The CLA Network

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Harvesting the health promise of conjugated linoleic acid

New knowledge of beef's natural benefits

New science into 'CLA' is giving consumers more reasons to enjoy beef as part of healthy living.

While some things get better with age, some also get better with knowledge.

One of the latest and most promising examples is beef. While beef's broad nutritional value is well known – it's chock full of iron, zinc and other essential nutrients, not to mention loaded with protein – little has been understood about the unique fatty acids it contains.

Now there is growing evidence that some of these fatty acids, most notably conjugated linoleic acid (CLA), are good for you.

"With advances in science, we're now getting a more complete picture of the health value of many common foods consumers have long enjoyed," says Dr. Catherine Field, a leading nutrition researcher at the University of Alberta, who has closely studied CLA. "In the case of natural CLA found in beef products, the results are very encouraging. It's a great example that many of the leading health foods of the future may be ones that are already well familiar to us. This is tremendous news, both for beef consumers and for Canada's beef industry."

Dr. Catherine Field and Dr. Spencer Proctor

New health promise with CLA

Research by the CLA Network and others has revealed that natural CLA contains antioxidant, anti-tumor and other health-boosting properties, and has shown strong capacity to deliver health benefits considered beyond basic nutrition. Research to date based largely on animal models has shown potential benefits including helping to prevent or fight cancer, heart disease, obesity, diabetes, kidney disease and metabolic syndrome, and to improve bone density. Human clinical trials are planned within the next several years.

"Food is one of the most basic and important health tools we have," says Dr. Spencer Proctor, another University of Alberta researcher who has pioneered natural CLA research. "As we learn more about the natural health benefits found in many everyday foods, we are producing more encouraging reasons to enjoy these foods as part of healthy living. As researchers and health professionals, we also envision a growing focus on food components, such as CLA, as part of specific therapeutic strategies."

Both Field and Proctor are members of the CLA Network – a team of researchers, food industry representatives, health professionals and communicators, devoted to "Harvesting the health promise of CLA." The CLA Network has driven much of the current research progress and has plans to make further dramatic advances with CLA over the next five years.

Battling childhood obesity. Reducing bad cholesterol and other heart disease risk factors. Assisting in cancer therapy. These are just some of the possibilities.

The health promise of natural CLA

So, what is CLA, exactly? While the term may be new to most people, CLA itself has been around as long as cattle have grazed the land – which is to say, as long as people have enjoyed eating beef.

The biological activity of CLA was first discovered in the late 1970s by researchers investigating the carcinogenic properties of grilled hamburger. They found that there were anti-carcinogenic properties as well. They isolated the component responsible for this effect and identified it as CLA.

What makes CLA especially unique is that it is produced naturally only by ruminant animals, such as beef and dairy cattle.

When cattle consume grasses, forages and other types of plant material, microorganisms in the rumen environment break this down into a number of components. One of these, present in all plant material, is linoleic acid.

Linoleic acid itself is an essential fatty acid, critical to both animal and human function. When this component is released in the rumen environment, it further interacts with myriad microorganisms and food chemistry, some of which adds hydrogen to the linoleic acid, thus forming "conjugated linoleic acid" or CLA.

The CLA that results from process retains the essential health-facilitating properties of linoleic acid. Plus, it features two important added benefits - the abilities to displace bad fat and to act as an anti-carcinogen.

Scientific advances, particularly over the past decade, have allowed for more sophisticated probing of CLA's activity and health implications. This has lead to a number of important findings that have made CLA an increasing focus of new research and development efforts around the globe.

Fighting chronic conditions

The encouraging findings so far cover a number of fronts in the battle with chronic disease:

Cancer fighting promise. The most advanced area of CLA research is cancer treatment and prevention. Early studies show feeding CLA to animals can reduce the growth and formation of cancer - a remarkable finding for a food nutrient. As a next step, scientists are investigating CLA in human tissue studies, and human clinical trials could soon follow.

For cancer researchers, one of the most exciting things about CLA is its wide potential for guarding against many types of cancer and its apparent relatively strong potency. CLA's cancer-fighting effect has held up in all the major animal models of cancer that are used for testing drug efficacy. These include primarily models for breast cancer and the colorectal cancers, along with models for some forms of leukemia and liver cancer, including hepatoma.

Heart healthy benefits. Cardiovascular disease is another key research front. Early animal studies have indicated feeding animals CLA improves the profile of fats in the blood, particularly reducing high levels of low-density lipoproteins (LDL), which are associated with the disease.

Results have also indicated CLA may influence an inflammatory-related mechanism that reduces the disease pathology. Further animal studies are underway to examine CLA links to guarding against heart disease, and the research effort is shifting to focus more on human studies.

Anti-obesity evidence. There are also indications of potential in the area of obesity, with animal studies linking some forms of CLA to increased energy expenditure, increased body muscle and reduced body fat. Further studies are being done to build on these results and gain better understanding of the specific potential for the primary CLA type found in beef.

Ties to diabetes benefits. Also related to the obesity benefits is the positive potential for type II diabetes. Though research knowledge is very limited, there is some indication that CLA may play a role in normalizing glucose metabolism.

Kidney disease potential. Among the most recent CLA research findings is CLA progress related to kidney disease. One of the first animal studies indicates that a combination of CLA isomers can significantly reduce the rate of the disease pathology.

Osteoporosis significance. Bone density is another groundbreaking area, with indications that CLA plays a role in supporting healthy bones and guarding against osteoporosis.

Rising star

Natural CLA is also found at significant levels in dairy products. With all the new knowledge of the health promise of CLA, beef and dairy are emerging as rising stars among the new wave of natural foods identified as having components that confer health benefits that go beyond basic nutrition.

"Importantly, much of the CLA advantage is based on its status as a natural food product," says Proctor. "This fits well with the growing consumer demand for not just healthy foods, but *naturally* healthy foods."

A longer version of this article, including "quick facts" and a list featuring the natural CLA content in beef foods, is available at www.CLAnetwork.com.

More information on enjoying beef products as part of healthy living is available at www.beefinfo.org.

Visit www.CLAnetwork.com for more articles on activity and progress.

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