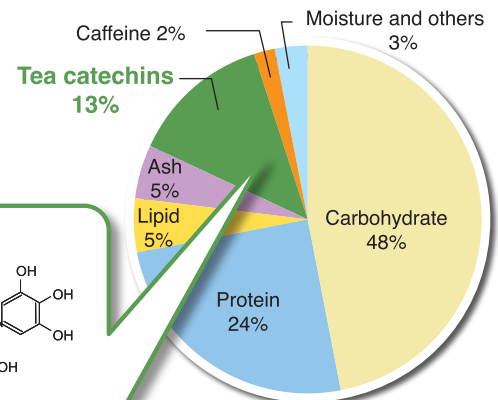




Tea catechins contained in tea leaves

Green tea has been traditionally consumed in Japan for over a thousand years. Tea catechins are major polyphenols abundantly contained in green tea, and are classified as flavan-3-ols with antioxidant properties.

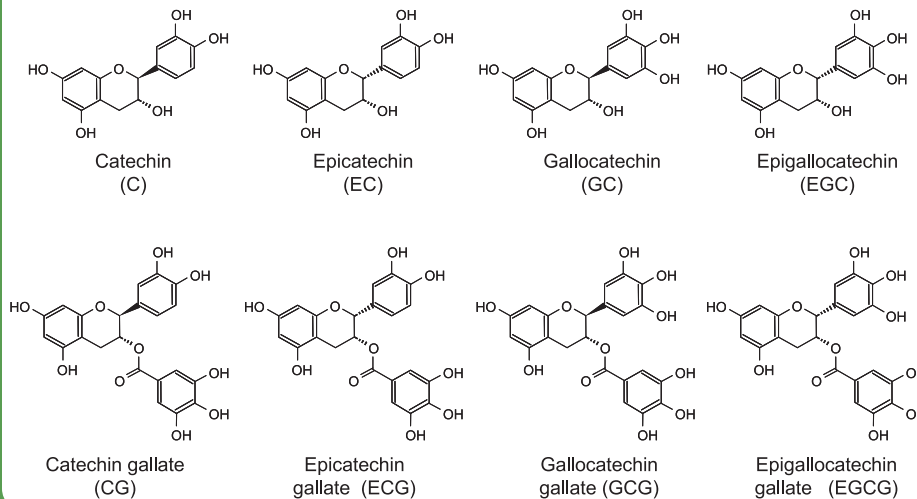


Component ratio in Sencha tea leaves

(Japanese Food Standard Composition Table 2015)



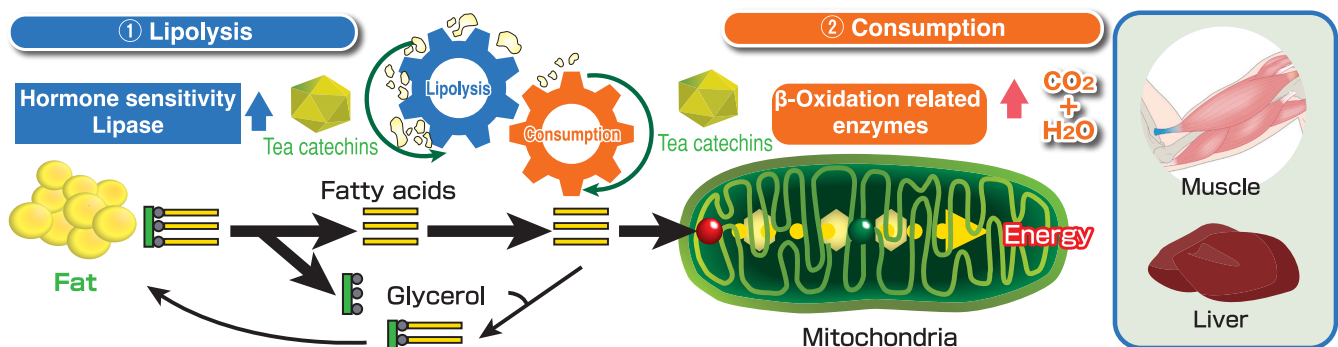
Structures of tea catechins



Mechanism of action of tea catechins on fat metabolism

The latest research on tea catechins has revealed a new mechanism of action.

- Tea catechins enhance the activity of enzymes that work for “① lipolysis” and “② consumption” of fat, and promote the ability to metabolize fat.
- Consequently, contribute to fat burning as energy and may help reduce body fat.



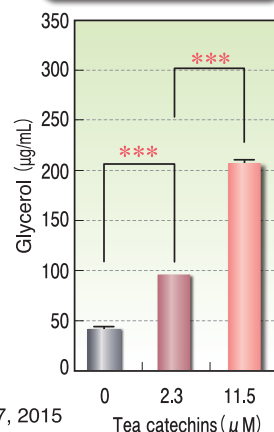
Lipolysis action

Tea extract added to mouse preadipocyte 3T3-L1. The amount of glycerol was measured after culturing for 24 hours in the coexistence of 0.1 μ M norepinephrine. Control: no tea extract added.

Mean \pm standard deviation, Significant difference between groups: *** p <0.001

Biochem Biophys Res Commun, 461, 1-7, 2015

Amount of degradation



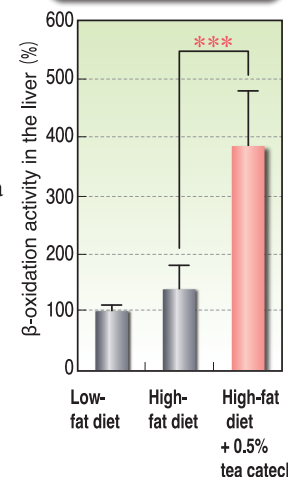
Fat consumption action

β -Oxidation activity in the liver of mice fed a high-fat diet containing tea extract for one month was measured. Control: high-fat feed with no tea extract.

Mean \pm standard deviation, Between-group difference from high-fat diet group: *** p <0.001

Int J Obesity, 26, 1459-1564, 2002

Consumption

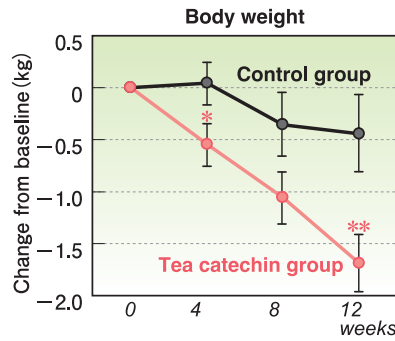




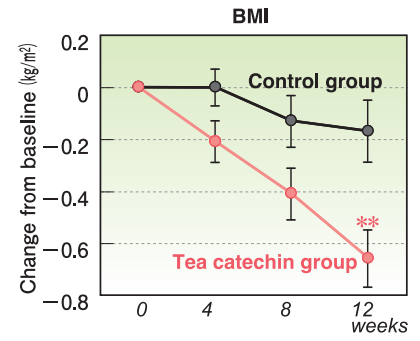
Effects on body fat via continuous intake

Eighty healthy men and women were instructed to maintain their daily diet and exercise, and take tea catechins in a bottle of drink, once a day, for 12 weeks (43 males: average 42.1 y, BMI 26.5 kg/m²; 37 females: average 54.8 y, BMI 25.9 kg/m²). As a result, body weight, BMI, and abdominal fat were significantly reduced in the tea catechin group.

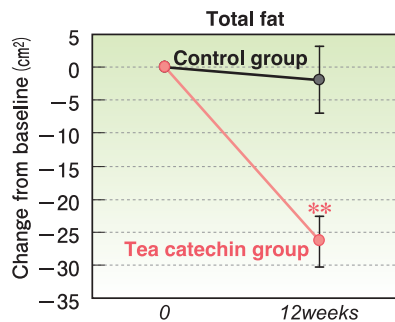
- Control group (Tea catechins 126mg/340mL/day)
- Tea catechin group (Tea catechins 588mg/340mL/day)



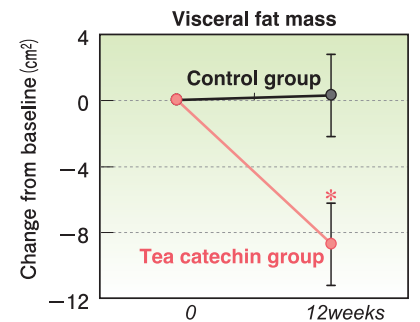
Body weight reduced by 1.3kg



BMI reduced by 0.5kg/m²



Total fat area reduced by 24.5cm²



Visceral fat area reduced by 9.0 cm²

Mean ± standard deviation, significant difference between groups: *p<0.05, **p<0.01
Prog Med, 22, 2189-2203, 2002

Effects on fat metabolism via continuous intake

By continuously ingesting beverages enriched with tea catechins, the metabolism on dietary fat and body fat increases, which turns into energy for life activities.

Increase postprandial thermogenesis and metabolism of eaten fat

(12 males, 27-48 y, 1 bottle per day for 12 weeks)

Breath analysis after 800kcal breakfast (no test drink)
(Carbs 110g, Protein 26g, Fat 30g, ¹³C-labeled fat included)



Diet-induced thermogenesis
10~15%

Energy consumed by food absorption, taste and aroma perception

Increase body fat metabolism with daily walking habits

(14 males, 26-42 y, 1 bottle per day for 8 weeks)

30minutes walking (treadmill:5km/h, 3times a week)
(Collection and analysis of breathing when walking for 30 minutes in the morning)



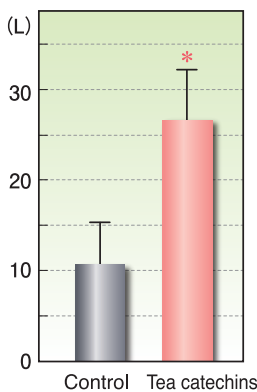
Physical activity
10~30%

Energy consumed during physical activity such as exercise, housework, and work

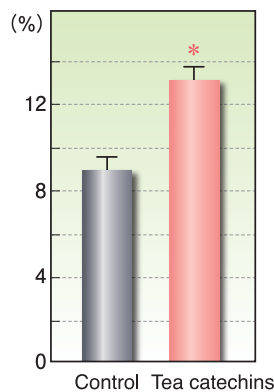
Basal metabolism 60~75%

Energy consumed for sustaining life such as breathing and maintaining body temperature

Diet-induced thermogenesis



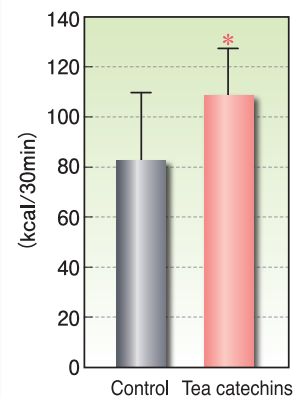
Diet-derived fat metabolism



Breath analysis at 12 weeks

Mean ± standard deviation,
Significant difference between groups: *p<0.05
J Health Sci, 51, 248-252, 2005

Fat consumption



Breath analysis at 8 weeks

Mean ± standard deviation, Significant difference between groups: *p<0.05
J Health Sci, 51, 233-236, 2005