

Name: _____ Class: _____ Date: _____

Calculating Target Heart Rate Using The Karvonen Method

The **Karvonen Method** for calculating $HR_{\text{TRAINING THRESHOLD}}$ (Target Heart Rate) was created and named after a Finnish physiologist. This method is a more accurate calculation of $HR_{\text{TRAINING THRESHOLD}}$ for individuals with low HR_{RESTING} because the formula takes into account the efficiency of the heart muscle reflected in the HR_{RESTING} measurement.

Step 1 – Calculate Heart Rate Maximum

$$HR_{\text{MAX}} = 220 - \text{Age in Years} \qquad HR_{\text{MAX}} = 220 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Step 2 – Calculate Resting Heart Rate

Calculate your HR_{RESTING} by taking your pulse first thing in the morning before you get out of bed. Count the number of beats in a 15 second time interval and multiply by 4. This will yield your HR_{RESTING} in beats per minute. For further accuracy, measure your HR_{RESTING} over a period 3 to 5 days to ensure a consistent measurement was achieved.

$$HR_{\text{RESTING}} = 15 \text{ second pulse} \times 4 \qquad HR_{\text{RESTING}} = \underline{\hspace{2cm}} \times 4 = \underline{\hspace{2cm}}$$

Step 3 – Karvonen Method

Using the HR_{MAX} and HR_{RESTING} (Steps 1 & 2) and the Karvonen Formula (Below), calculate the $HR_{\text{TRAINING THRESHOLD}}$. The $\%_{\text{INTENSITY}}$ is the percent of maximum capacity at which you want your heart to function.

$$HR_{\text{TRAINING THRESHOLD}} = \%_{\text{INTENSITY}} \times (HR_{\text{MAX}} - HR_{\text{RESTING}}) + HR_{\text{RESTING}}$$

$$HR_{\text{TRAINING THRESHOLD}} = \underline{\hspace{2cm}} \% \times (\underline{\hspace{2cm}} - \underline{\hspace{2cm}}) + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Calculate your $HR_{\text{TRAINING THRESHOLD}}$ at the following $\%_{\text{INTENSITIES}}$.

$$100\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 95\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 90\% \text{ Intensity} = \underline{\hspace{2cm}}$$

$$85\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 80\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 75\% \text{ Intensity} = \underline{\hspace{2cm}}$$

$$70\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 65\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 60\% \text{ Intensity} = \underline{\hspace{2cm}}$$

$$55\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 50\% \text{ Intensity} = \underline{\hspace{2cm}} \qquad 45\% \text{ Intensity} = \underline{\hspace{2cm}}$$

An online version of this formula created by the University of Colorado, Boulder can be found at:

<http://ucsub.colorado.edu/~neilsonk/cgi-bin/heart.cgi>