Scoliosis surgery in adults

Treatment of spine deformity in adults focuses on restoring function and alleviating pain in combination with correcting the curvature of the spine.

Spinal deformity in an adult may have been present since childhood or may be the result of the aging process.

Adult spinal deformity refers to abnormal curvatures of the spine in patients who have completed their growth.

**Adult idiopathic scoliosis**

This is a slow increase in curvature that began during teenage years in an otherwise healthy individual and progressed during adult life. Curves may increase in size 0.5°-2.0° per year. Adolescent curves less than 30° are unlikely to progress significantly into adulthood, while those over 50° are likely to get bigger.

**Adult degenerative scoliosis**

This condition also goes by the name ‘de novo’ (new) scoliosis. As the name implies, this begins in the adult patient, due to degeneration of the discs, arthritis of the adjacent facet joints and collapse and wedging of the disc spaces. It is typically seen in the lumbar spine (lower back).

**Post-surgical deformity**

This type is seen in patients who had previously undergone spinal surgery either for scoliosis or for degenerative low back conditions. Other less frequent causes include curvatures due to osteoporosis (brittle bones), previous fractures of the spine due to an accident, spondylolisthesis (slipped vertebrae) and rarely, infections and tumours of the spine.

**Surgical treatment**

Once a degenerative scoliosis (curvature of the spine) is associated with nerve root compression or worsening back pain, the chance of spontaneous resolution is small and it is likely that as time goes by the symptoms will get worse. Surgery is needed to restore the spine to balance and to take the pressure off any nerves that may be compressed.
This is achieved by inserting pedicle screws into the adjacent vertebral bodies (spinal bones) and attaching these to two rods to improve the curve and to make more space for the nerves. Bone graft is also inserted to enable part of the spine to fuse. It may also be necessary to undertake a bony decompression of the canal and nerve roots. In some cases, spinal segments have to be cut and realigned (osteotomy) or entire segments may have to be removed prior to realigning the spine (vertebral column resection).
There are many different types of surgical procedures designed to treat adult spinal deformities. Surgeons customise the surgery for each patient depending on their needs.

The patient should have a clear understanding of the risks and benefits. All reasonable non-surgical measures should be attempted first. At the same time, when patients are carefully chosen and are mentally well-prepared for the surgery, excellent functional outcomes can be obtained which at times can be a positive life changing experience for a given individual patient.

Overall there is a 70-80% chance of being pleased with the outcome of surgery with significant relief of back and leg pain and worthwhile improvement in ability to walk and exercise.

The risk of nerve root damage is of the order of 5% and this might result in a weakness or even paralysis of part of the leg or ankle. There is also a small risk of damage to the nerves comprising the cauda equina and if this were to occur then control of bladder and/or bowel and/or sexual function might be lost. Overall the risk of this outcome is less than one in a thousand. Risk of infection is again less than 1% but if infection does occur, it may be protracted and require long-term antibiotics.

Scoliosis surgery is a major operation and there is a very small risk of paralysis or loss of life.

It is most important that you fully understand the nature of the operation which you are considering. If you have any further questions after reading this leaflet the team will be only too happy to discuss them with you.

Most patients are admitted on the day of surgery (although some are occasionally admitted the night before). The surgery takes four to five hours and patients are usually admitted to a high dependency unit (HDU) for the first 24 hours following surgery. They will be seen in HDU by a physiotherapist for breathing and bed exercises. We follow the consultant’s daily plan, which may vary between patients. However, it is usual to start getting out of bed on day two. Patients normally go home between five and seven days.
Spinal deformity service team:

- **Consultant Orthopaedic Spinal Surgeons**: Mr J Crawford and Mr D Hay
- **Scoliosis co-ordinator** – 01223 216854

**Decision making process**

- Counselling about scoliosis surgery
- MRI
- Lung function testing
- Anaesthetic risk assessment
- DEXA scan to assess bone density

If the team are agreed that no further investigations are necessary prior to surgery, the patient's name will be placed on the waiting list for surgery, when they have been discussed at a multidisciplinary meeting.

**Before the operation**

Please ensure your consultant is aware of any medications or hormone treatments you may be taking as certain types need to be stopped for clinical reasons, including the combined oral contraceptive pill and certain anti-coagulant therapies up to six weeks before surgery.

When we have a potential date for your surgery you will be asked to attend the outpatient clinic for a few hours for a 'pre-operative assessment'. During this visit the following tests are likely to be done to help plan the operation and make sure that you are fit for surgery:

- X-rays of your spine to help plan the operation
- ECG (electrocardiograph) to assess your heart
- Blood tests also form part of the assessment of fitness for surgery. Blood will be cross matched in case you should need a blood transfusion during surgery
- Spinal cord monitoring which will be used during surgery

Consent forms for the operation will be discussed by the surgeon and you will be asked to sign them if you are happy to proceed.
Day of the operation
You will be in theatre most of the day, and then transferred to the high dependency unit in the evening. Observations will be done hourly and pain relief will be monitored.

Day one
- **Drips**: You will be attached to drips and a catheter.
- **Pain control**: You will be attached to a special pain controlling system called PCAS (patient controlled analgesia system) which allows you to control the amount of pain killer that you receive.

Physiotherapy
Breathing and circulation exercises. You will be assisted to roll in bed for the first 24 hours until you can turn yourself comfortably.

Once trunk control has been achieved you will be helped out of bed to stand. Patients often feel a little unsteady at first and this may therefore not be achieved at the first attempt. You will be able to start sitting for short periods for functional activities such as toileting and eating.

When you are able to stand for short periods, an x-ray of the spine will be performed to assess its position and for comparison with subsequent x-rays.

You will then be able to walk little and often and gradually increase the length of time that you sit. Prior to discharge you will be moving independently, getting washed and dressed. Once safety and comfort allow, you will be discharged home, usually between five to seven days after your operation.

First six weeks
Gradually increase the frequency and length of time spent sitting, standing and walking. Decrease the amount of time spent lying and resting. If your back becomes more uncomfortable then you are probably doing too much. You will probably benefit from lying down for a rest in the early afternoon.

After six weeks
- Review appointment in clinic
- Return to normal activities or work part time, for example half days or every other day
- Attend outpatient physiotherapy if required.

After three months
- Return to work full time
- You can begin swimming and cycling.
After six months

- Increase time and distance walking, increase your pace as you feel able
- Aim to increase fitness
  - Swimming, cycling, jogging increasing to running.
  - Acceleration/deceleration and turning

Useful organisations

Scoliosis Association UK (SAUK) – leaflet from clinic six or www.sauk.org.uk
Scoliosis Research Society – www.srs.org click on patient/public information
If you would like to be put in touch with a patient who has had scoliosis surgery, please contact the scoliosis co-ordinator (telephone: 01223 216854)

Privacy and dignity

Same sex bays and bathrooms are offered in all wards except critical care and theatre recovery areas where the use of high-tech equipment and/or specialist one to one care is required.

We are a smoke-free site: smoking will not be allowed anywhere on the hospital site. For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169.

Other formats:

If you would like this information in another language or audio, please contact Interpreting services on telephone: 01223 256998, or email: interpreting@addenbrookes.nhs.uk
For Large Print information please contact the patient information team: patient.information@addenbrookes.nhs.uk

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