

SITTING SAFELY TO PREVENT PRESSURE DAMAGE

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If a person is ill, has undergone surgery or has a progressive disease resulting in relative immobility, his or her ability to use seating dynamically can be dramatically compromised. Healthcare providers must ensure that patients have comfortable and safe seating to contribute towards the prevention of pressure damage.

Studies have found that patients who are chair-bound and unable to change their position independently are at greater risk of pressure ulcer development than patients nursed in bed (Lowthian, 1979; Gebhardt and Bliss, 1994). Independent movement is what safeguards the patient against the dangers of pressure damage. However, for those patients who have limited movement, the responsibility falls to healthcare providers, whether nurses, carers or therapists, to ensure they are seated safely.

Sitting and the healthy person

Sitting is a dynamic activity and should enable the individual to lean forward and move to each side easily, using the ischial tuberosities like rockers to reposition whenever discomfort occurs. The ischial tuberosities are rounded, bony prominences found at the base of the pelvis. When a person is seated the ischial tuberosities take most of the person's weight, with the pelvis in a slight anterior tilt (Collins, 1999), the thighs supported by the seat surface

and the hips at 90° flexion (Figure 1). The pelvic position promotes the normal curvature of the spine and allows the person's head to sit directly over the pelvis (Collins, 2001).

Sitting and the unwell person

If a person is ill, has undergone surgery or has a progressive disease resulting in relative immobility, his or her ability to use seating dynamically can be dramatically compromised. This may be because of a number of factors:

- ▶▶ Lack of sensation whether due to a congenital condition such as spina bifida or due to a progressive illness such as multiple sclerosis
- ▶▶ Inability to physically change position
- ▶▶ Inability to change the chair or cushion provided.

There are two main postural problems that occur in patients who are sitting for long periods of time:

- ▶▶ Posterior pelvic tilt (sacral sitting)
- ▶▶ Pelvic obliquity.

Both problems can result in fixed postural changes and risk of pressure damage (Collins and Shipperley, 1999).

Posterior pelvic tilt

Posterior pelvic tilt occurs as the pelvis is tilted backwards. The patient, instead of sitting firmly on their buttocks, slumps backwards and repositions on the sacrum (lower back) (Figure 2). This is caused by poor physical capability and/or poor chair provision, extensor muscle spasm, poor trunk mobility and the inability of the individual to move independently (Collins and Shipperley, 1999).

Posterior pelvic tilt can be caused by:

- ▶▶ A chair that is too high, causing the individual to slide forward until his or her feet touch the floor
- ▶▶ A chair that is too low, resulting in hip flexion that causes discomfort so the individual slides forwards to reduce this
- ▶▶ A chair with a low back, which may cause the person

to slide down until he or she feels supported

- ▶▶ A chair with too deep a seat, which causes pain behind the knee so the person slides forwards.

Pelvic obliquity

Pelvic obliquity is caused by a number of factors, such as poor trunk mobility leading to a slumped posture, and leaning to one side to rest on an armrest; the resultant posture means the individual is placing weight on only one ischial tuberosity. If this posture is not corrected it may lead to permanent compensation by the spine, resulting in a scoliosis and possible pressure damage (Collins and Shipperley, 1999) (Figure 3).

Correct seating

The ideal chair should allow the person to sit with his or her feet flat on the floor, with hips and knees at 90°. The seat should allow 2.5 cm either side of the individual's thighs and leave a 2.5 cm gap behind the knees. The armrests should be wide enough to support the shoulder joints in a neutral position. The backrest should be sufficiently high to provide support to the shoulders and head (Collins and Shipperley, 1999). Figure 4 shows what happens if the chair is too low.

The pressure distribution in a neutral sitting position is shown in Table 1 (Collins, 2001).

Conclusion

Appropriate seating should aim to position the person in a chair that is at a correct height, depth and width, so that his or



Figure 1. The patient should be seated with hips and knees at right angles, feet flat on the floor and arms/shoulders supported. The patient's weight is evenly displaced through the feet, thighs and sacrum.



Figure 2. If the chair is too high, the patient slides forward until feet brace on the floor, with the pressure points of the sacrum and heels taking the pressure. Persistent posture will lead to pressure damage in those areas.

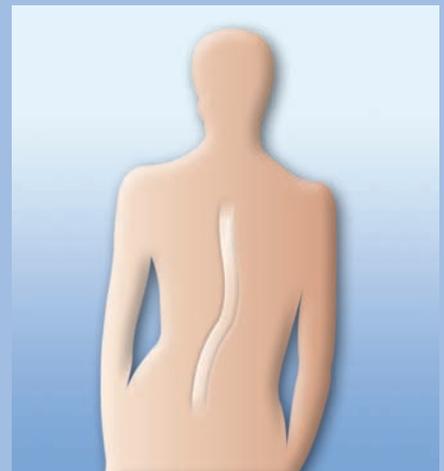


Figure 3. Scoliosis; an S-shaped spine deformity, may be congenital or caused by persistent poor posture.

Table 1	
Pressure distribution in a neutral sitting position*	
Buttocks and thighs	75%
Feet	19%
Arms	2%
Back	4%
*From Collins (2001)	

her weight is evenly distributed throughout the body, with the bulk of weight taken through the buttocks and thighs. This will provide comfortable and safe seating to contribute towards the prevention of pressure damage. **WE**

Collins F, Shipperley T (1999) Assessing the seated patient for the risk of pressure damage. *J Wound Care* 8(3): 123-6



Figure 4. The chair is too low; the patients upper legs are not supported, and weight is increased onto the buttocks leading to pressure damage.

Glossary

Anterior tilt: front or forward posture.

Extensor muscle: straightens the joint.

Flexor muscle: cause a joint to flex or bend.

Pelvic obliquity: a sideways tilt to the pelvis, so that the bulk of the patient's weight lies on only one buttock.

Compensation: the spine adjusts its normal posture into an abnormal one to accommodate the patient's seating posture.

Scoliosis: the spine develops a sideways curvature, leading to an s- or c-shape deformity.

Neutral position: neither flexed or extended, relaxed.

Key Points

▶ **Studies have found that patients who are chair-bound and unable to change their position independently are at greater risk of pressure ulcer development than patients nursed in bed.**

▶ **Appropriate seating should aim to position the person in a chair that is at a correct height, depth and width, so that his or her weight is evenly distributed throughout the body, with the bulk of weight taken through the buttocks and thighs.**

Collins F (1999) The contribution made by an armchair with integral pressure-reducing cushion in the prevention of pressure ulcer incidence in the elderly, acutely ill patient. *J Tissue Viability* 9(4): 133–7

Collins F (2001) Sitting: pressure ulcer development. *Nurs Stand* 15(22): 54–8

Gebhardt K, Bliss MR (1994) Preventing pressure sores in orthopaedic patients — is prolonged chair nursing detrimental? *J Tissue Viability* 4(2): 51–4

Lowthian P (1979) Pressure sore prevalence. *Nurs Times* 75(9): 358–60

MYTH BUSTER: WOUND CLEANSING

Q Should all wounds be cleansed?

A No. Wound cleansing should occur only when any of the following is present:

- ▶▶ Necrotic or sloughy tissue which requires removal to facilitate healing
- ▶▶ Excess wound exudate
- ▶▶ Dressing residue, where there may be particles of dressing remaining, as this may increase the inflammatory process
- ▶▶ Debris or contamination when the injury occurred.

If the wound is clean from debris or contaminants which could delay the healing process the wound should not be cleansed.

Q What solutions should be used to cleanse wounds?

A Wounds should be cleansed with either warmed saline or warm tap water (Angeras et al, 1992).

Q What method should be used to cleanse the wound?

A Historically, wounds were cleansed using cotton wool balls or gauze swabs. Cotton wool balls

are no longer used but gauze swabs are still used today but should be restricted to the surrounding intact tissue of the wound and not the wound bed itself. This is because gauze can cause trauma and bleeding to healthy granulation tissue.

It is generally accepted that wounds which require cleansing should be cleansed using either irrigation or while bathing or showering (Lawrence, 1997).

Irrigation applies controlled pressure to help remove the debris or contaminants but without causing trauma to the wound bed. Irrigation is generally achieved by commercial products such as spray cans and pods. A syringe and an 18-gauge venflon can also be used, however, this method is less effective.

If the individual is fit for bathing and showering then irrigation can be achieved. Ensure that the wound is the last thing that is irrigated before leaving the shower. If bathing, it is not recommended that the patient sits in the bath with the water level at or beyond the wound edges.

Angeras MH, Brandberg A, Falk A, Seeman T (1992) Comparison between sterile saline and tap water for the cleaning of acute traumatic soft tissue wounds. *Eur J Surg* 158: 347–50

Lawrence JC (1997) Wound irrigation. *J Wound Care* 6(1): 23–6