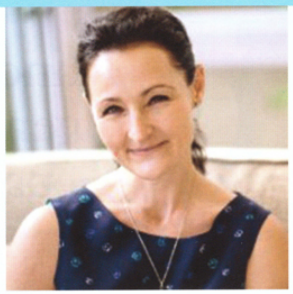
by Lee Scott at the Paardevlei Pain Clinic, a follow-up article to the one by her in the previous issue

Pain and sleep



Sleep is the foundation of physical energy and has a huge effect on your general well being, including emotional health. Sleep deprivation has been linked to increased rates of pain, obesity, depression, risk of cancer and other health-related disorders.

PAARDEVLEI PAIN PROGRAM
Unmask pain and embrace life

BASICS OF SLEEP:

The average person has four or five cycles of sleep every night, with most of this time spent in **Slow Wave** and **REM** sleep.

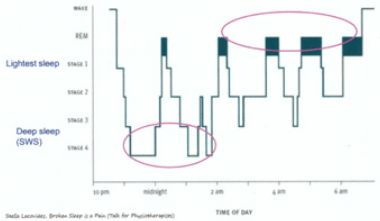
Stage 1:
Introduction to Sleep: Slowing down of brain activity and the beginning of muscle relaxation.

Stage 2:
Beginning of sleep. Light, dreamless sleep. Further slowing down of brain & muscle activity.

Stage 3 & 4:
Wave Sleep (SWS) or Deep Sleep. This is where the body gets rest. Brain and muscle activity decrease significantly and physical and mental energy is built up again.

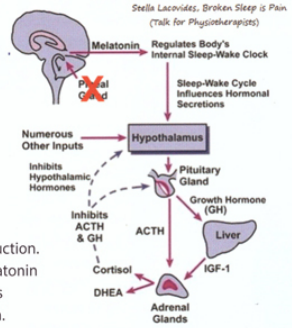
REM:

During Rapid Eye Movement (REM) Sleep, the brain is very active. Dreaming occurs, yet the muscles of the body are paralyzed , with the exception of the heart and lungs. REM sleep is vital as it allows restoration of brain function and the laying down of long-term memories.



Melatonin

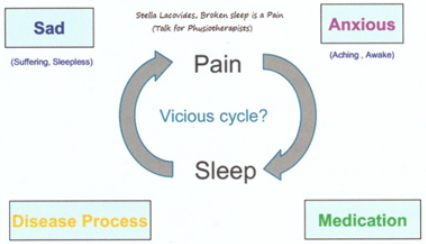
An extremely important hormone which is produced by the pineal gland in the brain to maintain our normal circadian rhythms, body weight and energy metabolism. Melatonin needs the darkness of your time in bed at night for its production. Bright light reduces melatonin production and darkness stimulates its production.



SIGNIFICANT SLEEP DISTURBANCES HAVE BEEN DESCRIBED IN PATIENTS SUFFERING FROM DIFFERENT PAIN DISORDERS:

Reduced sleep efficiency and altered sleep architecture are characterized by increased wakefulness and stage 1 non-rapid eye movement sleep, diminished SWS and less REM sleep. Sleep disturbances may be related to pain as well as to the analgesic or sedative medications administered.

Just as many factors, including pain, disease process per se, as well as medication, could disturb sleep, so sleep disturbances may also adversely affect the natural course of the disease. Improving sleep quantity and quality in patients with pain disorders may break this vicious cycle and as a consequence enhance the patient's overall health and quality of life.



Medication:

Hypnotics are helpful in initiating and maintaining sleep and reducing daytime tiredness, but do not provide restorative sleep or reduce pain. Indeed, they may even worsen pain. Their use should be limited to two weeks because of the risk of dependency.

Benzodiazepines: Although they may increase total sleep time, they may also adversely affect sleep onset and add to nocturnal awakenings. They may promote light sleep in stage 1 & 2, but prevent SWS and REM sleep.

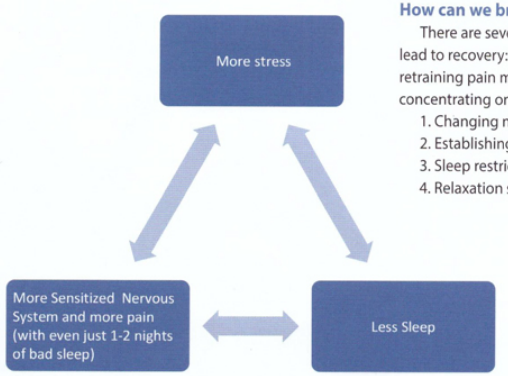
Nonbenzodiazepines are sometimes prescribed although they also disturb the sleep micro-structure.

Talk to your health professional about what is right for you, but we recommend good sleep hygiene as an important part of treating insomnia, either with other strategies such as medication or cognitive therapy or alone.

B)Pain medication:

Analgesics	Possible Indication in Sleep Medicine	Effects on Sleep Architecture
Nonopioid analgesics Nonsteroidal anti-inflammatory drugs (NSAIDS)	Inhibit prostaglandins	Acetaminophen - no effect on sleep Aspirin and ibuprofen ↑ sleep latency & awakenings ↓ SWS (deep sleep) in healthy subjects
Opioids	May be a useful treatment for some patients with periodic limb movements.	↓↓ REM sleep ↓ SWS (deep sleep) ↑ Nocturnal wake time
Adjuvant analgesics Tricyclic antidepressants NA & serotonin (&DA) reuptake inhibitors	Sedative tricyclic anti- depressants (amitryptiline) may be indicated in insomnia associated with anxiety and depression. Amitryptiline improves subjective sleep satisfaction in patients with pain. Neuropathic & rheumatic pain.	↓↓ REM sleep ↑ SWS (deep sleep) ↓ Nocturnal awakenings
Anticonvulsants	Carbamazepine and Gabapentin are second-line treatments in periodic limb movements. Gabapentin improves subjective sleep satisfaction in patients with pain. Nocturnal pain & Nocturnal painful spasms	↓↓ REM sleep ↑ SWS and light sleep

Stress, Sleep, Neuroinflammation and Pain are interconnected:



How can we break this cycle?

There are several disciplines that taken together can break the stress cycle and lead to recovery: pain education, stress management, graded activity development, retraining pain memories and sleep management. In this article we will be concentrating on sleep management by examining the following four therapies:

1. Changing negative thoughts about sleep
2. Establishing sleep hygiene
3. Sleep restriction therapy
4. Relaxation skills

1. Changing negative thoughts:

Cognitive behavioural therapy helps you explore how beliefs and attitudes toward sleep affect your sleep behaviour. You learn to identify maladaptive or distorted thoughts and replace them with more adaptive substitutes, thereby helping to alleviate worrying or rumination about insomnia.

Acceptance and commitment therapy can also be helpful.

2. Sleep hygiene - good sleep habits.

Making these changes translates to increased sleep, helping you feel refreshed with more energy, less pain and a change in mood:

Set a time to go to bed and try to always go to bed at the same time.

No reading in the bedroom before sleep. Do light reading outside the bedroom before sleep.

Avoid using an electronic device e.g a phone / tablet before bed time. The blue light from the screen stimulates your eyes and suppresses the production of Melatonin, thus delaying sleepiness and sleep. It also increases body temperature and the release of cortisol, thus making your body believe it is daytime. Checking your messages, browsing your facebook page or the internet, also stimulates your brain, which will delay sleepiness. If you prefer to do relaxed reading on a device, download an app that filters the blue light, therefore decreasing melatonin suppression, vigilant attention and subjective alertness.

Use your bed for sleeping and sex only, so that your body comes to associate bed with sleep.

No kids or animals in your bed. They make it more difficult to sleep due to movement and extra body heat.

Sleep rituals. You can develop your own rituals of things to remind your body that it is time to sleep In the hour prior to sleep - relaxation, breathing, stretching, meditation and light reading.

continued on page 21 / ...