

Chew more to retain more energy

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Almonds may still be considered one of the highest energy food sources but it's not about how much you bite off, instead it's about how much you chew, according to a July 14 panel discussion at the 2013 Institute of Food Technologists (IFT) Annual Meeting & Food Expo held at McCormick Place.

"Particle size has bioaccessibility of the energy of the [food](#) that is being consumed," said Dr. Richard Mattes (CQ), professor of foods and nutrition at Purdue University, West Lafayette, Ind. "The more you chew, the less is lost and more is retained in the body."

Each individual has their own chewing habits, he said, and although those are often difficult to change they should be considered when making energy food choices.

Mattes shared a recent study with conference attendees in which study subjects chewed almonds 10 times, 25 times or 40 times and their fecal fat and energy lost by the number of chews were measured. The study found with fewer chews, the larger particles were eliminated by the body. With more chews, the smaller particles were more readily absorbed into the system.

"If the goal is to include food that is enjoyable and contribute protein, a whole almond is probably the way you want to go," Mattes said. "If you're interested in maximizing Vitamin E intake, chopped almonds, almond butter or almond oil may be a better choice."

Mixed fibers from fruits, vegetables and whole grains also topped the charts as high energy sources, he added.

"When your total diet is higher in fiber, there's a greater loss of fat," Mattes said. "Fiber binds with fatty acids to create energy sources in the body."

Dr. Roger Clemens (CQ), chief scientific officer of Horn Company of La Mirada, Calif., and an adjunct professor of pharmacology and pharmaceutical sciences within the USC School of Pharmacy, explained in his abstract that scientists today continue to estimate the measurements of energy derived from foods based on calculations created over 125 years ago by Wilbur O. Atwater, (CQ) a USDA agricultural chemist who published his findings from more than 200 dietary studies on caloric content in kcal/g of carbohydrates (4), proteins (4) and fats (9) as they were found in foods and metabolized by the body.

Clemens did acknowledge many variables can impact how efficiently the body extracts energy from plant-based foods or ingredients, especially those high in dietary fiber cereals and plant extracts, nuts and seeds.

Clemens added more study and understanding of the digestibility of plant-based foods and ingredients could contribute to more appropriate energy values and more accurate product labeling.

"We may see a resurgence of digestibility studies in humans rather than relying on estimates by Atwater that we have been doing for a number of years," said Malden Nesheim, (CQ) provost emeritus and professor of nutrition emeritus, Cornell University, Ithaca, NY.

Dr. Martin Wickham (CQ), director of nutrition at Leatherhead Food Research in the United Kingdom, also presented an update at the

conference session on similar studies in the European Union and recognized a new study released Friday about school lunches.

"It recommended a ban on people bringing in packed lunches which are not as healthy as school meals," Wickham said. "We tend to talk about school meals and their nutritional quality but this is the first time where they talked about the calories playing a major part in childhood obesity in the UK."

Wickham added that in December 2012, the European Union published new regulations on food [energy](#) guidelines and a European-wide way to handle calories, also suggesting new measurements of the macro micro nutrients and using averages on food tables. These new regulations, he said, will be imposed in December 2014.

Provided by Institute of Food Technologists

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