

## Is Calorie Counting Really A Good Tool For Evaluating Caloric Needs On The Fruit Based Raw Vegan Diet?

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A few days ago I returned from a vacation in Thailand. While I was there, all of my meals were really good quality, fresh, ripe fruits and vegetables from the local markets.

Needless to say, man is perfectly designed for living in tropical regions in which the climate is optimal for us year round. The climate is also perfect for growing high quality tropical fruits, which make up the main part of our natural diet.

A very easy, fast and cheap test of fruit ripeness and quality is a refractometer. I used this to compare the fruits from Thailand with the fruits eaten and available in Slovenia, my home country, which has a hardness zone between 6 and 8.

I measured the sugar level in the Thai fruits and compared those values with the values I had measured at home.

The refractometer measures the sugar concentration in water solution. The physical quantity measured by this method is called a Brix grad. This represents 1g of sucrose in 100g of solution [1]. If the solution also contains other water soluble matter (for example in fruits which also contain acids, vitamins, minerals) then the Brix value is only an approximation of the sugar content in the fruit juice.



Ripe pineapple

Despite the approximated values of the sugar content in the fruits, the actual Brix values can be compared with the typical Brix values for the fruits. These typical values are available online.

Some values are collected in the following table:

	<b>Brix values</b>			
<b>Fruit</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Excellent</b>
Mango	4	6	10	14
Pineapple	12	14	20	22
Watermelon	8	12	14	16
Papaya	6	10	18	22

More values are available online at ref. [2]

In Slovenia, the Brix values of the fruits in this table are relatively low, with mangoes around 10 Brix, pineapples around 14 Brix and papayas around 10 Brix.

In contrast, exceptionally good fruits were available in Thailand. On my first day the exceptionally sweet watermelon with a value of 18 Brix was on my menu. During my sweet vacation, 18 Brix mangoes, 18 Brix pineapples and 20 Brix papayas were not uncommon. All of the Brix values were evidently larger than the Brix values of the fruits available in Slovenia.

A lot of people who are eating a *fully raw* or *high raw* fruit based diet are worried that they may not be eating enough fruits to satisfy their caloric needs so they track the calorie content of their meals.

Some of them are so obsessed with tracking calories and meeting the USDA dietary reference for calorie intake that they force themselves to eat more despite the fact that they are not hungry at all only. [3].

Usual caloric needs are summarized from USDA recommendations based on the standard American diet. The tools for calculating the calories consumed and burned are available online. Examples of these are Cron-o-meter [4], Nutridiary [5] and Selfnutritiondata [6],...

The definition of the Brix value states that 1 Brix is 1 wt.% of sugar in the fruit, but since other components such as vitamins, proteins, fatty acids and minerals can contribute to the change of the refractive index, 1 Brix can also be 1 wt.% of the all soluble solid matters in fruits. Both values, i.e. the brix value calculated from the amount of sugars in the fruit and the value calculated from all soluble solid matters in the fruit, were calculated and are given in the table below as a range between the two values. By using these estimations the Brix values from the database can be calculated for any given fruit.

One of such databases is the USDA database which is also available online. Please note that the real Brix values of the fruits analyzed and described in the databases are presumably between both values. The estimated Brix values using both mentioned approaches are given in the following table:

<b>Fruit</b>	<b>Brix value</b>
Mango	14 - 17
Pineapple	10 - 14
Watermelon	6 - 9
Papaya	8 - 12

The caloric value of a fruit is mainly dependent on its sugar content therefore we can estimate the caloric value based on sugar content alone. If the Brix values recalculated from the USDA database are compared with the Brix values of the fruits measured in Slovenia and Thailand (which were single measurements and not the average values), a huge difference can be observed for some fruits.

For example the 18 Brix watermelon, which was my meal in Thailand, contained 2-3 times more calories than the watermelon in the database.

Papaya eaten and tested in Thailand contained 2 times more calories. Pineapple 1.3 times more calories than the pineapples in the database while for mango only 1.3-1.1 higher values are calculated compared with database.

From this comparison it is evident that caloric calculations can be a very deceptive tool for estimating and evaluating our caloric and nutrient needs. In Thailand, it was clear to me after I had eaten only half of the 5kg (with refuse) 18 Brix watermelon that I was satisfied. In comparison it was pretty normal in Slovenia that I would eat a whole large watermelon on my own in order to be satisfied.

I hope that in this article I clearly show that the best scale for measuring our satiety and nourishment is our *feelings*. For that reason it is better to stay away from calorie calculators and carefully listen to your body.

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#### References:

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- [4] <http://cronometer.com>, accessed 16.4.2014
- [5] <http://www.nutridiary.com>, accessed 16.4.2014
- [6] <http://nutritiondata.self.com/>, accessed 16.4.2014

## About Author:



I am Dr. Kostja Makarovič. I have a doctoral degree in Material Science and I am working as the researcher and developer at a world renowned Slovenian company. My basic education is chemistry and I am also a chemistry teacher. After the doctorate of science I started studying the Master Degree Program in “Natural Hygienic Science” at Fit For Life® Sciences Institute, College of Natural Health in Canada. In my private life I am also interested and active in other sciences, philosophies, medicine and psychology. Apart from intellectual activities there is a long list of sports which give an icing to the cake of my life. Let me list only the most important ones: hiking, running, scuba diving, skiing, mountaineering, cycling and skating. Book reading, photography, ham radio and a raw fooder dog, Maks, are my regular company in the nature where I try to spend as much of my free time as possible. I have recently been spending my time in nature productively with a newly started permaculture orchard.