quality."1.

Sleep deprivation impairs cognition, thinking, learning and memory. It impairs reaction time and performance and alters metabolism. Sleep deprivation exacerbates psychological problems and increases the rate of illness and injury. Researchers at Stanford University studied the effect of sleep and the performance of collegiate basketball players and found extended sleep resulted in a 9% increase in free-throw and 9.2% increase in 3-point accuracy, with faster sprint times and overall better wellbeing.2

Sleep is so important to optimal function and performance that the International Olympic Committee and the World Anti-Doping Agency have flirted with considering sleep medications as performance enhancing drugs. Sleep hygiene, sleep entrainment and cognitive behavior therapy for insomnia (CBT-I) are nonpharmacological tools the athlete can use to improve their sleep and athletic performance. This thematic issue of the Fast Break focus' on sleep. The guest editorial is written by Dr. Atul Khullar, MD, MSc, FRCPC, FAASM, DABPH, Certified Sleep Medicine expert and consultant to the Canadian Olympic Committee and highlights the importance of sleep for the basketball athlete.

1. Montero A, Stevens D, Adams R, Drummond M. Sleep and mental health issues in current and former atheltes: a mini review. Front Psychol, 2022;13:868614. doi: 10.3389/fpsyg.2022.868614
2. Mah CD, Mah KE, Kesirian EJ, Dement WC. The effects of sleep extension on the athletic performance of collegiate basketball players. Sleep, 2011 Jul 1;34(7):943–950. doi: 10.5665/SLEEP.1132

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IN THIS ISSUE

GUEST EDITORIAL

The Silent Scorer: The dimensions of sleep in high performance basketball

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In the high-stakes world of competitive basketball, where franchises invest millions in cutting-edge technology, advanced analytics, and specialized coaching, sleep is a key performance tool that remains mostly unrecognized, despite being simple and universally accessible.

Sleep health, often sacrificed by many people societally for many reasons, is easy to forget about at with the grueling schedules and relentless travel of elite basketball at multiple levels. However, sleep is now emerging from the shadows as significant determinant of success. From the collegiate athlete juggling academic pressures, the NBA star navigating an 82-game season, or the international competitor managing transcontinental jet lag, sleep represents a foundational pillar upon which athletic excellence and recovery is built. The scientific consensus is clear—optimizing sleep is not a passive recovery strategy, but an active performance enhancer that can impact shooting accuracy, reaction time, injury resilience, and career longevity.

Sleep serves as the body's prime recovery and regeneration mechanism, with different sleep stages facilitating distinct physiological benefits crucial for basketball performance. During deep sleep (slow-wave sleep), the body experiences a surge in human growth hormone release—critical for tissue repair, muscle growth, and bone building. These processes are essential for recovering from the physical demands of practices and games (1). Meanwhile, REM (rapid eye movement) sleep plays a significant role in memory consolidation and cognitive function, helping players retain complex playbooks, develop muscle memory for skilled movements, and improve in-game decision-making (2).

The performance benefits of sleep extension have been quantitatively demonstrated in controlled studies. The landmark Stanford University research with collegiate basketball players revealed that extending sleep to approximately 10 hours per night produced remarkable improvements: players increased their free throw percentage by 9% and their three-point field goal percentage by 9.2% while demonstrating significantly faster sprint times (3). These are not marginal gains; in a sport where championships are decided by single possessions, such improvements can define seasons. The research also documented improved reaction times and decreased fatigue levels, providing a comprehensive picture of sleep's multifaceted benefits (3).

Beyond skill execution, sleep is fundamental for the explosive lower-body power that defines basketball. A 2024 study on semi-professional players found that sleep quality strongly correlated with concentric force and power during countermovement jumps, meaning sleep quality can directly impact a player's ability to explode upward for rebounds and elevate for game-changing blocks (4). Conversely, sleep deprivation carries significant costs—research indicates that sleeping fewer than 7 hours per night increases injury risk by approximately 1.7 times compared to more-rested athletes, with each additional hour of sleep associated with a 43% decrease in next-day injury risk for NCAA Division I basketball players (5).

Different levels of basketball present overlapping but different sleep challenges. The NBA presents a perfect storm of sleep-disrupting factors. The typical schedule features late-night games ending around 10 p.m., followed by media obligations, meals, and potential travel that often delays bedtime until 2-3 a.m. When combined with cross-country travel across multiple time

zones and the physiological arousal following competition, these elements create chronic sleep debt. And it isn't just the schedule. Late-night social media use has been linked to next-day performance declines, including fewer points and rebounds (6), highlighting how modern distractions compound existing scheduling challenges.

In response, NBA teams have started to implement science-based solutions. Most teams have eliminated or made morning shoot-arounds optional, allowing players more time for restorative sleep. Organizations have hired sleep specialists to assess individual players and optimize travel schedules. Elite players have become sleep evangelists—LeBron James employs a meticulous protocol involving temperature control, electronic blackouts, and meditation apps (7), while the institutionalization of the "player afternoon nap" is widely known. (8)

Collegiate basketball players also face unique challenges in securing adequate sleep as they navigate the dual demands of athletic performance and academic responsibilities. Unlike professionals, college athletes must accommodate class schedules, study commitments, and social pressures alongside their training regimens and significantly less luxurious travel to games. Research indicates that young adults, including athletes, require up to 9-10 hours of sleep for optimal functioning, yet a naturally delayed circadian rhythm ("night owl" tendency) and the structure of high-level college sports constantly sabotages this target.

The sleep challenges in international basketball mirror those faced by Olympic athletes, where jet lag management becomes a critical component of preparation as well. Competing in global tournaments like the FIBA World Cup or the Olympics requires athletes to adapt to new time zones, unfamiliar environments, and different cultural conditions. The sleep environment itself also matters, with international competitors often facing unfamiliar bedding, temperature variations, and ambient noise that can disrupt sleep quality.

International or even coast to coast travel across multiple time zones disrupts circadian rhythms, leading to symptoms such as insomnia, fatigue, and headaches, that can compromise performance (9). This has also been seen in American football and baseball teams, who were found to have a significant competitive advantage if they were more in their circadian peak compared to their competition, illustrating how circadian misalignment can affect performance (10, 11). Similar effects likely impact international basketball competitions, particularly during short tournaments where recovery time is limited.

Regardless of competition level, several evidence-based strategies can enhance both sleep quantity and quality: (1)

1. **Prioritize Consistency:** Maintain a regular sleep-wake schedule, even on weekends, to stabilize circadian rhythms. This consistency helps regulate the body's internal clock, making it easier to fall asleep and wake up naturally.

2. **Improve sleep hygiene** – less time awake in bed, not watching the clock, and reductions in evening caffeine and cannabis and alcohol overall

3. **Create an Optimal Sleep Environment:** Bedrooms should be cool (17-20°C), dark, and quiet.

4. **Develop Pre-Sleep Routines:** Wind-down activities such as reading, meditation, or taking a warm bath signal to the body that it's time to sleep.

5. **Strategic Napping:** When nighttime sleep is insufficient, brief naps (20-30 minutes) can help alleviate sleepiness without causing grogginess. However, naps should not replace adequate nighttime sleep, and late afternoon napping (after 4 p.m.) should

generally be avoided. However, if naps are being used to catch up or get more sleep and they don't interfere with nighttime sleep, they can be later and longer.

6. **Manage Travel Strategically:** Adjust sleep schedules gradually before travelling, when possible, use light exposure in the day of the new time zone to reset circadian rhythms, and stay hydrated during travel while avoiding alcohol, which can greatly disrupt sleep.

If the above do not optimize the player's sleep, further assessment is needed which typically involves sleep logs, monitoring, and in some cases, a formal sleep study. The gold standard approach involves a sleep team or a sleep physician working with sports medicine staff to balance performance needs with long-term health.

Common sleep disorders in basketball populations include:

1. Insomnia: Can be acute (particularly prevalent during playoff seasons or before high-stakes games, with performance anxiety as a significant contributor), or chronic, which is defined as 3 months of 3 nights of week sleeping problems leading to impaired daytime function. (12)

2. Delayed Sleep-Wake Phase Disorder: "night owl" tendency. Common in younger adults aged 15-25 and among players accustomed to late games and resulting in difficulty falling asleep before 2-3 a.m.

3. Obstructive Sleep Apnea: Research indicates professional athletes may be at risk, particularly those possessing high body mass index, large neck circumference, heavier weight, high skinfold thickness, history of concussion and playing the lineman position. Basketball players with snoring, high blood pressure, larger neck circumferences and increased body mass should be screened (13).

4. Restless Legs Syndrome: Can emerge following intense games or workouts, potentially related to iron deficiency or neuromuscular fatigue (14).

5. Jet-Lag disorder: a more acute issue with body clock misalignment for a short period, more an issue in multiple time zones travel.

Positional therapy (side sleeping), continuous positive airway pressure (CPAP), an oral advancement device (OAT) or surgery in uncommon cases, are all used to treat obstructive sleep apnea. Magnesium supplements and changing workout times to earlier often help restless leg syndrome. Initially, behavioural techniques as outlined above are used for 1, 2, and 5. More formalized sleep training through cognitive behavioral therapy for chronic insomnia can also be utilized, though practically a course of planned short term sleep restriction may gain most of the benefits of this. (15). Finally, the medically supervised use of sleep medications can be considered. (16)

The use of sleep medications presents a complex issue at all competitive levels, with significant differences in approach depending on the level of competition. Awareness of which ones are banned at certain levels and the need for therapeutic use exemptions (TUE) is important. This varies between the NBA, NCAA and FIBA.

Older sleep medications like zolpidem (Ambien) and eszopiclone (Lunesta) can be helpful but also cause next-day drowsiness and cognitive impairment (16). Melatonin supplementation has gained popularity due to its more favorable side effect profile and not being on any banned lists, though consistency in timing and dosage remains challenging. In North America the unregulated over-the-counter nature of melatonin can lead to unclear levels and potential contamination with banned substances (17). In Europe prescription pure melatonin is widely available.

Newer sleep medications such as dual orexin receptor antagonists (DORA) lemborexant (Dayvigo), daridorexant (Quviviq) as well as the melatonin receptor agonist ramelteon (Rozerem) have very limited next day side effects, as well as almost a negligible risk of abuse, tolerance or dependence. (18, 19).

Compared to traditional sleep medications, the DORA medications also create a more natural sleep for people with chronic insomnia, increasing both REM and deep sleep stages (20, 21) which could theoretically help performance. Regardless, any medication for sleep should be considered only as part of a sleep program and only for very clear usage. Conversely, if sleep is not treated without medical supervision athletes will almost always turn to unsupervised hazardous over-the-counter options such as antihistamines with performance detracting results.

The cultural shift in athletics toward prioritizing sleep represents is a significant development in basketball performance optimization. As research continues to illuminate the profound connections between sleep and performance, teams and players who treat sleep with the same importance as practice, nutrition, and skill development will gain a sustainable competitive edge. In a sport where championships are almost always decided by the slimmest of margins, the quality of rest may ultimately determine the quality of performance—making sleep the silent scorer on every basketball team.

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Comparison of the effect of lemborexant with placebo and zolpidem tartrate extended release on sleep architecture in older adults with insomnia disorder

J Clin Sleep Med, 17 (6) (2021), pp. 1167-1174

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SELECTED PUBLICATIONS OF INTEREST

The effects of sleep extension on the athletic performance of collegiate basketball players.

Mah CD, Mah KE, Kesirian EJ, Dement WC. Sleep, 2011 Jul 1;34(7):943–950. doi: 10.5665/SLEEP.1132

Study Objectives: To investigate the effects of sleep extension over multiple weeks on specific measures of athletic performance as well as reaction time, mood, and daytime sleepiness. **Setting:** Stanford Sleep Disorders Clinic and Research Laboratory and Maples Pavilion, Stanford University, Stanford, CA. Participants: Eleven healthy students on the Stanford University men's varsity basketball team (mean age 19.4 ± 1.4 years). **Interventions:** Subjects maintained their habitual sleep-wake schedule for a 2–4 week baseline followed by a 5–7 week sleep extension period. Subjects obtained as much nocturnal sleep as possible during sleep extension with a minimum goal of 10 h in bed each night. Measures of athletic performance specific to basketball were recorded after every practice including a timed sprint and shooting accuracy. Reaction time, levels of daytime sleepiness, and mood were monitored via the Psychomotor Vigilance Task (PVT), Epworth Sleepiness Scale (ESS), and Profile of Mood States (POMS), respectively. **Results:** Total objective nightly sleep time increased during sleep extension compared to baseline by 110.9 ± 79.7 min ($P < 0.001$). Subjects demonstrated a faster timed sprint following sleep extension (16.2 ± 0.61 sec at baseline vs. 15.5 ± 0.54 sec at end of sleep extension, $P < 0.001$). Shooting accuracy improved, with free throw percentage increasing by 9% and 3-point field goal percentage increasing by 9.2% ($P < 0.001$). Mean PVT reaction time and Epworth Sleepiness Scale scores decreased following sleep extension ($P < 0.01$). POMS scores improved with increased vigor and decreased fatigue subscales ($P < 0.001$). Subjects also reported improved overall ratings of physical and mental well-being during practices and games. **Conclusions:** Improvements in specific measures of basketball performance after sleep extension indicate that optimal sleep is likely beneficial in reaching peak athletic performance.

Sleep and Mental Health Issues in Current and Former Athletes: A Mini Review.

Montero A, Stevens D, Adams R, Drummond M. (2022) Front. Psychol. 13:868614. doi: 10.3389/fpsyg.2022.868614.

Sleep and mental health are important aspects of human health that work concurrently. However, sleep and mental health disorders are often overlooked and undiagnosed in sport due to the negative stigma associated with them. Evidence suggests that athletes are disproportionately affected by mental health issues and sleep problems. Internal and external pressures contribute to psychological distress. Variable competition times, travel and stress are detrimental to sleep quality. Retirement from sport can deteriorate sleep and psychological wellbeing, particularly for those who retired involuntarily and identify strongly with their athletic role. When untreated, these issues can manifest into a range of clinical disorders. This is concerning, not only for compromised athletic performance, but for general health and wellbeing beyond sport. Previous research has focused on sleep and health independently among currently competing, or former, athletes. To date, no research has comprehensively assessed and compared sleep complaints and mental health issues between these two cohorts. Moreover, research has failed to obtain data across a variety of different competition levels, sports, and genders, leaving the current scope of the literature narrow. Comorbid conditions (e.g.,concussion history, obesity), ex-college athletes, and mental health has been the focus of existing literature post-retirement. Future research would benefit from employing both quantitative and qualitative methodologies to comprehensively assess the prevalence and severity of sleep and mental health disorders across current and retired athletes. Research outcomes would inform education strategies, safeguarding athletes from these issues by reducing negative stigmas associated with help-seeking in sport and ultimately increase self-guided treatment.

Teamwork Makes the Dream Work: Who Should Be Managing Athletes on Matters Related to Sleep?.

Driller MW, Halson SL, Mah CD, Suppiah H, Lastella M, Miller DJ, Cooke MB, Rio E, Gibson ASC, Bender AM, Harris R, Armstrong S, Slater G, Grandner MA. Sports Medicine. 55(9):2065-2071, 2025 Sep.

Optimising sleep health is essential for athlete recovery and performance, but responsibility for managing sleep in high-performance sports is often unclear. Although performance support teams include diverse professionals such as coaches, sport scientists, physiotherapists, sports dietitians, psychologists, and physicians, guidance may be fragmented and inconsistent across training environments and competition schedules. This paper proposes a collaborative multidisciplinary model in which sleep specialists may integrate with existing support staff to deliver unified, evidence-based sleep strategies throughout all phases of athlete preparation. By fostering open communication channels, aligning screening protocols, and coordinating interventions, this model ensures consistent messaging and implementation of sleep initiatives. We also address sleep monitoring via wearable technologies, highlighting device performance and data confidentiality considerations to ensure accurate and ethical use of athlete sleep metrics. Emphasis is placed on creating organisation-wide policies that recognise sleep as an important component to health and performance. Adopting this integrated approach to sleep may enhance overall physical and mental health, reduce injury risk, improve recovery, and ultimately, enhance athletic performance.

Jet lag and travel fatigue: a comprehensive management plan for sport medicine physicians and high-performance support teams.

Samuels CH. 2012, Clinical J Sport Med, 22(3): 268-273.

The impact of transcontinental travel and high-volume travel on athletes can result in physiologic disturbances and a complicated set of physical symptoms. Jet lag and travel fatigue have been identified by athletes, athletic trainers, coaches, and physicians as important but challenging problems that could benefit from practical solutions. Currently, there is a culture of disregard and lack of knowledge regarding the negative effects of jet lag and travel fatigue on the athlete's well-being and performance. In addition, the key physiologic metric (determination of the human circadian phase) that guides jet lag treatment interventions is elusive and thus limits evidence-based therapeutic advice. A better understanding of preflight, in-flight, and postflight management options, such as use of melatonin or the judicious application of sedatives, is important for the sports clinician to help athletes limit fatigue symptoms and maintain optimal performance. The purpose of this article was to provide a practical applied method of implementing a travel management program for athletic teams.

Does caffeine supplementation affect sleep in athletes? A systematic review of nine randomized controlled trials.

Bodur M, Barkell J, Li X, Sajadi Hezaveh Z. Clinical Nutrition ESPEN. 65:76-85, 2025 Feb.

OBJECTIVE: This systematic review aimed to assess the effects of caffeine supplements on sleep parameters among professional athletes. **METHODS**: A systematic search of randomized controlled trials (PROSPERO: CRD42024505377) was performed from 1980 to December 2023 through Web of Science (ISI), Cinahl, Embase, CENTRAL, PubMed/MEDLINE, Scopus, and Scienceopen. The effect of caffeine supplement on all sleep parameters (e.g. duration, quality, insomnia), assessed through objective and subjective methods, was investigated among the athletic community. **RESULTS**: Of 1469 records, nine trials were eligible for the current review. The studies showed varying results concerning sleep quality, quantity, efficiency, number of awakenings, sleep onset latency, and other sleep-related variables. These differences in findings may be attributable to factors such as the timing of caffeine consumption in relation to sleep time and the time of exercise, habitual caffeine use, and the dose of caffeine prescribed. Given the nature of caffeine, insomnia following ingestion is likely to occur. **CONCLUSIONS**: This review explores the mechanisms by which caffeine influences sleep in athletes. While caffeine supplementation may enhance athletic performance, it could have a detrimental effect on sleep and therefore recovery. It is important that supplementation considers individual responses to caffeine so that it does not adversely affect sleep in this population.

Focused Review of Sleep Wearable Technology and Its Application in Sports Performance. [Review]

Kaufman MW, Shetty M, Nguyen C, Abas J, Fredericson M, Zeitzer J. *Current Sports Medicine Reports. 24(6):171-176, 2025 Jun 01.*

ABSTRACT: Sleep is a critical component of quality of life, recovery, and performance both physically and cognitively. Tracking sleep with wearables is increasingly prevalent among individuals; the data that are retrieved from these wearables, however, is of unclear relevance. To update this space, literature was reviewed to examine the implications for good and bad sleepers, the current shortcomings of wearables, their current status usage and literature reports in sports medicine, and the future benefits that these devices may have for athletes and

nonathletes alike. Wearables have good performance in detecting sleep but have greater difficulty in discerning between quiet wakefulness and early stages of sleep. The use of summative scores in consumer wearables is opaque, which should make sports medicine providers skeptical of their clinical utility. There is ample opportunity for wearables to be clinically useful and research opportunities to better explore the bidirectional relationship between daytime athletic performance and sleep.

An investigation into sleep, perceived experiences, and exercise performance in elite male cyclists during the Tour de France.

Fitton J, Lechat B, Reynolds AC, Toson B, Manners J, Nguyen P, Loffler KA, Altree TJ, Catcheside P, Eckert DJ. *Physiological Reports. 13(10):e70395, 2025 May.*

This study explores the dynamics of sleep, somatic/psychological experience, and exercise performance before, during, and after the Tour de France (TDF). Objective and subjective sleep, self-reported perceived experience, and objective exercise performance data were collected daily from eight elite male cyclists across a 6-week period including the 3-week TDF and 11-day pre- and post-race periods. Associations between, and temporal changes in, primary interest metrics were explored through Pearson correlation and linear mixed models. Participants were (mean +/- SD) aged 30 +/- 4 years with overall objective sleep duration of 8 h 11mins (+/-58 min) per night. Sleep quality (0-100) was lower during the race than pre-race (beta [95% CI]; -8.0[-11.7, -4.3]). During the pre-race period, sleep onset (4 [2, 5] mins) and offset times delayed (5 [3, 7] mins) and self-reported stress increased (1.87 [1.14, 2.61]) daily. Increases in muscular soreness (0.6 [0.3, 0.8]) and fatigue (0.4 [0.2, 0.6]) during the race preceded daily declines during the post-race period (-3.1 [-4.0, -2.1]; -2.7 [-3.5, -1.8]). Relative performance output (Performance Index; 0-1000) negatively predicted sleep duration (r [95% CI]; -0.32 [-0.46, -0.17]) and sleep quality (-0.34 [-0.47, -0.19]) during the race. Temporal changes in, and associations between, sleep timing, perceived experience, and exercise function highlight the potential for sleep-improvement strategies that enhance performance in naturalistic endurance sporting contexts.

The Effect of Game-Related Contextual Factors on Sleep in Basketball Players.

Fox JL, Scanlan AT, Stanton R, Sargent C. *Journal of Strength & Conditioning Research. 36(10):2942-2945, 2022 Oct 01.*

ABSTRACT: The purpose of this study was to determine whether contextual factors including game location, game outcome, and score-line margin influence subsequent nightly sleep duration and quality in basketball players. Seven semiprofessional, male basketball players were monitored across one competitive season using self-reported sleep diaries and activity monitors. Linear mixed models and effect sizes (ESs) were used to compare sleep duration and quality following games based on game location (played at home or away venues), game outcome (win or loss), and score-line margin (balanced [<= 8-point margin] or unbalanced [>= 9-point margin]). Sleep onset was later following away games (ES = 0.79 +/- 0.86 [moderate], p = 0.12), losses (ES = 0.63 +/- 0.79 [moderate], p = 0.18), and unbalanced games (ES = 1.36 +/- 0.90 [large], p = 0.01). Wake time was later following losses (ES = 1.14 +/- 0.85 [moderate], p = 0.02). Sleep fragmentation was higher following wins (ES = 0.65 +/- 0.74 [moderate], p = 0.17). Sleep efficiency was higher following losses (ES = 0.70 +/- 0.80 [moderate], p = 0.14). All other differences in sleep variables yielded trivial - small ESs (p > 0.05). Because of the later sleep onset times of players, basketball practitioners should consider avoiding early morning travel or training sessions following away games, losses, and unbalanced games, to maintain similar nightly sleep durations in light of the contextual factors encountered. Basketball practitioners may also need to ensure player sleep is optimized following wins compared with losses given the lower quality observed.

Impacts of travel distance and travel direction on back-to-back games in the National Basketball Association.

Charest J, Samuels CH, Bastien CH, Lawson D, Grandner MA. Journal of Clinical Sleep Medicine. 17(11):2269-2274, 2021 11 01.

STUDY OBJECTIVES: Travel fatigue and circadian disruptions are known factors that can hinder performance in professional athletes. The present study focused on travel distance and direction on back-to-back games over the 2013-2020 seasons in the National Basketball Association (NBA). **METHODS**: The outcomes were based on winning percentage with additional covariates including the direction of travel (eastward or westward), the distance traveled (0-500 km; 501-1,000 km; 1,001-1,500 km; 1,501 km and more), team quality, and season. If a team played both games of a back-to-back sequence on the road, they were considered Away-Away; if a team played the first game of a back-to-back sequence at home they were considered Home-Away; if a team played the first game of a back-to-back sequence on the road they were considered Away-Home. **RESULTS**: The sequence Away-Home significantly increases the likelihood of winning compared with the Away-Away and Home-Away sequences: 54.4% (95% confidence interval [CI], 54.4%-54.5%), 39.2% (95% CI, 37.2%-41.2%), and 36.8% (95% CI, 36.7%-36.8%), respectively. When teams travel back home, every additional 500 km reduces the likelihood of winning by approximately 4% (*P* = .038). Finally, after withdrawing the Away-Home sequence, traveling eastward significantly increases the chance of winning (*P* = .024) compared with westward travel but has no significant impact on the probability of winning compared with neutral time zone travel (*P* = .091). **CONCLUSIONS**: The accumulation of travel fatigue and the chronic circadian desynchronization that occurs over the NBA season can acutely disturb sleep and recovery. It appears that tailored sleep and recovery strategies need to be dynamically developed throughout the season to overcome the different challenges of the NBA schedule

Single and Combined Effect of Acute Sleep Restriction and Mental Fatigue on Basketball Free-Throw Performance.

Filipas L, Ferioli D, Banfi G, La Torre A, Vitale JA. International journal of sports physiology & performance. 16(3):415-420, 2021 03 01.

PURPOSE: This study aimed to investigate the single and combined effects of sleep restriction (SR) and mental fatigue (MF) on free-throw (FT) performance among adult male basketball players. **METHODS**: A total of 19 amateur male basketball players performed, in a randomized, counterbalanced, and crossover order, 2 identical experimental sessions separated by an interval of 1 week. The difference between the 2 sessions was in the quantity of sleep the night before the sessions, as follows: in one case, the participants followed their habitual sleep-wake routines; in the other session, they were forced to sleep not more than 5 hours. During the experimental sessions, the participants performed 60 basketball FTs on 2 occasions, separated by watching a basketball tactical video for 30 minutes designed to induce MF. As such, the FT test was completed in 4 different conditions: control, MF, SR, and SR and MF combined. **RESULTS**: The participants registered a significantly lower total sleep time in acute SR (P < .001). The subjective rating of MF was lower in the control than in MF, SR, and SR and MF combined (P < .001). There were no differences between conditions for the subjective ratings of motivation. FT accuracy was higher in the control than in MF, SR, and SR and MF combined (P = .010), while no differences were observed between the 3 experimental conditions (all P > .05).**CONCLUSION**: The results indicate that a combined effect of MF and SR induces a small reduction in basketball FT performance, similar to MF or SR alone.

The Association Between Sleep and In-Game Performance in Basketball Players.

Fox JL, Stanton R, Scanlan AT, Teramoto M, Sargent C

International journal of sports physiology & performance. 16(3):333-341, 2021 03 01.

PURPOSE: To investigate the associations between sleep and competitive performance in basketball. **METHODS**: A total of 7 semiprofessional, male players were monitored across the in-season. On nights prior to competition, sleep duration and quality were assessed using actigraphs and sleep diaries. The data were accumulated over 1 (night 1), 2 (nights 1-2 combined), 3 (nights 1-3 combined), and 4 (nights 1-4 combined) nights prior to competition. Performance was reported as player statistics (field goal and free-throw accuracy, rebounds, assists, steals, blocks, and turnovers) and composite performance statistics (offensive rating, defensive rating, and player efficiency). Linear regression analyses with cluster-robust standard errors using bootstrapping (1000 replications) were performed to quantify the association between sleep and performance. **RESULTS**: The night before competition, subjective sleep quality was positively associated with offensive rating and player efficiency (P < .05). **CONCLUSIONS**: Strategies to increase subjective sleep quality the night before competition should be considered to increase the likelihood of successful in-game performance, given its association with composite performance metrics.

Cognitive Behavioral Therapy for Insomnia (CBT-I): A Primer

Walker J, Muench A, Perlis ML, Vargas I. Klin Spec Psihol. 2022;11(2):123-137. doi: 10.17759/cpse.2022110208.

Cognitive Behavioral Therapy for Insomnia (CBT-I) is a multi-component treatment for insomnia that targets difficulties with initiating and/or maintaining sleep and is delivered over the course of six to eight sessions. The primary focus of CBT-I is to address the perpetuating factors (according to the three-factor model of insomnia) that contribute to the development of chronic insomnia. Chronic insomnia is the most prevalent sleep disorder, occurring in approximately 6–10% of the population, and is a risk factor for multiple medical and psychiatric disorders. Despite its prevalence and morbidity, the widespread dissemination of CBT-I is not commensurate with insomnia's overall public health impact. This is particularly surprising given its large evidence base and recent recommendation as the first line intervention for insomnia. The primary goal of this article is to provide a primer or brief introduction to CBT-I that is intended to be accessible to all clinicians and researchers, including non-sleep experts. Core components of CBT-I (i.e., Sleep Restriction Therapy, Stimulus Control Therapy, Sleep Hygiene, and Cognitive Therapy), relapse prevention strategies, multicultural considerations, adjuvants to traditional interventions, treatment adherence issues, efficacy, and further training options are described. A session-by-session outline is also provided.

Overcoming Insomnia: A Cognitive-Behavioral Therapy Approach, Workbook (2 ed.)

JD Edinger, CE Carney, 2014.

This treatment program uses evidence-based cognitive behavioral therapy (CBT) methods to correct poor sleep habits. CBT has been proven in multiple studies to improve sleep by reducing time spent in bed before sleep onset, reducing time spent awake after first sleep onset, and

increasing the quality and efficiency of sleep. Thoroughly updated according to the DSM-5, which has eliminated the difference between primary and secondary insomnias, this program provides and expanded discussion of daytime related issues as well as delivery issues specific to those with comorbid mental and medical problems. This workbook provides information about healthy sleep and the reasons for improving sleep habits, then helps design a behavioral program to address a patient's specific sleep problems.

Effectiveness of internet-based self-help cognitive behavioral therapy for insomnia (CBT-I) among community adults: A randomized controlled trial

Chan KL, Pau NHY, Poon SFO, Lam BLH, Lam CB, Chan KKS. Applied Psychology Health and Well Being, 2025. 17(3). https://doi.org/10.1111/aphw.70047

While research on internet-based Cognitive Behavioral Therapy for Insomnia (CBT-I) is growing, questions remain regarding its mechanisms and broader benefits beyond reducing insomnia. The present study aims to contribute to the literature by developing, implementing, and evaluating a new internet-based self-help CBT-I among community adults with mild-to-moderate insomnia in Hong Kong. Participants were randomly assigned to either a CBT-I intervention group ($n = 179$) or a waitlist control group ($n = 179$). Both groups completed questionnaire measures at baseline (T1), immediately after the intervention (T2), and 4 weeks post-intervention (T3). Compared to the control group, the intervention group demonstrated greater reductions in insomnia symptoms, sleep disturbance, pre-sleep arousal, maladaptive sleep hygiene practices, dysfunctional beliefs and attitudes about sleep, depressive and anxiety symptoms, cognitive impairments, and work and social difficulties, as well as greater improvements in well-being and health-related quality of life at both T2 and T3. The effect sizes of these changes ranged from small to medium. Mediation analyses further revealed that pre-sleep arousal significantly mediated the effects of the intervention on insomnia symptoms. Importantly, our findings demonstrate that internet-based self-help CBT-I effectively reduces insomnia severity, with pre-sleep arousal as a key mechanism, and yields broader benefits, such as alleviating affective symptoms and functional impairments and promoting health and wellness. Given its efficacy, accessibility, scalability, and cost-effectiveness, this intervention represents a promising first-line approach for managing insomnia in the community.

Some web based CBT-Insomnia programs:

- Sleepio.com
- Go! To Sleep (Cleveland Clinic)
- https://www.cbtforinsomnia.com
- Haleo online CBT-I therapist (haleoclinic.com)
- Thiswayup.org.au
- Sleep Ninja at blackdoginstitute.org.au

EDIFICATION FROM THE MEDICAL COMMISSION

In this segment of the Fast Break we feature an editorial from a member of the FIBA Medical Commission on topics relevant to basketball. In this edition, Dr. Ibrahim Dunya reports on the first-ever FIBA Asia basketball health and performance seminar.

In June, Lebanon hosted a seminar, titled *"Beyond the Game: Health & Performance".* This was the first FIBA initiative of its kind in the region. The seminar featured a special address from Dr. Peter Harcourt, chair of the FIBA Medical Committee, and highlighted the global importance of athlete health beyond the basketball court. In his message, Dr. Harcourt underscored FIBA's unwavering commitment to ensuring the safety and well-being of players at every level of the game and praised the seminar as a model for future initiatives across Asia and beyond.

This gathering brought together leading physicians and surgeons, sports scientists and physiotherapists, referees and performance specialists from Lebanon and abroad. Structured sessions explored a wide spectrum of medical, surgical, and health and performance issues ranging from emergency care on the court to long-term strategies for athlete well-being. The seminar emphasized FIBA's commitment to athlete safety, mental and physical resilience, and ethical performance practices. With contributions from experts in cardiology, neurology, trauma surgery, ophthalmology, physiotherapy, mental health, and anti-doping, the discussions highlighted the urgent need for integrated medical protocols, cross-disciplinary collaboration, and evidence-based training and recovery frameworks.

The organizers of this event have compiled the key insights and recommendations from the seminar into a roadmap for improving basketball health standards in Lebanon and the broader Asian region. Their report can serve as a reference document for medical and coaching professionals in the region, as well as a strategic health care guide for sports federations, clubs, and policymakers invested in advancing athlete care.

You can read the full report of the Beyond the Game: Health & Performance Seminar and here an article on the event from the Lebanese American University.

SHARE YOUR PHOTOS

Please send us your funny, interesting, or remarkable basketball pictures that we can share with the medical and sport science basketball community. Email: medical@FIBA.basketball

Speakers and attendees at the first ever FIBA Asia basketball health and performance seminar. *(photo courtesy of Dr. Ibrahim Dunya)*

THE STUDENT'S CORNER

This space is intended for sport science and medical students, residents, and fellows to contribute to our knowledge and conversation.

Please encourage your students to contribute to the Fast Break on a topic of their choosing related to basketball injury, rehabilitation or sport science. The work published here is reviewed and approved for submission by the student's preceptor.

Unfortunately, there were no student submissions to this edition of the Fast Break.

NEWS AND NOTABLE FROM THE FIBA MEDICAL COMMISSION

In 2026 the FIBA Medical Commission's educational programming will focus on core concepts for the team physician's preparedness at FIBA events. If there is a specific topic you would like to see presented, please let us know. The format of the Fast Break will evolve in 2026 to reflect the focus on team physician edification.

The recordings of previous webinar sessions can be found here:
https://about.fiba.basketball/en/services/medical/webinars

Resources from the FIBA Medical Commission can be found here:
https://about.fiba.basketball/en/services/medical/information-for-medical-staff

BASKETBALL CME OPPORTUNITIES

A listing of varied sport medicine and basketball meetings and conferences you may be interested in attending:

Sports Medicine Australia conference events can be found here: **https://sma.org.au/about-sma/honour-board/sma-national-conferences/**

Sports Medicine New Zealand conference events can be found here: **https://sportsmedicine.co.nz/**

The Australasian College of Sport and Exercise Physicians events can be found here: **https://www.acsep.org.au/page/events**

The Asian Federation of Sport Medicine conference events can be found here: **https://afsm2024.com/index.php**

The South African Sports Medicine Association hosts several events throughout the year:

https://www.sasma.org.za/events/

The South African Sports Medicine Association hosts several events throughout the year:

https://www.sasma.org.za/events/

The British Association of Sport and Exercise Medicine conference events can be found here: **https://basem.co.uk/learning/**

The FIMS (International Sport Medicine Federation) list of events can be found here: **https://www.fims.org/news-events/events/**

The National Basketball Strength and Conditioning Association hosts a performance conference. Check here for the latest updates regarding the date of their next conference: **https://thenbsca.com.**

The Euroleague Strength and Conditioning Coaches Association list of upcoming events can be found here: **https://escca.net/events/.**

The High-Performance Basketball Symposium dates are coming soon: **https://www.highperformancebasketball.com/index.cfm.**

A listing of all the American Medical Society for Sports Medicine conferences can be found here:

https://www.amssm.org/Conferences.php

The Society for Sport Exercise and Performance Psychology website lists a number of mental performance educational opportunities:

https://www.apadivisions.org/division-47/about/resources/conferences

Conference Locate.com allows you to search globally for conferences on an extensive array of medical topics:

https://www.clocate.com

A listing of exercise physiology conferences across the world can be found here: **https://conferenceindex.org/conferences/exercise-physiology**

And for something a little different:

https://unconventional.com.au/conferences/south-america/medical-conferences/2024/

If you prefer self-study to earn CME credits while you are on vacation, have a look at these options.

Date	Location	Event website
Dec 11-13, 2025	Austin (USA)	American Medical Society for Sport Medicine Advanced Team Physician Conference
April 24-29, 2026	Seattle (USA)	American Medical Society for Sport Medicine annual symposium
May 26-30, 2026	Salt Lake City (USA)	American College of Sport Medicine Annual symposium
April 29-May 2, 2026	Kelowna, BC, (Canada)	Canadian Academy of Sport and Exercise Medicine annual symposium
Sept 9-11, 2026	Singapore (Singapore)	Medical Fair Asia + Medicine and Sports Conference
Jun 1-4, 2027	Indianapolis (USA)	American College of Sport Medicine Annual symposium