



**Sylvia R. Karasu M.D.**  
The Gravity of Weight

# Strictly from Hunger: The ABCs of Insufficient Food

"Is there a right to food?"

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*"The history of man is in large part the chronicle of his quest for food,"* wrote Ancel Keys, an early researcher in obesity. Even *the Bible* is replete with references to fears of inadequate food supplies. Remember Pharaoh's dream of the seven fat cows and seven lean cows that Joseph interpreted to mean seven lean years and seven years of plenty?

But "Is there a right to food?" So ask Drs. John Butterly and Jack Shepherd provocatively in their new book, *Hunger: The Biology and Politics of*

*Starvation*. Though it has been reported that obesity may now be more common in much of the world today than is hunger, these authors report that there are still over 1.02 billion people worldwide who suffer from chronic hunger. According to these authors, there is a *"nutritional crisis,"* not only among those chronically hungry but paradoxically among those who suffer some form of malnutrition now in combination with obesity. Even in the U.S., where childhood obesity and overweight continue to increase at an alarming rate, Butterly and Shepherd report that *almost 15% of all households "do not have enough to eat daily and suffer from recurring hunger."*

Hunger is a complex physiological signal, often "compelling and unpleasant" that creates an urge to eat. The word "hunger," has come to have psychological connotations as well. Hilde Bruch did early work on anorexia nervosa, a disorder where some sufferers claim they don't experience normal pangs of hunger. She believed that awareness of hunger sensations are not present at birth but develop either "accurately or

distortedly" in the context of an infant's interactions with caretakers. As a result, some people seem not to be able to distinguish "*hunger--the urge to eat--from signals of bodily discomfort that has nothing to do with food deprivation*" and reflective of states of emotional tension. In effect, this is psychological hunger. It is probably that hunger that led to our slang expression "*strictly from hunger*," for something "very bad," "undesirable" or "lousy." When people, though, are subjected to chronic physical hunger, as well as malnutrition, they become more susceptible to disease. According to Butterly and Shepherd, as a result of its effects, chronic hunger becomes the leading cause of death throughout the world. When there are severe food shortages that lead to an actual breakdown of society, we call that "*famine*." Ultimately, though there are many causes of starvation or famine (e.g. weather, political conflict or corruption, reliance on a single crop, etc.), Butterly and Shepherd believe that poverty is the underlying cause. The rich rarely starve--except, of course, by choice!



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What are the physiological and psychological effects of hunger? Ancel Keys was one of the first to conduct a long-term scientific study of hunger and semi-starvation. During World War II, while some countries like Holland were in the throes of famine, (and American parents were telling their children to eat everything on their plates because children were starving in Europe), Keys devised an experiment with more than 30 male conscientious objector volunteers. These men were willing to restrict their food intake substantially for

several months for the purpose of providing detailed information on the psychological and physiological effects of caloric restriction. Called the "*Minnesota semi-starvation experiment*," Keys documented his results in an enormous two-volume tome. The men in the study, of course, were undergoing semi-starvation "under the best possible conditions"-comfortable living conditions, warm clothing, and no threat of attack. Over the course of the experiment, the men were to lose about 25% of their weight by caloric restriction and exercise and then spend three months in rehabilitation. Humans, incidentally, can tolerate a weight loss of up to 10% of their weight without much functional disorganization that starvation can cause; a severe famine might result in substantial weight losses of up to 35% of weight. Any weight loss beyond that percentage is usually incompatible with life.

Keys' study, though published over 60 years ago, can give us some clues to why dieting by food restriction can be so difficult for so many people. What he found was that with prolonged under-nutrition, hunger sensations become "progressively accentuated," unlike in total fasting where feelings of hunger may dissipate after a few days. Keys, incidentally, reported that Jews in the Warsaw Ghetto in 1942 were barely subsisting on 600 to 800 calories a day. People in his own experiment were given almost twice as many.

During the experiment, Keys' subjects became totally preoccupied with food. They would often dawdle for hours over their meal, and they developed "striking changes" both physically and mentally. The men became depressed, listless, unable to concentrate, socially withdrawn, and apathetic. They also began to neglect their personal appearance: they no longer brushed their teeth, combed their hair, or shaved. And they lost all interest in sex. Keys called the syndrome "*semi-starvation neurosis*." Incidentally, some researchers more recently believe that hunger causes cognitive changes in people such that those who go on "hunger strikes" have serious mental changes that result in impaired decision-making skills.

The 3-month rehabilitation period in Keys' study, was even harder for some than the period of caloric restriction. The men ate thousands of calories (some up to 10,000 calories) a day and still felt unsatisfied--what was called a "post-starvation hyperphagia." The speculation was that their bodies were attempting to recover not just the fat they had lost but the loss of their lean body tissue--often gaining more weight than their initial weight--a process called "overshooting." This study has some clinical implications for today's dieter: those who lose a substantial amount of weight on caloric restriction may eventually gain back even more and it may also explain why exercise that preserves lean muscle becomes so important in the maintenance phase after substantial weight loss.

## About the Author

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**In Print:** *The Gravity of Weight: A Clinical Guide to Weight Loss and Maintenance*

**Online:** my own website

