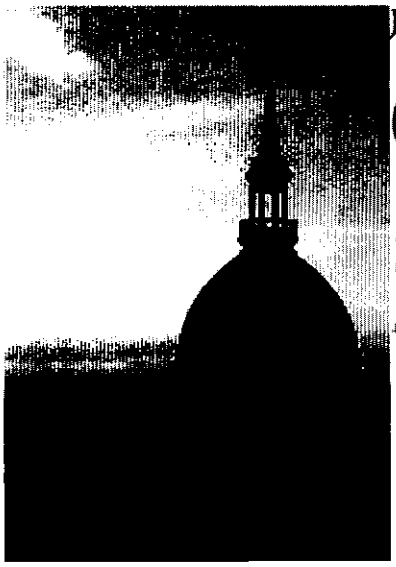

JOHNS HOPKINS DEPARTMENT OF

Orthopaedic Surgery

Pediatric Orthopaedics

Patients

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Patient Guide to Scoliosis

What is Scoliosis?

Scoliosis is a condition in which the spine takes on an abnormal curve (see figure). It can be associated with other genetic or neurological diseases, but most commonly is "idiopathic." This means that the cause is unknown. Scoliosis usually develops in early adolescence and generally affects about 1 to 2 out of every 100 people. Only a small fraction of these patients go on to need surgery. Although girls and boys initially develop scoliosis with the same frequency, girls are more likely to worsen and go on to require treatment. The condition tends to run in families.

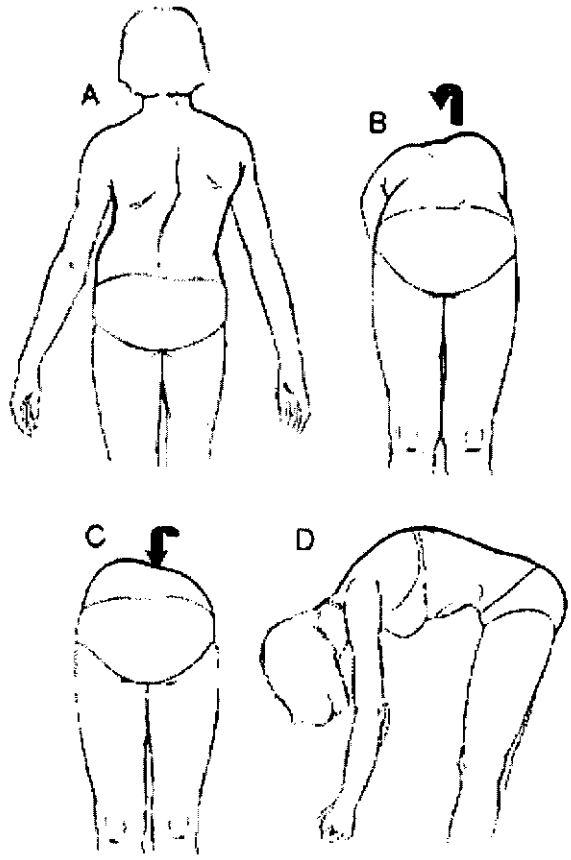
What symptoms and signs are commonly seen in scoliosis?

The signs of scoliosis depend on what part of the spine is affected. For thoracic curves (i.e. those in the chest) there is often a "hump" present where the ribs have rotated. In this case, the scapula (or shoulder blade) on the same side of the body side sticks out. In lumbar scoliosis (of the lower back) one side of the pelvis sticks out, giving the appearance of a "high hip." In general, there are no other symptoms of scoliosis until a patient reaches adulthood. At this time, back pain may develop.

How can my doctor tell if I have scoliosis?

A trained physician can examine the spine and determine whether or not there is abnormal curvature. The doctor observes the patient in a standing position and looks to see if the shoulder blades, hips, and ribs look normal and are at the

same level on both sides of the body. A hump in the ribs can best be seen by asking the patient to bend over and touch his or her toes (see figure).



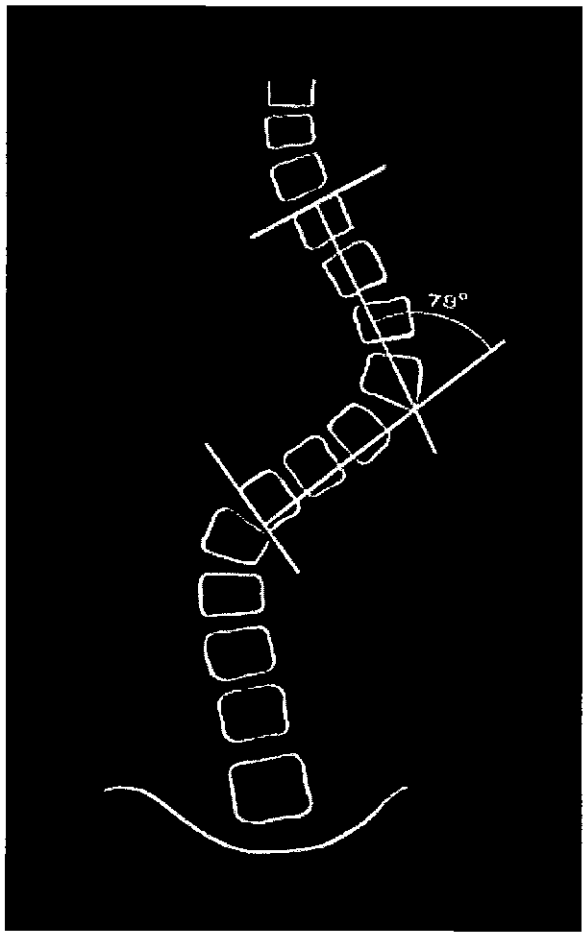
A) Diagram of young female with scoliosis (note lateral curve of spine)
B) "Hump" can be seen on right side when bending over sligtly.
C) "Hump" present on left side of patient when bending over to greater extent.
D) Kyphosis noted when patient bending over and seen from side.

The "rib hump" can be measured with a special tool called a "scoliometer" which can give a good estimate of the amount of curvature in the spine. The physician will also look for signs of other diseases which sometimes lead to the development of scoliosis as mentioned above.

The best way of studying the spine, however, is with an x-ray. This allows a doctor to directly calculate the exact amount of curve present (see figure).

How is scoliosis treated?
The treatment of scoliosis depends on the degree of the curvature and the age of the patient. Patients with moderate curves (i.e. those less than 25 degrees) do not require treatment, but should be followed every 4 to 6 months by a pediatric orthpaedic surgeon until they reach skeletal maturity. Boys usually reach maturity after girls, but the specific age can be

different for any given individual. Your doctor can look at an x-ray and tell when you have stopped growing by checking when the "growth plates" have disappeared. "Growth plates" are placed at the end of bones where, as the name suggests, the bone grows and becomes longer.



Radiographic method of measuring curvature in spine with scoliosis

Bracing:

See Guide to Bracing in Scoliosis for more details on the use of bracing in scoliosis and how to properly use the brace.

Patients with moderated curves (i.e. between 25 and 45 degrees) usually need to wear a brace (see figures).

- ***Why do I have to wear a brace?***
  The purpose of the brace is to keep the curve from getting worse as a child grows. It is important to understand that while a brace can't correct the curve, it can prevent worsening. There are several types of braces, but the most typical kinds are made of plastic and are unique for each patient to give him or her the straightest possible shape. They usually go from below the armpit (the shoulder blade in the back) to the beginning of the

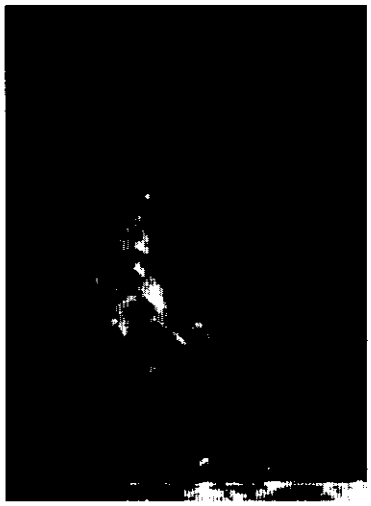
pelvis. The brace is worn under clothing and is not visible. Children who wear braces lead normal daily lives and can participate in activities, physical education, and sports.

- ***How long do I have to wear a brace?***
  The brace is generally worn 23 hours each day until your doctor decides that you have stopped growing. At that time, a patient may only have to wear the brace at night or may wear it less and less each day until he or she no longer needs it.
- ***What are the typical results of wearing a brace?***
  Most patients who are still growing and wear a brace will have a "satisfactory" result. This means that the brace keeps their curve from increasing. One of every five patients wearing a brace, however, will have some increase in the curve. There is no good way to predict which patients see good results.

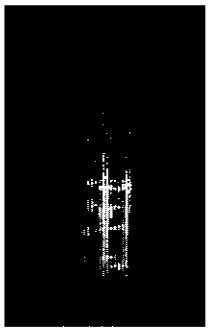
Surgery:

- See Guideline to Scoliosis Surgery for more detailed information.
- See Scoliosis Video for a virtual look on scoliosis surgery at Johns Hopkins

For patients with curves over 45 degrees who are still growing, an orthopaedic surgeon will often decide to perform surgery. During surgery, the surgeon puts a long and straight rod on top of the spine to straighten it (see picture). Pieces of bone taken from the patient's pelvis or prepared from a bone bank are then placed between the vertebra (the pieces making up the spine) so that they will later stick together ("fuse") and not move again. Even though the nerves of the spinal cord are inside of the vertebra, they are very rarely damaged. For a detailed, first-hand look at scoliosis surgery at Johns Hopkins, take a look at the Johns Hopkins Scoliosis Surgery Video.



Before Surgery



After Surgery

Research Studies. If you have a family history of scoliosis and would like to participate in research related to scoliosis, or if you would simply like to read more, please visit the Johns Hopkins Adolescent Idiopathic Scoliosis Laboratory (http://www.med.jhu.edu/ais).

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