



Ramadan & Sport performance and training: insight from scientific evidence

Karim Chamari



April 2021

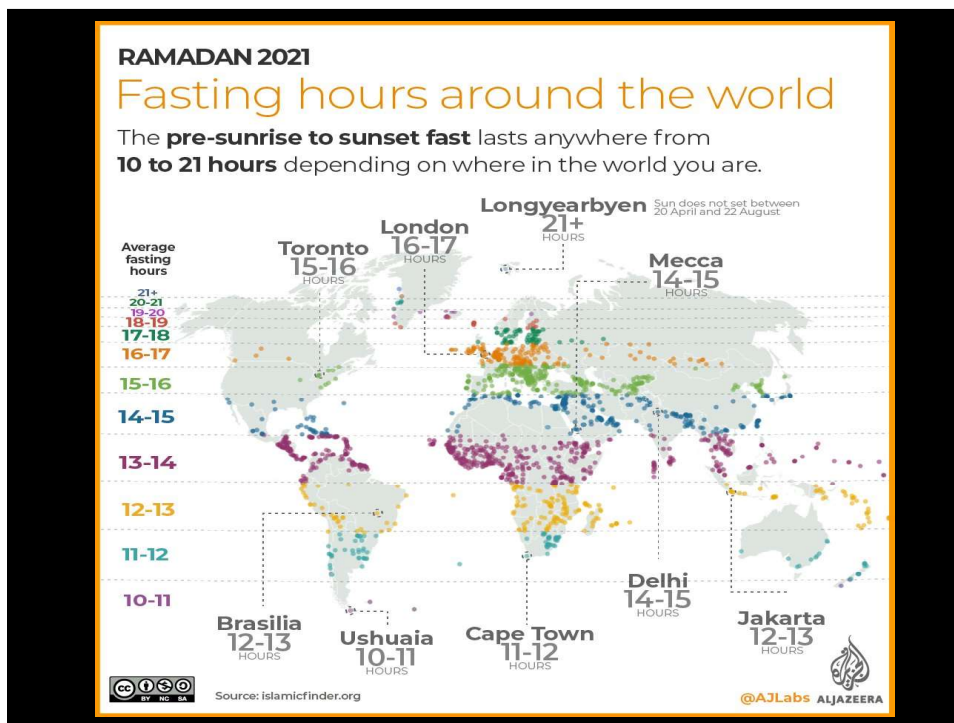
1



Ramadan Fasting



2



3

BRIEF REVIEW

International Journal of Sports Physiology and Performance, 2009, 4, 419-434
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Effects of Ramadan Intermittent Fasting on Sports Performance and Training: A Review

Anis Chaouachi, John B. Leiper, Nizar Souissi, Aaron J. Coutts, and Karim Chamari





Precompetition taper and nutritional strategies: special reference to training during Ramadan intermittent fast


Iñigo Mujika,^{1,2} Anis Chaouachi,³ Karim Chamari³

Br J Sports Med 2010;44:495-501.





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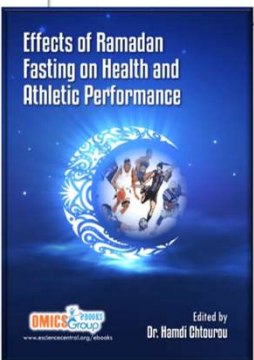



ORIGINAL ARTICLE

The Effect of Ramadan Fasting on Physical Performances, Mood State and Perceived Exertion in Young Footballers

Hamdi Chtourou^{1,2}, PhD; Omar Hammouda¹, PhD; Hichem Souissi¹, PhD; Karim Chamari¹, MD; Anis Chaouachi¹, MD; Nizar Souissi^{1,3}, MD


Asian Journal of Sports Medicine, Vol 2 (No 3), September 2011, Pages: 177-185





Edited by
Dr. Hamdi Chtourou

https://www.academia.edu/12622871/Chtourou_OMICS_2013_Ramadan_Fasting_and_Diurnal_Variation_in_Sport_Performance_Book_Chapter



5

International Journal of Sports Physiology and Performance, 2017, 12, 287-294
<http://dx.doi.org/10.1123/ijspp.2016-0125>
 © 2017 Human Kinetics, Inc.

Human Kinetics
ORIGINAL INVESTIGATION

Three Days of Intermittent Fasting: Repeated-Sprint Performance Decreased by Vertical-Stiffness Impairment

Anissa Cherif, Romain Meeusen, Abdulaziz Farooq, Joong Ryu, Mohamed Amine Fenneni, Zoran Nikolovski, Sittana Elshafie, Karim Chamari, and Bart Roelands



Figure 3 — Maximum power of the participants during the 2 experimental conditions—control (CS) and fasting (FS), mean ± SD (N = 21). CS (plain bars) and FS (white bars). Horizontal power declined in the FS compared to the CS only in the sixth sprint. *Significant main effect of fasting ($P = .035$, $ES = 0.236$). // indicates 3 minutes of recovery.



Figure 2 — Vertical stiffness (Kvert: the vertical ground reaction force divided by vertical displacement of the center of mass) decreased in the FS compared to the CS, in the sixth and seventh sprints. Data are presented as mean ± SD (N = 21). *Significant main effect of fasting on Kvert ($P = 0.037$, $ES = 0.243$). See legend in Figure 3.






6

INTERNATIONAL JOURNAL OF
**SPORTS PHYSIOLOGY
AND PERFORMANCE**
www.IJSP-Journal.com
ORIGINAL INVESTIGATION

International Journal of Sports Physiology and Performance, 2013, 8, 254-263
© 2013 Human Kinetics, Inc.

Effects of Ramadan on the Diurnal Variations of Repeated-Sprint Performance

Asma Aloui, Anis Chaouachi, Hamdi Chtourou, Del P. Wong, Monoem Haddad, Karim Chamari, and Nizar Souissi



Lower body mass and higher RPE scores were found during R2 ($P < .001$) and R4 ($P < .01$) compared with BR in the afternoon (Table 3). During Ramadan, body mass was lower ($P < .001$) and RPE scores were higher ($P < .05$) in the afternoon than the morning.

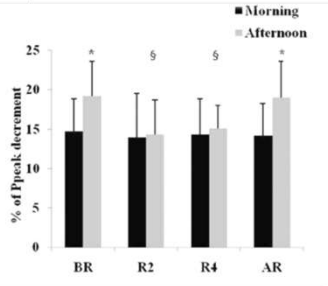




Figure 2 — Percentage of peak-power (P_{peak}) decrement over the 5 sprints measured 1 week before Ramadan (BR), the second week of Ramadan (R2), the fourth week of Ramadan (R4), and 2 weeks after Ramadan (AR) in the morning and afternoon. §Significantly lower than BR at the same time of day, $P < .05$. *Significantly higher than in the morning during the same phase, $P < .05$.




7

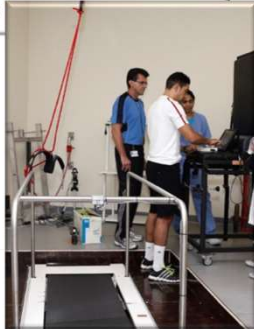
JOURNAL OF THE AMERICAN COLLEGE OF NUTRITION
2017, VOL. 36, NO. 3, 210-217
<http://dx.doi.org/10.1080/07315724.2016.1256795>

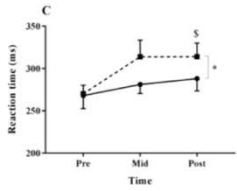
 Taylor & Francis
Taylor & Francis Group

Repeated Sprints in Fasted State Impair Reaction Time Performance

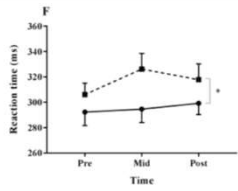
Anissa Cherif, MSc^{a,b}, Romain Meeusen, PhD^{b,c}, Abdulaziz Farooq, MSc^a, Walid Briki, PhD^d, Mohamed Amine Fenneni, MSc^a, Karim Chamari, PhD^{e,f}, and Bart Roelands, PhD^{b,f}








C




F

Figure 2. Response times during cognitive testing. The number of correct responses and response latencies in simple (A, B, and C) and complex (D, E, and F) reaction time (RT) tests in FS and CS. Values are presented as means \pm SD ($n = 21$) at pre-, mid-, and postexercise in control session (dashed bars) and fasting session (plain bars). *Difference between conditions, $p < 0.05$.

8



ARTICLE

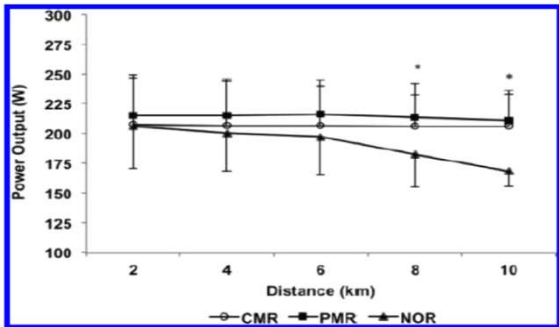


Mouth rinsing improves cycling endurance performance during Ramadan fasting in a hot humid environment


Ahmad Munir Che Muhamed, Nazirah Gulam Mohamed, Norjana Ismail, Abdul Rashid Aziz, and Rabindarjeet Singh

Applied Physiology, Nutrition and Metabolism, 2014

Fig. 3. Power output throughout the 10-km cycling time trial (TT_{10 km}) in the carbohydrate mouth-rinse (CMR), placebo mouth-rinse (PMR), and no-rinse (NOR) trials. *, Significantly different from the NOR trial, $p < 0.017$.




Distance (km)	CMR (W)	PMR (W)	NOR (W)
2	~215	~215	~215
4	~215	~215	~205
6	~215	~215	~195
8	~215	~215	~185
10	~215	~215	~175



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ATTENTION



9

Original Paper

DOI: <https://doi.org/10.5114/biolsport.2018.77824>

Repeated-sprints exercise in daylight fasting: carbohydrate mouth rinsing does not affect sprint and reaction time performance


AUTHORS: Anissa Cherif^{1,2}, Romain Meeusen², Joong Ryu³, Lee Taylor^{1,4}, Abdulaziz Farooq¹, Karim Kammoun⁵, Mohamed Amine Fenneni⁶, Abdul Rashid Aziz⁷, Bart Roelands^{2,8}, Karim Chamari^{1*}


Corresponding author:
Anissa Cherif
Aspetar-Athlete Health and

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ATTENTION

3/15 participants reported having been aware of **inadvertently swallowing** small quantities of solution = 1% of the total MR procedures. However, an important consideration for participants **fasting for religious reasons**






10

Open Access Research

BMJ Open Knowledge, beliefs and attitudes of Muslim footballers towards Ramadan fasting during the London 2012 Olympics: a cross-sectional study


Abdulaziz Farooq,¹ Christopher P Herrera,² Yacine Zerguini,³ Fuad Almudahka,⁴ Karim Chaman¹

Farooq A, et al. *BMJ Open* 2016;6:e012848. doi:10.1136/bmjopen-2016-012848



Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Beliefs						
Ramadan fasting can reduce my endurance/stamina during a game	3.7	5.6	9.3	46.3	35.2	82%
Ramadan fasting will increase my physical skills	20.4	64.8	1.9	9.3	3.7	85%
Ramadan fasting will reduce my mental skills	9.3	22.2	20.4	38.9	9.3	
Ramadan fasting will increase my confidence	3.7	20.4	22.2	37.0	16.7	
Knowledge						
Ramadan fasting will reduce my sleep quality	16.7	22.2	7.4	40.7	13.0	
If I am properly hydrated at Suhoor, I can participate in a game or training without any problem while fasting	11.1	57.4	20.4	5.6	5.6	11%
Ramadan fasting will reduce my concentration during game	7.5	15.1	7.5	52.8	17.0	70%
Ramadan fasting will reduce my sleep time	13.0	22.2	3.7	51.9	9.3	
Ramadan fasting can reduce my power during a game	3.7	5.6	13.0	59.3	18.5	78%
Attitudes						
17 hours of Ramadan fasting in the UK can be a challenge	0	5.6	16.7	46.3	31.5	
Ramadan fasting will make me physically stronger	13.0	72.2	9.3	3.7	1.9	
Ramadan fasting will make me mentally stronger	7.4	57.4	24.1	5.6	5.6	
I think it is OK to postpone my Ramadan fasting until after the Olympics	3.7	11.1	13.0	35.2	37.0	72%
My family and friends want me to fast in Ramadan	9.3	9.3	33.3	25.9	22.2	
It is not a problem for future sports events to take place during Ramadan	29.6	42.6	14.8	9.3	3.7	
My coach wants me not to fast in Ramadan	7.4	24.1	14.8	22.2	31.5	54%
Ramadan fasting can make me weaker day by day	7.4	16.7	24.1	35.2	16.7	

Data are percentages of 54 athletes and may not total to 100% for each item because of rounding.

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11

SCIENCE AND MEDICINE IN FOOTBALL, 2018
VOL. 2, NO. 1, 29-38
<https://doi.org/10.1080/24733938.2017.1393550>


Taylor & Francis Group

ARTICLE 

Effects of Ramadan fasting on the physical activity profile of trained Muslim soccer players during a 90-minute match

Abdul Rashid Aziz ^{a,b}, Ahmad Munir Che Muhamed^c, Cheong Hwa Ooi^c, Rabindarjeet Singh^c and Michael Yong Hwa Chia^b








12

Study time line / design

- Selected 13 outfield players (6 from one team & 7 from the opposing team) over 4 matches wearing GPS (5 Hz) to assess running speeds and distances

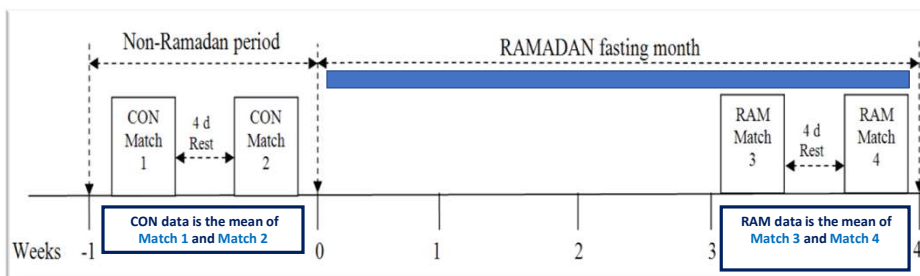


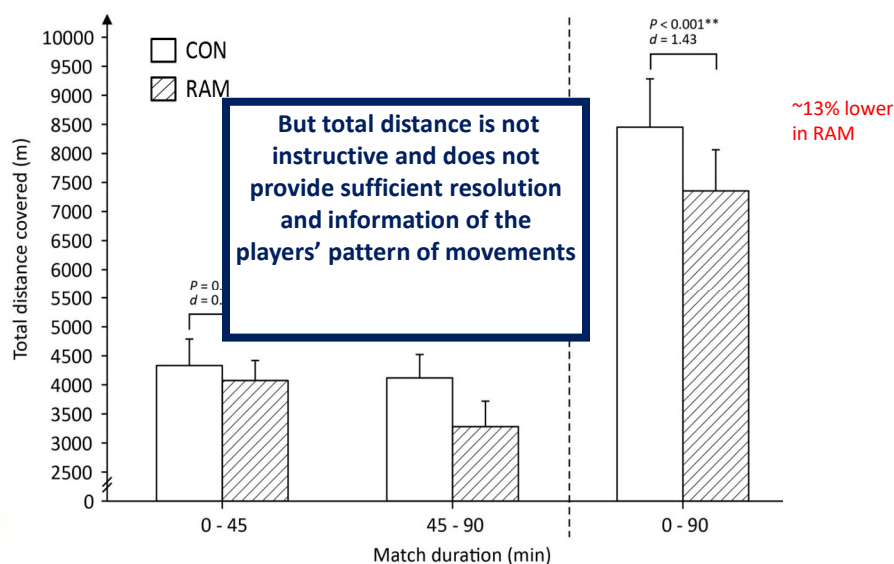
Table 1. The four matches' dates, environmental conditions and match scores.

Condition	Match nos.	Date of matches	Environmental conditions from start to end of match		Scores at end of match	
			Ambient air (°C)	Relative humidity (%)	Team A: Team B	(N = 6) (N = 7)
Non-fasted or control (CON)	1	23 rd June	32.5 – 31.4	63.9 – 68.8	4: 2	
	2	27 th June	32.3 – 30.2	63.5 – 70.1	5: 1	
Ramadan-fasted (RAM)	3	21 st July	32.3 – 30.4	58.8 – 69.9	5: 3	
	4	25 th July	31.7 – 29.9	68.2 – 74.4	4: 1	



13

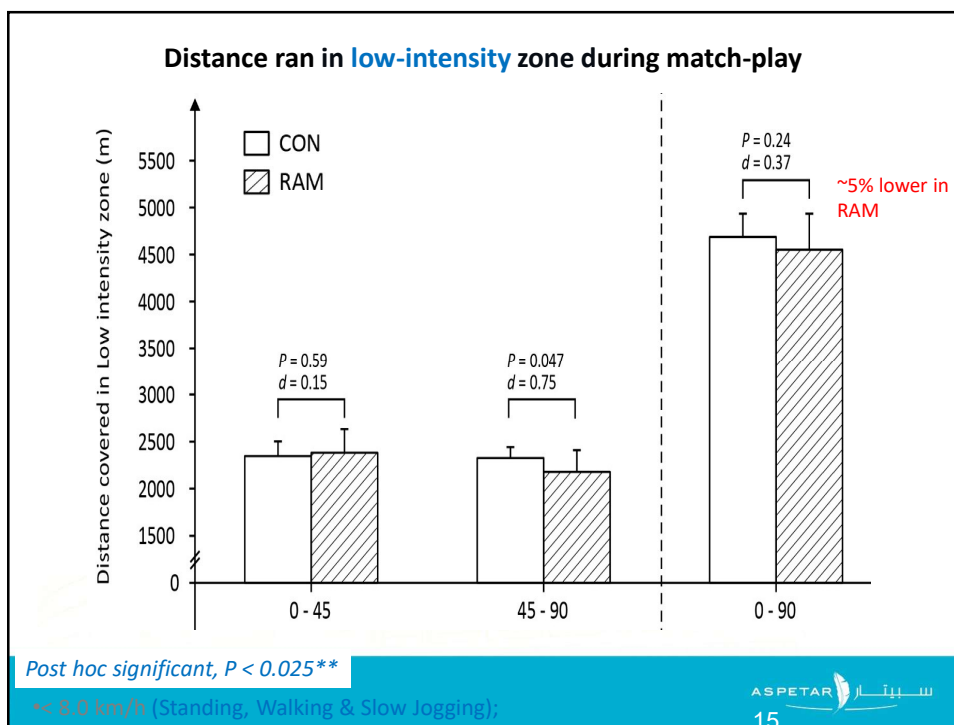
Total distance covered in all 3 zones during match-play



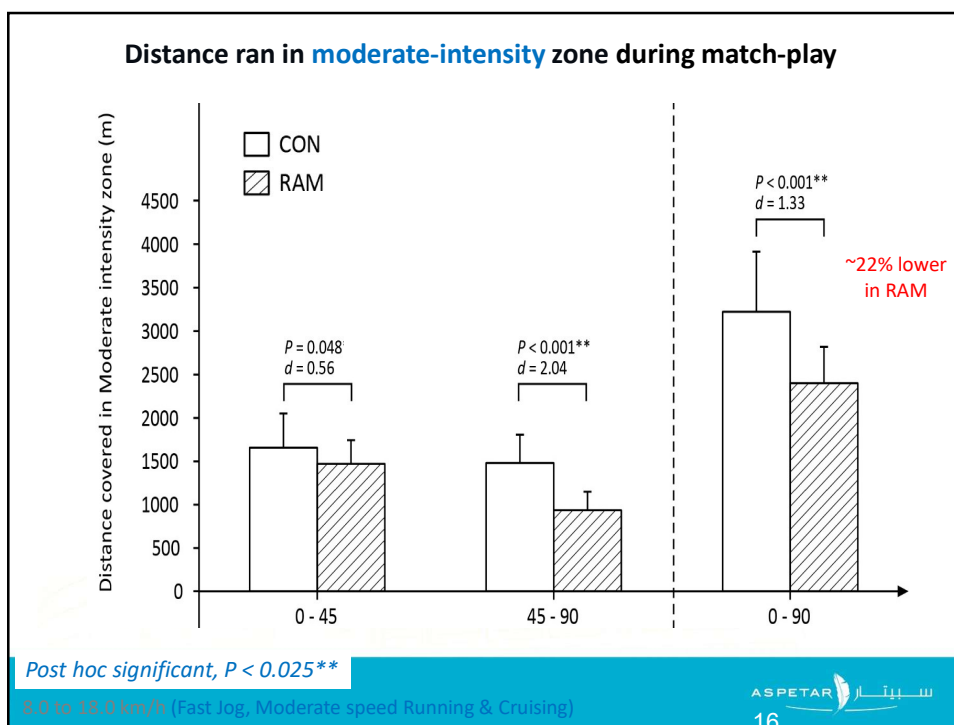
Post hoc significant, $P < 0.025^{**}$



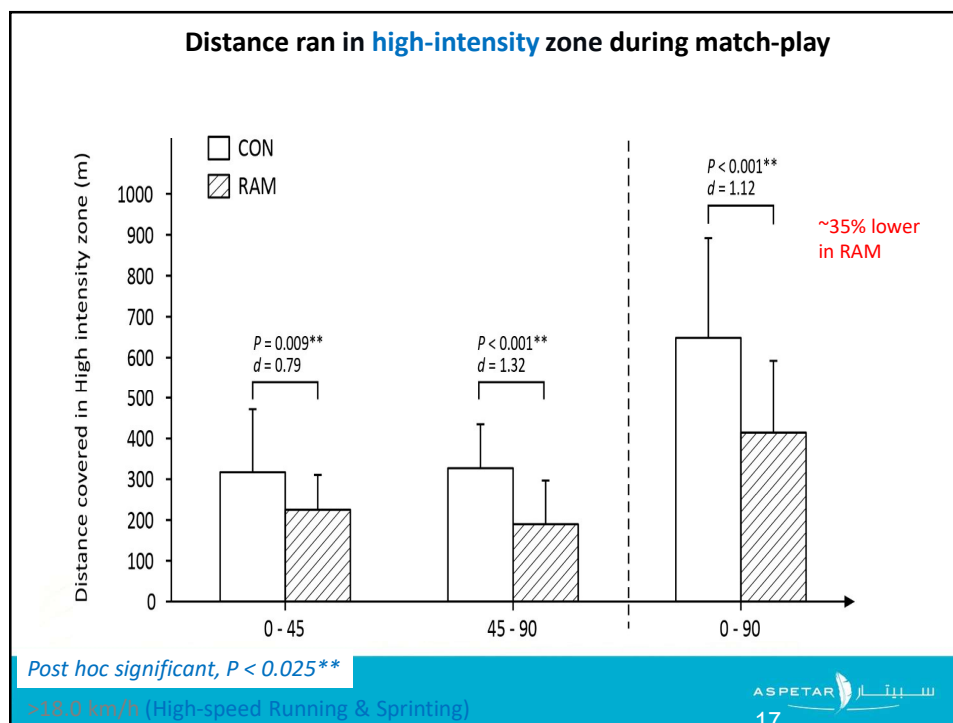
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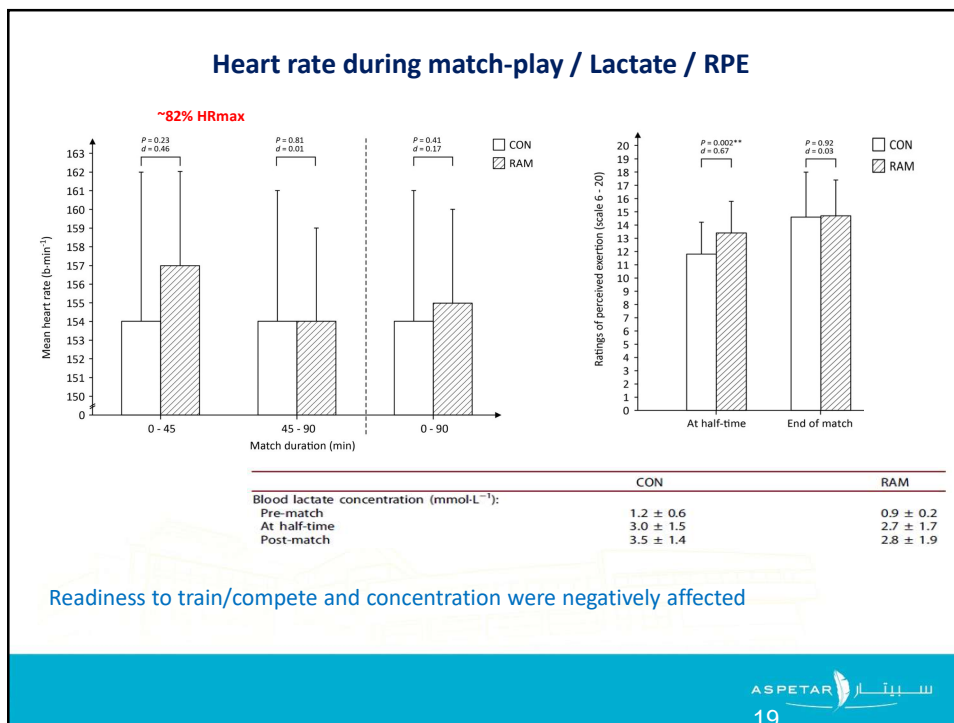
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• Summary findings

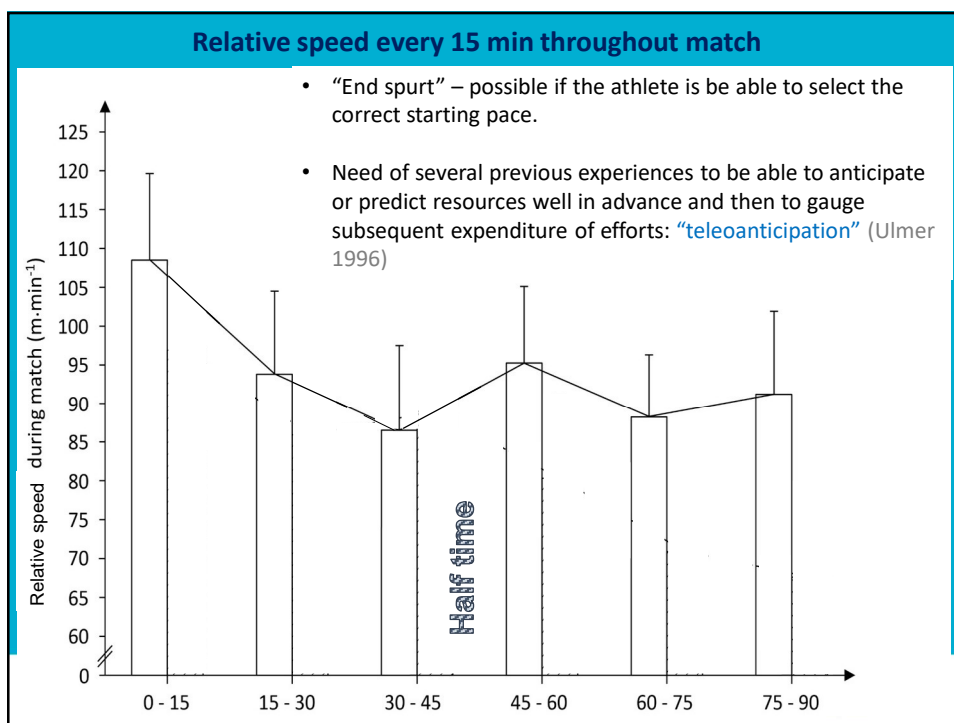
- Playing in Ramadan-fasted state led to significantly lower distance covered:
 - total distance
 - distance at moderate intensity
 - distance at high intensity
- Distance at low intensity was not affected
- Conclusion: Ramadan fasting has had an adverse impact on playing a football match –
- Despite the differences in movement profile, NO differences were observed for:



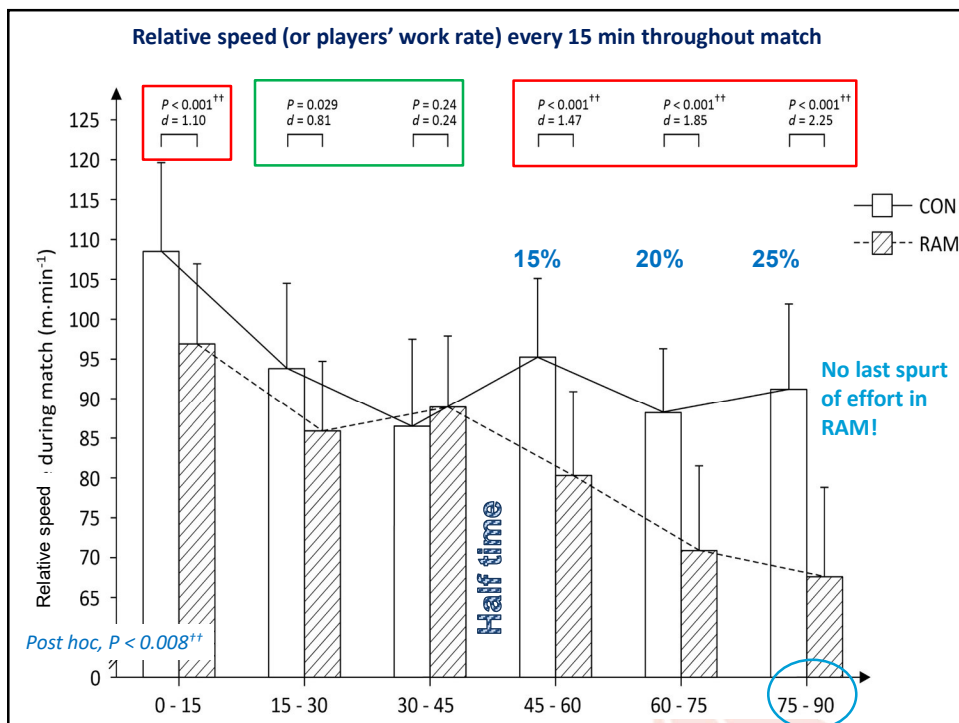
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19



20



21

- **Factors causing poorer performance in Ramadan match?**

- EARLY during the match?
- Either **Nocebo effects** of Ramadan observance
 - **Nocebo** is defined as an inert substance or procedure that is intended to create **negative consequences** (Colloca & Miller, 2011a; 2011b).

AND/OR

- **Poor pacing strategies**
 - players in the fasted state knew/thought they had “limited resources” and therefore adopted a very **cautious approach** in the early period of match.

This is akin to the “Central Governor” model of exercise regulation (proposed by Prof Tim Noakes)

22


sports

Published in January 2017

Article

Poorer Intermittent Sprints Performance in Ramadan-Fasted Muslim Footballers despite Controlling for Pre-Exercise Dietary Intake, Sleep and Training Load

Abdul Rashid Aziz ^{1,2,*}, Ahmad Munir Che Muhamad ³, Siti Raifana Roslan ³, Nazirah Ghulam Mohamed ³, Rabindarjeet Singh ^{3,4} and Michael Yong Hwa Chia ²








23


Review
DOI: 10.5604/20831862.1224098
Biol. Sport 2016;33:407-413

Rapid weight loss in the context of Ramadan observance: recommendations for judokas

AUTHORS: Aloui A¹, Chtourou H², Briki W³, Tabben M⁴, Chaouachi A⁵, Souissi N⁶, Shephard RJ⁷, Chamari K⁸ Corresponding author: Asma Aloui High Institute of Sport and

Weight reduction during Ramadan tends to be counterproductive, and judokas who aim for a lower weight category are advised to attempt any desired reduction of body mass during the weeks leading up to Ramadan, rather than during the holy month





24

> J Sports Sci. 2020 Apr;38(7):795-800. doi: 10.1080/02640414.2020.1735033. Epub 2020 Mar 2.

The effect of carbohydrate and caffeine mouth rinsing on kicking performance in competitive Taekwondo athletes during Ramadan

İbrahim Ethem Pak ¹, Mutlu Cuğ ², Stella L Volpe ³, C Martyn Beaven ⁴

Ramadan had a significant negative effect on repeated high-intensity kicking efforts that should be considered when training and competing.

Additionally, there were significant positive effects of a caffeine mouth rinse in a sport-specific test.



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25



Physiology & Behavior
Volume 229, 1 February 2021, 113241



Effect of Ramadan intermittent fasting on cognitive, physical and biochemical responses to strenuous short-term exercises in elite young female handball players

Ahmed Graja ^{a, b, c, d}, Kais Ghattassi ^e, Nahla Boudhina ^e, Mohamed Amine Bouzid ^e, Henda Chahed ^f, Salyma Ferchichi ^g, Tarak Driss ^a, Nizar Souissi ^f, Omar Hammouda ^{a, h}

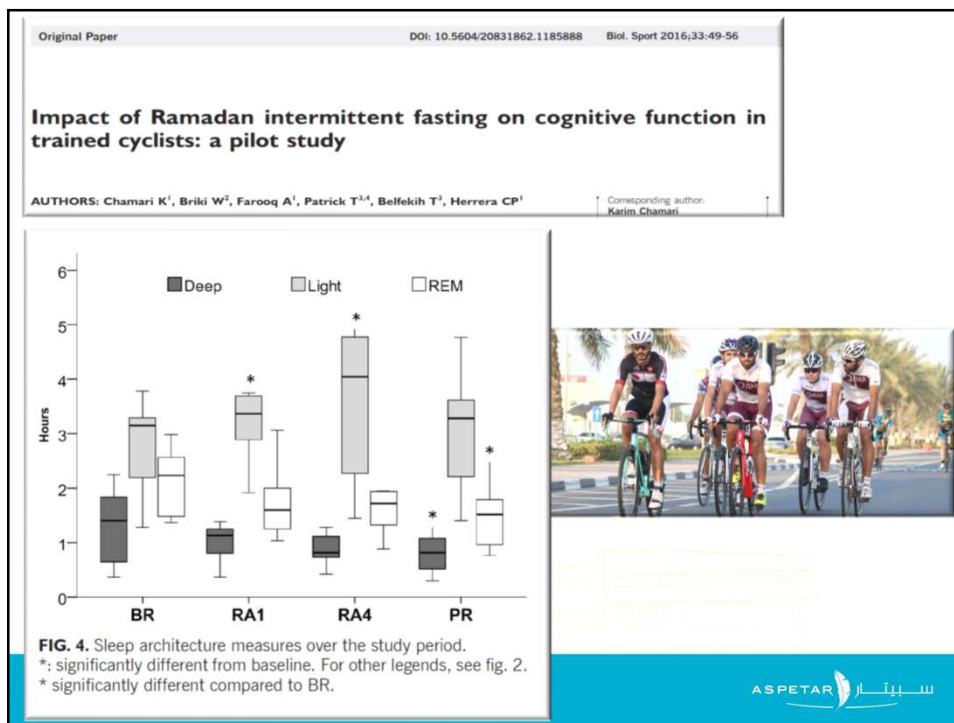
R4 vs BR:

Daily Sleepiness scores were higher
The power of three final sprints from the RAST decreased
RAST fatigue index and RPE scores were higher
Biomarkers of muscle damage were higher after the RAST



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26



27

sports MDPI

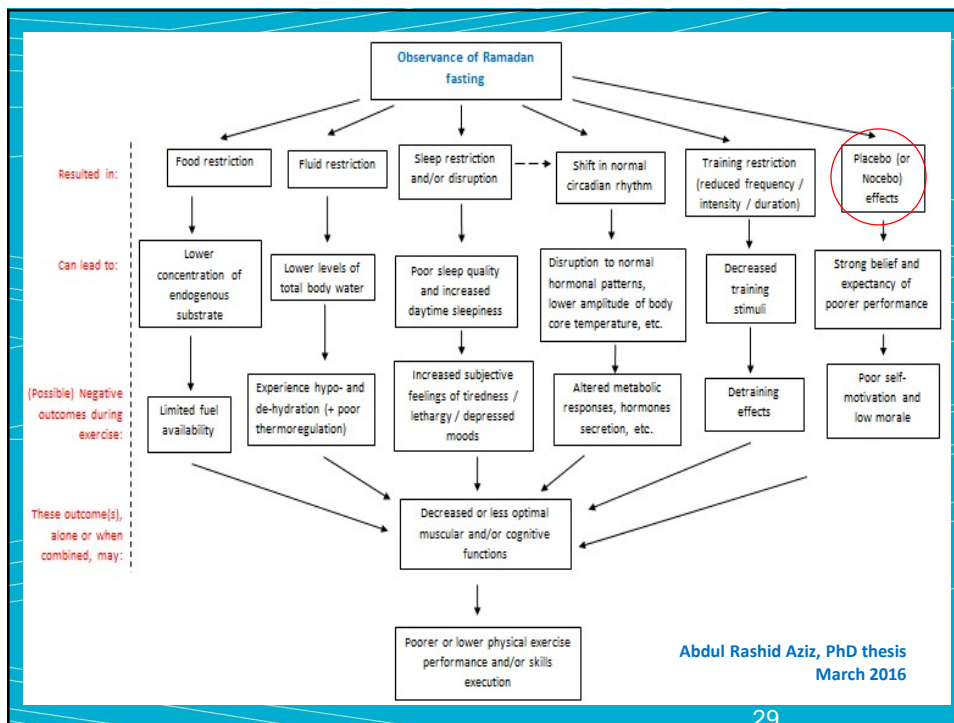
Article

A Thirty-Five-Minute Nap Improves Performance and Attention in the 5-m Shuttle Run Test during and outside Ramadan Observance

Hsen Hsouna ^{1,2}, Omar Boukhris ^{1,2}, Khaled Trabelsi ^{2,3}, Raouf Abdesslem ^{1,2}, Achraf Ammar ⁴, Jordan M. Glenn ^{5,6}, Nick Bott ^{6,7}, Nizar Souissi ^{1,2}, Paola Lanteri ⁸, Sergio Garbarino ⁹, Nicola Luigi Bragazzi ^{9,10,11,*} and Hamdi Chtourou ^{1,2,†}

A 35-min nap opportunity may have beneficial effects on physical and cognitive performances before, during, and after Ramadan

28



29

Advices to Fasting Athletes (2012)

Journal of Sports Sciences, 2012; 1–21, *iFirst* article

The effects of Ramadan intermittent fasting on athletic performance: Recommendations for the maintenance of physical fitness

ANIS CHAOUACHI¹, JOHN B. LEIPER², HAMDI CHTOUROU¹, ABDUL RASHID AZIZ³, & KARIM CHAMARI^{1,4}





Journal of Sports Sciences, 2012; 1–6, *iFirst* article

Strategies for maintaining fitness and performance during Ramadan

DONALD T. KIRKENDALL¹, ANIS CHAOUACHI², ABDUL RASHID AZIZ³, & KARIM CHAMARI²

COUNSELING






30

Ramadan and Sleep

Sleep and Breathing
<https://doi.org/10.1007/s11325-019-01986-1>

METHODS • REVIEW

 Check for updates

Effect of diurnal fasting on sleep during Ramadan: a systematic review and meta-analysis

Mo'ez Al-Islam E. Faris¹ • Haitham A. Jahrami^{2,3} • Fatema A. Alhayki³ • Noor A. Alkhawaja³ • Ameera M. Ali³ • Shaima H. Aljeeb³ • Israa H. Abdulghani³ • Ahmed S. BaHammam^{4,5}


Received: 15 August 2019 / Revised: 19 November 2019 / Accepted: 25 November 2019
 © Springer Nature Switzerland AG 2019

Review

Observing Ramadan and sleep-wake patterns in athletes: a systematic review, meta-analysis and meta-regression

Khaled Trabelsi¹ • Nicola Bragazzi² • Sahar Zlitni¹ • Aimen Khacharem³ • Omar Boukhris¹ • Kais El-Abed¹ • Achraf Ammar⁴ • Saber Khanfir⁵ • Roy J Shephard⁶ • Ahmed Hakim⁷ • Wassim Moalla¹ • Hamdi Chtourou^{8,9}

Br J Sports Med 2019



31

Systematic Reviews on Ramadan & Performance

Sports Medicine
<https://doi.org/10.1007/s40279-020-01257-0>

SYSTEMATIC REVIEW

 Check for updates

Effects of Ramadan Fasting on Physical Performance: A Systematic Review with Meta-analysis

Abd-Elbasset Abaidia¹ • Wael Daab¹ • Mohamed Amine Bouzid¹

 REVUE SYSTÉMATIQUE

Effects of Ramadan fasting on physical performances in soccer players: a systematic review

Effets du jeûne de Ramadan sur les performances physiques des footballeurs: revue systématique

Hamdi Chtourou¹, Khaled Trabelsi¹, Omar Boukhris¹, Achraf Ammar¹, Roy Jesse Shephard², Nicola Luigi Bragazzi²



32

Advices to fasting athletes (2019)



LA TUNISIE MEDICALE - 2019 ; Vol 97 (n°10) REVUE SYSTÉMATIQUE

Optimizing training and competition during the month of Ramadan:
Recommendations for a holistic and personalized approach for the fasting athletes
Optimisation de l'entraînement et des compétitions pendant le mois de Ramadan
pour les athlètes jeûneurs: Recommandations pratiques

Karim Chamari¹, Mehdi Roussi², Nicola Bragazzi³, Anis Chaouachi⁴, Rashid Aziz Abdul⁵

LA TUNISIE MÉDICALE
المجلة الطبية التونسية
Journal de la Société Tunisienne des Sciences Médicales

Review **2019...** More to come soon...

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33

Recherche Bibliographie Scientifique



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34

Thank you...



karim.chamari@aspetar.com

