FAST BREAK

Publication for team medical personnel

Training and performing while fasting

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ISSUE 17

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

In 2006, I had the opportunity to travel to Doha, Qatar, to interview for a position to provide sport medicine services at the newly created Aspetar clinic. Considering the opportunity to practice sport medicine in a country and culture that was unfamiliar to me was daunting, but also an exciting chance to learn and grow as an individual and physician. Living and working in the multicultural, global world that is sport has created the necessity for sport medicine professionals to understand and embrace the unique and varied cultural and religious practices that impact upon training and competition in sport. In this edition of the Fast Break, we explore the Muslim holy month of Ramadan and how fasting impacts training and competition in sport and basketball. The published literature on this topic in basketball is sparse, and herein we present a more generic listing of selected publications for your interest.

Marni Wesner, MD, MA, CCFP(SEM), FCFP, Dip Sport Med
Editor, Fast Break
Email: medical@FIBA.basketball

IN THIS ISSUE

UPCOMING WEBINAR SESSIONS

The FIBA medical commission would like to invite you to join our last webinar session of 2024.

Ear, Nose and Throat, and Maxillo-Facial injuries in Basketball

The session will be scheduled on 9 December at 08:00am GMT+1.

Professor Darryl Tong, Maxillofacial surgeon, and Mr Dean Ruske, ENT/ORL surgeon both at the University of Otago in Dunedin, NZ. Both have a passion for basketball, and education.

Please find *here* the link to join this session live and *here* another to the new FIBA Corporate website Medical section to find the recording to watch it after the session.

GUEST EDITORIAL

The Muslim holy month of Ramadan 2025 is just around the corner. The FIBA Fast Break has invited Dr. Abdul Rashid Aziz and Ms. Huang Liyan from the Singapore Sport Institute to share their insights on the potential challenges that Ramadan intermittent fasting poses on basketball players and how to minimise its impact.

Dr. Rashid has researched and published extensively on Ramadan fasting and sports, and most recently co-authored the *Aspetar Clinical Guidelines for Ramadan Fasting and Exercise for Healthy Individuals.*

Ms. Huang works year-round with Muslim athletes, curating dietary strategies to cater to individual needs.

Guest contributors:

Teoh Chin Sim (CS), Senior Consultant, Sports & Exercise Medicine, Khoo Teck Puat Hospital, Singapore; Member, FIBA Medical Commission

Abdul Rashid Aziz (AR), Senior Technical Staff for Physiology, Sport Science & Medicine Centre, Singapore Sport Institute, Sport Singapore, Singapore

Huang Liyan (HL), Team Lead (Sport Nutrition) & Senior Sport Dietitian, Sport Science & Medicine Centre, Singapore Sport Institute, Sport Singapore, Singapore

CS: What is Ramadan and how does it impact the life of a Muslim?

AR: Ramadan is the holiest month in the Islamic calendar. During this Ramadan month, Muslims abstain from eating and drinking, daily from sunrise to sunset for 29 to 30 days. The duration of the day's fast depends on the length of daylight, which varies according to the latitude, tilt of the earth and season. In addition, as Ramadan is based on the lunar cycle, it shifts on the Gregorian calendar over a 33-year cycle. During the observance of the Ramadan fast, the Muslim athlete would typically rise early before dawn to eat a full meal (*sahur*), and "breakfast" at dusk with another full meal (*iftar*). As a consequence, the usual timings of nutrition, hydration and sleep patterns are disrupted, possibly resulting in depleting glycogen stores and hypohydration over the course of the day, on a background on inadequate sleep.

CS: I see. As Muslim players feature on culturally diverse basketball rosters around the globe, it is important then for us to consider how this religious ritual potentially impacts body physiology, psychology, athletic performance, and risk of injury, and to see how best to mitigate these issues and support fasting players.

AR: In Muslim-majority nations, steps may be taken to modify training and competition schedules during Ramadan, but by and large, most Muslim athletes cope, adjusting their lifestyles, and learn to adapt to local and international sporting calendars which are fixed (Roy et al., 2011).

CS: Basketball comprises both high- and low-intensity activities that demand technical and tactical skills. Undergirding these are variables such as aerobic and anaerobic fitness, speed, power, strength, agility, focus, concentration, decision-making, and more. What have research studies revealed regarding the effect of Ramadan on such variables?

AR: Studies on how Ramadan influences these variables in laboratory and field settings reveal a range of mixed results, from none to minimal (Aziz et al., 2020), to significant effects, suggesting

that more research needs to be done. As there is also a paucity of basketball-specific studies, we need to draw inferences from existing literature (Trabelsi et al., 2024).

We know that in game situations, hypohydration can lead to impairment in parameters such as dynamic balance, proprioception, and cognitive function. And that low muscle and liver glycogen stores result in fatigue, especially towards to latter quarters of a game or training session, which in turn could translate into slower movement and reaction time. Poor sleep quality and quantity negatively impact alertness, concentration, cognitive processing, vigilance and visual attention, all of which have bearing on decision-making (Elghoul et al., 2024; Tian et al., 2011). A study on Ramadan fasting and its effect on basketball players showed deterioration in technical performance of the individual and the team such as dribbling, blocks, steals, ball possession, etc over the four weeks of Ramadan (Brini et al., 2021).

CS: In basketball, where a win or lose can be decided in the final second of a game, it is absolutely critical to address these issues. What is your advice to the support teams?

AR: Adopting a pro-active and personalised approach is recommended as the impact of Ramadan fasting varies according to the individual player. Whilst the fasting player takes primary responsibility, coaches, sports scientists and team medical personnel can provide support for appropriate behavioural, social and psychological strategies to help mitigate any negative effects. Adjustments also depend on whether or not Ramadan falls during off-season, pre-season, or competition period. You can refer to a recent publication by Aspetar which provides clinical guidance to Ramadan fasting and exercise for healthy individuals (Chamari et al., 2023).

CS: Should one reduce training during Ramadan?

AR: The short and quick answer is 'No'. Training should continue during Ramadan to prevent any de-training effects (remember Ramadan fasting is over 4 weeks!). However, one may reduce slightly the training load and intensity in the first week of Ramadan to get accustomed to exercising in the Ramadan-fasted state, and from there building up gradually over the next three weeks allows player adaptation. Timing training sessions just prior to *iftar* and after *iftar* allows the body to be replenished with fuel and fluids soon after for the former which is recommended to be a less intense session.

CS: I spent my childhood and adolescent years in a Muslim-majority country where Ramadan was a way of life. I recall that my fasting schoolmates were expected to participate in physical education classes and athletic training just as usual. In fact, there was a certain pride and commitment to do so and still be able to perform well despite feeling a little tired, hungry or thirsty. There were also those who shared that they felt that their speed, stamina and ability were negatively affected by fasting. Is there any explanation for this difference in perception or performance?

AR: Yes. Firstly, Ramadan fasting is more than mere fasting. It is a faith commitment to one's belief and religion. A Muslim athlete who has practiced fasting routinely over the years may exhibit no negative effect or a lower rate of perceived exertion for the same effort compared to another athlete (Aziz et al., 2011). Additionally, research has also shown that familiarisation and training under sub-optimal conditions (e.g. in slight hypohydration or with less than normal levels of muscle glycogen) could facilitate development of physiological and psychological adaptations to minimise impact on performance (Bartlett et al., 2015; Garrett et al., 2014). Nevertheless, if a game occurs during the Ramadan month and the Muslim player is planning to fast on game day, it is advisable that the player actually 'rehearses' his or her performance in the fasted state before the start of the Ramadan month (Fleming & James, 2014). This allows the body to learn to adjust and adapt to playing in the fasted state. Perhaps, this could also even counteract a nocebo effect

and persuade those who expect a poorer performance during the observance of the Ramadan fast otherwise (Aziz et al., 2017; 2018).

CS: Other than training strategies, how else can a player help himself or herself?

LY: Drink intentionally and regularly during the awake hours at night and early morning (i.e., during the permissible period) to correct any fluid deficit and keep the body optimally hydrated (Aziz & Png, 2009). In the daytime, mouth-rinsing with cool water or water-carbohydrate mixture could provide some relief and even improve exercise performance through activation of oral receptors and brain areas resulting in improved motor drive and motivation (Che Muhamed et al., 2014). Cooling strategies (e.g. cool towels, ice vests), limiting exposure to hot and humid environments, and staying and training in cool areas help with reducing heat stress.

Ensure that the total caloric and protein intake are adequate or maintained over the Ramadan period, or the athlete might also experience weight loss. *Sahur* should be taken as close to dawn as possible to maximise both liver and muscle glycogen stores, with emphasis on high glycaemic index foods. Care should be taken not to consume a large *sahur* meal just prior to training time as it may increase the risk of gastric discomfort (Burke & King, 2012). One can ingest either low or high glycaemic index foods during *iftar* (Png et al., 2014; Chua et al., 2019). Additionally, *iftar* should include protein if it falls within the post-exercise period (Burke & King, 2012). If a training session or game coincides with *iftar*, allow some flexibility for the player to grab a quick carbohydrate-rich snack and drink in a timely and opportune manner (Aziz et al., 2012).

CS: I am told that players rise in the wee hours of the morning to pray, then prepare to eat before dawn, and in the night after training, go on to attend religious teaching and prayers. These are on top of all the other potential day time commitments such as meetings, media events, and so on, making the "day" very long and tiring indeed, not leaving too many hours to sleep!

LY: Yes, this is true. So, players should try to conserve energy as much as possible, reduce non-essential activities, and make time to nap for 30 to 45 minutes during the mid-day period to supplement the shortened sleep hours of the nighttime, and in this manner optimise the player's performance (Chamari et al., 2023)

CS: I have one final question regarding another variation of fasting, that is the current vogue of intermittent fasting (of food). What are your thoughts about this?

LY: Intermittent fasting is gaining popularity primarily due to its health benefits and ability to help people lose weight. It has varied effects on sporting performance depending on the type and duration of fasting, as well as the specific performance measures required of the sport (Correia et al., 2020). Intermittent fasting is generally not recommended for elite athletes without careful and individualised planning of intake and training

CS: Thank you for sharing the helpful dietary advice, Liyan. Additionally, as medical practitioners, we need to help Muslim players to make necessary adjustments to their acute or chronic medical condition or treatment during Ramadan.

As I understand it, oral supplements and medications should be tailored to once or twice a day dosing, consumed outside fasting hours. Topical, ophthalmic, otic and non-nourishing injectable (intramuscular/subcutaneous) medications are permitted. However, intravenous blood transfusion, or intravenous fluids for treatment of severe dehydration would be considered as "nourishment to the body," in which case the player should replace the day(s) nullified by subsequently fasting an equal number of day(s) when in good health.

For women players who are pregnant or breastfeeding, some may still choose to fast, and some may choose to "make up" for the days missed subsequently. Women who experience menstruation or post-partum bleeding during Ramadan should replace the nullified day(s) likewise (Khalife et al., 2015; Grindrod & Alsabbagh, 2017).

AR: I would suggest that the player also consult his or her religious leader when in doubt as specific practices may vary according to interpretation.

CS: Are youth players expected to fast like adults?

AR: Yes, Adolescent players fast a full day like adults, having been introduced to its practice typically at about five to six years old, progressing from say half a day to a full day at puberty.

CS: Thank you so much Rashid and Liyan for highlighting how Ramadan can affect our players and recommending ways we can optimise habits and practices to cushion its impact.

References noted in this interview are listed below in the selected publications of interest section.

SELECTED PUBLICATIONS OF INTEREST

The effects of fasting on metabolism and performance

R J Maughan, J Fallah S,E F Coyle. Br J Sports Med 2010; 44:490–494.

Abstract: An overnight fast of 8–10 h is normal for most people. Fasting is characterized by a coordinated set of metabolic changes designed to spare carbohydrate and increase reliance on fat as a substrate for energy supply. As well as sparing the limited endogenous carbohydrate, and increased rate of gluconeogenesis from amino acids, glycerol and ketone bodies help maintain the supply of carbohydrate. Many individuals undergo periodic fasts for health, religious or cultural reasons. Ramadan fasting, involving 1 month of abstention from food and fluid intake during daylight hours, is practised by a large part of the world population. This period involves a shift in the pattern of intake from daytime to the hours of darkness. There seems to be little effect on overall daily dietary intake and only small metabolic effects, but there may be implications for both physical and cognitive function. The limited evidence suggests that effects of Ramadan-style fasting on exercise performance are generally small. This needs to be balanced, however, against the observation that small differences in performance are critical in determining the outcomes of sporting events. Studies involving challenging sporting events (prolonged sustained or intermittent high-intensity events, hot and humid environments) are needed. Increases in subjective sensations of fatigue may be the result of loss of sleep or disruption of normal sleep patterns. Modifications to the competition timetable may minimise or even eliminate any effect on performance in sport, but there may be negative effects on performance in some events.

Fasting and sport: an introduction.

Maughan RJ, Br J Sports Med June 2010 Vol 44 No 7

Abstract: Most humans observe an overnight fast on a daily basis, and the human body copes well with short duration fasting. Periodic fasting is widely practiced for cultural, religious or health reasons. Fasting may take many different forms. Prolonged restriction of food and fluid is harmful to health and performance, and it is often automatically assumed that intermittent fasting will lead to decrements in exercise performance. Athletes who choose to fast during training or competitions may therefore be at a disadvantage. The available evidence does not entirely support this view, but there is little or no information on the effects on elite athletes competing in challenging environments. Prolonged periods of training in the fasted state may not allow optimum adaptation of muscles and other tissues. Further research on a wide range of athletes with special nutrition needs is urgently required. In events where performance might be affected, other strategies to eliminate or minimize any effects must be sought.

Effects of a Four-Week Small-Sided Game and Repeated Sprint Ability Training during and after Ramadan on Aerobic and Anaerobic Capacities in Senior Basketball Players

Brini S, Marzouki H, Castagna C, Bouassida A, Annals of Applied Sport Science, vol. 6, no. 3, pp. 07-13,2018.

Abstract: Most studies related to the effect of Ramadan fasting on aerobic and anaerobic performances found in the literature were concerned with individual sports; even studies on team sports were mostly dedicated to football, and none of those studies were involved basketball competitions. **Objectives:** This field investigation examined the effects of a training program in

the basics of small-sided games (SSGs) and repeated sprint ability (RSA) during Ramadan observance (R) and a month after Ramadan (AR) (control month) on aerobic and ("anaerobic") performances in fasting basketball players. **Methods:** Sixteen basketball players (age, 23.4 ± 2.3 years; height, 1.86 ± .09 m; body mass, 78.3±11.0 kg; and VO2max, 51.0 ± 2.7 ml.min-1.kg-1) performed two training programs (SSG and RSA) during R and AR, interrupted by fifteen days of total recovery, and were randomly allocated into two groups (GSSG, n=8 and GRSA, n=8). RSA parameters, mean heart rate (HR), and aerobic performances were measured on four occasions: before (P1) and after (P2) R and before (P'1) and after (P'2) AR. **Results:** The results have shown that RSA and Ramadan show no significant differences in aerobic and anaerobic performances when compared with SSG and non-Ramadan in senior basketball players. However, there was a significant difference in mean HR (p=0.03) between groups when comparing R and AR for GSSG. **Conclusion:** This study indicated that Ramadan fasting combined with SSG and RSA training has no significant effect on most aerobic and anaerobic performances in male senior basketball players.

Aspetar Clinical Guideline: Ramadan Fasting and Exercise for Healthy Individuals

Karim Chamari, Abdul Rashid Aziz, Tajdine Moumen Jamai, Omar AL Sayrafi, Karim Khalladi, Nicola Luigi Bragazzi, Anis Chaouachi, Hamdi Chtourou, Helmi Ben Saad. N Asian J Med 2023;1(2):7-18

Abstract: During the Islamic holy month of Ramadan, healthy adult Muslims observe fasting as an integral part of their religious practice. This dawn to dusk daily fasting regimen for over 29-30 days involves strict adherence to various lifestyle aspects, including nutrition, hydration, and sleep patterns, which can potentially influence physical performance. It is often observed that Ramadan fasting may deter athletes from training and participating in competitions, and it can also discourage the general community from engaging in physical exercise. This situation can place practicing Muslim athletes at a competitive disadvantage. Therefore, the objective of this clinical guideline was to offer practical recommendations, supported by consensus from an expert panel, for healthy athletes and their support teams on how to effectively adapt their behavioral, social, and psychological strategies to cope with the changes and constraints imposed by Ramadan fasting. The scope of these recommendations extends beyond merely prescribing appropriate exercise routines during the month of Ramadan, but also encompassing considerations like scheduling, intensity, duration, exercise type, and training load. Additionally, the recommendations address various aspects of lifestyle, including nutrition, hydration, and sleep, while also delving into psychosocial and cognitive facets related to Ramadan fasting. It is important to emphasize that these recommendations are intended for healthy individuals. Patients with chronic illnesses should consult their healthcare providers to ensure that they can safely practice Ramadan fasting.

Basketball-Specific Small-Sided Games Training during Ramadan Intermitting Fasting: Do Changes in Body Composition, Sleep Habits, and Perceived Exertion Affect Technical Performance?

Seifeddine Brini, Daniel Castillo, Javier Raya-González Carlo Castagna, Anissa Bouassida, Riadh Khalifa, Sabri Gaied Chortane, Filipe Manuel Clemente. Int. J. Environ. Res. Public Health 2021, 18, 12008

Abstract: The objective of this study was to assess the effects of an additional small-sided games (SSGs) training program during Ramadan intermitting fasting (RIF) on technical performance depending on changes in body composition, sleep habits, and ratings of perceived exertion (RPE). Twenty-four professional male basketball players from the Tunisian first division

participated in this study. The players were randomly assigned to an intervention group (INT; n = 12) or an active control group (CON; n = 12). Both groups completed a four-week SSG training program (three sessions per week). During the first and fourth weeks of the SSGs training, the two groups were evaluated to detect changes in technical performance, dietary intake, body composition, sleep quality index (PSQI) survey outcomes, RPE, heart rate (HR), and blood lactate concentration [La]. During the fourth week of the RIF period, body composition, dietary intake, sleep latency, sleep duration, and HR significantly decreased only for INT ($p < 0.001$). However, RPE significantly increased ($p < 0.001$), and technical performances were negatively affected ($p < 0.01$). MANCOVA (adjusted for the percentage of change in sleep duration, body mass, and RPE) showed no significant differences in either group. In conclusion, our results showed that the technical performance of professional basketball male players was significantly affected at the end of RIF independently of changes in RPE, sleep habits, and body composition.

The Impact of Ramadan Observance upon Athletic Performance

Shephard RJ. Nutrients 2012, 4, 491-505.

Abstract: Ramadan observance requires a total abstention from food and drink from sunrise to sunset for a period of one month. Such intermittent fasting has only minor effects upon the overall nutrition and physiological responses of the general sedentary population. Larger meals are consumed at night and in the early morning. Body mass usually remains unchanged, the total energy intake remains roughly constant, and there is little alteration in the relative consumption of protein, fats and carbohydrates. However, Ramadan observance may be of greater consequence for the training and performance of the competitive athlete, particularly when the festival is celebrated in the hotter part of the year and daylight hours are long, as is the case for the 2012 Summer Olympic Games in London, England. The normal sleeping time then tends to be shortened, and blood sugar and tissue hydration decrease progressively throughout the hours of daylight. Some limitation of anaerobic effort, endurance performance and muscle strength might be anticipated from the decrease in muscle glycogen and body fluid reserves, and a reduced blood glucose may cause a depressed mood state, an increased perception of effort, and poorer teamwork. This review considers empirical data on the extent of such changes, and their likely effect upon anaerobic, aerobic and muscular performance, suggesting potential nutritional and behavioral tactics for minimizing such effects in the Muslim competitor.

Increased game frequency period crossing Ramadan intermittent fasting decreases fat mass, sleep duration, and recovery in male professional basketball players.

Brini S, Ardigo LP, Clemente FM, Raya-González J, Kurtz JA, Casazza GA, Castagna C, Bouassida A, Nobari H. PeerJ 11:e16507 http://doi.org/10.7717/peerj.16507

Background: Increased basketball game frequency may affect athlete performances, especially during Ramadan intermittent fasting (RIF). The objective of the present investigation was to assess the impacts of increased game frequency periods crossing the RIF on body composition, sleep habits, indices of well-being, recovery state, and dietary intake in professional male basketball players. **Methods**: Twenty-eight professional basketball players participated in this study and were divided into increased-games-frequency (INCR) or normal-games-frequency (NORM) groups. INCR trained four times and completed two games per week, whereas NORM completed only one game per week. During the first and fourth weeks of RIF, the following variables were assessed: internal load (weekly session rating of perceived exertion (s-RPE), heartrate (HR)), dietary intake, body composition, sleep quality (PSQI survey), well-being indices

questionnaire (sleep, fatigue, stress, delayed onset of muscle soreness (DOMS)), and recovery state with the Total Quality Recovery (TQR) questionnaire. **Results**: The internal load significantly increased after 4 weeks of RIF in INCR compared to NORM (p<0:001). Significant decrease of TQR, sleep duration, and a significant increase of DOMS only for INCR (26.93%, p < 0:001, ES D 0.48, small; 33.83%, p < 0:001, ES D 0.40, small; 161.17%, p < 0:001, ES D 0.32, small; respectively). Significant group time interaction was observed for body mass (p D 0:006, ES D 0.46, small) and body fat percentage (pD0:025, ES D 0.33, small), with INCR having a greater decrease in all these values. **Conclusion**: Increased game frequency period crossing RIF decreases fat mass, sleep duration, and recovery in professional basketball players, which may consequently affectperformance and health.

Small Sided Games vs Repeated Sprint Training Effects on Agility in Fasting Basketball Players.

Brini S, Ouerggi N, Bouassida A. Rev Bras Med Esporte,Vol 26(3), 2020.

Abstract: The coinciding of month of Ramadan with international basketball competitions could affect players' performance. **Objective:** This field investigation examined the impacts of a basic training program in small-sided games and repeated sprint ability during intermittent fasting for Ramadan (R) and one month after Ramadan (AR) [control month] on body composition, agility and lower limb power. **Methods:** Sixteen basketball players (age, 23.4Å}2.3 years) performed two training programs [small-sided games (SSG) and repeated sprint ability (RSA)] during R and AR, interrupted by fifteen days of total recovery. The players were randomly allocated to two groups (GSSG, n=8 and GRSA, n=8). Body composition, agility T test, squat jump (SJ) test, countermovement jump (CMJ) test and five-jump (FJT) test performances were measured on four occasions: before R (P1) and at the end of R (P2),as well as before AR (P3) and at the end of AR (P4). **Results:** The results showed that body mass (BM), body mass index (BMI) and body fat (BF %) decreased significantly at the end of R for both groups (all p < 0.001). Moreover, the performances in the agility T test, SJ test, CMJ test and FJT test improved significantly at the end of R for both groups (p<0.001 and p<0.01). Also, by comparing R with the control month, we recorded significantly better agility and FJT performances in the R month (p < 0.001). **Conclusions:** This study indicated that Ramadan combined with RSA and SSG training may improve agility and lower limb power, enabling coaches and physical trainers to choose between these two training modalities, depending on the training objectives.

More selected readings related to Ramadan and sport participation:

Abaïdia AE, Daab W, Bouzid MA. (2020). Effects of Ramadan Fasting on Physical Performance: A Systematic Review with Meta-analysis. Sports Med 50(5):1009-1026. https://doi.org/10.1007/s40279-020-01257-0

Aziz AR, Lim DVT, Sharom S, Che Muhamed AM, Ihsan M, Girard O, & Chia MYH. (2020). Effects of Ramadan fasting on match-related changes in skill performance in elite Muslim badminton players. Science https://doi.org/10.1016/j.scispo.2019.07.014.

Aziz AR, Che Muhamed AM, Ooi CH, Singh R, & Chia MYH. (2018). Effects of Ramadan fasting on the physical activity profile of trained Muslim soccer players during a 90-minute match. Science and Medicine https://doi.org/10.1080/24733938.2017.1393550.

Aziz AR, Che Muhamed AM, Roslan SR, Gulam Mohamed N, Singh R, & Chia MYH. (2017). Poorer intermittent sprints performance in Ramadan-fasted Muslim footballers despite controlling for pre-exercise dietary intake, sleep and training load. Sports 5(1):4. https://doi.org/10.3390/sports5010004.

Aziz AR, Chia MYH, Low CY, Slater GJ, Png W, & Teh KC. (2012). Conducting an acute intense interval exercise session during the Ramadan fasting month: what is the optimal time of the day? Chronobiology https://doi.org/10.3109/07420528.2012.708375.

Aziz AR & Png W. (2008). Practical tips to exercise training during the Ramadan fasting month. Institut Sukan Negara Bulletin 1:13-19.

Bartlett JD, Hawley JA, Morton JP. (2015). Carbohydrate availability and exercise training adaptation: too much of a good thing? European Journal of Sport Science 15(1):3-12. https://doi/10.1080/17461391.2014.920926.

Burke LM & King C. (2012). Ramadan fasting and the goals of sports nutrition around exercise. J Sports Sci. 30 Suppl 1:S21-31. https://doi.org/10.1080/02640414.2012.680484.

Brini S, Castillo D, Raya-González J, Castagna C, Bouassida A, Khalifa R, Chortane SG, Clemente FM. (2021). Basketball- Specific Small-Sided Games Training during Ramadan Intermitting Fasting: Do Changes in Body Composition, Sleep Habits, and Perceived Exertion Affect Technical Performance? *Int. J. Environ. Res. Public Health 18*, 12008. https://doi.org/10.3390/ijerph182212008.

Chamari K, Aziz AR, Jamai TM, Al Sayrafi O, Khalladi K, Bragazzi NL, Chaouachi A, Chtourou H, & Ben Saad H. (2023). Aspetar Clinical Guideline: Ramadan fasting and exercise for healthy individuals. New Asian Journal of Medicine 1(2): 7-18. https://doi.org/10.61838/kman.najm.1.2.2.

Che Muhamed AM, Mohamad NG, Ismail N, Aziz AR, & Singh R. (2014). Mouth rinsing improves cycling endurance performance during Ramadan fasting in a hot humid environment. Applied Physiology, Nutrition, and Metabolism 39:458-464. https://doi.org/10.1139/apnm-2013-0276.

Correia JM, Santos I, Pezarat-Correia P, Minderico C, Mendonca GV. (2020). Effects of Intermittent Fasting on Specific Exercise Performance Outcomes: A Systematic Review Including Meta-Analysis. Nutrients 12(5):1390. https://doi.org/10.3390/nu12051390

Chua MT, Balasekaran G, Ihsan M, & Aziz AR. (2019). Effects of pre-exercise high and low glycaemic meal on intermittent sprint and endurance exercise performance. Sports 7(8):E188. https://doi.org/10.3390/sports7080188.

Elghoul Y, Ben Kahla A, Bahri F, Trabelsi K, Chtourou H, Frikha M, & Aziz AR. (2024). Effects of fasting during Ramadan month on soccer-specific technical performance, cognitive function, and

perceptions in soccer players. Journal of Sports Sciences 42(7):646-654. https://doi.org/10.1080/02640414.2024.2357467.

Fleming J & James L. (2014). Repeated familiarisation with hypohydration attenuates the performance decrement caused by hypohydration during treadmill running. Applied Physiology Nutrition and Metabolism 39(2):124-9. https://doi/10.1139/apnm-2013-0044.

Garrett AT, Goosens NG, Rehrer NJ, Patterson MJ, Harrison J, Sammut I, and Cotter JD. (2014). Short-term heat acclimation is effective and may be enhanced rather than impaired by dehydration. American Journal of Human Biology 2014 26(3):311-20. https://doi/10.1002/ajhb.22509.

Grindrod K & Alsabbagh W. (2017). Managing medications during Ramadan fasting. *Canadian Pharmacists Journal* 150(3):146-9. https://doi:10.1177/1715163517700840.

Khalife T, Pettit JM, & Weiss BD. (2015). Caring for Muslim patients who fast during Ramadan. *American Family Physician* 91 (9): 641-2.

Png W, Bhaskaran K, Sinclair AJ, & Aziz AR. (2014). Effects of ingesting low glycemic index carbohydrate food for the sahur meal on subjective, metabolic, and physiological responses, and endurance performance in Ramadan fasted men. International Journal of Food Sciences and Nutrition 65:629-636. https://doi.org/10.3109/09637486.2014.886187.

Roy J, Ooi CH, Singh R, Aziz AR, & Chai WJ. (2011). Self-generated coping strategies among Muslim athletes during Ramadan fasting. Journal of Sports Science and Medicine 10:137 144.

Tan V, Lim I, Tan PT, Tan F, & Aziz AR. (2021). Comparison of physiological and clinical markers for chronic sprint-interval training exercise performed either in the fasted or fed states among healthy adults. Current Research in Physiology 4(2):192-201. https://doi.org/10.1016/j.crphys.2021.09.003.

Tian H-HR, Aziz AR, Png W, Wahid MF, Yeo HHD, & Png CAL. (2011). Effect of intermittent fasting during Ramadan month on cognitive function in Muslim athletes. Asian Journal of Sports Medicine 2:145-153. https://doi.org/10.5812/asjsm.34753.

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FROM THE HISTORY BOOK

Social media blew up when Kyrie Irving of the Dallas Mavericks, closed a well-fought game with a left-handed floater, while he was fasting during his observance of Ramadan in 2024.

He stated, “It’s a difficult journey and to be able to play 48 minutes and not do it with having a drink or any food in my stomach is nothing short of a miracle.”

Photo: Courtesy of FIBA

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

Madagascar women’s team won the FIBA 3X3 Africa Cup 2024 against Egypt on 1 December 2024 in Antanarivo (MAD). It was a double for Madagascar on their home court as the men’s team also won against Rwanda in the finals.

NEWS AND NOTABLE FROM THE FIBA MEDICAL COMMISSION

To foster education and resources for the basketball community, the Medical Commission has hosted webinars on the role of the team doctor for mental health, team stress, eye injuries and maxillofacial and ENT injuries. The recordings of these sessions are available here on the new Corporate FIBA website. The topic of concussion will be discussed in February, 2025.

Please let us know if there is a specific topic that you would like to see presented.

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.

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:
https://www.americanseminar.com/?gad_source=1&gclid=Cj0KCQjw5cOwBhCiARIsAJ5njuavUXdPzpk4LULqCfKx1tp5tulliGrFPaki0M-Hjk6RjD6Vb4EGtGQaAtMTEALw_wcB

Date	Location	Event website
Dec 3-4, 2024	Singapore (Singapore)	Asia-Singapore Conference on Sport Scinece (ACSS 2024)
Dec, 2024	San Fransisco (USA)	University of California San Francisco 19th Annual Conference Sports Medicine for Primary Care
Jan 9-10, 2025	Bali (Indonesia)	International Conference on Sport Medicine and Exercise Science ICSMES
March 26-28, 2025	Online	Harvard Sport Medicine 2025
March 29, 2025	Sydney (Australia)	International Conference on Sport Medicine and Exercise Science
Apr 22-27, 2025	Kansas City (USA)	American Medical Society for Sport Medicine annual symposium
May 7-10, 2025	Charlottetown, Prince Edward Island (Canada)	Canadian Academy of Sport and Exercise Medicine Annual Symposium
May 27-31, 2025	Atlanta (USA)	American College of Sport Medicine Annual symposium
July 2-4, 2025	Melbourne (Australia)	15th International Conference on Sport and Society
May 26-30, 2026	Salt Lake City (USA)	American College of Sport Medicine Annual symposium
Jun 1-4, 2027	Indianapolis (USA)	American College of Sport Medicine Annual symposium