

A Study of the Post-Exercise Heart Rate

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THE wide use of the response of the heart to exercise as a measure of various physical phenomena has led to many and varied procedures. The chief differences in the procedures lie in the variety and strenuousness of the exercise employed, and the phases of recovery used as indices.

Since the most common procedure is to utilize some part of the post-exercise rate, attention is given to this phase in this investigation. The problem is approached by studying the post-exercise response of the heart to bouts of work which have been standardized and measured.

The investigation reported in this study aims to contribute to the understanding of the nature of the response of the normal and the abnormal heart to different intensities of various types of exercise. The response of the heart to various exercises is studied with respect to the following phases: (1) the post-exercise pulse rate, (2) the pulse-ratio, and (3) the recovery time.

Procedure.—For the purpose of counting the heart rate in the investigations herein reported, an automatic counter was devised and has been described.¹ The cardiometer is accurate, stable, and simple to operate. It is capable of counting accurately while a simple exercise is performed. The pulse rate is read directly from the counter, thereby eliminating the objection of counting and recording.

The heart rate was recorded in surroundings as free from distractions as possible. The procedure for recording the pulse was as follows: the subject was admitted to the room and directed to strip to the waist. If his chest was extremely hairy he was asked to remove the hair from about a 6-inch square just below the left nipple, with an electric razor. His name, age, and any other historical information desired was recorded and his weight and height were ascertained. The subject reclined on a bed. He was told to lie quietly and to refrain from talking. The cardiometer electrodes were attached to the chest and a series of pulse rate recordings were made in the reclining position. The resting rate was recorded in the reclining position, because observations of a continuous record of reclining,

¹ L. E. Morehouse and W. W. Tuttle, "An Electric Pulse Counter," *Jour. Lab. and Clin. Med.*, 24 (August 1930) 1213.