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Digestion is independent of physical activity

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Abstract
The author wished to put a certain equation to the test. It is Co = RMR x F_A. Co = calories necessary to maintain human body weight, RMR = resting metabolic rate and F_A= activity factor where $1.3<F_A<1.9$. Co was substituted into another equation, Dk $(dW/dt)_o$ = - (Co – Ce), where Dk = conversion factor, $(dW/dt)_o$ = weight change rate and Ce = calories eaten per day. Co is eliminated between the two equations and data is used from the author's 2012 paper to test this. Average values are obtained and plugged in. The left-hand side agrees with the right-hand side to a little over 7%, fairly good agreement. Now, it is well known that the digestive tract answers to the medulla oblongata in the bottom of the brain and the muscles answer to the cerebellum in the hind brain. Since these are separate, it is argued that RMR and FA are independent variables, meaning that digestion is independent of physical activity.

Keywords: Digestion, Standard Deviations, RMR, Metabolism

1. Introduction

The equation Co = RMR x F_A suggests that there is a division in the brain between the part concerned with RMR and the part concerned with F_A. In other words, RMR has to do with metabolism and F_A has to do with physical exertion. Thus, Co breaks down to independent variables.

Metabolism is a function of the digestive tract where the vagus ner nerve goes from all of the digestive parts to the medula oblongta, a part of the human brain. Brain regulation of muscles goes to the motor cortex and cerebellum, independent of the medulla oblongata.

A test of Co = RMR x F_A is to see if Co can be eliminated between it and
Dk $(dW/dt)_o$ = - (Co – Ce). Data from the author's 2012 study [1] allows such a test. Thus, we have

$$Dk\ (dW/dt)_o = -\ (RMR \times F_A - Ce) \quad (1)$$

All of this information is present in the author's paper [1].

2. Results

There are two tables in the 2012 study [1] that can be consulted for all five quantities. The author calculated the average and standard deviation for each.

$$Dk = 7740.32 \pm 1548.87 \quad (2)$$
$$(dW/dt)_o = -\ 0.15305 \pm 0.0769 \quad (3)$$
$$RMR = 1673.96 \pm 264.17 \quad (4)$$
$$F_A = 1.3188 \pm 0.0725 \quad (5)$$
$$Ce = 1109.3 \pm 624 \quad (6)$$

This was composed of 51 diets and one will note that the standard deviations for $(dW/dt)_o$ and Ce are of the order of 50%. Obviously, this is a deficiency, but we will proceed. Men and women are lumped together because the form of the equations is similar. There were 29 females and 22 males.

Plugging in the numbers, we have.

$$Dk\ (dW/dt)_o = -\ 1184.66 \quad (7)$$

$$-\ (RMR \times F_A - Ce) = 1098.32 \quad (8)$$

So, these two figures differ by 7.3% and it has been said by Cunningham [2] that in calculations of this sort, an error of 10% is to be expected.

3. Conclusion

The author maintains that this allows a test of $Co = RMR \times F_A$ as there is success in eliminating Co between the two equations. There is also the matter of separate parts of the human brain.

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Table 1: Nomenclature

Ce	calories eaten per day
Co	calories to maintain body weight
Dk	calories to lose one kilogram of weight
F_A	activity factor
RMR	resting metabolic weight (Basal Metabolic Rate)
$(dW/dt)_o$	weight loss at beginning of linear period

5. References

1. Jennings JH. Weight Loss and Calorie Restriction at 50% Fasting Rate. Pakistan Journal of Nutrition. 2012; 11(3):282-287.
2. Jennings JH. IN "Metabolism is Universal". IJRRAS. 2012; 13(2):p541.