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## **Obesity and Natural Weight-Loss Aids**

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Former U.S. Surgeon General C. Everett Koop recently stated in an interview that obesity is the second leading cause of preventable death in the U.S., and that it results in 300,000 deaths per year. Obesity problems of course impact many industrialized countries worldwide.

This is a quick review of the most common "natural" weight-loss aids. It is self-evident that anyone who consumes less calories than they burn will lose weight regardless of the calorie source. The problem is that many people are either unable or unwilling to accomplish this, and thus look for help in the health-food store, the drug store, or in the doctor's office.

### **Hydroxycitric Acid (HCA)**

HCA hit the market a few years ago with much fanfare, based primarily on one small study. HCA comes from the rind of the garcinia cambogia fruit, which is native to India.

Mechanism of action: HCA inhibits an enzyme needed to convert excessive carbohydrate and protein into fat. HCA also increases fat burning and glycosynthesis in the liver. High glycogen levels send satiety signals to the brain.

Dosage: 500-1000 mg before each meal.

Safety: HCA is safe.

Bottom line: In my personal practice, I have not had good results with this substance, but based on the reading I have done, it does appear to help some people.

## **Chromium Picolinate**

For every study that shows chromium picolinate stimulates fat loss and muscle gain, there is another study that finds chromium picolinate has no effect on body composition whatsoever.

Mechanism of action: Chromium picolinate increases insulin sensitivity, thus allowing for more efficient delivery of nutrients into the cells for metabolism.

Dosage: Doses range from 200-800 mcg per day.

Safety: I have not seen any evidence that this mineral or its transporter (picolinic acid) is dangerous to humans when dosed appropriately.

Bottom line: It appears that chromium picolinate will work to a certain degree in some people. However, even in the best case scenario it falls far short of the claims of many marketers, who imply that men will look like body builders and women like models when they use this mineral.

## **5 Hydroxytryptophan (5-HTP)**

5-HTP is not the amino acid tryptophan, which to my amazement continues to be banned in the United States because a poisoned batch of tryptophan caused eosinophilia myalgia. This expensive newcomer to the market is an intermediate compound in the tryptophan-to-serotonin conversion.

Mechanism of action: 5-HTP increases serotonin production, which increases satiety signals in the brain.

Dosage: 300 mg three times a day, 30 minutes before each meal.

Safety: Because 5-HTP increases serotonin production it should not be used with drugs that alter serotonin metabolism in any way (like Redux or Prozac).

Bottom line: A couple of small studies on humans have shown that doses of 5-HTP as described above will stimulate weight loss. Currently, 5-HTP is quite expensive and we will probably not see widespread use of this substance unless/until the price comes down. I look forward to larger studies on 5-HTP.

## **Ephedra (aka Ma Huang)**

Ephedra, or ma huang, is an herb that has been used in China for 5,000 years and has been used in the West to make ephedrine (an over-the-counter asthma drug) for most of this century. When combined with caffeine or guarana it is the strongest "natural" weight-loss supplement on the market.

Dosage: 300 mg of ephedra or ma huang, or 20 mg of ephedrine with 900 mg of guarana or 200 mg of caffeine 60 minutes before each meal.

Mechanism of action: Ephedrine and caffeine increase thermogenesis by acting as  $\beta_3$  agonists. They bind receptor sites on fat cells and stimulate lipolysis (breakdown of fat for energy). Ephedrine also decreases lipogenesis (conversion of carbohydrates to fat).

Safety: There is a high rate of side effects when people start using these substances. Palpitations, trembling, sweating, nausea, hot flashes, chills, and in some cases vomiting can occur. In most people these effects will subside after a few weeks of use. Last year ma huang and ephedrine made the news when teenagers began taking tremendous amounts and overdosed. When used as directed, ephedrine and ma huang are safe. Ephedrine and ma huang are not recommended for people with cardiovascular disease, hypertension, angina, prostate disorders, or thyroid problems.

Bottom line: Ma huang/ephedra and guarana, or ephedrine and caffeine will definitely stimulate weight loss but may cause unpleasant side effects.

## **Pyruvate**

Pyruvic acid (PA) is a byproduct of glucose metabolism. PA is unstable, but when combined with sodium, potassium, magnesium, or calcium a stable salt is formed (pyruvate). Look for pyruvate to be touted as a weight-loss aid in the near future.

Mechanism of action: Pyruvate increases fat utilization in humans and has been shown to increase metabolic rate in animals.

Dosage: 6-10 gm per day in divided doses with meals.

Safety: As a normal constituent of human metabolism, pyruvate is safe. Diarrhea and borborygmus has been reported in people who take high doses.

Bottom line: Pyruvate is a relative newcomer to the market. In addition to its ability to help weight loss in some people, it is also being marketed to athletes as an ergogenic aid that purportedly increases endurance.

## **L-Carnitine**

L-carnitine is a dipeptide manufactured in the liver from the amino acids lysine, methionine, and vitamins B6, C, B3, and the mineral iron. Carnitine is an ingredient in almost every weight-loss formula you will see in a health-food store.

Mechanism of action: Carnitine is required to transport fat into the mitochondria to be burned for energy.

Safety: As a normal constituent of human metabolism, carnitine is safe. Diarrhea has been reported in high doses.

Dosage: 1000-2000 mg per day in divided doses with meals.

Bottom line: If a person is not carnitine deficient, I am unaware that excessive carnitine will cause more fat to be burned. For someone who is trying to lose weight, ensuring that there is adequate carnitine present with every meal will certainly do no harm. Whether the pounds melt away is another story.

## **Chitin**

Chitin is an amino polysaccharide manufactured from shellfish. It is a nondigestible, nonabsorbable fiber.

Mechanism of action: Chitin, when taken with a meal, can bind fat and prevent its absorption. All types of fiber can inhibit fat absorption to varying degrees. Chitin appears to bind more fat (10 times its weight) than any kind of fiber.

Dosage: 1-2 grams with a high fat meal.

Safety: Persons allergic to shellfish should not take chitin.

Bottom line: Chitin can be beneficial when taken with a high fat meal. However, high fat meals are why many people have weight problems. Chitin does not bind calories from carbohydrates, proteins and alcohol. Excessive calories from these sources will still be stored.

In my opinion, chitin could be best utilized for the occasional "cheat" meal. Even with chitin, donuts, fries and cheeseburgers are the reason why many people have weight problems. Permanent weight loss cannot be

achieved without lifestyle changes which include the types of food consumed on a regular basis.

## **Conclusion**

Whether you or your patients decide to take one or more of these substances to lean up, remember that the cornerstone of any program must include a strong emphasis on physical activity and calorie reduction.

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Click [here](#) for more information about G. Douglas Andersen, DC, DACBSP, CCN.



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