

Since the beginning of human kind, people consistently used one health indicator to assess their wellbeing: **pain**. When pain tells you that something is wrong with your body, you listen.

However, once pain starts to develop in your body, it's sometimes too late to reverse or completely cure a condition. From mental burnout and overtraining to terminal cancer, we all know that prevention is the best solution.

Waiting for pain to start making a change in your lifestyle **is not a good idea**, but is there a better messenger that will help us **prevent** illnesses and **maximize** results?

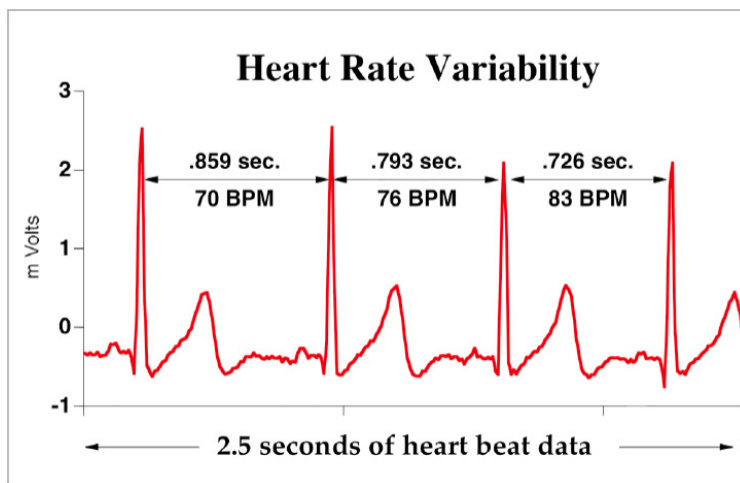
**Enter Heart Rate Variability.**

## What is Heart Rate Variability?

Your **heart rate** is the number of times it beats per second, minute or hour.

It's recommended to have a heart rate between 50-70 beats per minute. A slower heart beat is a sign of good health because the heart can keep your blood flowing with relative ease.

Your **heart rate variability** (HRV) is the change in your heart rate between individual heart beats.



Contrary to popular belief, your heart rate does not beat at a constant rhythm. In fact, your heart rate changes from beat to beat. The most obvious change to your HRV comes from breathing. As you breathe in, your pulse is much faster than your pulse when breathing out.

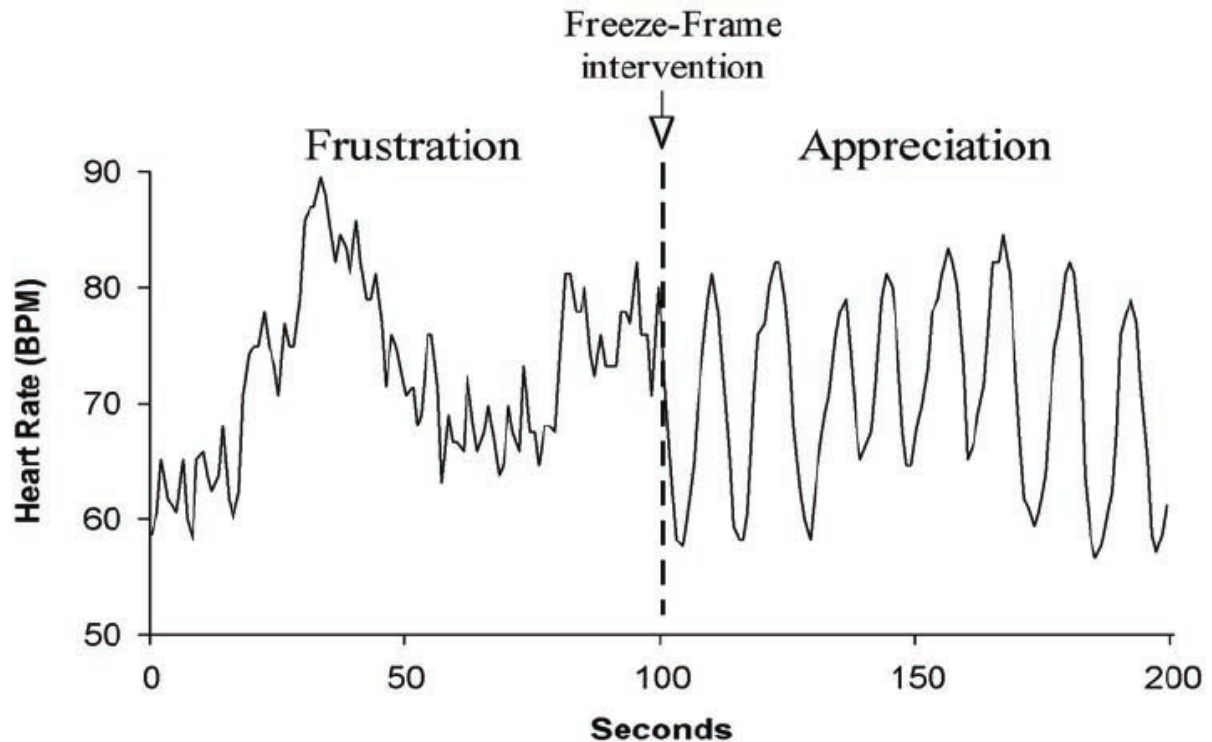
## Why HRV Matters

Your heart works to pump oxygen and nutrients throughout your body as needed. As you go about your day, your body's demand for these nutrients changes from **second to second** based on the environmental and internal conditions in your body. Physical movement and your emotions can have instant effects on your heart rate.

Therefore, **a healthy heart changes** its speed based on the changing conditions in your mind and body. **A healthy heart has a high HRV.**

Doctors will often measure the HRV to test for a patient's fitness and mental health. This is because low heart rate variability is linked to [multiple cardiovascular diseases](#), [diabetes](#), and [depression](#).

A [2006 study](#) used the Freeze-Frame method, a mental de-stressing technique, to produce the following changes in HRV.



Notice the dramatic change in heart rate patterns after a mental shift from frustration to appreciation. The results show that your HRV can be a clear reflection of your emotional state and possibly other indicators of stress.

## Why your HRV mirrors your physical and mental health

Your HRV is controlled by your **autonomous nervous system**, the mechanism that controls all involuntary bodily functions, e.g. breathing, digestion, and **heartbeats**.

The autonomous nervous system is broken into two equal but opposite parts: the **sympathetic nervous system**, the “fight-or-flight system”, and the **parasympathetic nervous system**, the “rest and digest system”.

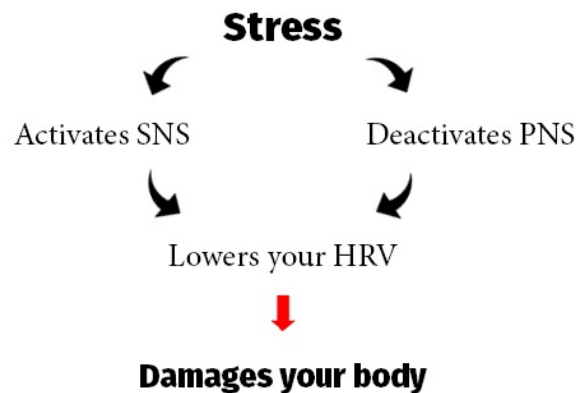
Your sympathetic nervous system (SNS) is responsible for **exciting your body** in preparation for danger. During a fight, it's responsible for increasing blood flow to muscles, releasing adrenaline, and dilating

your pupils. The SNS quickly responds to stress by providing your body with the resources necessary to fight or escape from danger. **Your SNS lowers your HRV.**



Your **parasympathetic nervous system** (PNS) relaxes your system for repair and recovery. Without stress, your body will increase its rate of digestion, reduce your heart rate, and recover your body from damage. **Your PNS raises your HRV.**

Therefore, stress on your system activates your SNS, lowers your HRV, and **damages your physical health.**



## Recovery and your physical performance

The art of maintaining your physical health and maximizing your performance comes from balancing your SNS and PNS. For most of us, that means focusing on keeping our SNS in check.

Living in today's modern jungle means being surrounded by hundreds of stressors every day. Drama at the office, troubles in your relationship, and anxiety about money keeps your sympathetic nervous system constantly activated.

This constant SNS activation reduces your body's ability to recover from workouts and limits your muscle growth. **An active SNS means an inactive PNS.**

There's a common misconception that time spent at the gym creates the results. **It doesn't. Recovery from a workout does.**

Training at the gym places stress on your body, breaks down your muscles, and gives your body the stimulus to adapt to physical stress. (SNS activation) Recovering **outside the gym** with proper rest, nutrition, and sleep, uses this stimulus to build muscle and enhance performance for the next training day. (PNS activation)

Without proper recovery, your body will not see results. Having this SNS and PNS balance is essential.



## Why athletes choose to measure HRV

Your HRV is a reflection of your internal SNS and PNS balance. When you have a **low HRV**, it can be a signal of several things:

1. You are overtraining
2. You have a poor diet
3. You have poor heart health
4. You need more sleep

Any stress, physical or mental, can put excessive burden on your body. These stresses translate into a low HRV. Athletes that can adapt their workout routines to the condition of their body can recover a lot faster from injuries and illnesses than those who continuously suffer from physical burnout.

Although not perfect, your HRV can give you a basic understanding of your physical condition which will allow you to plan workout routines based on your rest and recovery periods. With this data, you can

optimize your training and competing schedule, avoid overtraining, and maximize both your results and performance.

## Using HRV in your workout routine

There are many smartphone apps today that makes measuring HRV quick and easy. The two most popular ones are [ithlete](#) and [BioforceHRV](#).

When you first start measuring your HRV, it's important to establish a baseline value. It's recommended to measure your HRV every morning upon waking to keep the conditions in your body constant every time. Avoiding drinking coffee or soda before measuring your HRV as that will affect your heart rate and ruin your data.

After measuring your HRV for about a week, you will have a baseline value to compare all future results. When you have higher than baseline HRV on certain days, you can have full confidence to go for an intense workout. When you have a lower HRV, then you can alter your workout or take a complete break.

It's important for you to do further research on how to incorporate HRV training into your athletic routine. Without a doubt, HRV training can take your performance to the next level. By listening to your body and adjusting your daily habits accordingly, you will speed recovery and avoid overtraining.