

**NATIONAL INSTITUTE OF FASHION AND TECHNOLOGY**



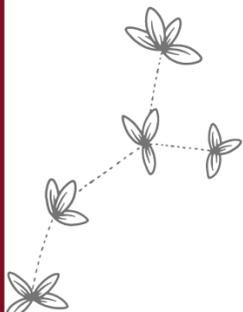
# **USER CENTRIC DESIGN**

**SUBMITTED BY - NISHA SINGH**

**BD/19/6017**

**ACCESSORY AND LIFESTYLE DESIGNING**

**SUBMITTED TO - MR. MANOJ PARAS**



# ergonomics

design  
posture  
work  
health  
back  
desk  
furniture  
spine  
activity  
strain  
table  
private  
focus  
contemporary  
streamlined  
professional  
corporate  
anatomy  
interior  
business  
healthy  
desktop  
style  
repetitive  
laptop  
place  
interface  
armchair  
science  
position  
proper  
safety  
scientific  
creative  
windows  
typing  
room  
shape  
human  
seated  
quality  
form  
improper  
modern  
computer  
medical  
office  
chair  
corporate  
concrete  
incorrect  
skeleton  
education  
prevention  
indoors  
therapeutic  
pain  
working  
equipment  
interior  
business  
healthy  
desktop  
style  
repetitive  
laptop  
place  
interface  
armchair  
science  
position  
proper  
safety  
scientific  
creative  
windows  
typing  
room  
shape  
human  
seated  
quality  
form  
improper  
modern  
computer  
medical  
office  
chair  
corporate  
concrete



# ERGONOMICS

- Ergonomics is about ensuring a good fit between people and the things they interact with. This could include the objects they use or the environments they live in. You should consider ergonomics in the design of every product, system or environment. We should focus on ergonomics early in the design process. Ignoring ergonomics can lead to designs that are likely to fail commercially - as they don't fit the needs of the user.
- Ergonomics is a science-based discipline that brings together knowledge from other subjects such as anatomy and physiology, psychology, engineering and statistics to ensure that designs complement the strengths and abilities of people and minimise the effects of their limitations. Rather than expecting people to adapt to a design that forces them to work in an uncomfortable, stressful or dangerous way, ergonomists and human factors specialists seek to understand how a product, workplace or system can be designed to suit the people who need to use it.
- In achieving this aim, there is a need to understand and design for the variability represented in the population, spanning such attributes as age, size, strength, cognitive ability, prior experience, cultural expectations and goals.



# IMPORTANCE OF ERGONOMICS

---

Ergonomics is an important part of research in the product development process. Its purpose is to increase the safety, comfort and performance of a product or an environment, such as an office.

Ergonomics uses anthropometrical data to determine the optimum size, shape and form of a product, and make it easier for people to use.

Ergonomists can help us to identify which user characteristics we should take into account during our design process. This is important when you consider how much individuals vary in terms of:

- body size
- body shape
- strength
- mobility
- sensory sensitivity
- mental ability
- experience
- training
- culture
- emotions

# CATEGORIES OF ERGONOMICS

---

There are three broad areas of ergonomics:

1. Physical ergonomics looks at how human anatomical, anthropometric, physiological and biomechanical characteristics relate to physical activity. This includes:

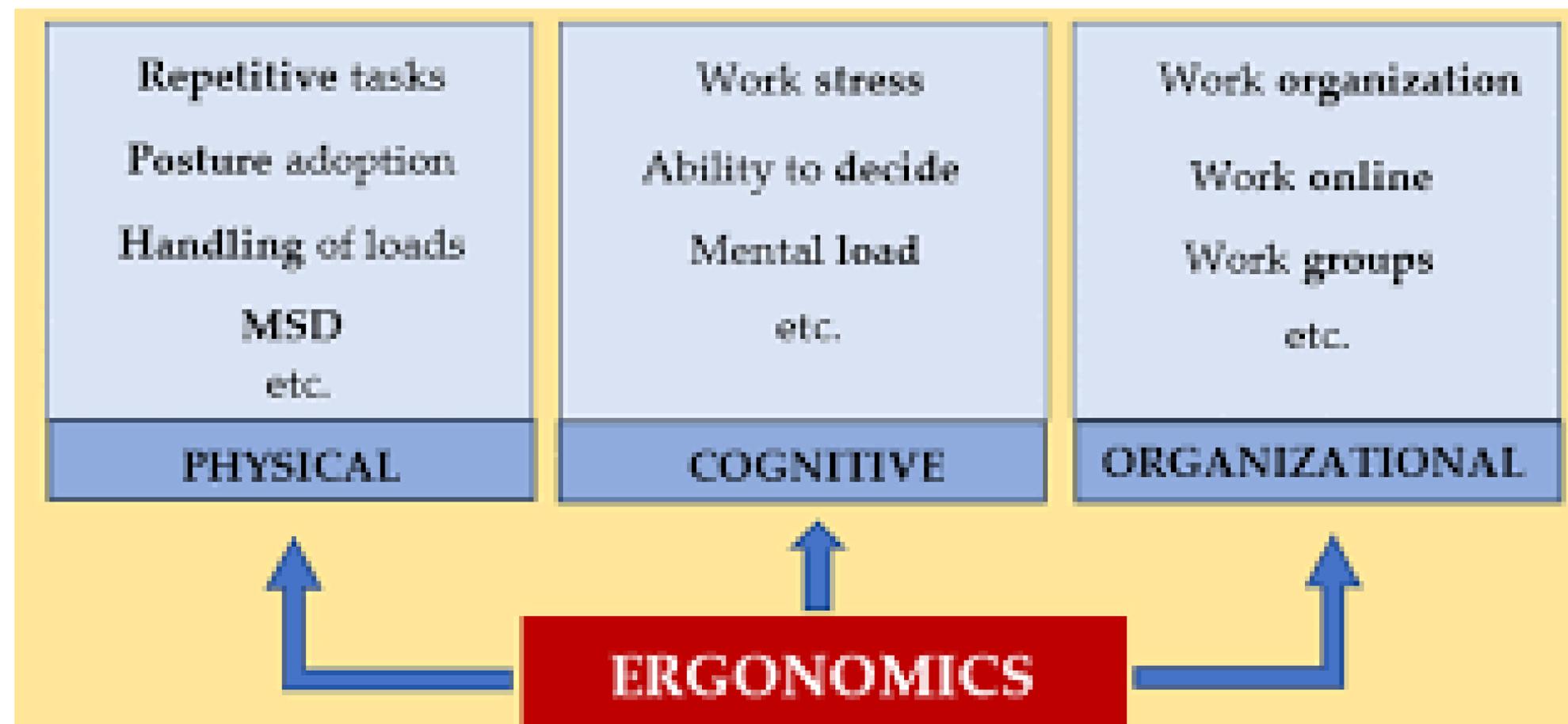
- working postures
- manual handling
- repetitive movements
- musculoskeletal disorders
- workplace layout and environment

2. Psychological ergonomics studies mental processes (eg perception, cognition, memory, reasoning and emotion) and how people interact with products, systems and environments. This includes:

- mental workload
- decision-making
- human-computer interaction
- human reliability
- attitudes
- stress
- motivation
- pleasure
- cultural differences

3. Organisational ergonomics is about optimising the organisational structures, policies and processes of socio-technical systems. This includes:

- communication
- work design
- staff resource management
- working time patterns
- co-operative work
- quality management
- organisational culture



# USER-CENTERED DESIGN

---

User-centred design improves the customer experience associated with a website, a product or a service.

## BENEFITS OF USER - CENTERED DESIGN

- User-centred design could bring many advantages to our business. For example, it could:
  - Increase our sales - customers are more likely to buy a product or service that meets their needs
  - boost competitiveness - customers are less likely to choose other business' products if our product meets their needs more effectively
  - Build positive user experiences - increase loyalty and a good reputation for our business or brand
  - help us gain insight - this, in turn, could lead to innovative new products or service
  - save your business time and money - by testing things with end-users when it is still cost effective to make changes
- By involving the customers in the design process, user-centred design could also:
  - Help us design more effective and safer products
  - give your customers a sense of ownership in your product or service
  - remove the need to change the design late in the process, avoiding high costs and time delays
  - It's important to adopt a user-centred approach at the earliest opportunity. This gives everyone who needs to be involved - such as research, engineering or marketing teams - a clear picture of how you will call on their expertise to benefit the project. A good strategy will reduce the risk of conflicting initiatives, wasting your business' time and money.

# ANTHROPOMETRY

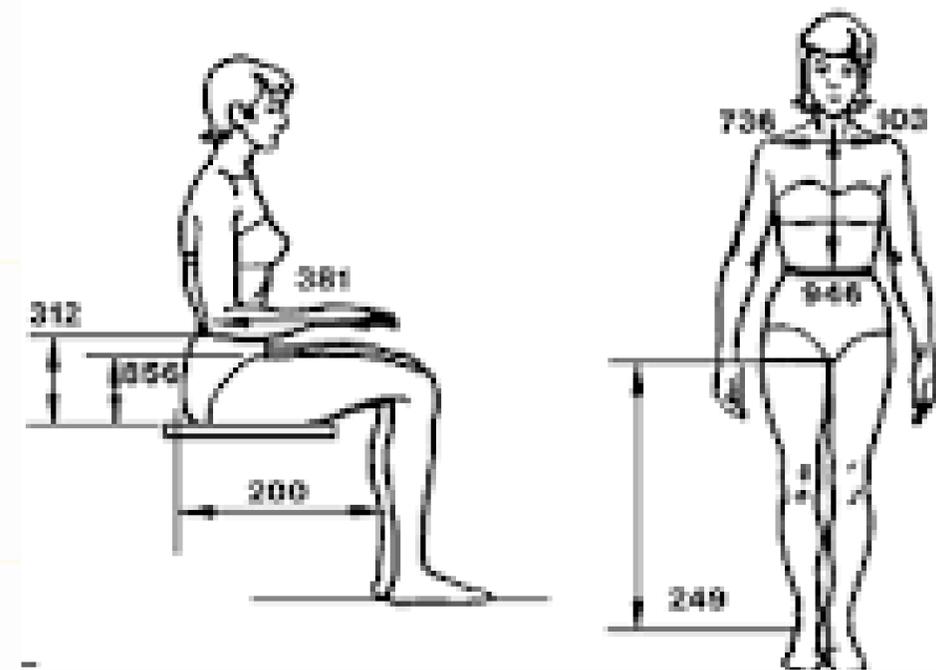


- Anthropometry is the measurement of the physical attributes of humans. In ergonomics, anthropometry is used as the basis of setting up a workstation.

- 1
- Measurements like eye height, the distance from the floor to a person's eyes, can be taken sitting or standing. Other measurements include elbow height, hip breadth, overall stature, knuckle height, and popliteal height, or the distance from the floor to the back of the knee.

- 2
- 3
- We use anthropometry in ergonomics to optimize the fit and function of products, both during design and during evaluation. When evaluating the fit of a chair for a person, we must consider different leg segment measurements to optimize the height and depth of the seat. When determining the appropriate height of the work surface we take into account both elbow height and knee height.

4

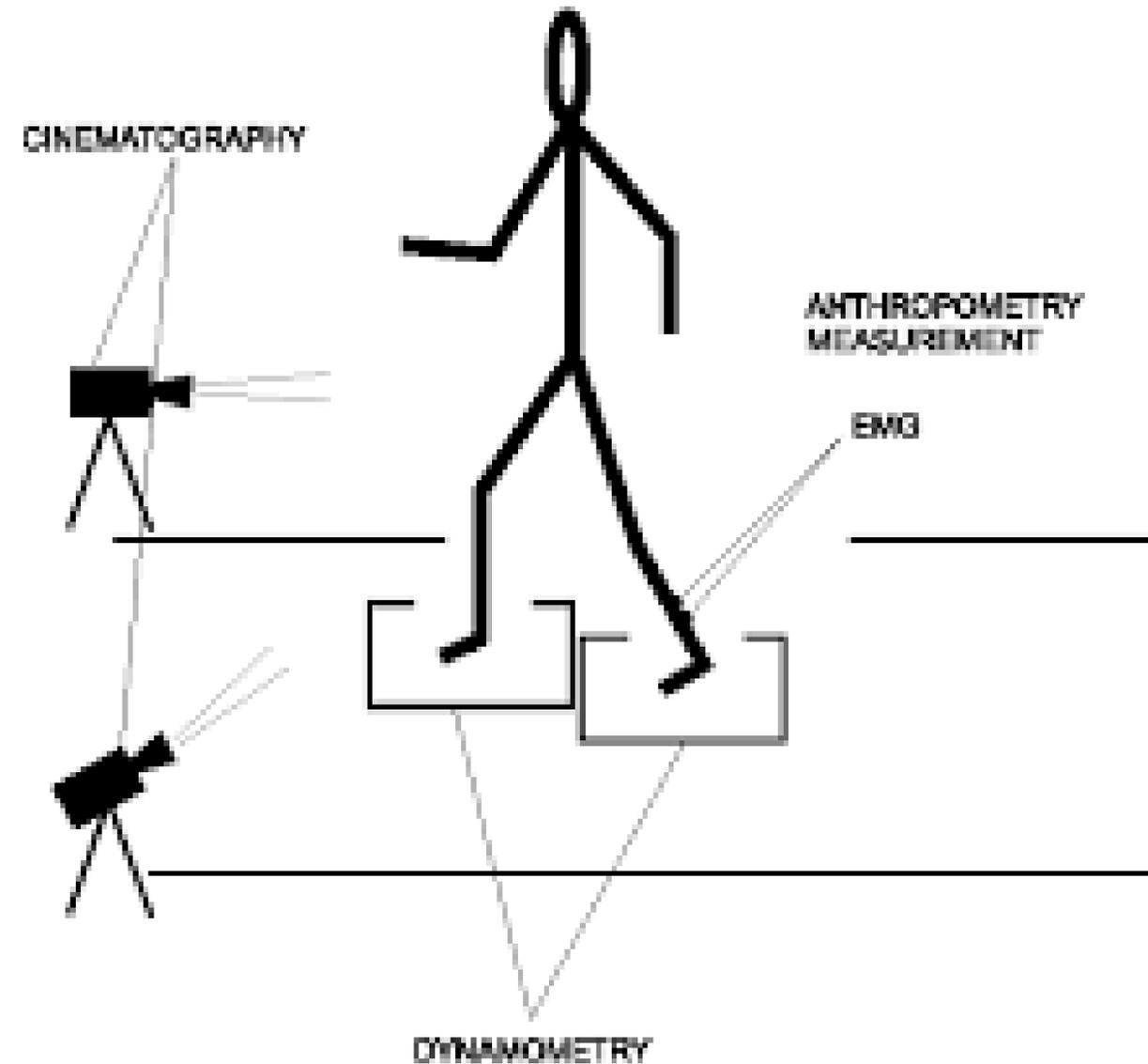
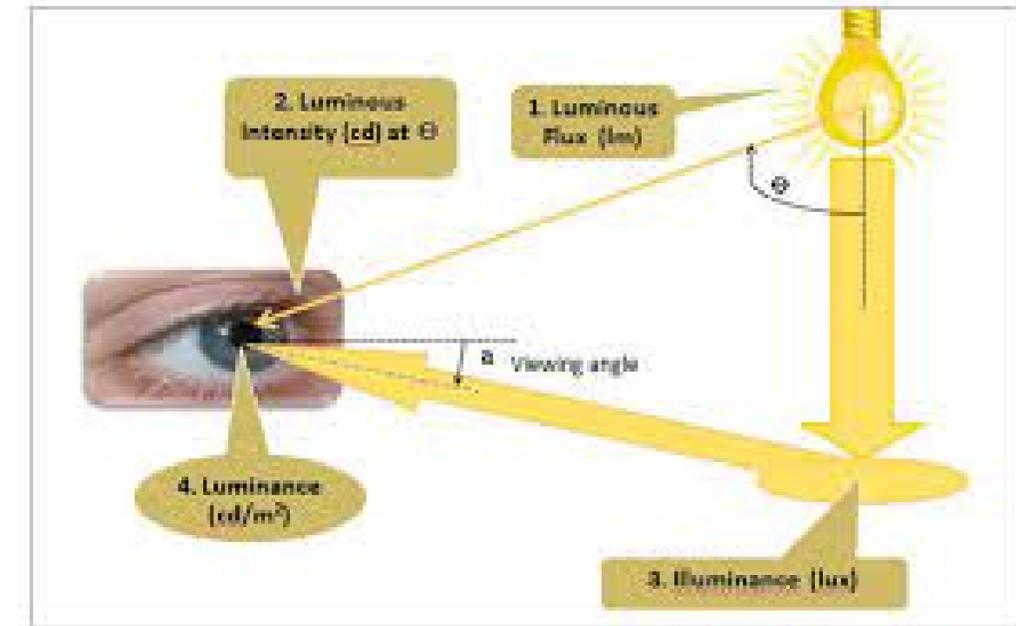


- When designing with ergonomics in mind, typically the average person body type is utilized. There are ways to design products for people who are young, old or disabled, these are usually specialty items. To make something that is compatible with the majority of the population designers simply we find the measurements for the average man and woman and chooses something in the middle.
- Once it is determined what is being designed and who will be using the design, the creation of the actual design is possible. There are several things to keep in mind when designing things ergonomically. One idea is to keep the body in neutral postures. This means making sure the back is at a constant s-curve and that body parts aren't being strained. When the body is taken out of its natural posture discomfort can arise . Also make sure that everything is easy to reach and are at the proper heights. One thing that can cause discomfort is static load: holding the same position for a period of time. Making furniture adjustable can help reduce static load.

#### Measured Anthropometric Data.

- Sitting Height
- Sitting Elbow height
- Sitting Shoulder Height
- Thigh Clearance
- Knee height
- Popliteal Height
- Buttock-Popliteal Length
- Eye Height
- Buttock-knee Length
- Forearm- Hand Length

- Specific instruments have been developed to take anthropometric measures. The anthropometer, or beam caliper, the spreading caliper and the sliding caliper are the traditional instruments for measuring body size.
- More advanced technology has been developed for data collection. These include photometry, stereophotography, videography, motion capture and 3D scanning



# CHAIRS

.....

A piece of furniture designed to accommodate one sitting or reclining person, providing support for the back and often the arms and typically standing on four legs. A seat of office, authority, or dignity .



Adirondack chair



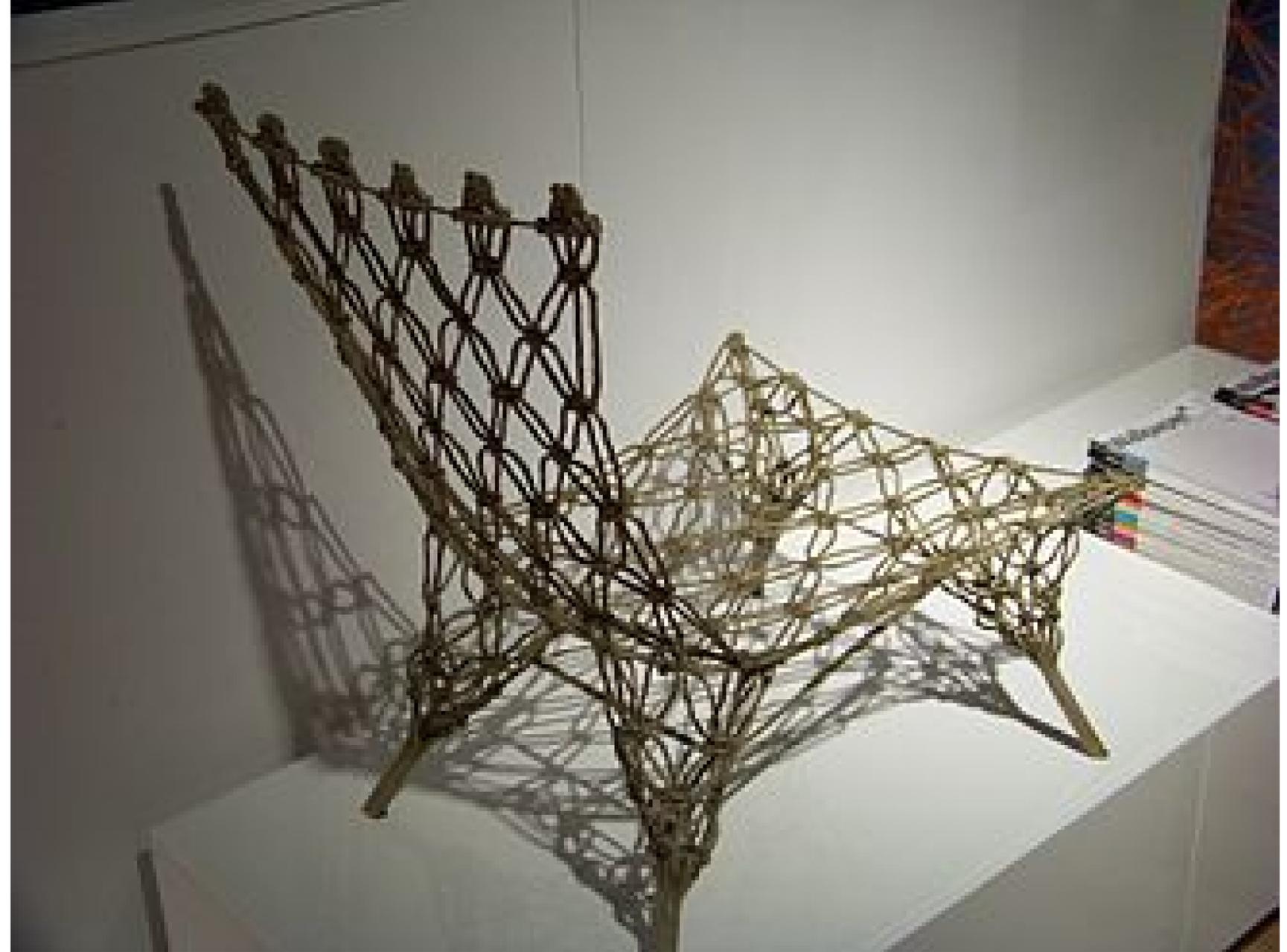
Balans chair



Ball chair



Deck chair,

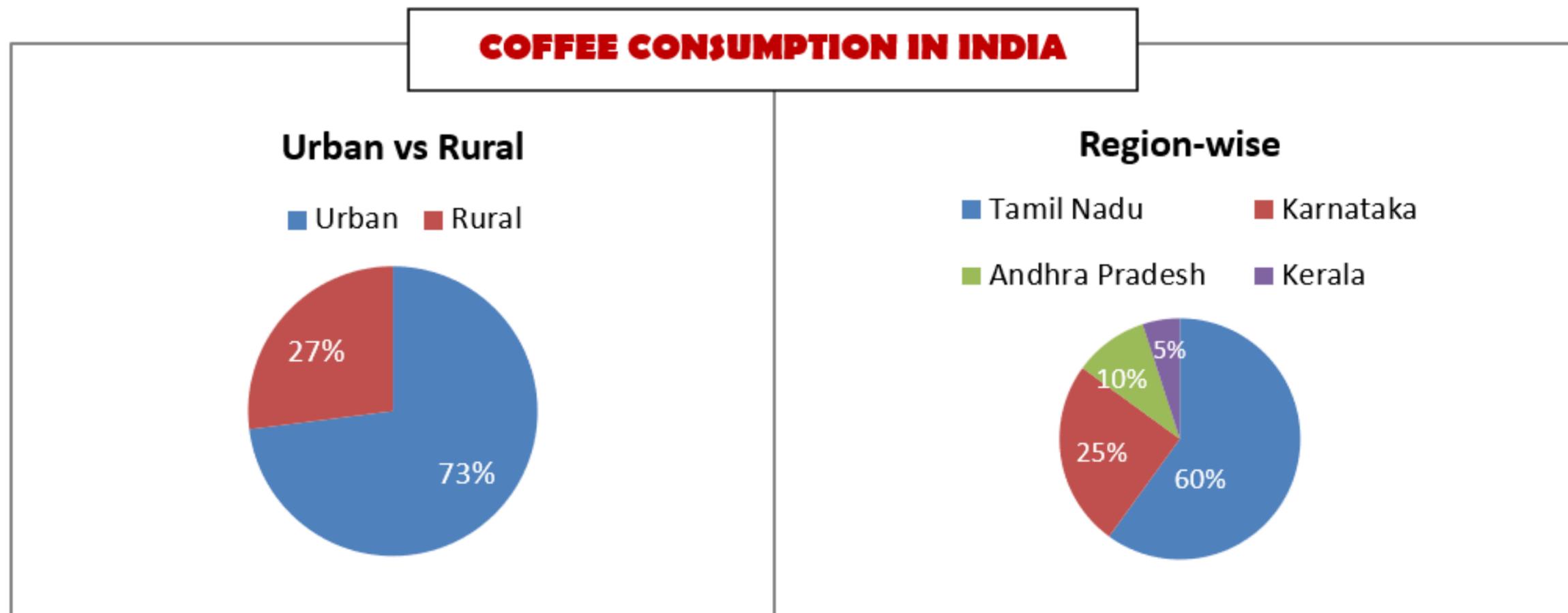


Knotted chair,

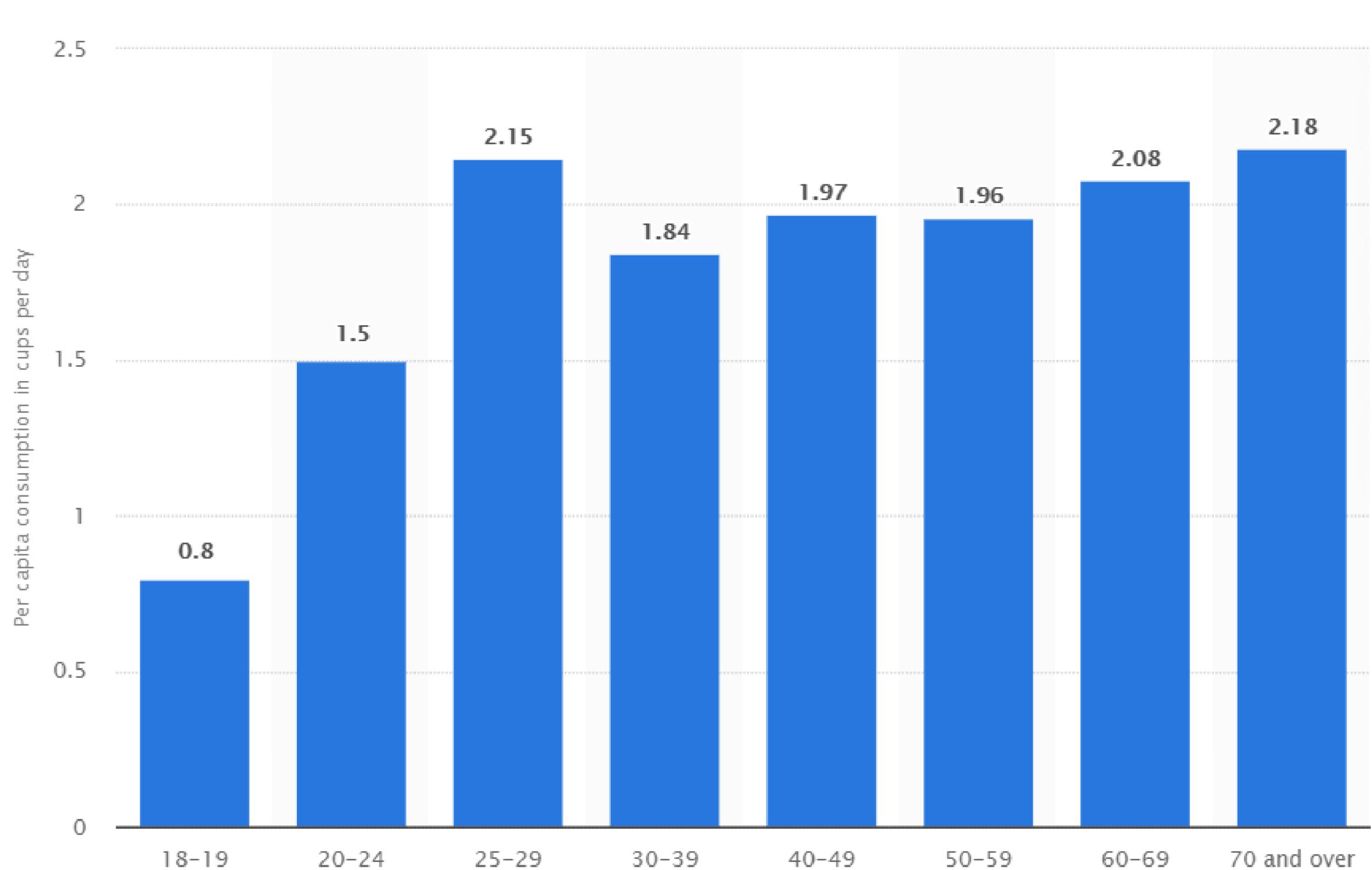
# COFFEE

Coffee has become an increasingly popular drink since the turn of the twentieth century. It is now no longer a typical drink, but a refreshing and vogueish beverage.

While the urban consumption dominates with about 73 percent of total volumes, the remaining 27 percent it is speculated to account for rural consumption, especially in South India. Among the South Indian States, Tamil Nadu accounts for 60 percent of consumption, while Karnataka, Andhra Pradesh, and Kerala account for 25%, 10%, and 5% respectively.



# CONSUMPTION OF COFFEE IN DIFFERENT AGE GROUPS



# PRODUCT SELECTED

---

## COFFEE CHAIR ( STOOL )

- Contemporary/Modern: Made of metal elements, low to mid-height backs and padding for comfort.
- Traditional: These stools are generally made of wood. For a dining counter, stools with fullbacks and arms, much like traditional dining chairs, are a good choice.
- Industrial: This style focuses on industrial materials such as metal and plastic.
- Transitional/Casual: These stools are usually backless or with a lip back. They have a minimalist vibe with little padding and are often made of wood.



# HISTORY OF STOOLS

---

Throughout Roman times, children and servants would typically be the ones to sit on a stool. For centuries and perhaps millennia the extravagance and positioning of a chair has been a key indication of status (think thrones, seats at the head of a table, etc) and so a rudimentary stool was seen as the seating option for those who were worthy of a place at a table but not quite warranting a more ornate chair.

However, in some cultures the stool itself is held in higher regard. In Africa, royalty once sat on stools while those around them were seated much lower to the ground or on the floor. One of the more famous examples of this would be the Golden Stool of the Ashante, based in Ghana.

This idea of social status being shown through chairs continued up until approximately the 1800s, when the Industrial Revolution started, the market adjusted and more people got access to chairs and mass production made it feasible for the home to be filled with a range of seating options.

Although, the practical purpose of a bar stool has never been questioned and they have been a common fixture in the earliest restaurants, pubs and bars, stools were about function over fashion for a long time. Traditionally, bar stools were made of wood and were seats without a back-rest. As times have moved on, however, and technology has advanced the variety of stools available on the market has dramatically increased. Stools really took off between the 1950s and 1960s and were found in almost every restaurant and bar. This was when the stool started really changing shape, size and style. Over time the fashion within eating establishments filtered down into the domestic setting and this range of bar stools began to find a home in the kitchen or living room.

Today, stools are available to buy in a whole range of materials – from wood to metal to plastic and everything in between. Seat coverings can be made out of any material including leather and velvet, depending on the level of luxury and opulence one is trying to achieve. Often bar stools now have the ability to adjust height meaning that they not only suit people of different sizes but can also be moved to different settings when required.

There are so many different styles of stool you can choose from when designing your home, they are now a good staple to have in any home that gives good versatility. Below we've highlighted some of the many types of bar stools perfect for home use.



Contemporary/Modern  
**ADJUSTABLE COFFEE STOOL**



COFFEE SHOPS



RESTAURANT



KITCHEN



OFFICE



COUNTERS



HOME



# FEATURES OF COFFEE STOOL

---



3 INCHES COMFORTABLE  
AND LONG LASTING  
PU CUSHION



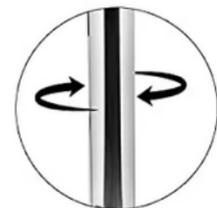
PREMIUM QUALITY  
LEATHERETTE



ADJUSTABLE HEIGHT



DOUBLE RING FOR SUPER  
STRONG SUPPORT OF SEAT



360 DEGREE SWIVEL



STRONG METAL FOOTREST



HEAVY BASE WITH RUBBER RIM  
AT BOTTOM TO PREVENT  
SCRATCHES ON FLOOR



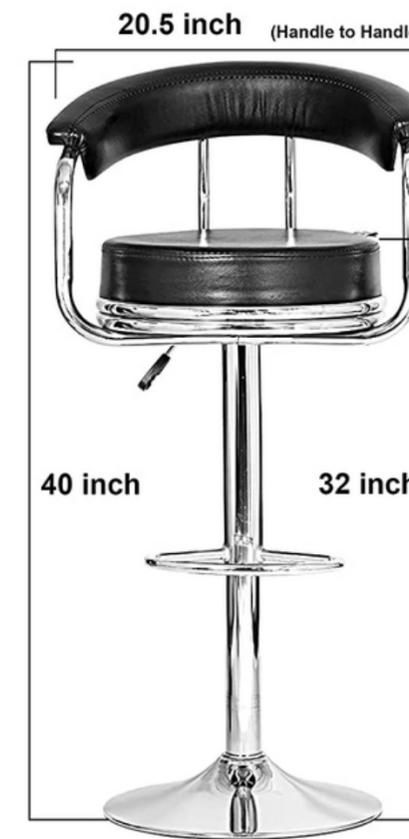
SUPERB CHROME FINISH

★ Quality materials: Heavy duty base and footrest are made of premium stainless steel chrome. Excellent workmanship resulting to an exquisite yet ergonomic sit and backrest for ultimate style and comfort.

★ Multiple functionality: Features an easy upward and downward adjustment from standard height to bar height in seconds; 360 degree swivel allows free movement in finding the best possible sitting position.

★ Versatile and contemporary design: Made to fit comfortably in nearly every room; Durable chrome frame makes it ideal for outdoor receptions, Cafe corner, beach side lounging and just about any indoor party where guests might need to pull up a seat.

★ World class standards; Designed for leisure, relaxation and a touch of class; Overall dimensions: Total height of chair - 42 inch, seat diameter - 15 inch, seat thickness - 3 inch, adjustable height - 24.5-33 inch, base plate width=15 inch.



Maximum Height



Minimum Height

# APPLICATION OF ANTHROPOMETRY IN A COFFEE CHAIR ( STOOL )

---

The guidelines that follow are for a user sitting in what is called the 90-90-90 position. This means that their lower legs are at a 90 degree angle to the horizontal ground plane.

Their knees are bent at 90 degrees, Their upper legs are parallel to the ground and their back is in contact with the back rest.

The seat height was determined by measuring the actual height of the stool . The industry average for seat height is 40 inches. The range in adjustable coffee chairs is 38 to 42 inches ("If the chair fits: All shapes and sizes",)

Seat depth recommendations range from 3 to 4 inches. The user should be able to sit with their back against the backrest and still have space between the edge of the seat and the back of the knee.

The requirements for seat width are somewhat more flexible than those for seat height and depth. In most cases, the minimum width is all that is required. Usually, there is a two-way constraint on a dimension – too high is just as bad as too low.





# SPACING

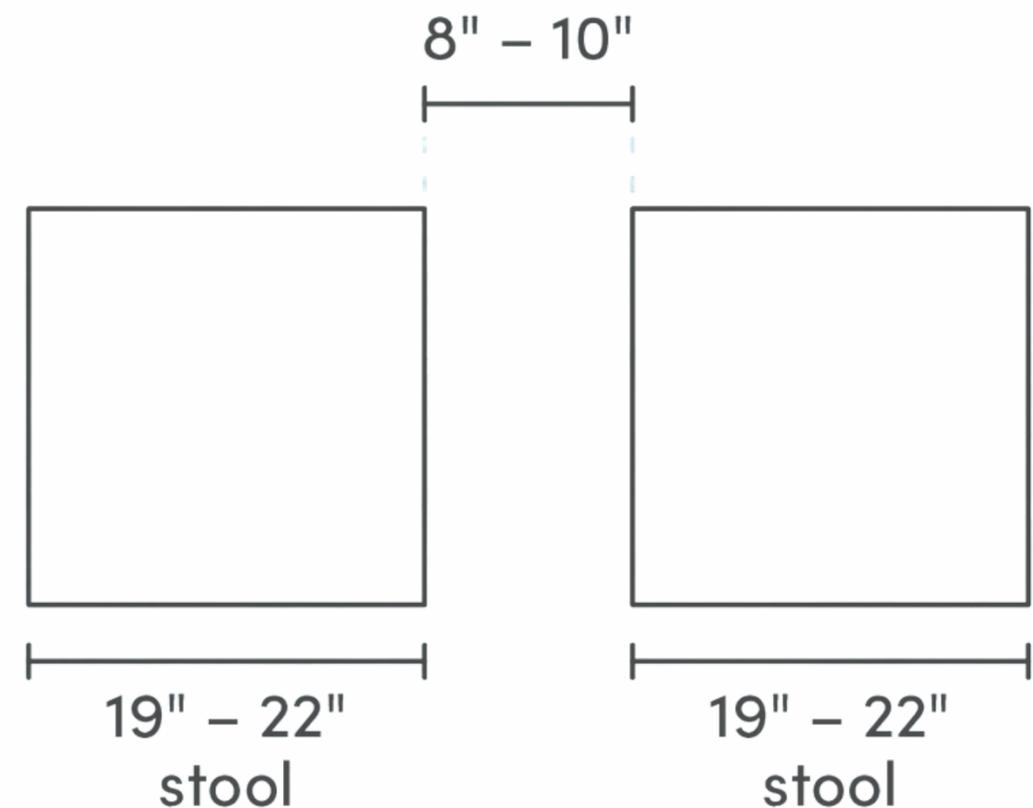
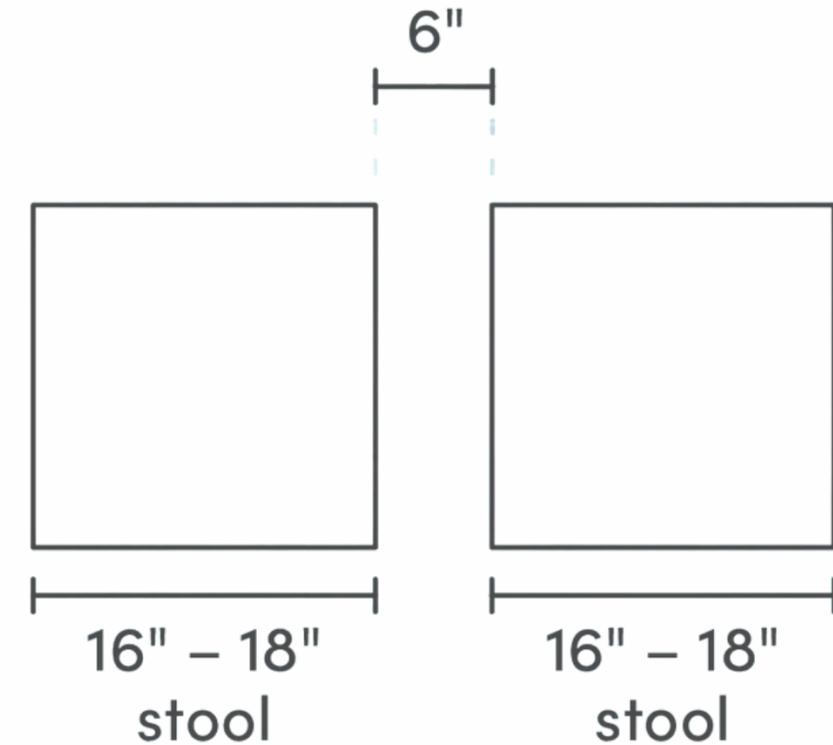
---

Designers recommend leaving 26" – 30" between the centers of each bar stool. This leaves at least 6" between each seat so we can easily get into and out of our seat and not bump elbows with anyone.

Wider stools should have even more room between seats, with 8" – 10" between stools that are 19" – 22" wide.

For a flexible alternative, we have an adjustable-height bar stool. They are outfitted with hydraulic pumps that move the seat up or down to create comfortable seating for all.

The height of the corresponding bar height stools (30" to 36" high seats) cause those seated to remain very close to eye level with those standing. It should be noted, however, that some people find it uncomfortable to sit in a chair/stool that keeps their feet this high above ground level.





# COGNITIVE ERGONOMICS



Cognitive ergonomics is the field of study that focuses on how well the use of a product matches the cognitive capabilities of users. It draws on knowledge of human perception, mental processing, and memory. Rather than being a design discipline, it is a source of knowledge for designers to use as guidelines for ensuring good usability.

Cognitive ergonomics mainly focuses on work activities which:

Have an emphasized cognitive component (e.g., calculation, decision-making)  
are in safety-critical environments

Are in a complex, changeable environment (i.e., where tasks cannot be predetermined)

Human cognitive abilities and skills are limited but adaptive Cognitive functions have their limits: in many cases, human beings have a limited capacity to perceive, focus and divide attention, learn, memorize, make decisions, solve problems, and communicate. On the other hand, the ability of humans to adapt in order to perform different tasks is exceptional. When designing work conditions one needs to make a trade-off between skills and limitations: people are able to overcome many cognitive limitations through learning, but this takes time.

# WHAT EVERYBODY OUGHT TO KNOW ABOUT COFFEE'S EFFECT ON THE BODY



## THE BENEFITS OF INCORPORATING ERGONOMIC DESIGN

By implementing ergonomically designed furniture, in home such as modern furniture like modern coffee stools with adjustable features, or chairs which can be adjusted in a multitude of ways, helping your staff to be more comfortable, and for their bodies to be supported throughout the working day. By helping them to understand how to sit correctly, and how to adjust an ergonomic chair to get the most out of it, and how to use accessories such as foot rests, there is far less chance of them going off sick as a result. Of course, we can't eradicate sickness completely, but furniture which is far more supportive for the mind and body is going to do a lot to cut it down drastically.

Benefits to using ergonomic chairs include:

- Support our posture
- More comfort
- Reduced risk of neck problems
- Reduced risk of back pain
- Make working easier



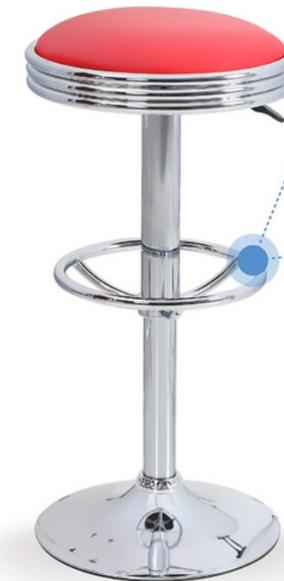
## INCREASES PRODUCTIVITY

Aches and pains have a habit of affecting focus and concentration over the course of the day, and also increases the chance of mistakes being made.

On the other hand, if we are comfortable while working we will be able to concentrate fully, be happy doing so, will work harder as a result, and is more likely to come up with creative and interesting ideas and solutions, because our mind isn't stuck on how uncomfortable we are feeling. All of this creates a productivity shift which can be extremely beneficial for us .

Ergonomics is also about looking at the design of the workspace and moving things around, so everything is within easy reach. Cutting down on stretching, lifting, and moving means time saved, and that also has a huge hand in increasing productivity.

PHI  
VILLA



## Comfortable Footrest

Humanized Design Let Your  
Legs Relax

## ERGONOMIC BACKREST

THE CUSHIONS OF THE BAR STOOLS ARE FILLED WITH HIGH-DENSITY SPONGES, PU LEATHER COVERING PROVIDE COMFORTABLE EXPERIENCE, ERGONOMICALLY DESIGNED BACKREST REDUCES FATIGUE AND RELAXES THE BODY.



## ..... CREATES HIGH LEVEL OF HEALTH AND SAFETY .....

By choosing durable furniture materials and ergonomic design we are committing yourself to the health and safety levels . Again, this boosts morale, but it also cuts down on the chances of injury and accidents which may take place within our space.

Ergonomic furniture installed at places like cafe helps to improve the health and safety of our consumers and it also helps to build goodwill of a place.

There are some fantastic and very beneficial advantages to choosing ergonomic furniture design within your working space. Opting to go ergonomic doesn't actually take that much time . Creating an ergonomic cafe can be as simple as talking to our consumers, finding out what problems they have when they use their furniture ,specially who visit cafe on daily basis , conducting risk assessments, and then purchasing the most suitable furnishings for the cafe.



## ARE THERE ANY DOWNS

Modern furniture in general does not last forever and we need to replace and update all your chairs and stools at some point. The way to look at it is when a piece of equipment is ready to go to the place scrapheap in the sky, or more suitably, to the recycling bin, we could replace it with something ergonomic instead. That way, we are not really spending money without need.

We may also need to understand that how to use the ergonomic functions on the new furniture, but that should take nothing more than ten minutes. For instance, a new ergonomic chair may have a plethora of levers and buttons that we might not have a clue what to do with. The handbook which comes with the chair will explain it, so we simply need to understand That's all it takes, and from there, we will be comfortable and happy and able to adjust our chair as per our need.

### ASSEMBLY & CARE INSTRUCTIONS

**PARTS LIST**



**BEFORE YOU START**  
Ensure that you have sufficient workspace.  
Check that you have all parts listed above.

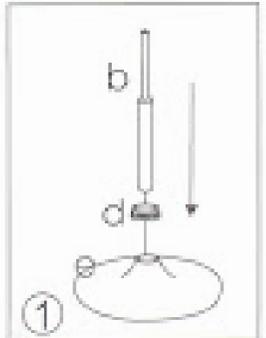
**STEP 1**  
Place the collar onto the base and then insert the strut into the base. Ensure that the strut is firmly located in the base.

**STEP 2**  
Screw the footrest onto the seat. Ensure that it is tight.

**STEP 3**  
Place the seat over the strut and apply downward pressure until it "clicks" into place.

**GENERAL CARE**  
Clean by wiping with a damp cloth. Avoid using scouring cleaners, bleach or strong detergents.

**CAUTION**  
**THIS PRODUCT IS DESIGNED AS A SEAT AND FOR SITTING ON ONLY. DO NOT STAND ON THE STOOL IN ANY CIRCUMSTANCE.**



## ARE BOOST IN MORALE

.....

Customers visiting cafe and parties , notice if we are cutting corners and not giving them the best modern office equipment, and that's not going to make them feel very valued. On the other hand, if people visiting the can see that cafe have not investing in high end or comfortable equipment, which helps take the strain off their back, allows them to adjust their seating requirements to their own needs, and you're doing it all simply because it helps them, and not for any other reason, they're going to feel very valued.

When customers feel valued they naturally visit agin at that place and probably suggest others to to visit that place , automatically boosts morale of place.

Morale is vital and should never be underestimated. When every single member of working place in the workforce has a high level of morale, the effects are like a small snowball turning into an avalanche, but a very positive one, rolling towards maximum productivity and profitability.



# CASE STUDY

---

When we typically think of ergonomics, we think of the physical aspects of how a chair interacts with the person sitting in it. But in this experiment, cognitive ergonomics became our focus—evaluating memory, attention, and cognitive flexibility (your brain's ability to easily transition between ideas or tasks)—essentially, how well a person could think in one chair versus another.

Focus on productivity and cognition—to examine participants' ability to think while sitting in three different kinds of coffee stools.

- Traditional stools
- High - back adjustable stools
- Low - back adjustable stools

Participants wore heart monitors, which measured heart rate variability (HRV) ratio, and a fNIRS device, which measured blood flow in the frontal cortex of the brain, where decision-making and creativity occur. They performed tasks that relied on short-term memory, the ability to relax when conditions change, and cognitive flexibility

## The Results

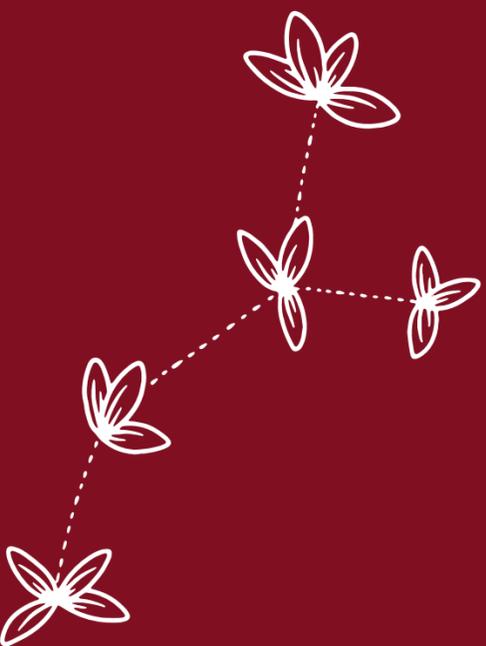
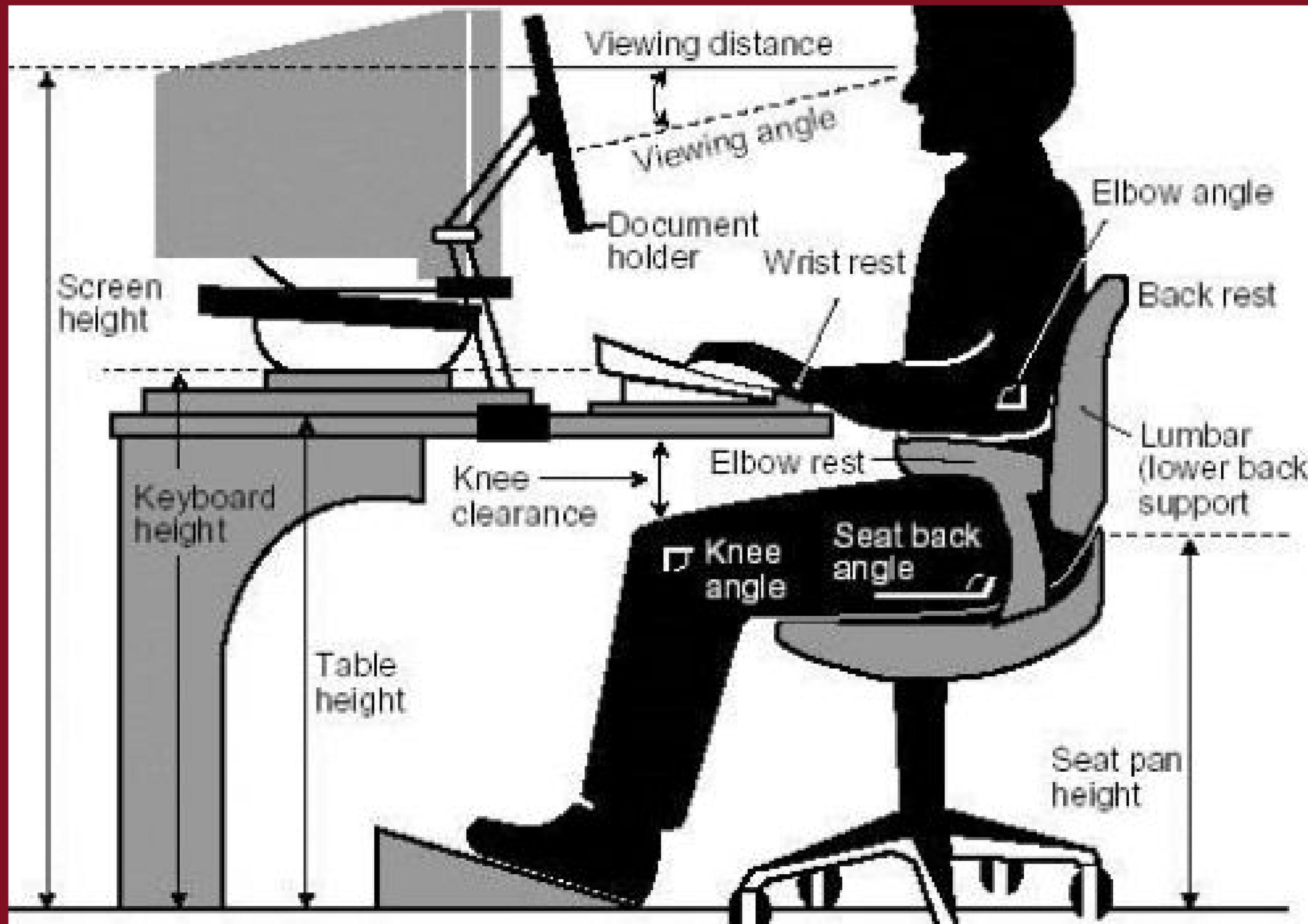
The research showed that, when doing individual work, participants had a statistically lower HRV ratio while sitting in the automatically adjustable chair ( stool ) in seven of the nine tests. The lower HRV ratio indicates that the participants experienced lower stress and were therefore more relaxed while sitting in the high-back adjustable chair as compared to the wood and non-adjustable chairs.

What's more, the Set-Shift cognitive test results demonstrated that people made decisions more quickly—without losing accuracy—while sitting in a High - waist comfortable and adjustable stools , compared with other stools in the experiment. Additionally, the Flanker test results showed that neural efficiency increased and stress decreased over time for people sitting in the modern stool having various features.

## What Does It Mean?

The results have important implications for work, since a lower HRV ratio is better for short-term memory, cognitive flexibility, and the ability to stay focused even in busy schedule of life , which are unavoidable in today's fast-paced, collaborative world of work. In fact, the researchers found that, over time, participants actually performed better (i.e., comfortable, better efficiency and relaxed ) on tasks requiring creativity when sitting in the high-back chair as compared to the other two chairs.

Cosm inspired designed stools are the only stools known to reduce cognitive load, giving people more mental capacity for their work , helps in decreases their stress—and for the creative ideas to flow. That's good for people, who want to accomplish everything on their to-do list, that undoubtedly want the same thing. The beauty of these stools is that it lets people focus on their work, not their stools.



# ENVIRONMENT ERGONOMICS

This branch of ergonomics studies the interaction of people with their physical environment. This can be an indoor or outdoor environment, an operational or free time environment. The interactions studied can vary from comfort to traumatic experiences. The existing importance of the research is on: Climate (comfort, thermal stress and clothing), Light (physiological eye function and impact of lighting parameters), vibration (whole body and hand transmitted), equilibrium and orientation (motion sickness in real and in virtual environments),

Workplace design should aim at designing to fit the human need rather than forcing people (customers ) to fit into the design. The arrangements of chairs and desks in an cafe and home should aim at creating an ambiance that is work-friendly and stress free. This allows a person to do work while maintaining good health.

Cafe ergonomics entails adopting designs that suits workstation, your people sitting position. It focuses on the placement of the chair, table , keyboard, lights , chandelier etc.

With the ergonomics approach, sitting is viewed as a specific, specialized activity which is influenced by the way that a sitting person interacts with the working environment.

Unlike restaurants, no single ambiance is offered in a cafe, and people are free to do what they want as they sit behind their laptops or binge on a book.

# ENVIRONMENT FACTORS

---

The influence of store atmosphere on customer's response. According to the model environmental stimuli which denotes the physical and non-physical element of a store affects the emotional state of the customer in terms of pleasure, arousal or dominance which in turn influences their approach or avoidance response .

## MUSIC

Customer preferences towards music affect their customer satisfaction ,café owners should fine-tune background music by changing its volume (i.e. loud to soft), tempo (i.e. fast to slow), and genre (i.e. classical or jazz), based on customer's interest to arouse consumers' emotional states. Similarly, music has an impact on emotions, mood, and pleasure also .



The mood of the listener can be positively or negatively influenced depending on the type of music played. Classical and pop music increases listener's feeling of ease and decreases feeling of worry or tension. Besides, music affects the customer viewpoint of waiting time for service at restaurants and cafes popular music increased the duration customers spend in a café compared to unpopular music which influences dine-in experience.

## LIGHTINGS

Lighting elements of store have great impact on the customer intention to visit the retailer for repurchase action. Moreover, the customers believe that the pleasant lighting in the café indicates the quality of the service provider.

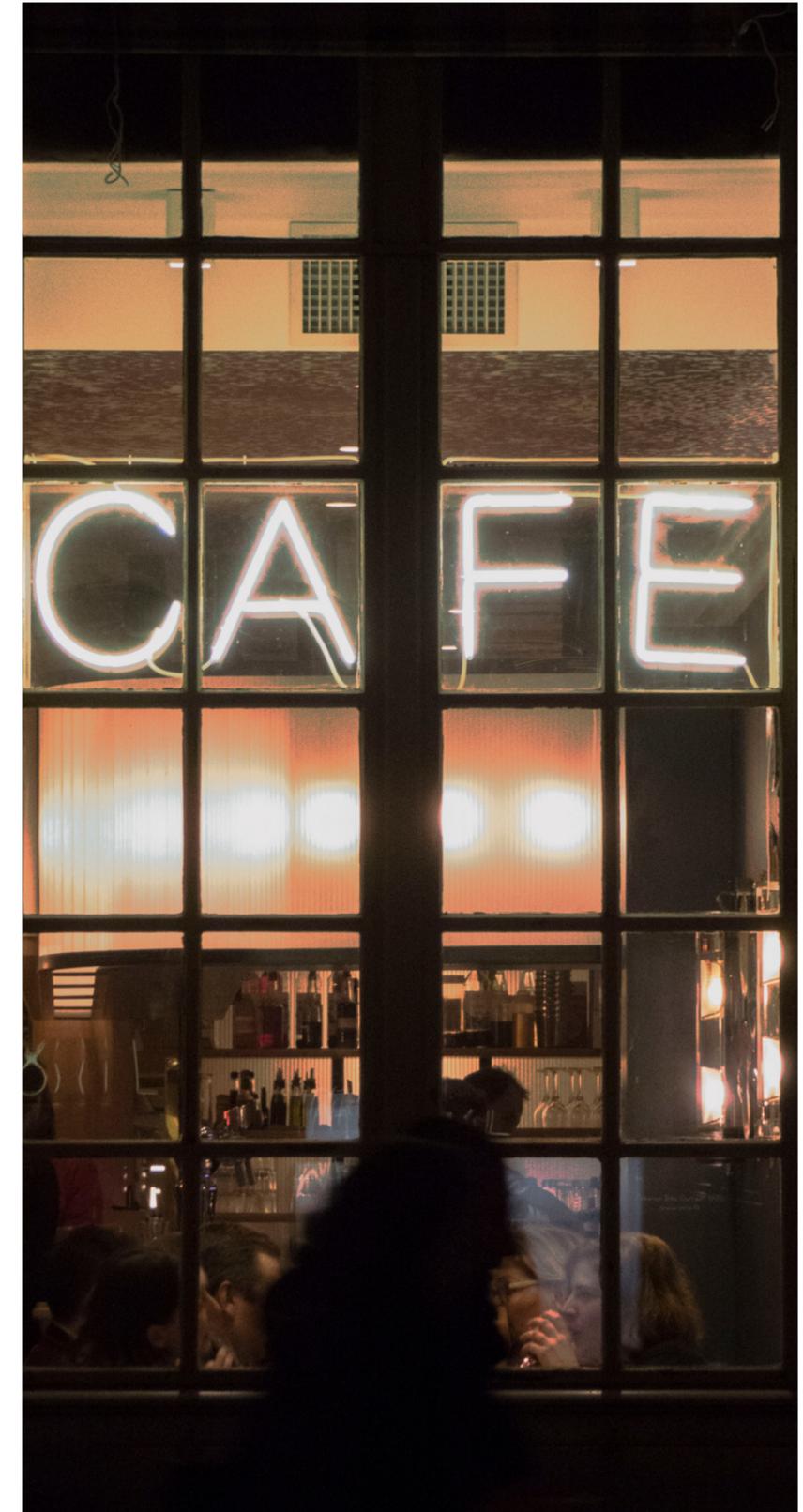
Lighting is one of the important characteristics of intangible dimensions which greatly affecting non-visual sense of consumer perception towards café selection.



## CLEANLINESS

The store layout is the design of a store's interior to provide maximum exposure of merchandise. Well-planned layouts are essential to facilitate in-store traffic patterns and increased customers' efficient movement through the store. Store layout in a café should emphasize on the seating arrangement, equipment and furnishing which increases customer satisfaction and leads them to spend longer hours in the café.

The five aspects of the café: music, lighting, cleanliness, store layout, decorations and artifacts have a positive influence on the intention to revisit among the café customers.



People spend about 80-90% of their time indoors. Therefore, there is a continuous and dynamic interaction between people and their surroundings that produces physiological and psychological strain on them, which consequently leads to changes in health, wellbeing and performance

The study that helps understand the physical, physiological, and psychological demands of a workplace should encompass a holistic view. It should consist of:

The setup of product in reference to the posture, the time taken to complete certain activity, the movement and repetitions required to complete an activity

The surroundings of your workplace, including the kind of workplace, the lightings used, the levels of noise, and the humidity and temperature

The tools used for performing the task, like the coffee mug, magazine, spoons and book.



The amount of time that we spent on product, will determine the extent to which ergonomics impact our well being. An ergonomically designed product should satisfy these questions:

Are you able to use your Notebook in the most optimum way?

Do you have an adjustable height tool to reduce eyestrain?

Is your workplace temperature right?

Are we able to maintain the recommended distance while at cafe ,home ; height and distance for seated and upright workstations?

Some features important for a good chair (stool) are -  
.....



- Adjustability - Whether that seat height is adjustable.
- Seat height range - Whether the seat height can be adjusted to the height recommended for the person who will use it. Alternate chairs may have to be selected for very short or tall people Ideally, a user should be able to sit with their feet on the floor or on a footrest without pressure on the underside of their thighs.
- Backrest - Whether the backrest is adjustable both vertically and in the frontward and backward direction and has a firm lumbar support, but does not create pressure points that restrict blood circulation. The backrest should be of appropriate height and width to provide support without restricting movement.
- Seat depth - Seats that suit the tallest and the shortest users. Users should be able to sit in the chair (stool) without pressure at the back of their knees, with their back supported by the backrest, and support through the buttocks and thighs.
- Seat width – The seat should be wide enough to allow users to have a comfortable and even pressure across the entire seat, and allow for some adjustments to their posture.
- Seat angle – Where the angle of the seat is adjustable, the seat should allow users to support their feet on the floor .

- footrest. Forward sloping seats should have a surface that has enough friction to prevent the user from sliding out of the chair or placing too much weight on their feet.

Seat surface – The seat surface should be comfortable, usually made of breathable materials that minimize heat and moisture buildup.

- Armrests – armrests should provide support and evenly support the arms. The rests should be adjustable both for height and width (distance from the seat). In other situations, armrests may not be helpful if they prevent a person from sitting close enough to the table. Adjust or remove armrests, as needed while designing.
- Stability - Check for the stability of the chair ,stool a five-point base is recommended
- Adjustable seat chair height - For preference the chair ,stool it should be pneumatically adjustable so that we can adjust seat-pan height while we are sitting on the chair. Some chairs have a mechanical height adjustment (spinning) mechanism that is much less convenient to use but is acceptable in some situations. Ideally the chair should height adjust to accommodate a smaller to taller person.
- Seat pan - If the seat pan is made from low-density foam, continuous use can cause it to become permanently deformed and no longer adequate to provide cushioned support. Insufficient cushioning and inappropriate contouring can cause discomfort, imbalance, and hip and back fatigue. Ideally, we should sit on a chair, stool at work for a couple of days to really figure out how comfortable it will be for you.

### Do you need a footrest?

In the vast majority of situations we should not need a foot support to be able to sit comfortably on your chair; however, if we do need a foot support, choose a free-standing, floor-mounted support that allows us to rest your feet out in front of you in a comfortable manner. Resting the feet on the pedestal base of the chair should not be undertaken for prolonged periods because the knee angle typically will be less than 90 degrees, and some restriction of circulation could occur.

### What chair covering is best?

Chairs can be covered in a variety of upholstery materials, each of which has benefits and concerns. Vinyl and vinyl-like coverings are easy to clean and spill resistant, but they don't breath, and if the chair begins to heat up under the thighs, uncomfortable amounts of moisture can accumulate. Cloth upholstery is the most common covering, but this is less resistant to spills and more difficult to clean. A cloth-covered seat pan can also become warm and moisture-laden, and cloth-covered foam seat pans can be a significant source of dust-mite allergen. When selecting your chair covering, think about cleaning and maintenance issues and plan appropriately.

### Do you need an adjustable-tilt seat pan?

In most situations this is not an essential feature. In some situations it can be helpful to change the tilt of the seat pan to help to maintain a balanced seated posture.

Thankyou