

# ABOUT SITTING & CREATING AN ERGONOMIC WORKSPACE





# TABLE OF CONTENT

**Page 2:** Table of content

**Page 3-4:** About sedentarity and its risks

**Page 5:** Structural compensations

**Page 6:** Deconstructing the idea of sitting

**Page 7-10:** Ergonomy in practice

- page 7: Typical set-up
- page 8: Alternatives
- page 9: Workspace and lighting
- page 10: Acoustic and temperature

**Page 11:** Note for employers and entrepreneurs

**Page 12:** Contacts



# ABOUT SEDENTARITY & ITS RISKS

Sedentary behaviour is characterised by a minimal amount of movement and activity, and sitting (everywhere from the car to bed) is a major component.

Prolonged sitting time has become the new normal for many of us due to the increase in digitalisation, use of computers, and screens as part of leisure time, as well as a reduction in time spent commuting, grocery shopping, and being physically active on a daily basis.



Some populations are more affected than others: on average, office workers sit longer than manual workers, same thing for adults and kids with lower educations and/or incomes, and people with “motionless” hobbies (scrolling, gaming, reading, etc.) who sit more in their free time.

**We know that inactivity isn't good for our health, so is sitting for too long:**

- there is a reduction in muscle activation, especially in the lower limbs, which can negatively impact fluid/blood flow (swelling, tingling) and bone mineral density;
- lower energy output throughout the day is linked to weight gain, and lower muscle and cardiovascular strength and endurance;
- immobility impairs metabolic processes, which can increase risks of cardiovascular disease, cancer, hypertension, and type 2 diabetes;
- inactivity is also linked to altered neuroendocrine functioning (problems with hormones that deal with growth, reproduction and metabolism);
- people with reduced social activities, and light and fresh air exposure, have an increased risk of depression, anxiety and cognitive impairment (memory, thinking, mood and behavioural troubles).

## Lil' everyday example:

You've probably heard that “back ache is a normal part of turning 30 y. old (or older in generally)” Well, nope, that's just an excuse.

Yes, as we get older, we decay, that's the principle of life. But our backs aren't programmed to malfunction at a certain age. This pain is just a symptom of childhood, followed by adulthood, spent seating, and a global lack of movement.

*And good news, most of the time, it really doesn't take that much to get rid of back pain, and it can easily be avoided (both for you and future generations).*





# WE SPEND 35 YEARS OF OUR LIVES SITTING, OR 1/3 OF AN 80 YEAR LIFE SPAN.

## Here's how:

- We typically start our sitting adventure in kindergarten, around 3-4 years old,
- From middle school on, we spend more and more time sitting,
- There is a peak around high school and university, as it's required to study more and more outside of school hours,
- At working age, the time increases, decreases, or maintained depending on the job,
- Around 50+ years old that time decreases,
- Seniors and people with difficulties moving will then spend more and more time inactive.

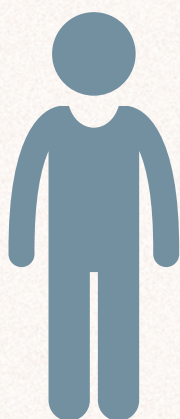
If we take the adult mid range of 11 hours sitting/day, for 76 years (from 4 to 80y. old)

- $11 \text{ hours/day} * 365 \text{ days/year} * 76 \text{ years} = 305,140 \text{ hours}$
- $305,140 / 24 \text{ hours/day} / 365 \text{ days/year} = \mathbf{34,83 \text{ years.}}$

## Average of sedentary hours by age groups



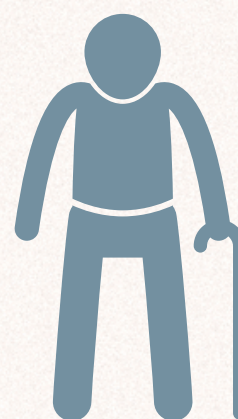
**7 years olds**  
= 55% of the day  
= 13 hours/day



**from 14-15 y. old**  
= 75% of the day  
= 18 hours/day



**Adults**  
= 9 hours to 12  
hours/day



**Seniors (60+)**  
= 65-80% of the day  
= 16 to 19 hours/day

*Whether these numbers increase or decrease is up to us.*

*This is one of the many reasons why introducing children to physical activity (whatever the type) is essential for their future health.*

## Little game: count your own inactive hours.

As I write these lines, I've spent 6h30 either at my desk, on the ground outside, or at the living room's table. Let's add 2-3 hours as I'll sit to eat dinner & chill.

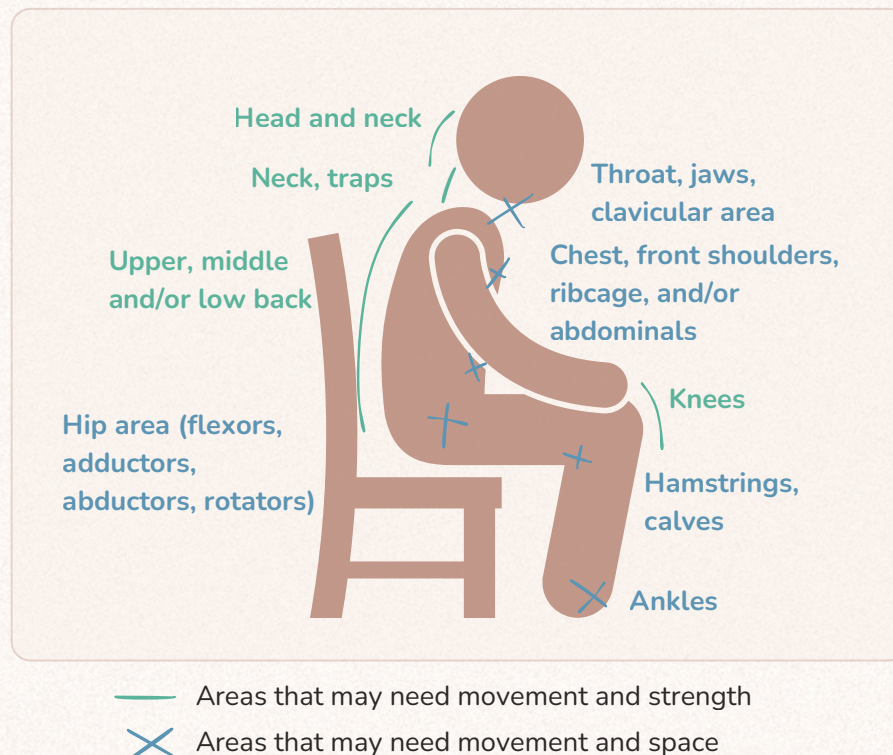
That's a total of 8 hours 30 mins, cut by 30 mins of cycling, 45 mins of strength training, and 90 mins of cooking. Although it adds up to a lot, I've been able to train and spend time outside under the sun with my cats. The balance is not too bad!



# STRUCTURAL COMPENSATIONS

Although we are all different and a person's experience won't necessarily be true for someone else, sitting for too long has common negative effects that can be grossly listed as such:

- Slouching (rounding) or overarching of the lumbar spine (lower back),
- Rounding in the thoracic spine (middle back),
- Closing the rib cage, shoulders, and front of the body,
- Reaching forward with the head.



**Decreasing these symptoms is basically done by balancing movement patterns:**

- Counteract spinal flexion (rounding of the spine) with extensions,
- Compensate for too much time spent in hip flexions with hip extensions,
- Improve rib cage mobility with extensions, torsions, and breath work,
- Reduce tension at the back of the legs by straightening them and mobilising your ankles.
- Consciously mobilise the neck in all its possible ranges of motion.
- Loosen up the nervous system and nerves by taking breaks and gentle flossing.

## PRACTICAL ADVICE:

A quick and efficient solution is to mobilise a little bit of everything for 5-15 minutes. Don't think too much in terms of exercises, start by doing some usual movements, play around, and pay attention to how they feel. Connecting with your sensations will help you understand the basics of biomechanics and where your own needs are.

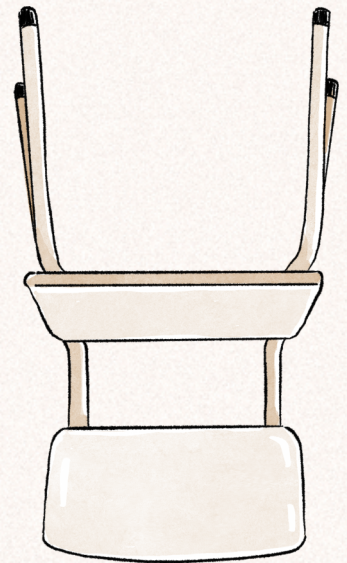


# DECONSTRUCTING THE IDEA OF SITTING

Sitting with a straight spine, tucked legs and, resting arms is typically European, and it seems that western designers have often struggled to find the right way to balance and support a skeleton that isn't really designed to sit for a long time.

If you look around, you'll find that in many other countries and cultures, people squat, sit on the ground, their ankles or toes, on cushions etc.

Are these positions more ergonomic or comfortable than the chair we're so used to? The answer will probably depend on the individual, the length of their limbs and the reason why they sit in the first place.



More and more studies show that children who are able to roam in their classroom, stand, and use adaptable desks are more engaged, fitter and have better cognitive results than those who sit all day long. And the same goes for adults who are more efficient and productive when they can move.

*Personal reflection:*

*I've always found it interesting how we reprimand children and people who are constantly moving and adjusting their chairs. As if we should sit still despite the lack of comfort, as if moving made people less polite or respectable, as if the chair was there first and demanded respect.*

*Maybe it's not the child or the adult that needs fixing and restraining, maybe it's our collective approach that needs expansion. As a society (and individuals), we might gain from thinking less in "words" and more in "ideas":*

*A chair can be a chair, a desk can be a desk,*

*The floor can be a chair, a chair can be a desk,*

*A yoga block can be a chair, a box can be a desk,*

*An inflatable ball can be a chair, a kitchen counter can be a desk,*

*A bed can be a chair, a pair of knees can be a chair.*

*It's just a matter of positions and surfaces.*

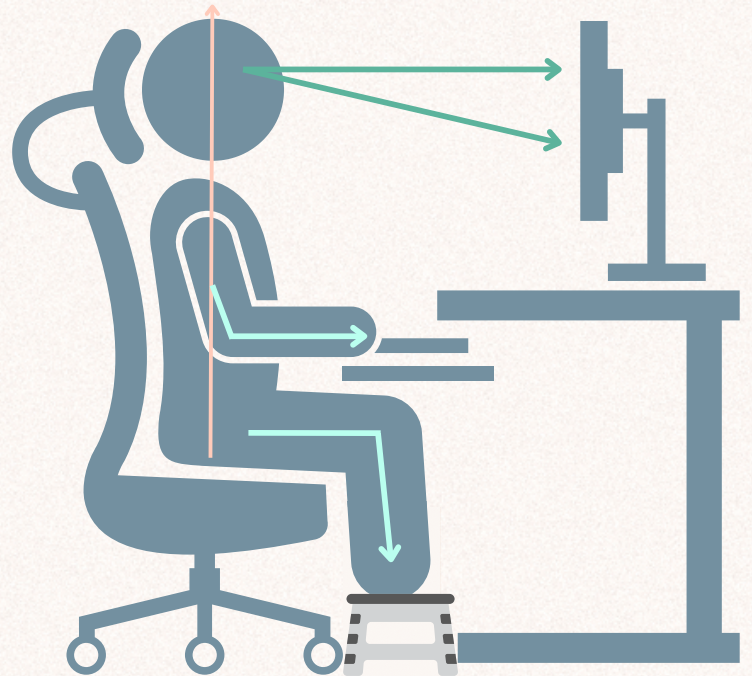
*The world can be a chair.*



# ERGONOMY IN PRACTICE

## • THE TYPICAL DESK SET-UP SHOULD LOOK LIKE THIS:

- 1 The eyes are 50-70cm from the screen,
- 2 The head and the spine are aligned,
- 3 The back is supported against the chair,
- 4 The elbows are at a 90 degree angle, the keyboard and forearms are flat,
- 5 The knees are at a 90-110 degree angle
- 6 The feet are flat on the floor or on a step.



## THERE ARE 2 MAIN ZONES OF FOCUS:

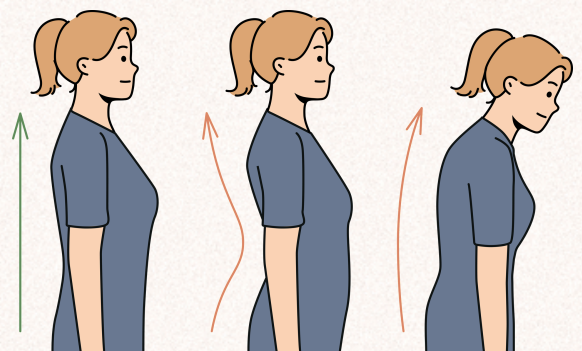
### The screen:

Wherever your eyes look your head will go. If your screen is too high: your head will rise, too low: your head will lean forward and down.

The neck muscles will compensate for the weight of your misaligned heavy head (between 3,5kg-5,5kg) which can lead to jaw, neck, and back pain.

### The spine:

You may not be moving, but your muscles are “on” all the time, staying in the same position for too long eventually exhausts them, and leads to stiffness and tightness. As the muscles fatigue and our brain drifts away, the body naturally compensates to find balance and positions that require less energy.

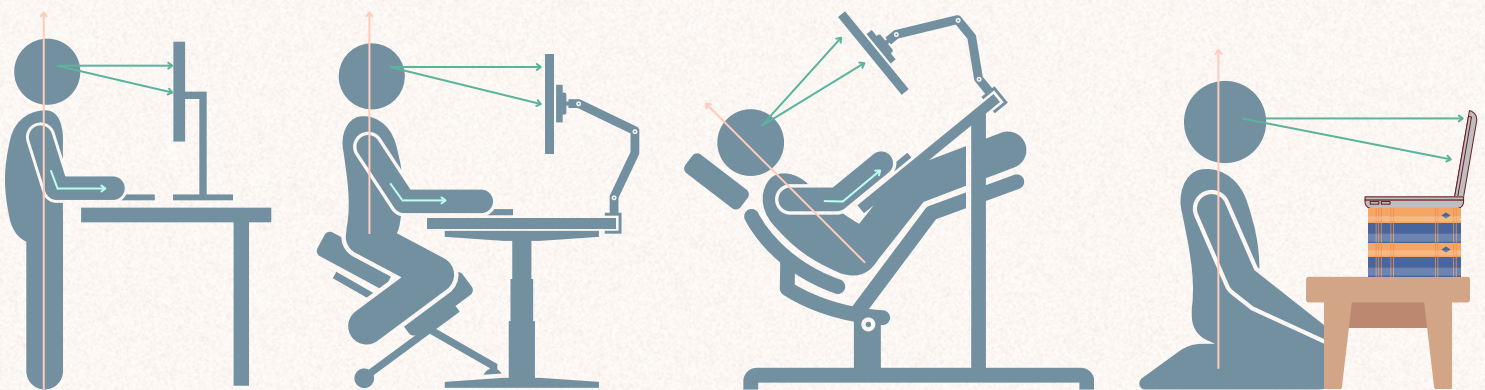




### Extra tools:

- The step (or block) supports the legs and hips, reduces sliding, and helps maintain a neutral spine, as well as reducing the weight on the thighs.
- A seating pillow helps with hip and back support. It also decreases the weight on the hip bones and thighs which makes fluids/blood flow easier.
- The arm rest is going to give a break to the shoulders and potentially reduce tensions around the area.

### ALTERNATIVES COULD LOOK SOMETHING LIKE THIS:



As you can see, the most important and recurring parts of a good set up are **placing the screen high enough so it aligns with the eyes** and **aligning the spine from the hips to the head**.

From there, you could be kneeling or squatting on blocks, lying in bed or standing upright, crossing your legs, or stretching them out, it wouldn't really make a difference.

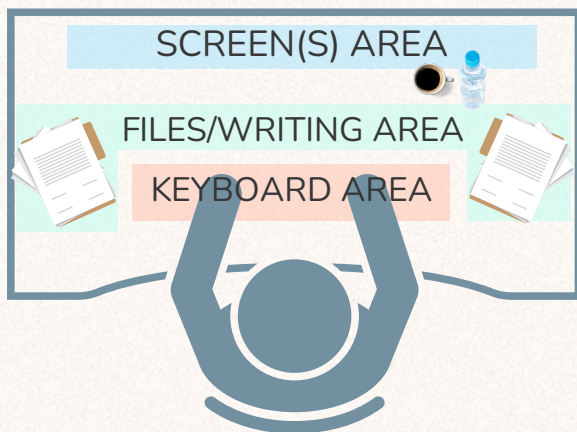
Keep in mind that immobility brings discomfort.  
The “perfect” set-up is time bound. Moving throughout your working day is just as important as maintaining regular physical activity.  
*Change positions as often as you feel like it.*



## • WORK SPACES

- Use a mouse that fits your hand and your needs,
- Place the top of the screen at eye height,
- Multiple screens should be next to one another, in a curved line,
- Place your notes and resources close to your writing hand,
- Place your glass/bottle at a practical distance,
- Less mess = less stress. Define specific areas for specific equipment depending on your needs and, store what you don't need.

### SITUATION A



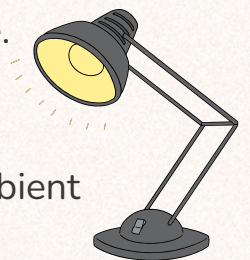
### SITUATION B

*the most ergonomic to take notes*



## • LIGHTING

- Ensure sufficient lighting in the office and around your desks to avoid straining the eyes (which can eventually lead to headaches).
- Use monitor filters or computer glasses to reduce blue light and glare.
- Reduce, or avoid, directly facing windows and bulbs as well as their reflections.
- Combine direct and indirect lighting to have a consistent level of ambient light.
- Using warmer lighting (yellow/orange) enhances the mood, promotes comfort and relaxation, and is generally safer for the eyes, while blue-white lights can help promote productivity but disrupt the circadian rhythm.
- The recommendation for office brightness is 300-500 lux around the whole workspace (check bulb packaging for information) and use natural sunlight as much as possible.
- When you set up your monitor contrasts, make sure that colours are easily read and that there is no big difference of lighting between the back- and foreground of your screen.





## • ACOUSTICS

Sound is an easily overlooked but very important part of a comfortable workspace. Noise, either loud or damped in the background can decrease concentration, increase risks of stress, fatigue, feelings of overload and headaches.

Considerations:

- Divide the office into different activity zones: make phone calls in closed rooms or booths, if you can or share an open office, keep the desk area for quiet activities.
- Separate coffee, copy and other machines from the office to reduce background noises, distractions and sources of discomfort.
- Use a headphone for calls and to listen to music to reduce individual noise (be aware of the overuse effects of headsets and particularly in-ear equipment).
- Carpeting the floors can be a way to reduce the resonance and background noises,
- Sound absorbing materials like acoustic panels can be placed in between desks and on walls and ceilings to absorb and diffuse sound. Foam panels, plants and moss walls are a cheaper alternative.



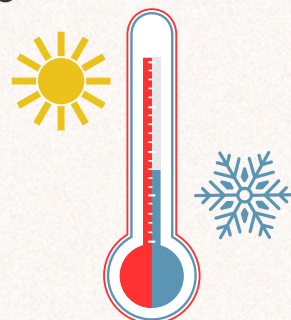
## • TEMPERATURE

Temperature should ideally be based on the individual, as everyone has their own preferences.

- Being too hot can lead to dehydration and general fatigue. As the internal temperature rises, the body will try to cool down by increasing blood circulation and perspiration, less blood will go to the active muscles and the brain which leads to increased fatigue and reduced attention and performance.
- On the other hand, being too cold can lead to reduced sensory feedback, dexterity, blood flow and muscle strength. The body will have to spend a lot of energy on heating itself up and less on work tasks, and it will be easier to fall sick.

Considerations:

- General temperature recommendations are of 20-21 degrees Celcius.
- Wear multiple layers to adjust your body temperature throughout the day,
- Open the windows regularly to renew the oxygen and air quality,
- Use a personal heater or fans,
- Move regularly to loosen up, warm your muscles and improve blood flow,
- Hydrate yourself, and drink cold or warm beverages to support your needs.





# NOTE FOR EMPLOYERS & ENTREPRENEURS

While every individual has their own responsibilities, a company is a larger structure that requires rulings from higher decision makers (managers, directors, CEOs etc.). Employers and entrepreneurs are basically the ones meant to show the example, *they have an extra responsibility to care for others and themselves.*

- They are in charge of their own and other peoples' quality of work, and, to some extent, the quality of their life,
- They are in charge of the expectations and requirements that they place on themselves and on their employees,
- They are in charge of developing workspace wellness and a safer work environments,
- They are in charge of sharing (or not) valuable and gratifying work ethics as well as leading (or not) themselves, their employees and their clients in directions that will benefit everyone.

Wellness at work is a new and underrated subject that proves to be very efficient. In fact (and kinda logically) improving people's lives leads to increased performance, productivity and thus more wealth production on all sides.

Here are a few incentives:

- [Impact of Employees' Workplace Environment on Employees' Performance: A Multi-Mediation Model](#)
- [The effectiveness of workplace nutrition and physical activity interventions in improving productivity, work performance and workability: a systematic review](#)
- [The Value of Worker Well-Being](#)
- [The Happy-Productive Worker Model and Beyond: Patterns of Wellbeing and Performance at Work](#)
- [The impact of healthy workplaces on employee satisfaction, productivity and costs](#)
- [Wellbeing Positively Impacts Firm Performance](#)

**Improving both wellness & productivity doesn't have to take a lot of efforts.**

**In addition to all the advice shared throughout this document, employers could:**

- Ask individuals what they may need to improve their work experience,
- Find examples in other cultures or companies that prioritise the worker's experience,
- Propose wellness, mental, and physical health workshops or webinars,
- Be open to the way people might need to sit, work and move around the office,
- Be flexible with working hours and enable people to workout during their lunch break,
- Set up an outdoor space for breaks,
- Offer alternatives to desks and chairs (like pilates balls, standing desks, sofas, etc.).



Got a question?  
Want to know more?  
Let me know!

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