Stabilometry

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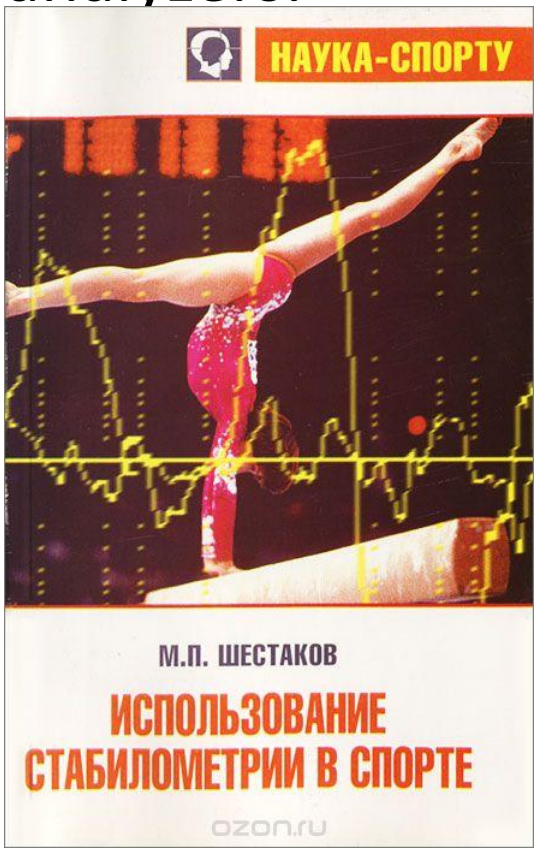
What is it?

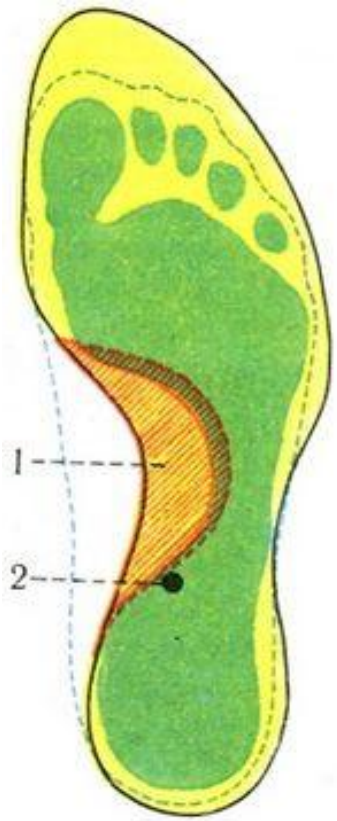
Stabilometric system in biomedical areas is a device for recording the oscillations (колебания) of the projection of the center of mass of a person onto the support plane (плоскость опоры).

what for?

Stabilometry is used for diagnosis and treatment of diseases associated with motor disorders, vestibular apparatus and visual analyzers.



A bit of theory from medicine

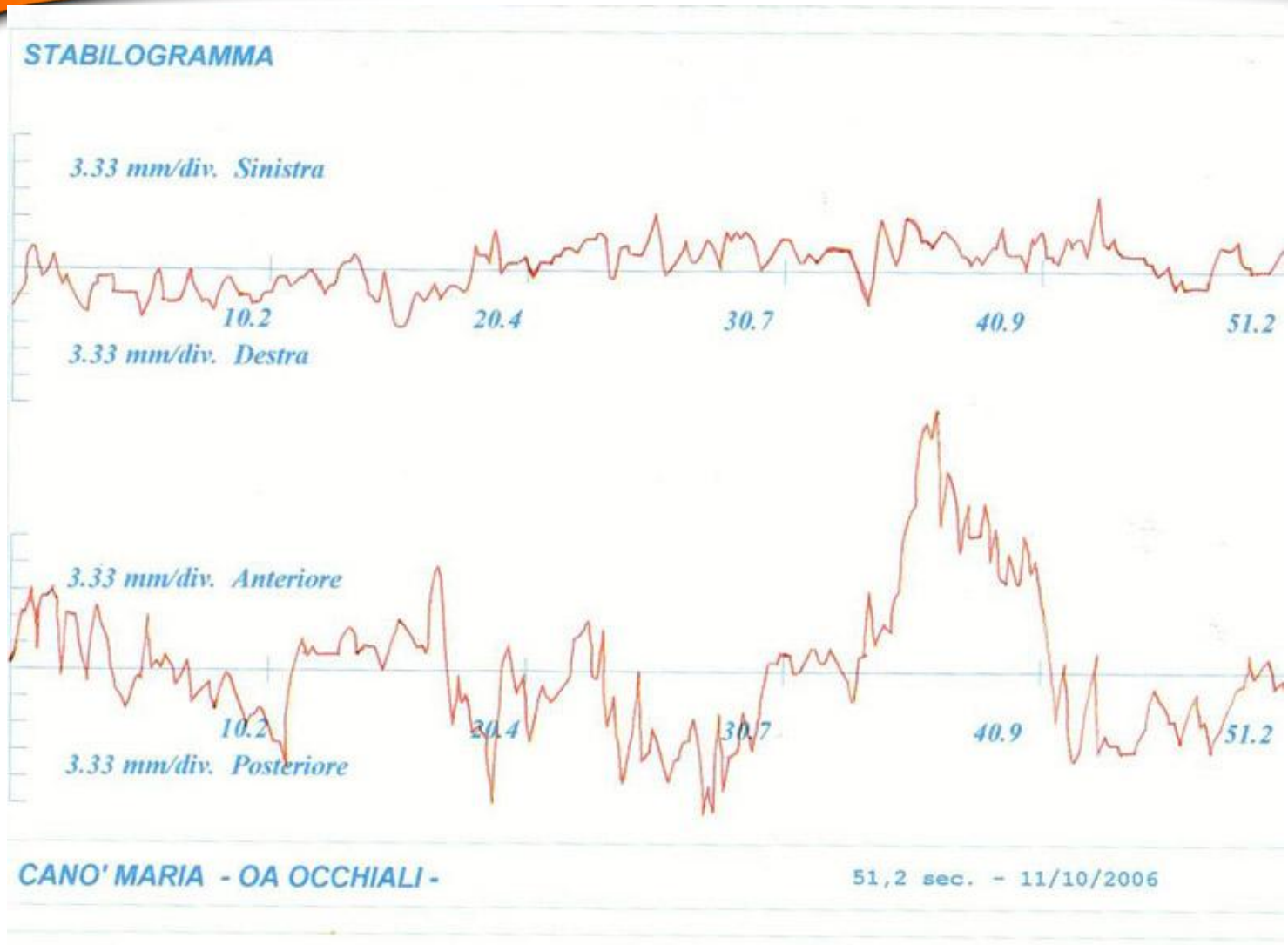


The area of support in the vertical position of a person is limited by the space that is under the soles and between the feet.
The **central point** of the vertical line of the center of gravity on the foot is 5 cm in front of the calcaneal hillock (пятка). The sagittal size (сагиттальный (поперечный) размер) of the support area always prevails over the frontal, and therefore the displacement of the vertical line of the center of gravity is easier to move to the right and left than the back, and it is especially difficult to move forward.

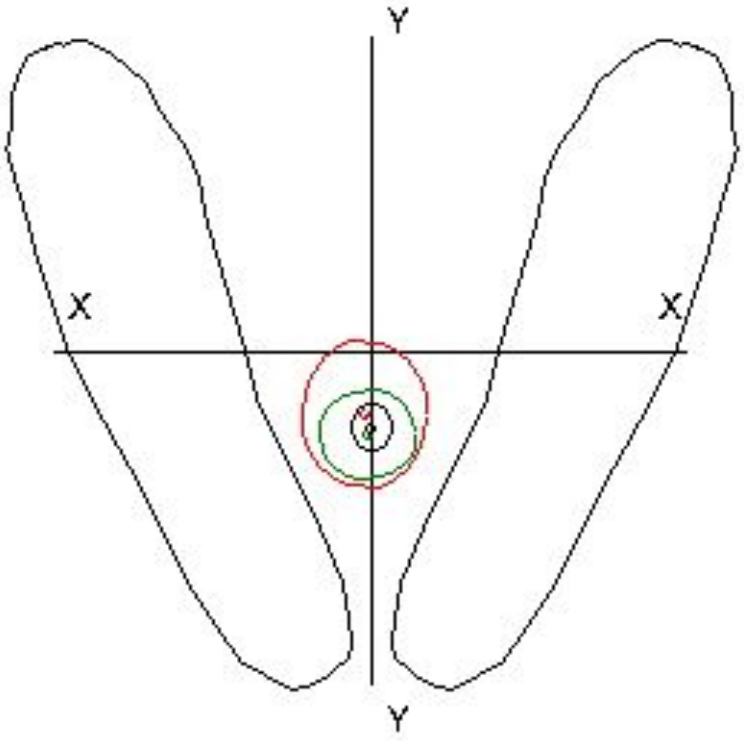
Stabilometry parameters

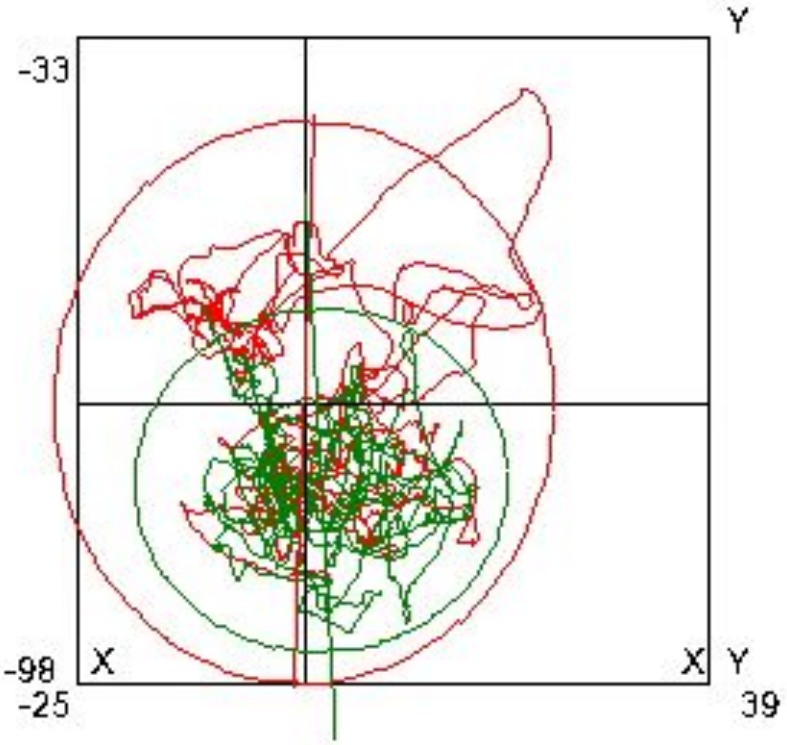
1)The difference in the oscillations of the center of mass of the object (projection onto the platform) in the frontal, sagittal plane. The result is the **stabilogram.**
2) The trajectory of oscillations and their speed. The result is a **statokinesiogram**. When analyzing the results of stabilometry, all its indicators are based on these basic parameters.

stabilogram



statokinesiogram





In our case the stabilometric system contains

stable platform

video capture camera (камера видеозахвата)

rangefinder (дальномер)

glasses of augmented (дополненной) or virtual reality

data collection tool (computer)

How does this work?

- The video capture camera and the range finder fix the position of the person, and the key points (knee joints, hips, shoulder joints, brushes, etc. for a total of 20 points)
  Further on the glasses is an image: a person is on the road, which moves forward, but there are obstacles on the way that you need to step over. At this time, with a certain frequency, the system removes the position of each key point.
  On the output we have a table on which the diagrams are constructed.

Problems of this method

- interpretation of data
- individual characteristics of a person

Thanks for your attention!