Burn Fat While Preserving Lean Body Mass

Reducing Stored Fat with Natural Mechanisms

AUTHORS:

JON LEGERE, DR. RON LEGERE

15344 N 83RD WAY, SCOTTSDALE, AZ 85260

TEL: 800.528.3144 | EMAIL: LEGERE@LEGEREPHARM.COM | WEB: WWW.LEGEREPHARM.COM

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Reducing Stubborn Belly Fat

If you were to ask a group of weight loss patients which area they would most like to lose some weight, it is likely they would point to their stomach. Even for highly-compliant dieters, belly fat can be the most difficult to lose.

Losing belly fat is not just advantageous for aesthetic reasons, excess belly fat can also contribute to poor health outcomes.

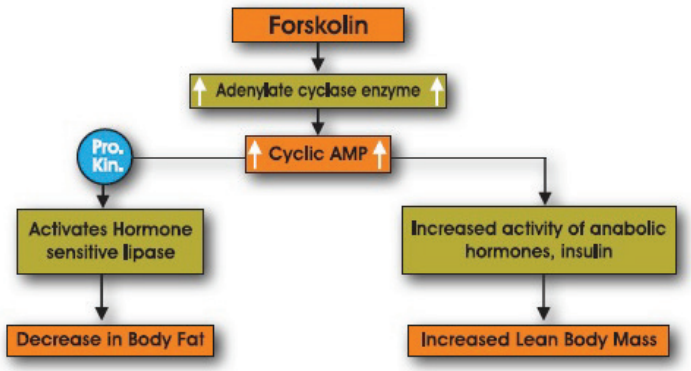
German researchers conducted a decade-long multinational study involving nearly 360,000 patients. They found that even when the body mass index (BMI) is within normal range, excess abdominal fat is significantly associated with an increased risk of dying.

Stored Fats as a Source of Energy

Our bodies store energy in the form of triglycerides, or as it is more commonly known: FAT. However, our bodies prefer to use whichever source of energy can be accessed the easiest. Therefore, even during low-caloric intake or fasting, these fat stores are preserved until they are absolutely needed.

The mitochondria are known as the energy powerhouse of the cells, this is where fats are burned to create ATP, our body's energy currency. Before this can happen, the body must first break down stored fats into a form which can reach the mitochondria: fatty acids.

To liberate fatty acids from stored fats the body activates a process called lipolysis. Lipolysis is normally activated as a result of hormone interactions which are stimulated by the body's current energy requirements. Studies have identified a natural compound which has the ability to activate lipolysis via increasing levels of cAMP in an extract from the Coleus forskohlii plant.



Lipolysis

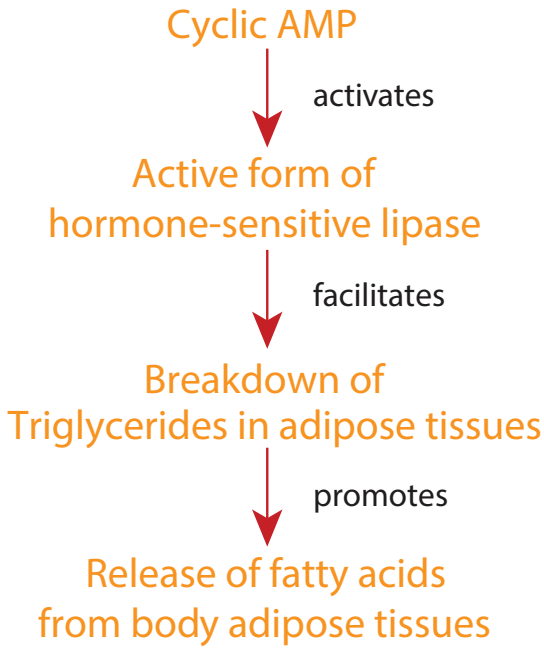
Lipolysis is the metabolic pathway in which stored triglycerides are broken down to release fatty acids. This is an important step in fat metabolism, allowing for stored fat to be converted to energy. Without lipolysis the body has a difficult time accessing these fatty acids and may look for other less desirable sources for creating energy.

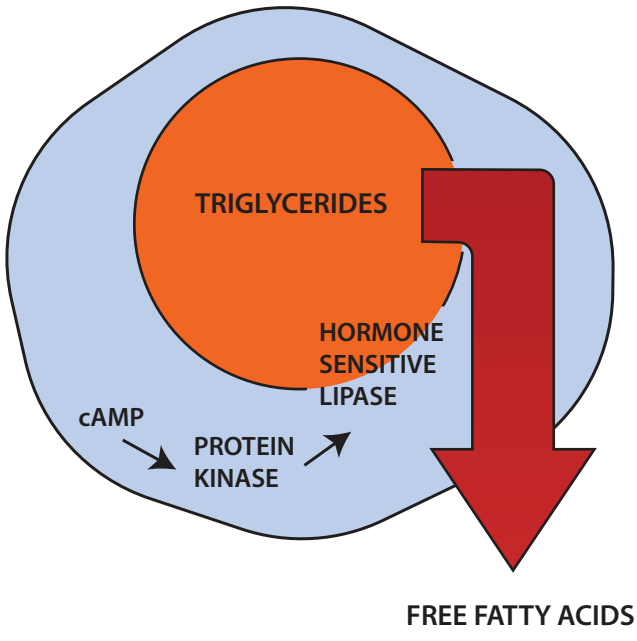
cAMP signaling is the major positive regulator of lipolysis in adipose tissue. cAMP activation of PKA promotes lipolysis via activation of hormone-sensitive lipase and adipose triglyceride lipase.

cAMP

Cyclic adenosine monophosphate (cAMP) is an important messenger for many biological processes including metabolism. cAMP promotes breakdown of stored fats, regulates thermogenic responses to food, increases the body's metabolic rate, and increases the utilization of fat.

cAMP is increased by the adenylate cyclase enzyme. This enzyme is activated as a response to increasing energy demands, such as during fasting or physicial activity.





"Lipolysis of white adipose tissue triacylglycerol stores results in the liberation of glycerol and nonesterified fatty acids that are released into the vasculature for use by other organs as energy substrates" (Duncan et al, 2007).

Forskolin

Forskolin is the active compound in the herb *Coleus forskohlii*, which is a member of the mint family. Forskolin has been identified for its ability to increase cAMP. Forskolin's impact on cAMP levels is so well known it is often used to raise levels of cAMP in the study and research of cell physiology.

Forskolin Stimulates Lipolysis

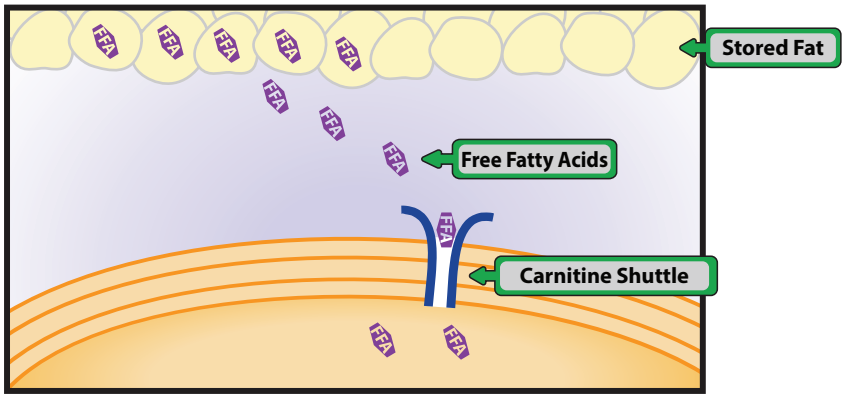
Forskolin stimulates adenylate cyclase and increases levels of cyclic-AMP (cAMP). An increase in cAMP leads to activation of protein kinase (PKA); protein kinase activates hormone-sensitive lipase, which is involved in the breakdown of triglycerides.

"fish fed on forskolin diets exhibited smaller areas of lipid droplets in adipose and liver tissues. Lipolysis related genes (ATGL, hormone-sensitive lipase, HSL; monoacylglycerol lipase, MGL; and protein kinase cAMP-activated catalytic subunit, PKAC) and β-oxidation genes (PPARa; fatty acid binding protein 1, FABP1; and CPT1) in the adipose were up-regulated."

The Carnitine Shuttle

Forskolin's impact on cAMP helps to release fatty acids from their stored form, but for these fatty acids to be burned for energy they need to get into the cell's mitochondria. Fatty acid oxidation, the process that converts fats into energy, occurs within mitochondria, which are the energy-producing centers of our cells. This is accomplished with something called a carnitine shuttle, which can be provided by the amino acid Acetyl-L-Carnitine.

Carnitine is used by the body as a carrier that transports long-chain fatty acids into the mitochondria where they can be burned for energy. Long-chain fatty acids can only enter the mitochondria with the help of carnitine. Independent studies have shown that obese patients may have a carnitine deficiency. A deficiency in carnitine reduces the breakdown of fatty acids in the mitochondria.



Forskolin Studies

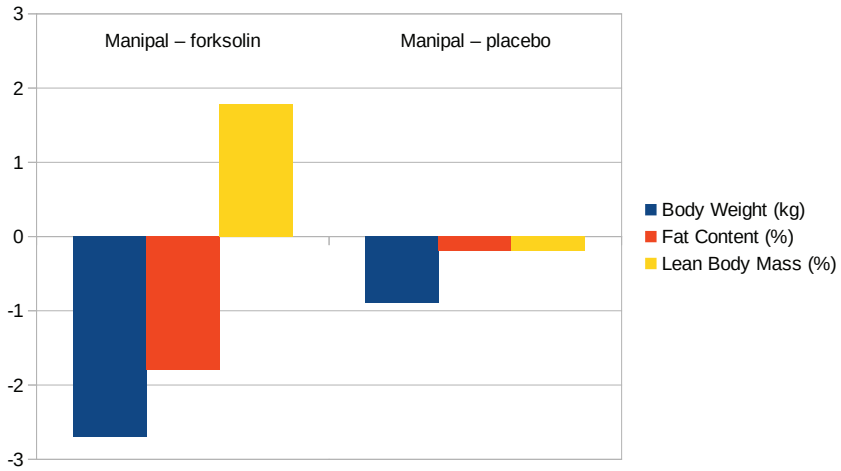
Clinical studies have shown that forskolin use can result in enhanced lean body mass white promoting fat loss and improving overall body composition. In all of these studies, no negative side effects were observed.

Mumbai

In a randomized, double blind, 12 weeks study, 60 obese subjects received 250 mg of ForsLean® (forskolin) twice daily.

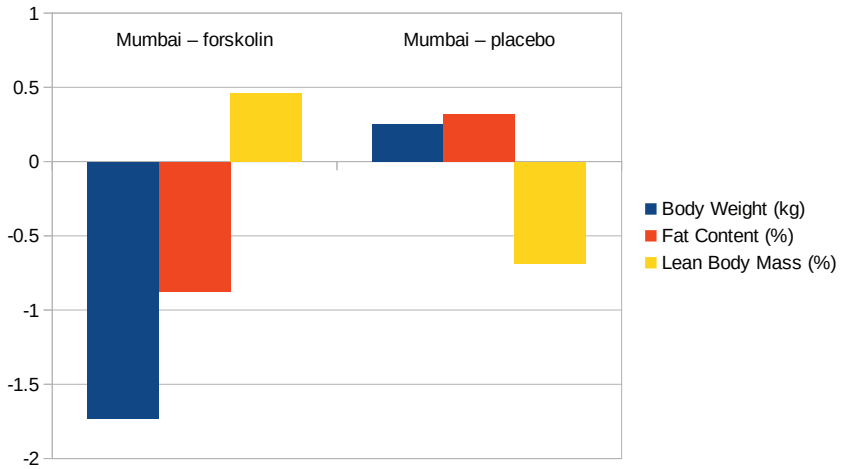
The volunteers receiving forskolin lost an average of 3.81lbs, or 4.02%, of their total body weight, while the placebo group gained an average of 0.55lbs (0.29%) of total body weight.

The difference in weight and fat reduction was statistically significant between the active and placebo groups.



Manipal

Fifty subjects were randomized to receive 250mg of ForsLean brand forskolin or placebo capsules twice a day, 30mins before meals, for 12 weeks. A significant decrease in body weight and fat content as well as a significant increase in lean body mass was observed.

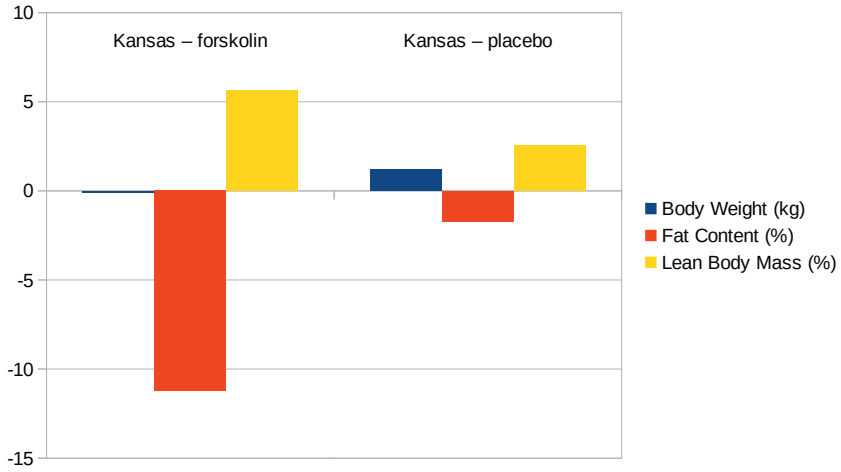


University of Kansas

A randomized double-blind placebo controlled study of obese male subjects over a period of 12 weeks found that 250mg of Forskolin twice daily significantly increased lean body mass and decreased body fat.

The forskolin group saw decreased body fat percentage and fat mass compared to placebo. There was also a trend toward increasing lean body mass in the forskolin group.

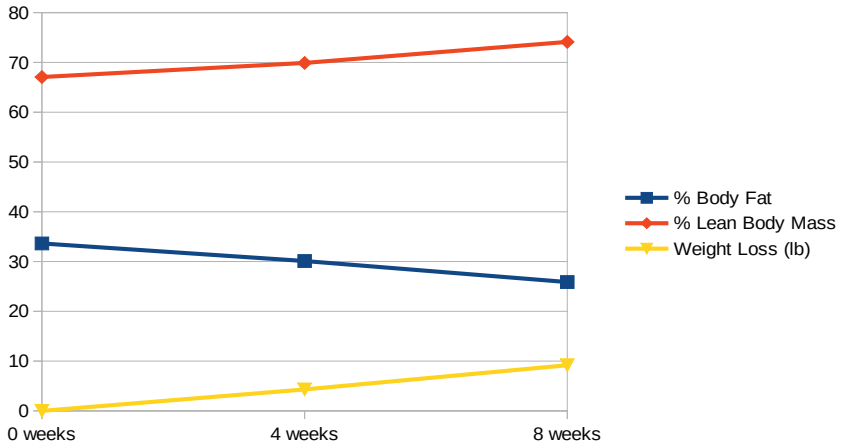
Testosterone levels were also raised in the forskolin group by 16.77%, compared with a 1.08% decrease in the placebo group.



Hilton Head, S.C

In an eight week open field study, six overweight women received two capsules of 250 mg forskolin and were instructed to take one capsule in the morning and one in the evening, half an hour before a meal. They were asked to maintain their previous daily physical exercise and eating habits. In addition, physical activity was monitored based on a questionnaire before and during the trial.

During the 8 week trial the mean values for body weight and fat content were significantly decreased, whereas lean body mass was significantly increased as compared to the baseline. Average weight loss after 8 weeks was 9.17lbs.



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