Lid lifted on sleep studies

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Insomnia is a costly problem, writes Brendan O'Keefe

WORLD Cup soccer fans who plan to spend the night-time hours catching the live action from Germany had better plan for the after-effects. But the bleary eyes, poor concentration and fuzzy-headedness caused by temporary sleep deprivation are merely a day-after-the-night-before hangover. Good sleepers will soon return to their pattern. But poor sleepers -- those who suffer sleep apnoea, when the muscles of the throat collapse to block the windpipe, or forms of insomnia -- experience a silent and often private hell that, added up, costs Australia more than $10 billion in medical treatment, lost production, lost wages and foregone taxes.

Due in no small part to innovators such as the University of Sydney's Colin Sullivan, who developed the continuous positive airway pressure or CPAP anti-snoring device in 1981, and the University of South Australia's Drew Dawson, who in the journal Nature equated the effects of sleep deprivation to a high blood-alcohol level, Australia is at the forefront of research into and treatment of sleep disorders. Australasian Sleep Association president Matthew Naughton, a professor at Melbourne's Alfred Hospital, says the recent increase in obesity, which is linked with sleep apnoea, has kicked research along further. "The connections between untreated sleep apnoea and high blood pressure, diabetes and heart disease have become increasingly evident," he says. Being invited to be a key speaker at a recent national work and safety conference shows that employers are concerned, he says.

With a $10 billion-plus national health bill, governments cannot ignore the effects of sleep disorders on the 1.2 million sufferers and the many others who feel the effect. "Vic Roads is right on to this and it appreciates that at least a third of country accidents are fatigue related," Naughton says. "If you drive down any road in Australia you will see Do Not Sleep and Drive signs; overseas you don't see those.

"Australia has been very much aware that falling asleep at work, operating machinery or even as a psychiatrist, is crucial to performance and major catastrophic events occur when sleep is not held in high regard." Poor sleep has been shown to reduce the antibody response in humans by 50 per cent.

"Any parent will tell you that a sleep-deprived child will be more likely to get a cold," Naughton says. Research by University of South Australia sleep expert Sarah Blunden appears to link sleep deprivation and childhood obesity. In a recent study, Blunden surveyed 140 Darwin primary school children, asking them their height and weight and having them fill in a sleep diary for a week. "Of about 140 kids, there were six who slept less than six hours [a night]," Blunden says. "Three of the six did not record their body mass index, but the three who did were either overweight or obese. Even though it is a very small number, it whets your appetite to think that the three were clearly in trouble."

Blunden is supervising an honours student, Paige Johnston, who is replicating the Darwin study in three Adelaide primary schools with about 800 children. Results are expected later this year.

Also in Adelaide, Flinders University sleep specialist Leon Lack has been giving insomniacs a weekend intensive program to break the cycle of hours wasted trying to get to sleep or back to sleep. Patients come into the laboratory on a Saturday afternoon and go to bed at night when they are tired. Then the trouble starts. Once they fall asleep, they are quickly woken and allowed to fall asleep again. This process is repeated about 50 times in 24 hours. Lack says patients who spend a half-hour getting to sleep the first time are nodding off within minutes by about 4am on the Sunday. He says it can teach patients the habit of falling asleep and can break the cycle of poor sleep built up through the years. "Then they go home on Sunday night and have eight hours of recovery sleep, which for many is the longest sleep they have had in many years," Lack says.

The method, called Flinders Accelerated Sleep Therapy, or FAST, is as good as the traditional stimulus control therapy, in which patients who take a long time to fall asleep follow a series of instructions about bedtime every night for up to two months, Lack says. It's also as good as drugs, but is a shorter treatment with longer-lasting positive results.

At RMIT University's Australian Centre for Radiofrequency Bioeffects Research, Dean Cvetkovic is exploring another non-drug treatment for insomnia. With the support of medical research company Medec, Cvetkovic has developed a therapy that uses low-frequency doses of light, sound and electromagnetics to lull poor sleepers into slumber. Cvetkovic, a postdoctoral student, has found that the brain, when stimulated at extremely low frequencies, reduces activity to levels associated with those of sleep. The three-year project, funded by the National Health and Medical Research Council, is expected to lead to the development of a portable sleep inducer that will also use artificial light, sound and electromagnetic fields to help wean insomniacs off hypnosis and drugs.

Naughton says the coming years promise even more of a leading role for Australian sleep researchers. In September next year, Australia will host the 2000-head annual conference of the World Federation of Sleep Research Societies. "It shows that we are on the main stage and we believe that our track record is excellent," he says. Future research promises an insight into the effect of sleep deprivation on hormones and immunology. "There is evidence from overseas that shows if you sleep deprive a young person, not only can they become drowsy but also they become pre-diabetic," Naughton says. "They are setting themselves up to develop diabetes." The NHMRC says the grant will provide resources that will make Australian involvement in international studies more competitive and achieve higher publication quality for the research work.

COUNT SHEEP, COUNT THE COST

* Cost to the Australian economy of sleep disorders: $10.3 billion
* Number of people suffering from some form of sleep disorder: 1.2 million
* Proportion of work accidents attributed to sleep disorders: 10 per cent
* Proportion of non-work vehicle accidents attributed to sleep disorders: 7.6 per cent
* Cost of treating work-related injuries caused by sleep disorders: $2.7 billion
* Cost of sleep-related depression: almost $100 million
* Cost of lost production from sleep-related absenteeism and lower productivity: $79million
* Lost earnings from job losses due to sleep disorders: $1.57billion
* Annual cost of sleep disorders a person: $310
* Annual cost of sleep disorders a sufferer: $5175

Source: Access Economics; figures for 2004

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