

ADVERTORIAL

The Science of Musculoskeletal Rest and Recovery During Sleep

The science of sleep has greatly improved patient outcomes over the years as technology and research advancements have been made. From sleep apnoea to back pain, this research is vital given the impact of sleep on quality of life. With back pain, hip pain and shoulder pain common ailments Osteopaths treat daily, what happens to your patient's pain at night? As your patients spend many hours lying horizontally in bed, there are key forces to consider for musculoskeletal rest and recovery during sleep.

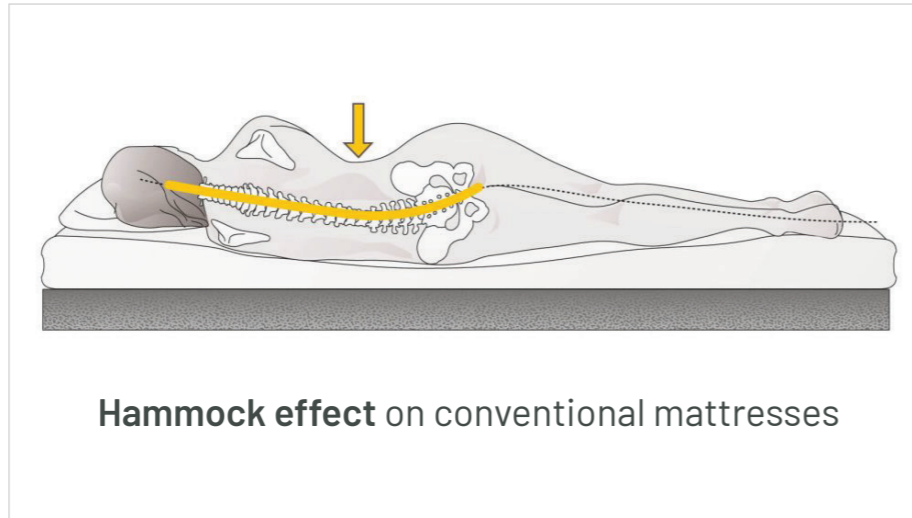
Pressure points

As we lay down on a sleep surface, the body experiences a number of forces that feed into our muscles, joints and nervous system. One of these forces is interface pressure, which is the pressure that the mattress exerts on you. When a mattress feels plush, firm or medium, it's the result of the interface pressure being registered by your body. This is often felt as a reaction force with the sensation of mattress springs pushing up into the body.

The goal for musculoskeletal relaxation is for interface pressure to be low to reduce isometric contraction within the muscular system, and allow the spine to find alignment, reducing the pressure on the lumbar, thoracic and cervical spine.

To achieve this goal of low interface pressure, there needs to be a distribution of the forces over a wide area, not just one section of a mattress. Historically, conventional mattresses have focused on the hip area as the most prominent weight impact on a sleep surface. However, there's evidence that this approach may not create optimal spinal alignment for rest.

By reducing isometric contraction within the muscular system, the body may experience less joint and muscle soreness and therefore, less disrupted sleep.



Hammock effect on conventional mattresses

Spinal alignment

Whilst animations are often used to portray how a body finds its sleep position on a conventional mattress, these don't account for the variations in body size and shape. With the focus on the hips, there is often a heavier spring or increased density in this zone to counter this weight. However, as the hips naturally depress into the mattress, it can create a hammocking effect or side bending of the spine between the hip and cervical endpoints.

This hammocking is particularly noticeable when real bodies are assessed lying on a conventional mattress, replicating the position they'll be in for many hours as they sleep. Hammocking may create pressure and isometric contraction in the muscles and joints of the hips, lumbar spine, and even the shoulders, as a comfortable position is sought.

It's clear that spinal alignment is harder to attain without shifting the focus upward of the hips to balance the weight distribution of the two high impact points between the body and the sleep surface.

New research for sleep

A Melbourne based group of health professionals have been exploring the solution to this misalignment in sleep for over five years. Each bringing their expertise and clinical experience to the table, they hypothesised that shifting mattress design to focus on the shoulders would create true spinal alignment, balance and restorative sleep.

Osteopath Dr George Michael could visualise a design where the depression in the mattress at the shoulder zone would relieve the load and interface pressure occurring at the hips. Patients with musculoskeletal pathologies are then more likely to get quality sleep that promotes healing through the optimal production of restorative hormones.

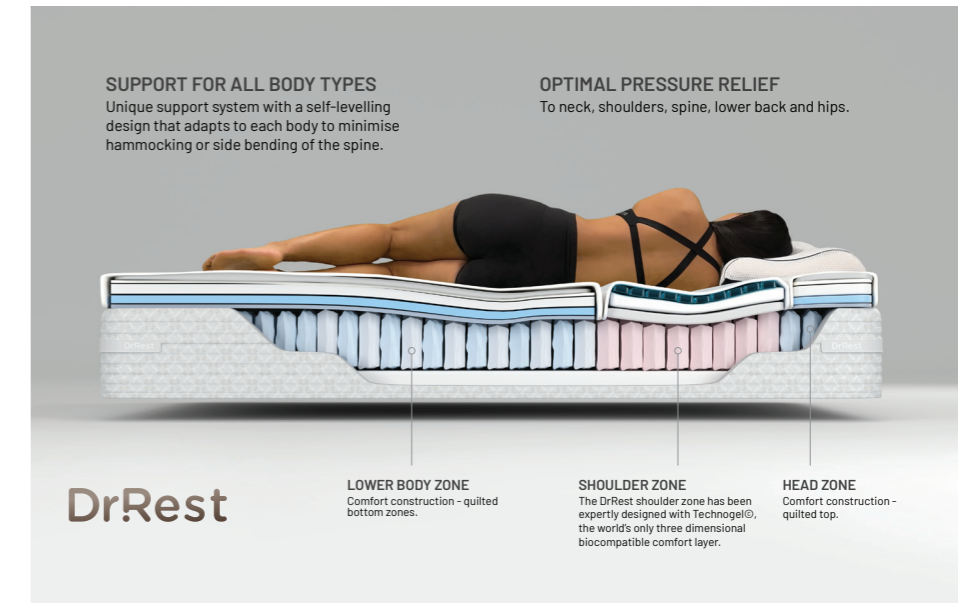
Sleep Physician Dr Nick Antoniadis saw comfort as a primary consideration as many patients with neck pain, shoulder pain and hip pain experience fragmented sleep, leading to less slow wave sleep. For his cohort of patients with obstructive

sleep apnoea and snoring, and for those confined to supine sleep, a comfortable mattress that facilitates people to sleep on their side can be of benefit.

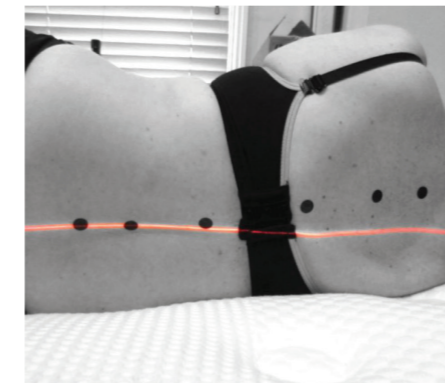
Orthopaedic Spinal Surgeon Dr Gerald Quan could see the potential of an innovative material added specifically to the shoulder zone, to create the spinal alignment that would revolutionise musculoskeletal rest and recovery during sleep. Dr Quan explains, "Technogel© is the innovative gel we use in operative surgery for pressure care to not cause nerve damage or pressure sores after prolonged periods of surgery that can last up to three hours. It's what protects the bony prominences and pressure areas. Not only that, but Technogel© keeps things stable and firm and provides support as we're operating. Thanks to its 3D conformity, it moulds itself to each patient's physical structure and evenly distributes and reduces pressure over the entire contact surface."

As these experts took a specific material and knowledge from their clinical settings into the design of a sleep surface, they

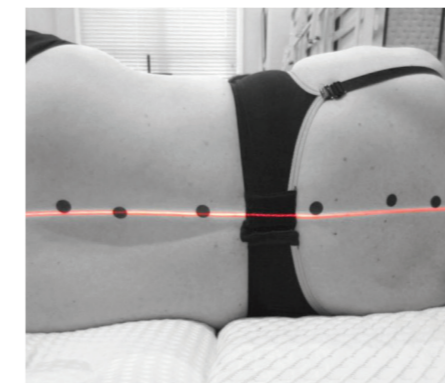
The specifically designed Technogel© for the patented DrRest mattress allows the shoulders to sink in and the spine to align from the lumbar up to the cervical spine.



DrRest



Conventional (non DrRest) mattress



DrRest mattress

created a unique mattress where a zoned shoulder section of Technogel© shifts the body into a state of musculoskeletal relaxation.

Importantly, it responds in that the more weight or pressure you apply to it, the gel generates a unique hydraulic response.

With conventional mattresses, patients may need to select the foams, springs, coverings, feel, padding and more to create the surface where they hope their unique body can find musculoskeletal rest. With the placement of an innovative shoulder zone, the latest science included and clinical trialling by health professionals over many years, the new DrRest sleep system instead provides one mattress that

is an adaptable solution for every body, no matter size or shape.

It's an exciting discovery that improves sleep quality for patients currently experiencing joint and muscle soreness, disrupted sleep, and those looking to recover from musculoskeletal treatments for back, hip or shoulder pain.

Creating a sleep environment that puts musculoskeletal rest and recovery first is where optimal treatment outcomes can be well supported. By bringing sleep science, innovative design and a holistic osteopathic approach together, it's a future in health that we can all be excited to be a part of.

Find out more

For more information on the DrRest research and sleep system mentioned above visit www.drrest.com.au Osteopathic partners and referrers are invited to learn about wholesale business opportunities for your clinic.