

## **An investigation into the efficacy of Professional Kinesiology Practice in improving the quality and quantity of sleep**

Knowledge is powerful. Within the kinesiology community we hold an enormous amount of knowledge about the capacity of our modality to facilitate healing within ourselves and our clients. Any established kinesiology practitioner that you speak to will have an abundance of inspiring stories of personal growth and healing collected over years of clinical practice. While these anecdotal accounts or personal experiences were enough to draw us all in to kinesiology, there is an element of the broader community who need more. Those with more sceptical minds require their knowledge to be presented in a different way, where anecdotal evidence is compiled and presented as numbers and statistics. Without rigorously conducted, peer reviewed and published research, there will remain a section of the community closed off to the benefits of kinesiology.

That is not to say that kinesiology lacks a research base. Our entire practice is founded upon the tireless efforts of great minds who took it upon themselves to investigate, experiment, and test new techniques and ways of thinking. The research continues; new discoveries are still being made, and our practices as kinesiologists continue to develop and grow. However, in the published, peer-reviewed scientific literature our work is poorly represented<sup>1</sup>, with only one recent paper meeting the criteria of the scientific realm<sup>2</sup>. This paucity of ‘evidence’ leaves our knowledge and skills inaccessible to that part of the population who rely on numbers and statistics to consider and accept realities outside their comfort zone.

Here, we take another minor step forward in bridging the gap between the wealth of knowledge in our kinesiology community, and our biggest sceptics. We present findings from a study into the efficacy of kinesiology in working with sleep disorders.

Sleep disorders are growing increasingly prevalent in western society<sup>3</sup>. Long term sleep deprivation (i.e. regularly getting less than 5 hours sleep per night) can have profound effects on cognitive function, motor skills, mood, and long term health<sup>4,5</sup>. For example, people with insomnia are twice as likely to develop depression than those with normal sleep patterns<sup>6</sup>, and insomnia can act as a predictor of suicide-risk among individuals reporting depression<sup>7</sup>. Sleep disorders can both be exacerbated by and exacerbate other disorders such as PTSD<sup>8</sup> and pain<sup>9</sup>. The interrelatedness of these issues speaks to the holistic methodology used in Professional Kinesiology Practice (PKP). An enormous volume of anecdotal evidence and published literature<sup>2</sup> suggest that PKP has the potential to assist in uncovering the root causes of sleep disorders, identifying ideal methods of dealing with said causes and thus improving the symptoms experienced by sufferers.

In this project, we tested the efficacy of PKP in improving quality of sleep. Specifically, we aimed to test whether, for people with sleeping difficulties, three kinesiology sessions following the PKP balancing protocol:

- Increased the number of hours of sleep per night
- Improved quality of sleep
- Reduced the number of incidents of waking during the night

### **Methods**

### ***Participant recruitment and selection***

We recruited participants using custom-made advertisements via the following channels: Facebook, noticeboards at work, schools, kindergartens, and community centres, health clinics, medical clinics, health food shops, aged care facilities, and by word of mouth. All methods of recruitment directed potential participants to a website that detailed the particulars of the study. On the site, potential participants registered their interest and selected their preferred clinic location for sessions.

Individual practitioners then contacted each potential participant to determine if they met the participant criteria. Participants were excluded if they:

- were taking (or suspected of taking) illicit drugs
- demonstrated erratic or aggressive behaviour
- were unable to commit to 3 sessions over 3-6 months
- were unwilling to commit to completing home reinforcement activities.

Once accepted into the study, each participant completed and returned a signed application (consent) form and a thorough questionnaire to capture habits, environmental factors, etc. that may influence sleep quality and quantity.

### ***Sessions***

Each participant attended three sessions with one of eight kinesiology practitioners (Cert IV qualified, PKP Diploma of Kinesiology students) within a six-month period during 2015. Each session adhered to the PKP balancing protocol as written by Dr Bruce and Joan Dewe. As such, rather than each client being subjected to the same correction techniques (an odd idea in kinesiology, but the norm in medical research), we evaluated the protocol as a whole, allowing the use of any of ~300 correction techniques as guided by muscle testing and fingers modes. As 'pre-activities', each session included a muscle tested average hours of sleep per night in the last week. The three sessions cost the participant \$100 in total to cover the cost of clinic space.

### ***Assessment of sleep quality***

Participants completed a three-day sleep diary prior to and following each kinesiology session. In the diary, they self-rated the quantity (hours) and quality (on scale of 1-10 where 1 is exceptionally poor and 10 is very well rested) of sleep achieved each night, as well as a range of other factors about their environment and experiences such as their causes for waking during the night. Following completion of their three sessions, participants completed a post-study questionnaire recording how they felt about kinesiology, their perceived effect of kinesiology on their sleep and their opinion of the practitioner.

The rigour of the study would have been improved by using an independent measure of sleep quantity and quality in the form of a wearable motion sensor (e.g. a fitbit), allowing for an unbiased assessment of the outcomes of the balancing sessions. However, this was not feasible in the setting of a student research project.

### ***Statistical analyses***

Practitioners entered data into an online form to ensure consistency in format and ease of collation. Data was pooled across practitioners. We ran two-tailed paired t-tests to test for significant differences in values reported before and after three sessions for the following factors:

- participant's self-rated sleep quantity
- muscle tested sleep quantity
- participants self-rated sleep quality
- participants self-rated number of times woken per night

## Results

Sixty-seven participants commenced the study and 65 completed it; only the 65 who completed all requirements are included in the study results. Of 65 participants, 77% were female and 23% were male. Both average and median age was 41 years old, with participants aged between 2 – 71 years old. Participants who were too young to be balanced directly (i.e. too young) were balanced using a surrogate. In total, 901 kinesiology corrections were used (200 unique techniques) in 195 consultations. The most commonly used kinesiology corrections were:

- Clearing self-sabotage programs - conflict resolution and attitude reversal (99)
- Emotional Stress Release (ESR) and various Frontal/Occipital holding techniques, visualisations (85)
- Amygdala (35)

We found significant improvements in sleep quantity and quality, and a significant reduction in the number of times woken during night when comparing participants' self-ratings and muscle testing before and after three kinesiology sessions (Table 1). Additionally, 61% of participants reported other benefits and improvements that they attributed to the sessions such as improved mood, greater energy, and a reduction in stress.

**Table 1.** Average values reported for participants' (n = 65) sleep attributes before and after three PKP sessions, and t-test results.

	Before		After		t	df	p value
	Mean	SD	Mean	SD			
Self-rated sleep quantity (hours)	5.81	1.63	7.24	1.42	6.97	64	<0.001
Muscle tested sleep quantity (hours)	6.88	1.63	7.43	1.56	4.34	64	<0.001
Self-rated sleep quality	5.23	1.56	6.99	1.34	7.61	64	<0.001
Number of times woken during night	2.43	1.26	1.47	0.81	6.96	64	<0.001

Note: self-rated sleep quality is on a scale from 1-10 where 1 is extremely poor and 10 is optimal.

Only a small portion of the data collected has been analysed and presented here. Further interrogation of the data would allow us to investigate whether other factors influenced how participants responded to the sessions. For instance, is there a relationship between participants' responses to the sessions and their initial severity of symptoms? Does prior experience or attitude toward kinesiology influence the efficacy of the sessions?

## Discussion

This study demonstrates the capacity of kinesiology to assist in improving sleep quality, increasing sleep quantity and reducing the incidence of waking through the night. The majority of participants

also reported other physical and mental benefits arising from the sessions. These additional benefits may be results of improved sleep<sup>5</sup>, or may have been directly addressed within the sessions as part of the holistic approach of kinesiology. For example, participants who reported having more energy may have felt this because of the improvement in sleep quality, whereas other reported benefits where the link is less obvious – e.g. overcoming a fear of flying – are an artefact of following the PKP protocol and addressing whatever arises within a session without imposing judgement on its relevance.

As a community, kinesiologists hold so much experience and knowledge about our modality, how it works and what it is capable of. We are familiar with the amazing intricacies of how our mental, emotional, spiritual, and energetic health overlay with our physical health and the many ways in which we can alter one aspect to improve and correct another. While research projects like this one do little to explain how exactly that all functions, they can provide insight for those outside our profession and act as a stepping stone for the broader acceptance of kinesiology as a health care modality.

### **Participant feedback**

Due to our broad advertising campaign for this study, we had a lot of first time kinesiology clients as participants. Overall reception to the modality was positive with 63 out of 65 participants reporting positive changes, and 64 of 65 participants saying they would recommend kinesiology to someone else.

Some of the positive comments from the participants:

- It's a powerful tool.
- I love the way kinesiology finds ways that give us the ability / motivation to heal ourselves.
- Amazed at results!
- Thank you for introducing me to the healing powers of kinesiology - fascinating science.
- [Practitioner] has really helped me with so many more things than just sleep.
- Kinesiology gets to the bottom of the issues.
- I noticed a huge improvement after the second session and am now sleeping better than I have in years.
- It has provided me with skills that I can use forever and also identified issues I was not conscious of.
- Thanks for the sessions and enlightening me on what kinesiology is and how it can help!
- Thank you!! Having suffered from insomnia for more than 7 years, trying a lot of different medications and other techniques, I am finally sleeping through the night on a regular basis.
- Looks deeper to the cause of what could be causing sleep disturbances.
- It makes you consider a range of factors that could be contributing to your problem sleeping, rather than just the obvious physical ones.
- Sleeping longer and for more hours has made me a more happy and confident person throughout the day. The benefits of a long night sleep are amazing. I no longer stress an hour previous to sleeping, which is one of my biggest issues now its solved and I have less things to stress about.

This research was conducted by Kristelle Dumas, Rebecca Green, Kirsty Hawke, Phillipa Huynh, Nikki Kuurman, Sharyn Rayson and Janet Wyllie as part of the course requirements for the Diploma in Kinesiology at Kinesiology Schools Australia, South East Melbourne Campus.

## References

1. Hall, S., Lewith, G., Brien, S. & Little, P. A Review of the Literature in Applied and Specialised Kinesiology. *Forschende Komplementärmedizin / Research in Complementary Medicine* **15**, 40–46 (2008).
2. Eardley, S., Brien, S., Little, P., Prescott, P. & Lewith, G. Professional Kinesiology Practice for Chronic Low Back Pain: Single-Blind, Randomised Controlled Pilot Study. *Forschende Komplementärmedizin / Research in Complementary Medicine* **20**, 180–188 (2013).
3. Pallesen, S., Sivertsen, B., Nordhus, I. H. & Bjorvatn, B. A 10-year trend of insomnia prevalence in the adult Norwegian population. *Sleep Medicine* **15**, 173–179 (2014).
4. Mullington, J. M., Haack, M., Toth, M., Serrador, J. M. & Meier-Ewert, H. K. Cardiovascular, Inflammatory, and Metabolic Consequences of Sleep Deprivation. *Progress in Cardiovascular Diseases* **51**, 294–302 (2009).
5. Pilcher, J. J. & Huffcutt, A. I. Effects of Sleep Deprivation on Performance: A Meta-Analysis. *Sleep* **19**, 318–326 (1996).
6. Baglioni, C. *et al.* Insomnia as a predictor of depression: A meta-analytic evaluation of longitudinal epidemiological studies. *Journal of Affective Disorders* **135**, 10–19 (2011).
7. Ribeiro, J. D. *et al.* Sleep problems outperform depression and hopelessness as cross-sectional and longitudinal predictors of suicidal ideation and behavior in young adults in the military. *Journal of Affective Disorders* **136**, 743–750 (2012).
8. Inman, D. J., Silver, S. M. & Doghramji, K. Sleep disturbance in post-traumatic stress disorder: A comparison with non-PTSD insomnia. *Journal of Traumatic Stress* **3**, 429–437 (1990).

9. Quartana, P. J., Wickwire, E. M., Klick, B., Grace, E. & Smith, M. T. Naturalistic changes in insomnia symptoms and pain in temporomandibular joint disorder: A cross-lagged panel analysis: *Pain* **149**, 325–331 (2010).