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

Pain and sleep

PAARDEVLEI PAIN PROGRAM
Unmask pain and embrace life

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.

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.

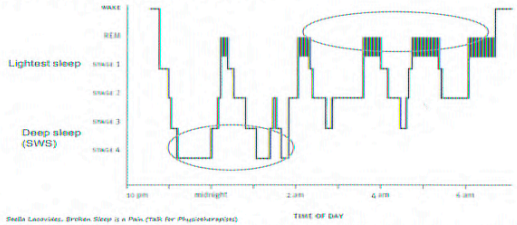
Stage 1:
Introduction to Sleep: Slowing down of brain activity and the beginning of muscle relaxation.

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.

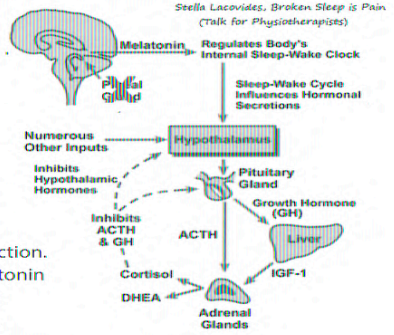
REM:

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

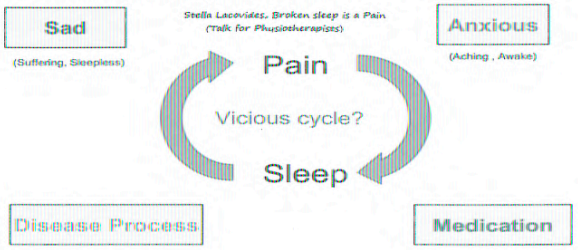
An extremely important hormone which is produced by the pineal gland in the brain to maintain our normal circadian rhythms, body weight and energy metabolism. Melatonin needs the darkness of your time in bed at night for its production. Bright light reduces melatonin production and darkness stimulates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

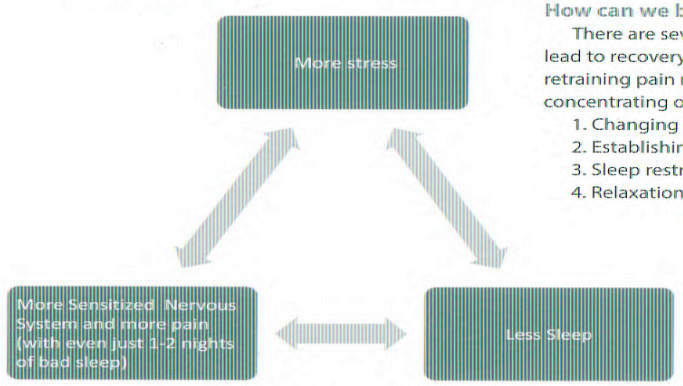
Nonbenzodiazepines are sometimes prescribed although they also disturb the sleep micro-structure.

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 i
Nonopioid analgesics Nonsteroidal anti-inflammatory drugs (NSAIDS)	Inhibit prostaglandins
Opioids	May be a useful treatr patients with periodic
Adjuvant analgesics Tricyclic antidepressants NA & serotonin (&DA) reuptake inhibitors	Sedative tricyclic anti- (amitryptiline) may be insomnia associated v depression. Amitryptiline improve satisfaction in patients Neuropathic & rheum
Anticonvulsants	Carbamazepine and G second-line treatment movements. Gabapentin improves satisfaction in patients Nocturnal pain & Noct

Stress, Sleep, Neuroinflammation and Pain are interconnect



How can we br

There are seve
lead to recovery:
retraining pain m
concentrating on
1. Changing n
2. Establishing
3. Sleep restric
4. Relaxation s

2. Sleep hygiene - good sleep habits.

Making these changes translates to increased sleep, helping you feel

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 phon before bed time. The blue light from t stimulates your eyes and suppresses the proc Melatonin, thus delaying sleepiness and sle increases body temperature and the cortisol, thus making your body believe it is daytime. your messages, browsing your facebook page or the also stimulates your brain, which will delay sleepin prefer to do relaxed reading on a device, downlo that filters the blue light, therefore decreasing m suppression, vigilant attention and subjective a

continued from page ... / 19

No large volumes of water prior to going to bed, to avoid going to the bathroom a lot.

Keep caffeine to a minimum & avoid consuming it for at least 4-6 hours before going to bed. (Coffee, tea, cola drinks, chocolate and some medications). Caffeine is a stimulant, it keeps you awake and is also linked to muscle tenderness & trigger points. Caffeine from one soft drink in the late morning will still be in your system late evening.

Keep your bedroo
works at its bes
when your room
curtains
early m
there

Alcohol is a double-edge sword. On one side it makes you relax, feel less stressed and decreases sleep latency. On the other side, it will wake you when you need sleep the most, so it's best to limit it to early evening.

A healthy, balanced diet will help you to sleep well. Some people find that a very empty stomach at bedtime is distracting, so it can be useful to have a light snack, but a very heavy meal soon before bed can also interrupt sleep.

The gastrointestinal tract contains 400x more melatonin than the brain, so look after your gut by taking probiotics, prebiotics and good 'sleep nutrients' like Potassium and Magnesium with your doctor's guidance.

M
you
Mela
sleepi
as you
tak
th

Electric lights and television prevent the production of melanin.

Park your ideas - put a notepad and pen next to your bed and write all last-minute thoughts down, so the brain can let it go and sleep.

Have a set wake-up time. If you wake up during the night, stay in bed, write down any particular thoughts or worries, then relax with your eyes closed and this will translate to sleep. If you wake up and realise it's ill early, stay in bed and keep your eyes closed. After doing this for a few days, these 'closed-eye' sessions will transfer into sleep.

cann
eyes, relax u
asleep. Studies ha
time trans

Bath time. Having a hot bath/shower 1-2 hours before bedtime raises your body temperature, causing you to feel sleepy as your body temperature drops again.

No long daytime naps, it messes up evening sleep patterns and creates small "jet-lags", without the benefits of traveling to a nice destination. Quick naps of no more than 20 minutes refresh, but do not mess up the night sleep rhythm.

Re-set your cortisol rhythm by getting up during the 'smart' sunlight hours between 6-8am. Sit up and get out of bed to increase alertness. Open the curtains and go outside if the weather permits.

Keep daytime routine the same. Even if you have a bad night sleep and are tired, it is important that you try to keep your daytime activities the same as you had planned. That is, don't avoid activities because you feel tired.

Hourglass metaphor: After 7hours of sleep, he bottom of the hourglass is filled with sand. When you tip it over in the morning, it slowly runs out into the bottom section during the day. By evening when the top section is empty, melatonin is released to initiate sleep. Every time you take a nap during the day however, the hour glass is tipped over again and emptying of the top section, melatonin release and sleep onset is delayed.

3. Sleep Restriction Therapy:

This can be a difficult process over weeks or even months, but it is well worth the effort. Sleep efficiency is determined by the following formula:

Number of hours spent actually sleeping ÷ the number of hours spent in bed (from the time you get into bed to when you get out of bed) = % sleep efficiency

The ideal is to have an 85% sleep efficiency of about 7 hours of sleep. If you are uncertain about how much you sleep, keep a sleep diary to determine your time sleeping and time spent in bed.

When someone gets 4 hours of sleep per night ÷ when going to bed at 11pm and getting up at 7am (8 hours spent in bed) = 50% sleep efficiency

To improve sleep efficiency you need to gradually limit the time you spend in bed. This initially leads to a mild sleep deprivation, which increases your drive to sleep and therefore you will have more consolidated, restful sleep and greater sleep efficiency. Over time, as sleep efficiency improves, you gradually increase your time spent in bed.

When someone gets 6 hours of sleep per night ÷ when going to bed at 11 pm and getting up at 6am (7 hours spent in bed) = 86 % sleep efficiency

4. Relaxation sk

Relaxation train
cognitive and phys
close to bedtime a
techniques such br
meditation.

A recent study f
meditation for 20 n
every day over eigh
halted insomnia fo
insomniacs. It enab
sleep onset, and re
night-time wakenir
depression while in
sleep time. Even a c
of mindfulness will
haven't mastered th
meditation.