



Skin areas supplied by sensory fibres of individual spinal nerves

**Figure 4.8** – Spinal nerves.

- 2-stage log roll on to a vacuum mattress.
3. Patient requiring extrication:
- Extrication devices should be used if there is any risk of rotational movement.
  - Rearward extrication on an extrication board.
  - Slide extrication invariably involves some rotational component and therefore has higher risks in many circumstances.

The techniques for use of devices are described in Pre-hospital Trauma Life Support (PHTLS) and other manuals.

## 5.1 Cautions/precautions

### Vomiting

- Vomiting and consequent aspiration are serious consequences of immobilisation. Ambulance clinicians must always have a plan of action in case vomiting should occur.
- The collar will usually need to be removed and manual in-line immobilisation instituted. This may include:
  - suction
  - head-down tilt of the immobilisation device
  - rolling onto side on the immobilisation device.

### Restless/combatative patients

- There are many reasons for the patient to be restless and it is important to rule out reversible causes e.g. hypoxia, pain, fear.

- If, despite appropriate measures the patient remains restless, then immobilisation techniques may need to be modified. A struggling patient is more likely to increase any injury, so a compromise between full immobilisation and degree of agitation/movement is appropriate.
- The use of restraint can increase forces on the injured spine and therefore a 'best possible' approach should be adopted.

### Head injury

- Patients with a head injury may have raised intracranial pressure which restraint can increase; therefore, a 'best possible' approach should be adopted.

### Special cases

- Some older patients, and those with cervical spine abnormalities e.g. ankylosing spondylitis, may not be able to breathe adequately when positioned absolutely flat or tolerate a collar. Therefore a 'best possible' approach should be adopted which may include manual in-line immobilisation or maintenance of the pre-existing spinal deformity e.g. ankylosing spondylitis where putting the patient in the in-line neutral position is unsafe.

### Immobilisation – evidence for how to immobilise

A recent Cochrane review found no randomised controlled trials comparing out of hospital spinal immobilisation techniques: