

# Heart Rate Monitoring

## How to Control Exercise Intensity

By monitoring your heart rate during exercise, you can scientifically measure with great accuracy the effort your body expends during exercise. Using your heart rate monitor and conducting your Spinning® program workouts according to the guidelines of the Spinning Energy Zones™ will enable you and your students to design a program that balances stress and rest, aerobic and anaerobic exercise, and enables continual improvements in fitness without compromising health.

Following a sensible workout schedule and measuring exertion levels can help to prevent exhaustion, burnout, illness and injury.

## Heart Rate Monitored Exercise

Everyone should have some basic knowledge about heart and body functions and response. Before starting or continuing any exercise program ask yourself some basic questions:

1. What is my current fitness level and physical activity?
2. What are my fitness goals?
3. What is my daily resting heart rate?
4. What is my maximum heart rate?

It is important to answer these questions in order to develop an individualized fitness program.

For a beginning exerciser, a sensible goal is to improve overall health and to adapt to a more active, energetic lifestyle. Beginners should monitor their heart rate every morning and train aerobically (80% of maximum or below) for at least the first three months of their program. Heart rate zones may be determined by using the 220 or 226 minus age formula.

More experienced exercisers may have goals like performance improvement or body composition changes. These entail designing an annual calendar of workouts according to heart rate guidelines and regular performance testing to monitor overtraining and improvement.

## Basic Terminology

Resting Heart Rate (RHR) is important to know because it indicates the amount of mental and physiological stress your body is experiencing. For example, if you know that your resting heart rate is usually around 65 beats per minute (bpm) and one day you see it at around 70-75BPM, this indicates elevated stress levels or incomplete recovery.

An elevated resting heart rate suggests that you need to reduce or completely cease exercise until RHR returns to normal levels. If you obtain a reading 10% or more above your normal resting rate you should not exercise.



Your resting heart rate also indicates something about your general fitness level. A low resting heart rate indicates a highly efficient cardiovascular system and a heart with a large stroke volume (amount of blood pumped per beat). You can track your fitness progress by watching for reductions in your resting heart rate. Elite endurance athletes have been known to display resting heart rates as low as 28 bpm!

The method for calculating your true resting heart rate is as follows: Take your heart rate first thing in the morning for five consecutive days before getting out of bed. Calculate the average.

Maximum Heart Rate (MHR) is the highest amount of beats your heart can sustain per minute. This number provides the exerciser with a basis from which to calculate training heart rate zones that are expressed in terms of percentage of maximum heart rate.

One formula you can use to estimate maximum heart rate is 220 (males) or 226 (females) minus age. However, the standard error for this formula is as high as 12-24 beats. The formula implies the average aging process, during which the MHR decreases as age increases - this is not necessarily true. If a person has been exercising for many years he/she can advance MHR capability. Genetics can play a role in your pre-disposition to fitness capacity as well. This formula, however, is designed and most useful for infrequent exercisers (average adults).

Another way to determine individual MHR is through stress testing, which most health clubs, sports clinics and hospitals have the capability to do. If this is not at your disposal and if you are healthy and a frequent exerciser (regularly three or more times per week for extended periods of time), then it is safe to conduct a MHR self-test using HR monitoring in the "field."

Another figure that's interesting to know is your Working Recovery Heart Rate (WRHR). Your WRHR is the number of beats that your heart rate drops upon finishing a portion of an exercise program or completing a workout.

By tracking your WRHR regularly, you will notice your fitness progress expressed in terms of faster recovery time.

Another formula that's used to determine target heart rate, which is more individual and accurate, is the Karvonen Method. It was developed by Dr. Karvonen, an internationally respected Finnish doctor. His formula (published 1957) for exercise heart rate determination takes into consideration individual RHR and MHR when determining training zones.

Thus, instead of training at 80% of maximum heart rate, you factor in resting heart rate for a more accurate "80% of max" workout.

**80% training heart rate = (MHR - RHR) x 80% + RHR**  
**[ex: (200 - 60) x 80% + 60 = 172]**

This athlete will conduct an 80% workout at a limit of 172 bpm. If they were to just use percentage of maximum heart rate, 80% of 200 would be 160. This formula takes into account relatively high resting and maximum heart rates and allows for higher heart rates during exercise.



Notice the same formula when the athlete has a lower resting heart rate of 40:

$$\mathbf{80\% \text{ training heart rate} = (MHR - RHR) \times 80\% + RHR}$$

[ex:  $(200 - 40) \times 80\% + 40 = 168$ ]

Average heart rate reflects your average heart rate for an entire workout period or portion of a workout period. This number reflects the average intensity that you exerted for an extended period of time. Some heart rate monitors automatically provide this information at the conclusion of your workout.

## Heart Rate Monitors

Heart rate monitors are an effective and accurate method of obtaining instant biofeedback about physiological, mental and metabolic responses in your body. Each model has different features and functions and there is one to meet any fitness level and objective.

Heart rate monitors act as your own personal trainer because they can alert you to an increase or decrease in your intensity level during exercise. This generates maximum benefits from your workouts with reduced risk of overtraining and burnout.

In addition, most heart rate monitors are ECG-accurate within one beat per minute. So why guess what your exertion is? Perceived exertion alone is not accurate and can lead to overtraining, frustration and even injuries.

By recording your daily resting heart rate, you will know how much stress you are experiencing and how well your body is recovering. With that information, you can then design your daily workout accordingly and complete it under the prescribed heart rate-based intensity levels.

For extensive information about the benefits and proper use of a heart rate monitor, how to conduct performance tests to measure fitness progress and how to use your heart rate monitor to prevent overtraining and attain fitness goals, please see our comprehensive booklet, *The Spintensity™ Program Guide*.

*Spinning® Instructor Manual, Appendix C*

For more information,  
visit [www.spinning.com](http://www.spinning.com).

