

# Office Furniture of the Future

*Mapping the landscape of body support for the future office worker.*

Working in an office is a daily job for many people. In the current state of the world, working in an office environment or spending time in front of a laptop or PC takes up more and more time of our week. Especially with the current pandemic going on, which forces people to work from home, but also makes them schedule their social activities online, the time spent at our desks only increases. This causes risks of physical difficulties, discomfort, and on the long term, irreversible damage. Therefore, for this project research has been done on the dangers of prolonged sitting, alternatives for conventional sitting, and the possibilities, opportunities and constraints of an alternative office environment. The main research questions therefore are:

- What (physical) problems and difficulties do occur due to standard office setups?
- What are the current options on the market for office furniture other than standardized desks and desk chairs?
- What are possible improvements for future furniture and/or office environments?

These were approached by first doing literature research about different postures, existing products and the users, then applying that on the design process.

## Postures

Prolonged sitting is dangerous, as it can cause muscle strength to decrease, but it can also cause back problems, fatigue, and in the long term sitting is even being connected to particular kinds of cancer and heart and vascular diseases. Long story short, sitting is bad and should be minimized. [3][4] What alternatives are there? Standing desks are a known product by now, but research showed that prolonged standing is unhealthy as well. In fact, every posture is unhealthy and can become dangerous on the long term if one stays in that particular position for too long. Variation is key. [1][2]

## Existing Products

There are products on the market for 'active sitting.' Active sitting is the act of sitting, but in an active way. On conventional chairs, someone sits passively. The user just sits on the chair, stool or couch, without having to put any kind of effort into maintaining that position. With active sitting, effort is needed to maintain a certain position. Devices designed for 'active sitting' include moving parts or some kind of instability on purpose. The user is sitting, but is performing physical activity simultaneously. Hence, active sitting.

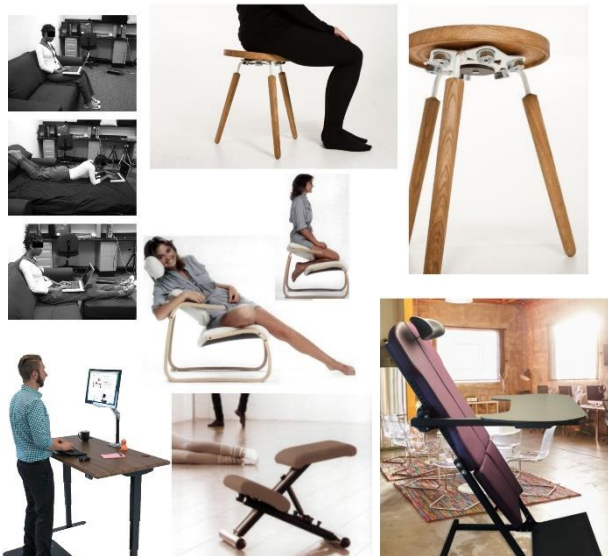


Figure 1

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## Results

The final result consists of three concepts. This decision was made because the original design problem does not have one perfect solution, but the problem could be solved in multiple different ways, which is dependent on the user's preference. The three concepts will be looked at separately.

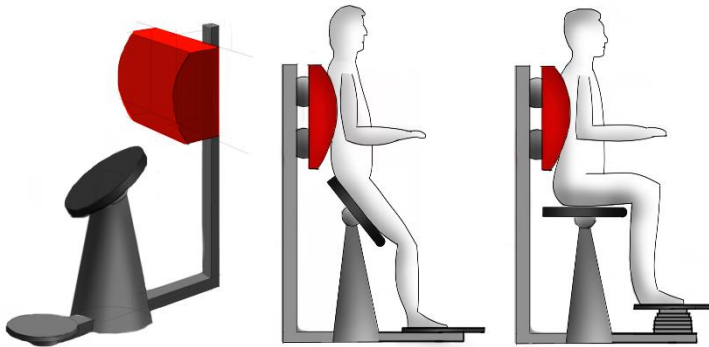


Figure 2

### Sillean

The first concept, *Sillean*, is focused on both active sitting and 'active leaning.' 'Active leaning' basically means the same thing as active sitting, so a moving part stimulates the user into physical activity to maintain their posture, but instead of sitting, the user leans against the product. This concept has an angle adjustable seat, so it is suitable for both active sitting and active leaning. (Figure 2)

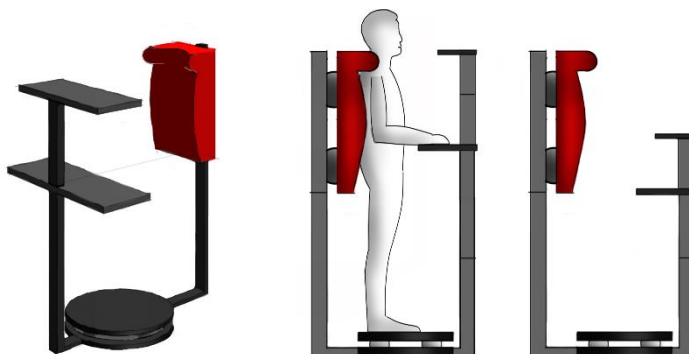


Figure 3

### Stanmovit

The second concept, *Stanmovit*, is a concept which is closely related to a standing desk, but it also offers back support. Furthermore the user stands on a platform which can move a little bit sideways and forward and back, stimulating the user to use their leg muscles to maintain the desired position: 'active standing.' (Figure 3)

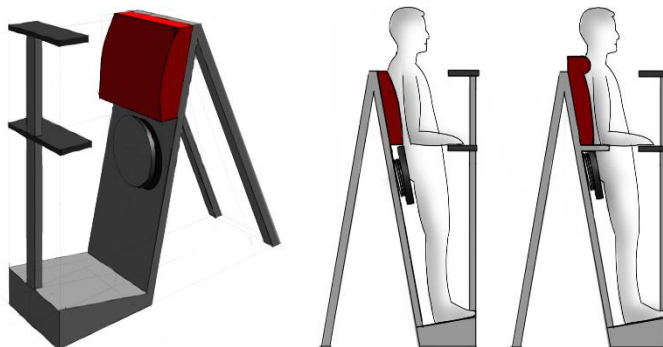


Figure 4

### Leanact

The third and final concept, *Leanact*, is focused on 'active leaning', which is the same principle as active sitting, but instead of sitting, the user leans against the product. This product can only be used in a leaning position. (Figure 4)

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## Conclusions and Recommendations

People especially need better support in the neck and back area, and movement and variety of posture are essential. This is fulfilled by the concepts. In general, the questions were answered by the research on the market, the user research and the design process. The final concepts do improve on the points on which people wanted office furniture to be improved: in the back and neck area. And it offers more, with the active sitting factor included. However, these are still in early development stages. Additional experiments and research should be done with a bigger test group in order to obtain scientifically proven results. Then, these concepts could be developed further in more detail towards a market ready product.

## List of references

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