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THE BODY

How Long Can a Person Survive without Food?

By Alan D. Lieberson on November 8, 2004

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Alan D. Lieberson, a medical doctor, lawyer, and the author of *Treatment of Pain and Suffering in the Terminally Ill* and *Advance Medical Directives*, explains.

The duration of survival without food is greatly influenced by factors such as body weight, genetic variation, other health considerations and, most importantly, the presence or absence of dehydration.

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For total starvation in healthy individuals receiving adequate hydration, reliable data on survival are hard to obtain. At the age of 74 and already slight of build, Mahatma Gandhi, the famous nonviolent campaigner for India's independence, survived 21 days of total starvation while only allowing himself sips of water. In a 1997 article in the *British Medical Journal*, Michael Peel, senior medical examiner at the Medical Foundation for the Care of Victims of Torture, cites well-documented studies reporting survivals of other hunger strikers for 28, 36, 38 and 40 days. Most other reports of long-term survival of total starvation, however, have been poorly substantiated. [*Editor's Note: Reports of the 1981 hunger strike by political prisoners against the British presence in Northeast Ireland indicate that 10 individuals died after periods of between 46 and 73 days without food.*]

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Unlike total starvation, near-total starvation with continued hydration has occurred frequently, both in history and in patients under medical supervision. Survival for many months to years is common in concentration camps and during famines, but the unknown caloric intake during these times makes it impossible to predict survival. What is evident is that the body can moderate metabolism to conserve energy and that individual survival varies markedly. The body's ability to alter its metabolism is poorly understood, but it occurs at least in part through changes in thyroid function. This may help explain the evolutionary persistence of genes causing diabetes, which in the past could have allowed individuals to survive periods of starvation by enabling more economical use of energy.

Medical practitioners encounter cases of near-total starvation in patients suffering from, among other conditions, anorexia nervosa and end-stage malignancies, as well as in those following so-called starvation diets. In anorexia, death from organ failure or myocardial infarction is fairly common (up to 20 percent of cases end this way) and tends to happen when body weight has fallen to between 60 and 80 pounds (although it can occur at any time). This weight typically corresponds to a body mass index (BMI) approximately half of normal, or about 12 to 12.5. (Normal BMI is 18.5-24.9, and most fashion models have a BMI of around 17.) Unless other causes intervene, a patient with end-stage cancer often dies after losing 35 to 45 percent of his body weight. Markedly obese patients on near-starvation diets, such as those employing nutritional supplements and consuming less than 400 calories a day, may lose much more weight than that--but they start with great excesses of body fat, which can sustain metabolism. The medical community has generally rejected these diets, which were popular in the 1960s and 1970s, because participants were reportedly prone to acute myocardial infarctions.

I recall one particularly relevant experience that illustrates the inherent variability in people's ability to survive on very little food. Called in an emergency to see an out-of-town visitor with a throat abscess one Saturday afternoon, I noted his marked thinness, along with a belt showing twelve extra holes at about one-inch intervals, each showing evidence of use. I asked him about his weight and he told me he was five feet, seven inches tall and normally weighed about 145 pounds, but he thought he had noted ¿some¿ recent loss, ¿maybe¿ down to about 100 pounds over the prior year. He ¿wasn't trying¿ to lose weight, but it didn't bother him because he thought thinner was better. He just

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¿didn't feel like eating much.¿ With clothes on, he weighed just 77 pounds. After he left town for further treatment, I never heard from him again, but he had seemingly lost close to half his body weight without noticing any ill effects.

In contrast to starvation with access to liquids, much more is known about survival without any sustenance (neither food nor hydration), which is a far more important practical consideration in medicine and ethics. This situation comes up frequently in two distinct medical groups--the incompetent terminally ill patients for whom artificial maintenance of life is no longer desired, and the individuals who, although not necessarily terminally ill, no longer want to live and decide to refuse food and hydration to end their lives.

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A well-known example of the former is Nancy Cruzan, the subject of the famous 1990 U.S. Supreme Court decision in Cruzan versus Director, Missouri Department of Health. Cruzan was in a persistent vegetative state (PVS) for many years until she died 12 days after artificial sustenance was discontinued. Since that time, many other incidences of discontinuing sustenance in patients in a PVS have been reported and death typically occurs after 10 to 14 days. (If the individual is dehydrated or over-hydrated, the time may range from approximately one to three weeks.) In situations of voluntary refusal of food and hydration, death typically ensues on a similar time frame, although the early use of ice chips or sips of water to reduce thirst may delay this slightly.

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