

Research Article

Effect of Green Tea on Obesity - A Survey

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ABSTRACT

A survey is conducted on the effects of green tea on obesity. The main objective is to conduct a survey to know about the effects of green tea on obese people of different age groups. Green tea is believed to be an effective medicine for at least 4000 years to cure a lot of problems. The global prevalence of obesity has increased considerably in the last decade. It is found that the consumption of green tea helps in controlling obesity and type 2 diabetes. Green tea catechin influences sympathetic nervous system (SNS) activity, increasing energy expenditure and promoting the oxidation of fat. Caffeine, naturally present in green tea, also influences SNS activity, and may act synergistically with GTC to increase energy expenditure. Other potential mechanisms include modifications in appetite, up-regulation of enzymes involved in hepatic fat oxidation. Green tea, by containing both tea catechins and caffeine, may act through inhibition of catechol O-methyl-transferase, and inhibition of phosphodiesterase. This survey will analyse the effects of green tea on obese people as green tea has been proposed as strategies for weight loss and weight maintenance.

Keywords: Green tea, obesity, weight loss, catechin, fat oxidation.

INTRODUCTION

Obesity and overweight are rapidly growing, recognized medical problem in developed countries and is a threat to the health of large number of populations. Obesity is a major factor in a number of diseases, including coronary heart diseases, hypertension, non-insulin-dependent diabetes, pulmonary dysfunction, osteoarthritis, and certain types of cancer.¹⁻³ A rapidly growing therapeutic area is the use of natural herbal supplements. One of the herbal supplements is the green tea. Green tea is made from unfermented leaves of *Camellia Sinensis* and is reputed to contain the highest concentration of polyphenols, chemicals that act as powerful antioxidants. Polyphenols contained in tea are classified as catechins. Green tea contains epicatechin (EC), gallicatechin (GC), epigallicatechin (EGC), epi catechin gallate (ECg), epigallicatechin gallate (EGCg), and gallicatechin gallate (GCg).⁴ EGCG is considered to be the most active component in green tea and is the best researched of all the green tea polyphenols. Green tea also contains caffeine, which appears to act synergistically with EGCG to assist metabolism. Green tea polyphenols, especially the most abundant one—epigallicatechin gallate (EGCG) - stimulates thermogenesis and fat oxidation. Too much consumption of green tea can have adverse affects such as insomnia, upset stomach, nausea, osteoporosis, diarrhea, anaemia and frequent urination in some people. Moderate, regular, and habitual consumption of green tea is safe, however, excess consumption of green tea supplements can also result in liver toxicity.⁵

MATERIALS AND METHODS

This is a questionnaire based study on the effects of green tea on obesity. A total number of 52 participants undertook the survey. A total of 18 questions were asked to the students through a survey monkey link. Individuality was assured when the subjects filled the survey. After the data collection, statistical analyses are done. The questions included are:

1. When did u start consuming green tea?
2. How often do you consume green tea?
3. Do you find green tea beneficial for your health?
4. Do you think green tea has reduced your body fat?
5. Do you think green tea can be used as a strategy for weight loss and maintenance?
6. Do you find green tea useful in reducing your body weight?
7. If yes, then how many kgs of body weight have you reduced by the consumption of green tea?
8. Do you feel active and fresh after the consumption of green tea?
9. Does green tea raise the metabolic rate of the body and speed up fat oxidation?
10. Does green tea help in the energy expenditure from our body?
11. Green tea helps in biological activities like antioxidation.



12. Can green tea help in the control of type 2 diabetes?
13. Does green tea help in relieving your stress level?
14. Does green tea contain caffeine and catechins?
15. Does green tea reduce the risk of cancer?
16. Does green tea help in reducing the cardiovascular problems?
17. Does green tea reduce the cholesterol level in your body?
18. Can green tea eliminate the toxins in your body to some extent?

RESULTS AND DISCUSSION

Among the data collected from the people, about 36.5% of people have started consuming green tea recently, 17.3% one month back, 15.4% six months back, and 30.8% one year back. This shows that green tea has been gaining popularity in the recent days. 28.8% of the participants are found to consume green tea once a day. About 75% of people have reported that green tea is beneficial for their health due to the high concentration of antioxidants and immune boosting powers. A recent meta-analysis of all human green tea weight loss studies found that green tea containing caffeine works best, and produces a statistically significant reduction in body weight, body mass index, and waistline.⁶ Since the 1990s, green tea is also seen as a natural herb that can enhance energy expenditure and fat oxidation and thereby induce weight loss (WL).^{7,8} From the survey, 51.9% of participants admitted that green tea is useful in reducing their body weight. 44.2% of people also admitted that they have reduced a reasonable amount of body weight by the intake of green tea. Previous researches have shown that green tea extract supplementation increased energy expenditure and fat oxidation and reduced body weight by 4.6% after 3 months in moderately obese patients in an open-label study.⁹ 36.5% of people have reported that green tea helps to eliminate the risk of cancer. Green tea's benefits for cancer protection and heart health have been confirmed by extensive research in cell culture.¹⁰ At the molecular level, EGCG directs cell signals that block harmful or dangerous activity that could lead to the uncontrolled growth characteristic of cancer cells.¹¹ The cancer-preventive effects of green tea may be at least partly explained by the interaction of EGCG with a recently identified cellular-control mechanism (known as the 67-kDa laminin receptor), according to Dr. Wolfram.¹² Another important mechanism may be that EGCG reduces the expression of cellular chemicals known as cytokines, which promote inflammation underlying atherosclerosis and heart disease. Epigallocatechin gallate may therefore inhibit inflammation and proliferation of smooth muscle cells within the blood vessel wall, thereby preventing vascular blockage.¹³ In further research, a clinical trial led by Japanese researcher, Nagao Tomonori, evaluated the effect of a green tea extract rich in catechins on risk

factors for cardiovascular disease.¹⁴ From the data, 44.2% of people believe that green tea aids in reducing cardiovascular problems. 61.5% of people reported that ingestion of green tea helps in lowering the cholesterol levels in the body. Green tea consumption reduces the incidence of type 2 diabetes and improves glucose control and insulin sensitivity. 28.8% of people have reported that green tea can help in the control of type 2 diabetes. One study in Japanese individuals found that those who drank the most green tea had a 42% lower risk of developing type II diabetes.¹⁵ According to a review of 7 studies with a total of 286,701 individuals, green tea drinkers had an 18% lower risk of becoming diabetic.¹⁶ 67.4% of people have reported that green tea is capable of eliminating the toxins from the body. Green tea also inhibits the production of toxins which damage the liver cells. 61.5% of people found green tea useful in relieving their stress levels and also keeps them fresh and active throughout the day.

CONCLUSION

Green tea helps to ameliorate obesity, which is a common risk factor for both diabetes and cardiovascular problems. From the data collected 69.2% of people think that green tea can be used as a strategy for weight loss and maintenance. Green tea extract boosts metabolism and helps to burn fat. The combination of green tea and caffeine improves weight loss and maintenance in people who are overweight and moderately obese. The data suggests that more than half of the people find green tea beneficial for their health and are aware of its uses and effects. More research is required to throw light on the beneficial effects of green tea in health and disease.

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