Successful Slumber!

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Aims of Webinar

• Role of systems and circadian rhythms in sleep

• Causes and contributory factors to sleep disorders

• Nutrition and supplements to support sleep

• Successful implementation of holistic naturopathic nutrition programmes to support successful slumber
What is Sleep?

- A question that has baffled scientists for centuries!
- Biochemically speaking it allows the brain to maintain normal levels of cognitive skills (e.g. speech, memory etc)
- Sleep occurs in 90-110 minute cycles divided into non-REM and REM (rapid eye movement) sleep
- Non-REM sleep has 4 stages
- Sleep-wake cycles controlled by circadian rhythms

Insomnia Statistics

- Great British Sleep survey (2012) of 11,129 adults revealed:
  - 51% adults suffer with type 1 insomnia
  - 3 times more likely in women
  - Insomniacs in survey struggled with relationships (55%), concentration (77%), work productivity (64%), mood (83%) and energy levels (93%)

- Drugs do not:
  - Provide quality and restorative sleep (e.g. benzodiazepines and sedating anti-histamines)
  - May be highly addictive even with short-term use (e.g. benzodiazepines)
Non-REM Sleep Stages

Characterised by differences in brain waves:

• **Stage 1: Light Sleep**
  – Half awake and half asleep: muscle activity slows down with slight twitching

• **Stage 2: True Sleep**
  – Occurs within 10 minutes of starting stage 2: breathing pattern and heart rate slows down

• **Stage 3 & 4: Deep Sleep**
  – Brain delta waves start with breathing and heart rate at lowest levels
  – Rhythmic breathing and limited muscle activity. If awakened will feel groggy and disorientated

REM Sleep

• REM begins 70-90mins after we fall asleep

• Ideally 3-5 REM episodes each night

• Brain activity heightened leading to dream state

• Breathing rate and blood pressure rise slightly but skeletal muscle activity lowest
Optimal Nightly Sleep Cycles

Circadian Rhythms – It’s All About Balance

- Circadian rhythms are physical, mental and behavioural changes that follow a 24h cycle, responding primarily to light and darkness

- Biological clock in hypothalamus (Suprachiasmatic Nucleus, SCN) controls sleep-wake cycle

- SCN influences pineal gland, which conveys information about day length throughout body via melatonin action
Importance of Melatonin

- Melatonin synthesis in pineal gland triggered by darkness; induces and maintains sleep
- Light enters retina, stimulates SCN and inhibits pineal gland from converting serotonin to melatonin
- Factors that can interfere with melatonin cycle include nutrient deficiency and incorrect light exposure (e.g. short daylight hours, evening computer and TV screen glare)

Importance of Cortisol

- Cortisol is synthesised and secreted by the adrenal glands
- Part of our stress response, balances blood sugar levels and also vital for sleep-wake circadian cycle
For more information please see Chinese 5 Elements webinar at updates.nutrigold.co.uk

Five Elements Link to Sleep

Causes of Poor Sleep

There are many physiological and biochemical causes of poor sleep:
• Pain
• Hormone imbalances:
  – Stress and anxiety (cortisol disruption)
  – Menopause
• Sleep apnea
• Snoring
• Restless leg syndrome
• Muscle cramps
• Bladder control
• Nutritional deficiencies and imbalances
International Classification of Sleep Disorders

1. Dyssomnias (disorders of initiating and maintaining sleep and disorders of excessive sleepiness)
   - Intrinsic sleep disorders, e.g. sleep apnea, restless leg syndrome, insomnia
   - Extrinsic sleep disorders, e.g. food-allergy insomnia, inadequate sleep hygiene
   - Circadian rhythm sleep disorders, e.g. jet lag, shift work

2. Parasomnias (disorders that primarily do not cause a complaint of insomnia or excessive sleepiness)
   - Arousal disorders, e.g. sleep walking, sleep terrors
   - Sleep-wake transition disorders, e.g. nocturnal leg cramps
   - Parasomnias usually associated with REM sleep, e.g. nightmares
   - Other Parasomnias, e.g. sleep enuresis

3. Sleep Disorders Associated with Medical/Psychiatric Disorders
   - Associated with mental disorders, e.g. alcoholism, anxiety disorders
   - Associated with neurological disorders, e.g. dementia, Parkinson’s disease
   - Associated with other medical disorders, e.g. COPD, nocturnal cardiac ischemia, peptic ulcers

4. Proposed sleep disorders
   - These are the disorders for which insufficient information is available to confirm their acceptance as definitive sleep disorders, e.g. pregnancy-associated sleep disorder

Consequences of Poor Sleep

- Lack of energy and mental focus
- Poor blood sugar control – obesity
- Increased ageing of cells and systems
- Increased risk of:
  - Cardiovascular conditions
  - Diabetes
  - Depression
Naturally Managing Pain

- Hop alpha acid extract provides effective fast-acting pain relief similar to ibuprofen (2 x 500mg capsules hop alpha acids = 2 x 400mg capsules ibuprofen)

- Clinical trials of hop alpha acids demonstrate pain-reducing activity, tolerability and safety

- No side effects associated with NSAIDs (aspirin, ibuprofen), e.g. gastric ulcers, infertility, increased risk of stroke

Importance of Magnesium to Sleep

- Relaxes muscles – important for deep sleep (especially Restless Leg Syndrome)

- Balances electrolyte potential across cell membrane

- Regulates blood sugar balance

- Enzyme cofactor
**Cellular Electrolyte Rhythms**

**Nutrients Involved in Melatonin Cycle**

Support synthesis of serotonin and melatonin through:

- **Precursors:**
  - Tryptophan (e.g. turkey, fish, bananas, nuts, seeds etc)

- **Cofactors:**
  - Vitamin B1, B3, B6 (P5P), folate, magnesium
**Nutrients Involved in Cortisol Balance**

- Steroid hormone produced in adrenal cortex
- Requires cholesterol for synthesis
- Cofactors magnesium, vitamins B5, B6 and C required to support adrenal health
- Chronic iodine deficiency disrupts circadian corticosteroid hormone cycle

**Dietary Support**

- Balance blood sugars - eliminate sugar, caffeine and alcohol
- Magnesium and potassium rich foods, e.g. green leafy vegetables
- Kelp and sea vegetables for iodine
- Balance calcium in the diet to avoid low blood calcium (e.g. menopause)
  - Vitamin D increases intestinal absorption of calcium
- Support cell membrane structure, e.g. omega 3 essential fatty acids found in oily fish and flaxseeds (organic)
- Protein with every meal to balance blood sugar and provide amino acids
- Valerian or chamomile tea before bed
Supplement Support

- Organic magnesium citrate
- Multivitamin and mineral formula containing range of B vitamins, chromium, choline and inositol
  - If calcium is required then use multivitamin and mineral complex with magnesium and calcium in citrate form in 2:1 ratio
- Vitamin D3
- Essential fatty acids (e.g. Antarctic Krill omega 3 EFA)
- Phospholipids (e.g. phosphatidyl serine, choline and inositol)
- Extra support for adrenals at times of stress include calcium pantothenate, vitamin B6 in pyridoxal-5-phosphate (P5P) form, and vitamin C
- Support digestion (especially of protein) to increase nutrient bioavailability
  - supplement with vegan broad-spectrum digestive enzyme

Holistic Approach

- Limit use of screen work (e.g. phones, tablets, laptops) during late afternoons and evenings
- Stress reduction
- Sleep hygiene – room temperature, comfortable bed/pillow, quiet and dark, no technology in bedroom (turn off Wi-Fi)
- Regular bed and waking routine – even during weekends!
- Epsom salt bath before bed especially useful for muscle relaxation
- Exercise earlier in day
- SAD lamps during winter months
Light Box Therapy

• Light enters retina and switches off melatonin production

• 3 components of bright light therapy are:
  o Timing (AM to switch off melatonin and raise serotonin)
  o Duration (≥1h at ≤3ft distance from light box)
  o Intensity (>2500lux)

• Response to bright light therapy usually beings within 3-4 days with full response 1-2 weeks

• Continual use advised during winter months (relapse within 3-4 days)

Checklist for Successful Slumber

✓ Blood sugar and adrenal supporting diet
✓ Supplements including magnesium citrate
✓ Good sleep hygiene
✓ Evening and bedtime routine
✓ No laptops, mobile phone, computer use in evening or in the bedroom
✓ Light box therapy in winter months
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