They’ll Heal Better If They Sleep
The Role of Sleep in Orthopedic Outcomes

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MY STORY

• IT band injury long-distance cycling 2009, and subsequent partial ACL tear
• Intention to avoid surgery at any cost
  – Elected PRP & BMAC
  – 45-50 yrs. old - focused on whole dense nutrient rich foods and working on improving digestion
• Completed Pittsburgh to DC bike trip again, painlessly, last summer
• Completed Mud on the Mountain 2013
• Hiked all over Utah summer of 2014
• Mud on the Mountain 2015, again.
• Food choices continue to make a significant contribution to my health.
Why are WE here?
WHAT ABOUT SLEEP?

- Eat healthy
- Be active

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SINCE WHEN DID SLEEPING WITH SOMEONE BECOME SOMETHING ELSE?
EVERYONE SLEEPS ALONE

• Why WE need sleep
• What happens when WE don’t get it
• Factors that play a role
• Some things WE can do right now
• The role of FOOD
FUN FACTS TO HELP YOU BELIEVE

• Lifespan of 75 years
  – Sleep 25 of those years...
  – 9,125 days
  – 1/3 of life

• Consume 30-35 tons of food
  – Elephant weighs 10,000 pounds
  – Consume 6 elephants in a lifetime
“I’ll Sleep When I’m Dead” And “The Early Bird Gets The Worm”

WE just might get our wish...sooner than we think
MORE FACTS – CDC

• 50-70 million Americans suffer from sleep disorders
• 9 million Americans use prescription sleep aids
• Getting extra sleep reduced pain sensitivity by 60 mg of codeine
BODY WORKS HARD DURING REST

Sleep Cycle

1. Interim between consciousness and sleep
   - Move to Stage 2 after 5-15 mins

2. Heart rate slows, brain does less complicated tasks
   - After another 15 mins, move into non-REM sleep, the Delta stage

3. Body makes repairs
   - Body temperature & BP decreases
   - BP = Blood Pressure

4. Move into REM sleep approx 90 mins after first feeling sleepy
   - Increase in eye movement, heart rate, breathing, BP & temperature

5. REM

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WHY WE NEED IT

- **Hormones increase**
  - Prolactin – pituitary gland
  - HGH – muscle and bone growth, sugar and fat metabolism
  - Melatonin – helps us sleep

- **Hormones decrease**
  - Cortisol – steroid hormone
  - Norepinephrine – stress hormone
  - Epinephrine – adrenaline hormone
WHY WE NEED IT

Hormones

- Hormones are chemical messengers that control cellular activities.
- They are secreted by glands and travel through the bloodstream to target cells.
- Each hormone has a specific receptor that binding with it triggers a particular signal.
- This signal may lead to changes in gene expression, protein synthesis, or other cellular processes.

Endocrine system

- The endocrine system consists of glands that produce and release hormones.
- These hormones regulate various physiological processes, including metabolism, growth, and reproduction.
- Hormones can act locally (paracrine) or on distant targets (endocrine).

Hormone signaling

- Hormones bind to specific receptors on the cell membrane or within the cell.
- This interaction triggers biochemical reactions that alter cell function.
- Hormones can be divided into different classes based on their chemical structure and action mechanism.

Hormone types

- There are various types of hormones, including peptide, steroid, and amino acid derivatives.
- Each type has a unique role in different physiological processes.

Hormone production

- Hormones are typically produced in response to internal or external stimuli.
- Feedback mechanisms regulate hormone levels, ensuring homeostasis.

Hormone receptors

- Hormone receptors are specific proteins that can be found on the cell surface or within the cytoplasm.
- They can be extracellular, intracellular, or transmembrane.
- Hormone-receptor interactions activate signaling pathways that lead to cellular responses.

Hormone signaling pathways

- Hormone signaling pathways involve multiple steps, including binding, receptor activation, intracellular signaling, and target gene expression.
- These pathways can be complex and involve cAMP, calcium, and other intracellular messengers.

Hormone function

- Hormones play crucial roles in various physiological processes, including growth, development, metabolism, and reproduction.
- Dysregulation of hormone levels can lead to various disorders and diseases.
WHY WE NEED IT

• T-helper cells, and antigen presenting cells peak
• Cortisol and catecholamine drop
• This environment supports the immune system and reduces inflammation
WHY WE NEED IT

- Cognitive function – repair and toxin reduction
- Alterations in glucose tolerance – not able to recognize glucose in the body
WHY WE NEED IT

• Cravings diminish
• Reduce inflammation
• Cells get repaired
WHY WE NEED IT

• Keeps heart healthy
• Builds immune system
• Helps fight infection
• Keeps us happy
WHAT HAPPENS WHEN WE DON’T GET SLEEP

• Inflammation
• Weight gain
• Depression
• Cells don’t get repaired
• Poor immune response
• Inability to fight infection
• Brain fog
• Rapid aging
IN OTHER WORDS…
FACTORS

• Diet/ digestion – awaken for no reason
• Gallbladder – trouble falling asleep
• Hormone dysregulation
• Frequent urination – urinate frequently
• Adrenal exhaustion
• Medications
• Lack of sunlight (vitamin D)
• Poor sleeping area
• Snoring (caused by many things)
• Toxins – wake between 1-3
• Internal infections
TOP 4

1. Diet
   – Food sensitivities
   – Too much sugar
   – Can’t digest foods
   – Caffeine
   – Alcohol
   – Deficiency in minerals, EFAs and antioxidants
TOP 4

2. Adrenal exhaustion – awaken panicked
   – Food sensitivities
   – Hormones
   – Stress
   – Fight or flight

3. Lack of sunlight (stimulates pituitary gland)
   – Sunscreen
   – Vitamin D 3
4. Poor sleeping area

- Bed
- TV
- Temperature
- Light
- Bedding
SAVE THE BED FOR SLEEP AND SEX
SOME THINGS WE (and THEY) CAN DO RIGHT NOW

• Get 7-8 hours of sleep each night
• Keep sleep times the same
• NO electronics in bedroom, and YES that includes TV – F.lux™
• power down after dusk

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SOME THINGS WE CAN DO RIGHT NOW

• Limit alcohol consumption
• No caffeine after noon

I limit myself to one glass of Wine a day.
SOME THINGS WE CAN DO RIGHT NOW

• Use a battery operated alarm clock
• Black out curtains
• Use a sleep mask
• Sound machine
SOME THINGS WE CAN DO RIGHT NOW

• Exercise – yoga, walk, play
• Good exercise promotes better sleep
• Turn the heat down – 60-65
SOME THINGS WE CAN DO RIGHT NOW

• Use a grounding cloth
• Chamomile tea with 1 TBS of gelatin before bed – calming glycine
SOME THINGS WE CAN DO RIGHT NOW

• Use essential oils – lavender, frankincense
• Take a magnesium salts bath – or oil
• Listen to a meditation tape
SOME THINGS WE CAN DO RIGHT NOW

Sleep on natural materials
STOP SNORING

- Nasal strips
- Sleep on your side
- Lose weight
- Raise the head of your bed
- Avoid alcohol
- Sleep dentist
- Netty pot before bed
FOOD SIDE

- Chia seeds – tryptophan
- Clean fats – grass fed butter, coconut oil
- Quality protein – muscle repair
- Cherries/juice – melatonin
FOOD SIDE

• Milk – tryptophan
• Pumpkin seeds - magnesium
• Bananas – magnesium, potassium – B-6 which is needed for melatonin
Try a warm “banana/milk” smoothie – one hour before bed
SUPPLEMENTS

• Melatonin – hormone made by pineal gland
• 5-HTP – building block L-tryptophan
• Magnesium – natural muscle relaxant
• Moringa – magnesium, protein, B-6
• Chamomile – herb
THEY’LL HEAL BETTER IF THEY SLEEP BETTER

- Lower BMI
- Stronger immune system
- Less infection
- Improved muscle and bone growth
- Cellular repair
- Stronger heart
- Think more clearly
PRESCRIBE SLEEP

• Tell them:
  – It will affect their readiness, state of mind and recovery
  – Include sleep in pre-op and post-op instructions
MY WORK

• “Rejuvitrition” is about how to rejuvenate the body through nutritional and lifestyle choices

• Rejuvitrition Pillars:
  – Nourish
  – Cleanse
  – Renew
  – Move
  – Live

• Certified Nutritional Therapy Practitioner; GAPs Practitioner; Restorative Wellness Practitioner; Certified Healing Food Specialist, Culinary degree from The Art Institute of Pittsburgh.

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