

A Reconsideration of Chewing Theory: Fletcherism

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Abstract

Horace Fletcher (1849-1919) was a notable, self-taught nutritionist at the beginning of the twentieth century in America. When he was a middle-aged man, he applied for life insurance. However, he was rejected by the insurance company because he had excessive weight. This motivated Fletcher to change his life style. Consequently, Fletcher’s weight dropped from 217 to 163 pounds.

Horace Fletcher discovered and developed his theory of chewing, or mastication in 1895-1919: chewing thoroughly promotes eating less food. In addition, it would seem that chewing is the plainest measure to weight loss. Fletcher stressed that food should be chewed 50 to 100 times until it changed from solid to liquid. This theory indicates this method which was concisely and effectively verified, and examined its development.

This essay will focus on not only a brief background of Horace Fletcher but also a review of Fletcherism including experiments related to chewing research. Moreover, highlight the strengths and the limitations.

Fletcherism’s methodology is the simplest way to prevent obesity because it can save money and time. On the other hand, a long chewing time is tiresome and monotonous and needs perseverance. If in the near future, Fletcherism implications are demonstrated by scientists, there can be applied in the medical field to improve the obesity rate and also government budgets concerning health problems related to obesity

Introduction

Obesity is a common problem all over the world including the United Kingdom. The American Medical Association classified obesity as a disease in 2013 because a wide variety of illnesses, not only physical but also mental problems are caused by obesity. Health risks due to obesity are asthma, diabetes and cardiovascular conditions as well as insomnia and depression [1]. Therefore, the prevention of obesity can be approached holistically because improving obesity can have a significant impact on physical, mental and social condition. The National Health Service currently spends £4.2 billion of its £17.4 billion budget on excess weight and obesity and the total costs of obese provision by 2050 will be £9.7 billion [2].

Obesity can undoubtedly have a serious impact on not only diseases but also life spans and government’s expenditure. Consequently, both government and individuals cooperatively might be obliged to consider an appropriate procedure. Therefore, a majority of citizens need to search for simple, economical and beneficial countermeasures with regard to the prevention of being obese. Additionally, a considerable number of citizens do not seem to realize the connection between chewing and body weight. However, Horace Fletcher (1849-1919) popularized his method to chew more times than usual to prevent being overweight [3].

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A story of Horace Fletcher

Horace Fletcher (1849-1919) was a notable, self-taught nutritionist at the beginning of the twentieth century in America. When he was a middle-aged man, he applied for life insurance. However, he was rejected by the insurance company because he had excessive weight. This motivated Fletcher to change his life style. Consequently, Fletcher’s weight dropped from 217 to 163 pounds.

Fletcherism was defined by “The practice of chewing food slowly and thoroughly as an aid to digestion. Fletcherism indicated that food should be masticated 50 to 100 times until it changed from solid to liquid.

Prolonged mastication might lead to prevention of obesity, Fletcherism

A selection of three articles are mentioned to explain the detailed Fletcherism. The first article was extracted from Christen and Christen (1997) [3] because this thesis was from a dental journal and was a comparatively historical article through which Horace Fletcher could be appreciated for the terminology Fletcherism.

The second article, Smit et al (2011) was selected the second article because it was revisited Fletcherism [4].

The third article [5] was chosen because it examined more cases than Smit et al (2011) and, in addition, it pushes the research forwards to include adjusting for age and gender as well as good health condition.

In order to discuss the findings, first the methodology of the three authors should be understood as each had a different perspective. A review of three articles on the topic of ‘Prolonged mastication might lead to prevention of obesity’. Specifically, Christen and Christen (1997) indicate the origin of Fletcherism as the action of chewing food slowly and thoroughly as an assistance to absorption of food [3].

Moreover, Fletcherism was performed through empirical theory including self-experience: by using this technique, Fletcher’s weight reduced from 217 to 163 pounds.

Smit et al (2011) demonstrate that chewing manner might affect energy consumption including ingestion or digestion. Specifically, 11 participants, 6 with normal body weight and 5 with obesity and who had whole healthy teeth, were measured by electromyography (EMG is an electrical recording of muscle activity) to monitor chewing manner comparing 10 chewing times with 35 times [3].

Zhu and Hollis (2015) [5] also reveal the connection between chewing manner and body weight. In detail, 64 subjects, 29 with normal weight and 35 who were overweight/obese, mature participants with full healthy teeth were required to intake 5 portions of test food. The number of chewing times and chewing lengths of periods before swallowing were then measured.

Discussion of findings, strengths and limitations of Fletcherism

Strengths of the theory, Fletcherism

Firstly, to verify the strengths of Fletcherism doctrine, the concrete description in terms of three articles is needed.

Across the three articles, there were notable differences. First of all, Christen and Christen (1997) [3] focused on the early theory of Fletcherism, highlighting his empirical theory and his theory's definition. Horace Fletcher (1849-1919) was a professed and self-educated nutritionist of the twentieth century. According to Webster's New World Dictionary, Fletcherism is "The practice of chewing food slowly and thoroughly as an aid to digestion". Regarding the origin of Fletcherism, utilizing himself as a guinea pig, he realized that by chewing thoroughly, he could eat less food. According to Horace Fletcher, "one must chew food 50-100 times until it turned to liquid or until it swallows itself".

Although the purpose is in notable agreement with Smit et al (2011) [4], Zhu and Hollis (2015) [5] vary from Smit et al (2011) [4] a great deal in some respects. Smit et al (2011) examined 13 cases, comparing chewing 10 times with 35 times a bite and they extracted the intake or consumption of food volume. In contrast, Zhu and Hollis (2015) examined 64 cases and the number of chewing times and chewing lengths of periods before swallowing were measured. As a result, Zhu and Hollis (2015) indicate as having a different or a comprehensive aspect. Consequently, healthy subjects were recorded to have a higher number of chewing times and longer chewing periods compared to obese tendency or obese subjects. Thus, Zhu and Hollis article has considerable informative and substantial valuable information and therefore differs from the earlier papers. From the point of view of the strengthened conception, these three papers with significantly different methodologies can produce an evidence of Fletcherism.

Other articles reveal the strengths of Horace Fletcher's research. With regard to research methodology, a considerable number of subjects were utilized. The research concerning the relationship between eating speed and obesity, the number of participants are 3256 (aged 12-13), 9804 (aged 30-74) respectively, can be seen [6,7]. Eating rate (fast, intermediate, or slow) was self-evaluated in questionnaire. These observations uncovered that higher rate of those eating fast was examined in the obese group compared to no obese group. Accordingly, slow eating can prevent obesity.

For the appropriate physiological measures were utilized in other studies. Slow spaced eating reduces food intake, these two data [8,9] were analyzed by physiological data. These findings illustrated that peptide YY area under the curve (AUC; Playing a role in digestion, food consumption) was higher after the 30 minutes-meal compared to after the 5 minutes. Consequently, eating at a physiologically slow pace brings about a more anorexigenic gut peptide compared to eating fast. These findings illustrated slow paced eating might reduce food intake.

Moreover, utilizing IT, fMRI, 18 healthy volunteers (12 males, aged 20-39), the effect of chewing neuronal activity in the brain were analyzed. The findings infer that chewing might enhance or improve the process of working memory, in consequence accelerating cognitive action. Therefore, the chewing might acceleratingly foster the brain function [10].

Furthermore, Smith (2009) [11] implies that chewing gum might be a simple way of preventing stress. This inquiry was probed by a web-based questionnaire. Gum chewing, occupational stress and life stress was measured by a five point scale and anxiety and depression were measured by an Anxiety and Depression Scale. Regarding occupational stress, non-chewers had nearly twice as much stress as chewers. Concerning life stress, non-chewers had more stress than chewers. Non-chewers were more presumably to be depressed than chewers.

Concerning mental or psychological condition, Hirano et al (2014) conducted a systemic review of the Public Medicine search engine (PubMed) database. Findings showed that chewing influences on attention, mood and stress relief were positive. Thus, chewing could be effective for adjusting cognitive function [10].

For holistic healing system, when chewing thoroughly, similar to Fletcherism, the secretion of saliva is promoted. Saliva is a substantial fluid and has a variety of functions to maintain health. Specifically (1) Salivary amylase (An enzyme produced in the pancreas and salivary glands that helps in the digestion of starches) is secreted, (2) Moisturizing the mouth help mastication and speech, (3) Dissolving food accelerates taste of food, (4) Washing the mouth reduces food debris and bacteria, (4) Saliva includes peroxidase, lysozyme and lactoferrin which have antiviral and bacterial action, (5) Saliva enhances wound healing [12].

Limitations of the theory, Fletcherism

Fletcher's regulation for correct nutrition asked for not only the right function of chewing but also the mental condition including anger, anxiety and hunger. In detail, Fletcherism expresses (1) Eat when having sensation of hunger., (2) Eat only what tastes good to you and (3) Avoid eating when having anger and anxiety. Relating to points of (1), (2) and (3), limitations of the doctrine Fletcherism was explained as follows:

- (1) Eat when having sensation of hunger.

Mirch et al (2006) demonstrate that children who binge eat (excessive eating) showed a short satiety (fullness that persists after eating) compared to non-binge-eating children. The further research of the connection binge eating and chewing, or satiety, satiation and chewing will be needed [13].

- (2) Eat only what tastes good to you.

Taste sensation is diverse among groups or individuals. However, taste causes complex actions from brain functions and taste bud sensations. This process has a mutual action with homeostatic mechanism managing energy balance [14].

Relating to difference in taste identification, obese and non-obese adult men and women took part in an experiment of taste identification of four taste strips (sweet, sour, bitter, and salty). Chi square test, a statistical test commonly used to compare observed data, was utilized to analyze the data. Khan, H. and Qazi H., 2017; Baig, H. and Qazi, H., 2016 [15,16], these two articles had the same findings which showed that obese participants could confirm taste qualities less accurately than non-obese participants. However, the relationship between taste and being overweight will need to be studied further.

With regard to stress, this study investigating the effect of stress on food choice, the stress group ate more chocolate candies compared to the non- stress group, on the other hand, the non- stress group ate more grapes than did the stress group. Zeller (2006) [17] showed that stress leads to transformations in food selection between healthy low fat foods and less healthy fat food.

As for the effect of food texture on taste perception and palatability, Bolhuis et al (2014) [18] indicate hard foods showed lower energy absorption than soft foods because of taking smaller mouthfuls as well as chewing for a longer time. Additionally, mastication and texture conditions are deeply associated with swallowing therefore when enhancing adult's diet, the consideration of food texture should be included [19,20].

- (3) Avoid eating when having anger and anxiety.

In terms of anxiety when having a meal, emotional eating leads to a great amount of food intake. Schneider (2010) [20] entails that anxiety was associated with higher food consumption relating to obese groups compared to lean groups. Moreover, Amianto (2012) indicates

bulimic (overeating disease) symptoms were related to reactive anger. Though anxiety and anger might be related to obesity or overeating, more research is expected.

Conclusion

Fletcher's theory is prolonged chewing which is an effective dietary tactic for weight loss. There is recognition that mastication has a deep relationship with the whole body including not only physiologically but also spiritually. Specifically, mastication times and length of periods have a significant connection with bodyweight. Obese treatments spend a considerable amount of money not only western but also holistic medical approaches because it takes a long period of time. Moreover, endurance and tolerance are needed because medical regulation such as medication, diet and exercise have to be observed strictly. Fletcherism's methodology is the simplest way to prevent obesity because it can save money and time. On the other hand, a long chewing time is tiresome and monotonous and needs perseverance. If in the near future, Fletcherism implications are demonstrated by scientists, there can be applied in the medical field to improve the obesity rate and also government budgets concerning health problems related to obesity [2]. As a result, a substantial number of obese citizens might dramatically decrease.

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