

## CLA

G. Douglas Andersen, DC, DACBSP, CCN

Recently, I read a headline stating that research has "proved" that CLA reduces body fat and increases muscle without diet or exercise. I made a mental note that I wanted to investigate, but could not remember where I saw that headline. (I hate it when that happens.) A week or so later, I again saw a blurb on CLA. This time it was in a fitness magazine, and this time I remembered where I read it.<sup>1</sup> The study summary in the magazine stated that people who took 4.5 gm a day of CLA for one year lost 9% of their body fat. The best part was that the magazine gave a reference.<sup>2</sup>

This caught my eye because CLA was the main ingredient in a very hot-selling diet supplement called "Body Solutions." The product's tag line was "lose weight while you sleep." Further claims on the product included the loss of fat and the addition of muscle without diet or exercise. Some of you may remember the directions: "Stop eating 3 hours before bed and take 1 tablespoon with 8 ounces of water at bedtime." At the time, Body Solutions ads were all over the radio, so patients would ask me my opinion. I said I was waiting for the study of Body Solutions vs. the group who just stopped eating three hours before bedtime. (which is great advice for your weight-challenged patients). The company went bankrupt after numerous lawsuits, including one by the Federal Trade Commission for false advertising.

### CLA Defined

Linoleic acid (LA) is an essential fatty acid (humans cannot synthesize it, so it must be consumed). Linoleic isomers (the same atoms that make up LA, but in a different order) with conjugated (two compounds joined to form a third) double bonds are called conjugated linoleic acid, or CLA. It was discovered during studies isolating compounds from fried hamburgers while researchers were looking for mutagens. They came across CLA and noted that it had antimutagenic properties.<sup>3</sup>

### Animal Studies

Gaullier, et al, reviewed a host of animal studies that showed an impressive array of effects that CLA has on animals, including:

- increases lean body mass;
- reduces body fat;
- improves glucose tolerance;
- reduces arteriosclerosis;
- improves immunity; and
- is anticarcinogenic.

I recommend that all hamsters, rats, mice, pigs and chickens take CLA on a daily basis.

### The Study

In reading the abstract of the new study, I again saw that people who took CLA lost between 7% and 9% of their body fat, which on the surface seems huge. However, when you carefully think

about it, it does not mean that subjects went from 29% body fat to 20% body fat in one year. That would be a 33% reduction. Still, using the example of 29%, a reduction to slightly less than 27% with no changes in diet or exercise seems very impressive. More impressive still is the gain in muscle mass without lifestyle changes. This kind of sounds like you know what (see above). But the longer I study nutrition, the more skeptical I am about brief reviews, summaries and press releases. I like to see the raw data devoid of "spin."

#### Raw Data

- Number of subjects: 180
- Number who completed the study: 157
- Percentage who exercised: 50%\*
- Subjects: 180 healthy men (31) and women (149), ages 18 to 65 with body mass indexes (in kg/m<sup>2</sup>) of 25-30.\*\*
- Groups: The subjects were divided into three groups. The placebo group consumed six capsules containing 4.5 gm of olive oil per day.

There were two CLA groups that took the most commonly marketed forms: CLA and free fatty acids containing the isomers cis-9, trans-11, 39%, and trans-10, cis-12, 41%; or CLA triacylglycerol, which broke down to cis-9, trans-11, 38%, trans-10, cis-12, 38%.

#### Results After One Year

	Placebo	CLA/FFA	CLA/Tri
Body weight	+0.4 pounds (±6.6)	-2.4 pounds (±8.1)	-4 pounds (±7.5)
Body fat	+0.4 pounds (±7.3)	-3.7 pounds (±6.6)	-5.3 pounds (±6.6)
Lean body mass	+/-0 pounds (±3.3)	+1.5 pounds (±4.4)	+1.3 pounds (±4)

To summarize, it appears that taking 4.5 gm a day of pure CLA for 365 days without diet or exercise subtly promotes body composition changes. I'm guessing that when people begin to heavily market CLA again, they will conveniently forget the raw data, and instead, promote that CLA causes body fat losses and muscle mass gains.

#### Mechanism of Action

There are a number of possible mechanisms of action, including the up or down regulation of various enzymes, binding sites, and receptors which, in turn, may affect metabolic rate, nutrient partitioning,\*\*\* and substrate anabolism or catabolism. I am looking forward to more studies on CLA and will report on them in this column.

#### Recommendations

I do not think CLA is harmful when taken in the forms that contain both isomers, as was the case in this study. Taken together, members of both CLA groups gained an average of 1.4 pounds of muscle and lost 4.5 pounds of fat in 365 days. The 4.5 lb loss over a year equates to one-fifth of an ounce per day. The authors did not list individual results, but the ranges of response indicate there were subjects who both gained and lost weight on CLA; unfortunately, they were unsupervised. So, except for some questionnaires, we do not really know how much influence their daily diet and lifestyle had on the results. In my practice, the message will continue to be fewer bites and more steps.

\* No participants changed their exercise habits; those who exercised before the study continued exercising during the study.

\*\* For information on body mass index, see Andersen, G. D. U.S. food consumption and obesity, part II. *Dynamic Chiropractic* 2003;21(9):40.

\*\*\* For information on nutrient partitioning, see Andersen, G. D. Cutting-edge compounds - engineered food. *Dynamic Chiropractic* 1994;12(10):18.

### *References*

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2. Gaullier JM, Halse J, Hoye K, et al. Conjugated linoleic acid supplementation for 1 y reduces body fat mass in healthy, overweight humans. *Amer J Clin Nutr* 2004;79: 1118-25.
3. Pariza M, Ashoor S, Chu S, Lund D. Effects of temperature in time on mutagen formation in pan-fried hamburger. *Cancer Letters* 1979;7:63-69.

*G. Douglas Andersen, DC, DACBSP, CCN*  
*Brea, California*  
gdandersen@earthlink.net  
www.andersEnchiro.com

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