

An overview of posture

What is posture?

Posture is the description of an overall body position. This can be intentional or unintentional how we are hold our bodies, but it is the way each individual will position their body in space. Posture can be described in standing, sitting or performing any movement the body is capable of.

What is considered as good posture?

“GOOD” posture requires maintaining alignment of particular structures in relation to the rest of the body. Making sure all structural body parts are in their optimal position places joint structures, muscles, tendons and ligaments in the least stressful resting position. By maintaining good posture, general discomfort and extra strain placed on the body will usually stop. In general an upright posture is favourable.

What is considered bad posture?

“BAD” posture is when one or more structures of the body are misaligned or do not move in an appropriate way. As a consequence, muscles, tendons, ligaments and other structures may be affected and cause pain, discomfort and poor bodily function. A “hunched” over posture is usually considered as bad posture.



The optimal posture for the body

Dependant on the position of the body; whether we are laying, sitting, standing or performing a particular movement. For each position we will need to adjust our movements to place the body in the least stressed position. The best possible posture allows for good muscle and joint flexibility, strong postural muscle control and even/balanced control of muscles either side of the spine.

Laying posture:

Lying down on your back or on one side is the best possible position to be laying/sleeping. The spine should be in neutral (not leaning back or forward) and the shoulders should align over the hips with no rotation. Sleeping on your stomach can sometimes lead to neck and back pain. Sometimes placing a pillow underneath or between the knees can take some added pressure off the spine. A contoured pillow should be used when sleeping, which adequately supports the head and neck to decrease the chance of neck pain.

Sitting posture:

The ideal sitting posture is classified as having hips, knees and elbows bent at half way (this means about 90 degrees) with a neutral/straight spine. Like laying, shoulders should be over hips and slightly pulled back and down, so the shoulder blades are straight and not tilting in any one way. However in saying so, sitting puts a lot of stress on the spine and therefore should be adjusted every 10 minutes to reduce to chance of excessive tissue loading in one area of the body. Therefore, optimally it is important to purchase a chair which can cater for the positions above, but can be variable in positioning to change posture every 10 minutes in a safe way.

Standing posture:

Standing posture is the mechanical advantage that our bodies were designed for. However, because of our upright stance the body is very much against gravity and is prone compression especially through the spine. Therefore it is paramount that we stand in a correct posture to place less strain and load on the body's mechanical system in the most energy efficient way. We will focus on a head to toes approach for the best possible posture when standing:

- First of all stand tall! As tall as you possible can and try and elongate the spine.
- Head must be completely straight with not tilting of in any direction
- Earlobes should be in the middle of the shoulders.
- Shoulders should be pulled back and slightly down
- Let arms hang naturally by the sides of the body
- Back should be in neutral/straight with no excessive leaning in any which direction
- Lightly have core muscles turned on – imagine you are sucking your belly button towards your spine without abnormally breathing.
- Hips should be straight and not tilted in any direction – good approach to take is checking the bony parts of the hip with your thumbs and making sure they are facing directly forward.
- Knees should be straight and avoid complete locking
- Feet should be neutral in the arches and placed about shoulder width apart.
- Most of the bodyweight should be transferred through the balls of the feet.

By achieving these guidelines less stress will be placed upon the structures of the body and the tissues can be maintained in their optimal length at rest. This will decrease any postural discomfort.

Manual handling posture:

Manual handling is any activity requiring the use of force exerted by a person to lift, push, pull, carry or otherwise move, hold or restrain any person, animal or thing. This may be as simple as picking up a pen from the ground, so therefore it applies to everyone. To make sure we correctly do manual handling we are required to:

- Keep head, neck and spine in neutral/straight
- Bend through the hips, knees and ankles in order to lift/push/pull
- Avoid bending and twisting through the spine by making sure we position our feet shoulder width apart, toes are point in the direction of travel and our heels are flat on the ground.
- Keep load or weight as close to the body as possible
- The optimal position to manoeuvre any object is at waist height.

This will avoid any “wear and tear” of the joints in the body and decrease the chance of long term musculoskeletal problems (especially the spine) in the future.

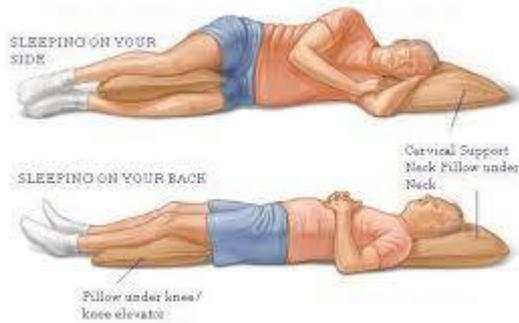


Figure 1: Perfect laying postures

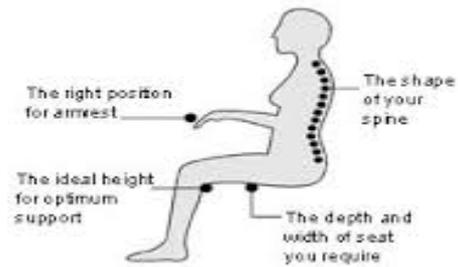


Figure 2: Perfect sitting posture

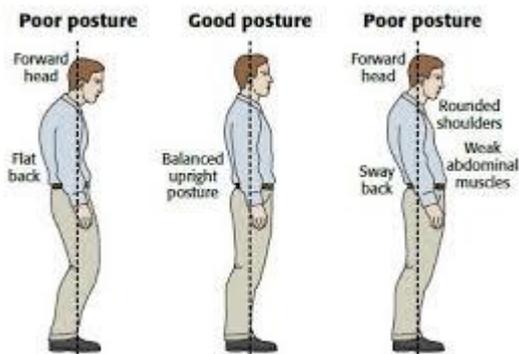


Figure 3: Perfect standing posture



Figure 4: Perfect manual handling posture

Assessing and testing posture

How is it done?

A postural assessment is usually done by a physiotherapist and requires a precise observation of the different postural positions and how the body segments respond. It is important to also view the patient from a front, side and back view to gain the information necessary to assess someone’s posture. In the clinic, posture can be tested by use of an instrument called a “Plumb line”. The plumb line is a piece of string that extends down from the ceiling and has a small weight attached down near the floor. The patient is then placed behind the string and observed from head to toe and left from right – we are looking for even weight and muscle force distribution of the body.

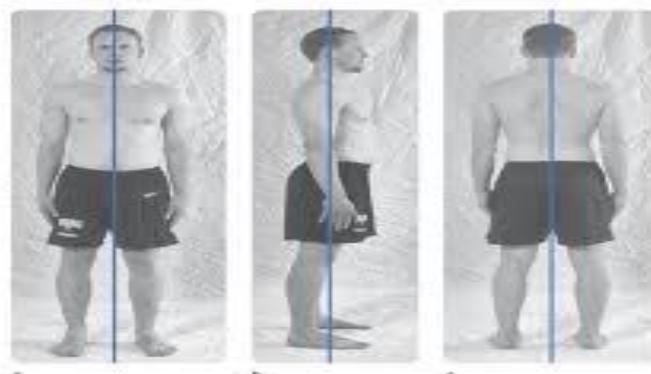


Figure 4.2 Correct standing alignment: (a) anterior, (b) lateral, and (c) posterior views.

View	Body part	Proper posture
Front view	Head and neck	Divide head into two equally
	Shoulders and chest	Go through sternum
	Arms	Should have equal gaps besides the body
	Hips	No obvious tilt either way
	Legs	Equal distance from line on both sides
	Feet	Facing straight ahead
Side view	Head, neck and shoulder	Line does down through ear lobe and tip of shoulder
	Chest and mid back	Line divides chest equally
	Lower back	Divides stomach and back evenly. The line will fall just in front of the tailbone
	Hip	line goes through the bony edge on the side of the hips
	Knees	Slightly in front of knee midline
	Ankles and feet	Slightly in front of outside ankle bone
Back view	Head and neck	Head should be square over shoulders
	Shoulders	Falls midway between shoulders – look to see if shoulder blades are flat
	Trunk	Directly through spine
	Hips	Line should go down buttocks cleft and aligned buttock folds
	Knee	Equal distance from one to the other
	Ankles and feet	Should be equal distance apart and have straight Achilles.

Common misaligned postural positions

These are some of the more common postures observed by physiotherapists that need addressing to avoid discomfort. They range from the neck all the way down to the feet.

Neck protraction: The neck upper neck is sitting backwards and the lower neck is positioned forward. To give a better picture, the posture looks like pink panthers – head is forward and neck is pushed out. This can lead to irritating headaches.

Rolling forward shoulders and winging shoulder blades: The arms are rolled inwards and cause a dipping in of the chest. This occurs usually with the shoulder blades “winging” on the back. “Winging” means the inside and bottom of the shoulder blades are poking out, where they normally should be straight.

Kyphosis: a large and excessive amount of bending forwards of the thoracic spine (mid back). A very common cause of muscular and joint back pain.

Excess bend in lower back: by bending too much through the lower back (especially when lifting an object) we place extra force on the discs and vertebrae of the spine. This can lead severe pain and discomfort and cause muscles to spasm and in some cases ligament damage. When people complain of a “disc problem” the usual result is over-bending too much with an excessive force through the lower back.

Anterior and posterior hip tilt: position of hip i.e. If the hips are titled forward (anterior tilt) or the hips are titled backward (posterior). If an anterior tilt is happening the lower back will lean backwards, where as if the hips are titled posteriorly the back will be more flat or bent forward. This tilt is usually observed by feeling and seeing where the front hip bone is facing.

Varus and valgus in the knees and ankles: The difference between the ankles and knees excessively bending inwards (valgus) or outwards (varus). Can be a compensation because of abnormalities in the hip.

Flat foot: The foot has a small or no arch on the inside. The use of orthotics may be a good option to address this.

Below are some diagrams of each

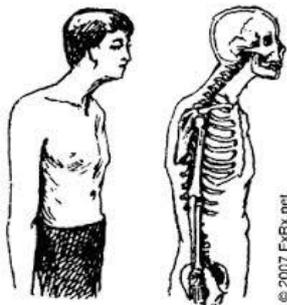


Figure 1: Neck protraction



Figure 2: Shoulder blade winging

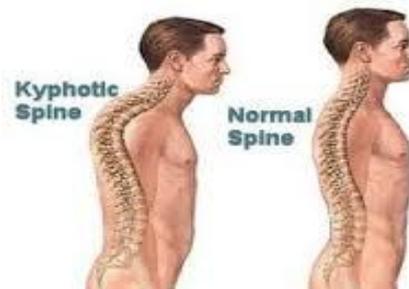


Figure 3: Kyphosis of the spine

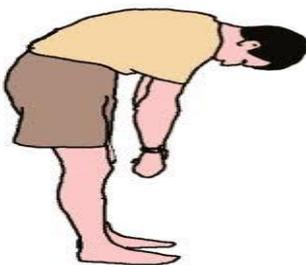


Figure 4: Excess bend in lower back

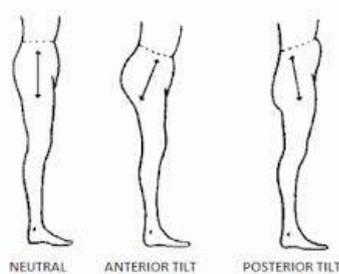


Figure 5: Tilting of pelvis

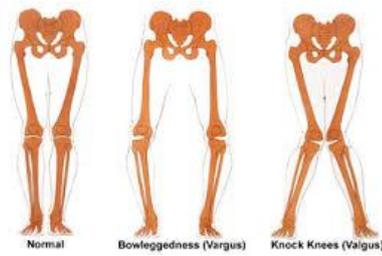


Figure 6: Valgus and varus of knees

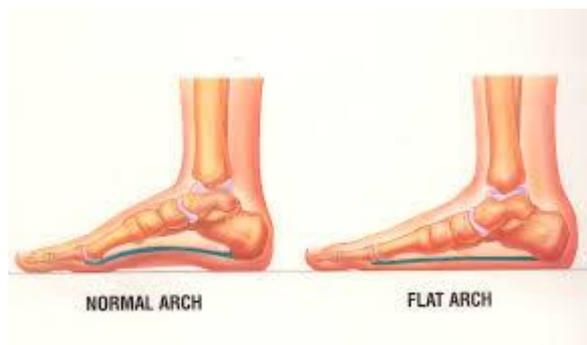


Figure 7: Flat foot

Treatment for misaligned posture

Treating posture is a maintenance issue and must be done daily to see positional correction of the body. Generally, when people have bad posture it is usually a flexed or “hunched” over posture, which needs correction. Posture will not be fixed in a day; because we have kept up these bad habits for an extended period of time, our soft tissues have acquired bad posture as the most comfortable position. Below are some listed exercises that will aid in giving assistance to the typical “hunched over” posture by strengthening the muscles and mobilising the appropriate joints:

Neck retractions:

- Stand back against a wall so the head, shoulders and trunk touching.
- looking straight ahead gently try to elongate the neck by pulling chin back
- It should feel as though you are trying to make a double chin and your head will slide slightly up the wall.
- Hold for 5 seconds and relax.
- Repeat for 10 repetitions and performed 3x per day

Shoulder blade pull downs and backs:

- Stand back against a wall so the head and trunk are touching
- Look straight ahead and pull shoulders blades together first
- Then gently pull shoulder blades down
- Hold for 5 seconds and relax
- Repeat for 10 repetitions and performed 3x per day

McKenzie back extensions:

- Lay flat on stomach for 30 seconds
- Gently place hands on either side of the chest and push up
- Make sure to keep pelvis on the ground
- Try to straighten out arms as much as possible and not turn on lower back muscles
- Hold for 15 seconds and relax to the lay position
- Repeat for 10 repetitions and performed 3x per day

Knee/hip bends and Pilates core exercise

- Lay flat on back
- Gently lift up legs and move towards chest
- Lower one leg to straight and just above the bed so it is hovering for 5 seconds
- Bring leg back up and repeat with opposite leg
- Repeat for 10 repetitions and performed 2x per day

Pelvis tilts on exercise ball

- Sitting on an exercise ball or round surface
- Gently rock the hips back and forward
- Make sure lower back and spine are staying as neutral/ straight as possible
- Repeat for 10 repetitions each way and performed 3x per day

Bridging

- Lay flat on back bend knees up and place feet on the ground
- Push through the heels and raise buttocks off bed
- Hold at the top for 5 seconds and slowly lower down
- Repeat for 10 repetitions and performed 2x per day

Cat stretch

- Go into kneeling position
- Hands shoulder be underneath shoulders and knees underneath hips
- Making sure the neck is in a neutral position gently arch through the back
- Then lower through the back and find the mid position of your spine
- Hold for 20 seconds and repeat
- 5 repetitions and performed 2x per day

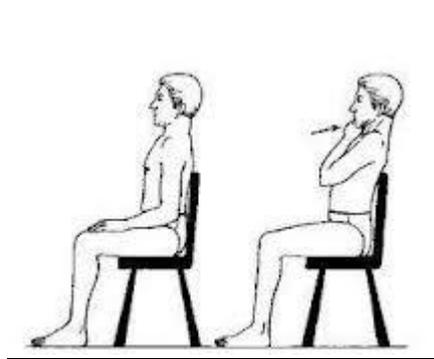


Figure 1: Neck retractions

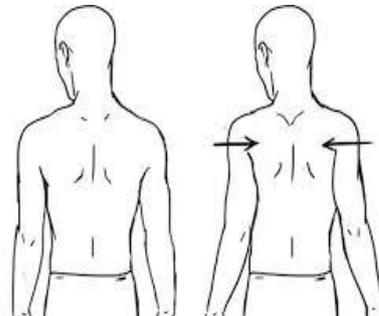


Figure 2: Shoulder pull backs and downs

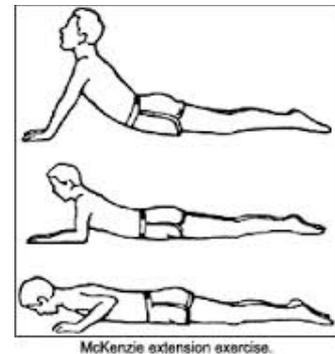


Figure 3: McKenzie back extensions



Figure 4: Pilates core knee bends

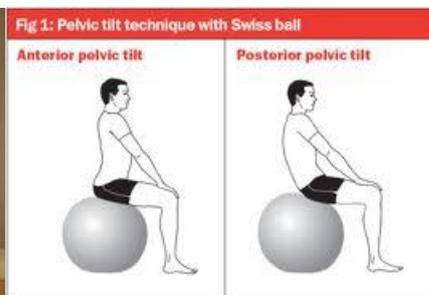


Figure 5: Pelvic tilt

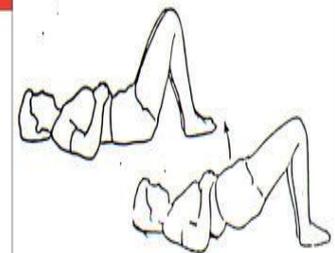


Figure 6: Bridging



Figure 7: Cat stretch

Before commencing exercises it is important to consult with a physiotherapist to tailor a program specifically for you. This will involve an appropriate demonstration, monitoring of technique and a prescription of frequency, intensity, type and time of the exercise.