

CHAPTER 6

EFFECTIVE HEART RATE TRAINING

"Those who dance are considered to be insane by those who can't hear the music."

—GEORGE CARLIN

There is no "magic bullet" in Ironman training, but heart rate training comes close. Effective heart rate training is the best way to maximize your training benefit and minimize your training time.

There are so many books written about heart rate training, and you see so many athletes out training with their heart rate monitors, you would think this was a training principle the vast majority of athletes have nailed down. Well, guess what? They haven't.

Having worked with hundreds of athletes over the years, I have found that most athletes train in the wrong heart rate zones most of the time. Considering all of the attention given to this topic, I know this is difficult to believe.

These athletes are therefore training inefficiently, wasting their precious training time with "junk miles," and achieving far less than optimal training benefits. With a career and important family responsibilities, who has time for "junk miles?" Every minute of training time needs to count.

The good news is that even experienced triathletes can achieve significant performance improvements through more effective heart

rate training. I have found that even athletes who have competed in triathlon for many years will achieve significant performance gains just by correcting this one element. I have coached triathletes with over 15 years of experience who have taken over an hour off their best Ironman times after making adjustments to get them into the proper training zones.

One great example of this is veteran triathlete Ray Campeau. In his 40s and after 20 years of triathlon racing, Ray had not gone below an 11:15 for an Iron-distance triathlon. After working with my Iron Fit training approach for less than a year, Ray not only raced to a time of 10:12 at Ironman USA (Lake Placid, N.Y.), one of the most challenging courses, but in doing so, qualified for the Ironman World Championships in Hawaii.

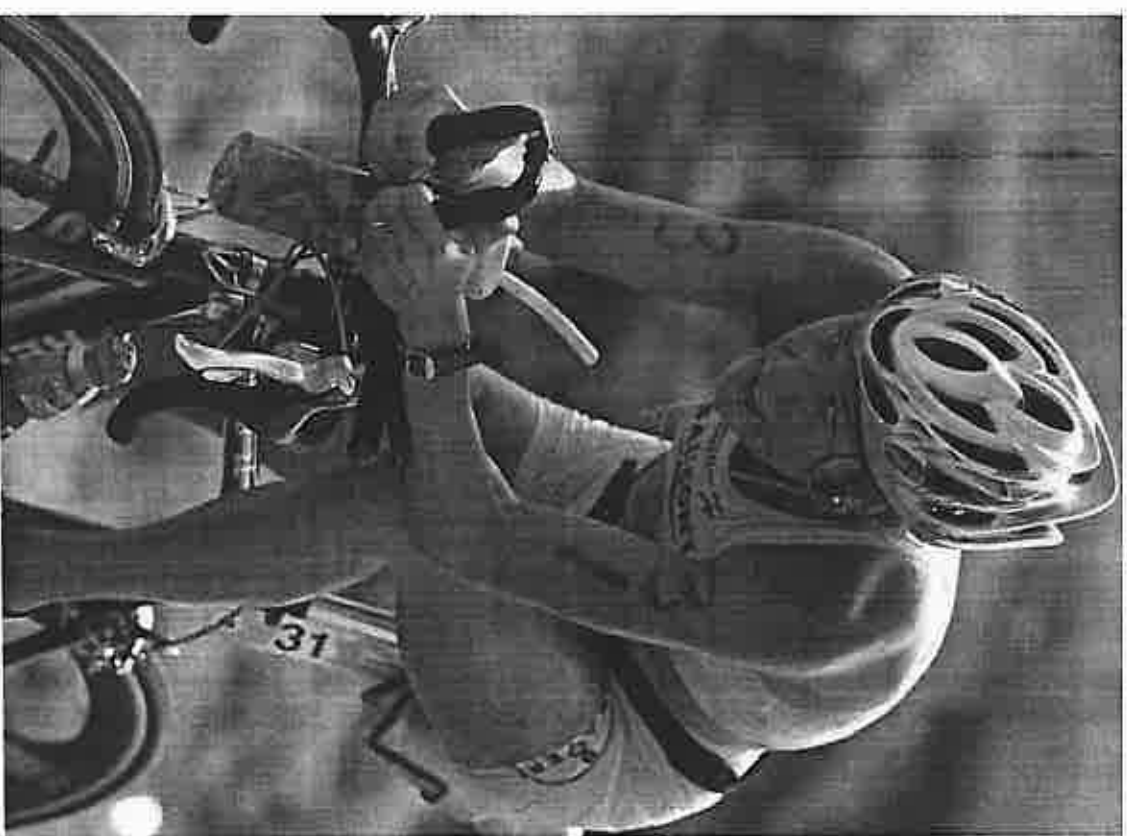
If you follow the 30-week training programs presented in Chapter 7, you will be investing your training time in just the right heart rate zones and for just the right proportion of time. At the end of this chapter, we will calculate your personal heart rate zones, to be used in these training plans. With the right heart rate zones and the right training program, you will achieve your Ironman goal.

As I have said before, one thing we are not going to do in this book is present a bunch of complicated scientific and technical lingo. I am going to tell you exactly what you need to do to train intelligently and efficiently. With that in mind, the following section provides a brief explanation of aerobic and anaerobic training, and why each is important. For those who are interested in doing more reading on it, I will suggest some excellent resources.

AEROBIC VERSUS ANAEROBIC

Let's start with some basic definitions:

- **Aerobic energy system:** An energy system that utilizes oxygen and stored fat to power physical activity. This system can support activity for prolonged periods, as stored fat and oxygen are available



Nina Kraft exhibiting the determination that has made her an Ironman Champion.
Photo credit: Bakke-Svensson/WTC.

almost endless supply. Even a highly trained triathlete with a body fat percentage in the single digits has more than enough stored fat for several Ironman races, back-to-back.

- **Anaerobic energy system:** An energy system that utilizes glycogen (stored sugar) to power physical activity. This system can support activity for relatively short periods of time, as the body stores sugar in relatively small quantities.

It is a common misunderstanding that lower levels of activity (at lower heart rates) are supported fully by the aerobic system. Likewise, many believe that as activity level (and heart rate) increases, we eventually reach a point (the anaerobic threshold), where the aerobic system shuts off and the anaerobic system takes over.

This is not what actually happens. In reality we are always fueled by both of these energy systems at the same time. It's only the ratio of the two systems that changes as the activity level changes. The intensity of our activity determines the ratio at which we are drawing from each system. At high levels of activity, we draw mostly from our anaerobic system; at low levels of activity we draw most from our aerobic system. But we are always drawing from both.

Heart rate is an excellent indicator of where we are in the spectrum of ratios of aerobic to anaerobic. At low heart rates, the mix is primarily aerobic. As our heart rate increases (because the level of effort increases), the mix becomes more and more anaerobic. At a certain point, what some refer to as the anaerobic threshold, the mix becomes more anaerobic than aerobic.

Most Ironman triathletes tend to train at a much higher heart rate than is optimal. The Ironman is an aerobic race, and the training therefore needs to be primarily aerobic. As you may note in the 30-week training programs, the maximum portion of anaerobic training in a given week is only about 10% of the total training, and usually it's much less than that. A full 90% or more of our Ironman training is going to be aerobic.

Below I will explain how to calculate your own heart rate training zones, and how to use them with the 30-week training programs in Chapter 7. While the proper zones vary from athlete to athlete, I will show you a reliable method for estimating your individual heart rate training zones. This will help to ensure highly efficient training.

SHOULD I "TRAIN HOW I FEEL"?

As long as I can remember, I have heard endurance sports enthusiasts say that you should just "train how you feel." The belief behind this advice is that your body will naturally gravitate to the pace and effort level best for you.

Unfortunately, I find this isn't true. Most athletes who let their bodies determine their pace end up doing most of their training at less than fully effective heart rates. This results in "junk miles." They are not getting the maximum benefit out of their limited training time.

Even most who use a heart rate monitor tend to regard it merely as interesting information and not as a guide to the effort they should be exerting. Most athletes train at a pace that just "feels right." The problem is that, compared to heart rate, "feel" is not a reliable indicator. Feelings can be misleading, while the heart rate never lies.

It's important to train both the aerobic and anaerobic systems, although for Ironman training the aerobic system is by far the most important. In my experience, the best way to train them is to train them separately. Most training time (90% or more) needs to focus on aerobic system training, with less than 10% targeting the anaerobic system. We target each system by training within a precise range of heart rates. In between these fairly narrow ranges is a no-man's-land, too fast and too slow for optimum training of either system. We must be careful to avoid this in-between zone, as it is not effective for the Ironman and it can lead to performance stagnation. As we will see later in this Chapter, this no man's land of Ironman training is referred to as Zone 3 (Z3).

Ironically, this is where most athletes end up spending most of their training time. Why? For most athletes, aerobic system training seems too easy and comfortable. They doubt it is beneficial because it doesn't hurt enough. On the other hand, the high-intensity training that develops the anaerobic system is very uncomfortable; it takes great focus and discipline to maintain this level of effort for any period of time. Athletes training "by feel" tend to push beyond the

aerobic training zone but not quite all the way up to the anaerobic training zone, because it's so unpleasant. They end up in this middle zone (Z3) because it feels like a good effort, but it's not too uncomfortable.

Effective heart rate training prevents us from training in the wrong zone, and it ensures that all of our training is beneficial and time efficient.

SHOULD I TRAIN AT "MY PACE"?

Some athletes believe they have what they refer to as "my pace." This is the time-measured pace at which they feel most comfortable, and which they try to maintain no matter what their heart rate is telling them. Just like training by feel, training by pace can also lead to junk miles and ineffective training.

I recommend giving up the concept of "my pace." It should be your goal to make a full range of paces "my pace." Pace is simply not a reliable indicator of how hard you are working. Many external factors, such as heat, hills, wind, altitude, insufficient sleep, etc., can affect the effort level required to maintain a certain pace. On a cool day, an 8-minutes-per-mile pace may be an aerobic effort; on a very hot day it may be an anaerobic effort. All of the above-mentioned factors could have this effect on heart rate.

What is the right indicator? Heart rate. Your heart rate doesn't lie. It will tell you how hard you are working. And what's more, it will automatically make all of the necessary adjustments for heat, wind, hills, altitude, a bad day—whatever. Heart rate, not pace, should be your primary indicator of training intensity.

MILEAGE JUNKIES

Another common training mistake is to schedule your training in miles and not in time. All of the 30-week Ironman training pro-

rains presented in this book are based on time, more specifically, time in the proper heart rate zone.

Many athletes get emotionally attached to their weekly mileage numbers. They are jokingly referred to as "mileage junkies." For them, achieving a weekly mileage goal becomes more important than the quality of the time spent training. No matter what, they are determined to achieve that magic number.

I have a friend who is an admitted mileage junkie. She has actually left her bed with a fever to complete her weekly mileage goal. She knows that the effort will probably hurt her long-term race goals more than help them, but she can't help herself.

I recommend forgetting about miles altogether. Run time, not miles. Going out for a 60-minute run in your aerobic heart rate zone is almost always better than going out for "8 miles at my pace."

As we've seen, the other great benefit of running time instead of miles is that it allows you to manage your training time more easily. A 60-minute run takes 60 minutes.

If you are like me, you will feel liberated when you give up mileage for "time in the zone." You will end up with higher-quality training, plus it's great fun when someone asks you how many miles you ran last week to answer "5 hours."

CALCULATING YOUR HEART RATE ZONES

Now let's see how to calculate your personal heart rate zones, which will then be used in conjunction with the 30-week training programs presented in Chapter 7.

The most accurate way to determine your training heart rate zone is to have them formally tested. If you are interested in doing this, contact a local university with a sports medicine area to see if they offer this service to the public.

For many of us this is not possible or practical. Fortunately, you can reliably estimate your heart rate training zones using a lower-tech method. We begin by determining maximum heart

rate, and then identify the various training ranges as percentages of the maximum.

The most generally accepted technique for estimating your maximum heart rate is the "220 Minus Your Age" method. Simply subtract your age from 220; the result is an estimate of your maximum heart rate.

Once we have this number, we can usually identify four distinct heart rate zones. The 30-week training programs incorporate these zones:

- Zone 4:** 90–95% of maximum heart rate (primarily anaerobic training)
- Zone 3:** 86–89% of maximum heart rate (middle zone)
- Zone 2:** 75–85% of maximum heart rate (higher-end aerobic training)
- Zone 1:** 65–74% of maximum heart rate (lower-end aerobic training)

Now let's take an example. Suppose you are a 35-year-old athlete. What are your training zones?

Your maximum heart rate is 220 - 35 years = 185 beats per minute (BPM). Using that number:

- Z4:** 90–95% of 185 BPM = 166 BPM to 175 BPM
- Z3:** 86–89% of 185 BPM = 159 to 165 BPM
- Z2:** 75–85% of 185 BPM = 139 to 158 BPM
- Z1:** 65–74% of 185 BPM = 120 to 138 BPM

After making your initial calculations based on the "220 Minus Your Age" rule, you may want to test them under real conditions and fine-tune them if necessary.

The best way to do this is to run a time trial of about 3 miles (Note: always do a 10–15 min. warm-up before and a 10–15 min. cool down after time trial tests.) Wear a heart rate monitor for a 3-mile

time trial, or better yet a 5K race and observe your heart rate. If you put out a 100% effort at an even pace, your heart rate should climb above 90% of maximum (above the bottom of Z4) within the first mile, and you will reach your maximum heart rate in the final mile. If your results from the time trial differ from the estimates, adjust your heart rate zones according to the real-world result.

Because cycling stresses your body in different ways than running, I recommend that you subtract 5% when applying these heart rate zones to biking. In other words, when biking you obtain the equivalent training effect at a heart rate about 5% slower than when running. For example, let's now apply the 95% rule to the 35-year-old athlete we considered above to determine his or her proper heart rate zones for training on the bike:

Running Zones	Biking Zones
Z1 = 120-138 BPM	Z1 = 114-131 BPM
Z2 = 139-158 BPM	Z2 = 132-150 BPM
Z3 = 159-165 BPM	Z3 = 151-157 BPM
Z4 = 166-175 BPM	Z4 = 158-166 BPM

You may also want to test these estimated bike zones against a real-world result. To do so, perform a 15-minute time trial wearing a heart rate monitor. (Do this test in a flat, safe area with no traffic. Also, always do a 10-15 min. warm-up before and a 10-15 min. cool down after time trial tests.) If you give a 100% effort and cycle at an even pace, your heart rate should climb above 90% of maximum (above the bottom of Z4) within the first 5 minutes, and you will reach your maximum heart rate in the final 5 minutes. If your test results differ from the estimates, adjust your heart rate zones accordingly.

Additional information on estimating maximum heart rates is presented in Appendix D.



Steve Listzwan receives his pre-race numbering at Ironman USA in Lake Placid, NY.

IRONFIT PROFILE

STEVE LISTZWAN

Steve Listzwan is a great example of someone who has become a rising star in the sport of triathlon while also excelling professionally. At thirty-two, Steve is a project manager at Merck, the world's largest pharmaceutical company. Steve's normal workday is 8 A.M. to 7 P.M., with frequent evening and weekend work and even some occasional international travel. With commuting time, Steve's workweek is at least 60 hours, and it can sometimes be 70 or more.

Below I define the abbreviations used in the training programs and then explain some sample workouts.

WK 1: Week 1

Z1, Z2, Z4: Heart rate zone 1, heart rate zone 2, heart rate zone 4 (I explain how to calculate your zones in Chapter 6).

0:30: 30 minutes

100+ RPM: High RPM Spin Session. Pedal bike at 100 or more pedal revolutions per minute.

Trans: Transition Workout, a combined bike/run session where we transition from cycling to running in 3 minutes or less (transition sessions are discussed in Chapter 3).

QC: Quick Change, the up-to-3-minute time period between the cycling and running portions of the Transition Workout.

Z1 to Z2: Train at a heart rate anywhere within zone 1 or zone 2. In these sessions, the athlete should decide the heart rate to train at within Z1 and Z2 based on feel. If the athlete feels rested and energized, he or she may want to select a heart rate in the Z2 range. If on the other hand, the athlete feels tired and low energy, he or she may want to select a heart rate in the Z1 range.

PU: Pick ups are short (30–60 seconds in length) increases in speed. The athlete will temporarily increase his/her speed to a level that would normally cause their heart rate to increase to Z4, had it been sustained for a longer period. Since the Pick up is for only a brief period (30–60 seconds in length), the athlete's heart rate does not rise above Z2.

Spin: Easy cycling in a low gear in order to recover from a strenuous effort.

Jog: Easy running at a slow pace in order to recover from a strenuous effort.

Sample Run or Bike Session: 0:30 Z2 (at 0:20, insert 5 min Z4): Begin this 30-minute session in your Z2 heart rate zone. At 20 minutes into the session, increase your heart rate to Z4 for 5 minutes by increasing your pace. Then return to Z2 for the remaining 5 minutes of the session.

Sample Bike Session: 0:45 Z2 (at 0:10, insert 5 x 1 min PU @ 1 min Spin): Begin this 45-minute bike session at a pace that will maintain a Z2 heart rate. At 10 minutes into the session, increase pace for 1 minute and then shift to an easier gear for an easy 1-minute Spin. Repeat this sequence five times, and then return to a Z2 heart rate for the remainder of the 45-minute ride.

Sample Run Session: 0:45 Z2 (at 0:10, insert 4 x 6 min Z4 @ 2 min Jog): Begin your 45-minute run at a pace that will maintain a Z2 heart rate. At 10 minutes into run, increase your pace enough to produce a Z4 heart rate for a period of 6 minutes. After the 6 minutes, slow down to an easy jog for 2 minutes. Repeat this sequence four times and then return to a Z2 heart rate for the remainder of the run.

Bike Safety Check: This refers to the pre-race bike safety check presented in Chapter 12. While the following programs call for a bike safety check and a Z1 bike ride on the day before all races, it is recommended the athlete perform the bike safety check prior to every bike training session and race.

Following are the three 30-week training programs and full explanations of each.

THE COMPETITIVE PROGRAM

This is our highest-volume program, with an average of about 12 hours per week and a peak week of 20 hours. The Competitive Program starts with 6 hours of training in the first week and builds to a peak of 20 hours in Week 27. Each week is built according to the training principles discussed in this book and presented in an efficient and understandable format.

The Competitive Program tends to be the most popular of the three, because after learning the time-management secrets in this book, even the busiest people can learn to squeeze out an average of 12 hours of weekly training. I can think of doctors, construction

ckers, lawyers, firemen, investment bankers, and nurses who have followed this program. All achieved their Ironman goal as a result.

This is much more than a program simply to finish the race within regulation time. I have worked with many athletes who far exceeded their own expectations—first-timers who finished 2 hours faster than projected, repeat Ironmen who took more than an hour less than their previous best, and experienced Ironmen who even won their age group in the World Championships. All with training plans very similar to the Competitive Program presented here.

If after reading this book you decide that the Competitive Program is for you, you can select your Ironman race and you will know exactly how to train every single day for the 30 weeks (seven months) leading up to it. The guesswork is virtually eliminated.

As an example of how to apply the plan, let's select Ironman A in Lake Placid, New York, as our race. Ironman Lake Placid is usually held on the fourth weekend in July. By counting back 30 weeks, we see that we would begin our training in the first week of January. What a great way to start the year—to begin an Ironman Ironman.

The Competitive Program includes two training races as part of your preparation: an Olympic-distance triathlon in Week 18 and a full Ironman triathlon in Week 22. We will discuss the use of training races in Chapter 10. Using the Lake Placid example, this would be an Olympic-distance race during the first week of May and a full Ironman race during the first week of June. All we need to do is select two appropriate races to fit this (we will discuss how to do this in Chapter 9), and we are all set to go to work on our 30-week training program.

The following is a summary of each of the three 10-week phases of the Competitive Program (i.e., the Base Phase, the Build Phase, and the Peak Phase) and the actual training programs corresponding to each.

Base Phase (Weeks 1–10) for the Competitive Program

The primary goals of this phase are to (1) acclimate the athlete to the type of training that will follow, (2) establish an aerobic base, and (3) develop technique.

As discussed in Chapter 5, it is important that we allow our bodies to adapt gradually to our training volume. Jumping into training too quickly is not recommended, as it can result in injury or an early setback. Our first week of the Competitive Program begins with only 2 hours in each of the three sports. This includes a total of eight training sessions: two swims, three bike sessions, and three runs.

The Base Phase is fully aerobic. All training takes place in heart rate zone 1 or 2. Thus, all training during these 10 weeks should be at a comfortable level of effort. As we have already discussed in Chapter 6, building our aerobic base is the foundation of Ironman training.

Because we are training at a comfortable pace, this is an excellent time to focus on efficient technique. Instead of worrying about pushing ourselves, we want to be thinking about being as efficient as possible in our form. In particular, the Z1 (100+ RPM) cycling sessions (discussed in Chapter 3) and the Drill Sets in our swimming sessions are specific technique workouts. Proper technique will be discussed in detail in Chapter 10.

During the Base Phase of the Competitive Program, we will also have one Transition Session each week, in which a bike ride is followed by a quick change to running, both to practice transition skills (discussed in Chapter 11) and to prepare ourselves to run well immediately after cycling. The run portion of this workout begins at only 15 minutes but gradually increases.

Our Long Bike session will begin at only 1 hour in Week 1 and then build to 2.75 hours in Week 10. Our Long Run begins at 45 minutes in Week 1 and builds to 1.25 hours in Week 10.

The total weekly training durations generally increase by 1 hour each week through this phase, with a pause and a 1-hour decrease every fourth week to allow sufficient recovery and adaptation before

continuing to build. The Base Phase begins with 6 hours of total training in Week 1 and concludes with 11 hours in Week 10.

To sum up, the Base Phase:

- Begins with 6 hours per week and concludes with 11 hours per week;
- Averages 8.5 hours per week.

The following chart details the Base Phase of the Competitive program.

NOTE: The 17 swim workouts referred to in the following charts can be found later in this chapter.

THE COMPETITIVE PROGRAM

Base Training Phase: Weeks 1-10

WK 1		BIKE		RUN	
M		REST DAY		REST DAY	
T	#1	Off		0:30 Z2	
W		Trans: 0:30 Z2 (QC)		0:15 Z2	
R	#2	0:30 Z1 (100+ RPM)		Off	
F		Off		0:30 Z2	
S		1:00 Z2		Off	
S		Off		0:45 Z1 to Z2	
Total Hrs:		6:00	2:00	2:00	

WK 2		BIKE		RUN	
M		REST DAY		REST DAY	
T	#3	Off		0:30 Z2	
W		Trans: 0:30 Z2 (QC)		0:15 Z2	
R	#4	0:30 Z1 (100+ RPM)		Off	
F		Off		0:45 Z2	
S		1:30 Z2		Off	

S		Off		1:00 Z1 to Z2	
Total Hrs:		7:00	2:00	2:30	

WK 3		BIKE		RUN	
M		REST DAY		REST DAY	
T	#5	Off		0:45 Z2	
W		Trans: 0:30 Z2 (QC)		0:15 Z2	
R	#1	0:45 Z1 (100+ RPM)		Off	
F		Off		1:00 Z2	
S		1:45 Z2		Off	
S		Off		1:00 Z2	
Total Hrs:		8:00	2:00	3:00	

WK 4		BIKE		RUN	
M		REST DAY		REST DAY	
T	#2	Off		0:30 Z2	
W		Trans: 0:30 Z2 (QC)		0:15 Z2	
R	#3	0:30 Z1 (100+ RPM)		Off	
F		Off		0:45 Z2	
S		1:30 Z2		Off	
S		Off		1:00 Z1 to Z2	
Total Hrs:		7:00	2:00	2:30	

WK 5		BIKE		RUN	
M		REST DAY		REST DAY	
T	#4	Off		0:45 Z2	
W		Trans: 0:30 Z2 (QC)		0:15 Z2	
R	#5	0:45 Z1 (100+ RPM)		Off	
F		Off		1:00 Z2	
S		1:45 Z2		Off	
S		Off		1:00 Z1 to Z2	
Total Hrs:		8:00	2:00	3:00	

WK 6	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#1	Off	1:00 Z2
W		Trans: 0:45 Z2 (QC)	0:15 Z2
R	#2	1:00 Z1 (100+ RPM)	Off
F		Off	1:00 Z2
S		2:00 Z2	Off
S		Off	1:00 Z1 to Z2
Total Hrs:			3:15
9:00	2:00	3:45	

WK 7	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#3	Off	1:00 Z2
W		Trans: 0:45 (QC)	0:15 Z2
R	#4	1:00 Z1 (100+ RPM)	Off
F		Off	1:15 Z2
S		2:30 Z2	Off
S		Off	1:15 Z1 to Z2
Total Hrs:			3:45
10:00	2:00	4:15	

WK 8	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#5	Off	1:00 Z2
W		Trans: 0:45 Z2 (QC)	0:15 Z2
R	#1	1:00 Z1 (100+ RPM)	Off
F		Off	1:00 Z2
S		2:00 Z2	Off
S		Off	1:00 Z1 to Z2
Total Hrs:			3:15
9:00	2:00	3:45	
WK 9	SW	BIKE	RUN
M		REST DAY	REST DAY

T	#2	Off	1:00 Z2
W		Trans: 0:45 Z2 (QC)	0:15 Z2
R	#3	1:00 Z1 (100+ RPM)	Off
F		Off	1:00 Z2
S		2:45 Z2	Off
S		Off	1:15 Z1 to Z2
Total Hrs:			3:30
10:00	2:00	4:30	

WK 10	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#4	Off	1:00 Z2
W		Trans: 0:45 Z2 (QC)	0:30 Z2
R	#5	1:15 Z1 (100+ RPM)	Off
F		Off	1:00 Z2
S		3:00 Z2	Off
S		Off	1:30 Z1 to Z2
Total Hrs:			4:00
11:00	2:00	5:00	

Build Phase (Weeks 11–20) for the Competitive Program

The priorities in this phase are to build power and speed as we continue to gradually increase durations. At the conclusion of these 10 weeks, we will be prepared to take on the final peak preparation for Ironman.

This phase begins with 12 hours in Week 11, and then builds to 16 hours in Week 20. While total durations only increase by 4 hours over this 10-week period, the training becomes gradually more intensive and challenging.

A third swim session is added each week and the sessions increase from about 2,500 yards/meters to about 3,000 yards/meters.

We gradually begin to include High Intensity Z4 sessions (discussed in Chapter 6) in both the run and the bike. In Week 12 these

Z4 portions total only 15 minutes, or about 3% of our total cycling and running. This gradually increases each week, so that by Week 20 the Z4 portions total 60 minutes, or about 8% of our total cycling and running.

We add a second Transition Session each week to further develop our transition skills and our ability to run well after cycling.

Our Long Bike session increases to 4 hours, while our Long Run increases to 2 hours.

In Week 18 we have our first practice race. It is suggested that this be an Olympic-distance triathlon (1.5K swim, 40K bike, and 10K run), however, if a race of this distance is not available, you should find a race as close in distance as possible. Chapter 9 has tips on how to locate the right race for you.

Following this race, we have a week of pure aerobic training (Z1 and Z2) to recover and prepare for the work ahead.

To sum up, the Build Phase:

- Begins with 12 hours of training per week and concludes with 16 hours per week;
- Averages about 13 hours per week.

The following chart details the Build Phase of the Competitive Program.

THE COMPETITIVE PROGRAM

Build Phase: Weeks 11-20

Wk	11	SW	BIKE	RUN
M		REST DAY		REST DAY
T	#6	Off		1:00 Z2 (at 0:10, insert 5 x 1 min PU @ 1 min Jog)
W		Trans: 0:45 Z2 (QC)		0:30 Z2

R	#7	1:15 Z2 (at 0:15, insert 5 x 1 min easy PU @ 1 min Spin)	Off	
F	#8	Off	1:00 Z2 (at 0:45, insert 5 x 1 min PU @ 1 min Jog)	
S		Trans: 2:30 Z2 (QC)	0:15 Z2	
S		0:30 Z1 (100+ RPM)	1:15 Z1 to Z2	
Total Hrs:	12:00	3:00	5:00	4:00

Wk	12	SW	BIKE	RUN
M		REST DAY		REST DAY
T	#9	Off		0:45 Z2 (at 0:10, insert 5 min Z4)
W		Trans: 0:45 Z2 (QC)		0:15 Z2
R	#10	1:00 Z2 (at 0:15, insert 5 min Z4)	Off	
F	#11	Off		1:00 Z2 (at 0:45, insert 5 min Z4)
S		Trans: 2:30 Z2 (QC)		0:15 Z2
S		0:30 Z1 (100+ RPM)		1:00 Z1 to Z2
Total Hrs:	11:00	3:00	4:45	3:15

Wk	13	SW	BIKE	RUN
M		REST DAY		REST DAY
T	#6	Off		0:45 Z2 (at 0:10, insert 3 x 3 min Z4 @ 1 min Jog)
W		Trans: 0:45 Z2 (QC)		0:15 Z2
R	#7	1:00 Z2 (at 0:15, insert 2 x 5 min Z4 @ 3 min Spin)	Off	

F	#8	Off	1:00 Z2 (at 0:45, insert 5 min Z4)
S		Trans: 3:00 Z2 (at 2:50, insert 5 min Z4) (QC)	0:30 Z2
S		0:30 Z1 (100+ RPM)	1:15 Z1 to Z2
Total Hrs:		3:00	5:15
			3:45

Wk 14		SW	BIKE	RUN
M			REST DAY	REST DAY
T	#9	Off	1:00 Z2 (at 10 min, insert 2 x 4.5 min Z4 @ 1.5 min Jog)	
W			Trans: 0:45 Z2 (QC)	0:30 Z2
R	#10	1:00 Z2 (at 15 min, insert 3 x 5 min Z4 @ 3 min Spin)	Off	
F	#11	Off	1:00 Z2 (at 0:45, insert 7.5 min Z4)	
S		Trans: 3:30 Z2 (at 3:20, insert 5 min Z4) (QC)	0:30 Z2	
S		0:30 Z1 (100+ RPM)	1:15 Z1 to Z2	
Total Hrs:		13:00	3:00	5:45
				4:15

Wk 15		SW	BIKE	RUN
M			REST DAY	REST DAY
T	#6	Off	1:00 Z2 (at 10 min, insert 2 x 6 min Z4 @ 2 min Jog)	
W			Trans: 0:45 Z2 (QC)	0:30 Z2
R	#7	1:00 Z2 (at 15 min, insert 4 x 5 min Z4 @ 3 min Spin)	Off	

F	#8	Off	1:00 Z2 (at 45 min, insert 7.5 min Z4)
S		Trans: 4:00 Z2 (at 3:50, insert 5 min Z4) (QC)	0:30 Z2
S		0:45 Z1 (100+ RPM)	1:30 Z1 to Z2
Total Hrs:		14:00	3:00
			6:30
			4:30

Wk 16		SW	BIKE	RUN
M			REST DAY	REST DAY
T	#9	Off	1:00 Z2 (at 0:10, insert 5 x 3 min Z4 @ 1 min Jog)	
W			Trans: 0:45 Z2 (QC)	0:30 Z2
R	#1	1:00 Z2 (at 0:15, insert 5 x 5 min Z4 @ 3 min Spin)	Off	
F	#11	Off	1:00 Z2 (at 0:45, insert 10 min Z4)	
S		Trans: 3:00 Z2 (at 2:50, insert 5 min Z4) (QC)	0:30 Z2	
S		0:45 Z1 (100+ RPM)	1:30 Z1 to Z2	
Total Hrs:		13:00	3:00	5:30
				4:30

Wk 17		SW	BIKE	RUN
M			REST DAY	REST DAY
T	#6	Off	1:00 Z2 (at 0:10, insert 3 x 6 min Z4 @ 2 min Jog)	
W			Trans: 0:45 Z2 (QC)	0:30 Z2
R	#7	1:15 Z2 (at 0:10, insert 6 x 5 min Z4 @ 3 min Spin)	Off	

S	#8	Off	1:15 Z2 (at 1:00, insert 10 min Z4)
S		Trans: 3:30 Z2 (QC)	0:30 Z2
S		1:00 Z1 (100+ RPM)	1:15 Z1 to Z2
Total Hrs:	14:00	3:00	6:30
			4:30

Wk 18		SW	BIKE	RUN
M		REST DAY	REST DAY	REST DAY
T	#9	Off	1:00 Z2 (at 0:10, insert 5 x 1 min easy PU @ 1 min Jog)	1:00 Z2 (at 0:10, insert 5 x 1 min easy PU @ 1 min Jog)
W		Trans: 0:45 Z2 (QC)	0:30 Z2	0:30 Z2
R	0:30 easy	1:00 Z1 (at 0:15, insert 5 x 1 min easy PU @ 1 min Spin)	Off	Off
F		Off	0:40 Z1 (at 0:10, insert 5 x 1 min easy PU @ 1 min Jog)	0:40 Z1 (at 0:10, insert 5 x 1 min easy PU @ 1 min Jog)
S		0:15 Z1 - easy Bike Safety Check	0:20 Z1 - easy	0:20 Z1 - easy
S		Race (Olympic distance)	Race (Olympic distance)	Race (Olympic distance)
Total Hrs:	3:30 (+ Race)	2:00	4:00 (+ Race)	2:30 (+ Race)
Wk 19		SW	BIKE	RUN
M		REST DAY	REST DAY	REST DAY
T	#10	Off	1:00 Z1 to Z2	1:00 Z1 to Z2
W		Trans: 0:45 Z2 (QC)	0:30 Z2	0:30 Z2
R	#11	1:15 Z2	Off	Off
F	#6	Off	1:15 Z2	1:15 Z2
S		Trans: 4:00 Z2 (QC)	0:45 Z2	0:45 Z2

S		1:00 Z1 (100+ RPM)	1:30 Z1 to Z2
Total Hrs:	15:00	3:00	7:00
			5:00

Wk 20		SW	BIKE	RUN
M		REST DAY	REST DAY	REST DAY
T	#12	Off	1:00 Z2 (at 0:10, insert 4 x 4.5 min Z4 @ 1.5 min Jog)	1:00 Z2 (at 0:10, insert 4 x 4.5 min Z4 @ 1.5 min Jog)
W		Trans: 0:45 Z2 (QC)	0:30 Z2	0:30 Z2
R	#13	1:30 Z2 (at 0:15, insert 8 x 4 min Z4 @ 2 min Spin)	Off	Off
F	#14	Off	1:15 Z2 (at 1:00, insert 10 min Z4)	1:15 Z2 (at 1:00, insert 10 min Z4)
S		Trans: 4:00 Z2 (QC)	0:45 Z2	0:45 Z2
S		1:15 Z1 (100+ RPM)	2:00 Z1 to Z2	2:00 Z1 to Z2
Total Hrs:	16:00	3:00	7:30	5:30

Peak Phase (Weeks 21-30) for the Competitive Program

This phase begins with a Half Ironman distance triathlon (1.2-mile swim, 56-mile bike, and 13.1-mile run) as our final practice race. Then we go into the key 5-week intensive training volume buildup before the final 3-week pre-race taper—and then of course our Ironman race itself.

Weekly training durations start at 16 hours in Week 16 and build to a peak of 20 hours in Week 27. They then drop to 14.5 hours in Week 28, 11 hours in Week 29, and only 5 hours in the final week, not including the race.

The Half Ironman race is ideally placed 8 weeks before our Ironman. This serves as a final dress rehearsal before we go into the 5-week build/3-week taper mentioned above. This is a great opportunity to

heck our progress and learn what areas require extra focus over the final training period. Following the race we again have a week of pure aerobic training (Z1 and Z2) to recover and prepare for the work ahead.

Swim sessions generally increase from about 3,000 yards/meters to about 3,500 yards/meters. Our Long Bike session builds to a peak of 6 hours, while our Long Run session increases to a high of 3 hours. Our Z1 (100+ RPM) cycling technique sessions increase to 1.5 hours.

The High Intensity Z4 portion of our cycling and running starts in Week 21 at 56 minutes, or about 7% of our volume. In Week 27 we reach our greatest amount of Z4 work: 87 minutes, or about 9% of our total volume.

To sum up, the Peak Phase:

- Begins with 16 hours per week and peaks at 20 hours per week;
- Average: 15 hours per week.

The following chart details the Peak Phase of the Competitive Program:

THE COMPETITIVE PROGRAM

Peak Phase: Weeks 21-30

Wk 21	SW	BIKE	RUN
M	REST DAY	REST DAY	REST DAY
T	#15 OFF	1:15 Z2 (at 0:10, insert 3 x 6 min Z4 @ 2 min Jog)	
W	Trans: 0:45 Z2 (QC)	0:30 Z2	
R	#16 1:30 (at 0:15, insert 4 x 7 min Z4 @ 4 min Spin)	OFF	

F	#17	OFF	1:15 Z2 (at 1:00, insert 10 min Z4)
S		Trans: 4:00 Z2 (QC)	0:45 Z2
S		1:15 Z1 (100+ RPM)	1:45 Z1 to Z2
Total Hrs:	16:00	3:00	7:30
			5:30

Wk 22	SW	BIKE	RUN
M	REST DAY	REST DAY	REST DAY
T	#12 OFF	1:00 Z2 (at 0:10, insert 5 x 1 min PU @ 1 min Jog)	
W	Trans: 0:45 Z2 (QC)	0:30 Z2	
R	0:30 easy	1:00 Z1 (at 0:15, insert 5 x 1 min PU @ 1 min Spin)	OFF
F	OFF	0:40 Z1 (at 0:10, insert 5 x 1 min PU @ 1 min Jog)	
S	0:15 Z1 - easy Safety Check	0:20 Z1 - easy	
S	Race	Race (Half Ironman)	Race (Half Ironman)
Total Hrs:	6:30 (+ Race)	2:00 (+ Race)	2:30 (+ Race)

Wk 23	SW	BIKE	RUN
M	REST DAY	REST DAY	REST DAY
T	#13 OFF	1:15 Z1 to Z2	
W	Trans: 0:45 Z2 (QC)	0:30 Z2	
R	#14 1:30 Z2	OFF	
F	#15 OFF	1:30 Z2	
S	Trans: 5:00 Z2 (QC)	0:45	
S	0:45 Z1 (100+ RPM)	2:00 Z1 to Z2	
Total Hrs:	17:00	3:00	8:00
			6:00

Wk 24	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#16	Off	1:15 Z2 (at 0:10, insert 3 x 6 min Z4 @ 2 min Jog)
W		Trans: 1:00 Z2 (QC)	0:30 Z2
R	#17	1:30 Z2 (at 1:10, insert 15 min Z4)	Off
F	#12	Off	1:30 Z2 (at 1:10, insert 10 min Z4)
S		Trans: 5:00 Z2 (at 4:45, insert 7.5 min Z4) (QC)	1:00 Z2
S		1:00 Z1 (100+ RPM)	2:15 Z1 to Z2
Total Hrs:	18:00	3:00	8:30
			6:30

Wk 25	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#13	Off	1:00 Z2 (at 0:10, insert 4 x 6 min Z4 @ 2 min Jog)
W		Trans: 1:00 Z2 (QC)	0:30 Z2
R	#14	1:30 Z2 (at 1:00, insert 20 min Z4)	Off
F	#15	Off	1:30 Z2 (at 1:10, insert 10 min Z4)
S		Trans: 5:30 Z2 (at 5:15, insert 10 min Z4) (QC)	1:00 Z2
S		1:30 Z1 (100+ RPM)	2:30 Z1 to Z2
Total Hrs:	19:00	3:00	9:30
			6:30

Wk 26	SW	BIKE	RUN
M		REST DAY	REST DAY

T	#16	Off	1:00 Z2 (at 0:10, insert 5 x 6 min Z4 @ 2 min Jog)
W		1:00	0:30 Z2
R	#17	1:30 Z2 (at 0:55, insert 25 min Z4)	Off
F	#12	Off	1:30 Z2 (at 0:1:10, insert 12 min Z4)
S		Trans: 5:30 Z2 (at 5:10, insert 12 min Z4) (QC)	1:00 Z2
S		1:15	2:45 Z1 to Z2
Total Hrs:	19:30	3:00	9:45
			6:45

Wk 27	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#13	Off	1:00 Z2 (at 0:10, insert 5 x 6 min Z4 @ 2 min Jog)
W		Trans: 1:00 Z2 (QC)	0:30 Z2
R	#14	1:30 Z2 (at 0:50, insert 30 min Z4)	Off
F	#15	Off	1:30 Z2 (at 1:10, insert 12 min Z4)
S		Trans 6:00 Z2 (at 5:40, insert 15 min Z4) (QC)	1:00 Z2
S		1:30 Z1 (100+ RPM)	3:00 Z1 to Z2
Total Hrs:	20:00	3:00	10:00
			7:00

Wk 28	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#16	Off	0:45 Z2 (at 0:10, insert 3 x 6 min Z4 @ 2 min Jog)

W		Trans: 0:45 Z2 (QC)	0:30 Z2
R	#17	1:00 (at 0:40, insert 15 min Z4)	Off
F	#12	Off	1:00 Z2 (at 0:40, insert 10 min Z4)
S		Trans: 4:00 Z2 (at 3:45, insert 10 min Z4) (QC)	0:30 Z2
S		1:00 Z1 (100 + RPM)	2:00 Z1 to Z2
Total Hrs:			4:45
14:30	3:00	6:45	

Wk 29	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#13	Off	0:45 Z2 (at 0:10, insert 2 x 6 min Z4 @ 2 min Jog)
W		Trans: 0:45 Z2 (QC)	0:15 Z2
R	#14	1:00 Z2 (at 0:45, insert 10 min Z4)	Off
F	#15	Off	0:45 Z2 (at 0:30, insert 7.5 min Z4)
S		Trans: 2:00 Z2 (QC)	0:30 Z2
S		1:00 Z1 (100+ RPM)	1:00 Z1 to Z2
Total Hrs:			3:15
11:00	3:00	4:45	

Wk 30	SW	BIKE	RUN
M		REST DAY	REST DAY
T	#16	Off	0:45 Z2 (at 0:10, insert 5 x 1 min PU @ 1 min Jog)
W		0:45 Z2	0:15 Z2
R	0:30 easy	1:00 Z1 (at 0:15, insert 5 x 1 min PU @ 1 min Spin)	Off

F		Off	0:40 Z1 (at 0:10, insert 5 x 1 min PU @ 1 min Jog)
S		0:15 Z1 – easy Bike Safety Check	0:20 Z1 – easy (in A.M.)
S		Race – Ironman	Race – Ironman
Total Hrs:			
5:00 (+ Race)	1:00	2:00 (+ Race)	2:00 (+ Race)

Swimming Sessions for the Competitive Program

Below are the seventeen swim sessions referred to by number in the swim (SW) column of the training schedules for each of the three phases of the Competitive Program. The following is an explanation of the abbreviations and terms used:

wu: Warm Up

cd: Cool Down

DR: Swim Drills

Pull: Done with pull buoy (i.e., no kicking).

Pool size: Either yards or meters is fine.

@20sec: Take 20 seconds of rest at the wall after each effort in the set.

Perceived Effort: Warm Up, Cool Down, and Drills should be performed at 65% to 70% perceived effort; Main Sets at 80% to 85% perceived effort.

Base Phase (Weeks 1–10) Swim Sessions (about 2,500 meters/yards)

- 300wu, 8x50 DR, 12 x 100 @20sec, 8x50 DR, 200 cd
- 300wu, 8x50 DR, 3 x 125 @20sec, 2 x 175 @30sec, 3 x 125 @20sec, 8x50 DR, 200 cd
- 300wu, 8x50 DR, 16 x 25 @10 sec, 1 x 400 @60sec, 16 x 25 @10 sec, 8x50 DR, 200 cd

4. 300wu, 8x50 DR, 1 x 300 @40sec, 3 x 200 @30sec, 1 x 300 @30sec, 8x50 DR, 200 cd
5. 2,500 straight swim at comfortable pace (75–80% perceived effort)

Build Phase (Weeks 11–20) Swim Sessions (about 3,000 meters/yards)

6. 500wu, 8x50 DR, 4 x 200 @20sec, 6 x 100 @15sec, 8x50 DR, 300 cd
7. 500wu, 8x50 DR, 16 x 25 @10sec, 600 Pull, 16 x 25 @10 sec, 8x50 DR, 300 cd
8. 500wu, 8x50 DR, 10 x 50 @15sec, 4 x 100 @20sec, 10 x 50 @15sec, 8x50 DR, 300 cd
9. 500wu, 8x50 DR, 200-300-400-500 @ 45sec, 8x50 DR, 300 cd
10. 500wu, 8x50 DR, 7 x 125 @20sec, 7 x 75 @15sec, 8x50 DR, 300 cd
11. 3,000 straight swim at comfortable pace (75–80% perceived effort)

Peak Phase (Weeks 21–30) Swim Sessions (about 3,500 meters/yards)

12. 500 wu, 8x50 DR, 12 x 75 @20sec, 12 x 50 @15sec, 12 x 25 @10sec, 8x50 DR, 300 cd
13. 500 wu, 8x50 DR, 5 x 400 @45sec, 8x50 DR, 300 cd
14. 500 wu, 8x50 DR, 6 x (50+100+150) @20sec, 8x50 DR, 300 cd
15. 500 wu, 8x50 DR, 5 x 200 @30sec, 5 x 100 @20sec, 5 x 50 @10sec, 6 x 25 @5sec, 8x50 DR, 300 cd
16. 500 wu, 8x50 DR, 3 x 150 @20sec, 4 x 250 @30sec, 3 x 150 @20sec, 8x50 DR, 300 cd
17. 3,500 straight swim at comfortable pace (75–80% perceived effort)

THE “JUST FINISH” PROGRAM

The “Just Finish” Program is for the super-busy athlete. Even with all the time-management techniques in this book, this aspiring Ironman can only squeeze out an average of about 7 hours per week over the 30-week training period, and then a few peak weeks of 10 hours per week during the final build-up. This athlete is not looking to break the course record. His or her goal is to complete an Ironman within the regulation time, and to do it in good health and good spirits.

Like the Competitive Program, the Just Finish Program also incorporates two strategically placed practice races, and it packs all of the necessary training elements into the minimum amount of training time.

The following is a summary of each of the three 10-week phases for the Just Finish Program (the Base Phase, the Build Phase, and the Peak Phase) and the actual training programs, corresponding to each.

Base Phase (Weeks 1–10) for the Just Finish Program

The Base Phase begins with only 3 hours of training in Week 1. Just 1 hour in each sport spread over eight workout sessions: three bikes, three runs, and two swims. From there, each week builds by between 30 and 45 minutes. By Week 10 we total close to 7 hours of total training, with the same number of workouts.

As in the Competitive Program, our priorities in the Base Phase are to (1) acclimate the athlete to the type of training we will be doing, (2) establish an aerobic base, and (3) build technique.

Also like the Competitive Program, the Base Phase in this program is fully aerobic (discussed in Chapter 6) and should feel very comfortable. This comfortable pace affords an excellent opportunity to work on improving technique (discussed in Chapter 10).

Our Long Bike starts in Week 1 at 30 minutes and builds to 2 hours in Week 10. Meanwhile, our Long Run starts at 30 minutes and increases to 1.5 hours in Week 10.