

# Spina Bifida

Spina bifida is characterized by the incomplete development of closure of the back over the spine and spinal cord with varying degrees of severity. It is the most common neural tube defect in the United States—affecting 1,500 to 2,000 of the more than 4 million babies born in the country each year. An estimated 166,000 individuals with spina bifida live in the United States.

## CAUSES AND RISK FACTORS

One possible cause is low folic acid in the mother during pregnancy, but many cases do not have a known cause. Physicians and researchers suspect genetic issues or other nutritional deficiencies or environmental factors.

## SYMPTOMS AND TYPES

There are **4 types of spina bifida**: occulta, closed neural tube defects, meningocele, and myelomeningocele.

**Occulta** is the mildest and most common form in which 1 or more vertebrae are malformed. The name "occulta," which means hidden, indicates that a layer of skin covers the malformation, or opening in the vertebrae. Frequently this diagnosis is noted on a spine x-ray taken for another issue and found incidentally. This form of spina bifida, present in 10-20% of the general population, rarely causes disability or symptoms. In the majority of cases no treatment is needed.

**Closed neural tube defects** (lipomeningocele) make up the second type of spina bifida. This form consists of a diverse group of defects in which the spinal cord is marked by malformations of fat, bone, or meninges (tissue layers that cover the brain and spinal cord). In most instances there are few or no symptoms; in others the malformation causes incomplete paralysis with urinary and bowel dysfunction.

In the third type (**meningocele**) spinal fluid and meninges protrude through an abnormal vertebral opening; the malformation contains no neural elements and may or may not be covered by a layer of skin. Some individuals with meningocele may have few or no symptoms while others may experience such symptoms as complete paralysis with bladder and bowel dysfunction.

**Myelomeningocele**, the fourth form, is the most severe and occurs when the spinal cord/neural elements are exposed through the opening in the spine, resulting in partial or complete paralysis of the parts of the body below the spinal opening. The impairment may be so severe that the affected individual is unable to walk and may have abnormal bladder and bowel dysfunction.

Symptoms are different and vary in severity for each type of spina bifida.

## DIAGNOSIS AND TESTS

In most cases, spina bifida is diagnosed prenatally, or before birth. However, some mild cases may go unnoticed until after birth (postnatal). Very mild forms (spinal bifida occulta), in which there are no symptoms, may never be detected.

## TREATMENT AND CARE

There is no cure for spina bifida because the nerve tissue cannot be replaced or repaired. Treatment for the variety of effects of spina bifida may include surgery, medication, and physiotherapy. Many individuals will need assistive devices such as braces, crutches, or wheelchairs.

Ongoing therapy, medical care, and/or surgical treatments may be necessary to prevent and manage complications throughout the individual's life. Surgery to close the newborn's spinal opening is generally performed within 24 hours after birth to minimize the risk of infection and to preserve existing function in the spinal cord.

The Texas Children's Fetal Center also performs some in utero procedures on patients with spina bifida. Your physicians will discuss if this is an option for you.

## LIVING AND MANAGING

The long-term effects of spina bifida depend on the severity of the defect. In some cases, it has no effect and, in others, patients may not be able to walk or have abnormal bladder or bowel dysfunction.



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