seca | results of examination

Patient data

Title:		Telephone 1:	-
First name:	JAMES	Street:	
Name:	SMITH	Zip code:	
Age:	33 Years 7 Months	County:	
Sex:	Male	City/town:	
Patient ID:	seca_20141210165200-1...	Country:	

For further questions, please email:

-

Doctor supervising treatment:

-

Basic data

Date: 12.12.2014 Time: 12:05 PM

224.4 lbs	**5' 9 7/8"**	**32.3 kg/m²**

Health risk

01 Phase angle

φ (50 kHz): 6.8 °

Phase angle is a direct measured variable of bioelectrical impedance analysis and has prognostic relevance for both the chronically and the acutely ill. Interpretation of phase angle depends on the patient's ethnicity, BMI, age and gender. The phase angle drops in the presence of low cell mass and/or excessive water in the body (muscle atrophy or hyperhydration of the extracellular space as a result of water balance disturbance). The phase angle rises in the presence of healthy metabolic weight loss if cell mass is retained and water is flushed out.

02 Hydration

HYD: 65 %

Hydration is the name for the ratio of extracellular water (ECW) to intracellular water (ICW) and serves as an indicator for water distribution in the body. A distinction is made here between fluid displaced from the intracellular space to the extracellular space (cell shrinkage) and vice versa (cell swelling). These changes in body composition occur mostly prior to a gain or loss in body weight and in fat-free mass (FFM). This is because an increase in ECW, for example, may conceal simultaneous losses in ICW, with the result that FFM or weight may initially remain unchanged.

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03 Bioelectric impedance vector analysis

R (50 kHz): 462.3 Ω

Xc (50 kHz): 55.2 Ω

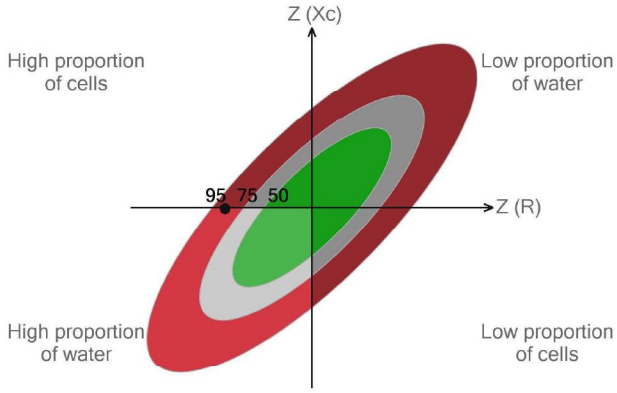

Diagram: Piccoli et al. 2002, Refrence values: seca 2011

Prof. A. Piccoli's bioelectrical impedance vector analysis (BIVA) is a graphical representation of the electrical resistance of the body: resistance R and reactance Xc. It enables a patient's total body water TBW - or R - and their body cell mass - or Xc - to be examined at the same time. Whereas the quality and quantity of body cell mass is an indicator of the individual health prognosis, major changes in fluid volume can indicate dehydration or hyperhydration. For this purpose, the individual measured value is compared to reference values in the form of ellipses. For example, the green area depicted indicates the range of values in which 50 % of all measured values of the reference collective can be found. The reference ellipses are specific to gender, age and BMI.

04 Body Composition Chart

FFMI: 23.0 kg/m²

FMI: 9.3 kg/m²

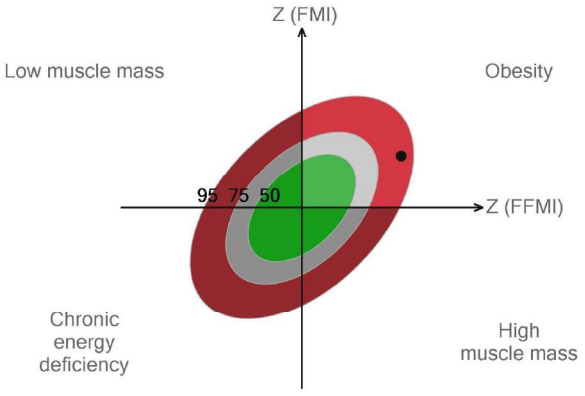

Diagram: Piccoli et al. 2002, Refrence values: seca 2011

Determination of fat mass index (FMI) and fat-free mass index (FFMI) is carried out in analogy to body mass index BMI. In other words, the FM and FFM parameters are viewed in relation to the square of body height. An increase in BMI may be due to an increase in either FFM or FM, or a combination of both. BCC can therefore be used to view changes in BMI on a more differentiated basis. By comparing both indices with a reference population, energy reserves - or FMI - and muscle status - or FFMI - can be assessed, allowing nutritional and fitness status to be evaluated.

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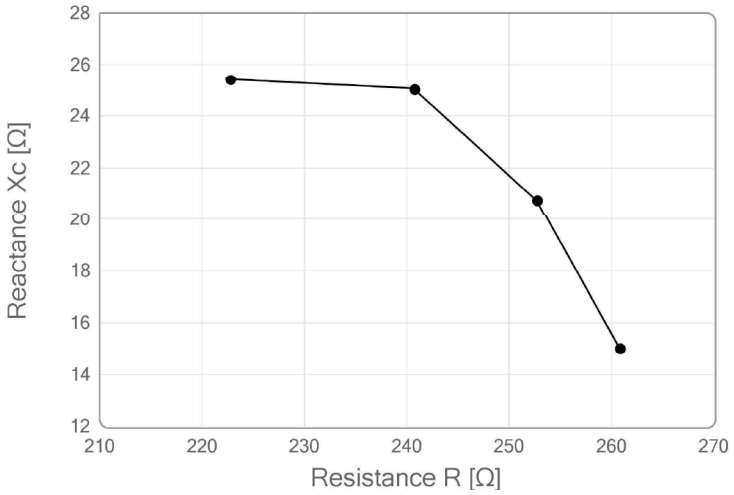
Raw data for impedance

01 Raw data for impedance (Left arm)



02

	Z(Ω)	φ(°)	R(Ω)	Xc(Ω)
5.0 kHz	261.3	3.3	260.9	15.0
10.0 kHz	253.6	4.7	252.8	20.8
20.0 kHz	242.1	5.9	240.8	25.0
50.0 kHz	224.2	6.5	222.8	25.4

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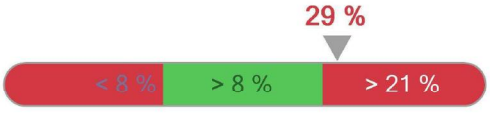
01 Fat mass

FM: 64.4 lbs
FM%: 29 %



Gallagher et al. 2000

Recording fat mass (FM) allows a differentiated assessment of changes in weight. In addition, FM is the essential characteristic variable for energy balance and enables the body's energy reserves to be determined. As a consequence, it can form the basis of nutritional advice, for example.

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02 Fat-free mass

FFM: 160.0 lbs

Fat-free mass (FFM) corresponds to metabolically active mass and is used to measure the body's metabolic activity. From the point of view of nutritional medicine, a drop in FFM, in the case of both the severely ill and the obese (in the context of a diet, for example) indicates a deterioration in the individual health prognosis.

03 Energy stored in body

E: 349169 kcal

The body's main energy store is fat mass (FM) with an energy equivalent of 39.3 MJ/kg. The body's fat-free mass (FFM), on the other hand, has an energy equivalent of only 4.3 MJ/kg. Energy stored in the body can thus be determined from the variables FM and FFM. This is of particular interest when giving nutritional advice or during the course of hospitalization, for example.

04 Skeletal muscle mass

SMM: 84.1 lbs
LST(R_leg): 26.1 lbs
LST(L_leg): 25.8 lbs
LST(R_arm): 10.5 lbs
LST(L_arm): 10.2 lbs

Kim et al. 2002

Skeletal muscle mass (SMM) forms the largest proportion of fat-free mass (FFM). It is of key importance in gaining a better understanding of physiological and metabolic processes.

2

01 Total body water

TBW: 54.0 l

Recording total body water (TBW) enables a patient's fluid status to be determined and any changes in body fluid volume to be assessed. The latter can occur due to tumors or to heart, liver or kidney failure, for example.

02 Extracellular water

ECW: 21.4 l

Determining extracellular water (ECW) provides a more differentiated view of total body water (TBW). A rise in ECW value, for example, provides an indication of fluid retention in the extracellular space, also known as edema. Edemas are usually the result of an underlying disease such as heart, liver or kidney failure.

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03 Resting energy expenditure

REE: 2054 kcal/ day

Müller et al. 2004

Resting energy expenditure is the quantity of energy the body needs to maintain its vital functions for a day assuming complete rest. The proportion of resting energy expenditure in relation to total daily energy expenditure is 60 % to 70 % on average, making it a key factor in determining the body's calorie requirements. The resting energy expenditure of a human being can be calculated on the basis of weight, height, age and gender.

04 Total energy expenditure

TEE: 3286 kcal/ day

In addition to resting energy expenditure, total energy expenditure takes into account a person's physical activity. It therefore calculates the total amount of energy that a person consumes per day. For this purpose, the resting energy expenditure is simply multiplied by the physical activity level (PAL).