



Ramadan

SLEEP AND PERFORMANCE DURING RAMADAN

An estimated 22% of the world’s population (approximately 1.6 billion people) fast during the Muslim holy month of Ramadan. In all countries, fasting individuals do not eat, drink, or smoke from sunrise to sunset. However, due to different geography and the movement of Ramadan (11 days earlier each year), the number of hours fasting can be very different for workers distributed across wide areas. For example, when Ramadan falls in the Northern Hemisphere summer months, those in Northern latitudes will be fasting for much longer than those in Southern latitudes, and those in equatorial regions.

WHAT IS THE IMPACT OF RAMADAN ON THE FASTING WORKERS?

While it is difficult to generalise, as different countries have differing cultural traditions and lifestyle changes during Ramadan, there are several key characteristics that seem to be common in all studies conducted.

FASTING, NON-FASTING, AND LATE BEDTIMES

The primary reason for sleep starting later during Ramadan is the breaking of the fast after sunset – in two studies a higher proportion of people went to sleep after midnight during Ramadan. There are also cultural changes during Ramadan – for example in Saudi Arabia shops are open later, and popular TV programmes are shown late at night, which means that non-fasting individuals and expatriates also go to bed later.

SLEEP LOSS DEPENDS ON COMPANY CULTURE AND NATIONAL CUSTOMS

Going to bed later does not always result in sleep loss – in Saudi Arabia, locals who fast obtain the same total sleep duration because their work start time, and therefore their wake time in the morning, is delayed. However, where work start times are not delayed, substantial levels of sleep loss can occur. In two studies, 68% of fasting individuals obtained on average less than six hours sleep per night (compared with 37% getting less than six hours sleep on average before Ramadan).

LATE MEALS AND BEDTIMES ALTER THE CIRCADIAN RHYTHM, AND AFFECT SLEEP QUALITY

In studies that have measured the timing of the body’s 24h cycle in alertness (the circadian rhythm), subjects tend to become more ‘evening-types’ during the month of Ramadan as the circadian rhythm is delayed due to later bedtimes and eating later. This means that people are more alert in the evening, and more sleepy in the morning. This change in the daily cycle of alertness – very similar to jetlag – has a knock-on impact on sleep quality. Fasting individuals obtain less deep sleep and dreaming sleep. Deep sleep is important for memory consolidation, and to allow the brain to recover from its daily activities. Lack of dreaming sleep can result in anxiety, irritability, and difficulty in concentrating.



THERE ARE MORE TRAFFIC ACCIDENTS DURING RAMADAN

In Saudi Arabia, the UAE and the UK, hospitals report an increase in road-accident related attendances among Muslims during Ramadan, compared to non-Muslims or Muslims at different times of year. This is thought to be due to lower alertness during Ramadan due to sleep loss, reduced deep sleep and dreaming sleep, dehydration, and increased irritability – particularly amongst habitual caffeine drinkers or smokers.

WHAT CAN I DO?

If you **are** fasting during Ramadan, you will be aware that you are less alert during the daytime. If possible, try rotating tasks with non-fasting colleagues to reduce risk. If all your colleagues are fasting, work closely together, increasing cross-checking, and follow procedures and check-lists closely, where available.

Daytime napping can help alleviate some of the decreased alertness during Ramadan – due to the change in your circadian rhythm it is likely to be easiest to nap at 0900hrs and 1600hrs. If you are permitted to nap at work, set an alarm for 20 minutes and go to sleep. When the alarm goes off, walk around for ten minutes to allow any grogginess to disappear.

If you are **not** fasting, consider that your fasting colleagues are potentially less alert than normal – offer to drive them to work (or arrange car pooling), and switch tasks so that they perform lower risk activities, particularly in the heat as they are more likely to be dehydrated.

WHAT CAN THE COMPANY DO?

- Consider Ramadan in the Company Fatigue Management Plan.
- Run fatigue- and performance-awareness programmes before and during Ramadan, so that workers (fasting and non-fasting) are aware of the elevated risks associated with fasting.
- Delay work start times. When fasting workers can delay the start of their work day, they are better able to maintain their total sleep duration during Ramadan - a 'flexible' work day, where work starts and ends later is likely to benefit fasting employees.

- Rotate tasks. During Ramadan, fasting workers will be less alert, more likely to be dehydrated, and may be sleep deprived. Where possible, give these workers lower risk tasks – ideally out of the sun.
- If rotating tasks is not possible, or all workers are fasting, try to shorten the shift, or increase the proportion of the shift spent on breaks from tasks, particularly for fasting workers in hot conditions or working on high risk tasks.
- Where shifts are shortened during Ramadan, this could be part of a 'seasonal' flexibility, where workers work shorter days during Ramadan, and 'make up' the time elsewhere in the year. However, risk assessments should be undertaken before lengthening shifts, as alertness can decrease in the workforce as a whole when shift duration is increased from 8 to 12 hours.
- Reduce driving. Fasting workers are more at risk of traffic accidents during Ramadan – initiate car pooling, provide taxis or a company mini-bus.
- Encourage napping. Daytime sleep can be used to increase total sleep duration, and reduce some of the performance decrements felt due to reduced or disturbed sleep during Ramadan.
- Be aware that non-fasting workers may also lose sleep. Cultural changes, e.g., shops being open later or change in timing of popular TV programmes in Islamic countries, may result in non-fasting workers going to bed later, but not benefitting from a later work start.
- Consider geography. In a distributed global workforce, fasting workers' experience of Ramadan will be different, depending on location and national customs.

Key references

Roky R et al. "Physiological and Chronobiological changes during Ramadan Intermittent Fasting". *Annals of Nutrition and Metabolism* 48. 2004. p296-303.
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