

## Sub-Max Testing: Why and How?

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It is important to know your maximum heart rate. This is one of your most valuable heart rate numbers. By definition, your maximum heart rate is the number of times per minute that your heart can contract in one minute. Maximum heart rate is expressed in beats per minute (bpm). Your maximum heart rate does not decline with age; it doesn't change with your fitness level; nor can your maximum heart rate be determined by any mathematical equation. It is unique to you. And, it is different for every person.

Sub-maximum means below your maximum. The Sub-Maximum heart rate test is an exercise activity that raises your heart rate but does not take you to the top, your maximum. From that number, it is possible to estimate your maximum heart rate without having to go to your maximum, the point of near-exhaustion. Your maximum heart rate is your anchor point. Your anchor point is used to set each of your five zones. Your zones are each 10% of your maximum heart rate.

**Why?** The reason to take a sub-maximum test is to measure your maximum heart rate - accurately. By taking a set of 8-different sub-maximum tests, averaging the results together, you can accurately estimate your maximum heart rate. These tests are moderately intense. You are asked to determine your current level of fitness and use these guidelines for determining that:

- *Poor Shape:* No daily aerobic physical activity
- *Average Shape:* Daily aerobic exercise 15-30 minutes
- *Excellent Shape:* More than 30 minutes most days of the week
- *Fit Athlete:* More than 45 minutes most days of the week

**How?** There are currently eight accepted Heart Zones Sub Max Heart Rate tests available. You can [download a preview version](#) of the tests here for free, [purchase the PDF](#) for unlimited printing, or [purchase a pre-packaged set of color Sub-Max cards](#) (set is 10 cards) from our store. These cards are simply one of the best products to take your testing from good to great with real quality and professionalism. When you have estimated your maximum heart rate, next set your five different zones each as 10% of your maximum as follows:

- 90%-100% Zone 5 Red Line Zone
- 80%-90% Zone 4 Threshold Zone
- 70%-80% Zone 3 Aerobic Zone
- 60%-70% Zone 2 Temperate Zone
- 50%-60% Zone 1 Healthy Heart Zone

# HEART ZONES **MAXIMUM HEART RATE**

Training Zone (% maximum heart rate)	Heart Rate	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
<b>Z5 RED LINE 90%-100%</b>	DAYCOGEN BURNING	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	
	FAT BURNING	135	140	144	149	153	158	162	167	171	176	180	185	189	194	198	
<b>Z4 THRESHOLD 80%-90%</b>	DAYCOGEN BURNING	135	140	144	149	153	158	162	167	171	176	180	185	189	194	198	
	FAT BURNING	120	124	128	132	136	140	144	148	152	156	160	164	168	172	176	
<b>Z3 AEROBIC 70%-80%</b>	DAYCOGEN BURNING	120	124	128	132	136	140	144	148	152	156	160	164	168	172	176	
	FAT BURNING	105	109	112	116	119	123	126	130	133	137	140	144	147	151	154	
<b>Z2 TEMPERATE 60%-70%</b>	DAYCOGEN BURNING	105	109	112	116	119	123	126	130	133	137	140	144	147	151	154	
	FAT BURNING	90	93	96	99	102	105	108	111	114	117	120	123	126	129	132	
<b>Z1 HEALTHY HEART 50%-60%</b>	DAYCOGEN BURNING	90	93	96	99	102	105	108	111	114	117	120	123	126	129	132	
	FAT BURNING	75	78	80	83	85	88	90	93	95	98	100	103	105	108	110	

**5 STEPS TO BETTER FITNESS AND PERFORMANCE**

1. Stress your Heart Zone: Select one of the five different training zones based on the exercise goal for your workout.
2. Set your Maximum Heart Rate: Find your maximum heart rate (MHR) using the step-by-step test at standard.
3. Determine your Training Zone: Use the table along your individual resting heart rate and MHR values to determine your heart rate training zone.
4. Set the Heart Rate Monitor rate monitor to this zone: Use the MHR of your training zone and the upper number in the table.
5. Stay in Zone: Monitor work method, maintain your heart rate between your zone range and ceiling (including some up and down heart).

**Tips to Taking the Test.** Take the Sub-Max tests when you have rested for at least 24-hours. Read the description of each of the steps for each tests. Make sure that your heart rate monitor is working properly and that your transmitter-chest strap is very snug. Record the results and follow the step-by-step process of estimating your maximum heart rate from the results. After doing the calculations to estimate your maximum heart rate, average the different tests together to eliminate error. If one of the test results is substantially different, either disregard those results or re-test. After estimating your maximum heart rate, do several workouts at different intensities to get a sense of each of the five heart zones. Re-take the Sub-Max tests after 30-days to see if the results are similar. The first time you take a test there is some learning experience which can result in error.