

IPC Alpine Skiing Regulation on the use of Prosthetics

In an effort to ensure fair play between athletes the IPCAS STC has decided to regulate the length of prosthetics. This has been done to align us with the accuracy of FIS rules and measurements concerning the thickness of ski boot soles and binding plates.

The following rules apply to the length of prostheses used by athletes.

Athletes with **bilateral below knee amputations** will be limited by the following formula as to the overall length of their lower extremities, including prostheses and ski boots for IPC competition purposes:

(An additional 4.3 cm allowance for ski boot sole to base of heel is added at the end to comply with ski boot regulations, where prosthetics attach directly to the bindings this addition will be allowed for).

$$\text{Overall leg length (in cm)} \quad = \text{ or } < \quad \frac{[(\text{thigh length} - 13)]}{0.4} \times 1.05 = \text{SUM} + 4.3$$

(inc. Prostheses and ski boots)

The overall length of the leg including the prosthesis and ski boot, equals or is less than (length of the thigh minus 13 (divided by 0.4), with an additional 5% to the final figure allowing for natural variation, plus 4.3cm for the ski boot sole.

Method: **Thigh length** is measured from the anterior superior iliac spine to the inferior pole of the kneecap or to the lower point of the medial femoral condyle if there is no patella. This measurement is carried out with the athlete supine.

The overall length of the leg will be measured from the anterior superior iliac spine to the heel of the ski boot placed on the prosthesis with the athlete standing.

Definitions of leg lengths in athletes who have **bilateral above knee amputations**:

The first step is to measure the height by using following two approved methods.

Method 1: Forearm length.

To measure between the point of the elbow and the midpoint of the prominent bone of the wrist. The height in centimetres is determined from a chart based on the ulna length as measured in centimetres.

MALES

Ulna										
Length(cm)	32.0	31.5	31.0	30.5	30.0	29.5	29.0	28.5	28.0	
Height(cm)	194	193	191	189	187	185	184	182	180	
Ulna										
Length(cm)	27.5	27.0	26.5	26.0	25.5	25.0	24.5	24.0		
Height(cm)	176	175	173	171	169	167	166	164		

FEMALES

Ulna										
Length(cm)	30.0	29.5	29.0	28.5	28.0	27.5	27.0	26.5	26.0	25.5
Height(cm)	179	177	176	175	173	172	170	169	168	166
Ulna										
Length(cm)	25.0	24.5	24.0	23.5	23.0	22.5	22.0	21.5	21.0	
Height(cm)	165	163	162	161	159	158	156	155	154	



Method 2: Demi-span.

Demi-span (cm) is measured as the distance from the middle of the sterna notch to the tip of the middle finger in the coronal plane.

Height is then calculated from the following formulae.

Females

Height in cm. = (1.35 x demi-span) +60.1

Males

Height in cm. = (1.40 x demi-span) +57.8

The height measurements are averaged.

Overall height (cm) (inc prostheses and boots) = $\frac{[(\text{Method 1 result} + \text{Method 2 result})]}{2} \times 1.025 = \text{SUM} + 4.3$

The overall height of the athlete with prostheses and ski boots equals or is less than this averaged result plus 2.5% to the final figure allowing for natural variation, 4.3 cm ski boot allowance is then added.

The athlete's height is measured in the standing position by using a vertical line from the top of the skull to a line connecting the base of the heels of both ski boots. If there is any doubt the measurement can be taken with the athlete standing on 2 sets of scales (equal weight) with the height being the vertical distance between the top of the skull and a line joining the base of both ski boot heels. Where possible a metal tape measure should be used for measuring.

IPC Alpine Skiing reserves the right to measure the athlete at any IPC sanctioned event.