

ERGONOMICS OF DESIGN

WHAT IS ERGONOMICS?

- ✘ The interaction between people and their environment.
- ✘ Can you give an example of good ergonomics?
- ✘ Can you give an example of bad ergonomics?
- ✘ What are the benefits of an ergonomic workplace?

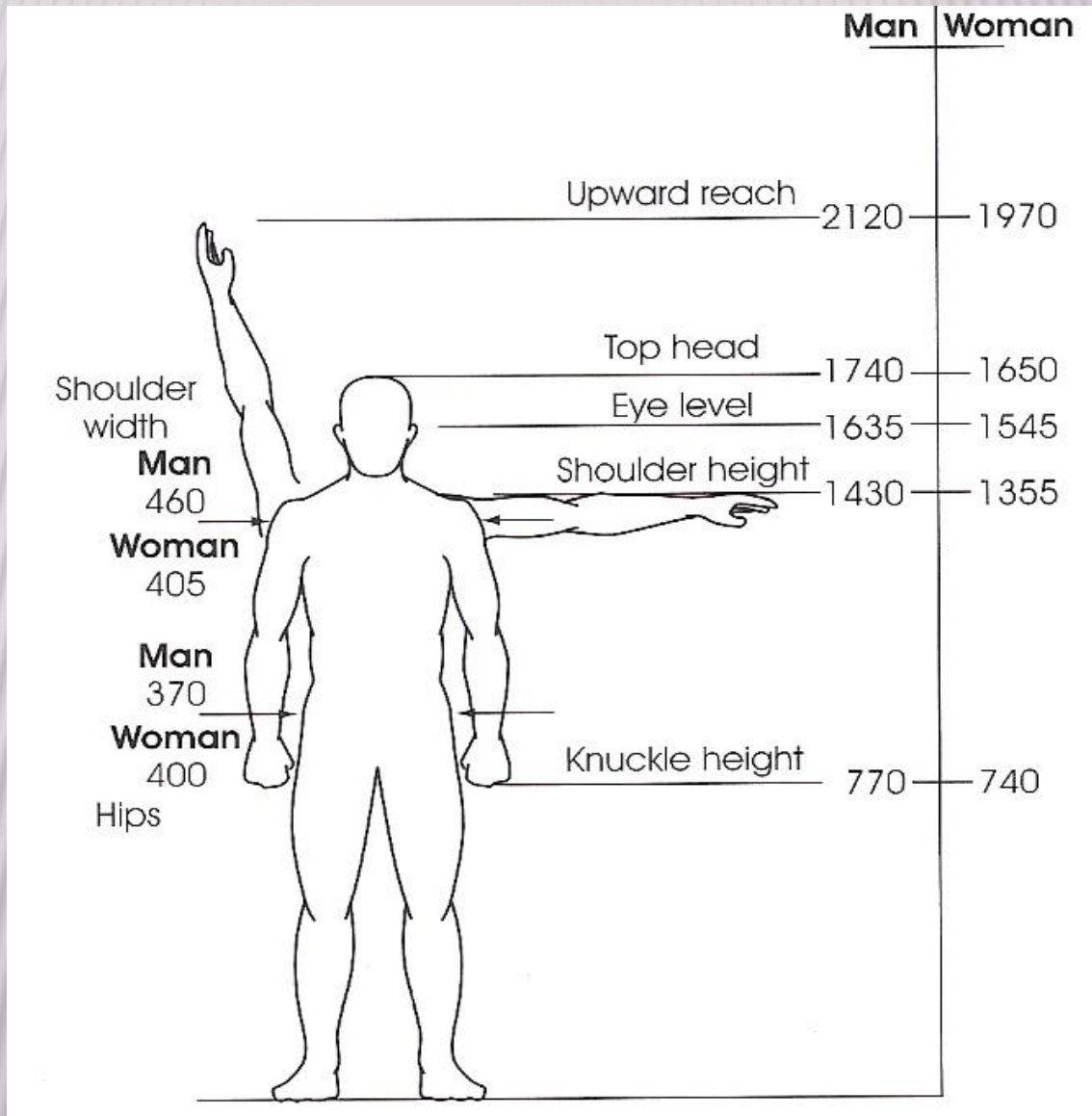


- ✘ Importance & Benefits of Ergonomic Workplace 2.16Min
- ✘ <https://youtu.be/wYvqHJ7FNAM>

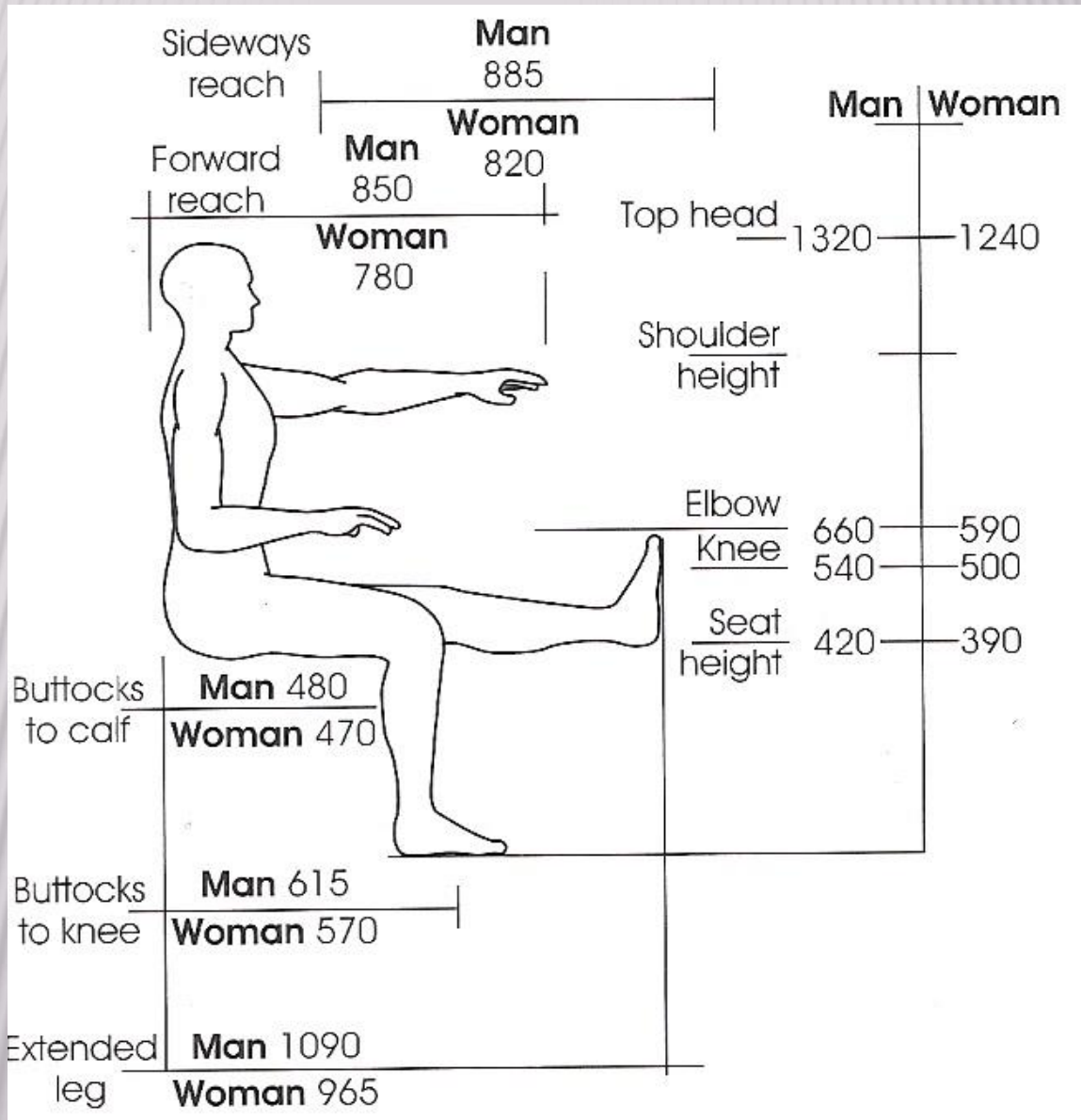
ERGONOMICS & ANTHROPOMETRICS

- ✘ These two terms are used to describe the application of scientific information about human variability and adaptability to the design process.
- ✘ Ergonomics (also known as Human Factors) describes information about humans in "working" situations.
- ✘ Anthropometrics deals with information about human body size and shape.
- ✘ As furniture is used by many its design must accommodate a wide range of people.
- ✘ The "average" person is a mythical creature. When measurements are taken from a target population for a particular design, a mid-point (termed the 50th "percentile") divides users into two groups - one above and one below the "average."

AVERAGE SIZES



AVERAGE SIZES



LOGIC

- ✘ It may be logical to use this mid-point/average number to determine the height of a chair seat but not the height for the top shelf in a storage cabinet. In the latter case, it is standard practice to use a dimension that accommodates 90 to 95 per cent of users who can reach an object on the top shelf.
- ✘ Can you provide another example of when we should use the 90 to 95 percent instead of the 50% rule?
- ✘ Headroom on a flight of stairs; the design should accommodate tall people since short people in these circumstances would not be at a disadvantage.

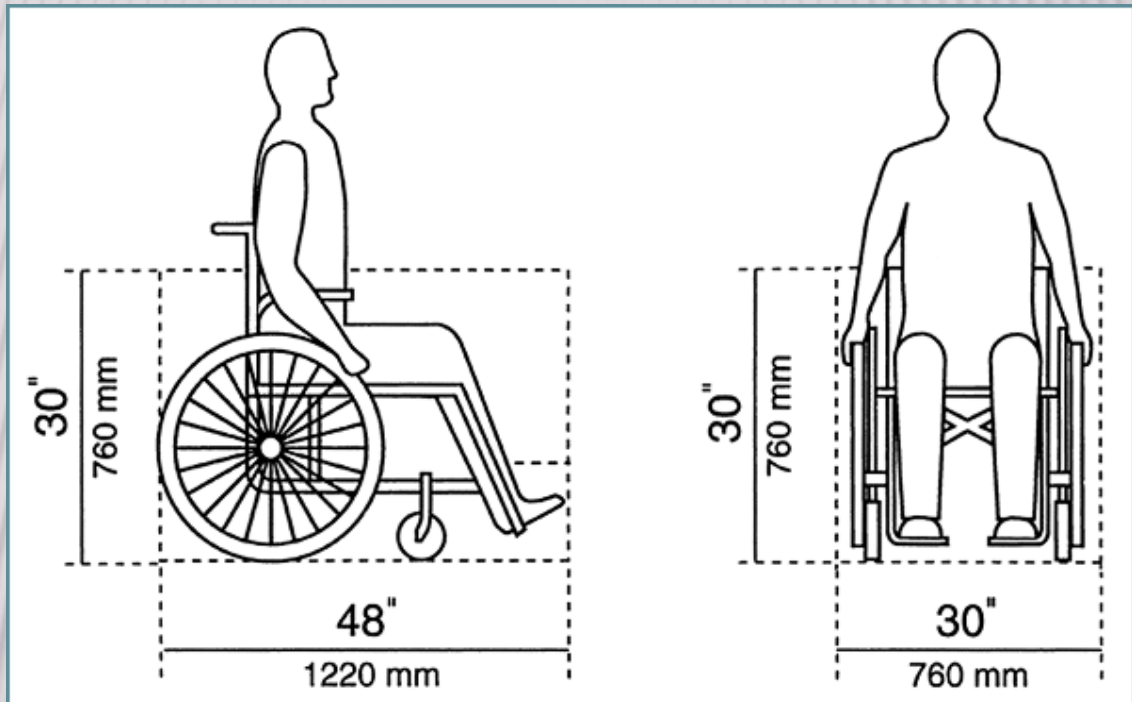
DISABILITIES

- ✘ When designing for public areas and some domestic situations, wheelchair accessibility must be considered. Guidelines for these are set down in the [Technical Guidance Documents part M](#).
- ✘ Lack of consideration at the design stage can have costly effects.



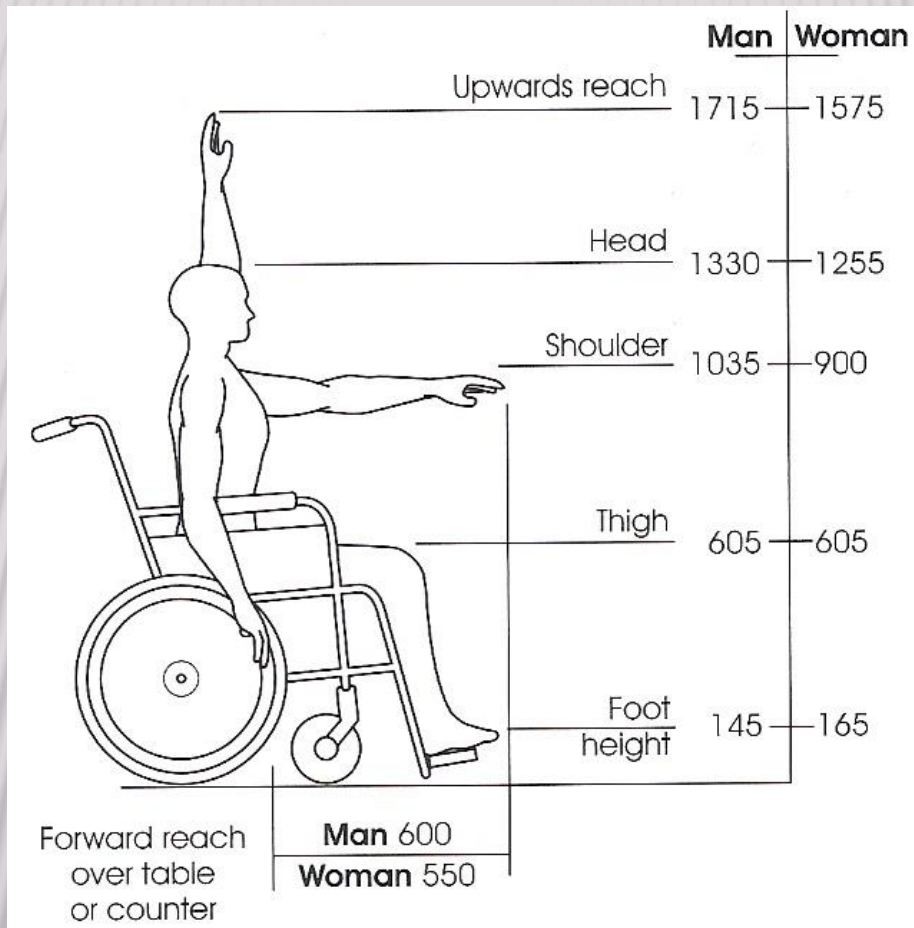
- ✘ <http://universaldesign.ie/What-is-Universal-Design/The-7-Principles/#p1>

DIMENSIONS OF AN ADULT WHEELCHAIR



- ✘ Building regulations now dictate that all houses and premises must be wheel chair friendly.
- ✘ As well as access other items such as electric switches, handles etc. must be within reach of users.

ERGONOMICS OF A WHEELCHAIR USER



- ✘ Be aware that the sizes given above would also vary considerably depending on the person's disability and type of chair or mobility vehicle.

ERGONOMICS OF A KITCHEN FOR WHEELCHAIR USERS

- ✘ Switches and handles etc. must be within reach for wheelchair users.
- ✘ Sliding doors, pull out or pull down shelving making ease of access.
- ✘ Easy access under counter tops, hobs and sinks.
- ✘ For a mixed ability user kitchen adjustable worktops, hobs and sinks are available.



ERGONOMICS OF A KITCHEN FOR WHEELCHAIR USERS

- ✘ Some companies specialise in supplying and fitting adaptable Kitchens and Bathrooms.
- ✘ Adaptable Kitchens



ERGONOMICS OF A BATHROOM FOR WHEELCHAIR USERS



- ✘ Height Adjustable Sink for Disabled / Wheelchair Accessibility by Pressalit Care. 1.08Min
- ✘ <https://youtu.be/lkv5LR57kFU>

WORK STATION

- ✘ When designing for office furniture there are a number of issues to be considered.
- ✘ The user will be at the work station for prolonged periods of time.
- ✘ Item of furniture should have some method of adjustment.

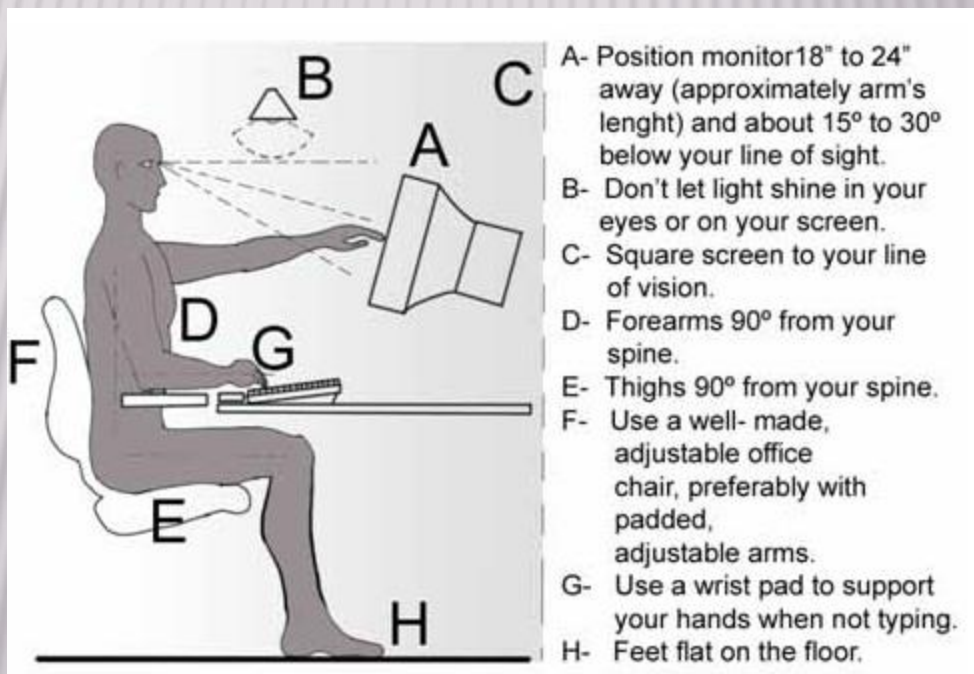
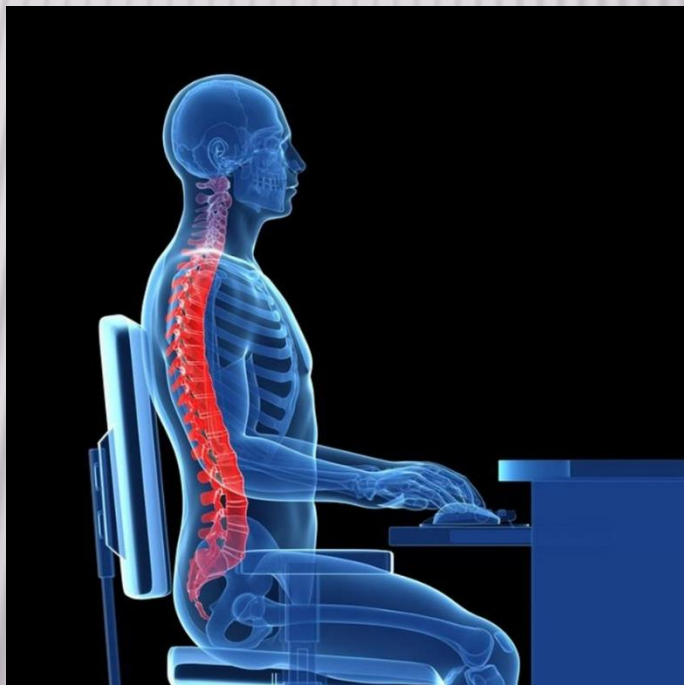
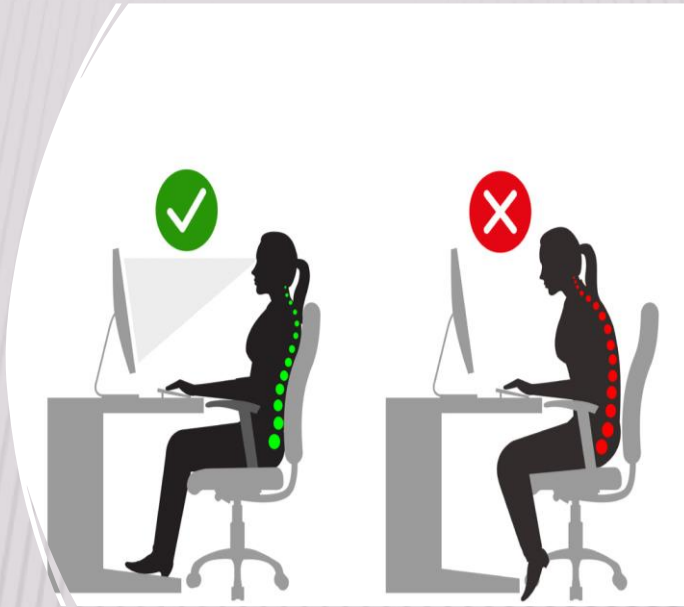


Image from Coreconcepts.com

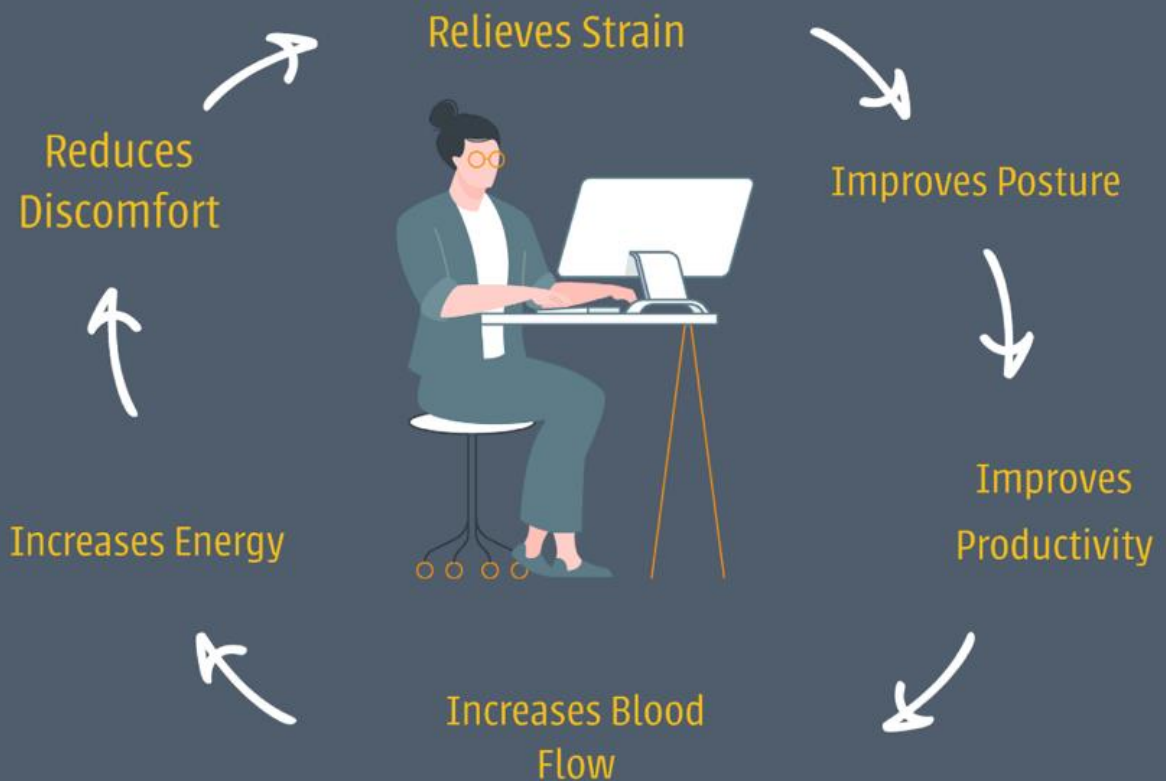
WORK STATION



- ✘ What are the benefits of providing good ergonomics at the work station?

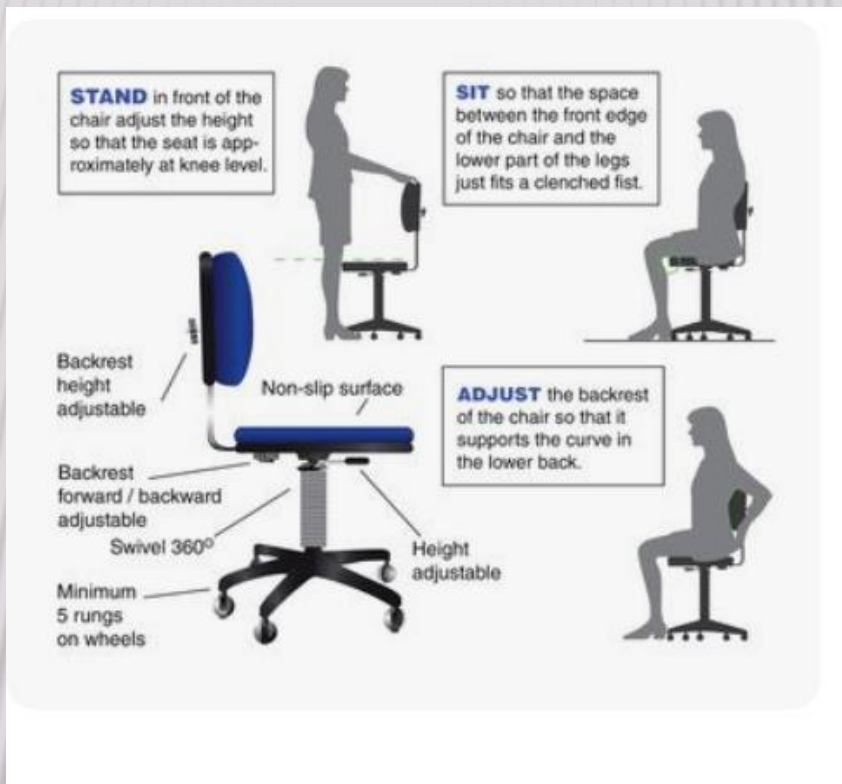
WORK STATION

Benefits of Ergonomics



WORK STATION CHAIR

- ✘ Tips on how the user should adjust and sit in the chair.



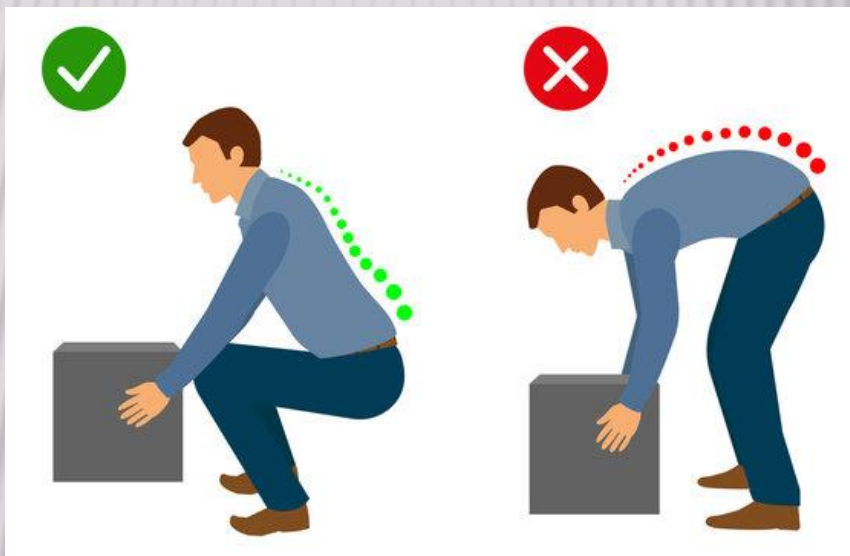
Reference: <http://www.eyeprotectorpro.com/2012/01/31/top-10-tips-of-rsi-prevention-recovery/>

- ✘ Good website studying the relationship between Ergonomics & Anthropometrics and different designer chairs

<https://ergonomics8.weebly.com/ergonomics--anthropometric.html>

MANUAL HANDLING

- ✘ Shoulder Height 10kg
- ✘ 5kg away from the body
- ✘ Elbow height 20kg close to the body
- ✘ 10kg away from the body at elbow height



- ✘ Health And Safety Authority
- ✘ Managing Ergonomic Risk in the Workplace

BEYOND COMPLIANCE

× The HSA Pod

The screenshot shows the 'Beyond Compliance: The HSA Pod' app interface. At the top, there is a circular logo with the text 'Beyond Compliance The HSA Podcast' and 'HSA' below it. Below the logo, the text reads 'Beyond Compliance: The HSA Pod' and 'Available now on all major podcast platforms!'. There are social media icons for Facebook and X. The main content area consists of a list of podcast episodes, each with a title, a platform name, and a three-dot menu icon. The episodes are: 'Ergonomics in the Workplace | Beyond Compliance - Spotify', 'Ergonomics in the Workplace | Beyond Compliance - Acast', 'Ergonomics in the Workplace | Beyond Compliance - Apple Podcasts', 'Violence and Aggression | Beyond Compliance - Spotify', 'Violence and Aggression | Beyond Compliance - Apple Podcasts', and 'Violence and Aggression | Beyond Compliance - Acast'. At the bottom, there is a 'Home' button and a Linktree link: '* Join healthandsafetyauthority on Linktree'.

REFERENCES:

- × The Mitchell Beazley Illustrated Encyclopaedia of **Working in Wood** by Ernest Scott
- × Ergonomics & Anthropometric:
<https://ergonomics8.weebly.com/ergonomic--anthropometric.html>
- × Ergonomic mismatch between students anthropometry and university classroom furniture:
<https://www.tandfonline.com/doi/abs/10.1080/1463922X.2019.1617909?af=R&journalCode=ttie20>
- × Universal Design: <http://universaldesign.ie/What-is-Universal-Design/>