What You Should Know about Calorie Restriction

Researchers at Washington University School of Medicine in St Louis, MO, reported in April 2004 that people who followed a restricted-calorie diet (between 1,100 and 1,950 calories a day) experienced a dramatic drop in cholesterol levels and blood pressure, and the subjects were at lower risk of heart disease and diabetes, among other diseases. News outlets all over the country reported this new eating plan while at the same time asking how anybody could follow this diet.

Calorie restriction (CR), however, is not new. Researchers have known for some time that calorie restriction in laboratory animals increases their possible lifespan. There is even a society for people who follow such an eating plan, the Calorie Restriction Society (www.calorierestriction.org). The Washington University study is merely the first involving humans as voluntary subjects, who were members of the Calorie Restriction Society. The only previous human study was accidental. The participants of Biosphere, in 1991, found themselves unintentional subjects when their food supply ran short. However, judging by several markers, their health seemed to improve (1).

CR VS DIETING

To those unfamiliar with CR, it may appear that this is no different than dieting. Liza May, MS, a member of the Calorie Restriction Society and a clinical nutritionist in Gambrills, MD, whose area of expertise is the psychology of eating (ie, food addictions, psychology in weight-loss dieting, fringe/specialized diets, cultural issue, and eating disorders), says that the difference is that CR is not about weight. "Rather, the focus is on calories consumed," she says. "The reasoning behind the diet is the findings from animal studies—and now from this latest human study—which show that an animal's lifespan can be increased, and its health can benefit, by restricting the number of calories it consumes so long as its intake of essential nutrients is maintained."

As opposed to weight-loss plans, there is no set of rules dictating how CR should be followed. There are as many ways to practice CR as there are practitioners. Some cut calories across the board, some skip a meal, some fast. They also differ in how many calories they restrict. Because there "appears to be a linear correlation between the degree of restriction and the lifespan and health benefits gained," May says, there are "CR practitioners who restrict, for instance, only 10% from the RDA [Recommended Daily Allowance] of approximately 2,000 calories, and who hope to gain a 10% increase in lifespan and health improvements." Others restrict as much as 20% or 50% from the RDA to gain a proportional increase in lifespan and health.

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CR VS ANOREXIA

May and other CR practitioners acknowledge that CR may attract anorexics or even justify anorexia to some people. The difference between CR and anorexia is the same as that between CR and weight-loss plans: the focus of CR is health and longevity, the focus of anorexia is weight and appearance. Typically, those who suffer from anorexia think in terms of black-and-white, such that if they "cheat," it means that they are "bad." In CR, cheating is allowed, even encouraged. There is more a sense of self-love present in CR as opposed to the self-hate present in those who suffer from anorexia. Because anorexics are only focused on appearance instead of health, they may restrict calories, but their diet may be unhealthful (2).

WHY IT MAY WORK

For CR to produce its anti-aging effects, it doesn't really seem to matter what kind of calories are restricted. The anti-aging effects associated with CR are due to the restriction of the sheer number of calories, not in a reduction of fat, carbohydrates, or any other particular food group. In fact, Charles V. Mobbs, PhD, associate professor of neurobiology and geriatrics at Mt Sinai School of Medicine in New York, NY, explains that "the responses to caloric restriction can largely be understood as helping to preserve nutritional resources. Thus, growth and reproduction are reduced, since these functions use precious nutritional resources." He continues, "The neuroendocrine system very closely monitors fuel availability to make sure we don't run out of fuel on the one hand, or have so much fuel in the form of fat that we lose our mobility." However, Mobbs adds, "We don't really understand why insulin sensitivity is so exquisitely sensitive to caloric restriction."

CAN PEOPLE STICK WITH IT?

"Any time a diet is so restricted [as CR], you have to look at it as therapeutic," as opposed to simply a lifestyle change, says Molly Gee, MEd, RD, chair of ADA's Weight Management dietetics practice group and a researcher and lead interventionist at the Behavior Medical Research Center at Baylor College of Medicine, Houston, TX. "It's not the way people want to live. Food is so ingrained in our culture," she continues. "In addition to building and repairing the body, food plays so many roles in life, for example, in family and business." She says that while diet plays an important part of peoples' lives, "you want a diet you can live with, not a diet you have to retrofit your life around."

Mobbs agrees: "Very few people can stay on such a diet in the long term: it is very annoying to be hungry, cranky, and cold all the time." In

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fact, he says: "I am completely opposed to people trying to follow a true caloric restriction diet. Certainly for most people a degree of caloric restriction, to get into the BMI [body mass index] range of 20 or so, would be very healthy, but to get below that by dint of willpower-induced near anorexia is asking for trouble."

May admits that CR is not for everyone. She says, however, that "the idea that CR, done properly, should be difficult, austere, with deprivation, abstinence, and 'virtuous' suffering . . . is erroneous. This is a diet people can stick with." She adds that if someone is already following a proper diet, all it takes to accomplish is a 5% or 10% restriction in calories is cutting breads or cakes "just a little," or limiting sugary, high-calorie candies, desserts, or sodas. As for the psychological challenges of sticking with the plan, "CR is not, and should not be, a miserable, difficult challenge. If so, it is too severe, and should be cut back to manageable levels that can be maintained long term. The social, psychological, and lifestyle challenges are not difficult if the diet is embarked upon gradually and the challenges managed little by little, as they arise, and when the diet is not noticeably different from ordinary eating." Plus, through the Calorie Restriction Society, there is a network of people willing to provide support.

Gee cautions, though, that "this is not a plan that people should Google and say, 'this is for me.' You'd have to be extremely motivated and obsessive to stay on this plan." One of her concerns is that physical activity may not be possible on CR: "If you're in reserve mode, you won't be able to get the 1 hour of exercise the National Institute of Health recommends." Gee also says that people who restrict their caloric intake as much as CR calls for, may have depleted their reserves, and their immune system may not be able to fight off sickness, a particular concern in winter and flu season. In fact, they may need to eat more in case of sickness.

Mobbs doubts that CR will increase human lifespan. "There have been societies, for example, Buddhist monks, whose members were essentially calorically restricted throughout life, but there is no evidence any human ever lived beyond the maximum lifespan of about 125 years." Mobbs believes that "the basic mechanism by which caloric restriction increases lifespan is intact in humans—it appears to be almost universally conserved in animals—but is not activated in humans by caloric restriction." However, he adds, "if the mechanism is intact, and if we can understand the mechanism, we should be able to activate it pharmacologically. This would be a much better way to go than actual caloric restriction." For him, that is the goal of studying the mechanisms of caloric restriction.

WHAT TO TELL YOUR CLIENTS

While people may not seek out dietetics professionals to inquire about CR, the increased media coverage may change that. May says that if a person wants to embark on a CR diet, she starts the client out gradually. She advises dietetics professionals to know their clients well enough to know their issues, psychological challenges, and motivations. Because CR is a diet that does not specify what people should eat, but simply how much, she says a CR diet needs to be tailored to the needs of each individual. In fact, she says, CR might work for some people, but it might not work at all for others.

Gee, however, cannot recommend this diet. She says that if a client asks about it, she says to "give your honest opinion, then tell them the good news that there is already a lot they can do to increase lifespan: eating a balanced diet, having a good weight for body size, and following the USDA dietary guidelines." However, she says that if someone is determined to try CR, she says her mantra is "First do no harm," which means to have the client check with a physician to make sure they have no deficiencies in minerals or in their immune system.

Finally, Gee says people should remember that "there is no magic food or gene to increase longevity."

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