

# FOOT BIOMECHANICS.<sup>i</sup>

## Dynamic biomechanics.

Foot biomechanics is strictly connected to the function of walking. This region is called “propulsive triangle, whereas the other side of the foot, used for the rest, is called “rest triangle”. When the forefoot rests at ground, every metatarsus is at the same level, in a horizontal position. When foot raises up external metatarsus fall down, approaching each other, the first downwards and in the outer part and the fifth downwards and in the inner part.

### 1. Study of walking in 4 phases.

1. First bilateral rest: While a foot lands, the other one very near to lifting, rests with the head of the first metatarsus with the digital pulp of the hallux.
2. First unilateral rest: The foot completely takes off. The body rests with only one head, with one foot which rests and the other one which does not rest.
3. Second bilateral rest: It is symmetrical to the first one and it is characterized by a hanging foot takes in contact with the ground at the same level of the heel and the foot which was previously at the back, in this phase moves to the front.
1. 4.Second unilateral rest. It is symmetrical to the second phases. The foot which was raised up, now is the one which rests and vice versa.

## Static biomechanics.

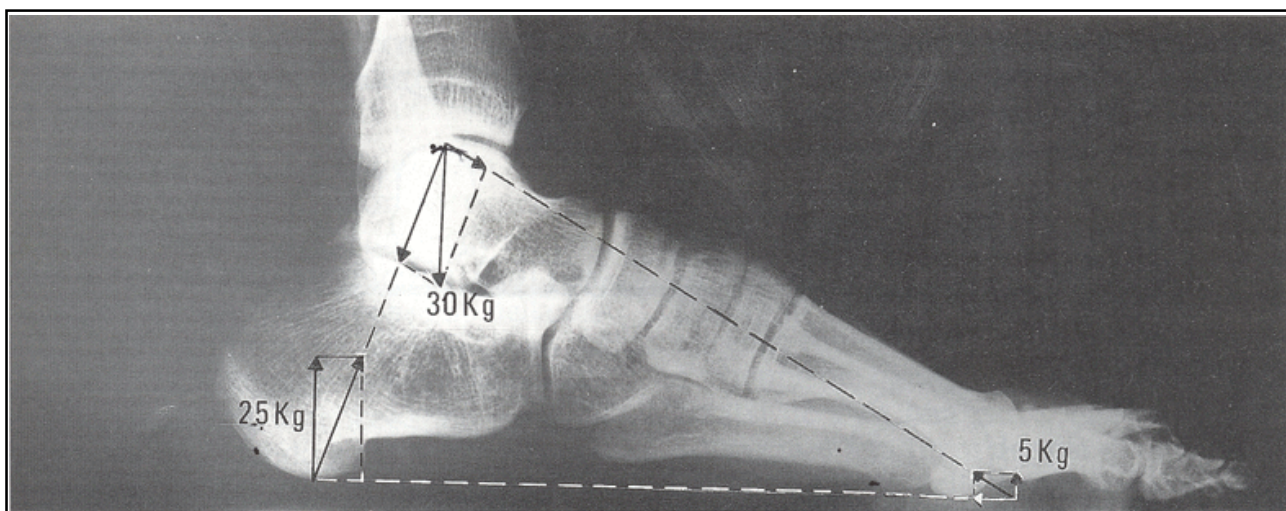
The foot under full load presents itself as a body part is designed for performing a function of vital importance: “to represent a springy zone to absorb stress and to balance the long and unstable spinal column.

Body weight transfers and changes time after time, according to 30 Kg ( the middle of 60 Kg, point of reference for a common human weight) , establishing that Kg 25 go to the heel and 5 Kg to the forefeet.

Height variations of the the heel determine a great variation in the distribution of the strength distribution.

**In one person of 60 Kg we have the following variations:**

- 1. With the talipes, 60 Kg move on the heel.**
- 2. With the foot in a rest position, Kg 35 go to the heel and the other Kg 25 to the forefoot.**
- 3. With a raised heel of 2 cm, 30 Kg go to the anterior part, the other Kg 30 to the back part.**



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<sup>i i</sup> Stella, S.” *Notebooks Innovation For the Shoe Industry*”, Vigevano, Assomac Edition, 2002.

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