

The intention of this course is to package the best ideas, techniques and practices of a number of therapies, and give you the knowledge to apply this bundle of specialist back care for the benefit of your patients.

We will only cover the techniques that you can apply with safety and confidence. Today as we all know, the threat of litigation is a real one. Some people make a living suing others for their own financial gain, and we are in a prime position as a therapist of any sort, for this type of action. For this reason, the course only contains techniques that are safe to apply. Please keep within this framework for your own safety.

Osteopathy, Chiropractic and Physiotherapy are three of the common therapies that many sufferers of back problems choose when looking for help. The physical manipulation that is required, and the real high risks of further injury from these therapies to the patient from the inexperienced, mean that these techniques are exempt from this course.

This does not mean that you are at any disadvantage in your treatment of back problems. We still have many more safe and effective treatments to offer, treatments that have to some degree or another, been lacking in their full potential, due to an over reliance on the above.

You may though, work alongside an Osteopath in the treatment of a patient. This could work well with the right people involved, and take the high-risk work off your shoulders. Take your time introducing back care into your practice and see what works for you. With the very high rate of back problems that people suffer, you have a vast potential for a busy practice.

Take this course at a rate that you feel comfortable with. Don't rush through, but make sure you feel comfortable with everything that you have studied. Get friends and family to test you on a regular basis, and use them as guinea pigs to practice the techniques that you have learned.

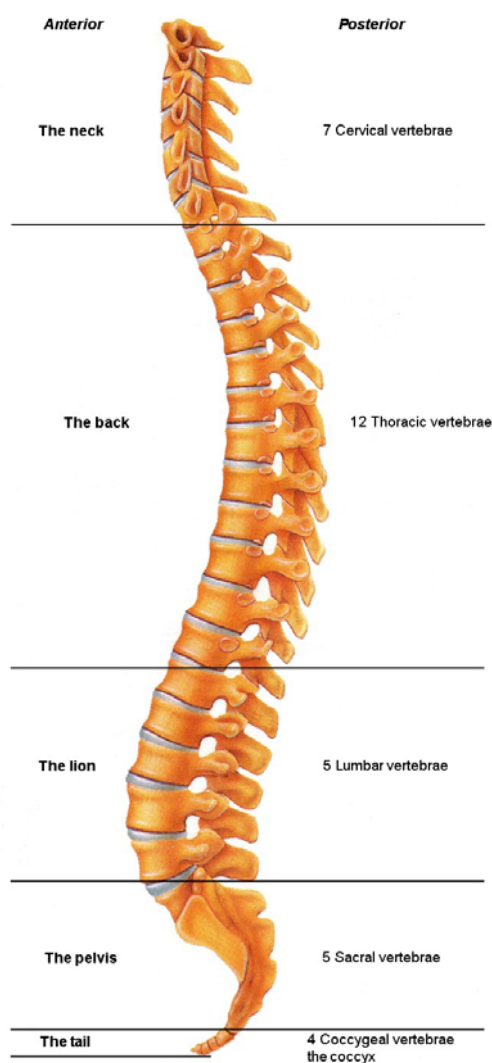
We will start the course by looking at the human back, its purpose, its construction and the problems that can plague it. Later we will look at the ways we can treat those problems in a safe and effective manner. Advice is also given on other areas related to introducing holistic back care into your practice, i.e. records, advertising, contacts etc.

If at any point, you need any clarification on any area or areas that you are not sure about, then please ask, we are here to help in any way that we can. The final words we would like to say before you embark on this journey of study is **“enjoy the course”**.

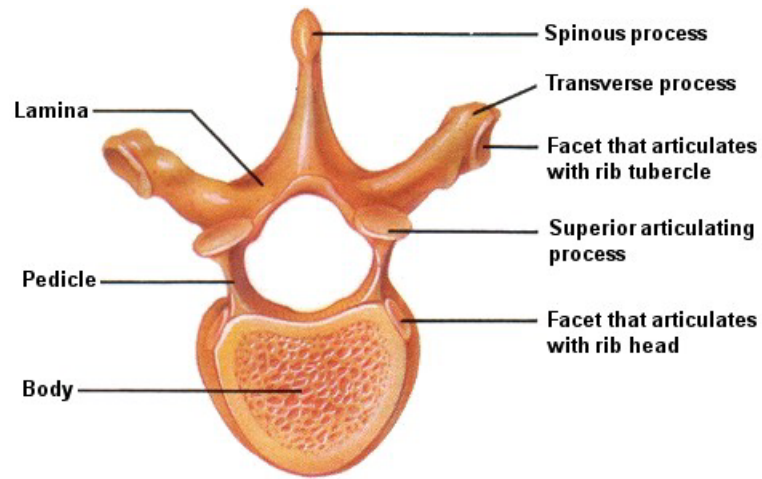
THE SPINE

The spine is known medically as the **Vertebral column**. Its role is to **support** the whole of the body while **protecting the spinal cord** (main nerve pathway of central nervous system). The spine or vertebral column consists of **33** bones called **Vertebrae**. In a baby all or most of these vertebrae are free to move. As we grow older, some of the vertebrae fuse together, and in adults just **24 vertebrae** are free vertebrae.

This is why some anatomy books show just 24 vertebrae as being in the column. The names of the vertebrae from top to bottom are: **Cervical, Thoracic, Lumbar, Sacrum & Coccyx**. The vertebral column is capable of more complicated movement than any other joint in the body. It is capable of twisting and bending in all manners of directions singly, or as is more common in combination. The spine also **supports the skull** at the top and provides **stability for the pelvis** at the bottom. Between the two, it provides an **anchor for the ribs**.



Regions and curves of the spine



The following list gives the number of vertebrae in each section of the column.

- 7 cervical vertebrae
- 12 thoracic vertebrae
- 5 lumbar vertebrae
- 5 sacral vertebrae
- 4 coccygeal vertebrae

Between each of the vertebrae are flexible discs called **Intervertebral discs**. These act as a cushion between each of the vertebra, and gives a shock absorber type protection when we walk or run. This intervertebral disc also allows us to bend and twist without wear and tear on our vertebrae.

Each of these intervertebral discs has a very strong outer type skin called the **Annulus**. This strong outer skin has the job of containing a firm jelly like centre called the **Nucleus**. It is this nucleus that ruptures through the annulus when we suffer a prolapsed disc, often, but incorrectly called a slipped disc.

The vertebrae are also joined to each other by two small joints on the back of the spine facing the chest. The two joints are thought of as a pair, and are called **Facet joints**. The facet joints can easily be affected by wear and tear over time, or due to poor posture and sporting practices etc.

The facet joints are very prone to sudden strain or violent movement, and often can get calcified bony spurs, growths or swellings.

The spine is not a straight column, but has a natural twist. From the top where it supports the skull with the first two cervical vertebrae, it curves in towards the throat. After this it curves out again to the mid-back, and then in again towards the lower back. After this the spine curves briefly out and in again.

Some people though have much more of a curve than others. Hereditary factors together with adopted posture, occupation, age etc., can have a bearing on the curve of the spine.

Physiotherapists sometimes refer to some people as flat-backs, this due to only a slight curve in the patient's spine. In many this is just how they were made, and gives no problem. In others, some of the natural curve has been lost, and this can result in back pain.



FACT FILE: The intervertebral disc is 90% water at birth and still almost 70 water in a 70-year-old. Exercise of the right type keeps fluid levels up and stops drying out. A disc can shrink by 10 to 15% of its height in a day; this is about 2cm in total for someone of average height. A disc is stronger than the vertebra it touches, but is more susceptible to damage from twisting and bending than the vertebra is. A disc in a young person has a breaking strength of 800-900kg under compression. Even in the elderly it is about 450-500kg. The intervertebral disc has none or very few pain-sensitive nerves; pain comes from a rupture pressing on a nerve sheath.

As we know, the vertebrae are separated from one another with intervertebral discs. Nerves leave the spinal cord through little openings in the bone on each vertebra, and then go to every other part of the body.

Some scientists believe that the human being has evolved faster in other areas of the human body than in the evolution of the spine. They see that the spine we have is more suited to moving around on all fours.

We are unique in the fact that we are upright all of the time, no other mammal tends to spend its time with only two limbs on the ground. This of course puts tremendous strain on the spine, with the line of gravity going straight from top to bottom. Many other mammals have their spine horizontal; examples are dogs, cats, cattle and so on.

Having the spine in an upright position as we humans do, does put a great deal more stress and strain on it. Mammals on all fours do have far less stress on their spines than we do. That said, what we lose on the swings, we gain on the roundabout, having two limbs free is a great advantage when working as a therapist, or making cups of tea.



FACT FILE: About 30% of people have back pain of some sort at anyone time. About 90% will have back pain at some time in their life.

SPINAL CORD

The spine has a very important role to play in supporting and protecting the spinal cord. The spinal cord is the main nerve cable that connects the brain to the rest of the body. Without this vital protection, we would soon have major problems.

The bony vertebral column completely surrounds and protects the delicate spinal cord. The space where the spinal cord runs through is called the **spinal canal**, and is formed by the shape of the vertebrae.

As the spinal cord runs down the spinal canal, the nerve roots divide off from the main body of the cord in stages. They then run down independently for a short distance still within the canal before **emerging in pairs**, one on **each side of the vertebral column**.

After a short distance from the spine, the nerves split into many smaller ones that cover every single area of the body. **Both motor fibres and sensory fibres** are found in this complex network of nerves. Each spinal nerve is connected with two roots, one that carries motor fibres, and the other that carries sensory fibres.

We have **43 major nerves** in total that leave the brain. **12 leave the brain directly**, and **31 travel down the spine** leavening it at all levels to continue their journey to every part of the body.

Below is the number of nerves that leave the spine at each section, and the main body parts that they supply.

- **cervical (8)** shoulders, neck, arms
- **thoracic (12)** main trunk & arms
- **lumbar (5)** lower back & legs
- **sacral (5)** genitals & legs
- **coccygeal (1)** vestigial tail

Any damage to the spine at any given point, can cause problems at all localities below this point. Therefore, if we break our lower back we may become double incontinent, and unable to use our legs. If it were our neck, the whole of our body may be paralysed.

As yet, little can be done for a major spinal injury, as this nerve tissue does not heal like many other tissues in the body. However, things are looking more and more promising with new advances in science, and the treatment of this problem.