

ADOLESCENT SCOLIOSIS

— Definition and cause

Idiopathic scoliosis is a twisted **deformation of the spine** that often develops during preadolescence and worsens with growth.

— Evolution

Scoliosis is often diagnosed by the parents or physician when faced with an **S-shape in the back**. This curvature of the back tends to worsen more **during puberty** before stabilizing at 15-16 years of age. There is no immediate danger, but during adulthood, after the age of 40, osteoarthritis and pain may set in, possibly becoming invalidating.

— Symptoms

Scoliosis causes a deformation of the back, usually without producing pain. **Sometimes a child with scoliosis is not even aware of the deformation, which is only noticed by family and friends.** In other cases, the pain caused by muscle tension or by asymmetry in the torso lead to a spinal pathology and gives rise to a diagnosis. Simple scoliosis, called idiopathic scoliosis, does not entail any risk of paralysis.

— Examinations

Scoliosis can be easily diagnosed on **large X-rays covering the entire spinal cord**. These X-rays will give a precise measurement of the angulation of the curvature in the back and will be indispensable for follow-up and for making the final decision as to whether surgery is needed or not. In cases of local pain on a portion of the spine, an **MRI** should also be performed.

— Treatment possibilities

Treatment of scoliosis in adolescents is highly codified and decisions will be made depending on the severity of the deformation, the age and the degree of progression into puberty. Often, when it is discovered, a physical therapist begins rehabilitation treatment to maintain the back's flexibility. Then, depending on developments, discussions will be undertaken as to the need for use of a suitable **removable plastic corset** or of corrective **surgery on the deformation**, which is never done until after the child's growth is complete.

— Principle of Surgical Treatment

The purpose of scoliosis surgery is to treat the deformation in the back at a time when it can be best corrected, to avoid the appearance of inevitable pain 10 or 20 years later that will require more invasive surgery with less potential for correction.

— Surgery

In most cases, the surgery is undertaken through the back. It consists in inserting metal implants (internal fixations) designed to straighten the spine. The technique used for inserting these implants is unique to CCV Montpellier, where an innovative protocole for positioning screws has been created. The surgery starts with the **interventional radiologists, guided by the scanner**, inserting millimetric pins that will be used as references for guiding the surgeon later on when the definitive screws are inserted. This procedure **avoids erroneous positioning of the implants** as well as **preserving the spinal muscles**, which no longer need to be «sectioned» since the screws «slide» through the muscle mass, guided by the reference pins. **Security in the operating room** during surgery is also reinforced with **monitoring of the spinal cord** throughout the procedure. The implants will help to straighten the deformation and serve as stakes supporting the spine. They will be kept in place for the time it takes for the bone graft to definitively consolidate and reinforce the back. This is an **arthrodesis**, i.e. a block for part of the spine whose mobility in the pathological position cannot be maintained. When the decision to perform surgery is made, the surgeon will systematically seek out the best compromise for this spinal blocage, which must be long enough to fully straighten the spine, but also as short as possible to allow for maximum mobility. The lowest spinal discs are the most mobile, so they are the ones that will usually be preserved.

— Clinical post-operative care

You can first get out of bed the day after the operation. The physiotherapist teaches you the gestures that you will need to apply during your convalescence: how to get up, go to bed, bend down, pick up objects off the floor, personal hygiene. Starting on the first day, you will recover a certain degree of **autonomy in performing these everyday gestures**.

A corset brace is necessary during the first weeks after surgery. This is a removable plastic corset adapted to you that is custom moulded. It should only be worn when moving; it is not necessary to wear the corset when lying down. The patient can leave the hospital **4 to 7 days** after the surgery, either returning home directly, or going to a rehabilitation center for a period of 2 to 3 weeks. Prescriptions are given when leaving, including bandages, pain medication and sick leave up until the check-up consultation.

Only an experienced practitioner can make a precise spinal pathology diagnosis. The practitioner's role is to determine whether a disc or spine anomaly discovered during an imaging exam is pathological in nature. They will then have to determine the risk and potential evolution involved, a key component in therapeutic decision-making. The diagnosis will make it possible to identify, from among these anomalies, those that are not responsible for the symptoms, that do not entail any risk and therefore do not require any particular treatment.

— Convalescence

Once back home, the ideal pace of life combines **rest** in a comfortable position (in a semi-recumbent position with the back at a 45° incline, legs slightly bent at the knees), alternating several times a day with quiet walking on a flat surface, initially for 10-15 minutes and increasing up to an hour or two.

Avoid being too active during the first days. Then, starting in the 2nd or 3rd week, you will be allowed to return to these everyday activities very progressively, listening to your body and any pain when exerting an effort, which you should take as your limit. Renewed pain during convalescence is often the consequence of excessive activity and will tend to disappear when at rest.

Physical therapy will begin after the 3rd week, starting with massages of scar tissue and painful or contracted areas in the spine. Once your body is prepared, **rehabilitation will start with movement** to loosen up your body and to strengthen the spinal cord and lower limbs. A return to school can be envisaged after 3 to 6 weeks, while sports will have to wait until after the 6th month.

Over the long term, there are no particular contraindications and you will be able to lead an active life and practice sports perfectly normally.

Images of our surgical techniques?
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