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## **The lockdown effects on sleep patterns and cognitive function**

A consortium of researchers from the University of Cape Town (UCT), Wits and Rhodes universities are investigating the effects of the lockdown on daily routine as it relates to lifestyle behavioural factors (sleep, physical activity, work, meal timing, screen time, etc) and associations with anxiety and depression.

With the current pandemic, many people are concerned about household income, job security, increased workload and many other things. This underlying stress or anxiety is certainly a factor and largely responsible for many people experiencing poor quality or fragmented sleep right now.

"What we know, however, is that in the absence of any other underlying medical condition or medication use, stress/anxiety is one of the chief "ruiners" of sleep," said Dr Dale Rae who heads the Chronobiology and Sleep Laboratory in the Division of Exercise Science and Sports Medicine at UCT.

According to Rae our bodies love rhythm and routine, and healthy routines are crucial to robust circadian rhythms (the natural internal process that regulates most processes within the body, including the sleep-wake cycle, and repeats every 24 hours.) Disrupted rhythms increase fatigue, impair sleep and disturb metabolism.

"Erratic bedtimes, wake-up times, sleep durations, mealtimes and other factors, contribute to circadian dysrhythmia (disruption to the natural internal process that regulates most processes within the body every 24 hours), which may in turn result in short, poor-quality sleep. Just one week of such sleep has been shown experimentally to increase propensity for weight gain, alter immunity and promote insulin resistance.

"Add to this limited natural light exposure if a person does not get outdoors enough (especially in the morning) and excessive artificial light exposure after sunset (from our devices) and we further dampen our circadian rhythms. This makes it harder to be alert in the mornings and delays our natural bedtime," added Rae.

Societal norms see early school, university and work start times in South Africa. This means that for most people early rise times are necessary to be on time. This is really tricky for night owls, who typically have a reduced sleep opportunity, and yet wake-up time is inflexible. The result is that many owls are chronically sleep deprived.

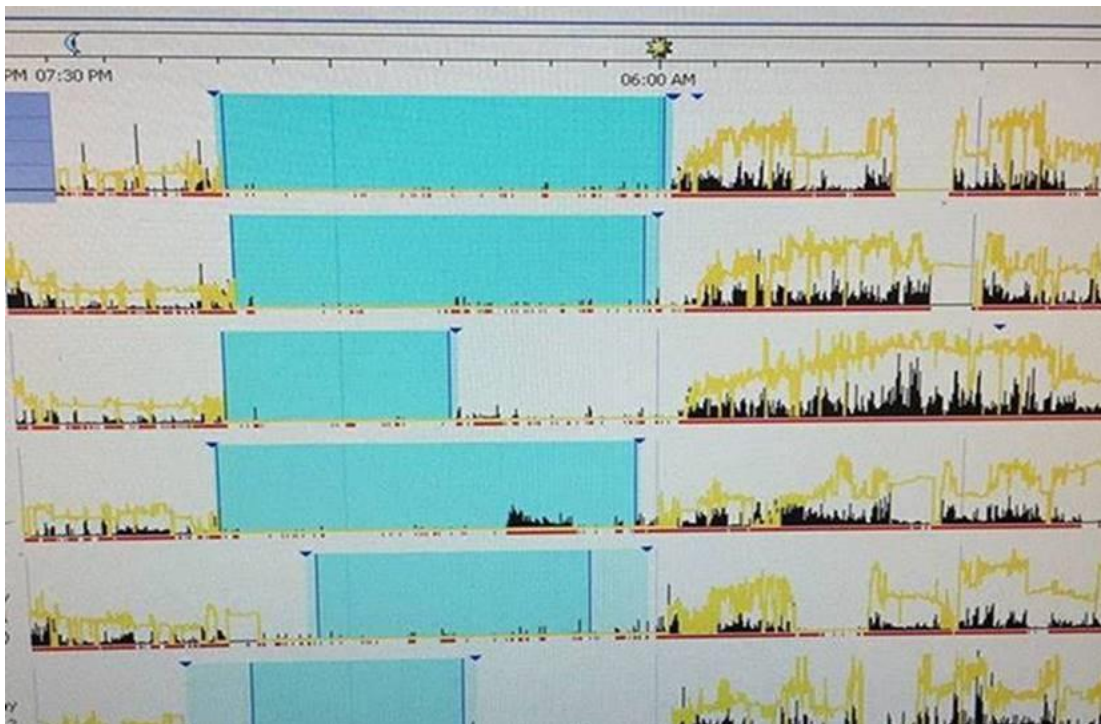
This is worrying as studies in the United States (US) have estimated that productivity losses attributed to sleep deprivation cost the country about US\$411 billion per year; that the US

loses about 1.2 million working days annually due to insufficient sleep, and that if individuals who usually sleep less than six hours started to sleep six to seven hours a night, this could potentially add US\$226.4 billion to the US economy annually.

“Bringing this back to working at home – while we might save time during the day by not commuting to work and socialising, etc, if we are sleep deprived, we may not be able to filter the distractions around us, which may reduce productivity,” said Rae.

With the lockdown, two things seem to have happened. Firstly, many people experienced longer nocturnal sleeping periods and some daytime napping, initially. Secondly, many people are shifting towards later bedtimes and later rise times. This suggests that in the absence of what we call societal time cues (“must be at work by 08:00”), and once sleep debt has been mitigated, individuals are choosing a sleep timing that is more in sync with their natural chronotype (one’s preference for morning or evening activity).

“To a large extent this is a healthy behaviour, usually associated with better sleep duration and quality. The trick post-lockdown is going to be recognising this and figuring out solutions moving forward to allow people the flexibility to sleep in sync with their natural circadian system,” concluded Rae.



One of the tools Dr Dale Rae uses is an actogram, which charts a person’s habitual sleep patterns (blue) measured over one week using a wrist-worn accelerometer.

**Photo** Supplied.

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