

Determining Heart Rate

Definitions:

RESTING HEART RATE (RHR)

A full one-minute count of the pulse, usually taken at the wrist by the patient after a long rest or upon waking in the morning. It is important that the patient awaken naturally, not waking up with an alarm clock. While lying in bed, the patient counts the number of heartbeats for one full minute and records. This is done for three consecutive days and the average is taken. This is the "resting heart rate."

HEART RATE RESERVE (HRR)

The difference between your maximum heart rate and resting heart rate.

MAXIMUM HEART RATE (MRR)

The highest heart rate you can achieve in an all-out effort to exhaustion. Maximum heart rate declines with age and can be estimated by subtracting your age from 220.

Example:

Patient is 40 years old and had a resting heart rate of 72 beats per minute. What is the working heart range?

$$220 - 40 = 180$$

$$180 - 72 = 108 \text{ (HRR)}$$

$$108 \times .5 = 54$$

$$108 \times .8 = 86.4$$

$$54 + 72 = 126 \text{ min working heart rate}$$

$$86.4 + 72 = 158.4 \text{ max}$$

This patient should strive to work out between 126 and 158 beats per minute during the work out portion of his/her cardiovascular exercise program.

The Formula

(*patient must know their resting heart rate. *)

$$220 - \text{age} = \text{Maximum Heart Rate (MHR)}$$

$$\text{MHR} - \text{RHR} = \text{Heart Rate Reserve (HRR)}$$

$$[\text{HRR} \times 50\%] + \text{RHR} = \text{Minimum working heart rate}$$

$$[\text{HRR} \times 80\%] + \text{RHR} = \text{Maximum working heart rate}$$

If patient does not know their resting heart rate, use the following formula:

ESTIMATED HEART RATE

$$220 - \text{age} = \text{maximum Heart Rate (MHR)}$$

$$\text{MHR} \times 50\% = \text{minimum working heart rate}$$

$$\text{MHR} \times 85\% = \text{maximum working heart rate}$$

Example:

Patient is 40 years old, doesn't know resting heart rate. What is the working heart rate range?

$$220 - 40 = 180$$

$$180 \times 50\% = 90 \text{ minimum working heart rate}$$

$$180 \times 85\% = 153 \text{ maximum working heart rate}$$