

Paul Linden, PhD, in his book *Compute in Comfort* (Prentice Hall, 1995) has expressed this extremely well:

Contrary to what most people think, sitting up straight from a slump is accomplished by rolling the pelvis forward not by throwing the shoulders back or by 'straightening' the back.

Most people sit up 'straight' by arching their backs. This is done by using the muscles along the surface of the back to pull up on the rear edge of the pelvis. However, it creates tension and discomfort.

Paul Linden says that the way to rock the pelvis forward is to focus on the pubic symphysis, let it roll back, then ask the pelvis, independent of the back muscles, to roll the pubic bone down as if it were going under you. Your knees must be apart for this activity. The main muscle in action for this is psoas.

So, when sitting with the pelvis in its neutral position as on the Bambach Saddle Seat, the back is relaxed and the body is free of tension. The shoulders are in their natural position, the arms and hands are free, and the hands can sustain activity with precision and minimal body fatigue.

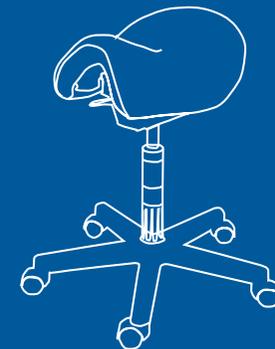
It is most important that close, precise work, which may have to be sustained for hours every day, over many days, and then for months and years, be undertaken with proper posture. Natural posture will provide the greatest benefit for spinal well being as well as ease for fine, repetitive hand function.



Comparing the position of pelvis, spine and shoulders: (above) a worker on a Saddle Seat; (below) a worker on a flat seat.



The Bambach Saddle Seat for Shoulder Girdle Stability

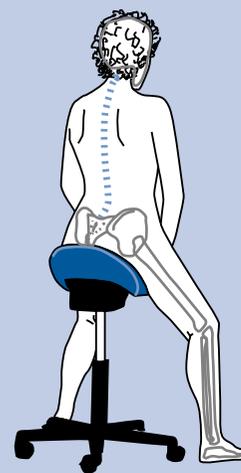


The Saddle Seat and the effect of posture on the shoulder girdle

The Bambach Saddle Seat helps reduce muscle fatigue by encouraging natural posture which, in turn, allows the shoulder girdle to function optimally.

Many professions involve highly accurate hand and finger movements that require shoulder stability. This effort may need to be sustained for long hours, as is the case in dentistry and surgery, but it is also true in other tasks, such as computer operations.

In order for arms and hands to develop sustained power and to enable precise, easy movement, the shoulder girdle must be stable and at ease during work.



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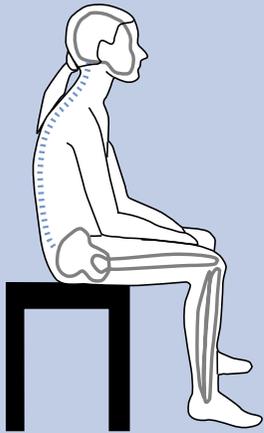


Figure 1.

On a flat seat the pelvis rocks backwards, changing the natural 'S' shape of the spine to a 'C'. The shoulder girdle rolls forward, the arms feel 'heavy' when lifted to work, and tension is induced in the shoulder and neck muscles.

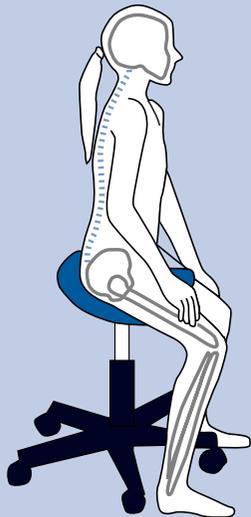


Figure 2.

The Saddle Seat allows the pelvis to adopt its natural position which, in turn, maintains the natural 'S' shape of the spine. In this position, raising the arms is easy, and movement is uninhibited.

The shoulder girdle structure

The head of the humerus is stabilised by muscles and ligaments (rather than by a deep, bony joint). These soft tissues are attached to the scapula and clavicle. The scapula slides over the back of the rib cage. The clavicle, which is attached to the sternum, moves at the front of the rib cage. This flexible system, while strong and stable, allows the arms to move freely and with a wide range of movement. However, as we know, the proximal joints must be stable in order for the distal joints to have maximum function.

The shoulder girdle is connected to the spine, so that every pelvic movement and change in spinal posture affects its function and stability.

With the pelvis and spine in their natural, neutral position, the head and limbs can act in a balanced and efficient way. Once the pelvis changes from its upright, neutral position every other joint is affected, the most significant being in the upper body.

The shoulder girdle when sitting

One way to appreciate these upper body changes is to sit on a flat seat. With or without a back rest, it is not long before the posture begins to slump. The pelvis rocks backwards which, in turn, changes the spinal curves from the natural 'S' shape to a 'C' shape. This causes the shoulder girdle to roll forward, and the chin to jut out (see Figure 1). A person raising the arms forward in such a position will notice how heavy they feel, how unstable they are, and it

will not be possible to move the arms in their full range. Moreover, tension will be induced in the shoulder and neck muscle, and the spine can endure serious, damaging discal pressure.

When sitting up 'straight' and rocking the pelvis forward (see Figure 2), the pelvis is brought back to its upright or neutral position, which restores the natural 'S' bend to the spine. The arms, scapula and clavicle roll back into their natural position. Raising the arms will now be easy; they are now free to move accurately and with great stability. The head and neck are no longer forward and strained. When using a Saddle Seat, this natural 'S' shape is much easier to maintain.

The shoulder girdle when standing

The effect of the pelvis on spinal, shoulder, head and neck position can also be felt when standing. Rock the pelvis to the front then to the back. Notice, when the pelvis is rocked back, how the lumbar spine flattens and how the shoulders and arms roll forwards, the palms facing backwards (see Figure 3). When rocking the pelvis forward to mid position, the lumbar curve is restored, and so is the natural position of the arms, with the palms now facing inwards (see Figure 4).

This exercise demonstrates, in a practical way, how pelvic position is the key to comfort and natural, healthy functioning of the shoulders and neck. The pelvis is the critical factor in determining the position of the spine.



Figure 3.

When the pelvis is rocked backwards, the lumbar spine flattens, the shoulders and arms roll forwards, and the palms face backwards.



Figure 4.

With the pelvis in its natural forward position, the lumbar spine assumes its natural 'S' shape.