

## Botulinum Toxin Fact Sheet

### What is botulinum toxin?

Botulinum toxin is a biological product made by the bacteria *Clostridium botulinum*. In small amounts, the toxin can be used to treat a variety of medical conditions. When used to treat spasticity, botulinum toxin acts at the neuromuscular junction to block the release of Acetylcholine, a neurotransmitter that activates muscles. After injection, this causes a temporary diminution of spasticity in those muscles.

### What are the benefits of botulinum toxin injections for people with spinal cord injury (SCI)?

Spasticity is common after SCI. In some individuals, spasticity can cause pain, interrupt daily activities, or increase the risk of developing other conditions such as skin breakdown. In these situations, treatment should be considered.

Botulinum toxin is one type of treatment for spasticity that can be used alone or in combination with other treatments. While it is not usually the first approach in treatment, botulinum toxin is a particularly useful approach for treating local symptoms, allowing specific muscles to be targeted while avoiding other muscles. Another benefit is that the effects are reversible over time allowing for modification if needed. Finally, unlike many oral medications used to treat spasticity, there is typically no associated sedation with botulinum toxin treatment.

### What are the potential side effects associated with botulinum toxin?

Like most medical treatments, there are several potential side effects possible with botulinum toxin injections. The most common side effects include localized pain, bleeding, or bruising at the injection site. Associated infection and flu-like symptoms have been described. There is also the potential to over weaken the spastic muscle or unintentionally weaken muscles next to the target muscle. Several injections techniques can be used to help minimize these side effects.

Although rare, distant spread of botulinum toxin has been reported after injections. This may cause symptoms such as generalized muscle weakness, double vision, difficulty swallowing and difficulty breathing. It is important to speak with your doctor about all the potential side effects associated with botulinum toxin before beginning treatment.

## **How is botulinum toxin given?**

Botulinum toxin is given through an injection into the muscle with spasticity. Depending on the degree of spasticity and the treatment goals, multiple injections at different sites during the same visit may be needed. Usually a thin needle is used to inject the toxin. Clinicians may use different techniques to ensure that the toxin is being injected into the desired and optimal location. Examples include: anatomic localization, electrical stimulation (e-stim), electromyography (EMG), and ultrasound.

The effect of botulinum toxin injections is not immediate and occurs gradually. An initial effect is usually seen around three days, with the peak effect at three weeks and the duration of effects lasting about three months.

## **What are the different botulinum toxin products available?**

Different strains of *Clostridium botulinum* produce different types of botulinum toxin. Seven different strains have been identified but not all are currently used for therapeutic treatments. The Food and Drug Administration (FDA) has approved four different botulinum toxin products for clinical treatment in the United States. Three of the botulinum toxin products (onabotulinumtoxinA, abobotulinumtoxinA, and incobotulinumtoxinA) are made by one strain of *Clostridium botulinum* (serotype A), whereas rimabotulinumtoxinB is made by a different strain (serotype B). Each product has unique properties, indications, advantages, and disadvantages. In general, the botulinum toxin products are not considered directly interchangeable.

## **How frequently are botulinum toxin injections given?**

Many factors influence how long botulinum toxin is effective but for most people the treatment lasts for about 12 weeks. If the injections were beneficial, most clinicians recommend repeat injections when functionally limiting symptoms of spasticity return. Treatment is usually limited to every three months.

## **What are the barriers to receiving botulinum toxin?**

Access to centers with experience in managing spasticity is one potential barrier. Botulinum toxin injections for treatment of spasticity are typically performed by specialists trained in Physical Medicine and Rehabilitation or Neurology. Connecting with your local rehabilitation facility may be a helpful first step.

Botulinum toxin injections can also be expensive. Nevertheless, most insurance companies cover at least some of the cost and additional assistance programs may be available.