

# BOTULINUM TOXIN (Botox®)

One of the orthopedic goals for children with cerebral palsy is to prevent muscle contracture and bony deformity. Physiotherapy, splints, and anti-spasmodic medications such as BOTOX® are all used to help achieve this goal.

Botulinum Toxin A (Botox®) is injected directly into the spastic muscle. The botulism bacterium blocks the transmission of the nerve impulses from the brain to the muscle. In turn, the muscles relaxes as the spasticity is diminished. And as the tight (or spastic) muscle becomes more relaxed, other opposing muscles may work to become stronger. This allows noticeable improvement in positioning and function and may help children delay the need for surgery.

## Definition

Botox® is a protein produced by the bacterium *Clostridium botulinum*. The effects of botulinum have been known for many years, but only since 1980 has the toxin been found to be useful for a number of neurological disorders.

For selected children with cerebral palsy, injections of Botox® are made into portions of the muscles that are too tight or too active. The toxin is a nerve “blocker.” It binds to the nerve endings and prevents the release of chemicals that activate muscles. These chemicals carry the “message” from the brain that causes a muscle to contract. If the message is blocked, the muscle does not move. The most commonly injected muscles of the upper extremity are those of the hand, wrist and elbow. The hip adductors, hamstrings, and calf muscles are the most common muscles injected in the lower extremities.

## Procedure

The Botox® injection is an intramuscular injection. It is administered in the operating room under a general anesthetic. A special needle is used that allows monitoring to be done to ensure that the Botox® is injected directly into the muscle and not into the surrounding tissues.

The effects of Botox® are NOT permanent. The onset of action may not be immediate,



but may take 24-48 hours to appear. Once spasticity has diminished, physical therapy and bracing can be initiated. Most patients experience improvement for an average of three to six months. However, the nerve endings usually grow new connections to the muscles and treatment may need to be repeated as spasticity returns. Botox® is an effective treatment for the relief of symptoms only – **it is not a cure**. And, because every patient is different, the decrease in spasticity will vary from person to person. It will be

important that your child be involved in an active outpatient physical therapy program after the Botox® injection.

## Side Effects

Botox® appears to be safe in all patients and has little side effects. The most common complaints are:

1. **Soreness or stiffness of the injected muscles.**

Soreness is often experienced with any injection and may last for 2-3 days. A dose of Tylenol before the injection and every 4-6 hours as needed after the injection may help relieve the soreness.

2. **Redness or slight swelling at the injection site.**

This should also subside in 24-48 hours.



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