

**Excerpted from Heart Zones® Tools for Success
By Sally Edwards and Alinda Perrine**

TABLE 1

Activity	Type	Description	Beats per Minute (bpm)
1. Standing	Physical	Stand in place for two minutes and record your "standing" heart rate.	__ bpm
2. Sitting	Physical	Sit quietly for two minutes and record your "sitting" or ambient heart rate.	__ bpm
3. Lying down	Physical	Lie down quietly and record your "prone" heart rate.	__ bpm
4. Taking a walk	Physical	Take a five-minute walk and at the end of the walk, record your heart rate.	__ bpm
5. Laughing	Emotional	Read the cartoon section of your paper or a book that makes you laugh out loud.	__ bpm
6. Talking to a friend	Emotional	Call a friend that you dearly love on the phone and share with him or her how much you care.	__ bpm
7. Eating comfort food	Emotional	Eat "comfort food" (often foods you ate in childhood) and record your heart rate five minutes after ingestion.	__ bpm
8. Raising your body temperature	Metabolic	Put on a heavy jacket and pants and wait for five minutes as your body responds to an increase in your internal thermal temperature.	__ bpm
9. Eating a large meal	Metabolic	Measure your heart rate just when you are hungry and again after you have eaten a large meal.	__ bpm
10. Drinking or eating a food or beverage containing caffeine	Metabolic	Drink any caffeinated beverage (such as coffee) or eat a food with caffeine (such as chocolate). Measure the increase in heart rate, minute by minute, for 10 minutes.	__ bpm

Why Should I Use a Heart Rate Monitor?

Of all the personal health equipment you own, the Heart Rate Monitor may be your most valuable one because only the monitor can measure the intensity level of your exercise. Your heart rate is the only number that is essential. Why? That is because your heart rate provides a true index of your current fitness level and a solid way to measure fitness improvement.

You can use your Heart Rate Monitor to:

- **Assess fitness:** Measure your improvement as you get in shape and stay there.
- **Monitor stress:** Keep tabs on what causes your heart rate to rise during the day.
- **Motivate yourself:** Maintain the physical and emotional zones that are best for you.
- **Manage your energy:** Burn more fat as the primary fuel of your workout.
- **Organize workouts:** Lead yourself through a variety of workouts such as "steady state," "intervals," and "hills."

For example, if you are working out too hard, the monitor can act as a brake and keep you in the right zone. Or if you are facing a stressful situation at work, it can remind you to take a few deep breaths and relax. On the other hand, you can count on your monitor to tell you if you are taking it too easy during an exercise session and need to increase the pace.

What Do the Numbers Mean?

Your Heart Rate Monitor displays the number of beats—or the number of times that your heart contracts—per minute. If you did the exercises listed above, you saw your heart rate fluctuate based on factors such as:

- Your body position (standing, sitting, or lying down, for example)
- The type of activity that you are doing (walking, running, playing a game)
- The duration or length of time that you are moving
- The level of intensity at which you are exercising
- Your current level of energy or fatigue
- How fit you are

Your Heart Rate Monitor reflects your total stress. Hence, a high number on your monitor indicates a higher intensity level of your exercise, or a higher level of emotional stress or increased metabolic activity. Likewise, a lower number indicates a lower level of physical or emotional stress.

Tip From the Heart:

Your heart is unique and responds to your individual physiology. So it's important to understand there is no right number for an activity, but rather a range of numbers that is normal for you and only you. So it doesn't make sense to compare your heart rate responses to another person's results, or to think that there are "good" or "bad"

Estimating Your Maximum Heart Rate

The best way to know what the numbers on your monitor mean is to put them into context: that is, the range of heart beats per minute that is normal for you. To establish this range, you need to know your maximum heart rate. In this chapter, you'll learn how to estimate your maximum heart rate—the cornerstone of your personalized Heart Zones™ training program.

Your maximum heart rate is the greatest number of beats per minute that your heart can contract. Everyone's maximum is different and there is no accurate mathematical formula to calculate it. You can discover your maximum heart rate by taking a few simple tests.

Sub-Max Step and Chair Tests

Ok, ready to go? First, you will take two tests each called "sub-maximum" because they are designed to keep your heart working well below its maximum heart rate. When you are done, you will estimate your maximum heart rate by combining the results of both tests.

Sub-Max Step Test

Make sure to warm up adequately before performing these tests.

1. On any step that is approximately eight inches in height begin a four-count sequence of stepping up and down as follows: right foot up, left up, right down, left down.
2. Perform thirty (30) step sequences per minute in the sequence "up, up, down, down" for a period of three minutes, totaling 90 steps.
3. Watch your monitor as your heart rate increases. Write down your heart rate at the end of the 3-minute period. This is called your "final heart rate."
4. Add your fitness factor to the "final heart rate" number to arrive at your estimated maximum heart rate.

Step Test Fitness Factor

Fitness Level Now	Poor	Average	Excellent	Fit
Fitness Factor	+35	+45	+55	+65

For example, if your final heart rate is 140 bpm and you are in average shape, your estimated maximum heart rate is 185 bpm (45+140=185 bpm).

Sub-Max Chair Test

Again, please warm up adequately before performing the test.

1. Sit down on the seat of the chair and then stand up again. Perform this exercise set in a rhythmic fashion, thirty times in one minute. You can move to the cadence of "one second stand up" and "one second down sit down." Keep your arms relaxed and at your sides.
2. Watch your heart rate monitor as your heart rate increases and note your final heart rate number.
3. Add your fitness factor (see chart below) to arrive at your final heart rate number.

Chair Test Fitness Factor

Fitness Level Now	Poor	Average	Excellent	Fit
Fitness Factor	+50	+60	+70	+80

The sum of your final heart rate plus your fitness factor is the estimate of your maximum heart rate. For example: If your peak heart rate is 120 bpm and you are in excellent shape, your estimated maximum heart rate is the sum of these two numbers: 120 + 70, or 190 bpm.

Calculating Your Maximum Heart Rate from Test Results

Now that you have the results of two different sub-maximum tests, average the numbers together as an estimate of your true maximum heart rate as shown below:

Chair-test estimate + Step-test estimate ÷ 2 = Your estimated maximum heart rate

Tip From the Heart:

Did you know your maximum heart rate is:

- The highest number of contractions per minute that your heart can beat.
- A relatively fixed number, unless you become unfit.
- Activity specific.
- Genetically set.
- Can be over 200 bpm for children.
- Can be affected by drugs and altitude.
- Does not decline with age.
- Cannot be determined by a mathematical formula.

Introducing Heart Zones

The Heart Zones training system is different from other exercise systems because it focuses on the **intensity** of your exercise — not the distance you cover or the length of time you work out. What matters the most if you want to recuperate from an illness, get fit, or run a marathon? You need to control your exercise intensity. How do you know the intensity level? By using your Timex Heart Rate Monitor.

Do you know a runner who trains steadily but never seems to get faster? Do you know someone who faithfully walks a couple of miles per day, but doesn't really seem to improve? These problems would be easy to solve within the Heart Zones training system. For example, the runner may always run at the same level of intensity or zone and may simply need to vary the pace of his or her runs to get faster. The walker may need to walk a little faster and harder for part of the two miles, to gain endurance and strength.

The Heart Zones training system comprises a framework of five progressively challenging heart rate “zones.” The program’s cornerstone is that all important number you discovered in Chapter Two — your maximum heart rate. Remember, your heart zones are personal: they reflect your genetic heritage and your current level of fitness. Ideally you should work out in different zones on different days to get different benefits.

Calculating Your Five Heart Zones

To calculate your five heart zones, look at Chart 1 below and circle the number on the top line that corresponds most closely with your maximum heart rate. The numbers in the column below your maximum heart rate are your five training zones.



MAXIMUM HEART RATE

Training Zone (% maximum heart rate)	Fuel Burned*	HEART ZONES TRAINING																	
		Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR	Max HR		
Z5 RED LINE 90%-100%	<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> PROTEIN CARBOHYDRATES FAT </div>	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	
		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Z4 THRESHOLD 80%-90%		144	149	153	158	162	167	171	176	180	185	189	194	198	203	207	211	216	
		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Z3 AEROBIC 70%-80%		128	132	136	140	144	148	152	156	160	172	168	172	176	180	184	188	192	
		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Z2 TEMPERATE 60%-70%		112	116	119	123	126	130	133	137	140	143	147	151	154	158	164	165	168	
		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Z1 HEALTHY HEART 50%-60%		96	99	102	105	108	111	114	117	120	123	126	129	132	135	138	141	144	
		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
			80	83	85	88	90	93	95	98	100	103	105	108	110	113	115	118	120

*In all zones, approximately 5% of the calories burned are protein which is negligible.

amount of protein burned
 amount of carbohydrates burned
 amount of fat burned

5 STEPS TO BETTER FITNESS AND PERFORMANCE

1. Choose your Heart Zone: Select one of the five different training zones based on the exercise goals for your workout.
2. Set your Maximum Heart Rate: Find your maximum heart rate (Max HR) along the top horizontal row of numbers.
3. Determine your Training Zone: The box where your selected training zone and Max HR column intersect is your heart rate training zone.
4. Set the Zone: The lower heart rate number in this box is the floor of your training zone and the upper number is the ceiling.
5. Stay in Zone: During each workout, maintain your heart rate between your zone floor and ceiling (excluding warm up and cool down).

Look at Chart 1 again. Each zone reflects units of ten percent of your maximum heart rate. For example, if your maximum heart beats per minute is 200 then your range of beats per zone is 20. In this example, Zone One is the lowest range: 100 to 120 bpm. Zone Two is 120 to 140 bpm, and so on. The floor of Zone One is 100 bpm. The ceiling of Zone One is 120 bpm.

Note that the lower the maximum heart rate, the fewer the number of beats per zone. Conversely, the higher the maximum heart rate, the more beats per zone. More beats per zone does not make you a better or worse athlete. Athletic performance is not based on your maximum heart rate or the number of beats in your zone.

What Are The Five Different Zones?

The heart zones reflect five levels of intensity. Each of these levels or zones is based on human physiology. As you move up through the zones, metabolic and physiological events change. For example, your body's energy source changes and the amount of carbohydrates and fat vary.

In the Heart Zones training system, each zone is 10 percent (10%) of your maximum heart rate. Each zone has a name and a color. See the color chart on the back cover pullout. The name refers to the benefit gained by spending exercise time within that zone. The color shows how hot or cool the zone is. The low zones are blue and green because they are lighter or cooler intensities. The top two zones are orange and red because they are progressively higher and hotter.

Zone One is the lowest percentage of your maximum heart rate. In this zone, the body's metabolism starts to wake up. Zone 1 benefits include a lower blood pressure and lower cholesterol. Few calories are burned, but Zone 1 is a great starting place.

Zone Two is the Temperate Zone. It is a comfortable, cruise zone. You can talk in Zone 2. More calories are burned than in Zone 1 and your fat is starting to move out of the cell.

Zone Three is a sweat zone: the Aerobic Zone. At 70% to 80% of your maximum heart rate, exercising in Zone Three results in improved functional capacity of blood vessels and aerobic capacity. For fitness lovers, Zone Three is a happy zone because endorphins are released and more calories are burned.

Zone Four is the Threshold Zone, indicating a tougher place to workout. Working in this zone a couple of days per week will help improve your fitness level and get faster. Too much work in Zone Four can cause overtraining. Lots of calories burned and you must eat to replace carbohydrates.

Zone Five is the highest percentage of maximum heart beats. It is a high, hot, hard zone with the highest number of calories burned. As you get very fit, Zone Five will help improve your performance, but you should not stay there or overtraining may result.

Spending time in different zones gives you different benefits. For example, Zone Four workouts make you stronger, but too many Zone Four workouts without rest may lead to overtraining. Zone Two workouts are great for recovery or endurance building, but staying in Zone Two for too many workouts may keep you from increasing your personal fat-burning range.

Basic Heart Zones Training Workout

It is important to organize your workouts to get the most benefit in the least amount of time. Here's an example of a workout that is planned using the Heart Zones training system.

Your first Heart Zones workout with your Timex Heart Rate Monitor.

- **Workout:** 30 minute run/walk
- **Warm up:** 3 minutes from bottom of Zone 1 or 50% of your maximum heart rate to the midpoint of Zone 2 or 65% of your maximum heart rate
- **Skill:** 3 minutes midpoint of Zone 2 to the floor of Zone 3
- **Main Set:**
 - 21 minutes
 - 7 minutes midpoint of Zone 3
 - 7 minutes ceiling of Zone 3
 - 7 minutes midpoint of Zone 3
- **Cool Down:** 3 minutes midpoint Zone 2 to floor of Zone 1

Take Care

Your heart is an incredible muscle that never stops working, pumping oxygen and nutrients to every single cell in your mind and body every second of your life.

We urge you to take good care of your heart. In return, it will take good care of you. The best way we know to care for your heart is to use your Tools for Success, the Heart Zones training program and your Timex Heart Rate Monitor. Use them together for a healthier heart and happier life.