

# Training Clients with Nonprogressive Brain Injuries

The main nonprogressive brain injuries you're likely to encounter are stroke, traumatic brain injury and cerebral palsy. Each comes with unique root causes, considerations and outcomes, and clients with different conditions will benefit from different exercise programs.

## Useful Terms

- Paresis – a condition where muscle movement is weakened
- Aphasia – inability to speak or difficulty speaking
- Ataxia – lack of muscle control or coordination

## Cerebral Palsy

Cerebral palsy (CP) is caused by a nonprogressive lesion on the brain that interferes with normal brain development. It typically occurs at or soon after birth and in an area of the brain that controls muscle tone, reflexes, posture and movement. Symptoms are highly variable from person to person.

### Considerations

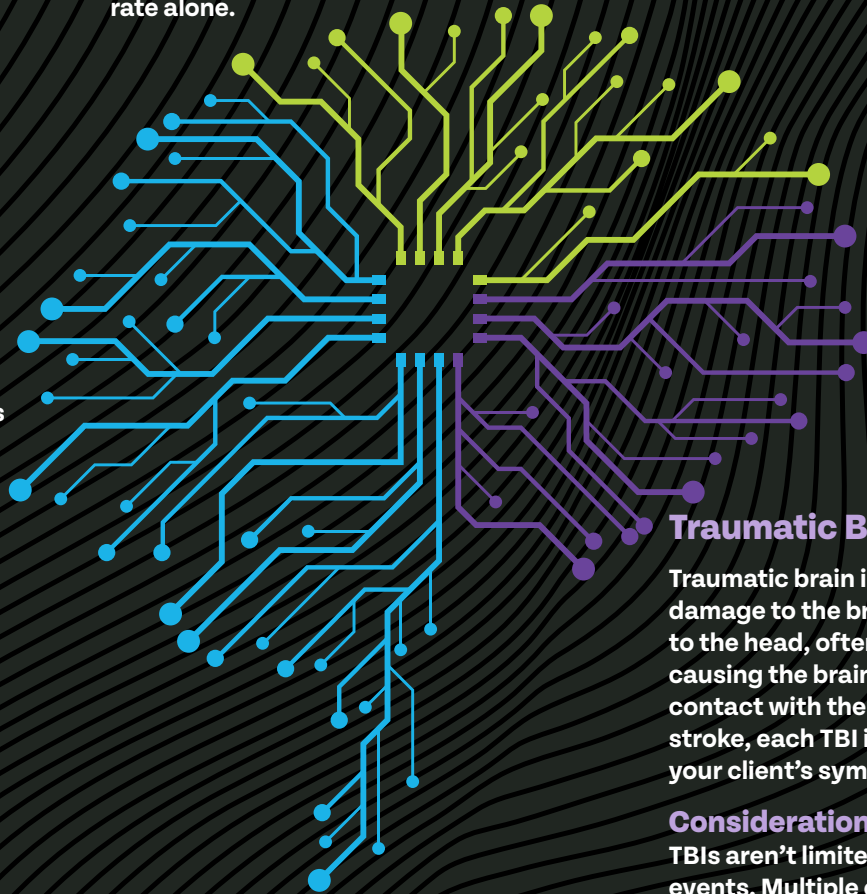
There are two types of CP, spastic and athetoid. Spastic CP involves increased muscle tone in the flexor muscles of the upper extremities and extensor muscles of the lower extremities. Athetoid involves involuntary or uncontrolled movement of the extremities and is made worse with increased effort and emotional stress.

## Stroke

Occurs when blood supply to the brain is stopped. Strokes caused by a blockage are known as ischemic strokes. Those caused by a ruptured vessel are called hemorrhagic strokes. Symptoms may vary depending on the location of the blockage or rupture.

### Considerations

Clients who've experienced a stroke may be on blood thinners, which can cause excessive bleeding if their skin is broken during training. They may also be on blood pressure medications that can lower maximum heart rate. Consider using a rate of perceived exertion (RPE) scale with this population rather than monitoring heart rate alone.



## Traumatic Brain Injury

Traumatic brain injuries, or TBIs, are damage to the brain caused by an injury to the head, often a violent blow or jolt causing the brain to come into harsh contact with the inside of the skull. Like stroke, each TBI is unique, as will be your client's symptoms and abilities.

### Considerations

TBIs aren't limited to single violent events. Multiple concussions can also result in permanent brain injury. Further, clients who have a TBI may experience not only functional but also behavioral issues.