

## **Ancel Keys, PhD (1904–2004)**

Ancel Keys, PhD, is an icon in cardiovascular nutrition. His contributions to understanding the effects of diet on cardiovascular disease (CVD) are seminal to the field. Dr. Keys was the first to create an awareness of the health benefits of the Mediterranean diet, which is now a dietary pattern recommended worldwide by many organizations and agencies. He pioneered research that established the hypercholesterolemic effects of dietary saturated fat, which is a cornerstone of contemporary dietary guidance for CVD risk reduction. Dr. Keys' research has had an impact on countless individuals who follow dietary guidance issued to promote health and manage chronic disease and associated risk factors.

Dr. Keys was born in Colorado Springs, Colo. in 1904 and grew up in Berkeley, Calif.. He graduated from the University of California, Berkeley with a Bachelor of Arts in economics and political science in 1925 and a Master of Science in zoology in 1928. He earned his PhD in oceanography and biology in 1930 from the Scripps Institution of Oceanography. He earned a second PhD in physiology at Cambridge University in 1936.

Dr. Keys is well known for his role in developing K-rations, a major staple of military nutrition in World War II. The historical record indicates that K-rations were named after Dr. Keys. The initial K-rations weighed only 28 oz. and provided 3,200 calories per day. K-rations were an important advancement in feeding troops.

Dr. Keys also is known for his infamous starvation studies of conscientious objectors that evaluated the physical and mental effects of starvation. This research resulted in the book *Biology of Human Starvation*, which was published in 1950.

Without question, Dr. Keys' most significant contribution to science is the Seven Countries Study. He is known for introducing the Diet-Lipid-Heart Disease Hypothesis, which he spent the remainder of his career investigating. In 1958, he started the Seven Countries Study with colleagues from other countries. A predominant focus of the Seven Countries Study was to study how dietary fat influenced blood cholesterol. The study demonstrated benefits of the Mediterranean diet on coronary heart disease risk and blood cholesterol levels. This landmark study was the foundation for countless studies that have been conducted over the years to evaluate the multitude of health effects of the Mediterranean dietary pattern.

Dr. Keys was professor, director, and founder of the Laboratory of Physiological Hygiene at the University of Minnesota, School of Public Health between 1940 and 1972. He conducted many controlled clinical studies designed to evaluate the effects of dietary fats on lipids and lipoproteins. A major contribution he made to the field is developing the "Keys equation" that accurately predicts the effect of different fatty acids on serum cholesterol levels. He showed that saturated fatty acids increased total and LDL-cholesterol twice as much as polyunsaturated fatty acids lowered them. These findings remain at the center of medical nutrition therapy for managing hypercholesterolemia.

Dr. Keys and his wife Margaret wrote two bestselling cookbooks: *Eat Well and Stay Well* (1959) and *How to Eat Well and Stay Well the Mediterranean Way* (1975).