Check for clearance behind the knees to avoid pressure and occlusion occurring at the popliteal fossa.

The combination of pressure and shear forces taken at the sacrum increases the likelihood of tissue damage (Bader and Hawken, 1990).

When seated in a chair that is too long, the front of the seat can press against the back of patients’ knees, resulting in occlusion and subsequent lower limb lymphoedema, and pressure ulceration at the popliteal fossa.

Nurses can quickly check if there is adequate safe clearance (approximately 2.5cm) by placing two fingers widthways behind the patient’s knee and the seat (Fig 1). If there is not enough clearance, the use of a back cushion will bring them forwards in the seat, providing clearance at the back of the knee.

It is important to ensure that the patient is not too far forwards and that they still have benefit from the use of the armrests.

For people using a wheelchair, a request to the wheelchair centre-approved repairers can be made to have the seat canvas cut back or replaced to provide the necessary preventive clearance.

Pressure ulceration at the ischii can be avoided by checking patients are sitting with their thighs approximately level with the hips. It is easier to identify from the side view, by seeing if their knees are higher than the hips.

Sitting with the knees higher than the hips substantially increases the peak pressures taken through the ischial tuberosities.

In this situation, the seat is too low for the occupant. Ideally, to rectify this problem, a chair should have the design facility to be adjusted for seat-to-ground height; if not, it may be necessary to change the chair to one that is higher.

In the community, patients’ armchairs can sometimes be raised using seat blocks; this depends on the design of the existing chair legs.

For those sitting in a wheelchair, check they can place their feet on the footplates comfortably. Correct adjustment of footplate height (thighs approximately level) has been shown to reduce peak pressures taken through the ischial tuberosities by as much as 50% (Medical Devices Agency, 1997).

Pressure damage over the trochanteric head can be prevented in seated patients by ensuring that the armrest panels do not press against their hips. Nurses can quickly and easily check optimal clearance by sliding their hands either side of the hips (thumbs pointing upwards, fingers together).

A wheelchair seat that is too narrow can sometimes be spotted by tell-tale scuff marks on the outside of the plastic or metal armrest panels, which are caused by the patient’s hips pushing against the side of the armrests, making them bulge outwards and catch on the wheels during propulsion.

These simple clearance checks and corrective actions will prevent severe tissue damage.

The design of the chair armrests is important. They need to: be at the optimum height for the individual to be able to use them to manoeuvre themselves in the seat; provide support for pressure relief; provide some security for those who are unstable; and help people to safely rise or sit down in the seat.

When used as a support by seated patients, armrests can contribute to the dissipation of pressures taken through other parts of the body. If the armrests are too low, patients may lean down to rest on one side for support, causing pelvic obliquity and increasing pressure taken through just one ischial tuberosity.

Using cushions

Pressure-reducing cushions are often provided with the aim of reducing or redistributing seated pressure.

These are made of foams, gel, or a

![Fig 1. Checking for clearance behind the knee](https://example.com/fig1.png)