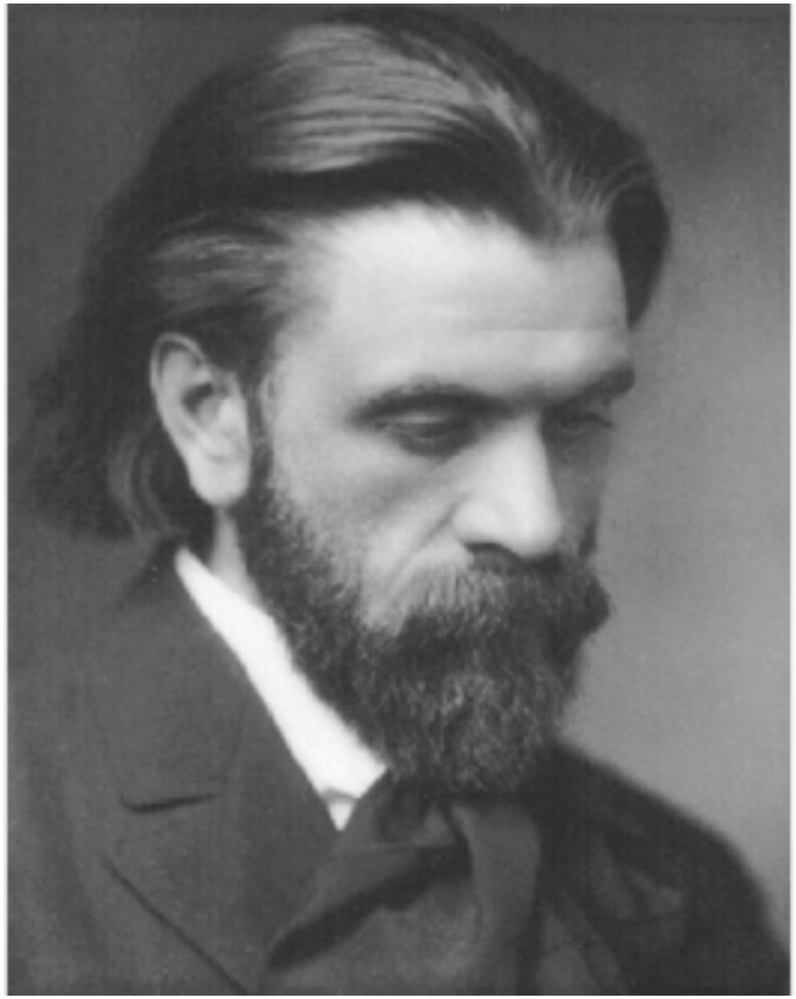
The cat amongst the pigeons

Sydney, 22 October 2022

Brett Lillie

Dr BJ Palmer



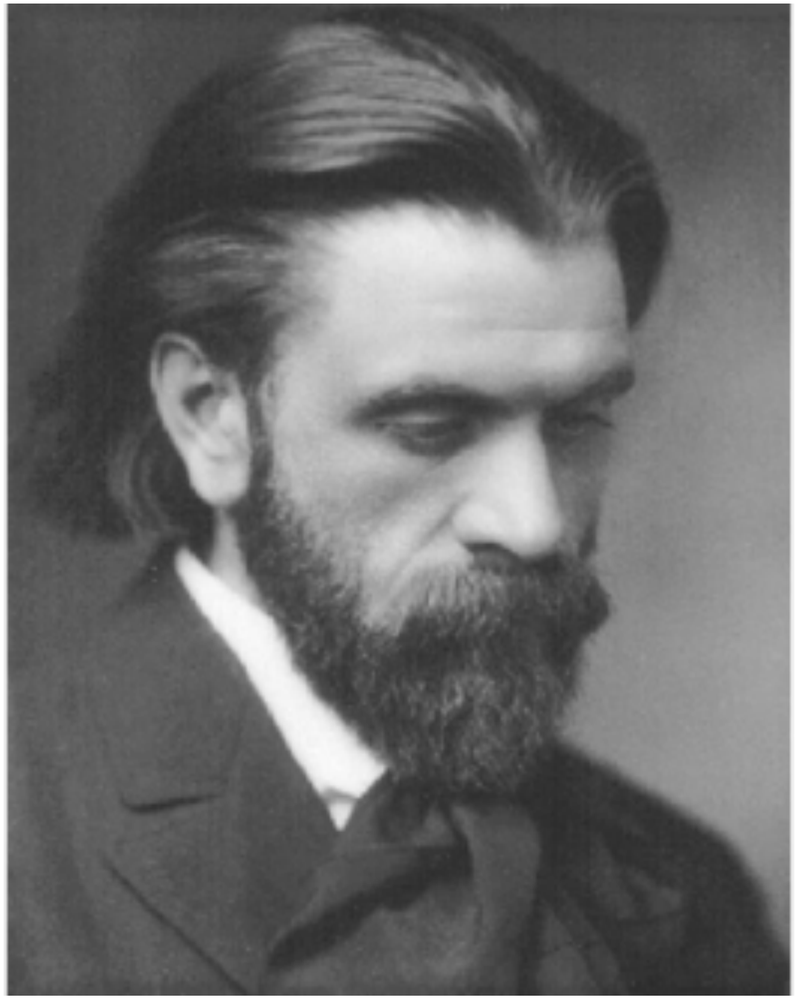
https://www.chiropractic.org/about-us/our-history/

“A slip on the snowy sidewalk,
in winter, is a small thing.
It happens to millions.
A fall from a ladder, in the summer,
is a small thing.”

B J Palmer

Dr BJ Palmer

Dr BJ Palmer



Visionary

Influencer

Resourceful

https://www.chiropractic.org/about-us/our-history/

The industrial revolution

Hand power to machine power

Alarm clocks

Standard work week (9am - 5pm)

Did you know?

Today our kids on average sleep 2 hours less than the same kid 80 years ago (in BJ Palmer days).

“A slip on the snowy sidewalk,
in winter, is a small thing.
It happens to millions.
A fall from a ladder, in the summer,
is a small thing.”

B J Palmer

Did you know?

By the time you are 65:

8 out of 10 people live with 1 illness

7 out of 10 people live with 2 illnesses

Research is catching up!

The cat amongst the pigeon

Sedentary lifestyle

Sitting is the new smoking

Sleep apnoea = silent killer

Sleep apnoea is as common as diabetes

When was the last time you woke up without an alarm clock?

When was the last time you woke up feeling refreshed?

From today onwards

The brain has two gears

Day time

movement + gravity

Night time

Ability to rest (sleep)

Night time

Is when your brain goes to work

- Sorting out memories
- Dreaming about new possibilities
- Making connections + considerations
- Neuro-cleaning
- Recharging your emotional bank account

Is when kids grow

Just another regular day…

"I don't know how I do what I do," says Simone Oliver, who drinks five piccolos a day to keep going. PHOTO: LOUIE DOUVIS

One in five women get by on less than six hours sleep each night

Employment Hybrid work can lead to more fatigue and less sleep.

one in five averaged less than five hours' sleep a night, against 14 per cent of men. Overall, 48 per cent of office workers said their quality of sleep had fallen in the year up to April 2021, with 63 per cent reporting increased fatigue

Oliver said. On the other hand, wher she worked at home, usually one o two days a week, "the ability to turn of work becomes compromised".

Dr Fletcher said women were adversely affected by the working

The Australian Financial Review, 26 May 2021

The research

43% of women office workers (35% of men) averaged less than 6 hours sleep each night

1 in 5 women averaged less than 5 hours sleep (1 in 8 men)

48% of office workers said their quality of sleep had fallen in the year up to April 2021

63% reported increased fatigue since returning to the office

Daylight saving

1hr less sleep =
24% increase risk of heart attack

1hr extra sleep =
21% decreased risk of heart attack

< 7hrs of sleep per night for 10 nights
= all-nighter

Compromised sleep

Motor behaviour

Dr Carl - micro sleeps

< 5hrs of sleep

= > 300% risk of crash

Emotional behaviour

> Anxiety

> Depression

Compromised sleep

Metabolism

< ability to lose weight

> poor food choices

> insulin resistance

Learning and Memory

< memory consolidation

Compromised sleep

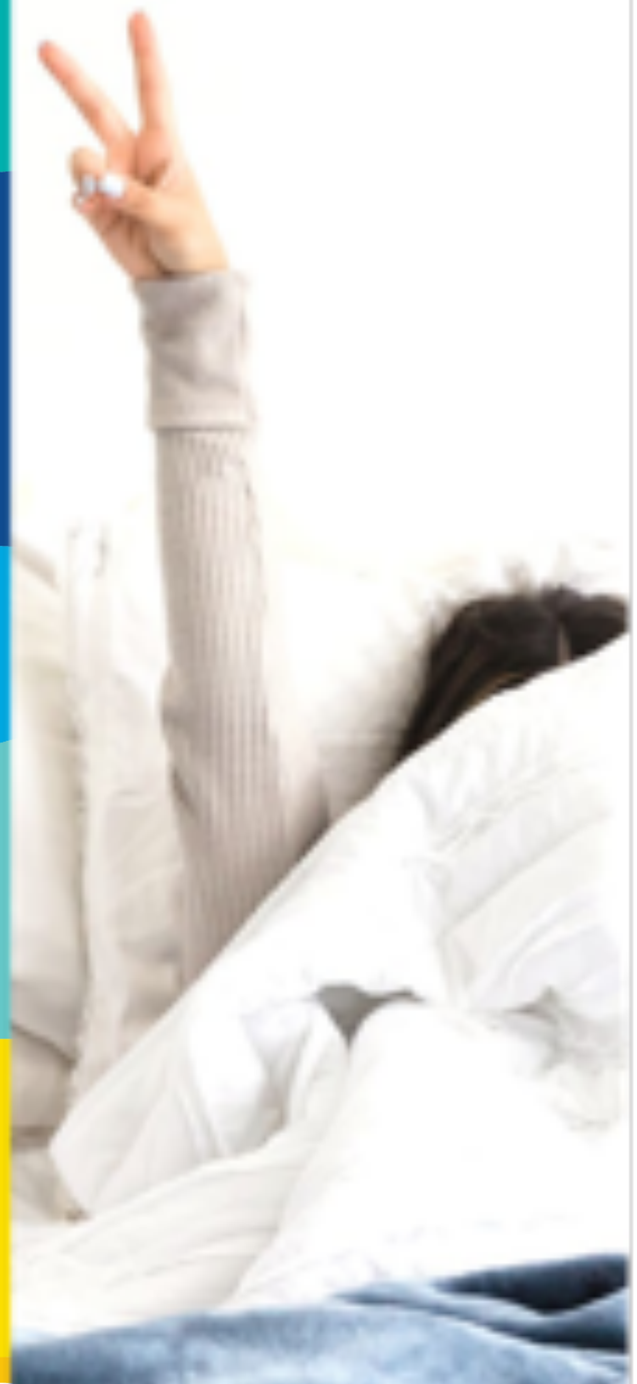
Neurodegenerative conditions

Parkinson

Dementia

Huntington's disease

Anatomical relationships



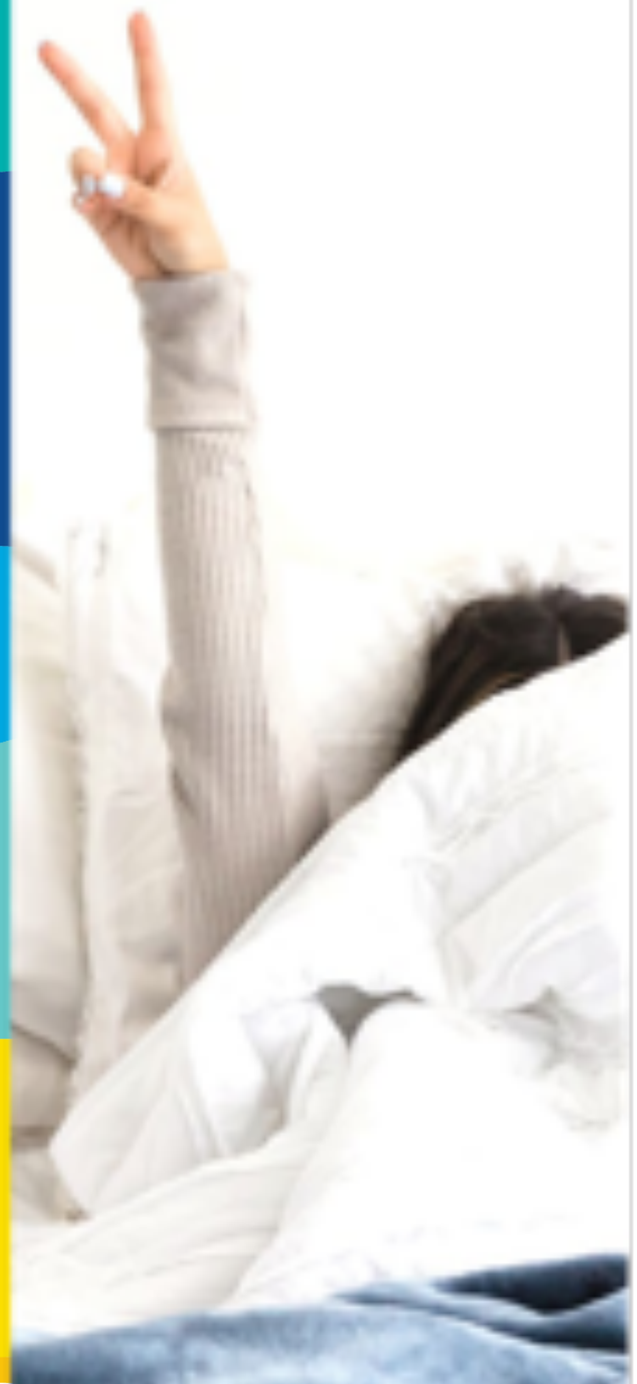
Anatomical relationships

Sleep apnoea

50% of men 40-85 years

23% of women

Increasing over the past two decades



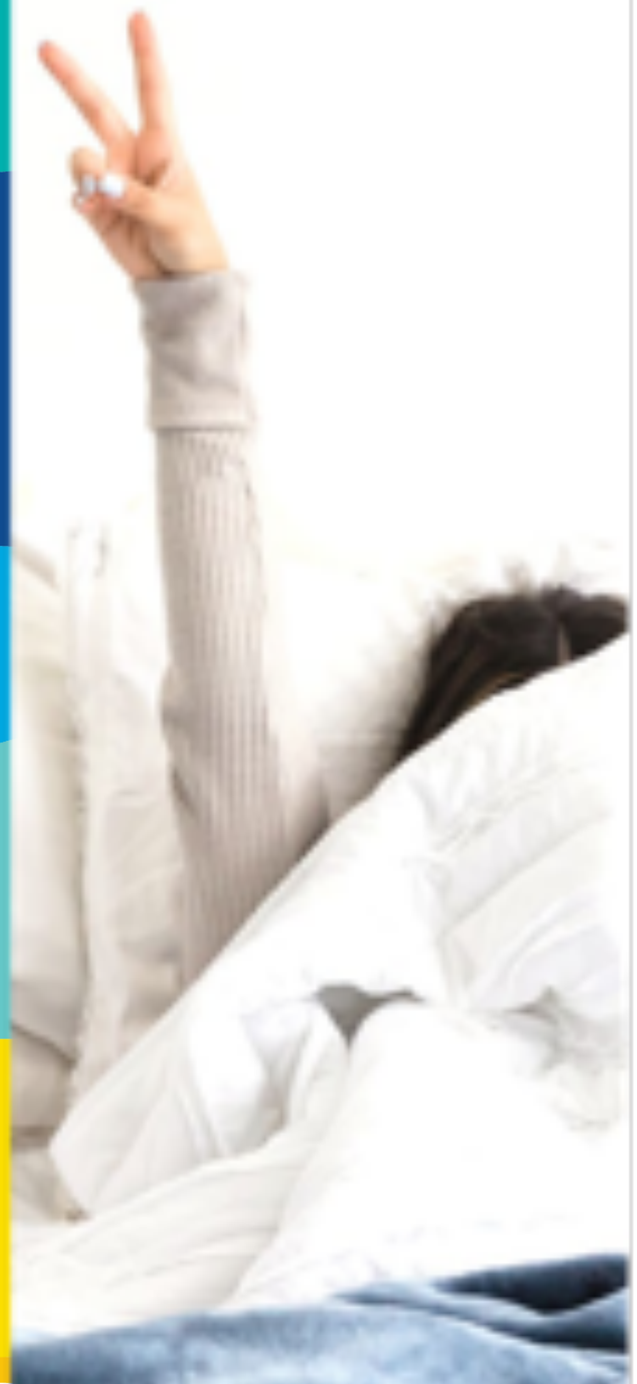
Anatomical relationships

Airway

Anatomy

Arousal

Fragmentation



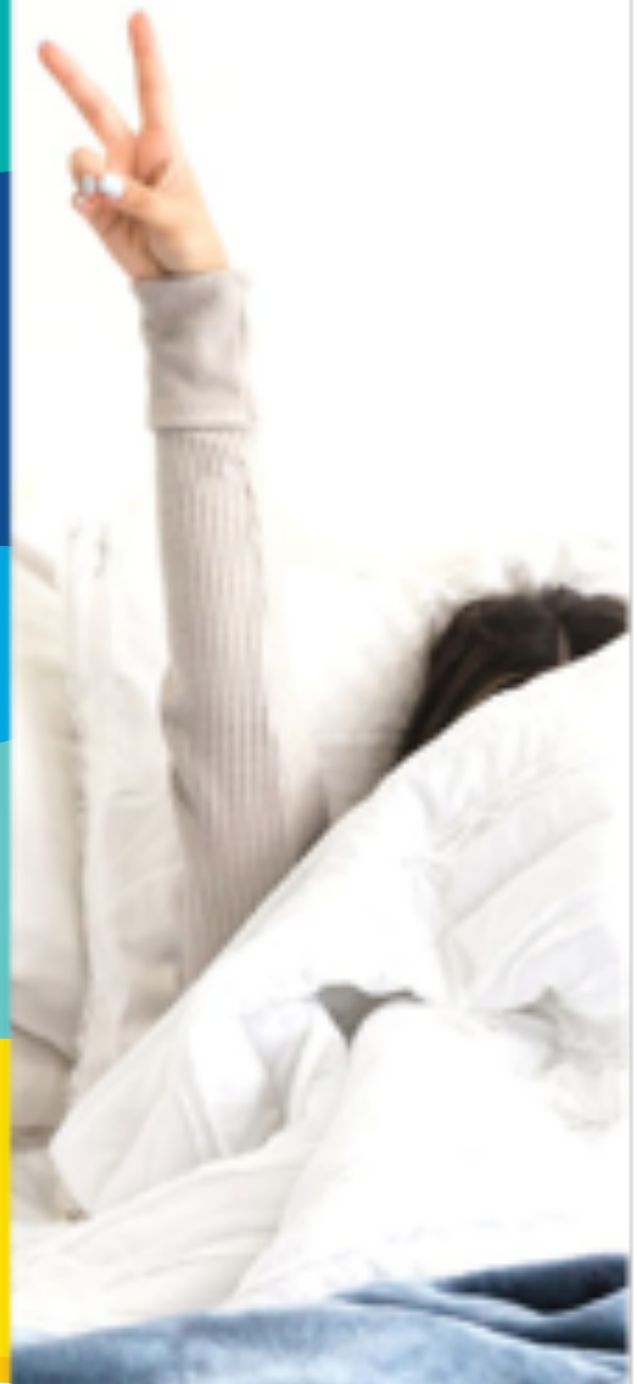
Anatomical relationships

Craniovertebral relationships

Breathe

Bite

Swallow



Anatomical relationships

Growth

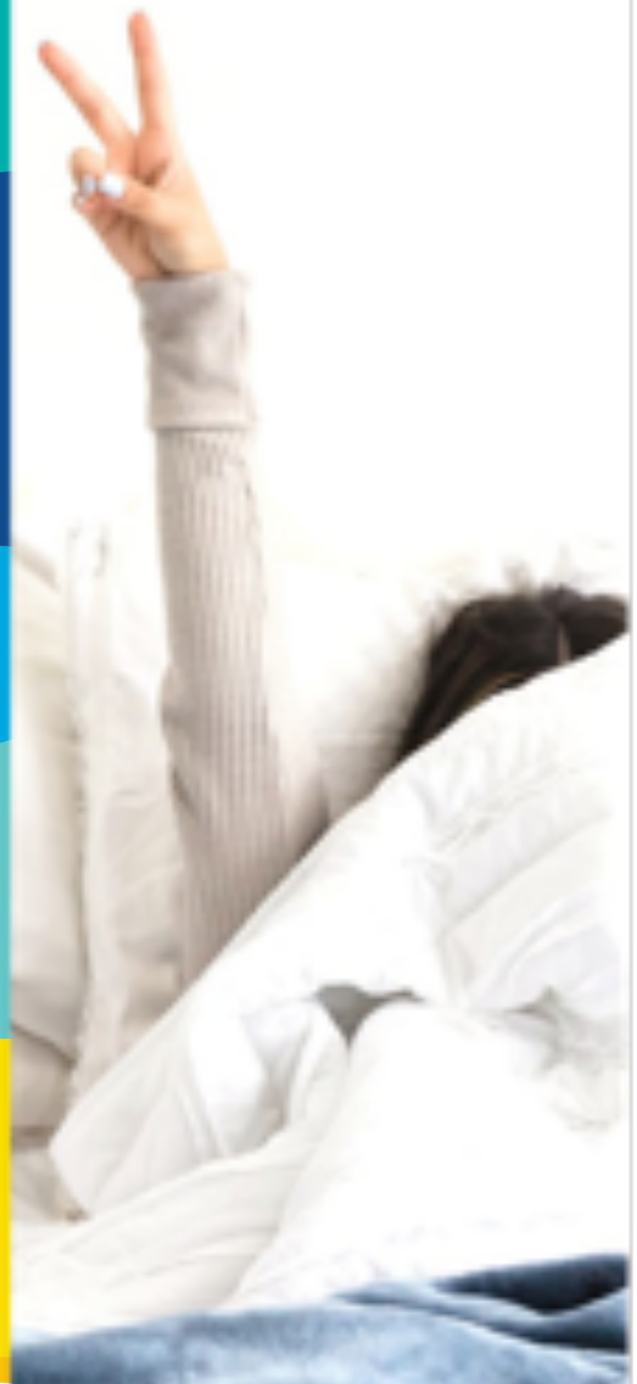
Proportional

Lifestyle impacts

Degeneration

Function

Reflex



Anatomical relationships

Chronic pain = chronic sleep

The good stuff about sleep

Learn faster

Improve BP

Better food choices

Better memory

Less likely MVA

Better emotional wellbeing

Who are the best people to deal with sleep?

The cat amongst the pigeon

Sleep is the worst diagnosed area for 2 reasons

1. You need a team

2. Everyone comes at it from different point of views

3. You need a team

When was the last time you woke up feeling refreshed?

Me today

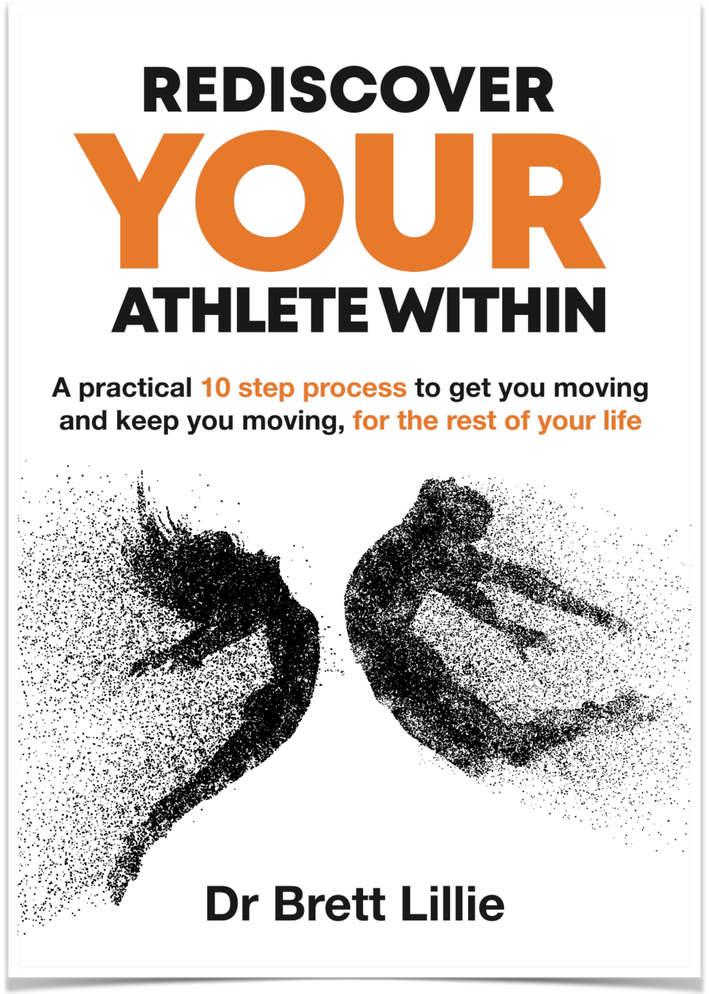
Sleep enthusiast

Pain stalker

Solution seeker

Athlete scout

Me today


REDISCOVER
YOUR
ATHLETE WITHIN
A practical 10 step process to get you moving
and keep you moving, for the rest of your life
Dr Brett Lillie

My journey

Why shave?

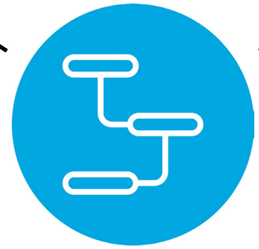
Our journey today

1.
The great leap forward

2.
Obstructive sleep apnoea

3.
Cranial vertebral relationships

4.
Sleep architecture



5.
Circadian and ageing

6.
The spell of sleep

7.
Sleep hygiene

Sleep deep dive

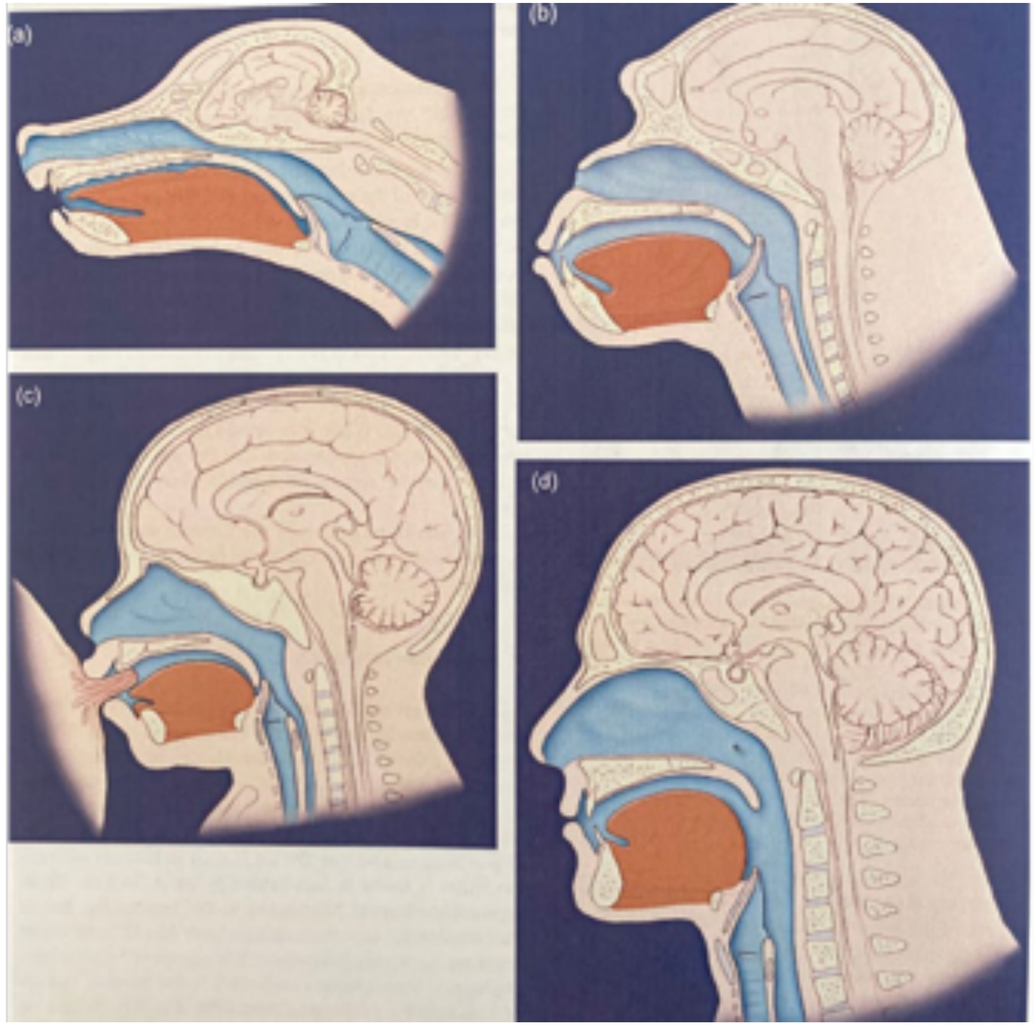
1.

The great leap forward

The great leap forward

The great
Leap
Forward

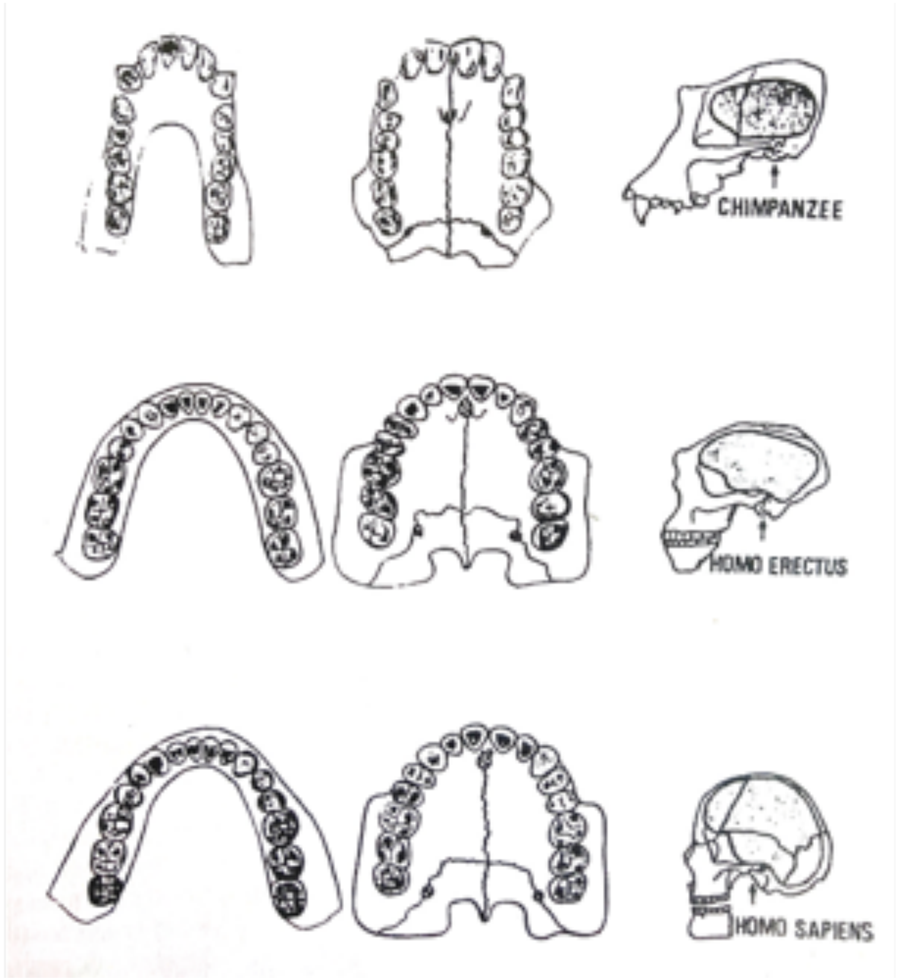
The descent of the larynx



Davidson T.M., Sleep Medicine 4 (2003) 185-194, The Great Leap Forward: the anatomic basis for the acquisition of speech and obstructive sleep apnea

The great
Leap
Forward

Maxilla evolution



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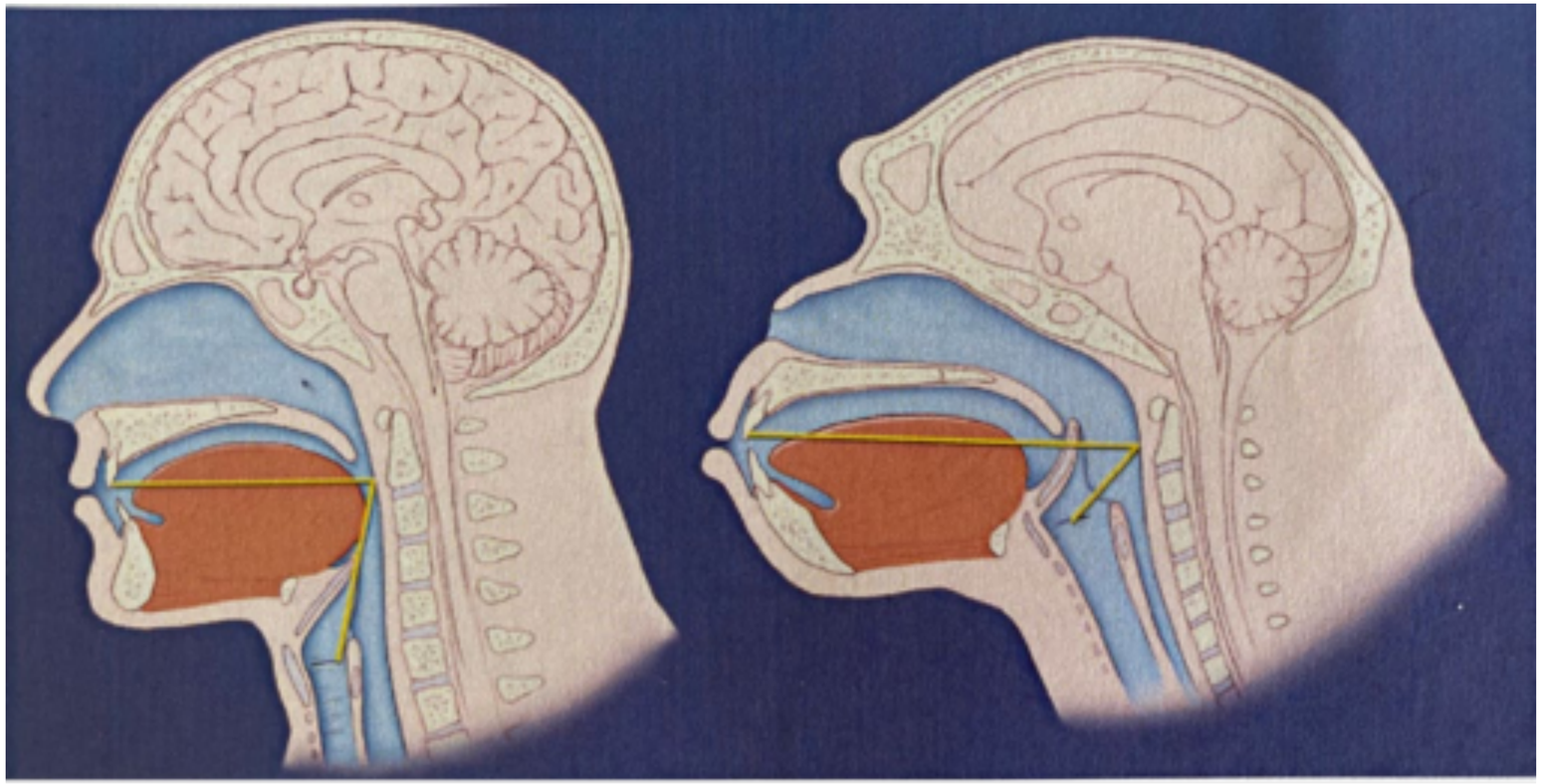
The great
Leap
Forward

Human vs chimpanzee



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The great
Leap
Forward

Dr Weston Price, dentist 1930s

Photo from Dr Weston Price research

Sleep deep dive

1.

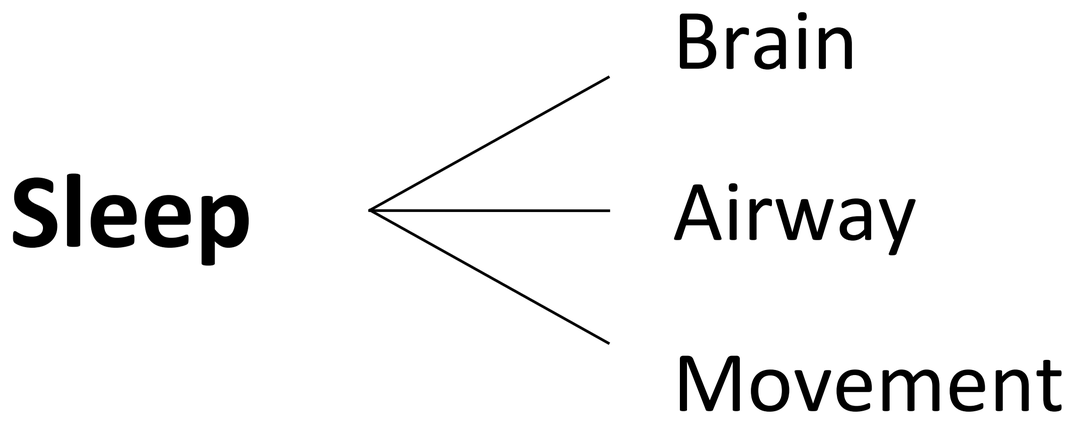
The great leap forward

2.

Obstructive sleep apnoea

Obstructive sleep apnoea

Obstructive Sleep Apnoea



Obstructive
Sleep
Apnoea

Definitions

1. **SDB - Sleep Disorder Breathing**

   Decrease airflow 30% for 10 sec

2. **OSA - Obstructive Sleep Apnoea**

   Decrease airflow 90% for 10 sec

3. **Syndrome - add daytime symptoms**

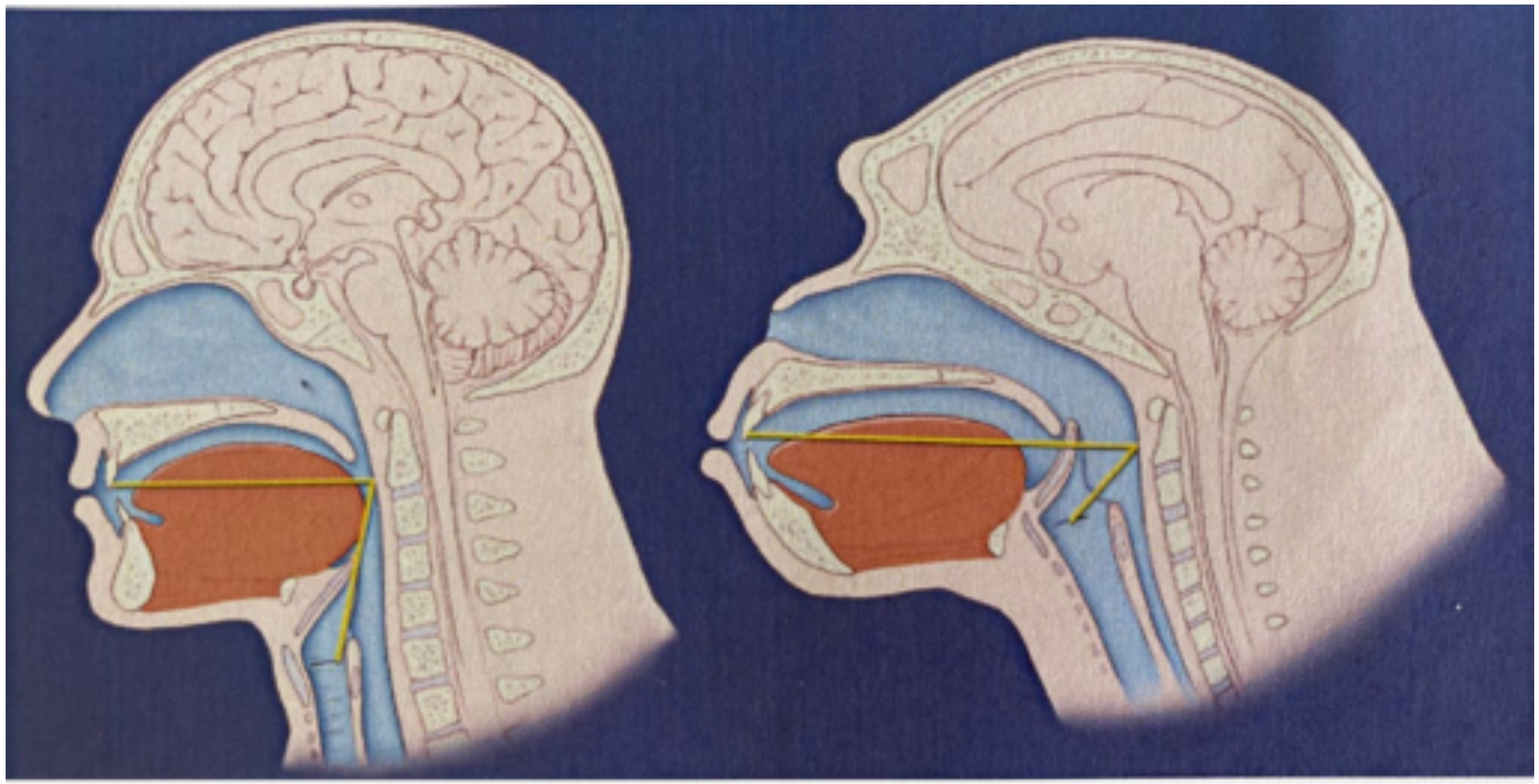
   - Epworth scale
   - Stop Bang

Obstructive
Sleep
Apnoea

Sleep apnoea vs diabetes

Obstructive
Sleep
Apnoea

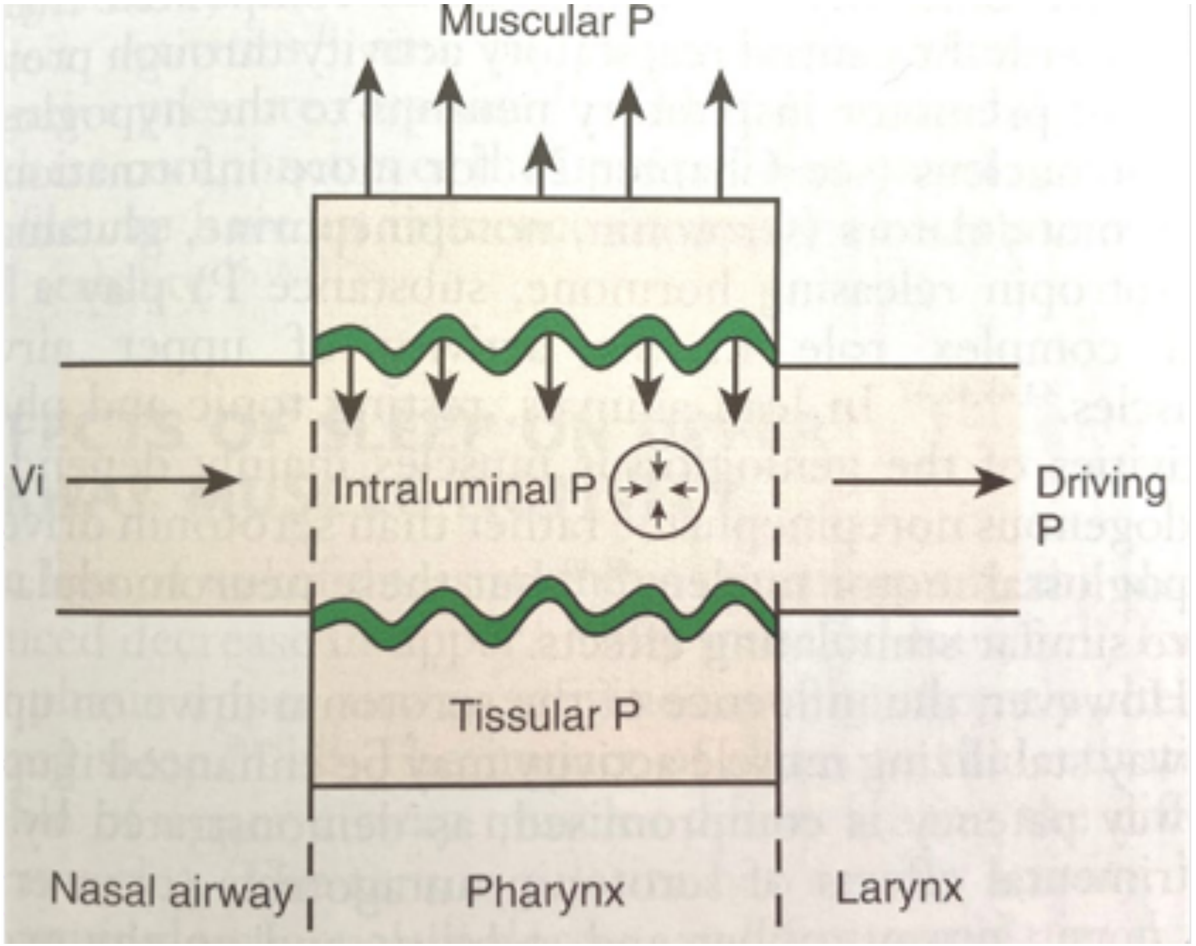
Human vs chimpanzee



Davidson T.M., Sleep Medicine 4 (2003) 185-194, The Great Leap Forward: the anatomic basis for the acquisition of speech and obstructive sleep apnea

Obstructive
Sleep
Apnoea

Air flow - Starling resistor



Kryger MH, Roth T, Dement WC, Principles and Practice of SLEEP MEDICINE fifth edition, 2011

Obstructive
Sleep
Apnoea

OSA stats

50% of men 40-85 yrs

23% of women

Increasing over the past two decades

Obstructive
Sleep
Apnoea

Four phenotypes

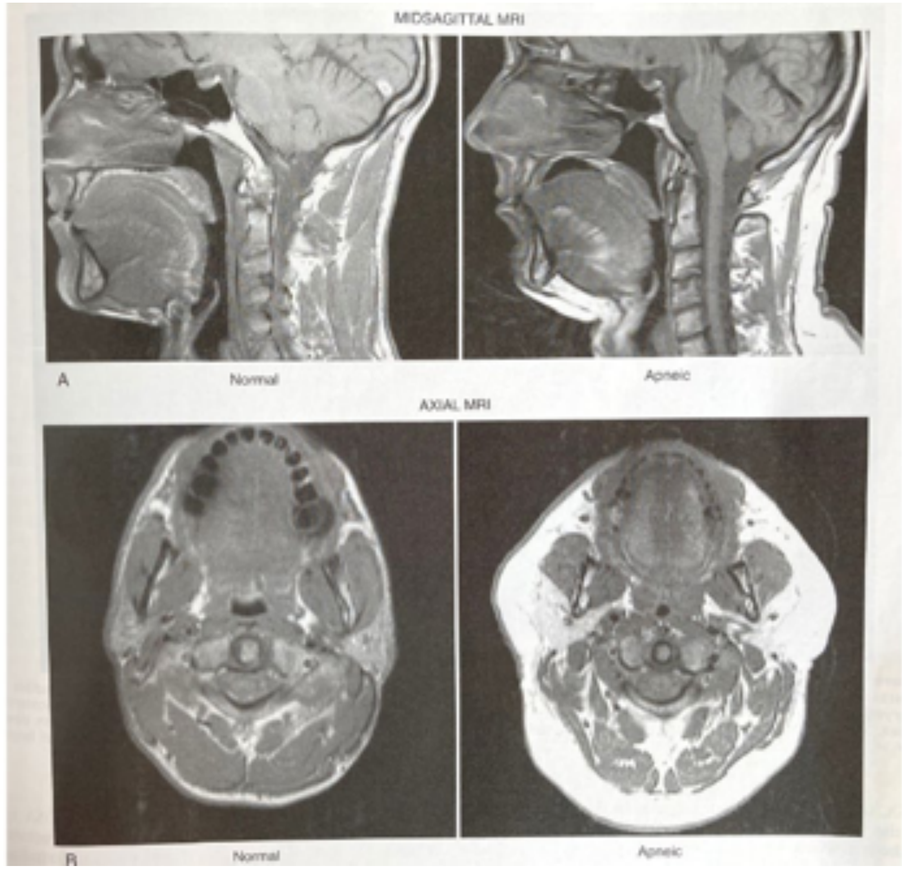
1. Upper Airway Anatomy
2. Effectiveness of dilators - Genioglossus muscle (primary)
3. Arousal threshold (high loop threshold)
4. Inherent stability of respiratory control

Subramani Y, Singh M, Wong J, Kushida, C. Understanding Phenotypes of Obstructive Sleep Apnea: Applications in Anesthesia, Surgery, and Perioperative Medicine. Anesth Analg. 2017 Jan; 124(1): 179–191

Obstructive Sleep Apnoea

Upper airway obstruction

MRI of the upper airway



Normal **Apnoea**

Kryger MH, Roth T, Dement WC, Principles and Practice of SLEEP MEDICINE fifth edition, 2011

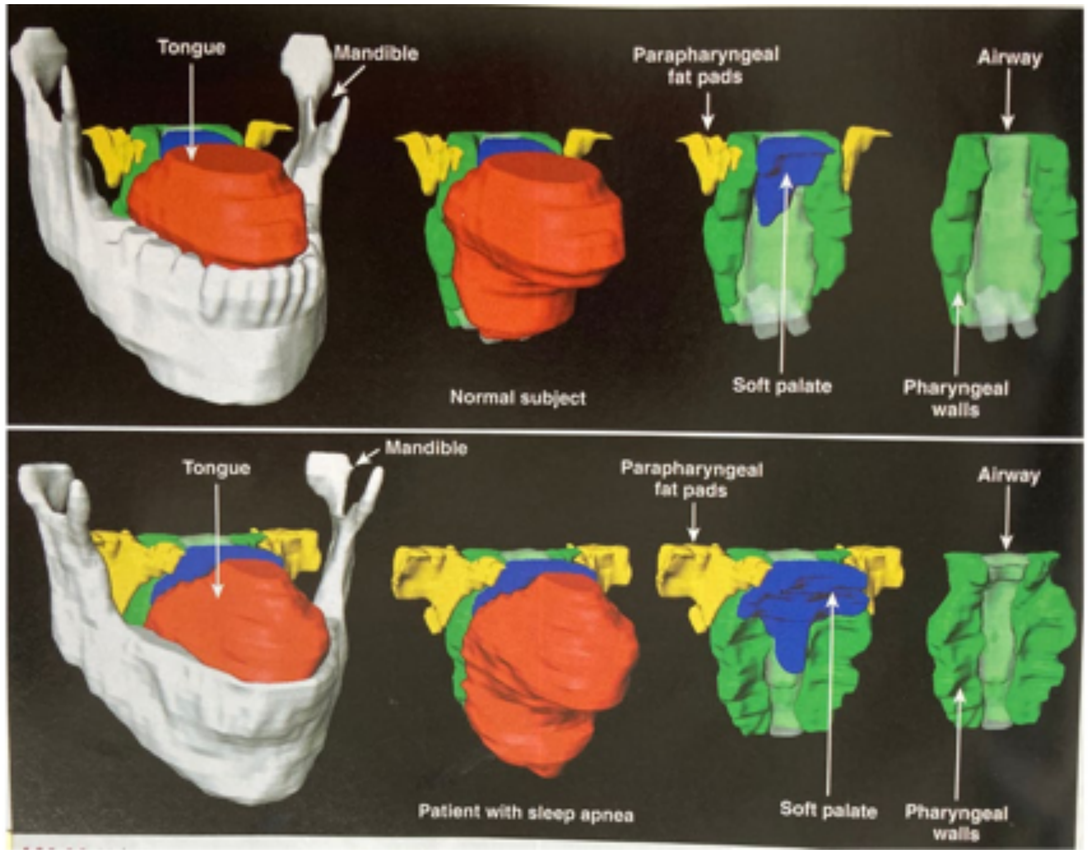
Obstructive
Sleep
Apnoea

Upper airway obstruction

CT of the upper airway
(volumetric reconstruction)

Normal

Apnoea



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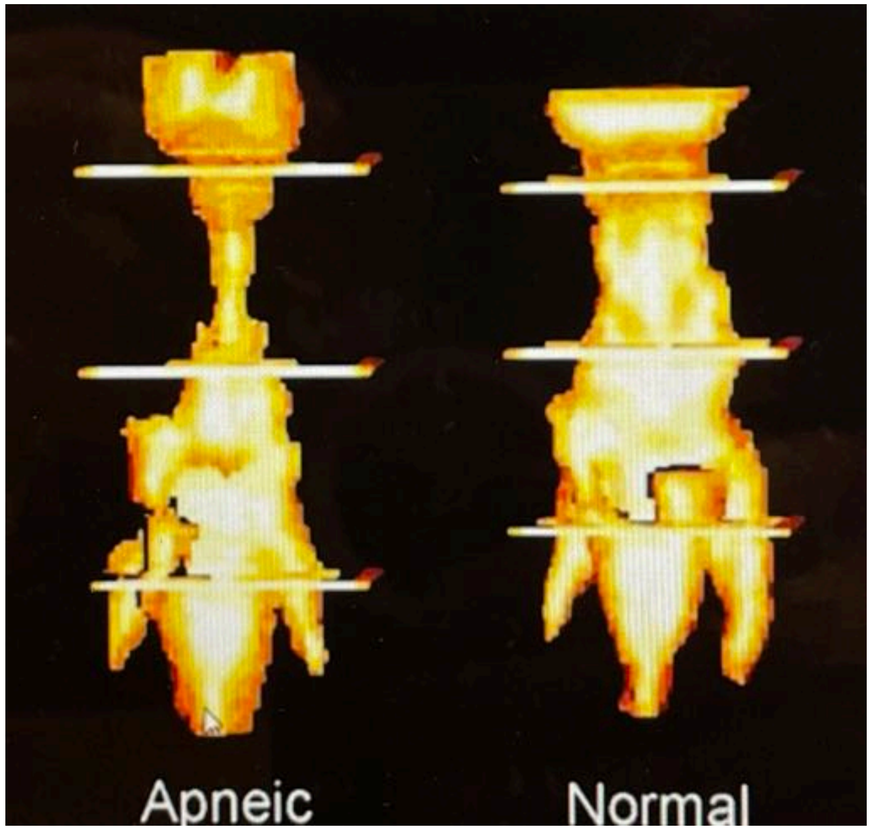
Obstructive
Sleep
Apnoea

Upper airway obstruction



Kryger MH, Roth T, Dement WC, Principles and Practice of SLEEP MEDICINE fifth edition, 2011

Obstructive
Sleep
Apnoea

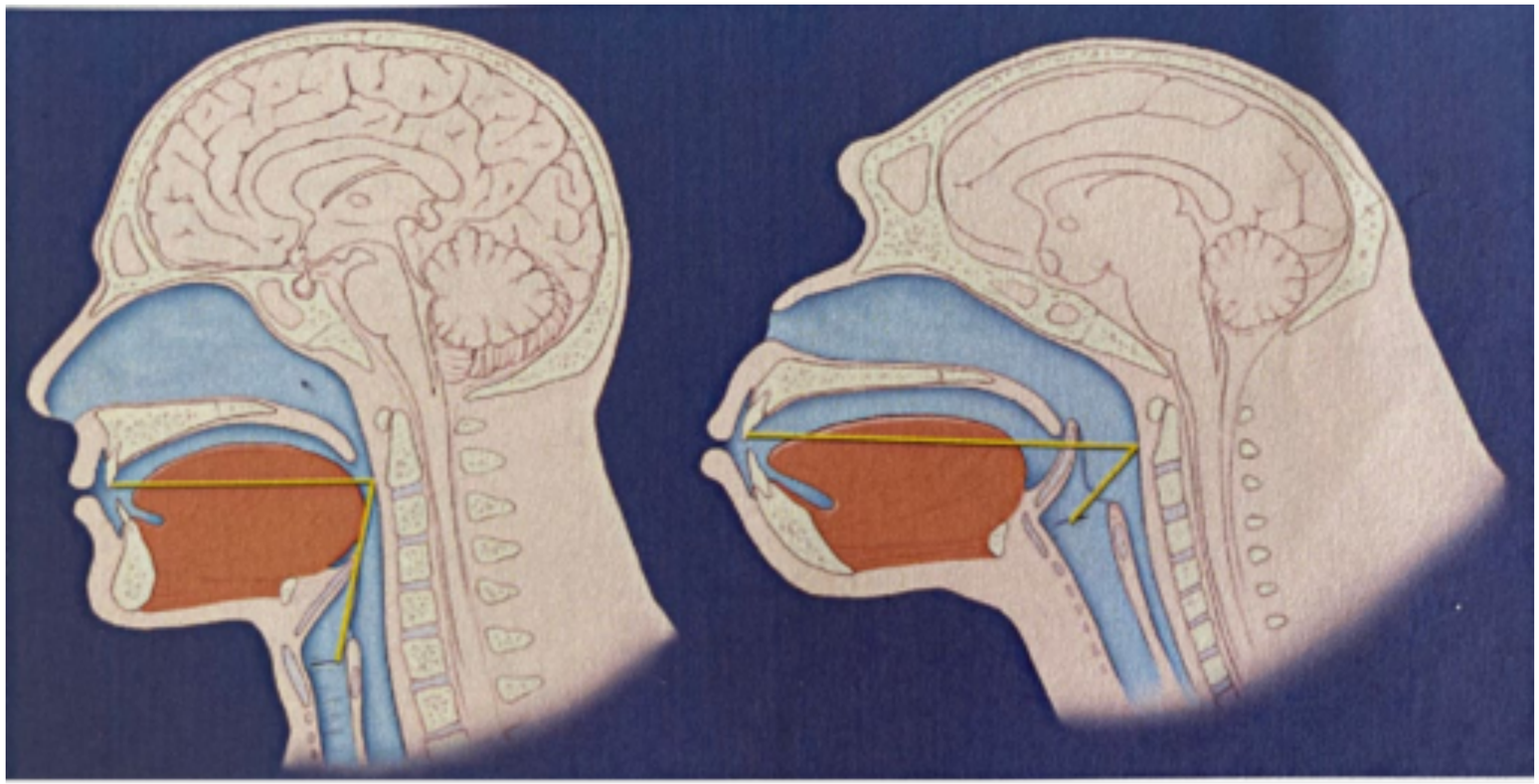
Risk factors

1. Bone structure

2. Soft tissue

Obstructive
Sleep
Apnoea

Risk factors



Davidson T.M., Sleep Medicine 4 (2003) 185-194, The Great Leap Forward: the anatomic basis for the acquisition of speech and obstructive sleep apnea

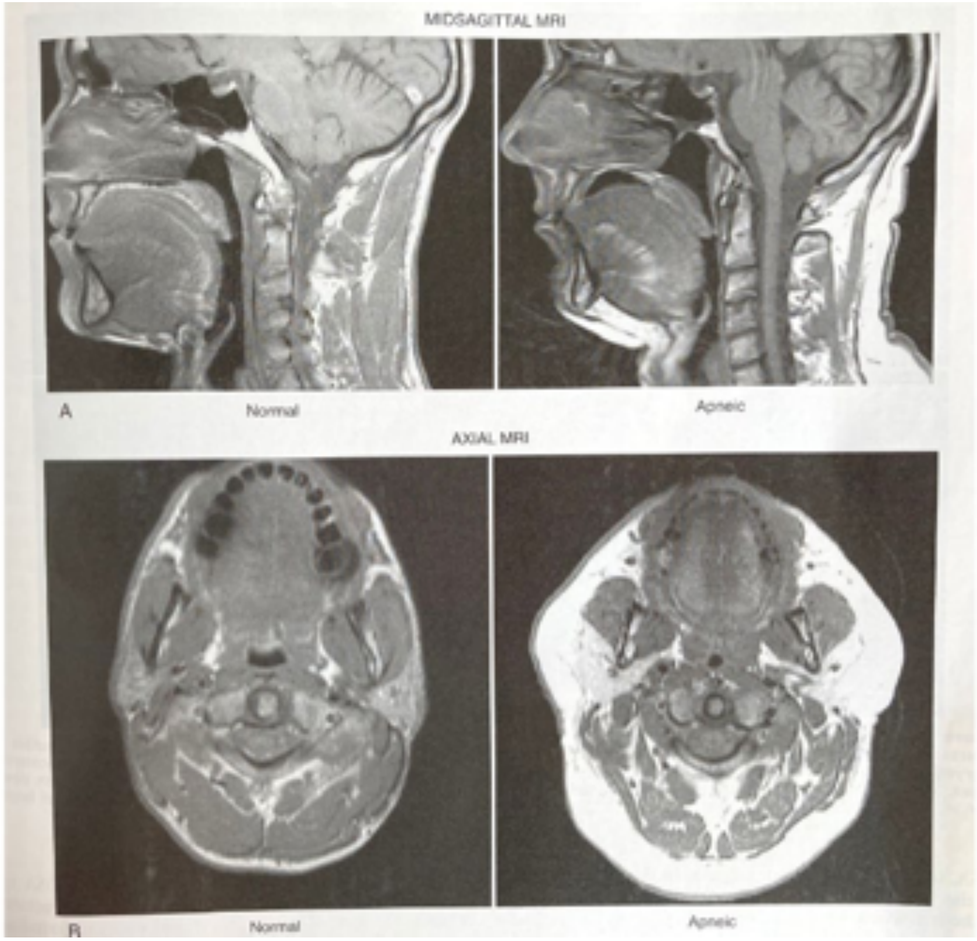
Obstructive
Sleep
Apnoea

Risk factors - bony

1. Mandible
2. Maxilla
3. Hyoid

Obstructive
Sleep
Apnoea

Risk factors - bony



Kryger MH, Roth T, Dement WC, Principles and Practice of SLEEP MEDICINE fifth edition, 2011

Risk factors

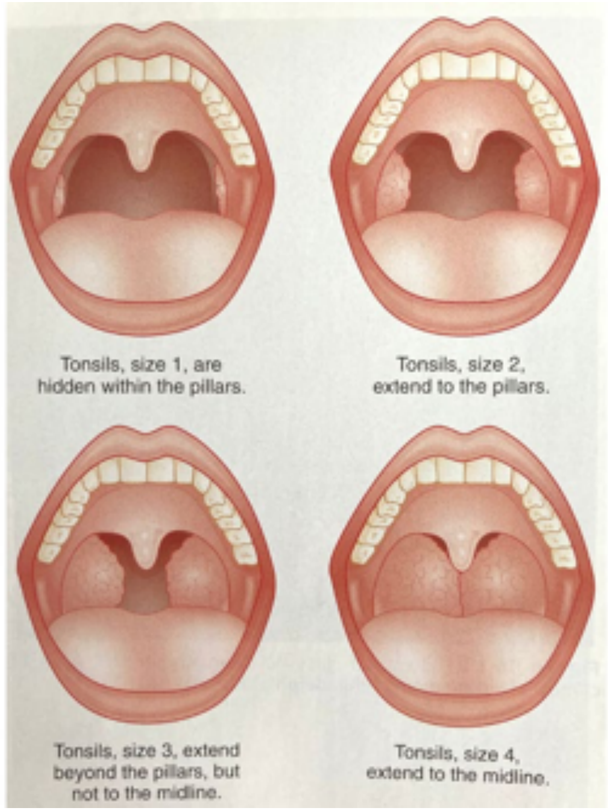
Obstructive
Sleep
Apnoea

Wikipedia - https://www.flickr.com/photos/naparazzi/

Obstructive
Sleep
Apnoea

Risk factors - soft tissue

1. Tonsils

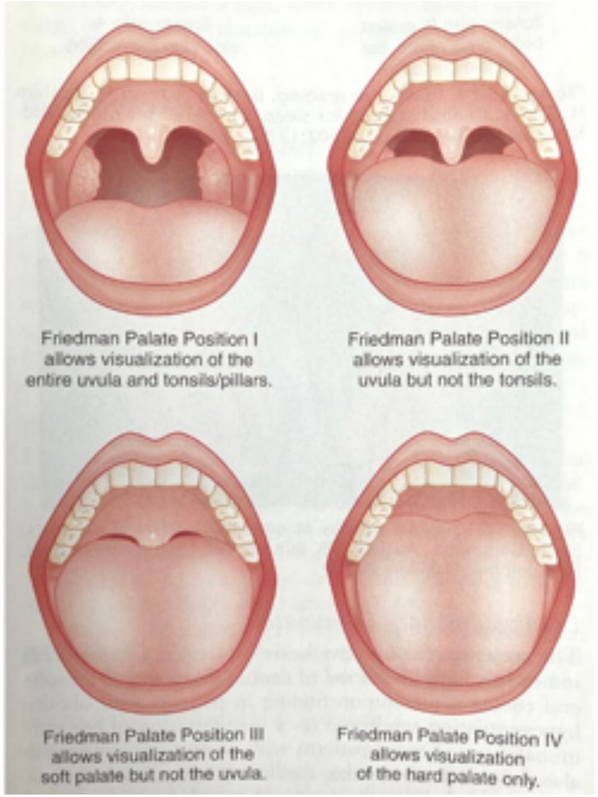


Kryger MH, Roth T, Dement WC, Principles and Practice of SLEEP MEDICINE fifth edition, 2011
Korhan Ibrahim, et al. The influence of the lateral pharyngeal wall anatomy on snoring and sleep apnea. J. Park med Assoc 65, no. 2 (2015):125-30.

Obstructive
Sleep
Apnoea

Risk factors - soft tissue

1. Tonsils
2. Pharynx (tongue) — Friedman classification



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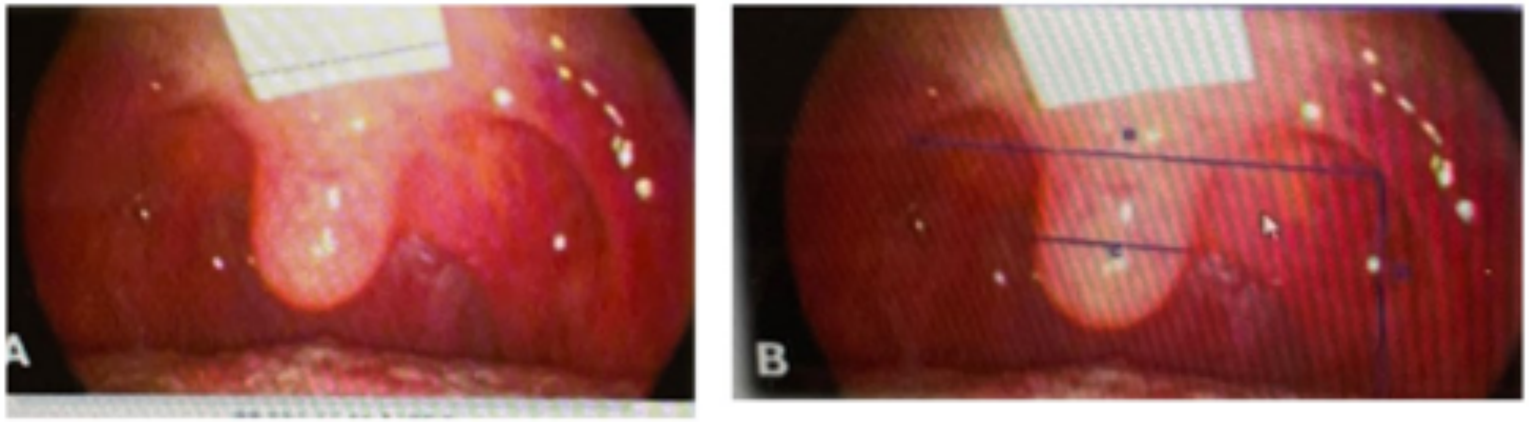
Obstructive
Sleep
Apnoea

Risk factors - soft tissue

1. Tonsils
2. Pharynx (tongue) — Friedman classification
3. Palatoglossal and palatopharingeal arches



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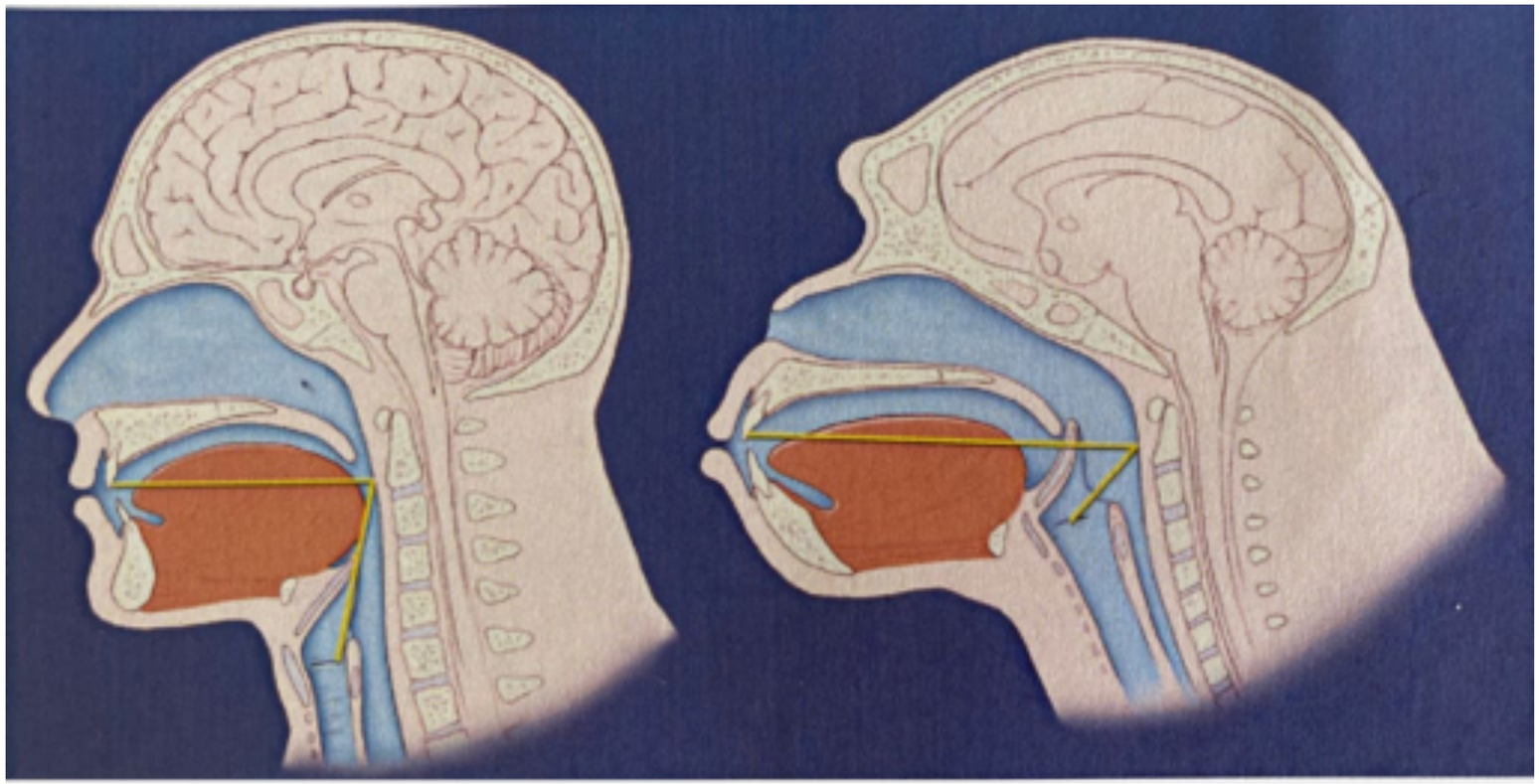
Obstructive
Sleep
Apnoea

Risk factors



Davidson T.M., Sleep Medicine 4 (2003) 185-194, The Great Leap Forward: the anatomic basis for the acquisition of speech and obstructive sleep apnea

Obstructive
Sleep
Apnoea

Bruxism

Bruxism

vs

Grinding

vs

Clenching

Sleep deep dive

1.

The great leap forward

3.

Cranial vertebral relationships

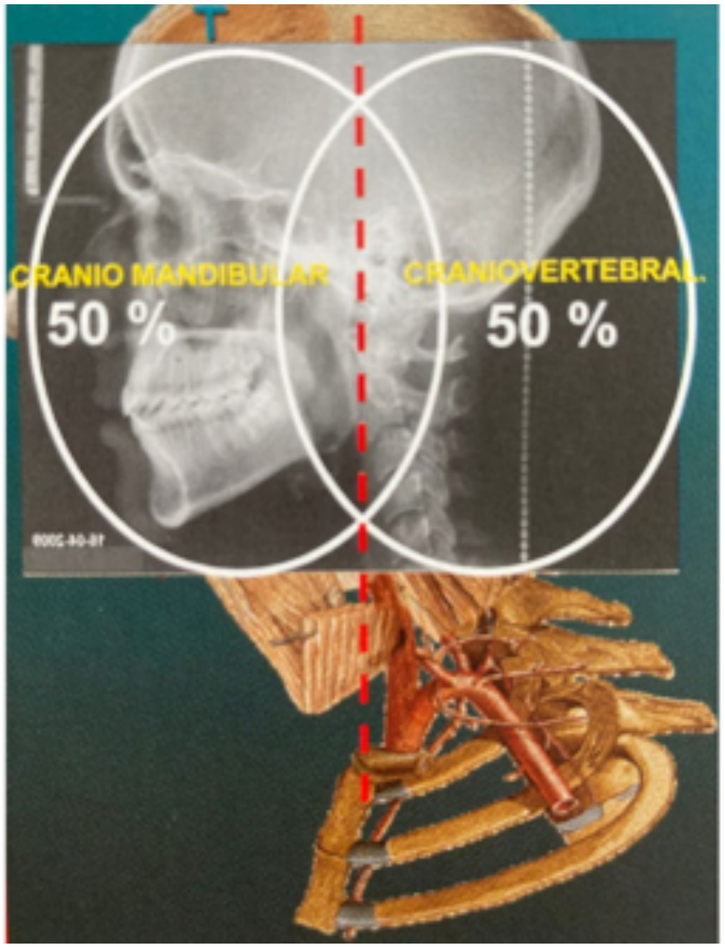
2.

Obstructive sleep apnoea

Cranial vertebral relationships

Cranial vertebral relationships

Cranium - Anterior and posterior columns



Prof. Dr Rocabado Seaton M, Atlas Clinico 2: Congruencia craneo-cervico mandibular. Aplicación práctica clínica., 2011

Cranial vertebral relationships

Hip joint - centration

Fernando Ruiz Santiago, Alicia Santiago Chinchilla, Afshin Ansari, Luis Guzmán Álvarez, Maria del Mar Castellano García, Alberto Martínez Martínez, Juan Tercedor Sánchez, "Imaging of Hip Pain: From Radiography to Cross-Sectional Imaging Techniques", Radiology Research and Practice, vol. 2016, Article ID 6369237, 15 pages, 2016. https://doi.org/10.1155/2016/6369237

Cranial vertebral relationships

Joint centration

1. No joint compression
   max congruence - smooth

2. No soft tissue/CT tension

3. No mm activity on EMG

4. No loading

Cranial vertebral relationships

Cranial vertebral relationships

- Centration

Cranial vertebral relationships

Cranial vertebral relationships

Centration

↓

Relationships

Cranial vertebral relationships

Cranial vertebral relationships

- Centration
- Relationships
- Planar

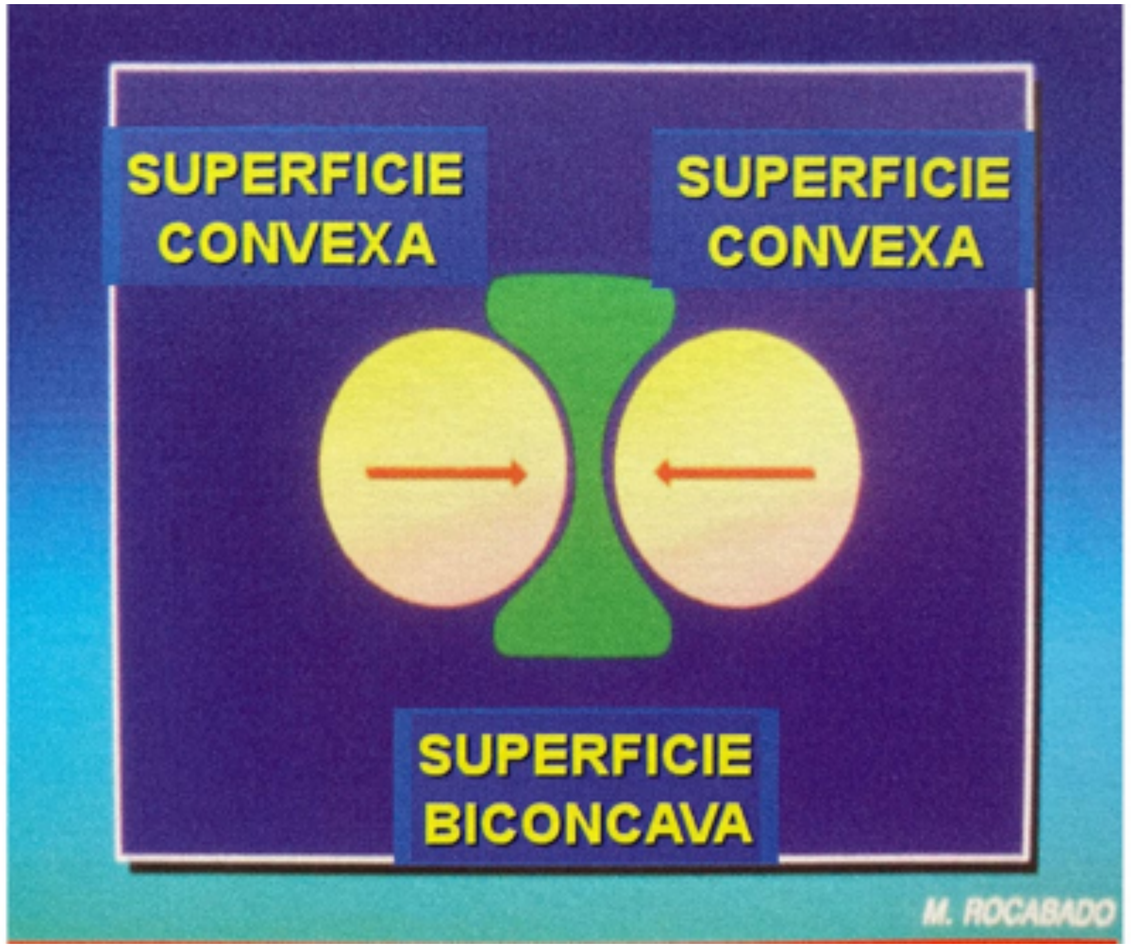
Cranial vertebral relationships

Cranial vertebral relationships

- Centration
- Relationships
- Planar
- Proportions (profiles)

Cranial vertebral relationships

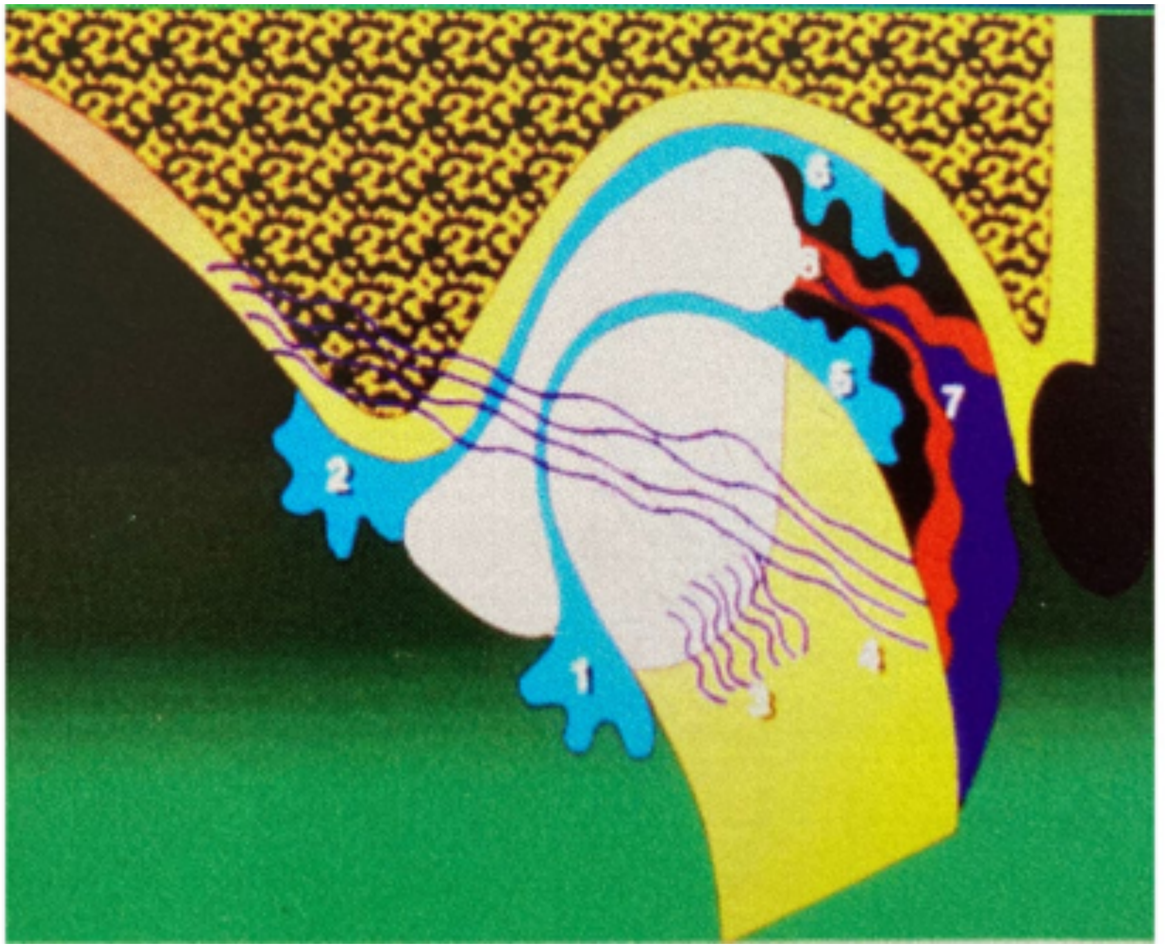
TMJ - Biconcave disc



Prof. Dr Rocabado Seaton M, Atlas Clinico 1: Fisiología Articular Sinovial. Mapa del dolor articular temporo mandibular,, 2011

Cranial vertebral relationships

TMJ anatomy



Prof. Dr Rocabado Seaton M, Atlas Clinico 1: Fisiología Articular Sinovial. Mapa del dolor articular temporo mandibular,, 2011

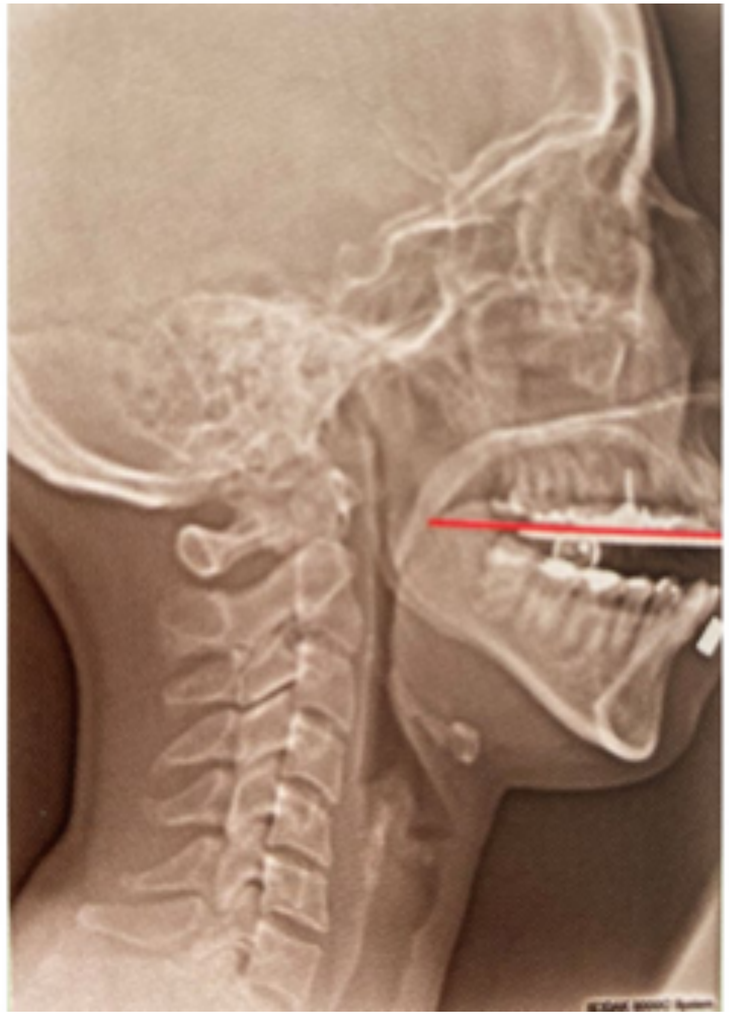
Cranial vertebral relationships

Brain runs the show

Free Documentary - Nature Youtube channel - Cheetahs: Fastest Hunters in Africa

Cranial vertebral relationships

TMJ opening



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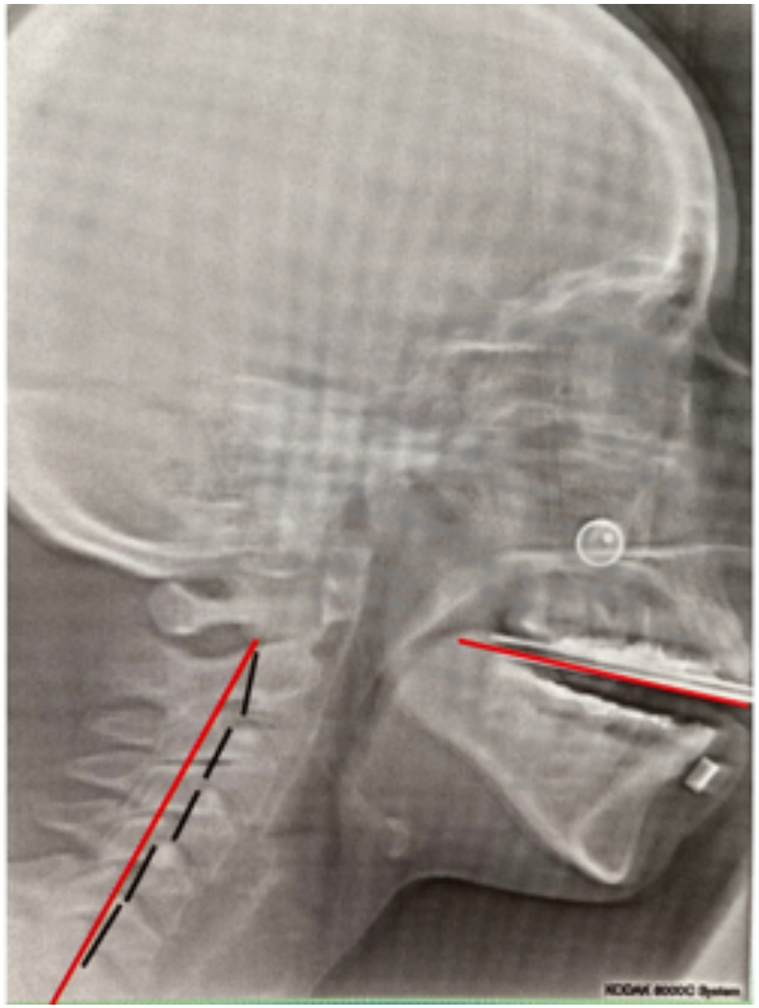
Cranial vertebral relationships

TMJ opening



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Cranial vertebral relationships

TMJ opening

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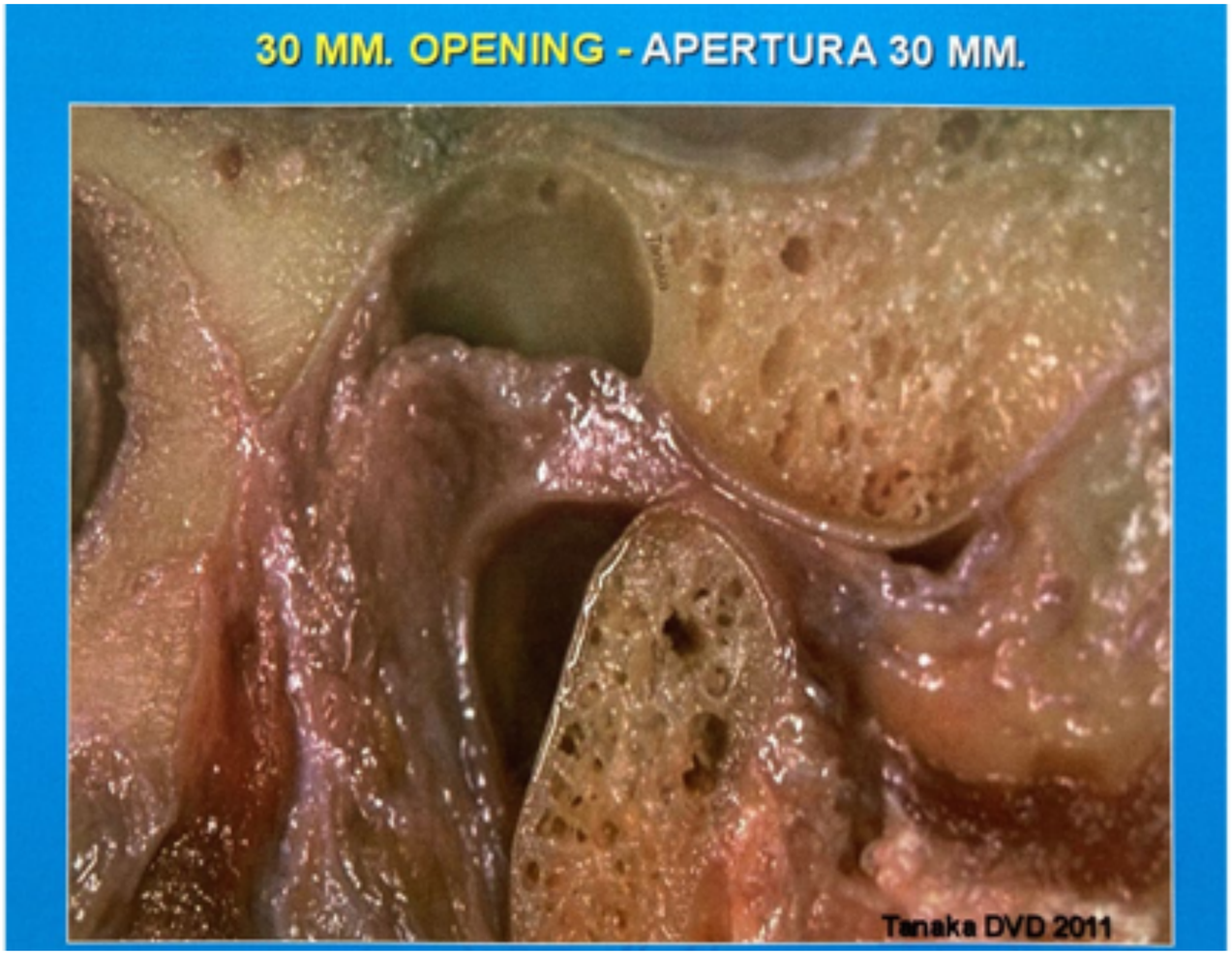
Cranial vertebral relationships

TMJ opening



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Cranial vertebral relationships

Title?

1. Mouth breather
2. Tongue thrust
3. Open bite
4. Closed bite

Cranial vertebral relationships

How will you know?

- TMJ ROM?

- TMJ trajectory?

- Palpate

- 2D —> 3D

Cranial vertebral relationships

Title?

Diagram

Cranial vertebral relationships

Cervical spine

1. Occipital condyles - weight
2. Atlas
   - Ring
   - Lateral bodies
   - Carries head
3. Axis
   - Dens (passfier)
   - Screw down mechanism
4. C3
   - 1st disc
   - Shoulders

Cranial vertebral relationships

Upper cervical movement

Yes

No

Perhaps

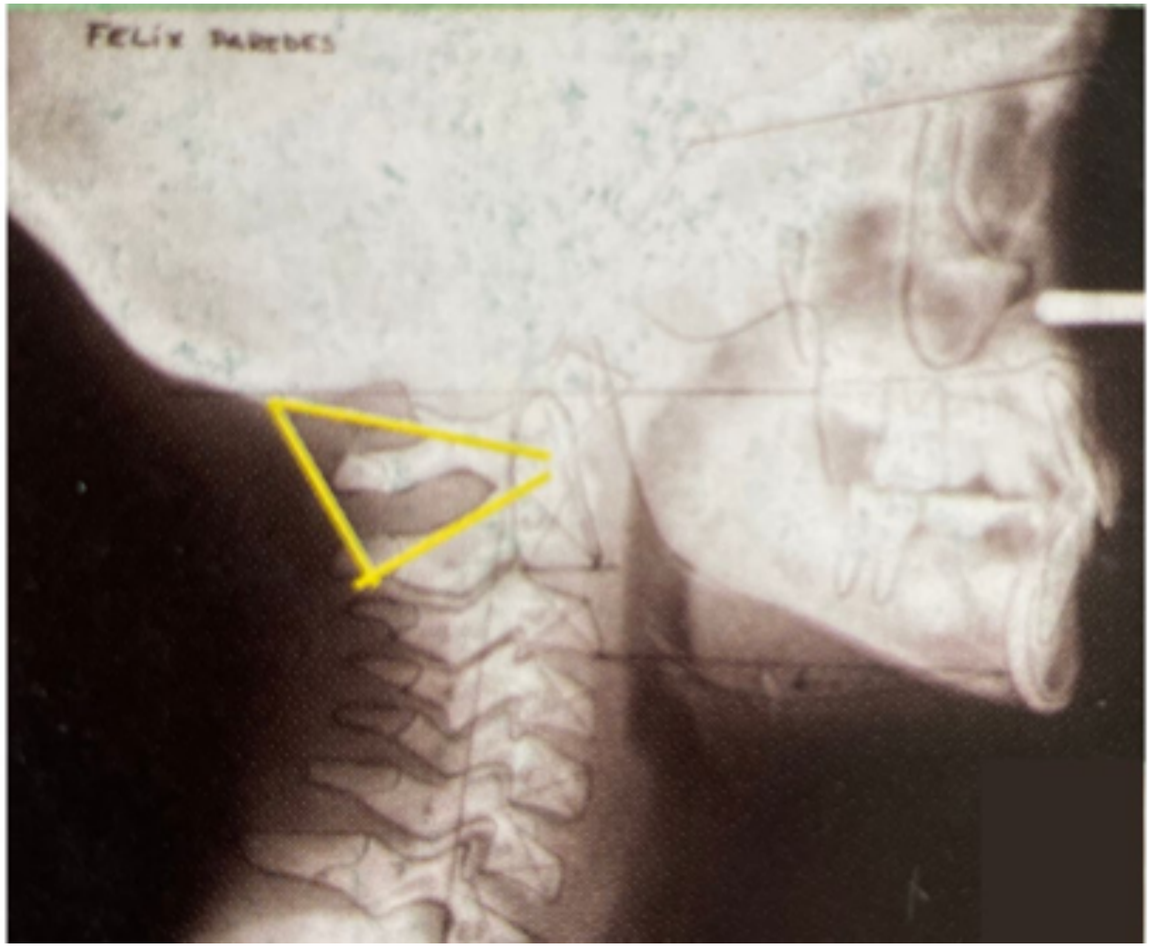
Cranial vertebral relationships

Cervical lateral x-ray

Bickle, I. Normal lateral cervical spine radiograph. Case study, Radiopaedia.org. (accessed on 10 Oct 2022) https://doi.org/10.53347/rID-46395

Cranial vertebral relationships

Suboccipital triangle



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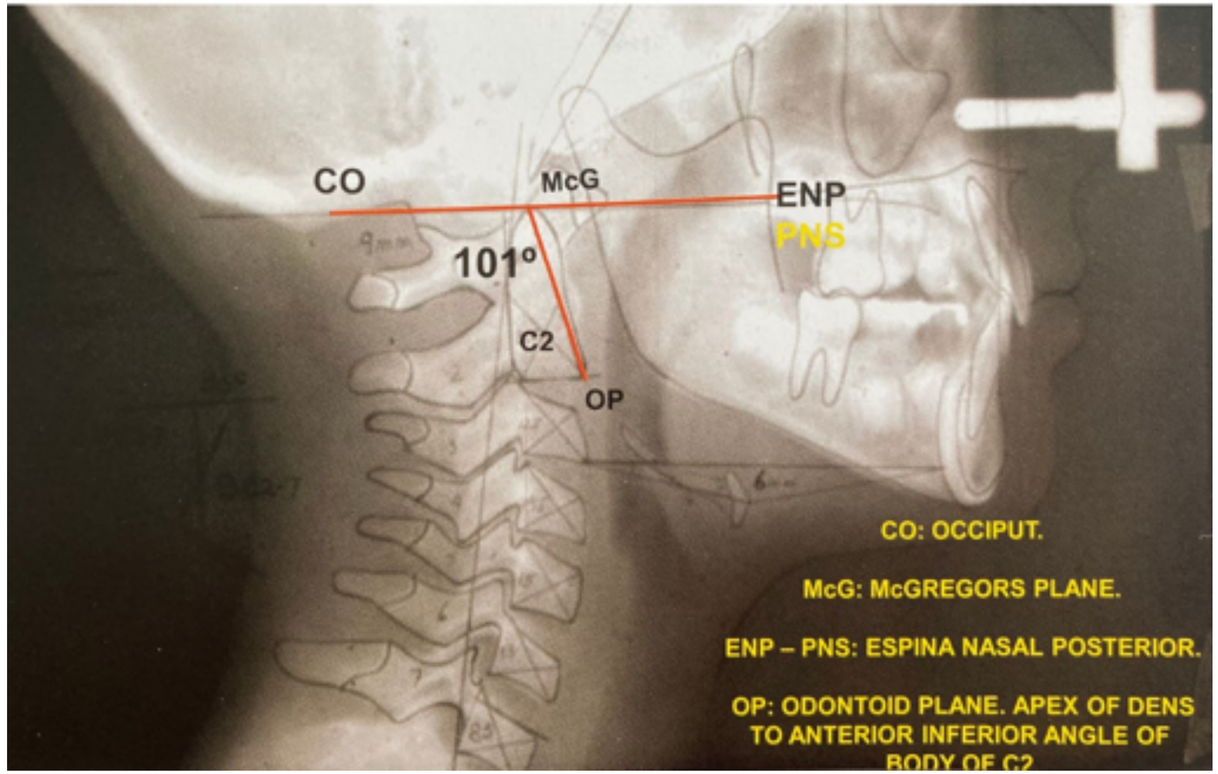
Cranial vertebral relationships

Cranium relationships

1. McGregors Line (Cranium to cervical)



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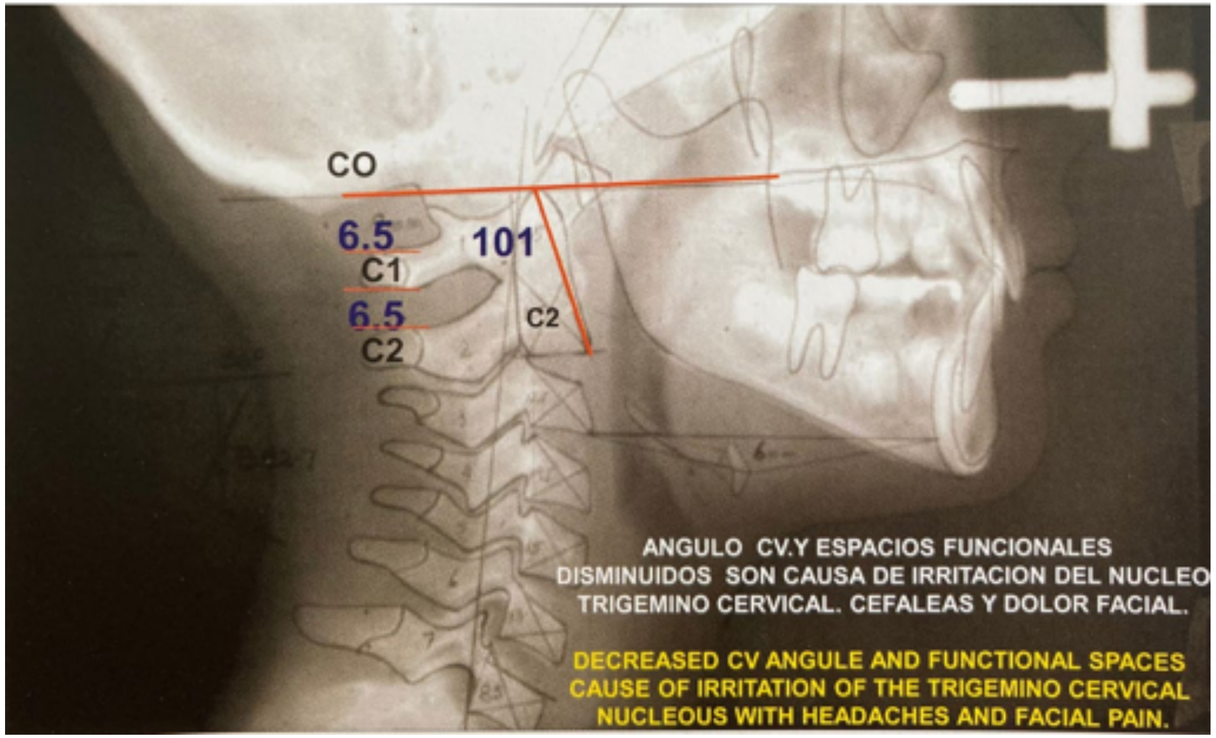
Cranial vertebral relationships

Cranium relationships

1. McGregors Line (Cranium to cervical)
2. Functional space



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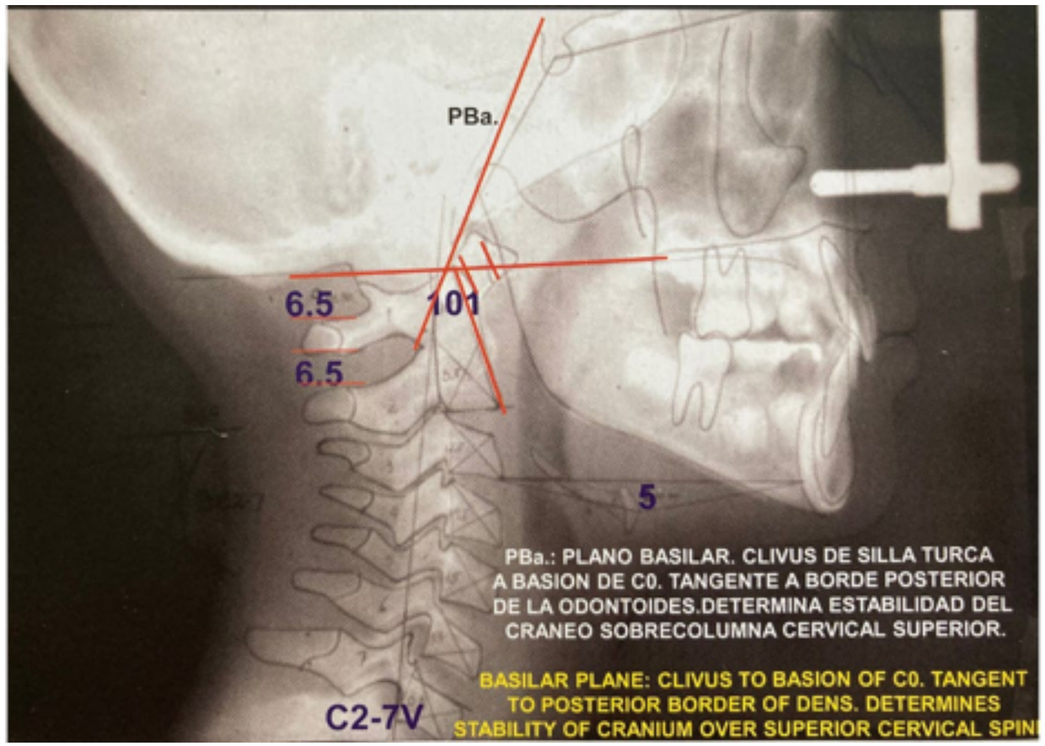
Cranial vertebral relationships

Cranium relationships

1. McGregors Line (Cranium to cervical)
2. Functional space
3. Sphenoid line - temporal bone upright

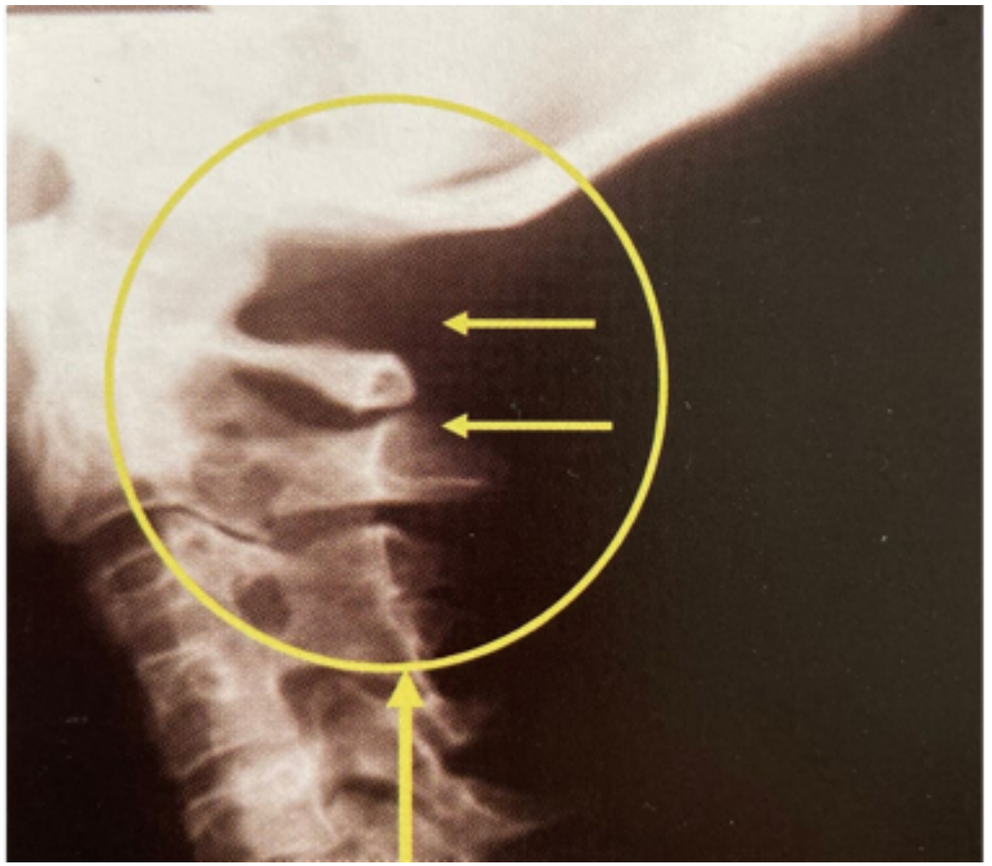


Prof. Dr Rocabado Seaton M, Atlas Clinico 2: Congruencia craneo-cervico mandibular. Aplicación práctica clínica., 2011

Cranial vertebral relationships

Atlantoaxial joint

Greater occipital nerve entrapment



Prof. Dr Rocabado Seaton M, Atlas Clinico 2: Congruencia craneo-cervico mandibular. Aplicación práctica clínica., 2011

Cranial
vertebral
relationships

3-Dimensional

- TMJ

- Bite

- Airway

- Sleep

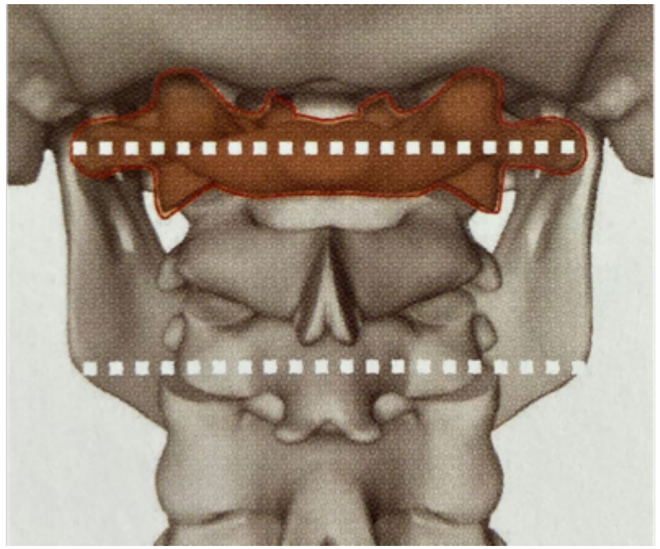
Cranial vertebral relationships

The paradox of movement

Coupling

- Cranium and cervical work in **opposites** (cranium extend then cervical flexes)

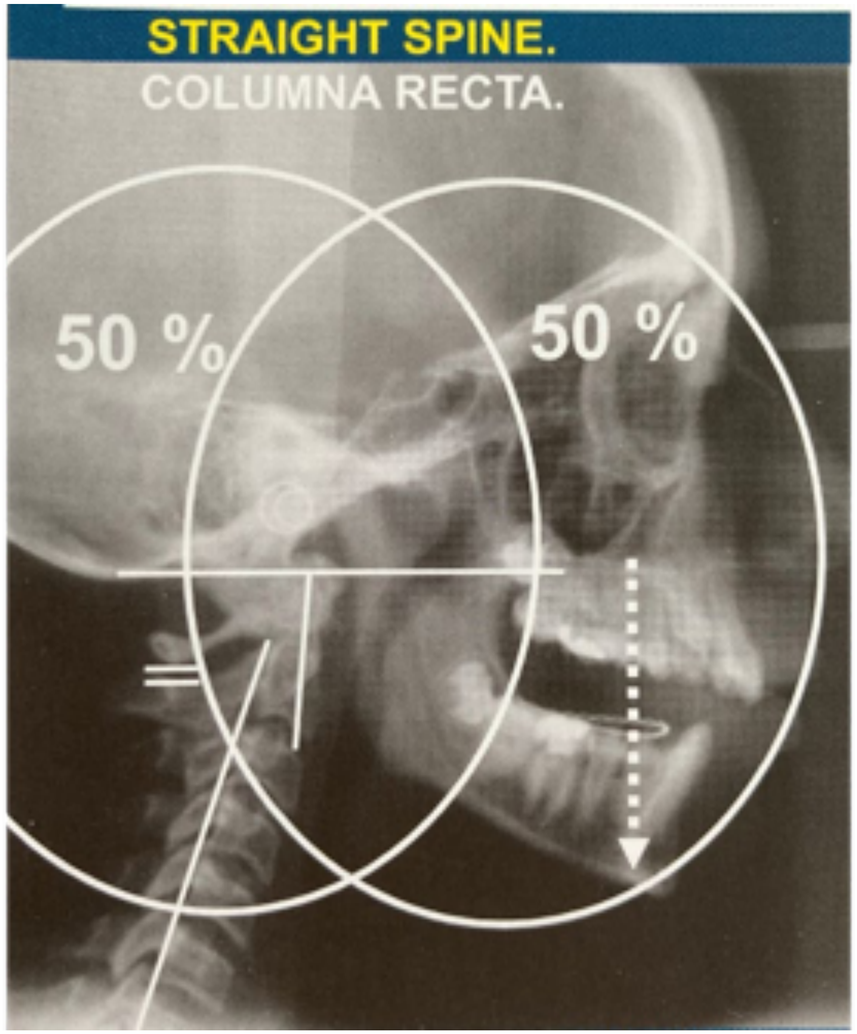
- Mandible moves **same** direction as cervical



Prof. Dr Rocabado Seaton M, Atlas Clinico 2: Congruencia craneo-cervico mandibular. Aplicación práctica clínica., 2011

Cranial vertebral relationships

Parafunction



Prof. Dr Rocabado Seaton M, Atlas Clinico 2: Congruencia craneo-cervico mandibular. Aplicación práctica clínica., 2011

Cranial
vertebral
relationships

The story of parafunction

Cranial vertebral relationships

Orthodontics

First cousins

Cranial vs pelvis

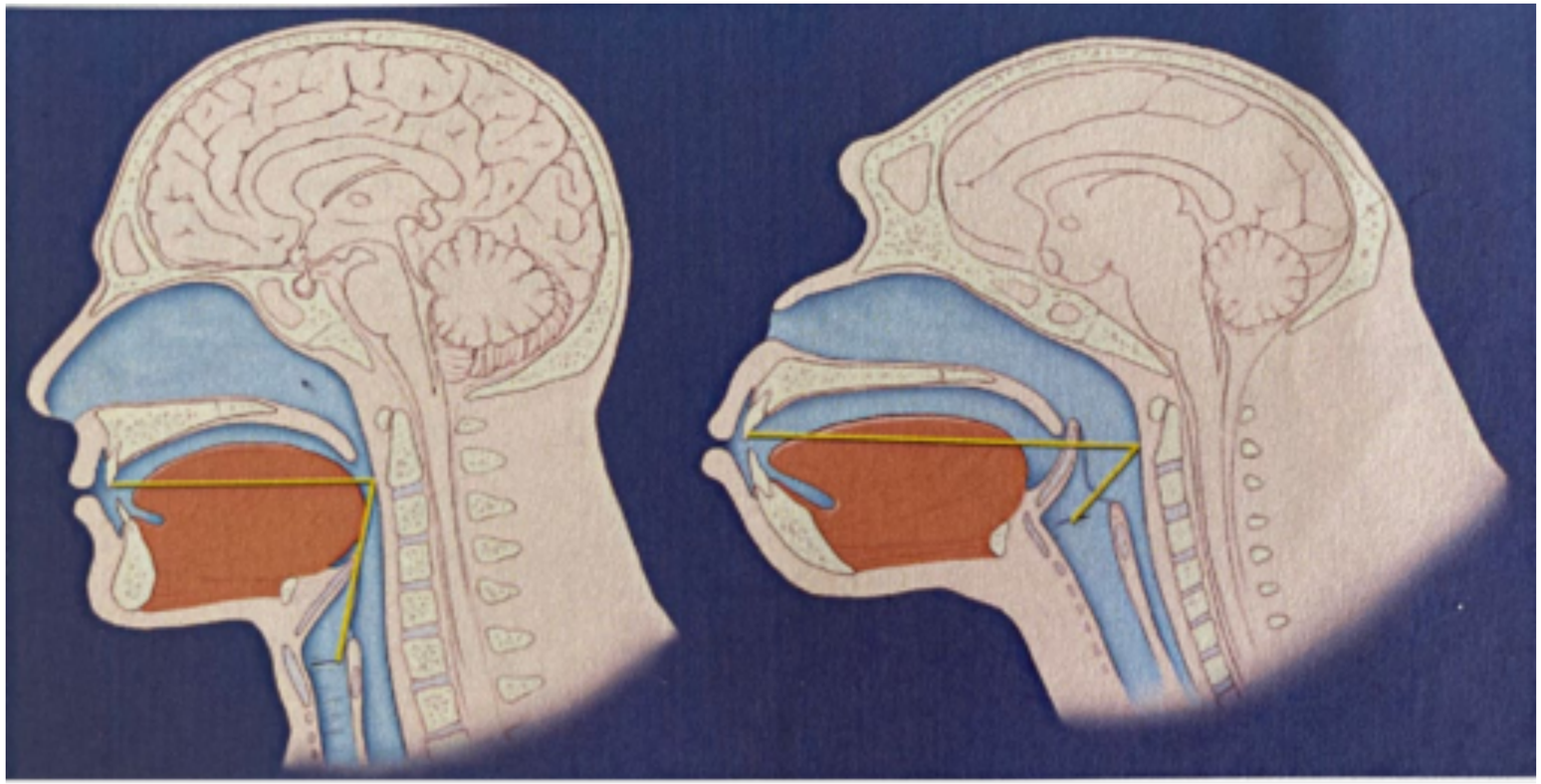
Cranial vertebral relationships

Examination

- Photos
- Nose
- Oral / tongue
- TMJ
- Swallow

Risk factors

Cranial vertebral relationships



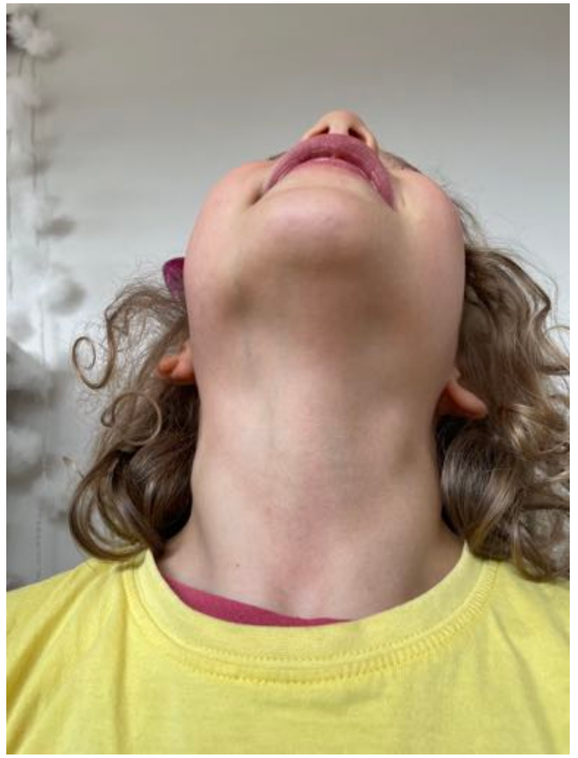
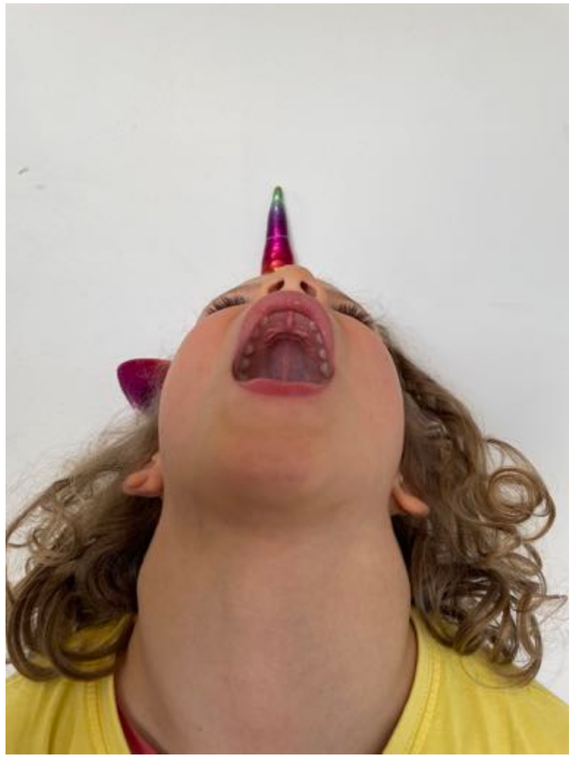
Davidson T.M., Sleep Medicine 4 (2003) 185-194, The Great Leap Forward: the anatomic basis for the acquisition of speech and obstructive sleep apnea

Cranial
vertebral
relationships

Examination

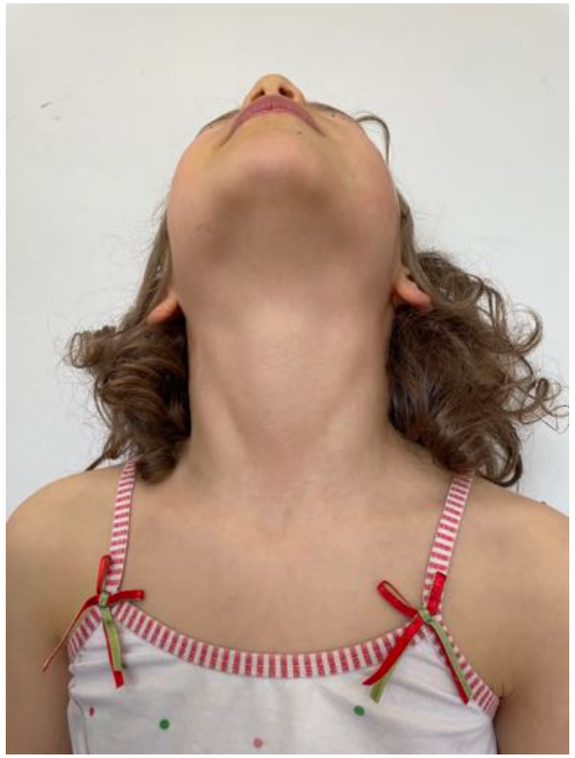
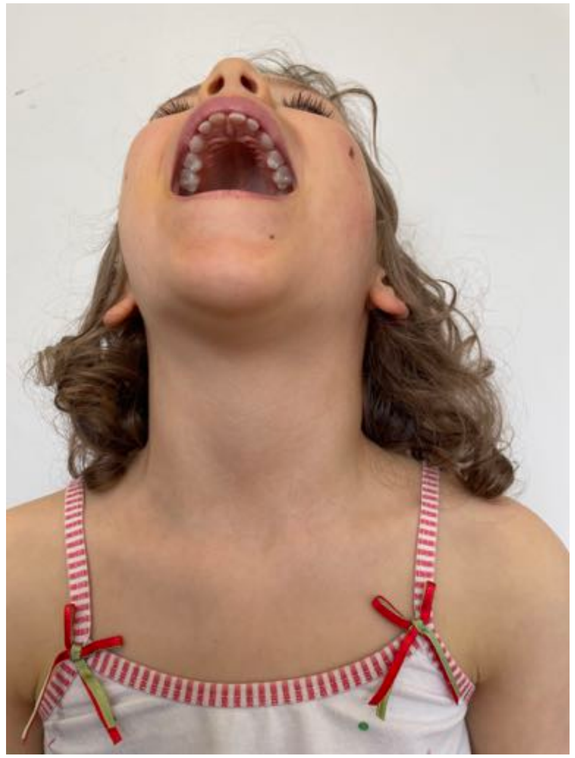
- Photos

Cranial vertebral relationships



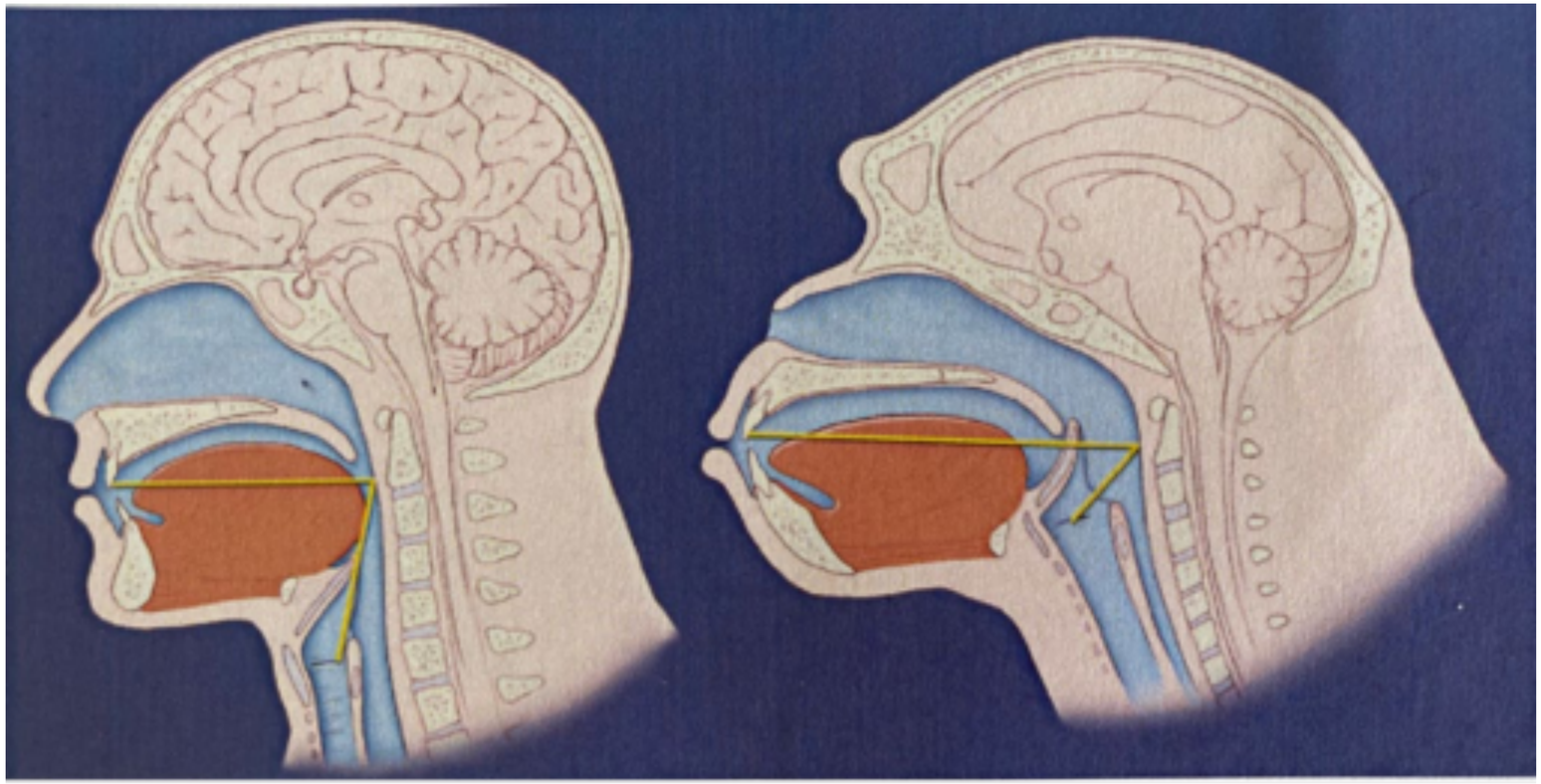
Cranial vertebral relationships



Risk factors

Cranial vertebral relationships



Davidson T.M., Sleep Medicine 4 (2003) 185-194, The Great Leap Forward: the anatomic basis for the acquisition of speech and obstructive sleep apnea

Cranial vertebral relationships

Examination

- Photos
- Nose —> Breatheright strip
- Oral / tongue —> Mouth tape
- TMJ —> Aqualiser + “69”
- Swallow

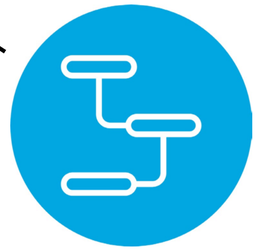
Sleep deep dive

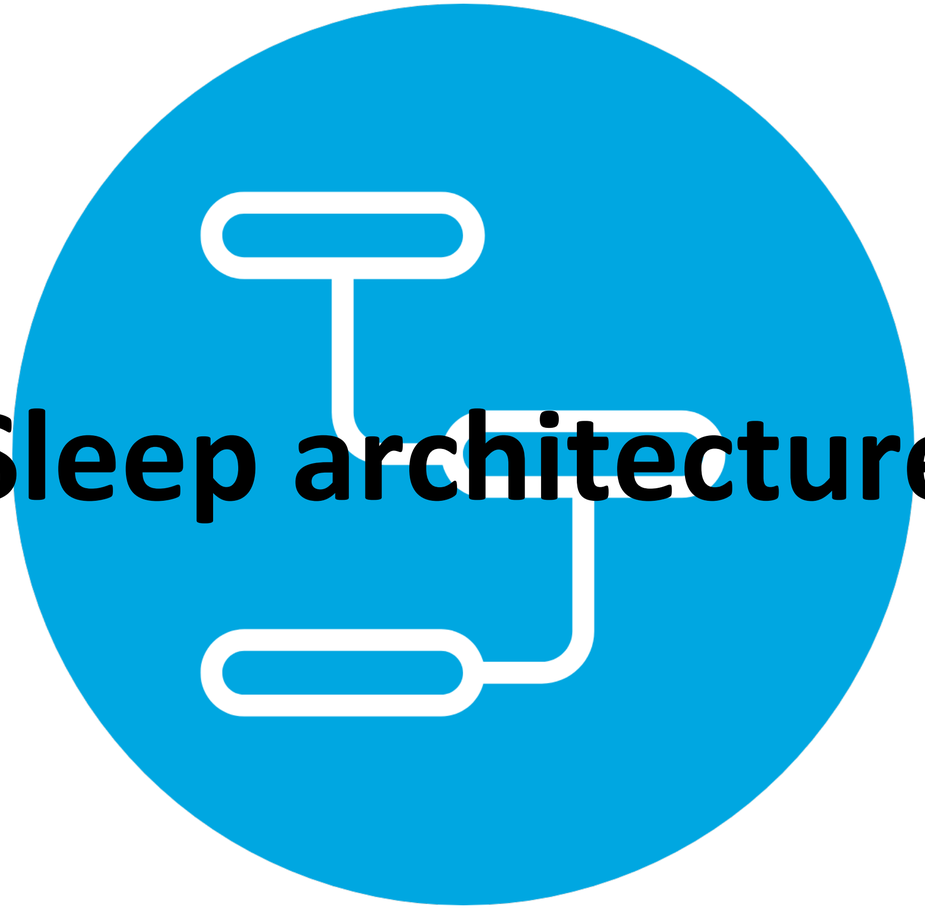
1.
The great leap forward

2.
Obstructive sleep apnoea

3.
Cranial vertebral relationships

4.
Sleep architecture



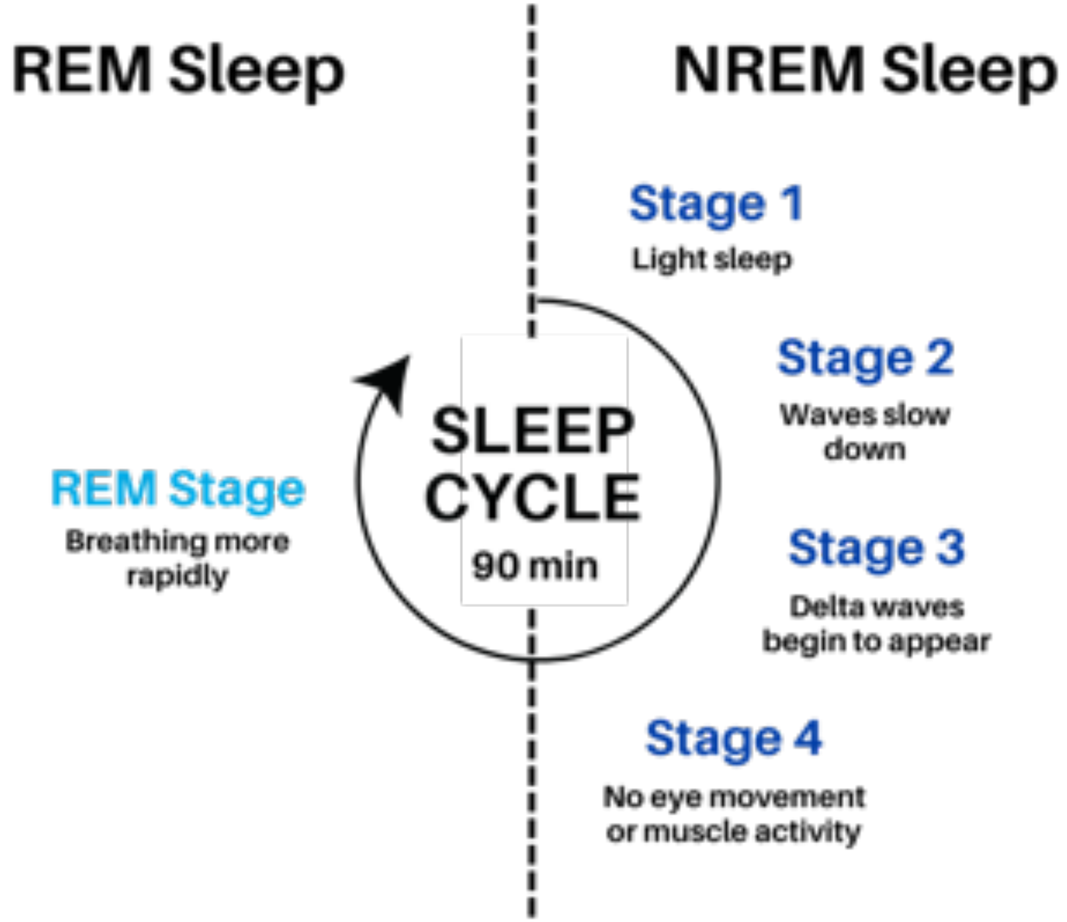


Sleep architecture


Cerebral war

Sleep architecture

The sleep cycle



Sleep
architecture

Decrease REM

- Cut sleep short
- 6 hours sleep
  - = 25% total sleep
  - = 75% of REM
- Dopaminergic pathways (reward)

Sleep
architecture

REM - dream sleep

- Breathing rate is variable
- No muscle tone (> risk of collapsibility)
- Poor response to low blood gasses
- Pain states cause arousal
- Emotional wellbeing
    - anxiety
    - depression

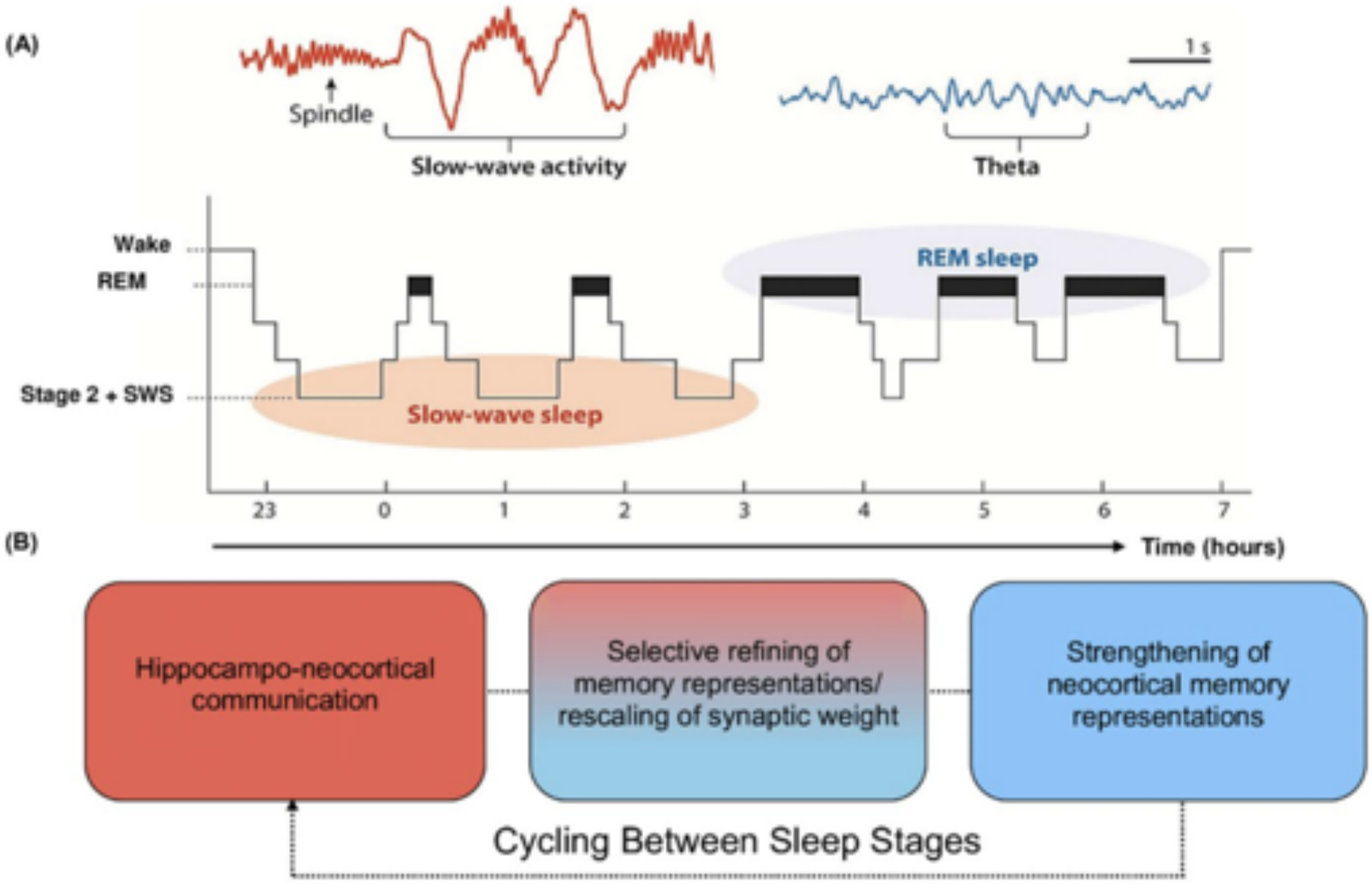
Sleep
architecture

NREM - deep sleep

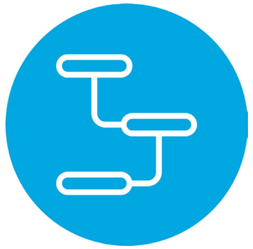
- Safest
- Stable
- Less apnea
- Lowest heart rate

NREM vs REM

Sleep architecture



Cross, Zachariah & Kohler, Mark & Schlesewsky, Matthias & Gaskell, Gareth & Bornkessel-Schlesewsky, Ina. (2017). Sleep-Dependent Memory Consolidation and Incremental Sentence Comprehension: Computational Dependencies during Language Learning as Revealed by Neuronal Oscillations.



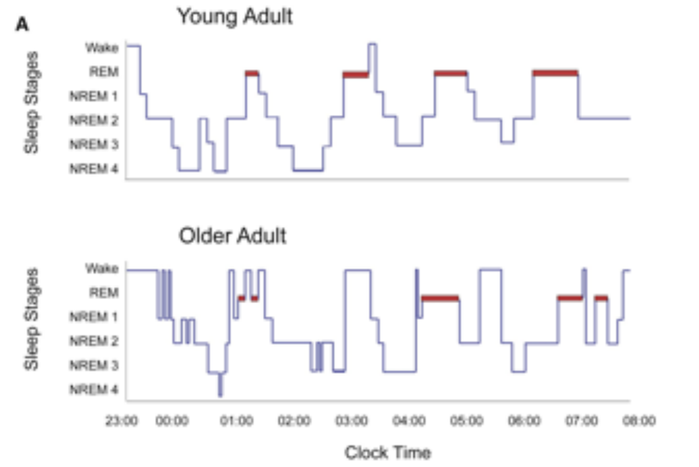
Sleep
architecture

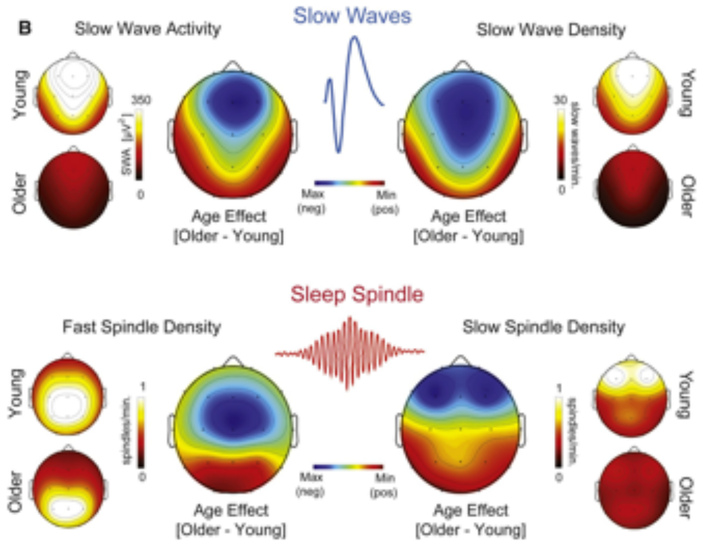
Macro Architecture

- 20 min to fall asleep
- Sleep time 7.5 hours
- Sleep cycle 90 min
- NREM 75% (50% light, 25% deep)
- Babies
  - lots of sleep cycles
  - lots of REM
- GERD, Gastro Esophageal Reflux Disease

Sleep architecture

Sleep hypnogram and age





Mander BA, Winer JR, Walker MP, Sleep and Human Aging, Neuron, Volume 94, Issue 1, 2017

Sleep
architecture

Micro Architecture

- Arousal and movement
  - Kick sheets

- Sleep position
  - Back vs side

Sleep
architecture

Alcohol and medication

- Antidepressants decrease REM
- Pain meds/stimulants/coffee decrease REM
- Sleep medication
- Kids on stimulants
  - > sleep fragmentation
  - > latency
  - < length
  - wake up early

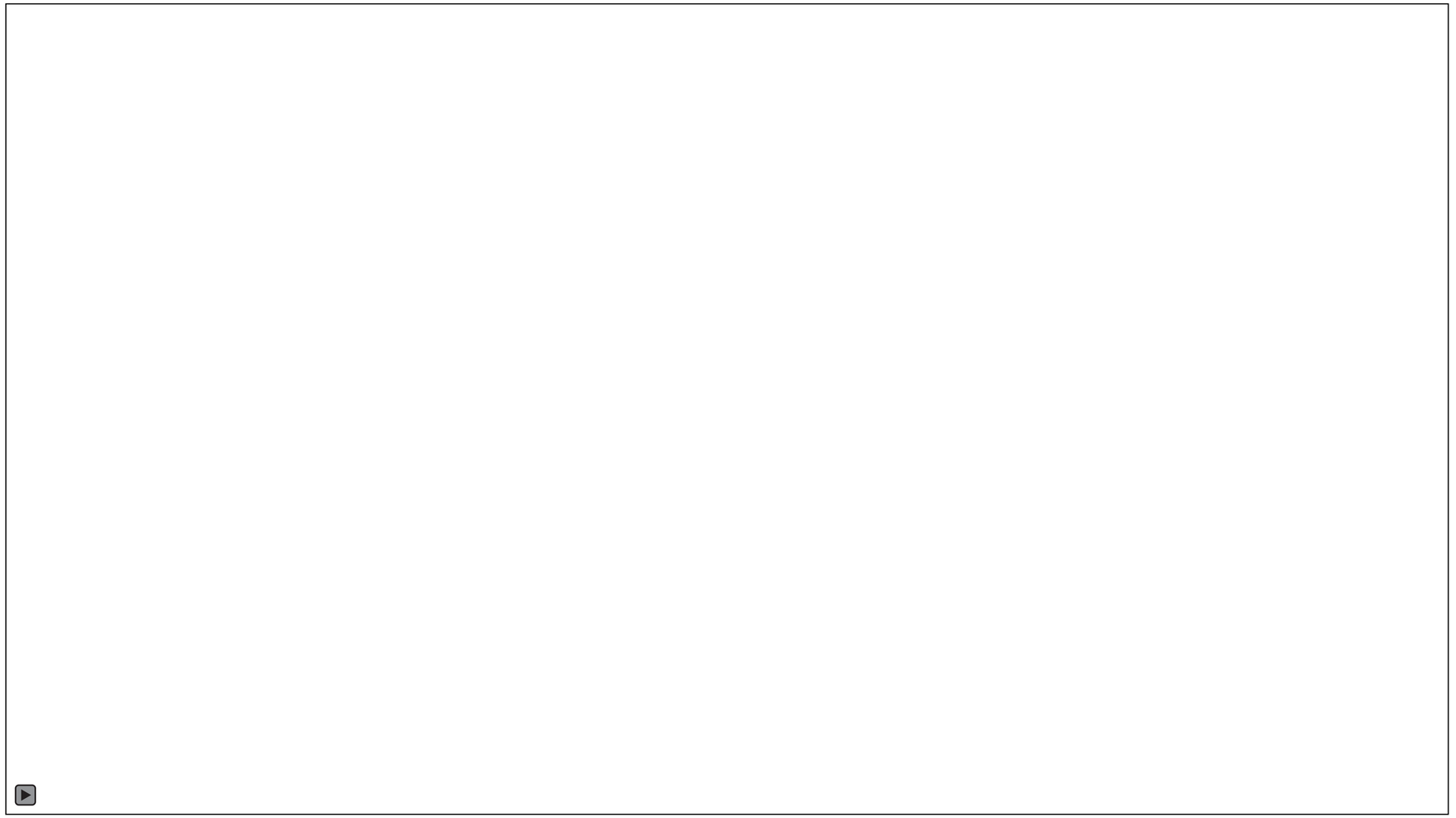
Sleep
architecture

Sleep studies

- Apnoea and hypo-apnoea events
- Measure of disturbance
- Hypoxia / arousal / fragmentation
- One figure vs whole story

Respiratory event

Sleep architecture



Sleep
architecture

What is a PSG

- PolySomnography Graph
- Measures:
  - Sleep medication
  - Eye movements
  - EMG - arousals
  - EEG - brain activity / sleep stages
  - ECG - heart rate / systolic PoP predictor
  - O2 saturation
  - Thoracic effort

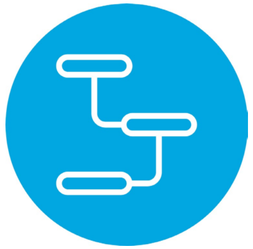
Sleep
architecture

What is a PSG

- Photo of PSG textbook

Sleep
architecture

What is a home sleep study



Sleep
architecture

Architecture summary

1. Amount of time in stages
2. Fragmentation
3. Awake during sleep
4. Leg movement (random or periodic)
5. Arousals
6. Circadian

Sleep
architecture

Treatment

- Sleep orthotic
  - Somnomed
  - Orentus
- CPAP
  - Continuous positive airway pressure
  - Blowing up a balloon
  - Poor compliance
- Lifestyle

Sleep deep dive

1.
The great leap forward

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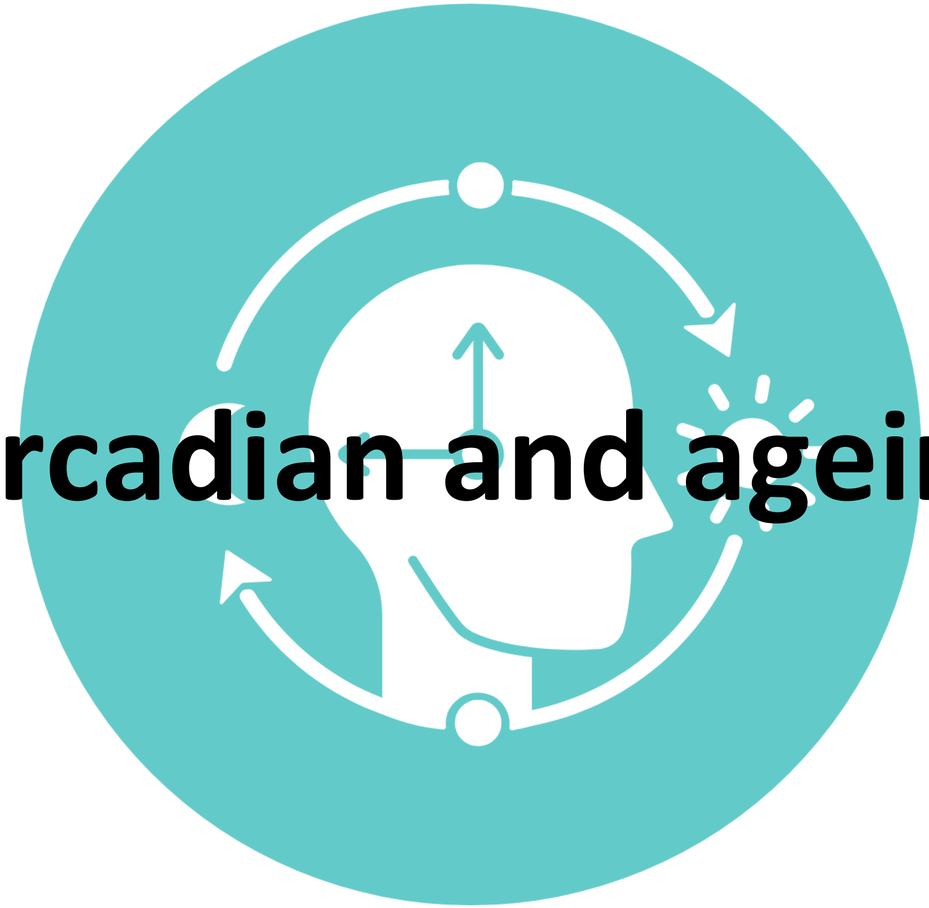
Obstructive sleep apnoea

3.
Cranial vertebral relationships

4.
Sleep architecture

5.
Circadian and ageing



Circadian and ageing

Circadian
and ageing

Have you ever wondered…

How does your body know
when to sleep?

How do you know if you’re getting
enough sleep?

ABC News online
24 April 2021

The cave experiment

15 people were put in a cave in France for 40 days and 40 nights

They had no sunlight. It was 10 degrees.

They had no technology.
No contact with family and friends.
No updates on the pandemic.

They relied on their biological clocks to know when to wake up, go to sleep and eat

ABC News online
24 April 2021

The cave experiment

The findings

Two-thirds of the participants expressed a desire to stay in the cave longer

Circadian
and ageing

Our body clock

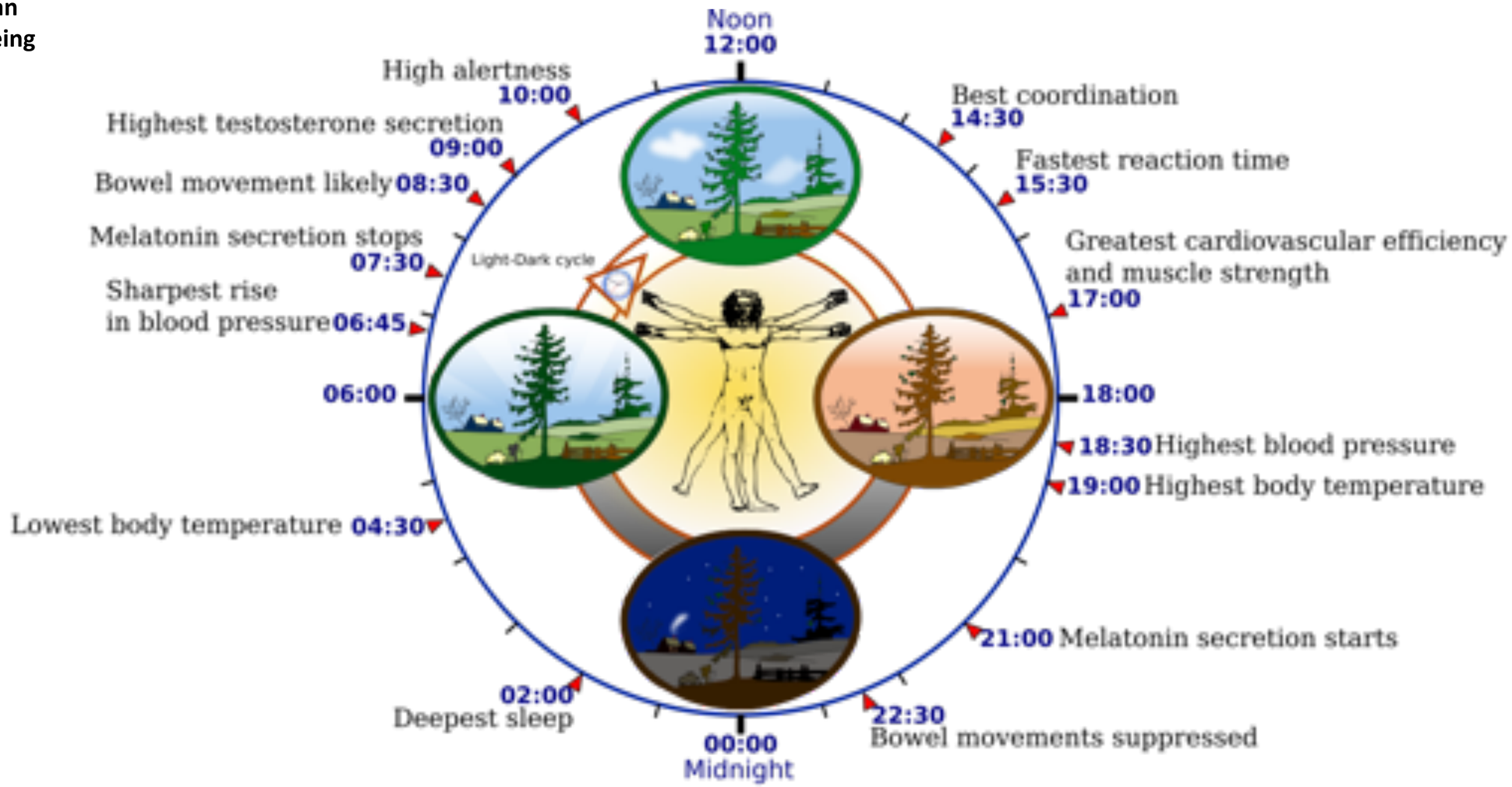
Our bodies keep their own time - Endogenous Clock

On average our clock runs at 24hr and 15min

Daylight is the most reliable repeating signal in our environment for us to set our clocks to

The circadian rhythm

Circadian and ageing



Circadian
and ageing

The circadian rhythm

Your lowest body temperature is at 4am

There are hormone changes over a 24hr cycle

There are changes in behaviour

Your fastest reaction time is later in the day

Circadian
and ageing

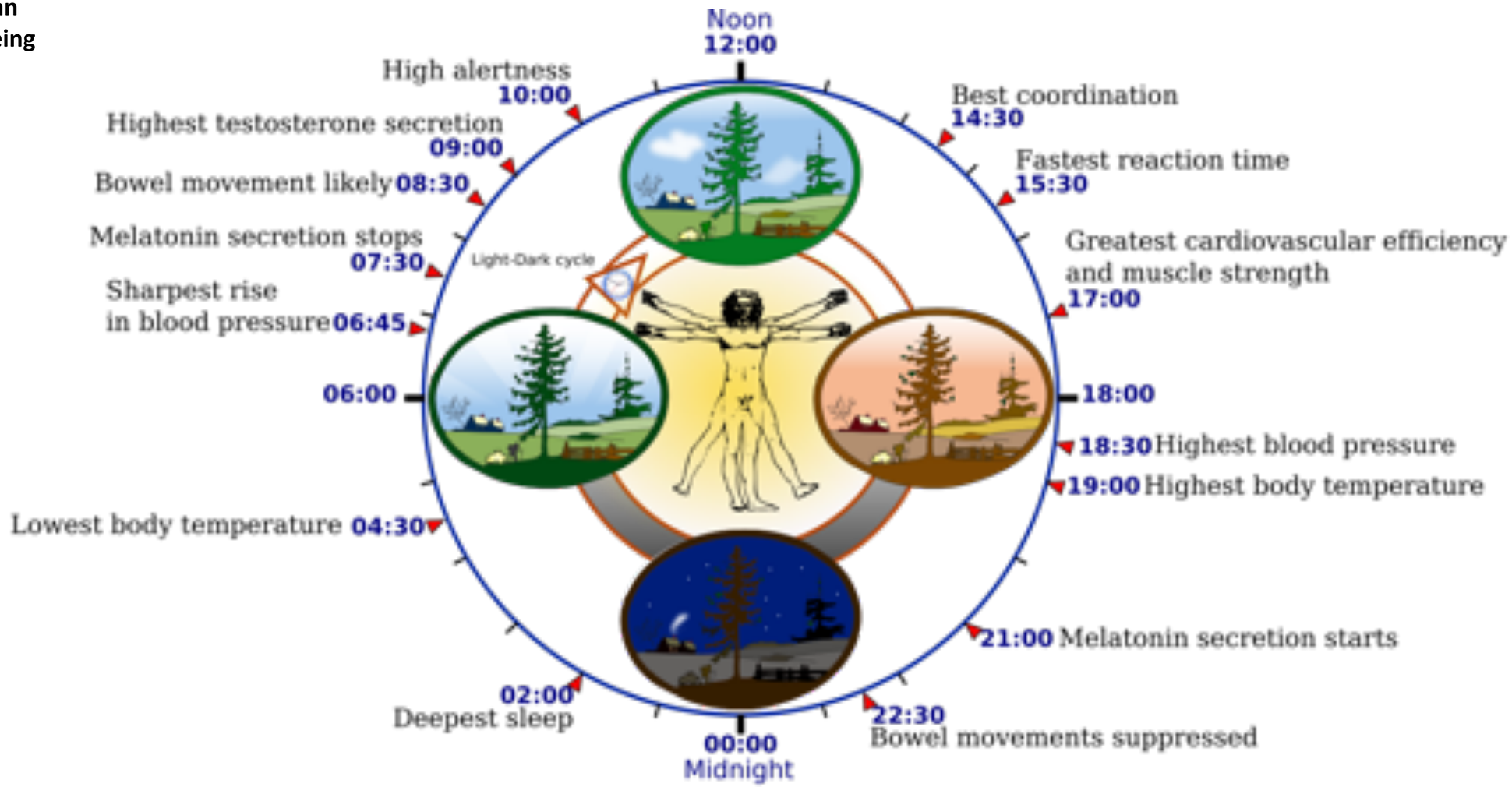
The circadian rhythm

Your sharpest rise in blood pressure occurs just before you wake in the morning

This works with timing of the regulation of every cell in our bodies

The circadian rhythm

Circadian and ageing



Circadian
and ageing

The circadian rhythm

Hesman Saey T, Cunningham A, Cracking the body clock code wins trio a Nobel Prize, www.sciencenews.org, October 2, 2017


It’s jazz baby

Circadian
and ageing

The circadian rhythm

"The jazz edition"

When it comes to Circadian Rhythm we can't jazz it up because we knock our bodies out of synch

If you turned on your technology in the middle of the night you shut down your melatonin secretion.

Circadian
and ageing

The circadian rhythm

"The jazz edition"

If you travel overseas this is called jet-lag.

New time zone? Your SCN can only readjust about 1 hour per 24hr cycle.

How about Social Jet-lag?
Mon - Fri awake at 6am
Sat - Sun awake at 9am
That's a 3 hour time delay.

Circadian
and ageing

Physiological strain

Learning and memory deficiency

Type 2 diabetes

How we process pain

Cancers

Circadian
and ageing

The Wolverine diet

Meslow S, GQ Online, Why Hugh Jackman’s Wolverine Is the Best Superhero Performance Ever March 6, 2017 - via 20th Century Fox

Circadian
and ageing

Ageing

In Australia 20% of the population is
> than 65 years

57% of these report difficulty staying asleep

> age = < light exposure = < activity outdoor
= live in the dark = cataract

Poor circadian rhythm

Circadian
and ageing

Chronic sleep deficiency

< Alertness

< Energy

< Performance

= Pathological ageing

Circadian
and ageing

Insufficient sleep

> Oxidative stress

> Inflammation

> Neurotoxins

Vascular disorders

Insuline resistance

Alzheimer

Circadian
and ageing

Neurodegenerative conditions

In all these conditions the disruption of sleep is exaggerated

Sleep becomes distributed over 24hrs

60% of people with Alzheimer have at least 1 associated sleep disorder
(most of them insomnia)

Circadian
and ageing

Risks factors of sleep disturbances

- Insomnia predicts AD
- SDB predicts AD
- Sleep fragmentation predicts AD
- They play distinct roles in dementia pathology

Circadian
and ageing

Alzheimer

- Amyloid and Tau protein
- < sleep = < flushing = > amyloid build up
- Plaques in the brain
- Plaques kill surrounding neurons
- They affects some parts of the brain
- Effects on the MPFC

Circadian
and ageing

Medial prefrontal cortex

- CEO of the brain
- Epicentre for generating NREM (deep) Sleep
- Impacted during chiropractic adjustments

Questions you can ask

Are you forgetful?

= memory problems

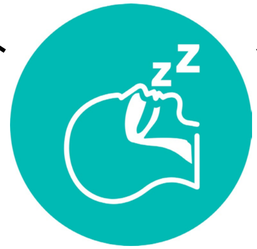
Do you wake refreshed?

= compromised sleep

Sleep deep dive

1.
The great leap forward

2.
Obstructive sleep apnoea



3.
Cranial vertebral relationships

4.
Sleep architecture

5.
Circadian and ageing

6.
The spell of sleep

The spell of sleep

The spell
of sleep

3 sleep hormones

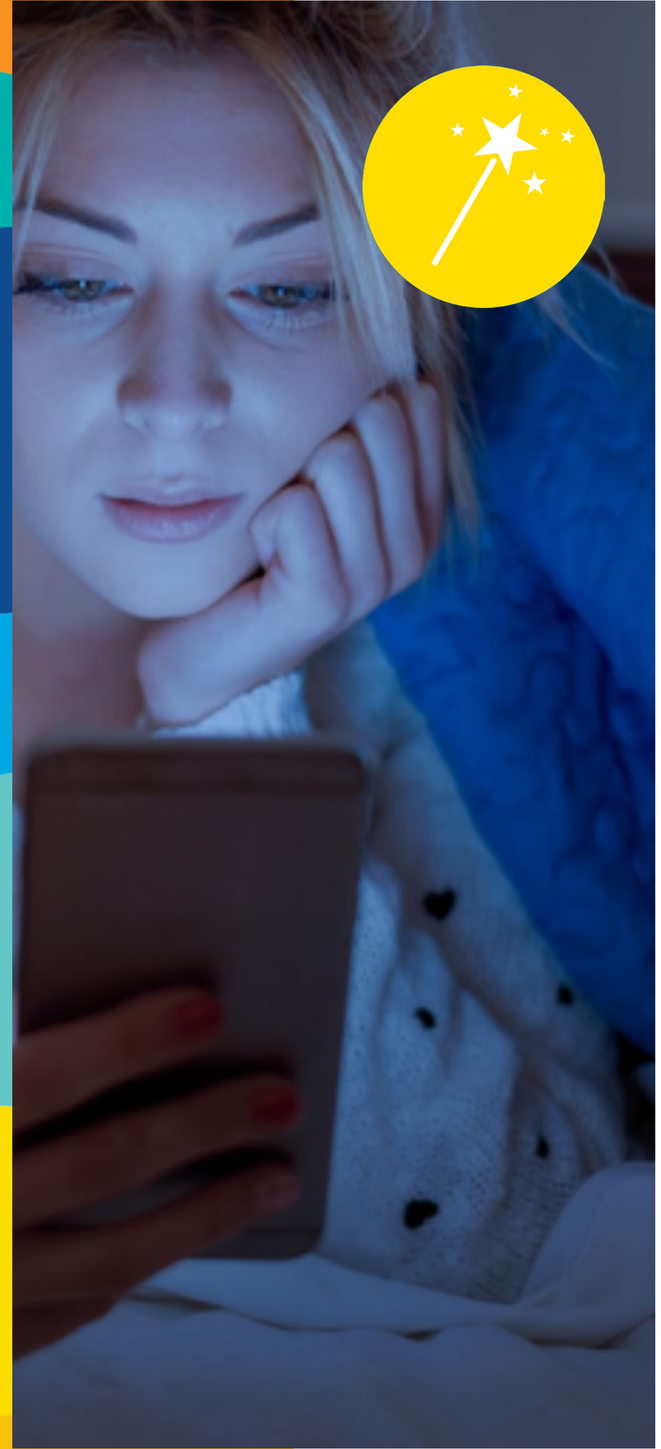
1. Melatonin
2. Adenosine
3. Cortisol

Melatonin

At **dusk**, melatonin is the hormone that tells the brain “it’s time to go to sleep”

At **dawn**, even with our eyelids closed, melatonin is a break pedal that tells your brain “you have reached the finish line”

Daylight is the most reliable repeating signal in our environment for us to set our internal circadian clock to.

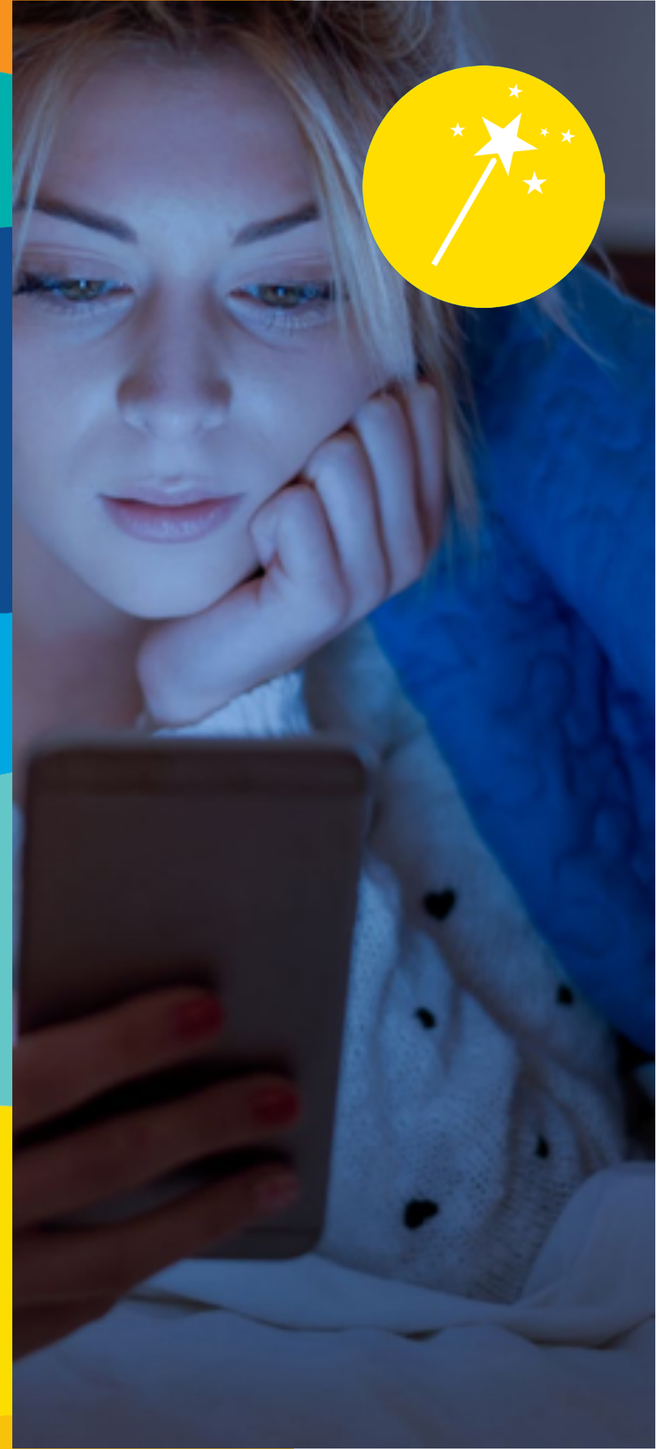


Melatonin - the iPad effect

50% drop in melatonin secretion

Melatonin peak will present 3hrs later

Sleep is mistimed so the REM sleep decreases

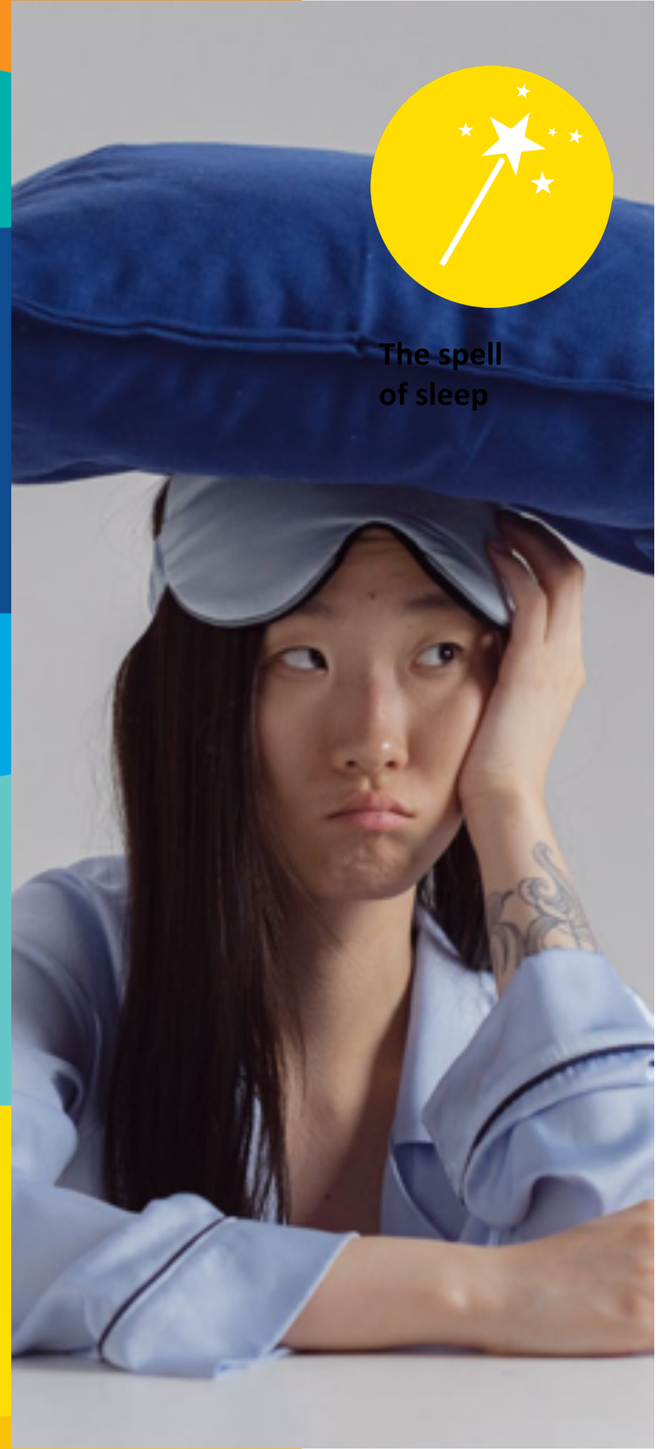


Melatonin - the iPad effect

2-3 days recovery time

Trigger for insomnia and anxiety

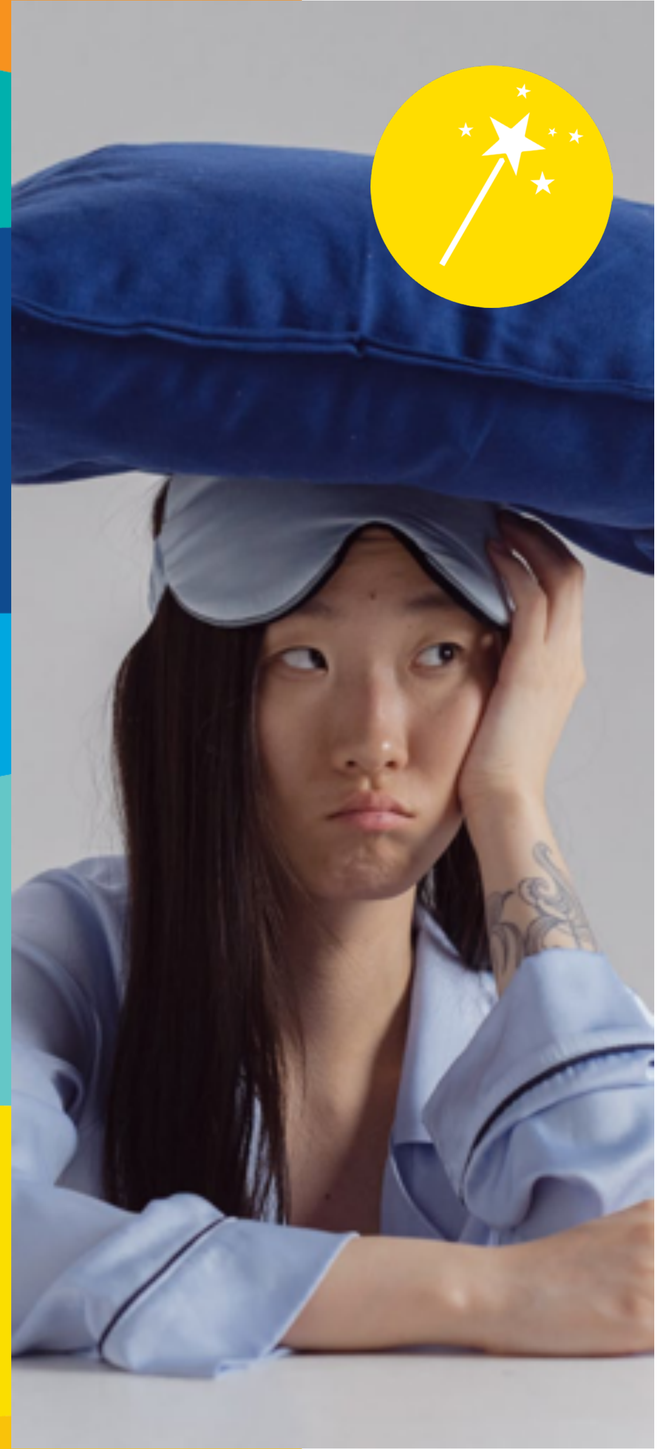
The brain associates the bedroom as the place to be awake



Adenosine

Adenosine is the sleepiness hormone.

= Sleep pressure signal
= Your desire to sleep

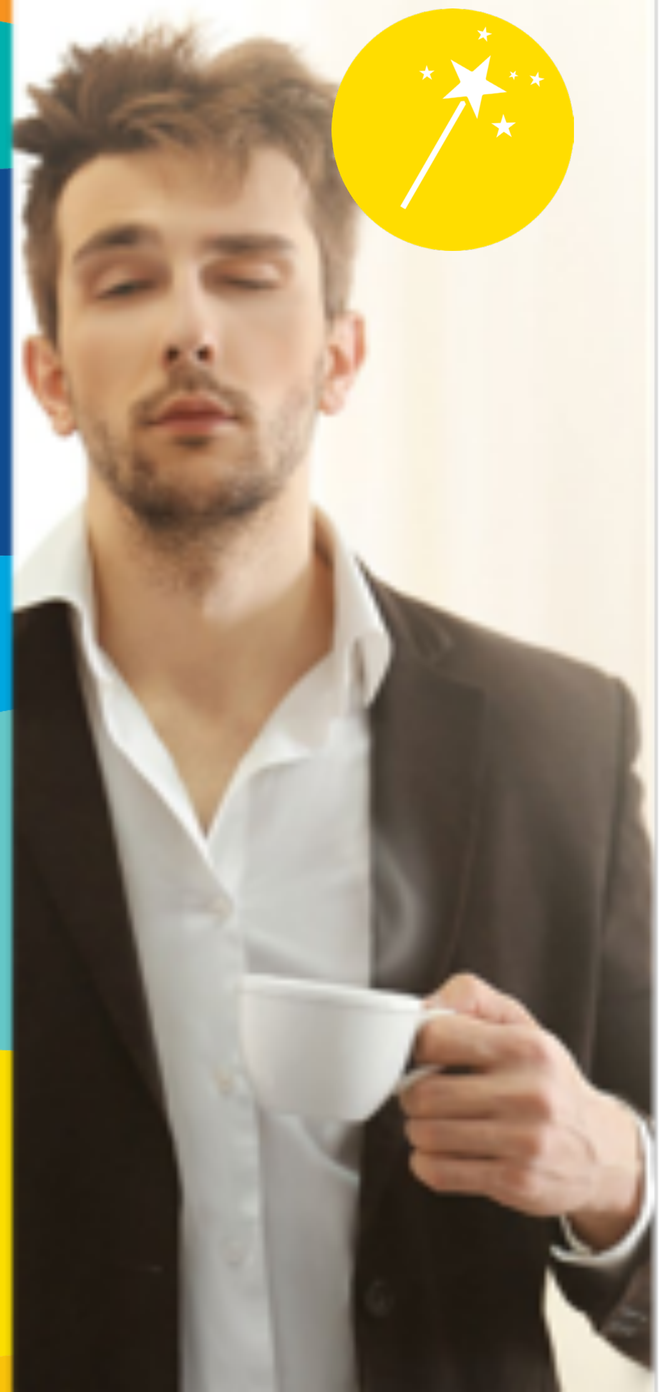


Adenosine

Sleep breaks down adenosine – takes 8hrs

If adenosine is still in your system you wake tired and rusty

You carry the sleep load (sleep pressure) into the next day

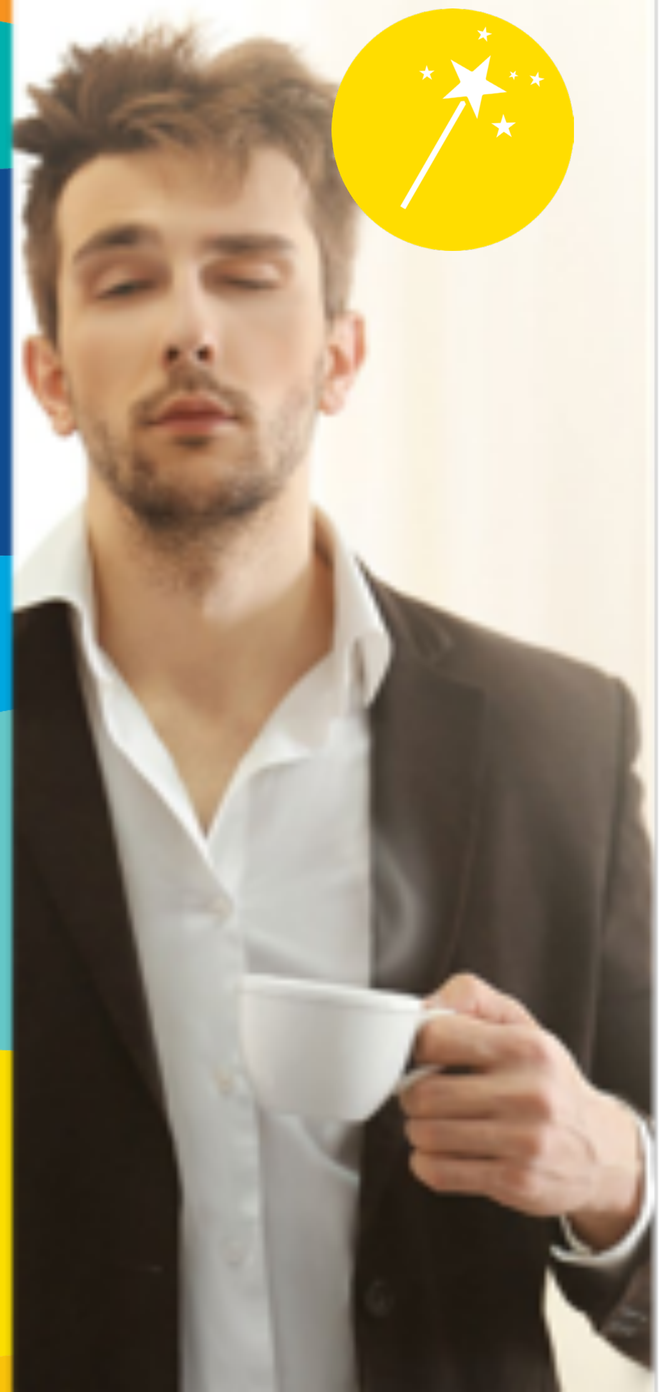


Adenosine - the coffee effect

Coffee is the 2nd most traded commodity in the world after oil

Caffeine attacks and blocks adenosine receptors masking sleep

It takes 5-7hrs for caffeine to break down in our system

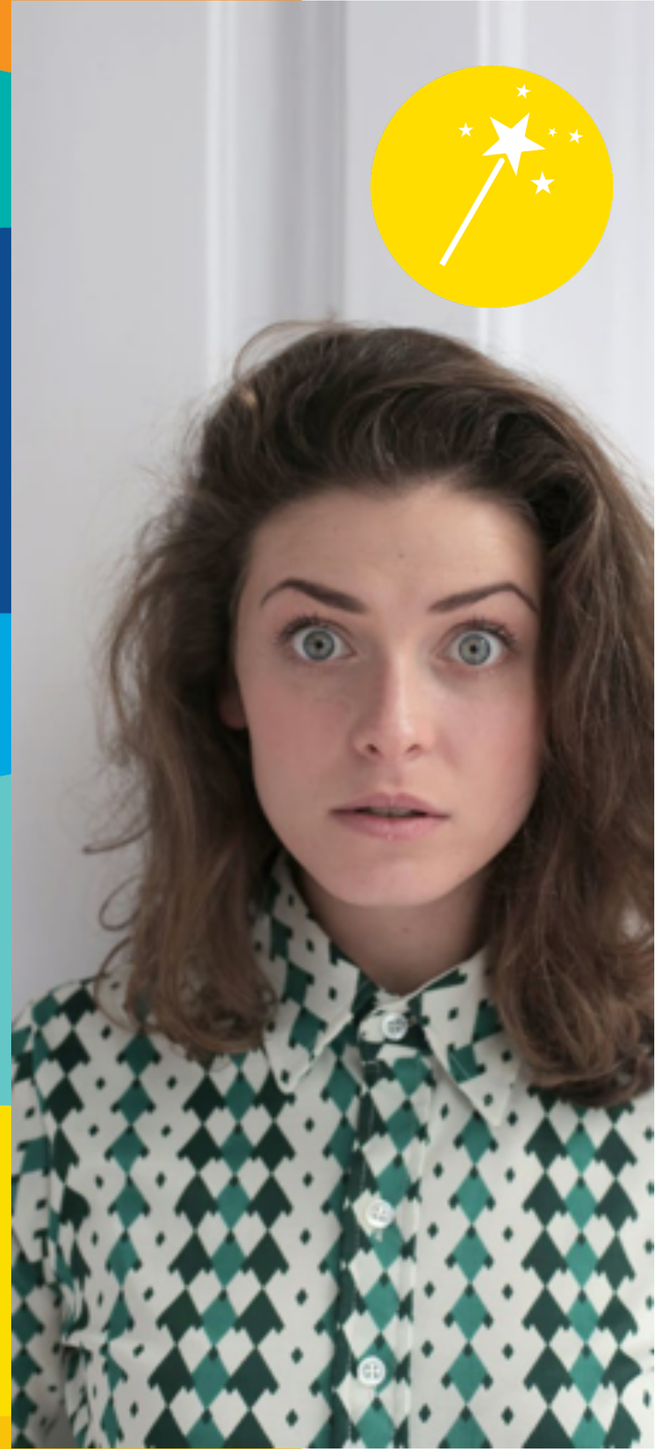


Adenosine - the coffee effect

Caffeine is found in:

- Dark Chocolate
- Ice cream
- Weight loss pills
- Pain killers

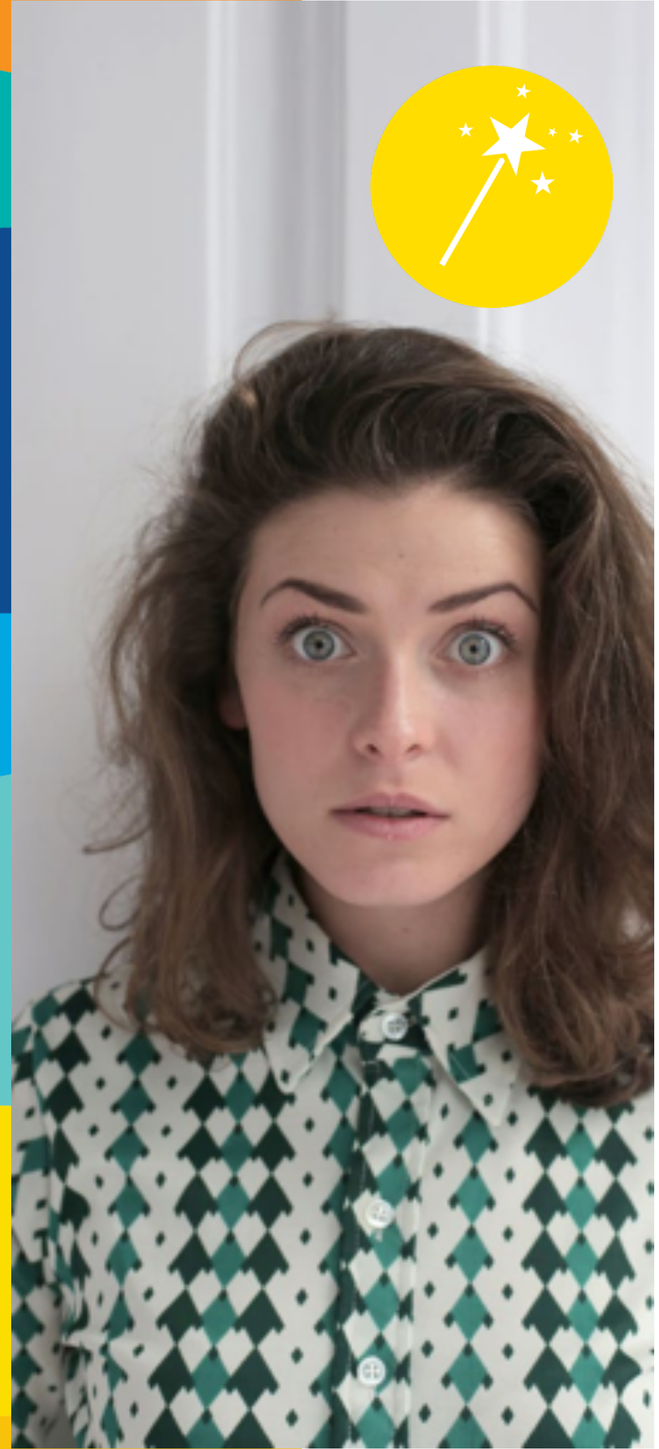
Decaf does not mean no caffeine



Cortisol

Cortisol is the stress hormone.

= helps you stay awake



Cortisol spikes

Cortisol spikes are biomarkers for insomnia

Late evening cortisol spike (2nd wind)
= sleep onset insomnia

Cortisol spike in the middle of the night
= sleep maintenance insomnia

The spell
of sleep

Bedroom routine

Lighting vs cave dark

Street lights - hall lights - alarm clocks

Technology rules

Activities

The bedroom is for sleeping and sex

“You wouldn’t sit at a table
Waiting to get hungry.”

Matthew Walker

The spell
of sleep

What you can ask?

“How long does it take you to fall asleep?”
(Sleep onset insomnia)

“How long does it take you to fall back to sleep?”
(Sleep maintenance insomnia)

Sleep deep dive

1.
The great leap forward

2.
Obstructive sleep apnoea

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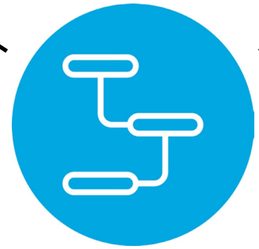
Sleep architecture



5.
Circadian and ageing

6.
The spell of sleep

7.
Sleep hygiene

Sleep hygiene

Sleep
higiene

The 4 keys to sleep hygiene

1. Regularity
2. Continuity
3. Quantity
4. Quality

Sleep
higiene

The 4 keys to sleep hygiene

1. **Regularity**

   Consistency of your sleep ritual

2. **Continuity**

   Is your sleep fragmented?

   Are you waking in the night?

   Do you fall back asleep?

Sleep
higiene

The 4 keys to sleep hygiene

3. **Quantity**

   How much sleep are you getting?

   How much of the different stages?

4. **Quality**

   What is your sleep architecture?

Just because you slept 8hrs doesn’t mean that you had a good night sleep.

Sleep deep dive

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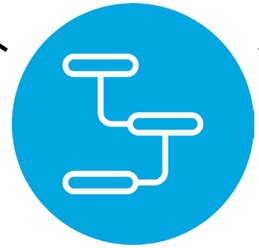

5.
Circadian and ageing

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The spell of sleep

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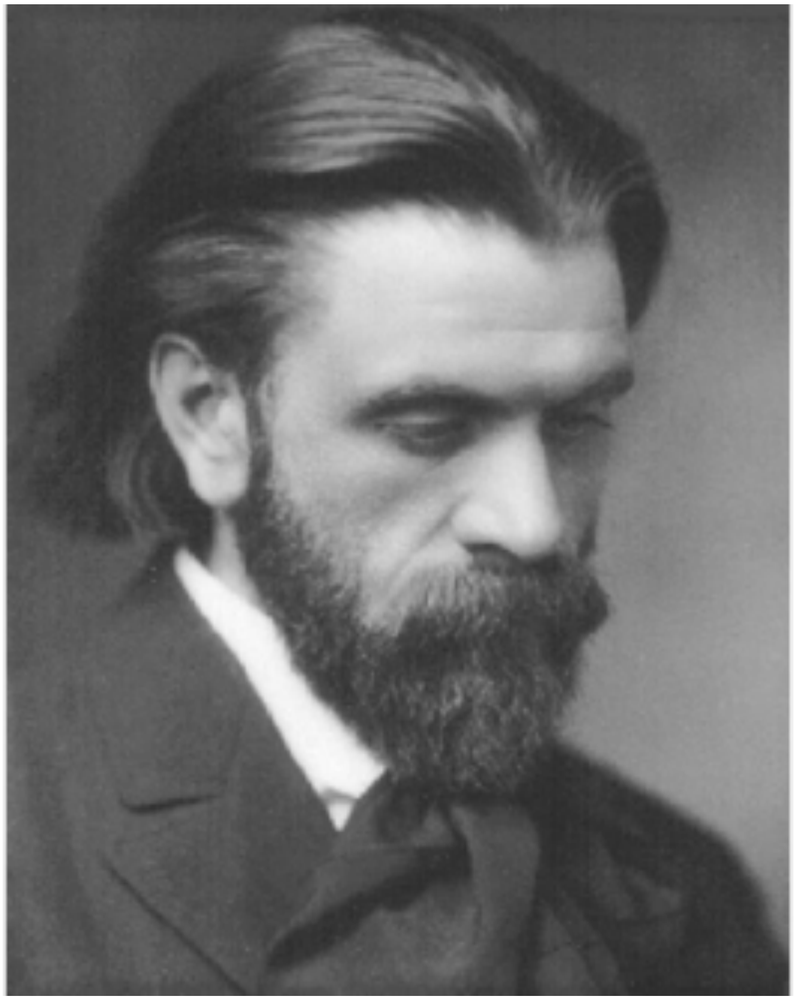
Your challenge

Monday morning
start a conversation

When was the last time you woke up feeling refreshed?

The big idea - Dr BJ Palmer



https://www.chiropractic.org/about-us/our-history/

The story of accumulation

Small things

become

Our habits

become

Our lifestyle

Remember the stats?

By the time you are 65:

8 out of 10 people live with 1 illness

7 out of 10 people live with 2 illnesses

This is what we're working with!

Remember the stats?

Sleep apnoea is as common
as diabetes.

50% of men 40-85 yrs

23% of women

Increasing over the past two decades

This is what we're working with!


The brain two gears:
Day time
Night time

“A slip on the snowy sidewalk,
in winter, is a small thing.
It happens to millions.
A fall from a ladder, in the summer,
is a small thing.”

B J Palmer

Why shave?

Who are the best people to deal with sleep?

Thank You

Brett Lillie