

# Extreme dieting: does it lead to longer lives?

April 19 2011, by Elizabeth Fernandez

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(PhysOrg.com) -- Animals who consume fewer calories live longer and healthier lives. Now, a seminal study at the University of California, San Francisco is testing whether the same is true for extreme dieters.

The [calorie restriction](#) study centers on two primary questions: What allows people to live in a manner many consider food deprived? And does it slow down aging?

Called CRONA (Caloric Restriction with Optimal Nutrition and Aging Study), the investigation is probing the [biological processes](#) affected by extremely low [caloric intake](#), including the impact on telomeres – tiny pieces of DNA that protect cell chromosomes. Short telomeres have been linked to a host of health problems including diabetes, heart disease and premature death.

The UCSF study is the first to broadly examine the psychological profile of successful extreme dieters, gauging how their cognitive sharpness, impulse control, stress and personality differ from normal eaters and overeaters.

“Attempting extreme [caloric restriction](#), to most people, would lead to misery,” says Elissa Epel, PhD, associate professor of psychiatry and an expert on the impact of stress physiology on food intake, obesity and cell aging. “Does it really promote mental well being and better health? And if so, what can we learn from the people who are able to chronically restrict?”

Study participants generally believe they already know the answers.

“The goal is to extend your healthy years as long as possible,” says Trent Arsenault, 35, a Bay Area engineer in the study who embarked on calorie restriction a decade ago, losing 60 pounds. He stands 6’1”, weighs 146 pounds and has 10 percent body fat -- about 50 pounds less than an average man his height.

“I’m lean,” he says. “I’m neither frail, nor a linebacker. Your body actually learns to avoid and reject foods you once craved. It becomes not a denial or a punishment. Now when I see cake or a donut, I think it will cause my heart to race and could contribute to my having diabetes or a heart condition down the line.”

Arsenault eats about 1,800 calories a day, largely in the form of organic fresh fruit smoothies, organic salads, raw skim milk and some fish. In addition to carefully scrutinizing the calories of everything he eats, he bikes, swims and runs.

Others in the study travel to UCSF from all over the United States including New York, Chicago, Phoenix, Texas, Washington, as well as from England and Japan.

During a weekend stay at the university, they undergo a spate of tests including basic body measurements, cognitive exams, and a visit to the “BodPod,” an egg-shaped chamber that measures body composition. They also provide a hair sample and complete questionnaires on topics ranging from their sleep patterns and stress levels to their medical histories and eating habits.

Of the 28 calorie restrictors in the UCSF study:

- 22 are male

- Most hold an advanced academic degree
- Body fat in men varies from 3 percent to 30 percent, averaging about 12 percent; the women's body fat ranges from 19 to 30 percent, averaging 24 percent
- On average, they have been restricting calories for a decade; the longest span is 33 years

Testing and data collection will continue through summer. The scientists are still recruiting control subjects who are either obese or “free eaters” – not restricting food intake but not overweight. Interested parties can email [cronastudy\(at\)gmail.com](mailto:cronastudy(at)gmail.com)

“We need information about what it takes to change your eating pattern for a long time,” says psychologist A. Janet Tomiyama, PhD, a Robert Wood Johnson Foundation Health & Society Scholar at UCSF who studies the psychology and physiological consequences of dieting, and is spearheading the study. “There are so many diets out there – people lose weight for six months, then regain it. We need to study what it is about the calorie restrictors that makes them able to do this for years and years.”

By studying pathways including expression of certain genes that predict longevity, telomere shortening and other markers of aged immune cells, researchers will be able to determine how the most important aspects of cellular aging might differ in calorie restrictors compared to normal eaters as well as overeaters.

“This kind of eating will never be that popular, it's kind of a rare discipline,” says Tadd Ottman, 54, a software engineer in the Bay Area who has restricted his calories for eight years, shedding 50 pounds in the first year from his 5'9” frame and an equal number from his cholesterol

level. Now at 130 pounds and eating approximately 1,700 calories daily, he says he feels springier, more nimble.

“I can’t throw around a 50-pound sack of concrete, but I can walk up a hill far better than I used to,” he says. “Many people think calorie restriction will lead to a longer life—for some of us, it isn’t necessary to have a longer life but a better quality of life.”

During his visit to UCSF, Ottman’s abdomen fat was measured, bone density checked, blood drawn, cheeks swabbed, a small lock of hair cut. His bdy fat, he learned, was a fit 14.3 percent.

“What we find from the study could be a motivator to help people cut some things out of their diet, to realize that what you eat can make a difference,” he says. “People don’t have to go to an extreme to get some of the benefits.”

Provided by University of California, San Francisco

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