

SPASTICITY AND BRAIN INJURY

Spasticity is a condition that causes stiff, tight muscles, especially in the arms and legs. Individuals with spasticity are often unable to relax their muscles. As a result, movements are stiff, jerky or uncontrollable. Spasticity may also mask potential movement in the individual and it often occurs in people with brain injury.

Some individuals may also experience spasms – sudden, involuntary muscle contractions similar to the muscle cramps athletes experience. Painful spasms may be triggered by something as minor as a simple movement of the arm or leg, skin irritation or a full bladder.

Spasticity results from a disorder of or injury to the central nervous system, such as a traumatic brain injury. The central nervous system – made up of the brain and spinal cord – works as a network of nerves connected to muscles. Complex messages continuously move back and forth between the muscles and the brain, using the spinal cord as a pathway. Normally, muscle groups in the nervous system work together so when one is flexed, its opposing muscle is relaxed. This helps maintain a comfortable level of muscle tone that provides support for the body and makes movement easy.

After a brain injury, the brain may not be able to send or receive these special messages. As a result, the system balance is disturbed so that muscles needlessly stay tight or contracted. This condition is known as spasticity. Spasticity varies from mild to severe, and is different for every individual. Spasticity does not always need to be treated. It can be beneficial if an increase in muscle tone results in better movement and increased function; however, if spasticity interferes with comfort or function, it should be treated. Also after brain injury, a joint may be limp at first and then become very tight, difficult to move, and painful. Untreated spasticity can lead to contractures, a permanent condition. Spasticity can cause an increase in joint flexion. Spasticity can interfere with a person's ability to walk and perform self-care. Medical treatment includes rehabilitation therapy, casting and/or splinting, prescription medication, injected medication, and intrathecal medication directly administered through an implanted pump. In extreme cases, surgery is necessary. It is particularly important to

identify a medical professional who has a clear understanding of the special needs and unique characteristics of individuals with brain injury when treating spasticity.

ABOUT BRAIN INJURY

A traumatic brain injury (TBI) is an alteration in brain function or other evidence of brain pathology caused by an external force. The Centers for Disease Control and Prevention report 2.5 million children and adults sustain TBIs annually and at least 5.3 million live with a TBI-related disability. The cost to society for medical care and lost wages associated with TBI is \$82 billion annually.

Individuals with TBI may experience memory loss, concentration or attention problems, slowed learning, and difficulty with planning reasoning or judgment. Emotional and behavioral consequences include depression, anxiety, impulsivity, aggression, and thoughts of suicide. Physical challenges of TBI may include fatigue, headaches, difficulty with balance or motor skills, sensory losses, and seizures. For some, brain injury is a chronic condition. TBI can lead to respiratory, circulatory, digestive, and neurological diseases, including epilepsy, Alzheimer's, and Parkinson's disease. Poor outcomes after TBI result from shortened length of stays in both inpatient and outpatient treatment settings. Payers point to a lack of sufficient evidence-based research as a primary reason for coverage denial of medically-necessary treatment. This occurs particularly when behavioral health services and cognitive rehabilitation are needed.

ABOUT BIAA

Founded in 1980, the mission of the Brain Injury Association of America (BIAA) is to advance brain injury awareness, research, treatment, and education to improve the quality of life for all people affected by brain injury. BIAA is dedicated to increasing access to high quality care and accelerating research. With a network of state affiliates, local chapters, and support groups, BIAA provides help, hope, and healing to individuals who are injured, their families, and the professionals who serve them. BIAA is the voice of brain injury.