BODY COMPOSITION

Steven B. Heymsfield M.D.
Department of Medicine, Obesity Research Center, St. Luke's-Roosevelt Hospital,
Columbia University College of Physicians and Surgeons, New York, N.Y.
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Contents Summary:

- An overview of the main aspects involved in the study of human body composition encompassing the author's and other scientists' investigations..
- An overview of bioimpedance analysis (BIA) which can measure several important body composition components.

The field of body composition research is rapidly developing into a distinct scientific discipline. This growth is fueled by an increasing interest among investigators from diverse backgrounds in the measurement of body composition components *in vivo*.

The first portion of this lecture is aimed at summarizing the main aspects in the study of human body composition. The discussion encompasses our own investigations[1-5] and that of many other scientists who are contributing to this growing research area.

Bioimpedance analysis (BIA) is an electrical method of assessing human body composition that has the potential of quantifying total body water, fluid volumes, body cell mass, and fat-free body mass. I will give an overview in the second part of my lecture on this important method.

BODY COMPOSITION RESEARCH

The study of human body composition is over one hundred years old. Classic body composition studies were carried out in the first half of the twentieth century and an active period followed World War II through the nineteen sixties. At the beginning of the 1960's approximately 20-30 papers pertaining to the study of body composition were published yearly. In the twenty years that followed the publication rate increased to between 60 and 100 papers per year. A particularly rapid increase in body composition publications began ten years ago and continues unabated today. The 1993 Index Medicus cited 266 papers in the area of body composition research, an approximate 10 fold increase from the beginning of 1960's.

Many factors contribute to this increasing interest in the study of body composition, among which are new measurement methods and biological topics that require body composition measurements as part of their investigation.

As new studies appeared in scientific journals, we recognized the need for a comprehensive framework which could aid investigators in systematically organizing the many diverse topics that comprise body composition research. We reasoned that this would help facilitate communication among colleagues and allow students to base their learning of body composition on

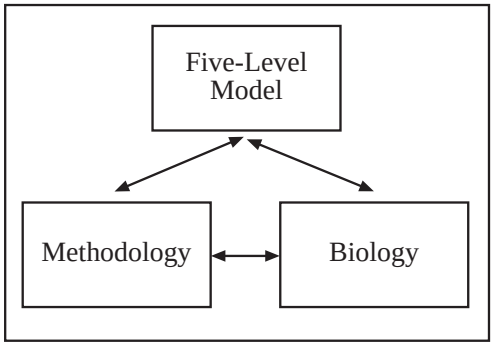

Figure 1. *The three research areas that comprise the study of human body composition. Modified from reference 1, with permission.*

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