

On the muscles and bones

The effect of Spina Bifida on the muscles and bones is complex and varies significantly depending on the level of the defect in the Spinal cord. Some degree of paralysis occurs with most cases of Spina Bifida.

Other medical problems

Individuals with Spina Bifida are also at a higher risk for several medical conditions found in the general population. These problems include fractures, seizures, lazy eye, early puberty, and allergy to latex (natural rubber).

Important non-medical issues affecting individuals with Spina Bifida

Spina Bifida can affect educational, social, and psychological development.

Educational issues

The intelligence of individuals with Spina Bifida varies, just as it does with people in general. IQ scores of those with Spina Bifida cluster in the 70 - 90 range as opposed to the 100 range as they do in those without this birth defect.

Social development

In many cases, infants and children with Spina Bifida require early and frequent hospitalization. This can interrupt normal social development.

Psychological development

Children with special needs of any type often rebel against their disability when they realise it cannot be wished away.

They may become depressed, defiant or withdrawn.

To further your information

Spina Bifida Association New Zealand
<http://spinabifidaassociation.org/>

For more information please contact your local
NZMFMN Unit



Auckland: 09 307 4949 ext 24951



Wellington: 04 806 0774



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New Zealand Maternal Fetal Medicine Network
NZMFMN@adhb.govt.nz

Spina Bifida



What is Spina Bifida?

Spina Bifida is caused by problems in the development of an embryo in the womb. It is known as a neural tube defect as it results from the failure of the embryo's neural tube to develop properly. Normally, the neural tube is fully closed between 26 and 28 days after the start of the pregnancy. Spina Bifida is a complex birth defect in which the overlying muscle and skin does not fully develop for a portion of the spinal cord and associated nerves as well as the surrounding spinal bones. At birth the incompletely developed portion of the spinal cord protrudes through the open bones and skin.

The incomplete development of the spinal cord can occur anywhere along its length, from the neck to the lower back and results in a variety of medical problems.

One of the most common and important conditions associated with Spina Bifida occurs because the brain is positioned further down into the upper part of the spinal canal (neck area) than it should be. This abnormal positioning of the brain is part of what makes up a condition called the Arnold Chiari II malformation.

This malformation leads to blockage of the normal flow of spinal fluid causing it to collect in the fluid cavities of the brain (ventricles). The condition of over-filled ventricles is called Hydrocephalus.

This can affect the fetus in several different ways. In the least serious form, known as Spina Bifida Occulta, the condition is hidden and usually is discovered only on X ray or through scanning. While this condition is not uncommon many who have it never become aware of it.

What causes Spina Bifida?

At this time the cause or causes of Spina Bifida are not well understood. In a small number of women it appears to be caused by certain medications, most often antiseizure drugs.

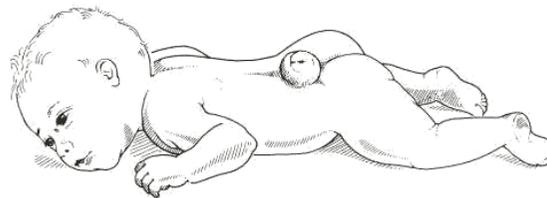
In some cases it has occurred in the family before, but this is relatively uncommon. In the majority of cases the cause of the Spina Bifida is never determined.

However, it is now known that taking Folic Acid, a B vitamin, before a woman becomes pregnant will reduce the chances that the baby will have Spina Bifida and related conditions of the brain and spinal cord

Myelomeningocele (a type of Spina Bifida) is more common in females than in males. The condition affects white people more often than black and Asian people, and tends to run in families. If the first child has a Myelomeningocele, the risk for the second child rises to 5%. If two children have Myelomeningocele, the risk for a third is 15%. Taking folic acid supplements reduces the risk of Spina Bifida. It is recommended that women should take a daily supplement of 0.8mg of folic acid while they are trying to become pregnant and for the first twelve weeks of pregnancy. Folic acid tablets can be obtained from pharmacies, large supermarkets, health food stores and by prescription.

Figure 2a

Infant with Spina Bifida before Surgery
The open spinal cord can have a cyst-like appearance. This figure shows spina bifida in the mid to lower lumbar area.

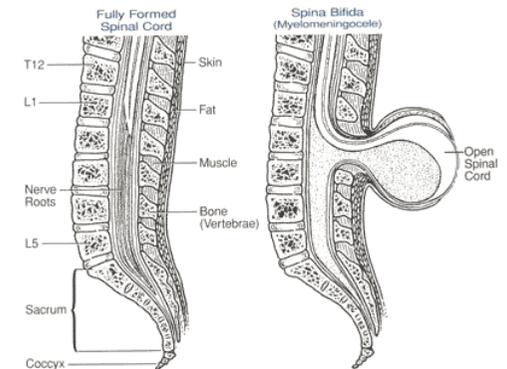


Prenatal detection

There are several tests available to pregnant women which can be used to detect Spina Bifida before the baby is born. The most commonly used test is the maternal serum alpha fetoprotein (MSAFP) blood test which is done on the mother's blood around the 16th week of pregnancy.

Figure 2b
Side Views of Spinal Cord

The left hand figure shows a fully formed spinal cord. The one on the right illustrates how the neural tube remains open and may protrude in cases of spina bifida.



Most cases of Spina Bifida are detected by ultrasound scan.

Main effects on the body on the spinal cord

Spina Bifida can adversely affect many body systems including the nervous system, the bones and muscles as well as the kidneys and bladder. The point along the Spinal cord where the undeveloped area occurs, is called the "level" of the Spina Bifida. The higher up the Spinal column the "level" occurs, the greater the effect on normal nerve function. Some individuals with low levels of Spina Bifida can walk with little or no assistance whereas those with higher levels will require braces and in cases of very high levels, wheelchairs, to get around. When **hydrocephalus** is associated with Spina Bifida this can only be treated by the insertion of a drainage tube called a "shunt". There are no medications that can treat hydrocephalus effectively. In most cases shunts are required for life.

On the bowel and bladder

Bowel and bladder function are controlled by nerves which come from the lowest levels of the Spinal column. Therefore, almost all individuals with Spina Bifida will have trouble controlling their bowel and bladder function.