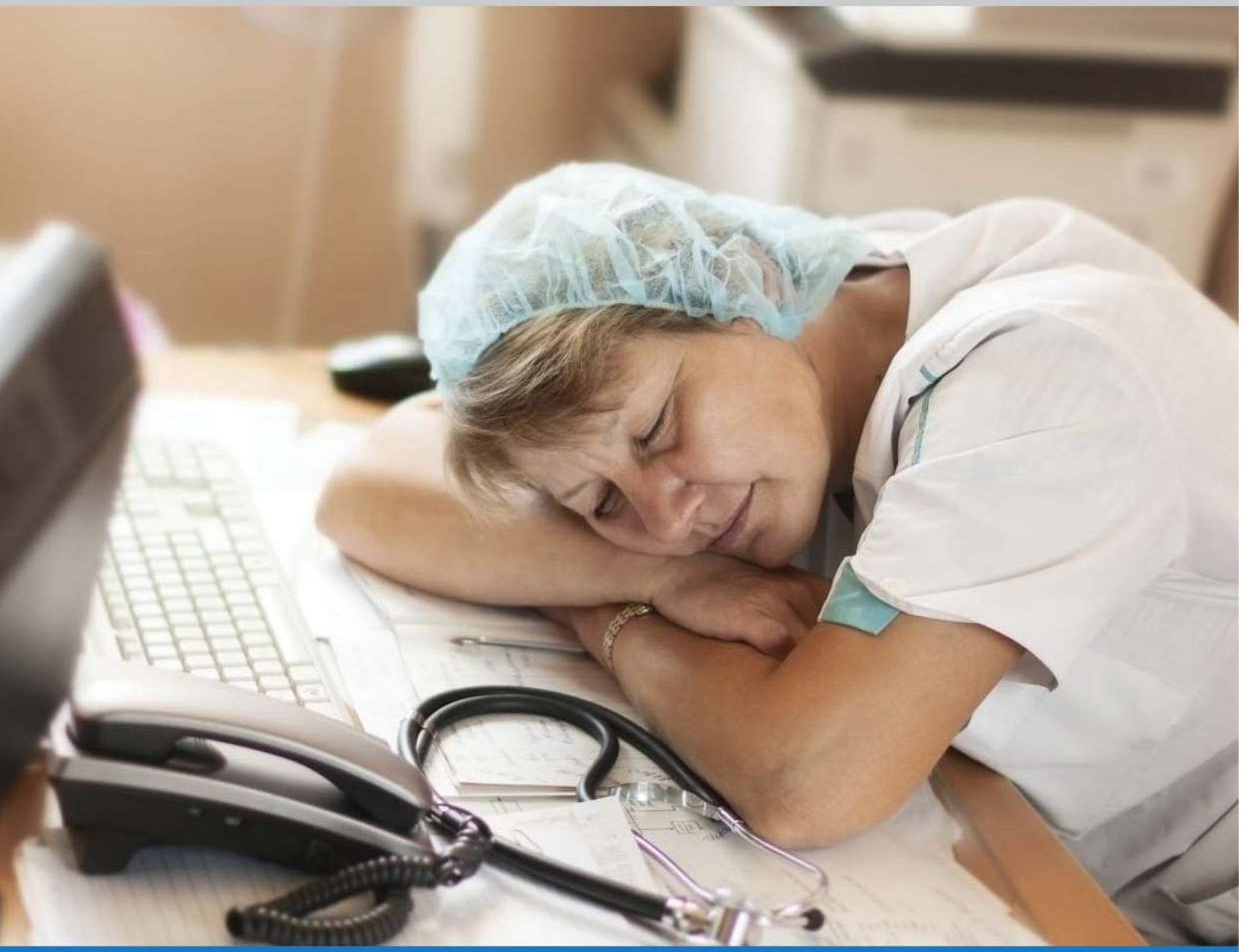
3rd Pillar of Health



DISCUSSION DOCUMENT

Can the introduction of controlled rest periods benefit your organisation's bottom line?

By
Marcus de Guingand
Managing Director,
Third Pillar of Health Ltd

www.thirdpillarofhealth.com

The phrase 'caught napping' reflects people's belief that napping is the most blatant manifestation of sloth."

"Naps can make you smarter faster and safer. They should be widely recognised as a powerful tool in battling fatigue."

William C. Dement, "The Promise of Sleep" (Pan Books, 2001)

About this discussion paper

Sleep deprivation is now so widespread that the (US) Centres for Disease Control said in August 2012 that it is becoming 'a public health epidemic.'

Poor sleep, tiredness and fatigue is becoming endemic in our society. At any one time 20% of the population is suffering from a sleep problem (Warwick University). 43% of working Americans sleep for 6 or fewer hours a night (Gallup). As a result health, safety and performance will be negatively affected with a corresponding impact on your organisation's profitability.

Many organisations run excellent health and wellbeing programmes for staff. However, the elephant slumped in the corner of the room is Employee Energy. Simply put – your staff are too tired to do their jobs safely and productively but neither you nor they know it.

In this discussion paper we want to explain the measures most of the workforce currently use to maintain alertness and then discuss whether creating a napping culture is likely to be beneficial to organisations from a health, safety and productivity perspective.

What are the effects of poor sleep

Poor sleep has been linked to significant increases in the rates of obesity, diabetes, high blood pressure, heart disease, strokes and cancer as well as minor ill-health. These result in direct medical costs as well as significant indirect costs associated with absenteeism and presenteeism.

According to Dr Sara Mednick in her book "Take a Nap! Change your life" (Workman Publishing, 2006), "no single organ is more affected by lack of sleep than the brain." Dr Mednick goes on to say that in sleep-deprived subjects blood flow to three parts of the brain is compromised – the thalamus, pre-frontal cortex and inferior parietal lobe. These areas of the brain play a critical role in decision making, attention span and the speed at which we adopt new information.

Other effects, of even short term sleep restriction, include: difficulty concentrating, reduced reaction times, impaired memory, difficulty coping, impaired perception, reduced ability to think logically, reduced creativity and reduced motor skills and co-ordination.

Mednick also says that 51% of the workforce reports that sleepiness on the job interferes with the volume of work they can do.

As Dr James Maas points out in his book "Power Sleep", (Quill, 2001), "sleepy workers are irritable, likely to make mistakes and cause accidents and are more susceptible to heart attacks and gastrointestinal disorders. That costs money and disrupts lives." Besides the brain, other organs and body functions are affected by poor sleep too. The thyroid gland, which plays an important hormonal role in emotional stability is also affected.

If you would like to understand more about the link between sleep and the effect on staff and your business download our white paper: "*Why should you put Employee Energy at the Forefront of your staff health and wellbeing strategy.*"

There is also a link between sleep deprivation and stress. According to Mednick, sleep deprivation and stress result in elevated levels of cortisol. Synthasised in the adrenal cortex, cortisol helps to regulate our blood pressure, heart rhythm and ability to break down carbohydrates and fats. The end product is greater glucose in the blood stream.

If you'd like to read more about the link between sleep deprivation and stress download our white paper: *"How and why should you tackle the growing issues of stress, burnout and sleep deprivation in staff?"*

The nutritional and health impact of the measures we currently use to maintain alertness

Many of the coping mechanisms we describe below will be familiar to you. It's what we tend to do when we need a "lift". For those who work night shifts these may be a more common occurrence. When working a night shift we are working against our natural body clock. This commonly results in sleeping issues as well as a struggle with blood glucose levels.

According to Lisa Smith, a CNHC-registered nutritional therapist and founder of Nutriology (www.nutriology.co.uk), as our digestion naturally slows at night we are less able to absorb nutrients into the body. This results in cravings for high sugar and high fat foods, which release serotonin – the feel good hormone.

Caffeine

Caffeine is the world's most commonly used stimulant. We tend to see increased caffeine consumption, especially in those working long hours or the night shift. This won't come as any great surprise to anyone. But the effects of caffeine consumption might.

Caffeine halts the build up of adenosine, an enzyme in the brain that promotes sleep so it is understandable why people use caffeine to stay awake. According to the website www.caffeineinformer.com caffeine also stimulates the central nervous system giving the body a sense of alertness as well as dilating blood vessels. It raises heart rate and blood pressure and dehydrates the body.

However, what many people don't know is that caffeine has a half life of between 6 and 9 hours meaning that consuming caffeine in this period before bed is likely to impact on the ability to fall asleep, which will lead to shorter sleep duration. Caffeine can also disrupt the REM (dream) stage of sleep, which is important for the formation of long term memories and has also been linked to emotional balance.

In addition to this, excessive caffeine consumption can also lead to: heart palpitations, headaches, nausea, and most commonly "the jitters".

Energy Drinks

Anecdotally, when we speak to Occupational Health and Safety professionals across a broad range of industries we hear of an increasing consumption of “energy drinks” at work. These drinks tend to be very cleverly marketed and whilst they do provide a level of stimulation there are a number of side effects which need to be considered.

According to Lisa Smith; in excess or over prolonged periods these drinks can cause over-excitement of neurotransmitters and can also damage cells. The stimulants in energy drinks trigger a physiological response through the sympathetic nervous system. This results in elevated levels of cortisol, which over time can damage the hippocampus – the region in the brain associated with memory. In order to trigger this response the pre-frontal cortex (the region in the brain associated with logic, reason and sound decision making) is disabled.

High sugar and high carbohydrate foods

As we said previously working nights means we are working against our biological clock. This means that we are not absorbing food into our system correctly. This results in cravings.

Another trigger for these cravings is the release of serotonin. This is why that piece of cake or donut when tired and working at night feels particularly good. However, with the digestive system in night mode blood sugar levels rise and if the sugar is not burnt off through physical activity then the sugar is transferred into adipose fat which sits around the middle of the body.

Benefits of napping

Let me start by asking you two questions:

If there was a pill that…

- Made you 100% more alert
- 34% more productive
- Improved your memory by 36%
- Reduced you risk of dying of heart disease by up to 64% and
- Gave you up to 8 hours of enhanced energy

… all without any nasty side effects, would you:

1. Take that pill?
2. Recommend to your staff that they take that pill?

If the answer to either or both of those questions was yes then you need to seriously think about adopting a napping strategy.

In her book Dr Sara Mednick lists 20 benefits of "what napping can do for you". Here we pick out a selection of the benefits she lists:

- Increase your alertness: Staying alert is the most important determinant of your efficiency. NASA studies have conclusively demonstrated that alertness can increase by as much as 100% after a brief nap.
- Speed up motor performance: We all engage in tasks that require co-ordination. Napping helps with the speed of learned motor performance.
- Improve accuracy: Making mistakes costs time, money, energy and at worse, lives. Napping can improve both speed and accuracy.

- Make better decisions: Every day we all make decisions, both trivial and significant. Pilots allowed to nap during flights committed fewer judgement errors on takeoff and landing than non nappers.
- Improve your perception: Our sensory and perceptual systems enable us to hone in on the important environmental messages. Whether driving or working in a safety / vigilance-critical role our perception benefits from a nap.
- Increase your bottom line: According to the 2004 Shiftwork Practices survey by Circadian Technologies, workmen's comp costs are highest where employees report the most fatigue and claims at facilities than ban napping are 4 times higher than facilities that allow it.
- Reduce your risk of heart attack and stroke: Studies conclusively show that fatigue contributes to hypertension, heart attack, stroke, arrhythmia and other cardiovascular disorders. Take a nap to reduce your risk of these maladies.

The study we alluded to earlier and that was incorporated in Mednick's benefits of napping was a study carried out by Dr Mark Rosekind in his time at NASA. Rosekind and his colleagues studied the benefits of napping on pilots working a 4-leg trans-pacific flight schedule, which resulted in the building up of a sleep debt over the 3 to 4 days.

The team found that the sleep debt accumulated over the course of the flight schedule led to pilots falling into microsleeps – uncontrollable bouts of sleep – in the final 90 minutes of the flight. These were most common on night flights and towards the end of the final leg.

They recorded an average of 120 microsleeps in the final 90 minutes of flights, including 22 in the final 30 minutes – the period the plane was coming in to land. Those pilots who were allowed a nap were allowed a 40 minute nap window. Pilots averaged sleep time of 26 minutes. Pilots in the nap group averaged 16% faster reaction times and 34% fewer lapses in awareness. The nap group averaged only 34 microsleeps in the final 90 minutes of flights with zero microsleeps in the final 30 minutes of flights.

Nap components and how altering the time and length of a naps can achieve different outcomes

The components of a nap mirror the stages of sleep that we go through when we sleep at night. Each stage of sleep is associated with different benefits.

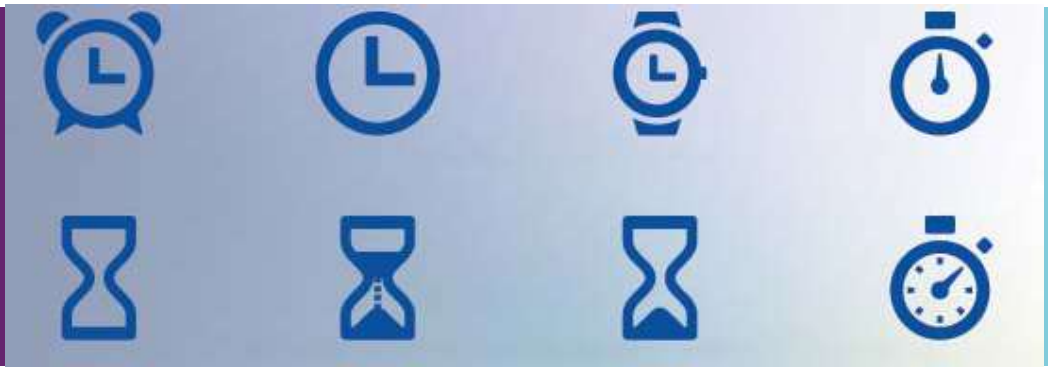
According to Mednick:

Stage 2 sleep is a light stage of sleep and is the transition stage between deep and REM (dream sleep). A nap that incorporates stage 2 will deliver benefits in terms of: reduced sleepiness, heightened alertness, increased concentration, enhanced motor performance and elevated mood.

There isn't an occupation or job role where the benefits associated with stage 2 sleep won't be helpful to performance. From a secretary typing a letter, to the employee in the control room monitoring vital signals, to sportsmen to those who suffer from poor sleep and more especially those working night shifts.

Stages 3 and 4 (or slow wave) sleep is a deep sleep. A nap that incorporates SWS delivers benefits in terms of: clearing the mind of useless information, improved conscious memory recall and restorative tissue repair. Additionally the cortisol spigot is turned off and this hormone is no longer stripping away at your body tissue. Instead growth hormone is produced which helps with cell repair and metabolising of fats (including cholesterol) and carbohydrates, processing them out of the body.

REM (or dream) sleep is when we are closest to wakefulness. A nap that incorporates REM sleep delivers benefits in terms of: improved creativity, improved emotional memory, keener perceptual and sensory processing and better memory of complex associative information. REM sleep helps with transfer of information from areas of the brain associated with short term memory to areas associated with long term memory.



So how long should a nap be?

Studies have shown the benefits of naps of even just 5 minutes. However, the answer to this depends on what you want to achieve. A "power nap" of 20 minutes (of sleep) or less will ensure you don't pass beyond stage 2 sleep. Beyond this and you are likely to wake up in a period of deep sleep. This may result in sleep inertia and make waking up and returning to work fully alert more difficult.

According to Maas the body is extremely resilient and doesn't need long to rejuvenate. If we take time to turn the nervous system off the whole body recharges and mood and alertness improve – even in just 15 minutes.

William Dement in his book "The promise of sleep" (Pan Books, 2001) says that "a short nap can improve alertness without decreasing our sleep debt." This is important when considering napping whilst at work, especially on a night shift, because it is important that a nap doesn't prevent an individual from falling asleep when it comes to their main sleep episode.

However, a nap with slow wave sleep is going to be especially useful to those who suffer from poor sleep and who may not achieve enough restorative sleep during their main sleep episode.

A nap incorporating REM sleep will again be especially useful for those who suffer from poor sleep. But allied to this think of the benefits a longer nap might bring to a marketing or advertising executive trying to come up with a creative solution or to a detective working on a complicated case. In these instances a nap incorporating REM sleep may just prove to be invaluable.

The types of nap

Types of nap will depend on the benefits sought and the time of day of the nap.

An operational nap, limited to 20 minutes, can stave off the effects of fatigue for the duration of the work period and improve alertness for the rest of the shift and where commuting after a shift.

A recovery nap can be taken after the effects of fatigue have already manifested themselves. This situation shouldn't come about but a recovery nap will significantly help with ongoing performance.

A preventative nap can be used prior to a known period of extended sleeplessness to improve alertness and performance during wakefulness and can be used by night workers to help with hormonal balance after periods of insufficient sleep – especially where sleep duration suffers by having to sleep during the day.

Varying the time of day and length of a nap can deliver different benefits. Being able to customise your nap is a powerful tool in addressing the most pressing needs.

Summary and conclusion

It is a simple fact that sleep deprivation is widespread, whether this is due to time constraints, long hours, poor sleep habits, sleep disorders, young children or any number of other reasons. There isn't an industry that is immune from the effects of sleep deprived employees.

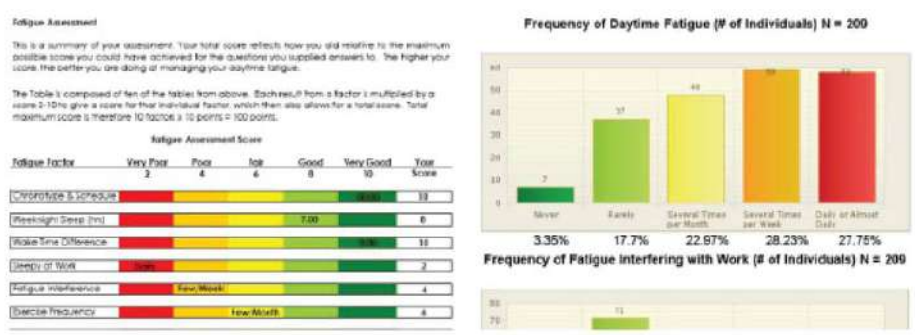
As we have discussed the common strategies we use to increase alertness come with significant negative nutritional and health consequences.

Combine sleep deprivation with poor nutritional choices and the resulting effect on your employees will be: increased absenteeism and presenteeism, higher healthcare costs, lost working time, reduced alertness and vigilance, more errors, mistakes, accidents, poor memory and poor decision making.

According to Mednick a 1999 study revealed that otherwise healthy employees often miss work due to fatigue and fatigue-related illness. Sleep deprivation weakens the immune system, contributes to depression as well as lowering motivation, alertness and cognition.

Think too, improved mood, greater accuracy and efficiency will mean your staff can complete their tasks quicker and at a higher standard. They'll spend less time at work and improve their work-life balance. As a result job satisfaction and employee retention will improve.

Perhaps it's the word napping that puts bosses off the idea. If that is the case then how about, instead we introduce the concept of "controlled rest"? Now surely that's an idea we can all get behind!



So how should a programme of controlled rest be designed?

We believe that there 4 key elements to a programme which tackles tiredness and fatigue:

1. Awareness – raising awareness amongst key management personnel
2. Policies and procedures review – with a specific focus on your industry
3. Train-the-trainer – engaging key management, health & safety and training personnel
4. Education – educating staff from the top down using a variety of media on an ongoing basis.

The first step in this process is to run as assessment of the workforce. This way you can pinpoint the job roles, sites or shifts where there is greatest need for intervention. This will help to raise awareness and inform key management of the extent, impact and causes of the problem.

Third Pillar of Health will work with you to put together policies and procedures as well as guidelines for both operational controlled rest and preventative napping based on work schedules, rest breaks, the type of job role being undertaken and individual circumstances – gleaned from the initial assessment.

We can train and educate key staff on the benefits of controlled rest as well as the guidelines produced as well as run staff education and information campaigns.

We also have a detailed knowledge on specialist equipment on the market and how to set up a rest-friendly environment for staff.

What next?

We hope that this discussion paper has provided sufficient food for thought to encourage an internal debate within your organisation.

For a no obligation conversation and a guarantee of no pushy sales people, please contact us:

Email: info@thirdpillarofhealth.com

Telephone: +44(0)845 686 0022

Website: www.thirdpillarofhealth.com

Request more information: http://www.thirdpillarofhealth.com/pages/contact_us

Request a call back: Feel free to email us at the above address and request that we call you back

Twitter: @3rdPillarHealth

LinkedIn: http://www.linkedin.com/groups/Employee-Energy-4644422? trk=myg_ugrp_ovr

Other papers you may be interested in:

- Why should you put Employee Energy at the forefront of your staff health and wellbeing strategy?
- How and why should you tackle the growing issues of stress, burnout and sleep deprivation in staff?
- Drowsy Driving: How and why should your organisation take a more proactive approach to tackling this costly problem?
- Examining the need for programmes to counter tiredness and fatigue in safety-critical industries.
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Lisa Smith – about

Lisa works in both Kent and London where she built strong working relationships with both medical specialists and other healthcare practitioners, successfully managing to integrate the medical and complementary professions together and work holistically to improve health and disease states.

Although her scope of practice can be varied and far reaching, she has particular interest in looking at the impact of stress, both emotional and physiological, upon hormones, health and wellbeing.

Emphasis is not placed upon strict or faddy diets, but in helping the body obtain the nutrients it needs to work properly in the world we live in, a busy, demanding and at times, stressful place .

She is a also senior lecturer for the College of Naturopathic Medicine.

In addition, she works with companies, to improve the health and performance of corporate employees by optimising nutrition and lifestyle to help in the management of stress and to overcome barriers to health and wellbeing.

Lisa also writes and presents seminars to her industry peers – previous topics have included

- 'Understand Stress Better – Treat Stress Better'
- 'Brain Matters – How to use, maintain and protect your brain'
- 'Inflammation – A deeper Understanding'

For more information visit: **www.nutriology.co.uk**