

4. Classification and Sport Profiles

4.2.5 BC 5 Classification

Athletes who are diagnosed with conditions of Cerebral and NON Cerebral origin.

In summary:

- These are athletes with less impairment than a BC2 or BC4
- **Cerebral:** Quadriplegic, Triplegic, Severe Hemiplegic. The Impairment may be a result of Hypertonia / Hypotonia / Spasticity, Athetosis / Ataxia /Dystonia.
- **Non Cerebral:** The Impairment may be a result of lack of Muscle strength, limitation in Range of movement or limb shortening (see BC4 inclusion).
- The impact of the impairment is on the throwing arm.
- Athletes will use a manual or power chair for everyday mobility.
- Athletes may walk with assistance or using a walking aid over short distances.

4.2.5.1 BC 5 Thrower: Cerebral

Upper Extremities: Shoulder, Elbow and Hand

- Tonal change in dominant UL (throwing arm) that affects function this may include spasticity Gr1 to Gr2, Hypertonia and Hypotonia.
- Slight evidence of ataxia and athetosis on purposeful movement affecting coordination.
- On functional assessment, this level of tonal change will have minimal impact on the throw
- Any impact is likely to be seen in the follow through.

Hand function and grip

- Dominant hand may demonstrate a variety of grasps however fine motor skills and dexterity will be affected.

Trunk/Postural Control and Balance

- Athletes will demonstrate some involvement in the trunk which may include hypotonia, hypertonia, spasticity and or asymmetry.

- The athlete may demonstrate sufficient postural control and balance in their preparation to throw and after follow through
- Athletes are able to use their trunk muscles to actively rotate their trunk or to assist in the throwing action without using any compensatory movements or strategies.

Lower limbs: Pelvis, Hip, Knee and ankle

- On clinical assessment of the hip/knee and ankle, athletes will demonstrate ASAS spasticity grade 3 or above in one or both lower limbs.
- Or they will demonstrate a degree of involuntary movement in the lower limb, which will result in reduced coordination and control of active movement.
- Athletes will demonstrate some loss of functional, active range of movement in the lower limbs as a result of spasticity, weakness and reduced selective control. They will demonstrate some dissociation of the lower limbs from the pelvis and trunk.
- Deformities may be but are not always present in the lower limbs and are most common in the hip and knee resulting in fixed flexion.
- Athletes may demonstrate the ability to bear weight effectively through the lower limbs when transferring and may be able to walk, usually with assistance or a walking aid.

4.3.5.2 BC 5 Classification Non Cerebral

Athletes who are diagnosed with conditions of NON cerebral origin who do not have spasticity, ataxia or athetosis

In summary:

- Athletes will have locomotor dysfunction affecting all four limbs.
- Moderate impairment of function and may have some limitation in active functional range of movement due to weakness and lack of control affecting the upper limbs/trunk/lower limbs.
- Overall muscle strength of 4/5 or less.
- Athletes may use a manual or power chair for everyday mobility.
- Athletes may walk with assistance or using a walking aid for short distance.

Athletes with the following diagnoses that result in functional limitations and meet the physical profiles detailed below may be eligible:

- Myopathies with overall strength of 4/5 or less in the shoulders and the rest of the upper limbs. This includes conditions such as Muscular Dystrophy, Motor Neuron Disease.
- Spinal cord lesion of upper cervical spine, complete or incomplete tetraplegic, with overall strength of 4/5 or less in the upper limb.
- Motor neuron disease, Spinal Muscular Atrophy, Spinal cord disease such as Transverse myelitis with overall strength of 4/5 or less in the upper limb.
- Peripheral Neuropathies such as Charcot-Marie-Tooth disease with overall strength of 4/5 or less in the upper limb.
- Amputees of all 4 limbs with the level of amputation very high in all 4 limbs. For example through elbow and above the knees.
- Other conditions and syndromes such as Multiple Sclerosis, Juvenile Arthritis, and Osteogenesis Imperfecta, which result in overall poor strength of 4/5 and/or limited range of movement, may be included in this profile.

BC 5 Thrower: Non Cerebral

Mobility

- Athletes may use a manual or powered wheelchair for everyday mobility.
- Athletes may be able to propel a manual wheelchair; however rapid movements are not possible.
- Athletes may be able to transfer independently using a variety of methods.
- Athletes may have the ability to walk short distances but will require assistance to balance from another person. They may use walls or a walking aid.

Upper Extremities: Shoulder, Elbow and Hand

- Active range of movement may be limited, either due to lack of strength and/or lack of flexibility and or limb loss.

Shoulder

- Athletes may be able to move the shoulder through full range of movement against gravity and with some manual resistance (NOT FULL RESISTANCE). They have Grade 4/5 muscle strength or less on clinical assessment.

Elbow (Triceps and Biceps)

- Athletes may be able to move the elbow through full range of movement against gravity and with some manual resistance (NOT FULL

RESISTANCE). They have Grade 4/5 muscle strength or less on clinical assessment.

Wrist, Hand function and grip

- Athletes may be able to demonstrate full ROM of the wrist, thumb and fingers, however there will be weakness Grade 4/5 muscle strength or less on clinical assessment.
- Intrinsic hand and grip strength weakness will be evident on power grip and pinch grip testing. This will be demonstrated functionally by weakness of functional grasp (flexors) and on release of the ball (extensors).
- There may be some loss of fine motor control and coordination within the hand as a result of muscle weakness and so manual dexterity will be affected in some way.

Trunk/Postural Control and Balance

- Athletes will demonstrate weakness, trunk muscle strength of 3/5 and less than 3/5, within the trunk musculature on clinical testing and will have some limitation of their active trunk mobility as a result of this postural muscle weakness (namely abdominals and extensors).
- Athletes are able to demonstrate some degree of dissociation of the pelvis/ lumbar spine/trunk and upper limb movement through co-activation of the postural muscles and some core stability.
- Functionally trunk muscle weakness may affect the athlete's ability to maintain good sitting balance/ posture and to control movement without the use of some compensatory strategies (see definitions of compensatory movement & strategies).
- Athletes may demonstrate the use of some compensatory movements or strategies to improve their postural control and stability when preparing to throw, throughout the throwing action and when returning to an upright sitting position after a balance disturbance.
- Trunk muscle fatigue is often evident after prolonged functional activity and will result in the use of greater compensatory strategies to maintain posture, balance and throwing position.
- Athletes may need to use pelvic, waist or other straps in combination to improve their posture and stability when throwing and to compensate for the active muscle weakness.
- Athletes with Cervical spinal lesions will have no activation of their trunk muscles and therefore very limited postural control and balance. As a result the use of compensation strategies will be more evident and athletes may use a corset/waist strap and/or belt to improve their stability.
- It is common for athletes to present with spinal deformities such as scoliosis.

N.B. It is very important to consider the whole upper limb and its relationship with the trunk when assessing individual athletes.

Technical Analysis of the throwing actions

In relation to the BC4 athlete the BC5 athlete will be able to demonstrate a more active throw as a result of increased trunk control and/or Upper limb muscle strength.

The ball is often propelled

- From a bilateral grasp and push action from the chest.
- By use of pendulum swing action or
- Another action such as a dart/over arm or chest throw.

Use of a an approved glove

- Athletes with the above physical profile and overall upper limb muscle strength of Grade 4/5 or less but who are unable to hold the boccia ball in their hands with a sustained grasp due to significant distal muscle weakness, minimal or no hand activity, will be allowed to use a glove to play.
- The glove must be assessed and approved by the classification panel to check its suitability.