

# Metrology

## Measurement in Sport



# Mass

Mass – the quantity we feel as weight – is a part of every Olympic sport. Not only is the mass of practically every item of equipment specified, athletes too are sorted into groups according to their mass. For instance, adult male weightlifters are divided into 8 classes according to their body mass.

If an item of equipment is a few grams heavier or lighter than specified, the athlete could be disqualified, so accurate weighing machines are essential.

**Did you know?** Olympic weightlifting rules require weighing machines to be accurate to 0.005 %.

How do we know these machines give the right answers? Because their performance is evaluated by weighing **standard weights** of exact values, to check they display the correct values.

**Did you know?** In the 1960 Olympics, Charles Vinci had to lose 680 grams in less than two hours to compete at his official weight class. He managed it by running, sweating and a haircut.

We know how heavy the standard weights are by comparing them with the weight of the **National Prototype of the Kilogram** in the host country of the sporting event.

In turn, the National Prototypes of the Kilogram are checked against the weight of a lump of metal (a mixture of platinum and iridium) which is kept in Paris – the **International Prototype of the Kilogram**.

So, in the end, every weight in the world is compared with the International Prototype – which is why the International Prototype is priceless.

Olympic weights are colour-coded: from 25 kg (red) to 500 g (white)

- 25 (black)
- 500g (white)



gavelin weighing at the 1908 Olympics



nested in three bell jars, is the lump of metal known as the International Prototype of the Kilogram

**World Metrology Day 20 May 2008**

*No games without Measurement*

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