Coconut Oil, Green Tea, and “Clean” Food: What’s the Research?

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INTERMOUNTAIN NUTRITION UPDATE
SEPTEMBER 2015
Objectives

- Identify the nutrition and health claims for coconut oil, green tea, and “clean” food
- Describe the scientific evidence regarding the nutrition and health claims
Coconut Oil
Coconut Oil

- Virgin coconut oil
  - No industry standard
  - Not bleached, deodorized, or refined
- Cold pressed
  - Mechanical method of pressing out oil without heat
What are the claims?

- Decreases hunger
- Increases metabolism
- Decreases heart disease
- Fights infection
- Weight loss
- Diabetes
- Skin
- Easier to digest
Coconut Oil

- 92% Saturated fat
  - Medium chain triglyceride
    - Lauric Acid 12-carbon 49%
    - Myristic Acid 14-carbon 17.5%
Saturated Fat

- Nutrition Evidence Library
- Strong evidence
- Increased risk of cardiovascular disease and type 2 diabetes
Saturated Fat

- **CVD**
  - 12 studies with 10 being randomized controlled

- **Type 2 DM**
  - 12 studies with 9 being randomized controlled
Virgin Coconut Oil Improves Cholesterol

- 4 groups of rats fed synthetic diet made up of 8% oil
- Virgin coconut oil, cobra oil, olive oil, and sunflower oil

Results

- Cholesterol levels significantly lower in virgin coconut oil group
- HDL levels significantly increased in virgin coconut oil group
- Synthesis of HMG reductase significantly decreased
- Lipoprotein lipase activity increased
Coconut Oil and Lipid Profile

- Cohort of 1,839 Filipino women (age 35-69 years)
- 24 hour recall of coconut oil
- Menopause played a role
- Regression analysis showed increased coconut oil use predicted higher HDL

Dietary Coconut Oil Effects on Biochemical and Anthropometric Profiles of Women

- Randomized double blind controlled study
- Subjects
  - 40 women ages 20-40
  - waist circumference > 88 cm (~35 in)
  - Low social economic status

<table>
<thead>
<tr>
<th>Soybean oil (n=20)</th>
<th>Coconut Oil (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 mL per day soy bean oil</td>
<td>30 mL per day coconut oil</td>
</tr>
<tr>
<td>Individualized nutritionist counseling</td>
<td></td>
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<tr>
<td>Increase fruit and vegetables</td>
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<tr>
<td>Decrease simple carbohydrates</td>
<td></td>
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<tr>
<td>Decrease animal fat</td>
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<tr>
<td>Reduce or eliminate alcohol</td>
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<tr>
<td>4 days per week fitness trainer + 50 min walk</td>
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<tr>
<td></td>
<td>Soy Bean Oil Group (n=20)</td>
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<tr>
<td></td>
<td>T1</td>
</tr>
<tr>
<td>Energy (kcal)</td>
<td>1887</td>
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<tr>
<td>Weight (kg)</td>
<td>76</td>
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<tr>
<td>BMI (kg/m²)</td>
<td>31.1</td>
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<tr>
<td>Waist Circumference (cm)</td>
<td>96.4</td>
</tr>
<tr>
<td>Total Cholesterol (mg/dL)</td>
<td>189.5</td>
</tr>
<tr>
<td>HDL (mg/dL)</td>
<td>51.5</td>
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<tr>
<td>LDL (mg/dL)</td>
<td>108.6</td>
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<tr>
<td>LDL:HDL</td>
<td>2.2</td>
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</table>
Summary of Results

- Soybean oil group and coconut oil group had a significant decrease in energy intake, BMI, and weight.
- Soybean oil group had a significant increase in total cholesterol, LDL and LDL:HDL.
- Soybean oil group had a significant decrease in HDL.
- Coconut oil group had a significant decrease in waist circumference.
Limitations

- Small sample size (20 per group)
- 24-hour dietary recall
- Diet was higher in carbohydrate compared to typical Western diet
- Cooking temperature of oil not evaluated
- Low social economic status not applicable to other populations
How does dietary intake of MCT influence body composition, energy expenditure, and satiety?

Systematic Review
14 Articles

- 6 showed decreased weight
- 1 positive impact on satiety
- 4 positive impact on energy expenditure
- Small sample size
- Inconclusive results
- Lack of standardized amounts of MCT
Dietary MCT vs LCT for Body Composition

Do individuals assigned to replace at least 5 g of LCTs with MCTs for 4 weeks show positive modifications in body composition?

Meta-analysis of Randomized Controlled Trials

- 11 trials
- Parallel and crossover design
- Lacked dietary intake assessment (6 studies)
- Results showed positive changes in weight and body fat and waist circumference
  - Caution because studies were low quality
Summary

- Strong evidence saturated fat is associated with cardiovascular disease and diabetes

- Some studies indicate replacing LCT with MCT may decrease weight
  - Increase metabolism
  - Improve satiety

- Lack of high-quality studies
Green Tea

- Green tea, Chinese tea, Japanese tea
Uses

- Treat and prevent cancers
- Mental alertness
- Weight loss
- Cholesterol lowering
Weight loss

Study Design

- 2 groups
  - 300 mg EGCG/d dietary supplement consumed 3X/d for 12 wks
  - 300 mg lactose/d dietary supplement consumed 3X/d for 12 wks
Study Design

Subjects

- 88 Women ages 19-49 years
- BMI 30-40
- No hx of liver, renal, CVD, DM
- No medications except oral contraceptives
Study Design

- 55% carbohydrate, 30% lipid, and 15% protein diet provided 600 kcal less than estimated kcal
- Weekly dietary instructions by dietitian
- Supplements received for one week
Measurements

- Weight
- Height
- BMI
- Fat mass and bone-free lean mass (DEXA)
Measurements

- Fasting glucose, total cholesterol, HDL, and triglyceride, insulin, CRP
- Resting energy expenditure (indirect calorimeter)
- Liver function
Results

- Baseline characteristics same
- Intervention resulted in significant decrease in body weight, BMI, fat mass, lean mass, and waist circumference in both groups
Results

- Insulin, HDL, LDL, TC decreased in both groups
- No significant differences between the groups in weight changes and body composition
- No significant differences in cardiometabolic risk factors
Cholesterol and Blood Pressure

Two separate meta-analyses showed
- Statistically significant reduction in total cholesterol
- Statistically significant reduction in blood pressure


Cancers

- Polyphenols
- 2 randomized controlled trials on oral lesions
  - Decreased progression of lesions
- Double-blinded placebo in men with high prostate cancer risk
  - Found lower incidence after 1 year in catechin group
Summary of Green Tea

- Inconclusive studies
- May be beneficial for decreasing risk of certain cancers
- May help decrease cholesterol and blood pressure
Clean Food

- Whole food
- Avoid processed foods
- Eliminate refined sugar
- Eat 5 to 6 small meals a day
- Cook your own meals
- Combine protein with carbs
Dietary Guidelines for Americans
Thank You!