Präzision für die Gesundheit

seca mBCA 525 Application Notes

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For a precise and error-free measurement with the seca mBCA 525, there are a number of things to consider, which are described below:

1. Measurement protocol

a. Idle time/ measuring position

Before each measurement, the person to be measured should lie flat for at least 5, but preferably 10 minutes. During this time, the body water is evenly distributed. This effect has an influence on the measured resistances and thus on the measurement results. This is crucial because the validation and formula generation of the device was done while lying down. Bridging this time can be done with

- The attachment of the adhesive electrodes
- Entering the data weight, height, waist circumference and PAL
- Input or loading of patient data.

a. Weight and size determination

In addition to the BIA measurement, the accuracy of the measurement results depends on the parameters of weight and size. Especially in the case of follow-up measurements, care should be taken to ensure that the weight is always recorded under the same influences. It is best to take the measurement before a meal or a few hours after a meal. Immediately before the weigh-in, no large amounts of liquid should be taken and the bladder should be emptied. The size should always be the same for adults. To do this, the value can be taken from the internal memory.

b. Sports activity

Measurements taken immediately after intense sports activities increase the core body temperature, which has an influence on the resistances in the body and thus the calculated values. The person to be measured should therefore be measured into a rested state before sporting activity.

2. During the measurement

1. Positioning of arms and legs

Care must be taken not to let the feet and thighs touch. To do this, the feet should be placed as shoulder-width apart as possible. The hands and arms must be placed next to the body and must not touch it. During the measurement, the person to be measured should not move or tense the body. Failure to follow these points can lead to implausible readings.

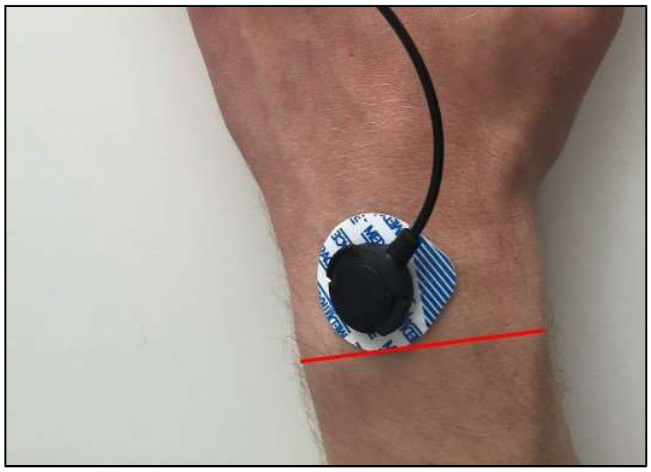
b. Contact with conductive surfaces

It must not be measured on a conductive surface. If the underlay is metallic, a mattress should be used as an insulating layer with a minimum thickness of 5cm. Contact of body parts with conductive surfaces, e.g. the bed frame, must be avoided, as this can lead to implausible measurement results.

3. Electrode Positioning

a. Black Hand Electrodes

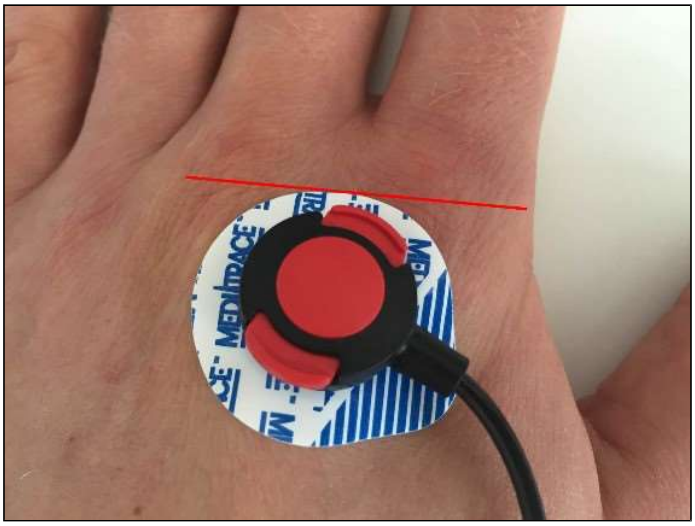
The black electrodes should always be positioned closer to the center of the body than the red electrodes (black = inside, red = outside). Electrode cables should not be confused. The black hand electrodes are to be positioned on the back of the respective wrist. To do this, think of a line at the level of the protruding bones on the wrist. These are elbow and spoke heads. Position the electrodes in the middle between the bone heads so that they are not on the line but on the side of the hand against the line.



The black electrode is used to measure resistance. If this electrode is moved to the forearm, for example, less resistance from the arm is measured. This leads to incorrect results, as all measured values are dependent on the measured resistance. This, in turn, means that the positioning of the black electrode should be strictly adhered to.

b. Red Hand Electrodes

The red hand electrodes are to be positioned on the back of the hand. To do this, think of a line at the level of the index and middle finger joints to the metacarpal. Position the electrodes in the middle of the joints so that they are not on the line but on the side towards the black electrode.



The red electrode is used to inject electricity into the body. In order to compensate for the so-called skin transition resistance, it is important that there is a high conductivity. In particular, dry or keratinized hands should be disinfected in advance at the points where the red electrode is glued and then prepared with electrode spray or electrode gel. Layers of fat, such as hand cream, can act as a barrier. In these cases, the layer should also be removed with the help of disinfectant. Subsequent use of electrode spray or electrode gel promotes conductivity after disinfection.

Combination preparations such as Nuprep Skin Preparation Gel are recommended. This product has both an abrasive cleansing effect (removes dry skin layers and fat layers) and an impact on improved conductivity.

c. Black Foot Electrodes

The black foot electrodes are to be positioned on the back of the respective ankle. To do this, think of a line at the level of the protruding bones at the ankle joint. These are the tibia and fibula head. Position the electrodes in the middle between the bone attachments so that they are not on the line but on the side of the foot against the line.

d. Red Foot Electrodes

The red foot electrodes are mounted on the back of the foot. To do this, think of a line between the joint of the second and third toes to the midfoot. Position the electrodes in the middle of the joints so that they are not on the line but on the side towards the black electrode.