

# **SPECIAL REPORT**

## ***FROM COUCH POTATO TO TRIATHLETE - 10 WORKOUT PROGRAMS TO IMPROVE YOUR CONDITIONING***

There are many athletes who enjoy the process of cardiovascular exercise. They look forward to going for a run, bike ride, swim, or any other form of heart-pumping training. There is an equally large group, however, that has a tendency to avoid it (myself included!). They find it to be boring, painful, and a necessary evil that comes with being an active, healthy person.

Because there is such a large variation in cardiovascular fitness and interest levels from one person to the next, there must be a variety of intensity levels at which an individual can get the benefits of endurance work without working at an unsafe or unproductive level. If you are not active at all, but want to take the first step towards fitness, you are not going to follow the training schedule of a 10-time marathoner. On the flip side, those who are already very active need to be challenged in order to improve.

In this report you will find 10 different workouts that represent 10 different stages of fitness - from the de-conditioned 'couch potato' all the way to marathon and triathlon preparation, plus many valuable programs in between.

The hope here is that by using the plan outlined in this report, everyone can find a point that they can comfortably start with. From there, anyone can increase their conditioning/activity output simply by using the progressions given, or by moving up to a more intense level of training.

Not every level will fit your personal needs. Some of the lower levels may not be enough for you, or the higher ones may be well beyond what you want to accomplish. Surely, though, everyone can find something here that

suits their current needs, along with at least one or two more that they could strive to achieve down the road.

To find your best starting point, I suggest you think conservatively. Work at the lowest stage you feel is stimulating at the beginning, and after a week or two if you need to move up then do so.

Levels 5 through 8 are designed with the needs of competitive athletes in mind. This does not mean that the casual exerciser would not benefit from using these workouts, but they are not necessary. Those not involved in sports but still looking for a major challenge may be more comfortable skipping ahead from Level 4 up to Level 9 or 10 for a program that is more in line with their interests.

Generally speaking, those who seek to see significant changes in their conditioning levels should find a way to push forward on a regular basis. Over the long-term you may want to bounce back and forth between varying workout formats, especially if you are a competitive athlete who must consider pre-season and in-season needs. You also may want to cycle in some lighter activities at times when you feel worn down, but still want to do something.

Please be aware that these are only sample workouts, and they can be adapted in hundreds of ways to mix up your training. Tweak your plan as often as you need to keep things fresh and challenging.

**Finally, be sure to get clearance from your doctor before making any commitment to a new workout plan, especially when you are dealing with elevated heart rates.** There are a variety of health issues that may be irritated by intense cardio work. It is always better to be safe than sorry when it comes to your long-term health. Nothing here is set in stone, and anyone who ignores the warning signs from their body in order to hit an artificial target time or rep number is only asking for trouble.

With that said, those who adapt this plan to their own needs will find a very clear path to progress. Small but consistent steps forward is the way to build any skill. Be patient, work within your limits, but always seek to be a little better than the previous workout.

Good luck with your training.

## LEVEL 1 - Get off your butt!!!

Who Is This For? - Level 1 conditioning is only for those who are not doing any type of regular physical activity at all, and believe they need to start changing small habits to burn more calories.

What Should Your Goals Be? - Your goal here is simple: break a negative cycle of taking the less strenuous way of doing things and get moving. Anyone who starts here should aim to move to Level 2 within 1-2 months.

What Are You Doing? - If this is your current state, you need to find at least 3 ways to start regularly adding some light exercise into your day. Nothing overwhelming, just a few things that get your heart rate up a few beats, burn a few extra calories, and gets you in the mindset of embracing exercise as part of your daily routine.

Here are a few common ways to get moving:

- Intentionally and consistently park farther away from places you work, shop, etc.
- Use the stairs in public buildings instead of elevators
- Use the stairs in your home, or anywhere you spend time, at every possible opportunity. 5-10 extra trips up a staircase daily are a really simple way to get some light activity in.
- Begin a new hobby that requires some light effort. Gardening and yard work fit well, but they are far from the only choices. Find something you wish you were doing more that requires some physical effort, and begin to make it part of your regular routine.
- Go for a walk at lunch, after dinner, or any time you have at least 5 minutes available in your daily schedule

- Walk or bike to places where it is realistic, instead of taking your car.

## LEVEL 2 - Start picking up the pace

Who Is This For? - It is for those who began in Level 1 and are ready to move on, or anyone who wants to add a regular, light cardio workout into their schedule.

What Should Your Goals Be? - Here your goal is to build an endurance base to sustain an elevated heart rate for longer periods of time. This is a necessary step for returning to fitness. For those already active, this step is probably still below your current needs.

What Are You Doing? - You are going to begin alternating easy and moderate levels of cardio in one continuous workout. There are a few simple ways to do this:

- **Walk/jog combo:** Alternate moving between a walking and jogging pace, being careful not to push the jogging part too much until you are ready.
- **Biking:** On either a stationary bike or an actual one, alternate from low speeds to moderate ones, changing back and forth as needed.
- **Swim/walk:** Those who prefer to swim can switch between swimming and walking in a pool.

Initially strive to reach a 50-50 balance between time spent on the easier and harder activities. A reasonable starting time for someone who has not been active recently is about 15 minutes.

The first adjustment you should strive for is to gradually change that 50-50 balance so more time is spent on the more intense level. Over time, this should peak with 90% of your workout spent on the more challenging exercise, with only brief bouts of walking or low-speed biking. This ratio will burn more calories while prepping you to move to Level 3.

Second, you should lengthen the session. Add time as it suits your schedule and goals, to an upper limit of 60 minutes. Any more than that is a strong signal that it is time to move up to Level 3.

Finish at the lower intensity, and also consider adding some light stretching, as well. This will serve as a brief cool down at the end and should also be added for every program that follows. It helps your cardiovascular system return to its normal condition gradually, which lessens the strain on your heart and adds an extra measure of safety.

## LEVEL 3 - Steady state aerobic training

Who Is This For? - This will further ramp up your return to getting in shape. It is also going to be the beginning level for athletes and in-shape exercisers as they begin the climb to peak performance levels.

What Should Your Goals Be? - Find a pace that you can sustain for extended periods of time up to your desired distance. Then, seek to speed up that pace.

What Are You Doing? - Now that we have hit steady state training, we want to think in terms of distance first. For runners, bikers, etc, miles or kilometers is a good distance marker.

Your first step is to find a distance that you can maintain a steady pace at without totally exhausting yourself. Record this distance, and the time it took to finish. Next, use this initial workout to determine a realistic distance goal you'd like to work up to over the next 1-2 months.

Gradually build up your distance by  $\frac{1}{4}$  -  $\frac{1}{2}$  mile (or km) intervals (runners and swimmers), or  $\frac{1}{2}$  to full miles/kilometers for bikers. All along you should still keep a record of your times, as you may want to refer to them at a later point.

Once you hit your desired distance goal, next seek to lower your time at this maximum distance. Eventually you'll have to mix in some Level 4 and 5 work to continue progressing. Keep recording your times.

3-4 tougher sessions per week is, on average, a good cardio schedule for this phase. This is dependent on your own needs and schedule.

Any time you feel worn down but still want to get a little work in, consider doing an active recovery workout. This will consist of a slower pace run, bike, etc at 30-50% of your typical training distance.

If middle-distance conditioning is something you want to pursue further, use some of the next couple workouts as a supplement to this training. Many non-competitive athletes enjoy this type of exercise quite a bit, and occasionally springboard from here right to competitive road races, marathons, and other elite endurance competitions. Most of the training in Levels 4 through 8 can still help you to build speed and lower your times for steady state training, so they are not necessarily something you want to completely skip over.

For competitive team-based athletes, this level is the beginning but definitely NOT the end of your preparation for the season. You guys will need to build on this with speed and agility conditioning, so in your case this phase should only last 1-2 weeks, or take up only 1 or 2 days per week in a wider ranging program.

## LEVEL 4 - Intervals

Who Is This For? - Interval training is a simple way to begin increasing speed for endurance events while still getting the conditioning benefits. Team sport athletes must prepare for the start and stop action that defines their games, and also have a huge need for interval work.

Interval work simply refers to a bout of exercise that is too fast to maintain for long periods, mixed in with either complete rest or a lower speed movement. The faster times will cause a greater increase in heart rates compared to steady-state training, along with the speed benefits.

In many ways this is similar to the Level 2 concept, except your work bout is more intense.

What Should Your Goals Be? - You are continuing to build a conditioning base here, just at faster speeds. This skill is referred to as speed endurance, and it the primary goal of Level 4 training.

What Are You Doing? - There are an endless variety of exercises you can use here. The main criteria are that the working phase is challenging, and is followed by an active or complete rest bout.

Below, you will find a couple of examples of how to set up an interval training workout.

### **EXAMPLE 1 - 100 yd Striders**

A strider is simply a run that falls somewhere between a jog and sprint pace. The term 'strider' comes from the emphasis on getting good length out of each stride. You want to cover some ground with each step without overextending into an unnatural motion.

Any rest and work times given here are simply rough guidelines. Each individual will need to gauge what constitutes a challenging start level for them. The key is to progressively improve somewhere, whether you do more repetitions, cut back on the rest period, or speed up and lower the running time.

An easy starting point is to aim for 12 striders, with each one done in less than 20 seconds. Rest 45 seconds to 1 minute in between reps.

A tougher set up is to still aim for 12 striders, but now complete them in under 15 seconds each, and rest 45 seconds at most.

Again, just pick a certain number or reps, a time to beat, and a consistent rest time in between. From there, set a goal before each successive training session to improve based on your individual needs.

## **EXAMPLE 2 - 200 yd Gassers**

These are essentially back-to-back striders combined into one repetition. This means you will run the 100 yd strider, hit the end line and immediately come back to your starting point.

To determine your work time limit at the beginning, double your strider time AND add 5 extra seconds. This will roughly account for the double distance plus the time it takes to stop and start.

I would recommend doubling the rest time, as well. You will need to take in far more oxygen before fully recovering for the next rep, which takes time.

Also, you may want to start out with only 2 - 4 of these on the first day, if your conditioning is not yet at an elite level. Gassers are about as fun as the name implies, and can quickly lead to heart rates that are near maximal.

## **EXAMPLE 3 - Stationary Bike Interval Work**

If running is not your thing, maybe a biking workout would be a better fit. Although the title here references a stationary bike, the exact same program could apply to an actual bike.

Your work:rest ratio is easiest to break down by the minute. For starters, I would look for a 10-15 second work interval with 45-50 seconds rest. The work part involves pedaling at maximum speed, and for stationary bikes it could also involve increased tension. The rest phase is more like 50% max speed, and reduced tension if you elevated it.

This type of workout should start with a 3-5 minute light warm up (which would be the 'rest' speed and tension), followed by as many intervals as you can safely handle at the outset (10 repetitions is a typical starting point for many), and ending with another 3-5 minute light cool down.

Over time, you can progress by adding more repetitions to lengthen the workout. Alternatively, you can also adjust the work:rest ratio to tilt more towards the work side. Be sure to only change by 5 seconds at a time. This means that a 15:45 second work:rest time should move to 20:40 on your first progression, then to 25:35, and so on.

Those who are training for a sport should seek to determine the typical work:rest ratio of an average play in their specific sport, and work up only to that level.

#### **EXAMPLE 4 - Sprint/Jog Intervals**

Similar to the previous bike program, you can follow a similar program with a run/jog combo.

The slower paced, 3-5 minute warm up and cool downs should still be used. Also, starting at 10 intervals again is generally a common starting point, and you can increase by more reps or adjusting the work and rest times again

Another approach that is very similar to this is a workout that takes place on a track or football field. For the track, runners can sprint the straight-aways while either jogging or walking the curves. On the field, runners can sprint the sidelines while walking or jogging the length of the back end zone lines.

## **LEVEL 5 - Speed endurance**

Who Is This For? - Anyone who wants to increase their speed, and be able to maintain it for long periods of time. Primarily, this is geared towards competitive athletes who need to play fast all the way through games.

From Level 5 on up to Level 10, those with circulatory, respiratory, or cardiovascular health issues should proceed with extreme caution, and with full consultation from a medical professional. Many of the following workouts produce near-maximal heart rates, and should only be experienced by fully healthy individuals.

What Should Your Goals Be? - To be able to stay within 90 % of your maximum speed all the way to the last minute of your event.

What Are You Doing? - There are 2 fairly standard tests that are used to measure speed endurance, and are also great formats for a workout. The first is the Repeat 40, and the other is the Repeat 220.

### Repeat 30's or 40's

Most team sports require repeated short sprints throughout the course of a game or practice. Athletes who want to stay fast all the way to the last minute of a contest should look to train at the distance their sport and position requires.

Taken from the world of American football, the Repeat 40 yd dash test assesses whether an athlete can continue sprinting at near-maximal levels after repeated efforts.

This workout will require a second person to time each repetition.

Your first sprint should be an all out effort to establish your best time without fatigue. Then, you will complete 9 more repetitions at the same 40 yard distance. Rest 1 minute in between sprints. Your times should all come within 0.2 seconds of your first effort. Stay at the 60 second rest time until you accomplish this goal.

With each passing week you should decrease the rest time by 10 seconds per repetition, until you reach a suitable rest period for your sport. Generally speaking, the rest time here should never be less than 30 seconds.

The distance can be changed depending on the needs of your sport. Basketball and hockey players, for example, would be better suited to use a 30 yard sprint because their playing fields are shorter. Baseball players are usually tested in the 60 yard dash, and may want to move out to that length. They should also consider stretching the rest time out to 90-120 seconds, as well, and not worry too much about decreasing it over time. Linemen in football may want to turn this into 10 yd drill, with 20 or 30 repetitions instead of 10. Basically, anyone can tailor the distance, reps, and rest times to their personal needs.

For a greater challenge down the road, begin increasing the repetitions by 1 or 2 at a time, remembering that staying within 0.2 seconds of your best time is still the goal.

Those who swim or bike can also use this format to build speed endurance. Again, simply adapt the variables as needed.

### Repeat 220 yd/200 m dash

Anyone who needs to maintain top speed for 30 seconds or more should consider this type of speed endurance workout - the Repeat 220 yd or 200 meter dash. It is also an introductory step into Level 8 training.

This would fit the needs of middle to long distance endurance athletes, and as part of an overall program would also greatly benefit ice hockey, soccer, and lacrosse players.

The best place to perform the Repeat 220 is on an outdoor track, because  $\frac{1}{2}$  of a lap is likely going to be the exact distance you'll need. If you do not have access to an outdoor track, you are going to have to measure and set up your own start and end points (you can set up a straight line sprint if you have enough room).

This is simply a longer distance sprint that gets you to the edge of lactic acid build-up in your muscles. It is not the most comfortable experience in the world, and if you are unfamiliar with it please proceed cautiously.

All of your runs should be all-out efforts with long rests. You do not have to record your times, but in order to monitor improvements it is highly recommended. Give yourself plenty of rest in between sprints, at least 5 minutes if this is new to you.

On your first day, 2 sprints are all you will do. As you continue along at this level, increase by 1 repetition at a time up to whatever point fits your needs. Also, progress can come from lowering rest times. Cut your rest by 30 second amounts as you build your conditioning, and seek a greater challenge.

It is essential to warm up properly before your first bout, and a cool down walk/jog at the end would go a long way towards removing the lactic acid build up that you will start to accumulate. The warm up and cool down phases also help to gradually raise and lower your heart rate, as these sprints will bring it to a near max rate.

Swimmers and bikers can again adapt this workout by adjusting distances to fit their sport.

## LEVEL 6 – Shuttles/COD's

Who Is This For? – Those that need to stop and start in a competition repeatedly. Soccer, basketball, hockey, lacrosse, tennis and field hockey are just some sports that require this ability. Casual exercisers have no specific need for this level, unless they want a new challenge, or want to mix up their training a little.

What Should Your Goals Be? – To lower your times in these drills specifically by improving your deceleration mechanics, along with your re-acceleration mechanics. This is going to occur naturally as your body finds ways to move more efficiently.

What Are You Doing? – Any stop and start drill fits the change of direction (C.O.D.) category, and you could make up an endless variety of them. Old fashioned shuttle runs, which require a straight line stop and re-start, are the toughest versions because they force you to come to a complete stop before returning back to the start line. Each re-acceleration demands a high energy output.

Shuttles already make up a typical swim workout, but it would be hard to duplicate it on a bike. They are really geared towards runners, ice skaters, and swimmers.

Below, you'll find 2 different ways to incorporate change of direction training into your conditioning program.

### **300 yard Shuttle Runs**

The 300 yard shuttle is a fairly common conditioning test for college level programs. It is an intense drill, especially when you are required to complete it in a relatively short period of time.

Simply mark off a start and end point with 2 cones, or something similar. A lined football field is the easiest place to set this up, otherwise you will need to use a tape measure (or find another creative way of measuring the distance accurately).

If you place the cones closer together it will create more changes of direction, and increase the difficulty of this drill. There are a few distances that work well with respect to the 300 yard shuttle:

- 50 yard spacing (you will run up 50 yds and return back to the start 3 times,  $50 \times 6 = 300$ )
- 25 yard spacing (you will run up 25 yds and return back to the start 6 times,  $25 \times 12 = 300$ )
- 20 yard spacing (you will run up 20 yds and return back to the start 7 times, but then will have to run up to your 'finish line' cone 1 more time,  $20 \times 15 = 300$ )

To improve your conditioning over time, you should seek to decrease your times in this drill. The 50 yard interval version can likely be completed in less than 60 seconds by most active people over the age of 18. For the other 2 versions, the 60 second mark will be challenging at first.

No matter what your best time is on any particular day, always seek to beat it the next time out. Constant progress should be your goal.

The first time you complete a 300 yard shuttle it is best to only do 1 repetition. If you feel you can handle it and want to get more work in, add 1 more repetition at a time based on your personal goals.

When you do reach a point where you are doing more than 1 attempt, keep the rest period to at least 3 minutes for a while. Lower the rest period only so long as it does not interfere with your ability to complete the following attempts within 5 seconds of your best time.

### **Multiple Skill Shuttles**

Almost every sport requires a variety of movement skills. Shuffling, backpedaling, and crossover runs are three common moves that can be incorporated into change of direction work instead of simply sprinting over and over.

You can create an endless variety of shorter distance shuttle runs by mixing up these different movements into a single drill. Since this will involve a little

more focus on correct technique, the 300 yard distance might be a little extreme in this case. 100 yards is a much more reasonable figure.

Here are a couple of sample versions of a multiple skill shuttle:

- Mark out a 10 yard distance with 2 cones. Sprint forward, and backpedal to return to the start. Complete 5 cycles to hit the 100 yard total distance mark.
- Again set up the cones 10 yards apart, but this time shuffle up and back facing the same way all the time (meaning, as an example, you'll move left on the way down and right on the way back). Again complete 5 cycles. You can use the same format but replace the shuffle with a crossover run, or carioca.
- You can mix this up by doing a different movement skill on each cycle. One way to do this is to sprint/backpedal on the first cycle, shuffle up and back on the 2<sup>nd</sup>, then carioca on the 3<sup>rd</sup>, crossover run on the 4<sup>th</sup>, and sprint/backpedal on the last trip.
- Using any of the 3 previous examples, you can add more changes of direction by bringing the cones only 5 yards apart. Alternatively, you can also space the cones out to 20 yards, possibly going past the 100 yard total distance in this case.

No matter how you structure them, multiple skill shuttles are a great way to quickly incorporate sport-specific skills into a conditioning program.

You will likely be able to complete more repetitions of this exercise, and may only need a minute or so to recover before your next work bout. As always, move forward gradually and consistently.

## LEVEL 7 - Pre-Season conditioning for team sports

Who Is This For? - Competitive athletes getting ready for a sport that requires high levels of conditioning (soccer, lacrosse, hockey, etc.) Those who

are not playing a sport but want to get in great shape can follow this routine, or skip past it and move to the Level 8-10 programs.

What Should Your Goals Be? - Anyone looking to play at their best should set out to build their endurance to the point that they can get through the entire length of their games without slowing down. For most people, and especially at the higher levels of sport, this is something you must train to achieve.

What Are You Doing? - The following is a sample summer and pre-season conditioning program from Jennifer Horgan, Varsity Girls' Soccer Coach at Cushing Academy (in Ashburnham, MA). They compete at a very high level year in and year out, so each player must come in prepared to take on this challenge.

She uses the following schedule to prepare her players for the season. This workout begins in June, and runs until the start of pre-season on the last week of August:

Monday - 1.5 mile Fartlek run, core drills and pushups

Tuesday - Speed workout (sprints, agility drills), plyometric warm-up

Wednesday - One mile under 7:45, core drills and pushups

Thursday - Sport-specific drills (ball drills here since it is a soccer program) & plyometrics

Friday - Sprint workout (similar to Level 5) and core drills/pushups

Saturday - Longer, slower run which acts like a recovery workout.

Sunday - Rest/recovery

## KEY POINTS

- Any time a player has a (soccer) game it replaces the training for that day.
- Gradually increase the mileage and speed each week. So that by the time September (pre-season) hits they can run a 3 mile fartlek run, 1 mile as fast as can (needs to be under 6:30), etc.
- Fartlek (Swedish for ‘speed play’) runs are self-paced intervals that go back and forth between jogging and  $\frac{3}{4}$  speed (or greater) runs. Usually this type of training does not have specific requirements, but it can easily be tailored to the demands of any position within any sport. For example, you can assign a 10/10/10 format to your fartlek where you sprint 10 seconds, jog 10 seconds, and walk 10 seconds if this generally occurs during game conditions. There are endless ways to tweak this form of running.
- The core drills can come directly from the [MyAthleticCore.com](http://MyAthleticCore.com) training program.
- Plyometrics are power drills that usually involve jumping. Bounding, power skips, and vertical jumps are a few examples of plyometric drills. Being used as a warm-up, you should focus them on low impact jumps. Simple examples that fit well include doing 20 side-to-side, two-foot jumps over a line. The same drill can be done forward and backward. Jumping rope is another low impact way to get the benefits of this reactive form of exercise without overstressing your joints.
- Pushups are great core and upper body strengtheners that can be done anywhere. On your first day do about as many reps as possible with excellent form, and repeat it for 3 sets. Look to increase this number by 1 or 2 repetitions every time you have pushups on the schedule.
- Sport-specific drills are obviously going to vary widely. No matter what your sport, though, this category should emphasize hand-eye or foot-eye coordination and sport-related skill work. Ideally, it would also include agility (or change of direction) exercises that include carrying a stick, puck, or ball with you as would normally occur in games.

## LEVEL 8 - Lactate threshold training

Who Is This For? - This is for hard-core and elite endurance trainers seeking to decrease times by building a greater tolerance to the lactic acid build up that causes an intense burning feeling, and lead many to slow down or quit their session. This level is meant for those who compete in distance events (running, swimming, biking, rowing) lasting longer than 1-2 minutes. Most team sport athletes do not need this level at all. It is really the best way to lower your times in marathons and triathlons, as well (Level 9 and 10 training).

Ice hockey players and other skaters at the top levels of their sport are one exception to this rule. They would benefit greatly from this because it is lactic acid build-up that will cause them to lose their legs at the end of a long shift or race.

**THIS IS ABSOLUTELY NOT FOR YOUNGER ATHLETES.** No one under the age of 16 should be using this form of training. The negatives far outweigh the value.

**THIS IS ALSO NOT FOR ANYONE WITH A SERIOUS MEDICAL CONDITION.** Lactate threshold training takes your heart to near-maximal rates. It is an extreme form of training for even the most highly conditioned athlete. It is something you definitely need to build up to, and significant time must be spent on the lower levels of training before even attempting to complete the test in this phase.

What Should Your Goals Be? - The single goal in this section is to improve your ability to tolerate higher levels of lactic acid in your blood, which can only happen when you specifically target the lactate energy system through training.

What Are You Doing? -

Before we get into the actual workouts here, you will need some general background information on what you are specifically trying to build.

Your body has three different energy systems to help you function in any activity. They are the phosphate, lactate, and oxygen systems.

The phosphate energy system powers short-burst activities that generally last under 1 minute. Weight lift, power skills like the shot put, sprinting, and one-time movements like a golf swing use this form of energy production.

The oxygen system maintains normal life functions, but also kicks in to a higher gear during steady-state conditioning. If you can maintain a pace for over 5 minutes without intense discomfort, you are working the oxygen system. This is what an endurance athlete uses, and it is also referred to as aerobic work. You can produce energy aerobically for a long period of time at a steady-state pace.

The lactate system is the one in between which fuels intense, medium-length training of about 1 to 4 minutes. You know when you are using it because everything inside you burns, it's hard to talk while keeping your breath, and your body will essentially force you to stop very quickly.

Lactate training is not fun, but if you can withstand the pain then over time it will make a huge difference in your endurance capacity.

The specific change you are seeking is to raise something called the 'deflection point'. The deflection point is the heart rate at which your body begins to build up very high amounts of lactic acid. Pain and fatigue quickly follow, forcing you to either stop or reduce your pace to a far slower speed.

Another term commonly used for this mark is the 'anaerobic threshold', because this building of lactic acid signals that you are no longer primarily using the oxygen (aerobic) system to produce energy.

So how can you raise the deflection point? Well, you have to work right at the edge of your current anaerobic threshold, and constantly push past it in small amounts on a regular basis.

There are a couple of pieces of equipment that are necessary to accurately assess your progress here:

- A heart rate monitor (required)
- A stopwatch

- A track, lap pool, or some other way to measure distances accurately (maybe you have a course already measured for a run or bike).
- If you cannot measure the distance anywhere, use a treadmill or stationary bike that has a built in odometer (most do).

### **Anaerobic Threshold Test**

To roughly test your current deflection point, a treadmill or stationary bike works best.

Start with a comfortable pace on either the treadmill or bike for the first 5 minutes. Then, increase your speed to a level that you feel is a moderate challenge, but you are absolutely sure you can handle for at least 5 minutes. Stay at this pace for 1 minute only. Check your heart rate monitor to observe your HR at the end of this minute.

Next, begin increasing your speed gradually (no more than ½ MPH for running, or 1 MPH for biking). Maintain the new pace for 60 seconds, and check your HR again at the end of the minute.

Continue to slowly increase your speed every minute, keeping an eye on your heart rate monitor before each jump, until you reach a pace you cannot handle for the full minute. You will quickly become out of breath, and will most likely feel an intense burn in your muscles. Immediately decrease the speed back to your warm up pace, and record your HR at the time of exhaustion. To safely return to a resting state, stay at this warm up speed for at least 10 minutes before ending the session.

Your estimated deflection point is the average of your HR at the time of exhaustion and what it was at the end of the previous minute. (Simply add up the 2 heart rates and divide that total by 2).

### **Building Your Anaerobic Threshold**

That heart rate number is a critical piece of information for all of your work here. You simply cannot train effectively in this phase unless you know where your HR is at all times.

To increase your anaerobic threshold, you need to train at the edge of it regularly, and occasionally push past it. Intensive interval work is a good way to repeatedly work at this point.

No matter what form of exercise you choose (run on treadmill or land, bike, swim, row, etc), always begin with at least a 5 minute warm up. To begin, I recommend a conservative work:rest ratio of 30 seconds work to 1 minute rest. On day 1, complete 6 intense intervals at the following heart rates:

Work interval #1 - 85% deflection point

Work interval #2 - 90% deflection point

Work interval #3 - 95% deflection point

Work interval #4 - 95% deflection point

Work interval #5 - 100% deflection point

Work interval #6 - 102-103% deflection point

*(You should know what HR values correspond to these percentages before you begin your session).*

Rest interval - Always return to warm up pace.

Cool Down - 10 minutes minimum length at warm up pace.

Usually, you are going to reach these higher levels by increasing your pace. Bikers can increase the tension, or climb hills. Runners could also use an inclined surface either on land or a treadmill.

You are almost always going to want to push yourself a little bit further to build your lactic acid tolerance. There are a few different ways you can do this:

- Add more intervals to the format above, especially those at 95% of your deflection point or more. Increase by no more than 1 or 2 per workout.
- Increase the work interval time (this will eventually require longer rest too). Again, make gradual increases of roughly 15 seconds per jump. The absolute maximum work time that will continue to use the lactate energy system is about 3-4 minutes.
- Re-test when you can noticeably increase your pace at the same HR level. Use your new deflection point to re-calculate your 85, 95, 95, and 100% HR values.

Remember you do not need to use all of these methods to improve, only one at a time.

This intense work cannot be maintained forever, nor should it be done every day. Work it in once or twice a week, using other conditioning or cross-training methods at other times.

Lactate threshold training should be cycled in and out of your long-term plan as needed. If you stay with this form of exercise for too long, it will lead to an over trained (or burned out) state. Here are a few signals that you are over trained:

#### Signs of overtraining

- Perceived effort for same workout increases, meaning it gets tougher to complete the same level of workout
- Times and speeds decrease as you work at the same heart rate
- A general overall feeling of fatigue throughout your day
- Lack of appetite
- Increased resting HR first thing in the morning (an early indicator, and something you should track regularly if you are an intense exerciser)
- Disrupted sleep patterns

If you reach this point, there are a few strategies to help you get back to your happy, healthy, energetic self. Implement as many of these ideas as you can:

#### Ways to combat overtraining

- Drink more water, and find ways to eat healthier
- Lighter workouts for at least 1 week (50% or less of your regular intensity)
- Add more fun into your day
- Get more sleep (8 hours minimum), and involve yourself in more restful activities that involve light exercise
- Massage, foam roll or stick work to improve blood flow and remove wastes from muscle cells.

## LEVEL 9 – Road Race/Marathon prep

Who Is This For? – Those that have really developed a taste for conditioning work, and want to participate in a competitive event to push them further.

What Should Your Goals Be? - Your goals at this level are personal; you may train entirely for the fun of competition, or to reach a personal best time, etc. It's all up to you.

What Are You Doing? - Jenn Horgan, who gave us her team training program for soccer, has also graciously provided her personal workout plan for staying in top shape. She has run road races of varying distances, and this past winter ran a ½ marathon.

When she is not training for anything specific, she mixes her cardio workouts between a stair stepper, stationary bike, and running (either outdoors or on a treadmill). She also strength trains, and is currently following her own variation of the 'P90X' program that has become popular in recent years. Basically, Jenn likes to mix up the training as much as possible to keep things fresh.

For specific race preparation, the cardiovascular portion of her training zeroes in on distance running. Her runs come on Tuesday and Thursday at 45 minutes each (looking for 8:00-8:30 miles), and then on Saturday she does her longer run.

Sundays are a complete rest day unless the weather calls to her.

This second program comes to us from Bill Troy, a 10-time participant in the Boston Marathon.

Bill prefaces this by mentioning that he has battled some knee pain, which holds back how aggressively he can prepare for the race. Those who are injury-free may be able to pursue a more aggressive variation of this schedule, if they are capable and willing.

Here are the highlights:

- He begins his marathon prep in October (for a mid-April race). Initially, he alternates between 3 and 5 mile runs, doing one or the other every weekday. The weekend involves one run on Saturday, which begins at 6 miles. Sunday is a total rest day.

- The weekend run progresses up to 11 miles by the New Year, while the weekday runs stay at 3 or 5 miles during this time.
- In the winter, Bill sometimes rides a stationary bike as a form of cross training. On the bike, his focus is on time - usually 1 to 2 hours - and not on distance.
- After January 1<sup>st</sup>, the weekday runs progress to alternating 5 and 7 miles. The weekend continues to increase up to 21 miles as of 2 weeks before race day.
- The weekday runs 2 weeks before the race stay at alternating 5 and 7 mile runs. There is no weekend run 1 week before the race.
- The last week before the race he runs 5 miles on Monday, 3 miles on Wednesday, and 1 mile on Friday. The race follows the next Monday.
- Bill closes by saying that stretching is a critical aspect of his training. It helps lessen the severity of minor injuries that tend to crop up as the mileage increases

## LEVEL 10 - Triathlon prep

Who Is This For? - Again, it is for those that have really developed a taste for conditioning work, and want a bigger challenge.

What Should Your Goals Be? - Your goals at this level once again are personal; you may train entirely for the fun of competition, or to reach a personal best time, etc.

What Are You Doing? - This top level program comes from Haley Sanborn, a graduate of the University of New Hampshire, and a former member of both their womens' Lacrosse and Cycling teams. She is a very intense competitor!

Triathlons usually involve running, biking and swimming legs of varying distances. Before preparing for her first triathlon, Haley began by researching how to train, what to expect on race day, etc. Then she got to the details.

She says, “This really helped me because I was a newbie to the sport (my first) and had no idea what I was supposed to be doing. On a side note, before you sign up for the race, you need to make sure you have enough time to train properly. I found it to be a huge time commitment that requires 100% in order to be successful...just like everything else.

I had to figure out which, out of the 3 disciplines, I was the weakest at before I made my training schedule so I could allow ample time to strengthen that leg of the race. I knew that swimming for me was going to be my weakest link...and the run because it was at the end of the race! I gave myself 4 months to prepare for the race and trained 5-6 days a week (6 at the beginning and more like 5 at the end so I didn’t burn myself out).”

Here is her daily schedule for each of those 4 months:

MONTH 1

MON	TUES	WED	THURS	FRI	SAT	SUN
Swim workout	Run 2-3 miles	Bike 45 min-60	Swim workout	Run 3 miles	Swim workout	Yoga

MONTH 2

MON	TUES	WED	THURS	FRI	SAT	SUN
Swim	Run 2-3m	Bike	swim	Run 3m	Long swim (light/form work)	Rest/Yoga

### MONTH 3

MON	TUES	WED	THURS	FRI	SAT	SUN
Swim	Run 3-4m	Bike  Yoga	Run 3-4m	swim	Brick* bike immediately followed by a 2-3m run	Swim (light/form work)

*\*Brick training involves training 2 of the 3 legs that occur back-to-back. This can either be a bike straight into a run or a swim right into a bike.*

### MONTH 4

MON	TUES	WED	THURS	FRI	SAT	SUN
Swim	Brick	Bike	Run	Swim	Brick	Rest/yoga

#### Additional Workout Notes:

- ✓ Some of the biking days were spinning classes, others were out on the road etc - there were specific swimming and bike workouts in a book ('The Woman Triathlete', by Christina Gandolfo, which Haley recommends for any beginner female participant) that I followed as well as specifics for running zones and mileage everyday
- ✓ I signed up for some long bike rides (a charity century ride, 100 miles - and a few others that were 50+ miles) in preparation for the triathlon
- ✓ Getting trained by a professional swim coach was **EXTREMELY** helpful....I literally stumbled across him because he was the manager of the gym I worked at.
- ✓ Biking was the least of my workout worries (having competed as a cyclist before)
- ✓ I did throw in some light lifting exercises in twice a week

- ✓ I did core workouts 3 times a week
- ✓ The last week and a half before the race I did very, **very** light workouts - the 3 days before the race I did nothing
- ✓ Any recovery day was a super easy bike, or swim, and yoga, or rest completely...I never took a jog/run on recovery days. I think I ate a lot on these days - ha ha! - not junk though.

### **Key Nutrition Info:**

- Needed to have 2 water bottle cages on my bike (one filled with water and the other with a protein/glucose mix)
- I ate 3 gel packs throughout the race (its easiest to eat and drink on the biking leg)
- My diet stayed pretty consistent with what I normally eat and drink (NO: soda, or sugar drinks, fast food etc) I upped intake on water, lean protein and grains
- A few days leading up to the race I did nothing but drink water and eat healthy food (that whole week before the race of training was light)

### **If I could have done my first race all over again I would:**

- Add in Yoga at least 3 days a week
- Focus on each mile more specifically - use the distance for the race exactly so that you know when you have to sprint towards the end etc
- I would try to run 1 more mile that the specified distance, ie, my race was 3.1, I would try to run ( at least twice a week) at the same, pace 4.1 miles
- Try not to worry, anxiety kills you!
- Run more hills

- Add in more agility training
- Do more brick training

For those considering their first triathlon, Haley also offers some amazing general advice for you, based on her own experiences:

- ✓ Sprint distances ( swim ½ mile, bike 17, run 3.1 miles)...they are usual very similar, the bike mileage can waver a few miles more or less
- ✓ I didn't use a wetsuit - the water temp was around 72...it was chilly but hardly uncomfortable (if the water was in the 60s I would have worn a wetsuit)...there are rules about when you can and can't wear a suit depending on the temp of the water
- ✓ I wore a "tri-suit," you wear it throughout the whole race, never have to take anything on or off and it dries within 2 minutes!
- ✓ If you have an in-start swim like I was in, wait to go in last if you can so you are treading water for the least amount of time!
- ✓ In the transition area I have 2 towels and a small bucket of water so I could wash my feet off after running through the sand on the beach before I put my bike shoes on
- ✓ I sprinted the last quarter mile....probably should have been the last ½ mile
- ✓ I didn't think of the race as a whole regarding time, I thought of each event as its own thing - I had a goal time set for the swim, bike and run
- ✓ I never worried about the transition time, I just tried to do it as fast as I could and I practices putting on and taking off bike shoes, sneakers, eating, gulping down water, etc
- ✓ I used tie-less shoes laces, they were rubber stretchy things that snapped into place...awesome