

Thermogenesis, Red Hot Chili Peppers, and Dieting

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Abstract

Thermogenesis is known to occur in animals and humans with the consumption of red hot chili peppers. Chili peppers are not known to be one of the eight most common foods which cause ninety percent of the recorded food allergies in the United States of America. Since thermogenesis burns off calories, it is recommended as a possible food for dieting purposes.

The cautionary statement is that hot chili peppers may increase one's appetite, especially during the initial period when it is introduced into the diet of a person who likes the taste. Encouragement is given to such a weight-conscious person to control the desire to eat more by training the brain. Besides being pungent, red hot chili peppers contain many beneficial phytonutrients.

Keywords: *Bell Peppers; Habanero; Body; Metabolism; Brown Adipose*

Introduction

Red hot chili peppers are the topic of discussion of the current work, and not 'Red Hot Chili Peppers', the funk rock band that was formed in Los Angeles, United States of America (USA) in 1984. The RHCP has become one of the best-selling bands of all times. Red hot chili peppers have been used for a very long time in countries like India, Mexico, some parts of China, Korea, Indonesia, Thailand, Malaysia, Bangladesh and many tropical countries where the chili peppers grow well. Progressive cuisines like that in Finland and Sweden, have adopted the hot chili peppers in several of their dishes, even though they were not traditionally used. The Scoville scale has been adopted to measure the hotness of peppers, with a zero score for bell peppers and over 500,000 score and above for habanero peppers. The highest levels in the Scoville scale, up to above 2 million (at the present time) are occupied by specialty varieties and not commonly available in the neighborhood markets or supermarkets in the USA.

Since the nineteen eighties, spice heat has been methodically measured by a procedure that utilizes high-performance liquid chromatography (HPLC) [1]. This not only find but also measures the concentration of heat-producing chemicals. The measurements are used in a formulation that assigns weights to them because of their relative capacity to produce a sensation of heat. This method yields results but in American Spice Trade Association (ASTA) hotness units. A measurement of one part capsaicin per million is equal to about 16 Scoville units, and the published method says that ASTA hotness units can be multiplied by 16 and reported as Scoville units. Scoville units are a measure for capsaicin content per unit of mass in the absence of moisture [2-4]. Habanero chilis (of which Scotch bonnets are a variety) are used in pepper spray, a defense tool often carried by women. Needless to say, ingestion of varieties with higher hotness units, need knowledge and caution.

Thermogenesis is the production of energy in an animal body owing to physiological processes. Thermogenesis in the human body, as it is related to hot chili pepper consumption, is a relatively new field of study in nutrition. Based on the published research, the objective of this article is to discover if it makes sense for persons to consider using hot chili persons to quicken their metabolism, and thus for weight control.

Literature Survey

In 1979, the researchers [5] studied the relationship between brown adipose tissue with diet-induced thermogenesis. There were also many other related studies, of which a few are references [6-8].

In 1997, Lim., *et al.* [9] found that consumption of dietary red pepper increases carbohydrate oxidation at rest and also during exercise. In effect, there was increased energy production in the human body owing to the eating of hot chili peppers.

In reference [10], it was discovered that capsaicin suppressed body fat accumulation in laboratory animals. In humans, however, suppression of body fat accumulation by capsaicin has not been studied, "mainly because only a limited amount of capsaicin can be ingested because of its strong pungency" [11]. This last is the opinion of the researchers in [11] and not a scientific fact. The author contends that persons who are used to eating hot, spicy foods (especially those who live in communities where hot, spicy foods are the daily norm), can be studied with respect to fat accumulation and capsaicin. The amount of capsiate contained in CH-19 Sweet [11] was about from 0.3 to 1.0 mg/g fruit. This amount of capsiate is like that of capsaicin in hot chili peppers. Although the subjects ate a large amount of capsiate, they felt little or no pungency and could perform the task with no difficulty. In [11], the researchers claim it to be the first study about the biological effect of a natural product that hold a significant quantity of non-pungent capsaicin equivalent, and it may be utilized as a therapeutic means for weight control.

With a suitable exercise plan, the safety of using hot chili pepper for weight control is a decision each person should make in consultation with his/her physician. It certainly seems like an effective strategy to use red hot chili peppers (various kinds or various hotness) for dieting purposes, especially if one is used to or like hot spicy foods.

It is the author's own experience, that consumption of chili peppers (especially in winter time) increases the metabolism of the body and hence makes the person feel warmer. In unscientific observations over many years, the author found that the same daily menu with or without hot chili peppers (not more than one small Thai chili per meal) created a day which felt warmer or not as warm, even when external environmental temperatures (and indoor air-conditioned ones) were exactly the same. There are weeks in South Florida during the winter (cooler) season where this unscientific study may be carried out if one also cooks and eats every meal fresh. For reasons undiscovered yet, this difference in thermogenesis (owing to hot chili pepper) is not significantly noticeable during the hot summer months (even with a set indoor air temperature). The hunch is that the thermogenesis developed and the concomitant temperature rise in the summer months (expected to be the same in energy quantity if measured) is a smaller percentage of the environmental temperature (in absolute temperature scale) than it is in the cooler winter months.

Discussion and Conclusion

In the USA, [12] only 8 foods are the cause for about 90% of all reported food allergies, and the 2004 Food Allergen Labeling and Consumer Protection Act necessitates that the existence of these foods (or any food ingredient containing a protein derived from one of them) be acknowledged on the labels of food packages. These 8 commonly allergenic foods are as follows [12]: eggs, fish, milk, crustacean shellfish, peanuts, tree nuts, soybeans, wheat. It is hearteningly to note that the food advanced in this work for dieting purposes, red hot chili peppers, is not on this infamous list. For many people in the world (countries mentioned above), and even in the USA, the spicy hot flavor of red hot chili peppers is loved and consumed very often. This tasty fact should be used to popularize chili peppers as a dieting food.

The cautionary statement to be made here is that many find that the hot chili peppers increase one's appetite, so that it is counter-productive to weight loss. The response is that if this increase in consumption of calories is stimulated in one's brain, the person should feel empowered to control it. Many in the world (consider the many slim people in India, Indonesia, etc. who eat hot chili peppers daily) have this tendency (if it exists at all) under control, so can anyone else worldwide. References [13-16] are works which strive to guide the common person on the right, nutritious diets for health. There are more than a few ways to follow a healthful, nutritious daily diet (even

in a relatively homogeneous culture like Finland). The bonus of using hot chili peppers is that the different varieties contain a variety of phytonutrients which can boost a body's immunity and help defend the body against diseases like cancer.

Bibliography

1. Kleiman Dena. "Rating Hot Peppers: Mouth vs. Computer". *The New York Times* (1989).
2. Collins MD, *et al.* "Improved Method for Quantifying Capsaicinoids in Capsicum Using High-performance Liquid Chromatography". *HortScience* 30.1 (1995): 137-139.
3. Nwokem CO, *et al.* "Determination of Capsaicin Content and Pungency Level of Five Different Peppers Grown in Nigeria". *New York Science Journal* 3.9 (2010): 17-21.
4. Othman ZA Al, *et al.* "Determination of Capsaicin and Dihydrocapsaicin in Capsicum Fruit Samples using High Performance Liquid Chromatography". *Molecules* 16.10 (2011): 8919-8929.
5. Rothwell NJ and Stock MJ. "A role for brown adipose tissue in diet-induced thermogenesis". *Nature* 281.5726 (1979): 31-35.
6. Smith RE and Horwitz BA. "Brown fat and thermogenesis". *Physiological Reviews* 49.2 (1969): 330-425.
7. Janský L. "Non-shivering thermogenesis and its thermoregulatory significance". *Biological Reviews* 48.1 (1973): 85-132.
8. Foster DO and Frydman ML. "Nonshivering thermogenesis in the rat. II. Measurements of blood flow with microspheres point to brown adipose tissue as the dominant site of the calorigenesis induced by noradrenaline". *Canadian Journal of Physiology and Pharmacology* 56.1 (1978): 110-122.
9. Lim KI, *et al.* "Dietary red pepper ingestion increases carbohydrate oxidation at rest and during exercise in runners". *Medicine and Science in Sports and Exercise* 29.3 (1997): 355-361.
10. Kobayashi A, *et al.* "Capsaicin activates heat loss and heat production simultaneously and independently in rats". *American Journal of Physiology* 275 (1998): R92-R98.
11. Ohnuki K, *et al.* "CH-19 sweet, a non-pungent cultivar of red pepper, increased body temperature and oxygen consumption in humans". *Bioscience, Biotechnology, and Biochemistry* 65.9 (2001): 2033-2036.
12. Mateljan G. "An Overview of Adverse Food Reactions".
13. Wong KV. "Consumption of Red Meat and its Possible Role in the Etiology of Colorectal Cancer". *Journal of Disease and Global Health* 6.1 (2016): 51-55.
14. Wong KV. "Temperature of Food and Drink Intake Matters". *Journal of Energy Resources Technology* 139.2 (2016).
15. Wong KV. "Strategies to Strike out Sugar". *Journal of Epidemiology and Public Health Reviews* 1.3 (2016).
16. Wong KV. "Optimization of Healthy Fats in One's Daily Diet". *EC Nutrition* 5.5 (2016): 1232-1237.

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