

## ELIGIBILITY CRITERIA FOR EURO CUP

In order to be eligible to play in EuroCup wheelchair basketball tournaments a player must have a permanent impairment which reduces the function of the lower limbs to a degree where they cannot run, pivot or jump at a speed and with the control, safety, stability and endurance of an able bodied basketball player.

A player must present documentary evidence, such as medical, paramedical or medico-legal reports, and/or investigation results, which clearly describe the nature and history of their disability and justifies the player's eligibility to play wheelchair basketball.

It must result (when considered without aids or prosthetics) in a loss of function in one or both lower extremities that alters the biomechanical execution of the running action with changes of speed and direction in a way that is demonstrable and that will adversely affect performance.

Note: For the purpose of IWBF Classification, degrees of pain are not considered as measurable and permanent disabilities.

### 1) Limb Deficiency

**Unilateral** – Complete removal of the first ray - the surgical removal of the metatarsal and phalange bones of one foot or the equivalent congenital deficiency.



**Bilateral** – No functionally viable phalanges in both the left and right foot



### 2) Leg Length discrepancy

A difference in total leg length of 6 cm or more.

Measured from the greater trochanter to the ground in a standing x-ray or measured from the anterior superior iliac spine to the medial malleolus.

Note: X-ray method for measuring is the preferred one; using the second one might call upon verification by the EAP and/or Classification Panel at the first tournament.

### **3) Impaired passive range of motion.**

These criteria are based on the importance of joint mobility in the performance of key basketball activities such as running, jumping, pivoting and lateral movement.

One or more of the following criteria unilaterally

- a) Hip flexion – limited to 90°
- b) Hip extension limited to 0° or less than 50% of the unaffected limb
- c) Hip abduction limited to 30° or less than 50% of the unaffected limb
- d) Hip external rotation limited to 25° or less than 50% of the unaffected limb
- e) Hip internal rotation limited to 25° or less than 50% of the unaffected limb
- f) Knee flexion limited to 90° with loss of more than 50% of tibial rotation
- g) Knee extension limited to -10° in comparison to the unaffected limb
- h) Dorsi flexion limited to 10°
- i) Plantar flexion limited to 20°

### **4) Impaired muscle power**

Muscle strength should be assessed according to the Daniels and Worthingham (D&W) scale published in 2002. The scale has 6 levels, from 0-5:

- 5: normal muscle power through available ROM;  
4: active movement through available ROM, against gravity plus some resistance;  
3: active movement through full available ROM against gravity but no resistance;  
2: active movement with gravity eliminated (some movement against gravity may be possible, but not full range);  
1: trace muscle activity but no movement of the limb;  
0: no muscle activity.

**Unilateral** – One or more of the following criteria

- a) Loss of 4 muscle points in hip movements tested – flexion, extension, abduction, adduction
- b) Loss of 2 muscle points in knee movements tested – flexion, extension
- c) Loss of 4 muscle points in ankle movements tested – dorsi flexion, plantar flexion, inversion, eversion
- d) Total loss of 5 muscle points in one leg

**Bilateral** – loss of 7 muscle points in all joints tested

### **5) Hypertonia**

Spasticity grades used in the IWBF refer to the Ashworth scale (1):

- Grade 0: No increase in tone
- Grade 1: Slight increase in tone giving a “catch” when the limb is flexed or extended
- Grade 2: More marked increase in tone, but limb is easily flexed or extended

- Grade 3: Considerable increase in tone with passive movement difficult
- Grade 4: Limb rigid in flexion or extension

Hypertonia is defined as increased muscle tone which is caused by central nervous system impairment and which results in increased resistance to passive lengthening of the muscle (2)

One of the following types of hypertonia must be clearly clinically detectable – i.e., grade 1 on the Ashworth scale (1) at the ankle, knee or hip.

**5.1 Spastic hypertonia:** Is defined as a velocity-dependent resistance to passive movement with a clasp-knife type of resistance (2). Clasp-knife resistance is resistance that is initially high and followed by a sudden relaxation. Velocity dependence increases as the speed of the passive movement increases, the resistance becomes greater and starts earlier in the range.

**5.2 Rigidity:** Is defined as a heightened resistance to passive movement of a limb that is independent of the velocity of stretch and relatively uniform throughout the range of motion of that limb (2). The uniform resistance is often referred to as ‘lead pipe’ type of resistance. Usually has a predominant pattern with a flexor pattern being more common

**5.3 Dystonia:** Is resistance to passive movement that may be focal (affecting muscles of one limb or joint) or general (affecting the whole body). Contractions are powerful and sustained and cause twisting or writhing of the affected areas\*. The pattern is highly variable – contractions may be fast or slow; painful or not; and the direction of greatest resistance may change regularly (e.g., a limb may move regularly from an extreme flexion pattern to an extreme extension pattern) (2, 3).

\*As the description indicates, Dystonia may equally be classified as a type of Hypertonia OR a type of involuntary movement pattern (in the latter case choose the MIC described under 7: Athetosis).

An athlete who does not have one of the three types of Hypertonia – Spasticity, Rigidity or Dystonia – is not eligible.

## 6) Ataxia

Ataxia refers to an unsteadiness, incoordination or clumsiness of volitional movement (2). Eligible ataxias must result from either motor or sensory nervous system dysfunction. Motor ataxias most frequently result from malformation or damage to the cerebellum and are often associated with hypotonia (2). Motor ataxias are poorly compensated for by visual input.

Sensory ataxias most frequently result from lower motor neuron damage or spinal cord disease, affecting vestibular function or proprioceptive function. Visual input can help compensate for sensory ataxia and so sensory ataxias are often more evident when eyes are closed (2).

An athlete should have a minimal of 1 (one) point in the SARA (4) scale in “Gait” and “Stance” evaluation to be eligible.

## 7) Athetosis

Athetosis refers to unwanted movement and posturing resulting from damage to motor control centres of the brain, most frequently the basal ganglia.

Clearly evident athetosis is unwanted movement and posturing that is characteristically athetoid and is observable as at least one of the following:

- Involuntary movement of the fingers or upper extremities despite the athlete trying to remain still;
- Involuntary movement of the toes or lower extremities despite the athlete trying to remain still;
- Inability to hold the body still – swaying of the body. Swaying should not be due to other neurological deficits such as vestibular or proprioceptive impairments and therefore should not be exacerbated by closing of the eyes;
- Characteristic athetoid posturing of limbs and/or trunk;

When assessing the lower extremities, an athlete should have a minimal of 1 (one) point (for at least one leg) in the DIS (5) scale on the duration and amplitude factor in (a) standing (proximal leg) and/or (b) heel/toe raising (distal leg), to be eligible.

The athlete will not be eligible if athetoid movements of the face are the sole impairment.

## References

1. Ashworth Scale. [www.rehabmeasures.org](http://www.rehabmeasures.org)
2. Fredericks, C. M. and L. K. Saladin. Pathophysiology of the Motor Systems, 1996
3. O’Sullivan, S. B. Assessment of Motor Function. In: *Physical Rehabilitation: Assessment and Treatment*. S. B. O’Sullivan and T. J. Schmitz (Eds.) Philadelphia: F. A. Davis Company, 2001.
4. SARA – Scale for the Assessment and Rating of Ataxia. [www.sralab.org/rehabilitation-measures/scale-assessment-and-rating-ataxia](http://www.sralab.org/rehabilitation-measures/scale-assessment-and-rating-ataxia)
5. Monbaliu E, Ortibus E, De Cat J, Dan B, Heyrman L, Prinzie P, De Cock P, Feys H. The Dyskinesia Impairment Scale: a new instrument to measure dystonia and choreoathetosis in Cerebral Palsy. *Dev Med Child Neurol* 2012; 54:278-283.