

# THE EFFECTS OF MASSAGE ON SLEEP AND CIRCADIAN RHYTHMS

by *Corina Lunn RMT DSM SMTO*

On the first day of my Swedish course, during a discussion on the benefits of massage, we came across the statement "Massage helps you sleep". This seemed a perfectly normal statement to me, after all I had experienced this for myself many times in the past. Now, years later, I look back at this statement and wonder why I never questioned it, why I never delved into it deeper and try to find out the scientific facts behind such a powerful statement. So here goes...

Sleep is something we are all very familiar with. But from a scientific point of view it is still not very well understood. During a normal night's sleep we go through two main types of sleep, slow-wave (Non-REM) and Rapid Eye Movement (REM). When you first fall asleep your body will fall into slow-wave sleep. This is a very restful type of sleep where your peripheral vascular tone, vegetative functions, blood pressure, respiratory rate and basal metabolic rate all decrease. This lasts for 80-100 minutes. Then you move into a period of REM sleep. During this phase your sympathetic nervous system becomes more active and you experience dreaming. The first bout of REM sleep may only be 5 minutes.<sup>6</sup> you will then cycle through these two types of sleep 3-5 times during a 7-8 hour sleep period. As it progresses the period you spend in slow-wave sleep decrease and the periods in REM sleep increase up to 50 minutes. In total you will spend about 25% of your time asleep in REM sleep.<sup>5</sup> This variation in sleep patters throughout the night leads to the understanding that the beginning of the night from around 10pm to 2am is when most of the physical repair of your body takes place. The period from 2am to 6am is predominately for psychological repair.<sup>1</sup>

If your body does not get enough sleep you can experience some powerful effects. Studies on women with insufficient sleep on various shift patters have shown that you can experience dysphoria, mental tiredness, exhaustion, cognitive stress, anxiousness, altered mood, palpitations, increased susceptibility to infection or activation of latent disease and chronic gastrointestinal problems.<sup>3</sup> Decrement in task performance after 17-19 hours of wakefulness are equivalent to a blood alcohol concentration of 0.05%. After 20-25 hours of wakefulness this increases to an equivalent blood alcohol concentration of 0.1%. For comparison, the legal blood alcohol limit for driving in the UK is 0.08%.<sup>4</sup> Chronic sleep debt has also been shown to have effects on metabolic and endocrine functions, such as reducing glucose and thyrotropin tolerance (an independent risk factor for heart disease). Evening cortisol concentrations can be raised and the activity of the sympathetic nervous system increased.<sup>4</sup>

In today's 24 hour society where we have artificial sources of light, night shifts and long-haul travel, we are at a greater risk of the effects of sleep deprivation than ever before. Our body has a natural biological rhythm, known as the circadian rhythm, that regulates the hormonal fluctuations you experience over a 24 hour period. This circadian rhythm is genetically programmed into all of us, but is highly influenced by external factors such as bright light, exercise, food intake and electromagnetic radiation. This is useful to help us re-align our biological rhythms after crossing time zones. If you need to phase-delay your body, such as when flying west, exposing yourself to sunshine in the evening will help you stay awake later. However in today's society these factors can also serve to disrupt our natural rhythms, meaning that we no longer sleep at the correct times or for the correct length of times for our bodies. Factors which may influence this are watching television or working on the computer late at night, eating and drinking late at night, working night shift, as well as having sources of electromagnetic radiation such as telephones, televisions and alarm clocks in our bedrooms.<sup>1</sup>

From this you can see that we are very vulnerable to the effects of disruption to circadian rhythms and the associated sleep debt in today's society. The effects of this are profound and need to be addressed if health is to be restored in your clients and yourself.

When preparing to sleep the body's level of melatonin, secreted by the pineal gland, increase. Massage of infants has shown that in as little as 2 weeks their levels of melatonin had increased and their circadian rhythms had adjusted closer to that of their mothers than in a control group.<sup>7</sup> Studies on patients with Fibromyalgia not only decreased the levels of pain they were experiencing but also increased the number of hours sleep they were getting.<sup>8</sup> Cancer patients showed that a weekly aromatherapy massage had significant effects on sleep quality and levels of pain experienced.<sup>9</sup> In addition, several studies have shown that acupuncture at various points showed an increase in slow-wave sleep in healthy subjects.<sup>2</sup>

In conclusion, sleep deprivation and alteration to circadian rhythms are an acute problem in today's society that can have a significant effect on health. Massage has been shown to both help re-align circadian rhythms and improve the length and quality of sleep experienced.

## References

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***Corina Lunn RMT DSM SMTO is currently studying on the Advanced Remedial Massage course and is practising Remedial and Sports Massage in Edinburgh Tel. 0131 662 1896.***