Impact of Daily Pu'erh Tea Consumption on Blood Lipid Levels of Young Adults

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Background

Over 12% of adults aged 20 and older in the United States had a total serum cholesterol level greater than 240 mg/dL in 2015-2016. Abnormally high blood lipid concentration, or hyperlipidemia, raises the risk of developing heart disease, the leading cause of death worldwide.

Solution: Pharmaceutical statins

Statins: active pharmacologic agent that acts as HMG-CoA reductase inhibitors in the liver and have been shown to be highly effective in treating hyperlipidemia.

HMG-CoA reductase: rate-limiting enzyme found in the mevalonate pathway, the pathway required for cholesterol formation, that converts HMG-CoA to mevalonic acid.

Statins work by competitively inhibiting HMG-CoA reductase, which prevents the synthesis of cholesterol in the liver.

One alternative, natural solution: Pu’erh tea

Pu’erh tea: Fermented tea produced in the Yunnan province of China; contains trace amounts of statins.

Younger individuals, especially those in graduate school or working entry-level positions may need statin therapy but aren’t offered prescriptions or cannot afford it and may be more willing to try a lifestyle-change focused treatment than older adults.

Only 65% of adults over age 21 who had a serum LDL level >190mg/dL (medical indication for a statin prescription) were taking prescription statins.

One study found that of 1830 adults aged 20-29 with serum LDL levels >190 mg/mL, only 34% were prescribed a statin.

Research Question

Does twice daily consumption of hot pu'erh tea (3g in 8oz water) every day for six months improves total serum cholesterol and serum LDL levels of young adults, ages 22-32 years, who have an elevated serum total cholesterol level (>180 mg/dL) and an elevated serum LDL level (>100 mg/dL) and with a BMI <30 compared to young adults who consume an equal amount of black tea.

Proposed Methodologies

• Study Design: Single-blinded random control trial
• Eligibility:
  • 22-32 years old
  • BMI <30
  • serum total cholesterol level >180 mg/dL
  • serum LDL level >100 mg/dL
• Eligible participants will be matched across two groups using age, gender, and BMI.
• Participants will provide a blood sample at UNM SHAC to measure baseline serum LDL and total cholesterol levels.
• Participants in both the intervention group and control group will be provided 360 with identical sachets filled with three grams of loose tea.
  • Intervention group: pu'erh tea.
  • Control group: black tea.
• Brewing the tea:
  • Bring eight ounces of water to 205 degrees F; place a sachet of tea into the water; steep for four minutes
• Frequency: Twice a day for six months
• Participants will be advised to continue their normal diet and exercise regime.
• At the end of the six-month study trial, participants will return to UNM SHAC and provide a second blood sample.
• Serum LDL and total cholesterol concentrations from baseline will be compared to post-study results and analyzed for significant differences.

Implications for Research

This research could directly benefit young adults with uncomplicated hyperlipidemia by providing insight on if the consumption of pu'erh tea, due to its naturally occurring statins, can be used as an effective alternative treatment to prescribed statins.

References