

Gait & posture: integrated evaluation solutions

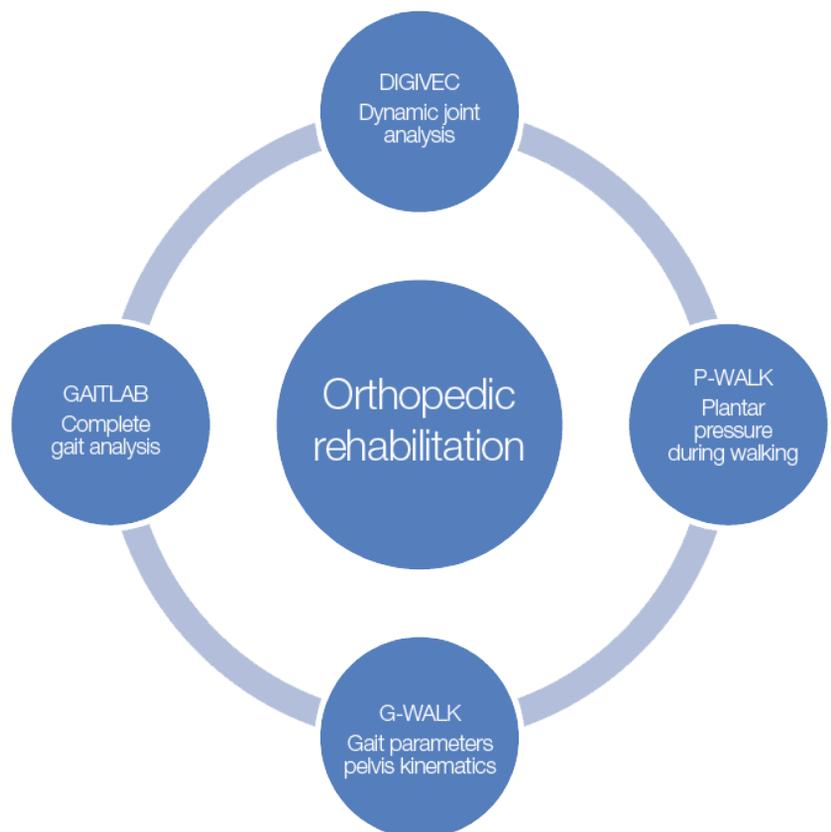
Movement and posture

Movement and posture are the final result of the interaction of all the physiological mechanisms that contribute to the maintenance of the state of resting of the joints (in standing or other static positions), or to estimate the necessary forces to control trajectories during movements (from the simple to the complex one).

The quantitative analysis of movement and posture is an important tool for the clinical evaluation because it allows to:

- *define the level of functional limitation and disability consequent to the pathology and its evolving with the growth and/or the aging of the subject;*
- *identify rehabilitation and therapeutic paths suitable for each patient condition;*
- *evaluate and quantify the effects of the different treatments and monitor these effects in time.*

(Disability and enhanced research at Polytechnic of Milan, 2006)



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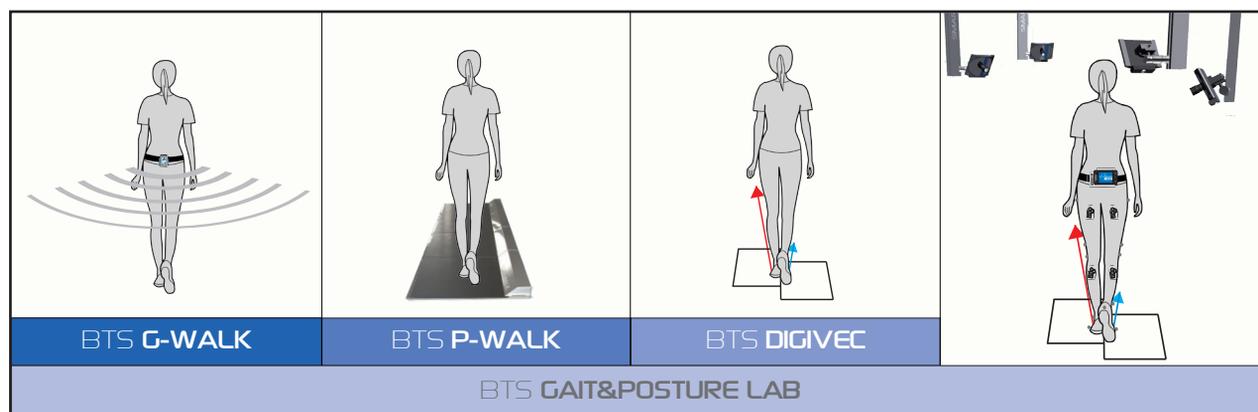
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- Each intervention must necessarily consider the system in its totality
- The contribution of different specialists becomes fundamental for each patient
- Only integrated solutions can provide multifactorial evaluation



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“Posture is normally defined as the arrangement of body parts. A good posture is the muscular and skeletal state of balance that protects the fundamental body structures from injuries or progressive deformities in spite of the position (standing, lying down, crouched, bent) in which they work or resist.

In these conditions, the muscles will work in a more effective way and the thoracic and abdominal organs will be in an optimal position. Posture is bad when there is a wrong relation among the different body parts, with a stress augmentation in the bearing structure and when the body balance on foot support base is less effective”.

Posture Committee Report of the American Academy of Orthopedic Surgeon. Taken from “I MUSCOLI, Funzioni e test con postura e dolore” of Kendall, McCreary, Provance, Rodgers, Romani, 5a edizione ,2006 - Verduci Editore - Roma.

The human body is a system able to self-regulate in order to maintain intact its physical features and the healthy state, repairing itself within some limits, where necessary.

It is a very complex system, with a “non-linear” behavior that means that its responses are not completely predictable.

The posture which we assume during the execution of each necessary movement for everyday life activities, such as during gait, is the sum and result of the elaboration of multiple information provided to the visual, vestibular and proprioceptive systems.

A wrong posture is able to influence our gait efficacy.

A bad plantar support or a malocclusion can transform themselves in postural and gait alteration, that in healthy subject lead to stress and joint and muscular pain, while in the neurologic patient exasperate the general condition augmenting the instability and potentially the fall risk.

The altered condition of receptor systems can cause instability sensation with dizziness and balance disorders as for example headaches. A wrong posture cause also an augmentation of the energetic expense for each movement and in particular for gait.

