Lecture 6

The Psychology of Sitting

Sitting and Psychology

- What has sitting got to do with psychology ?

- By psychology we mean the following:
  - The mind
  - Our Thoughts
  - Our Emotions
  - Brain waves
  - Our Physiological Arousal: the level of arousal of our autonomic nervous system

What is the Cartesian Split

- Aka as Cartesian dualism

- One of the deepest and most lasting legacies of Descartes' philosophy is his thesis that mind and body are really distinct—a thesis now called "mind-body dualism." He reaches this conclusion by arguing that the nature of the mind (that is, a thinking, non-extended thing) is completely different from that of the body (that is, an extended, non-thinking thing), and therefore it is possible for one to exist without the other.

What is embodied cognition?

- "the idea that the mind is not only connected to the body but that the body influences the mind," *(scientific american)*

- https://blogs.scientificamerican.com/guest-blog/a-brief-guide-to-embodied-cognition-why-you-are-not-your-brain/

- Reference : Lakoff, G., Johnson, M (1980) Metaphors We Live By. *The University of Chicago Press.* Chicago

Examples of the body influencing the mind

- Thinking about the future caused participants to lean slightly forward while thinking about the past caused participants to lean slightly backwards. *Future is Ahead*
- Squeezing a soft ball influenced subjects to perceive gender neutral faces as female while squeezing a hard ball influenced subjects to perceive gender neutral faces as male. *Female is Soft*
- Those who held heavier clipboards judged currencies to be more valuable and their opinions and leaders to be more important. *Important is Heavy*.
- Subjects asked to think about a moral transgression like adultery or cheating on a test were more likely to request an antiseptic cloth after the experiment than those who had thought about good deeds. *Morality is Purity*

- *Lakoff, G., Johnson, M. (1980) Metaphors WE Live By. The University of Chicago Press; Chicago*

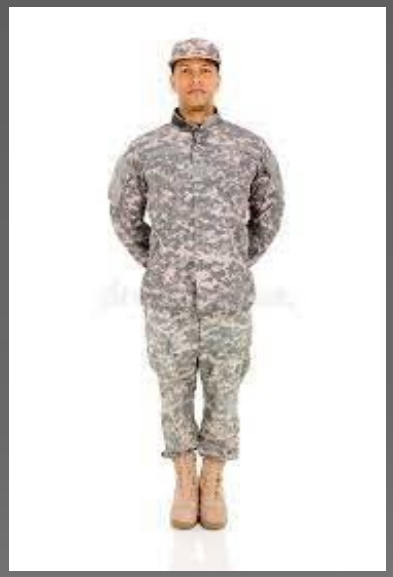
What can we conclude?

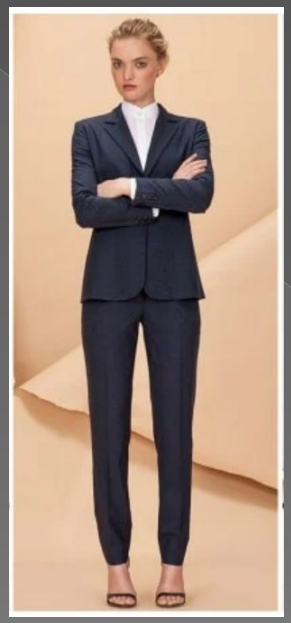
- Obvious – Mind influences the body
  - The Florida Experiment
  - Moods and mental states are synonymous with posture
  - Brain waves – beta vs alpha state
- Not so obvious – body influences the mind
  - Feel good factor after exercise
  - Peripatetic Practice – going for a walk
  - Power Posing

What is power posing

- introduced by Amy Cuddy in a Ted Talk, and now a best seller called Presence
- Claims that adopting power posing (think wonder woman / superman) leads to the following:
  - Feeling powerful
  - Feeling more assertive
  - Hormonal changes
- Most of these effects have been debunked and are not true, but not all!

Common applications of power posing





What can we learn from ..

- Walking in high heels
- Calligraphy
- Tai chi
- Karate
- Riding a motorbike
- Sitting posture

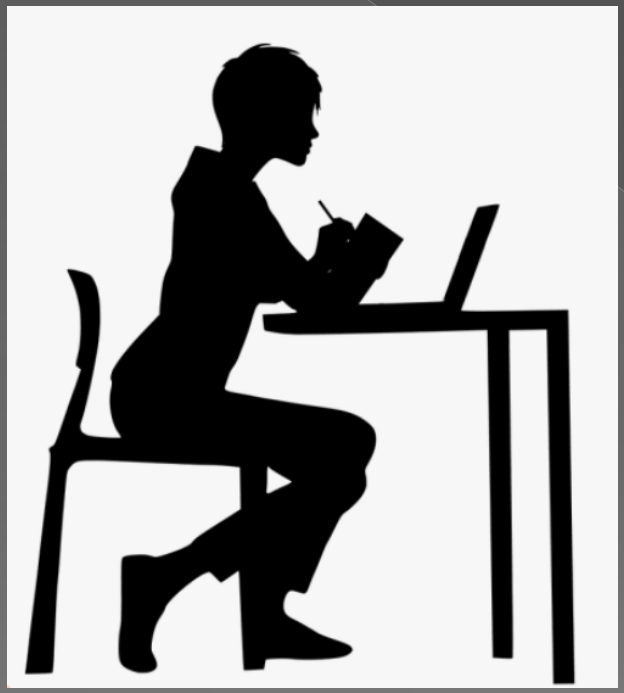
What is Proprioception?

- Proprioception, otherwise known as kinesthesia, is your body's ability to sense movement, action, and location. It's present in every muscle movement you have.
- Proprioception results from sensory receptors in your nervous system and body. Most of these receptors are located in your muscles, joints, and tendons.
- *https://www.webmd.com/brain/what-is-proprioception*

The influence of posture

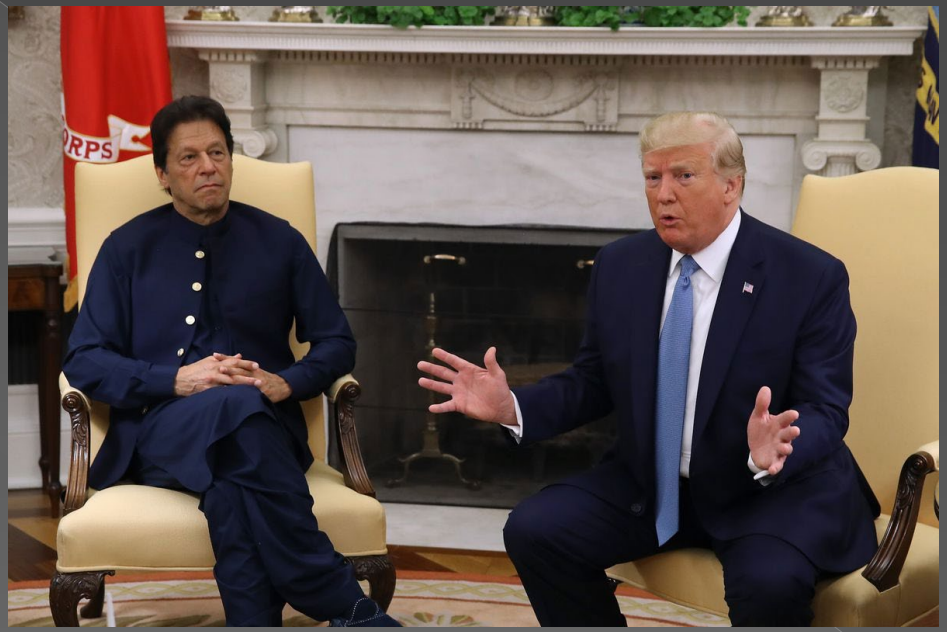
- By adopting a specific posture we could also be adopting the specific mindset that goes with that posture.
- However, our posture can also be the result of the prevailing mood and mind set.
- When the body and mind are pitched against each other, it seems that the most persistent of the two will subjugate the other.

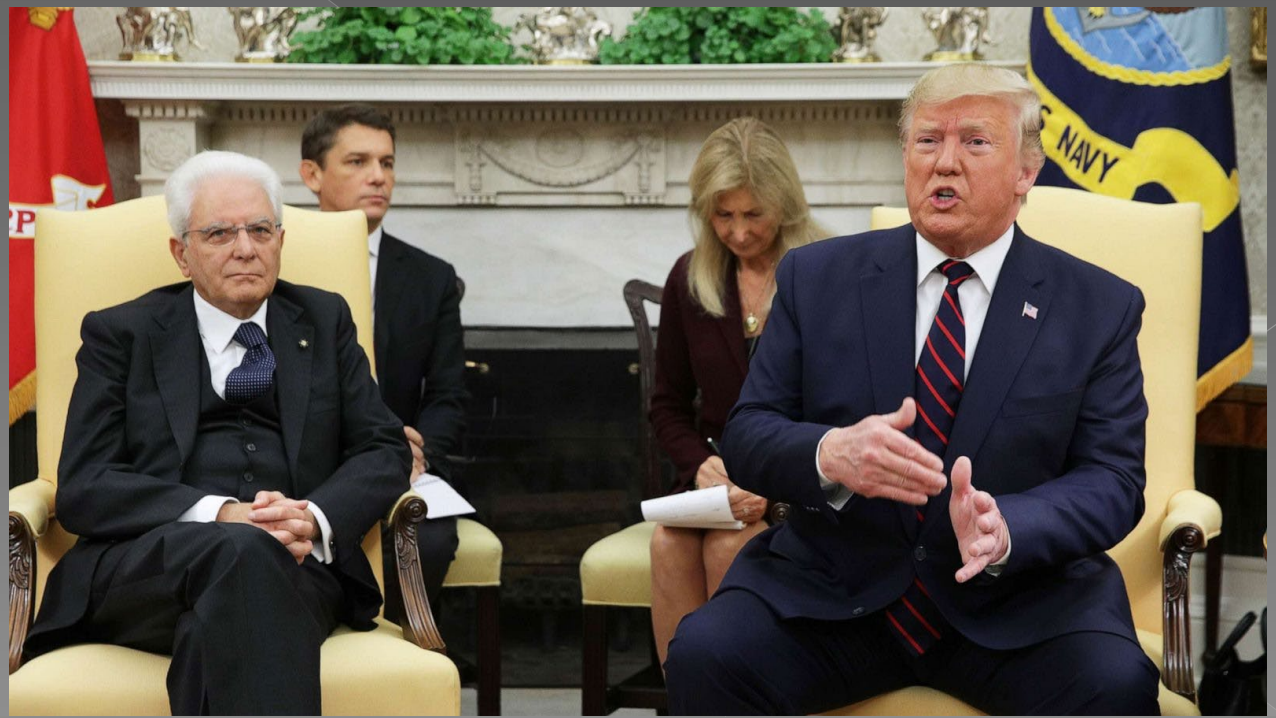
The two main sitting styles



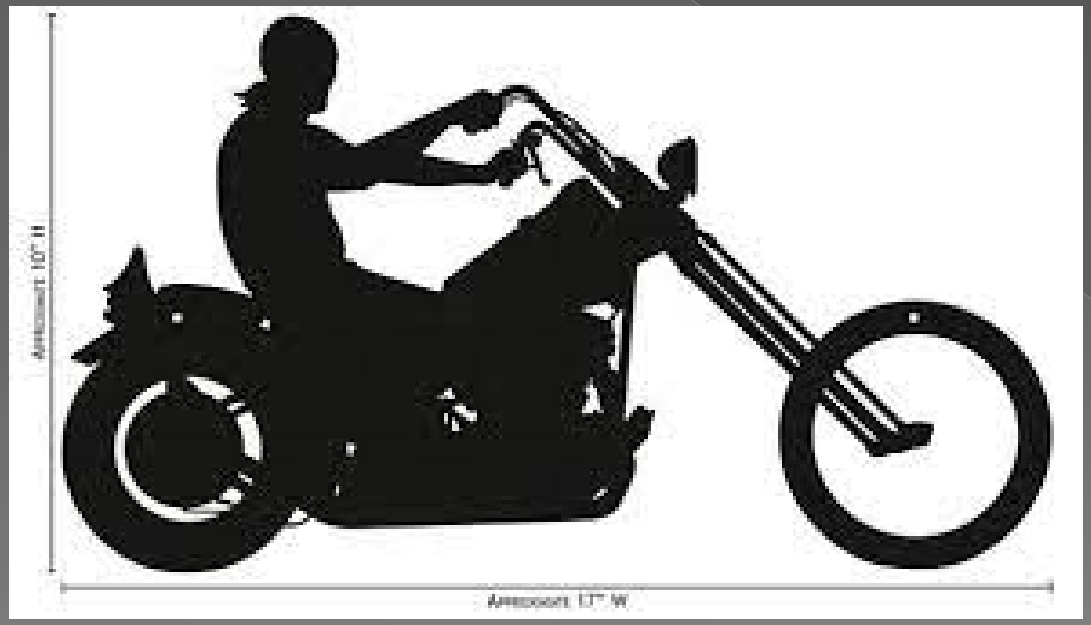
Pro- PRODUCTIVE, Professional, Reactive, Alert, Assertive

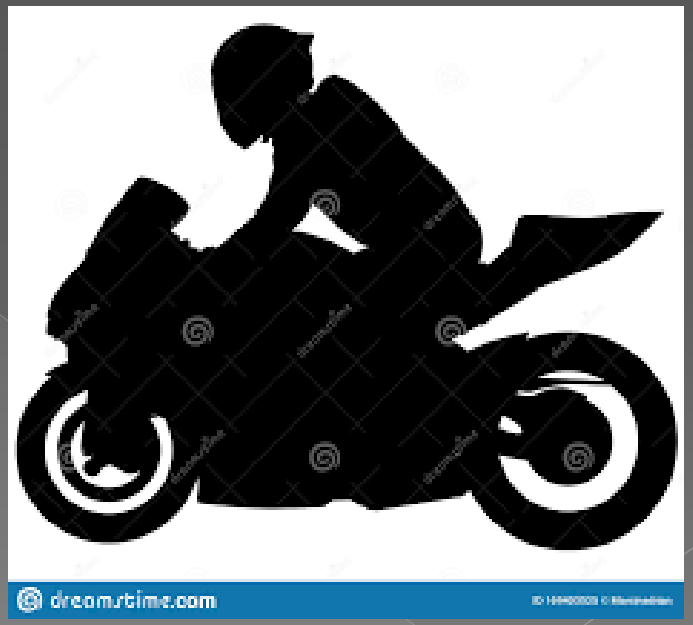
R – reclined,
Relaxed, RECEPTIVE, Reasonable Recreation, Responsive




NAVY

Which of the two gets in more accidents





Review data on cognitive ability during sitting in different postures

- Jung, J. Y., Cho, H. Y., & Kang, C. K. (2020). Brain activity during a working memory task in different postures: an EEG study. *Ergonomics*, *63*(11), 1359–1370. https://doi.org/10.1080/00140139.2020.1784467

- Systematic reviews are still inconclusive simply because this is such a new question to be proposed

An introduction to brain waves

Brain waves are oscillating electrical voltages in the brain measuring just a few millionths of a volt. There are five widely recognized brain waves, and the main frequencies of human EEG waves are listed in Table 2.1 along with their characteristics.

Frequency band	Frequency	Brain states
Gamma (γ)	>35 Hz	Concentration
Beta (β)	12–35 Hz	Anxiety dominant, active, external attention, relaxed
Alpha (α)	8–12 Hz	Very relaxed, passive attention
Theta (θ)	4–8 Hz	Deeply relaxed, inward focused
Delta (δ)	0.5–4 Hz	Sleep

Posture and brain waves

- Past studies have shown consistent evidence that body position significantly affects brain activity, revealing that both head-down and horizontal bed-rest are associated with cortical inhibition and altered perceptual and cognitive processing
- Spironelli, C., Busenello, J., & Angrilli, A. (2016). Supine posture inhibits cortical activity: Evidence from Delta and Alpha EEG bands. *Neuropsychologia*, *89*, 125–131. https://doi.org/10.1016/j.neuropsychologia.2016.06.015
- Results show increased cortical inhibition when participants move from a position of sitting to bed rest. There was increaed delta waves when adopting the lying position. Alpha waves increased but only temporarily

Posture and brain waves

- Their effect on brain activity was examined using EEG signals together with the information of accuracy and reaction times during 2-back task in 24 subjects. Substantial differences in brain waves were observed at sitting and standing positions compared to the supine, especially in delta waves and frontal lobe, where is known to improve the modulation of brain activity efficiently. Brain efficiency was higher during standing and sitting than in a supine. These findings show that postural changes may affect the efficiency of brain activity during working memory tasks.

The psychology of sitting

- Your sitting posture sends out a message about your state of mind
- Your sitting posture provides your mind with influence
- Your sitting posture will influence your level of productivity
- Your sitting posture will also influence your state of mental well-being
- Your state of mind will influence your physical body's well-being

What other factors influence our state of mind?

- Our environment
- Light
- Sound
- Temperature
- Sleep
- Food
- Order/cleanliness/arrangement
- Aesthetics
- People behaviour

Culture, Behaviour and Habit

- What is acceptable in certain cultures and environments is not acceptable in others
- Some people tend to gravitate more towards a certain posture then others (reasons such as rebellion, self awareness, respect to others etc)

Sitting and habit

- Habit is second nature
- Whatever gets repeated becomes habit
- If such habit gets linked to a reward (directly or indirectly) it get reinforced
- Good ergonomics are not as powerful as bad habits

Mental focus and our basic emotional human needs

- Security — safe territory and an environment which allows us to develop fully
- Attention (to give and receive it) — a form of nutrition
- Sense of autonomy and control — having volition to make responsible choices
- Emotional intimacy — to know that at least one other person accepts us totally for who we are, "warts 'n' all"
- Feeling part of a wider community
- Privacy — opportunity to reflect and consolidate experience
- Sense of status within social groupings
- Sense of competence and achievement
- Meaning and purpose — which come from being stretched in what we do and think.

Our innate needs trump our boss's needs

- If we choose to override or ignore out personal/ innate needs that doesn't mean that the body will go with it, especially in the long term

In conclusion

- Be aware of your personal needs and those of your colleagues
- Choose the furniture based on the nature of the task and what kind of mental acuity does the nature of the task require i.e production, reflection, creativity, collaboration, waiting room etc