

Chapter 5 TESTING

第5章 测试

Motivation can't take you very far if you don't have the legs.
-- LANCE ARMSTRONG

如果没有腿你就没法跑，不管你的愿望如何强烈。
——LANCE ARMSTRONG

What are my strengths as a cyclist? What aspects of performance should I focus on in training? Am I making progress toward my long-term goals? How can I improve my race results?

作为车手来说，我的强项是什么？ 在训练中我应该注重哪方面能力的培养？我是否在朝着我的长期目标前进？怎样才能提高比赛成绩？

These are questions the serious bicycle racer must ask several times every year. For the novice cyclist, these questions are difficult to answer since there is so much self-discovery to come. Even for an experienced rider, the answers are not always easy. The problem is that athletes often "can't see the forest for the trees." Subjective self-evaluation is always difficult. Someone else's studied opinion – often a coach or a concerned teammate – is usually necessary to get at the answers to such questions. Because the purpose of this book is to make you your own coach, I'm going to show you how to determine what you need to emphasize in training and race preparation.

对于一个认真的赛车手来说，这些问题每年都会自问好几次。而对于一个新手来说，他们很难回答这些问题，因为这需要非常了解自己。即使对于经验丰富的车手来说，要回答这些问题也不容易。原因在于运动员们常常“只见树木，不见森林”。主观性的自我评估往往是很难的，而其他的研究判断——常常来自教练或关心你的队友——往往是回答这些问题所必须的。因为这本书的目的就是让你成为你自己的教练，所以我要教你在训练和准备比赛时如何确定训练的重点。

You may not like what you discover about yourself. Several years ago, a master rider asked me to coach him. He described how when it came to climbs he was unable to hang on with the peloton and was off the back early in most races. Although unhappy with the situation he wasn't completely dejected. He has given it a lot of thought and decided that the problem was a lack of power. So over the course of the winter he took a plyometrics class with a trainer who worked with professional power athletes such as football players.

你也许不会喜欢了解自我的结果。几年以前，有个中老年车手想请我指导他。他说在很多比赛中，一到爬坡的时候他就跟不上大部从而早早地就落在了最后。虽然他对自己很不满意但还没有完全失去希望。他思前想后了很久并最终确定问题在于输出功率太低。所以在冬季的训练中，他参加了一门弹振式（plyometrics）力量训练课，而教练和他的工作人员都是诸如足球运动员之类的专业力量选手。

My new charge had attended workouts four times a week that winter and had been so committed to improving that he ended up with stress fractures in both feet. What he wanted to know was how could I help him improve his power.

那年冬天我的这位新委托人每周参加四次训练，他想进步的决心如此之大以至于最终导致双脚疲劳性骨折。所以他想知道我能否帮助他改善输出功率。

The Cyclist's Training Bible (3rd edition)
Chapter 5 TESTING

The first thing I had him do was test power on his CompuTrainer. What we discovered was that he had tremendous power, despite inactivity due to the stress fractures. He easily ranked in the top 5 percent for maximum power generation of all the masters I had ever coached. We also found, however, that he couldn't sustain the power output for even a few seconds and that his anaerobic endurance was poor. Once he crossed the redline and became anaerobic on a short climb or a long, intense effort he quickly fatigued. Maximum power generation wasn't holding him back at all. I subsequently set up a program for him that would improve his anaerobic endurance and lactate tolerance. He went on to have a much-improved race season.

You also may have reached a conclusion about your strengths and weaknesses that is not true. By pursuing the wrong course of training, you're expending both time and energy and may still end up with very little to show for your trouble. It is not unusual at all for riders to concentrate on the wrong abilities in training. What is most common among cyclists is to focus primarily on strengths. Good climbers, for example, prefer to spend their training time climbing rather than working on time trialing that may be the cause of lackluster results in A-priority stage races.

I call these race-specific weaknesses "limiters." Knowing what limits your race performance is like finding the weak link in a chain. Once you strengthen this "link" your results immediately improve. But if all you work on is your strengths and the weak link remains weak, race performance stays much the same from year to year.

Of course, your limiters may never become strengths, but you must always be trying. The trick is to improve the limiters without letting the strengths deteriorate. That's what I want to teach you to do in the planning chapters of this book. For now, let's discover what your strengths and limiters are.

自行车训练圣经（第三版）
第5章 测试

我让他做的第一件事就是在他的电脑训练台上测试输出功率。我们发现他的输出功率极高，虽然他因为疲劳性骨折静养了很久。在我所指导过的所有中老年车手中，他可以轻松地进入最大输出功率排名的前5%。但是，我们发现他无法保持这样的高功率的输出，哪怕几秒钟都不行，而且他的无氧耐力非常差。在爬短坡或高强度长距离骑行时，一旦超越阈值进入无氧状态他就会很快地疲劳。所以最大输出功率根本不是他的弱项。因此我为他制定了一个计划来改善他的无氧耐力以及乳酸盐耐受力，他照做以后在来年的赛季中果然大有提高。

你有可能对你自身的强项和弱项做出不正确的结论。进行这种被误导的训练课程是对你的时间和精力双重浪费，而且最终你的问题依旧或者收效甚微。训练中车手们把精力集中在错误的能力培养上的情况一点不少见，比如车手们最常见的情况就是把精力集中在他们的强项能力的训练上。好的爬坡型骑手喜欢把训练时间放在爬山上，而不是进行个人计时训练，而这么做的后果也许就是在A级的多站式比赛中光芒黯淡的总成绩。

我把这些和比赛相关的弱项叫做“限制因素”。了解限制你的比赛成绩的因素就象找出一个链条的最薄弱一环一样。一旦你加强了这“一环”，你的成绩就会马上进步。但是如果你只是培养你的强项而不管这些弱项的话，你的比赛成绩将年复一年地保持原状。

当然，你的限制因素也许永远不可能成为你的强项，但你必须不断尝试，而且在改善限制因素时还要保持强项能力不会衰退。这就是在本书中有关训练计划的章节里我想要教给你们的。不过现在让我们先找出你的强项和限制因素是什么。

The Cyclist's Training Bible (3rd edition)
Chapter 5 TESTING

There are two general categories of assessment that should be done each year to see where your training needs to be focused during the Base and Build periods. Performance assessment is done on the bike and self-assessment is done with paper and pencil. There are three times during the season when it is quite beneficial to conduct an assessment:

- Near the end of the last Race period of the season, complete a performance assessment to establish a high-fitness baseline.
- At the start of the Base period, do both performance and self-assessment to determine what is needed for training in the coming months.
- At the end of the Base period, repeat the performance assessment to measure progress before starting the Build period.

I will cover these training periods in detail in Chapter 7.

By the end of this chapter, you'll score yourself in several performance-related areas. From this data you will be able to compare your capabilities to the specific demands of cycling and customize a training program specific to your needs.

Some athletes are not keen on testing and prefer to make decisions intuitively based on what they have discovered in races. That may work for some, but for most it often results in guessing and jumping to inaccurate conclusions based more on emotion than fact. By completing all of the assessments included here, you'll be on the road to training more effectively than you've ever done before. Imagine what that could mean for your next race season.

Performance Assessment

There are several tests that can be done to gauge your physiological improvement. It is best to use them comparatively. Establish a baseline in each of the tests that you decide to

自行车训练圣经（第三版）
第5章 测试

每年你需要做两大类的评估，从而决定在基础期和发展期需要把训练重点放在什么地方。能力评估靠骑行完成，而自我评估靠纸笔进行。每年中有三次时机很适合做这些评估：

- 在整个赛季最后一个比赛期临近结束时，进行一次能力评估，从而建立一个高水准身体素质的基线。
- 在基础期开始时，进行能力评估和自我评估，从而确定在接下来几个月里的训练重点。
- 在基础期结束时，再进行一次能力评估看看是否有进步，然后再开始发展期。

在第7章我会详细讲解训练周期。

在本章末尾，你要在几个与能力相关的类别上为自己打分。根据这些打分数据你就可以将你的能力和特定比赛所需要的能力相比较，并制定出满足你的需要的训练计划。

有些运动员对测试并不热心，而是更喜欢在比赛中根据当时的情况做出直觉的判断。有些时候这么做是有效的，但大多数时候凭猜测会做出不准确的结论，因为你会被情绪所左右而不是根据事实。通过完成本章所包含的测试内容，你就会走上一条比你以往所做的更有效果的训练之路。想想看，这对于你的下个比赛季来说意味着什么。

能力评估

评估你的生理进步有好几种测试方式。你最好是用前后对照的方式运用这些测试。为你所采用的每种测试方式建立一个基线，然后

use and then retest at intervals throughout the year to see how your physical ability is changing. It is not necessary that you repeat all of the tests throughout the season. Focus on the ones that seem to best reflect what your limiters are. This may come down to one test of all of those described here. By regularly gauging your progress with it you can ensure that the training program is on track – or that it isn't.

When testing it is important that you eliminate as many variables from one test to the next as is possible. For example, the warm-up procedure needs to be the same. Some other elements that may affect the test include diet, hydration, level of fatigue, equipment, bike set-up, tire pressure, and time of day.

If at any time during a test you feel lightheaded or nauseous, stop immediately. You are not attempting to achieve a maximum heart rate on any of the tests described here, but it is necessary to attain a very high level of exertion.

Here are the tests broken down by category.

Sprint Power Test

Tests done on the bike are usually the best indicators of racing performance. With a powermeter, a CompuTrainer, or in a laboratory, measure your maximum power and average sustained power. The accompanying CompuTrainer Sprint Power Test describes how this is done with a CompuTrainer. With a powermeter, perform the test on the road in the same way. The course should be about 0.2 miles (352 yards or 322 meters) and either flat or slightly uphill. Mark the start and finish points so you can find them in the future for re-tests.

在一年中定期地重做这些测试，看看你的生理能力是否有变化。你也许不需要在赛季中重复所有这些测试，而是把重点放在那些最能反映你的限制因素的测试上，也许只是对应于本书所介绍的某一种测试方式。定期地通过测试检查你的进步情况能够让你确信训练是在正确的轨道上进行的——而不是相反。

当你做测试时有一点很重要：那就是要尽可能地消灭那些在前后两次测试时可能变化的外界因素。例如，热身过程需要完全一样，另外还有其他一些有可能影响测试的因素，比如饮食，补水，疲劳程度，个人装备，单车装备，胎压，以及测试时间。

如果在测试期间你感觉头重脚轻或恶心的话，必须马上停止测试。进行本章介绍的所有测试时都不需要达到你的最大心率，但是需要达到非常高水平的出力程度。

下面将分类介绍这些测试方法。

冲刺功率测试

在单车上所做的测试往往是比赛能力的最好的指示器。使用功率监视器，电脑训练台或者实验室设备就能够测量你的最大功率以及平均持续输出功率。带有冲刺功率测试功能的电脑训练台会告诉你如何按步骤做此项测试；你也可以用功率监视器在骑行时做同样的测试，测试距离大约 322 米（0.2 英里或 352 码），路况为平路或很小的上坡。记下开始和结束的地点，这样你就可以在将来做同样的重复测试了。

**SPRINT POWER TEST ON
COMPUTRAINER**
CompuTrainer Set-up
You will need one or two assistants to record

电脑训练台上的冲刺功率测试
电脑训练台设置
你需要一到两个助手来帮忙做记录，以及在必要

information and possibly to spot for safety (there is a risk of the bike tipping over with a maximal effort). Set up and calibrate the equipment as described in the user's manual. Warm up for about ten minutes and calibrate the equipment. Select a course that is 0.2 miles long.

Test

1. Following your warm up, take two or three increasingly powerful practice starts of 8-12 seconds each to determine the best gear to start the test in. The start is with the rear wheel stopped. If rear wheel slips, tighten and recalibrate.
2. During the test you may stand or sit and shift gears at any time. If you are a large or powerful rider, you'll want a spotter on either side of the bike to prevent tipping. You may also bolt your CompuTrainer to a sheet of plywood to prevent tipping.
3. When ready to begin the test, stop your rear wheel and have an assistant press the button on the handlebar control unit to begin the test.
4. Sprint the 0.2-mile course as fast as you can. It will probably take 25-40 seconds.
5. At the completion of the test, record maximum watts and average watts.
6. Recover by spinning in a light gear and resistance for several minutes.

Sidebar 5.1

If you can conduct the test in a lab, the applicable protocol will probably be something called a "Wingate Power Test." The technician should be able to explain what the results mean. The technician will probably not be able to relate the information to other cyclists, however.

Once you've completed the power test, use Table 5.1 to help you decide what the results mean.

Don't be disheartened if your maximum is lower than expected. You need to realize that this is a weakness and if it is also a limiter (it prevents you from attaining better results in A-priority races) you must work on your ability to quickly generate force against the pedals if you're going to improve. A low average power is a warning to improve lactate tolerance. I will discuss how to improve both force and lactate

时确保安全（全力冲刺时单车可能会翻倒）。根据用户说明书的描述设置好电脑。热身大约 10 分钟，调整电脑并选择 0.2 英里长（322 米）的训练课程。

测试

1. 在你热身之后，做两到三次力量逐渐增强的练习，每次 8—12 秒，从而确定最适合你的齿轮比。开始测试前，让后轮停止。如果后轮阻力太小，就把它调整地更紧一些。
2. 在测试期间你可以站着或坐着骑，或任意调整齿轮比。如果你是个大块头或力量很大的车手，你最好在车子两边安排保护人以免翻倒。你也可以把训练台固定在一块大夹板上以避免车子翻倒。
3. 一切就绪以后，把后轮停下来，并让助手帮你按下横把上的控制按钮开始测试。
4. 使出你最大的力量冲刺 322 米，大约会用时 25—40 秒。
5. 测试结束后，记录最大输出功率（瓦）以及平均输出功率（瓦）。
6. 换轻松的齿轮比和阻力，恢复性骑行几分钟。

工具栏 5.1

如果你是在实验室里做的测试，那么你所使用的有可能是“Wingate 功率测试”之类的方法。那里的工作人员会给你解释测试结果的含义，而且他们应该不会向其他的运动员透露这些测试结果。

完成功率测试之后，对照表 5.1 看看你这两项能得几分。

如果你的最大功率比预想的低，也不必灰心丧气，你需要了解自己的弱点。如果这也是你的限制因素（妨碍你在 A 级赛事中取得更好的成绩）的话，你就必须想办法改善这种快速地大力踩踏板的能力了。平均输出功率偏低往往意味着乳酸忍耐力需要提高。我在下面几章会讨论如何改善力量和乳酸忍耐力。如果这两项你的得分都是 4 分或

tolerance in later chapters. If you score four or five for both, the quick application of force and lactate tolerance are among your strength areas. You're probably a very good sprinter in this case, and we'll need to keep looking for your weakness.

5 分，这说明快速释放力量和乳酸忍耐力是你的强项。你也许是个非常好的冲刺手，所以我们需要继续下面的测试来找出你的弱项所在。

等级	分数	资深男运动员		资深女运动员	
		最大	平均	最大	平均
优秀	5	1,100+	750+	1,000+	675+
良好	4	950-1,099	665-749	850-999	600-674
一般	3	800-949	560-664	720-849	500-599
不太好	2	650-799	455-559	585-719	410-499
很差	1	<650	<455	<585	<410

Table 5.1 Power Ranges of Cyclists (watts)

表 5.1 骑手的输出功率范围（瓦特）

Average power output will vary more throughout the year than will maximum power. While testing in the winter, for example, you may find average power relatively lower than in the summer when race fitness is high. That's because you quickly lose the ability to tolerate lactate (winter) when the body is no longer experiencing it.

与最大功率相比，平均输出功率在一年中的起伏很大。比如，在冬天做测试时，你的平均功率也许会比夏天你的比赛能力最强的时候低。这是因为在冬天你缺少比赛体验，所以就会很快失去忍耐乳酸的能力。

Graded Exercise Test

递增出力测试

The graded exercise test can be done with a CompuTrainer or powermeter. Most laboratory testing facilities at hospitals, clinics, and universities also conduct a very sophisticated ergometer stress test that measures aerobic capacity and also determines lactate threshold. Some may even sample blood to determine lactate profiles as described in Chapter 4. Expect to pay dearly for a lab test.

你可以在电脑训练台或功率监视器上做递增出力测试。在医院，诊所和大学里的大多数实验室测试设备上也可以进行一种非常复杂的压力测试，它使用测功计来测量有氧能力并确定乳酸盐极限阈值，有些甚至需要采集血样来确定乳酸盐水平，就象第 4 章中所描述的那样。实验室测试的花销很大。

One of the measures to be gleaned from the graded exercise test is your lactate threshold heart rate and power. In the scientific world, there are different definitions for the point at which lactate threshold is reached. I've found that labs frequently use the more conservative of these definitions. That conservative approach yields a low threshold heart rate and power level for a racer. If you're a master, the lab technicians may also be reluctant to allow you to continue the test until

通过递增出力测试能够得到的一个重要指标就是在你达到乳酸盐极限阈值时的心率和输出功率。在科学界，对于如何定义乳酸盐极限阈值仍然存在争议，而且我发现实验室中使用的往往是其中较保守的定义。依据这种保守测试得出的选手的乳酸盐极限心率和功率都会稍低一些。如果你是个中老年骑手，实验室的工作人员也许会很不愿让你在疲劳程度越来越重的情况下继续测试，可能会过早地关闭机器停止测试——他们担心

fatigue sets in, choosing instead to stop the test prematurely. They don't want you to die in their labs. Be sure to work out these issues before scheduling a lab test.

If you're new to racing or have coronary risk factors such as a history of heart disease in your family, high cholesterol, high blood pressure, a heart murmur or dizziness after exercise, then you should only conduct this test in a laboratory under the close supervision of a physician.

It is possible to conduct the graded exercise test using an indoor trainer or stationary bike. To use a trainer, you will need a handlebar computer sensor for the rear wheel. Power outputs will not be known, but you can measure speed instead. Accurate and reliable stationary bikes are hard to find for such precise measurement. Look for one that digitally displays power or speed. Do not use a health club bike that shows speed or power with a needle or sliding gauge. These are far too inaccurate.

你会猝死在实验室里。所以在安排一次实验室测试之前，一定要先把这些问题搞清楚再说。

如果你只是个新手，或者是有心脏方面的潜在问题，比如有家族性心脏病史，高胆固醇，高血压，心脏杂音或运动后眩晕之类的问题的话，那么你能只能在实验室里进行这种测试，并且需要有医生在旁边紧密看护。

在室内训练台或固定自行车上也可以进行这种递增出力测试。使用训练台时，你需要在横把上装一个感应后轮速度的码表。这种情况下你无法知道输出功率，但你可以用测量速度来代替。要想找到适合这种精密测试的准确可靠的固定自行车很困难。必须挑那种以数字方式显示功率和速度的机器，而不是健身房里常见的那种以指针或游标显示功率和速度的机器，因为那种机器太不准确了。

**GRADE EXERCISE TEST ON
COMPUTRAINER**

CompuTrainer Set-up

You will need an assistant to record information. Set up and calibrate the equipment as described in the user's manual. Warm up for about ten minutes and calibrate the equipment. Select a flat course that is 8-10 miles (12-16 kilometers) long. You won't use all of it.

Test

1. Throughout the test, you will hold a predetermined power level (plus or minus 10 watts). Start at 100 watts and increase by 20 watts every minute until you can no longer continue. Stay seated throughout the test. Shift gears at any time.
2. At the end of each minute, tell your assistant how great your exertion is using the guide on the following page (place this where it can be seen):

6		14	
7	非常非常轻松	15	辛苦
8		16	
9	非常轻松	17	非常辛苦

在电脑训练台上做递增出力测试

电脑训练台设置

你需要一个助手帮忙做记录。根据用户说明书的描述设置校准好设备。热身大约 10 分钟，调整电脑并选择 12—16 公里长的平路训练课程，但你不需要骑完全程。

测试

1. 在整个测试期间，你需要保持预定的输出功率水平（上下幅度不超过 10 瓦）。从 100 瓦开始，每分钟增加 20 瓦，直到你无法继续坚持增加功率为止。在测试期间要保持坐姿踩踏，并可以自由调整齿轮。
2. 每次保持功率 1 分钟之后，告诉你的助手当前的发挥度水平。你可以参考下面的表格，把它摆在你能看得见的地方。

10		18	
11	还算轻松	19	非常非常辛苦
12		20	
13	有点辛苦		

3. Your assistant will record your exertion rating and your heart rate at the end of the minute and instruct you to increase power to the next level.
4. The assistant will also listen closely to your breathing to detect when it becomes noticeably labored for the first time in the test. This point is defined as the VT or ventilatory threshold.
5. Continue until you can no longer hold the power level for at least fifteen seconds.
6. The data collected should look something like this:

功率	心率	发挥度
100	110	9
120	118	11
140	125	12
160	135	13
150	142	14
200	147	15
220	153	17 (VT)
240	156	19
260	159	20

3. 你的助手会记录你的发挥度，以及每分钟结束时的速率，并提醒你增加功率到下一个级别。
4. 助手还需要密切观察你的呼吸情况并记录何时你的呼吸显著地变得吃力。这个点被叫做通气量阈值，或 VT。
5. 继续测试直到你无法保持至少 15 秒钟的功率水平。
6. 记录下的数据应该类似于下表：

Sidebar 5.2

GRADE EXERCISE TEST ON STATIONARY BIKE

1. Test must be done with a stationary bike that accurately displays speed (or watts).
2. Select "manual" mode.
3. You will need an assistant to record information.
4. Warm up on equipment for 5 to 10 minutes.

Test

1. Throughout the test, you will hold a predetermined speed or power level. Start at 15 mph (or 100 watts) and increase by 1 mph (or 20 watts) every minute until you can no longer continue. Stay seated throughout the test. Shift gears at any time.
2. At the end of each minute, tell your assistant how great your exertion is using this guide (place this where it can be seen):

6		14	
7	非常非常轻松	15	辛苦
8		16	
9	非常轻松	17	非常辛苦

工具栏 5.2

在固定自行车上做递增出力测试

1. 测试用的固定自行车必须能够精确显示速度（或功率）。
2. 选择“手动”模式。
3. 你需要一个助手记录数据。
4. 在机器上热身 5—10 分钟。

测试

1. 在整个测试期间，你需要保持预定的速度或功率水平。从 24 公里/小时（或 100 瓦）开始，每分钟增加 1.6 公里/小时的速度（或 20 瓦的功率），一直到你无法继续增加强度为止。在测试期间要保持坐姿踩踏，并可以自由调整齿轮。
2. 每次保持出力 1 分钟之后，告诉你的助手当前的发挥度水平。参考下面的表格，把它摆在你能看得见的地方：

10		18	
11	还算轻松	19	非常非常辛苦
12		20	
13	有点辛苦		

3. Your assistant will record your exertion rating and your heart rate at the end of the minute and instruct you to increase speed (watts) to the next level.

4. The assistant will also listen closely to your breathing to detect when it becomes labored. This is the VT or ventilatory threshold.

5. Continue until you can no longer hold the speed (watts) for at least fifteen seconds.

6. The data collected should look something like this:

3. 你的助手会记录你的发挥度，以及每分钟结束时的心率，并提醒你增加速度（或功率）到下一个级别。

4. 助手还需要密切观察你的呼吸情况并记录何时你的呼吸显著地变得吃力。这个点被叫做通气量阈值，或 VT。

5. 继续测试直到你无法保持至少 15 秒钟的速度（或功率）水平。

6. 记录下的数据应该类似于下表：

速度	功率	心率	发挥度
15	100	110	9
16	120	118	11
17	140	125	12
18	160	135	13
19	180	142	14
20	200	147	15
21	220	153	17 (VT)
22	240	156	19
23	260	159	20

Sidebar 5.3

工具栏 5.3

Sidebar 5.3

工具栏 5.3

Lactate Threshold Test on Road

If you'll be training with either a heart rate monitor or a powermeter, this test will also give you a good indication of your lactate threshold relative to heart rate and power. Most riders find this test to be far easier to conduct than either of the aforementioned lactate threshold tests.

It's simple. Merely complete a thirty-minute time trial on a flat to slightly uphill road course. This may also be done on an indoor trainer, although most riders find this harder than being on the road. If you want to determine or confirm your lactate threshold heart rate (LTHR), click the lap button on your heart rate monitor ten minutes into the time trial. Your average heart rate for the last twenty minutes is a good estimation of LTHR.

在公路上测试乳酸盐极限阈值

如果你使用心率表或者功率计来训练的话，通过这项测试还能够找出你达到乳酸盐极限阈值时的心率和输出功率。大多数骑手都反映进行这项测试比进行前面所述的乳酸盐极限阈值测试要容易得多。

真的很容易，你只需要在平路或缓慢上坡的公路上完成一次 30 分钟的个人计时练习就可以了。你也可以在室内训练台上做，虽然大部分骑手都觉得这么做比在路上骑要更吃力些。如果你想找出或确认你的乳酸盐极限心率（LTHR）的话，就在个人计时开始 10 分钟后按你的心率表进入下一圈。这样你最后 20 分钟的平均心率就是对你的 LTHR 的很好的估算。

If you are training with power, your average power output for this test also functions as an approximation of lactate threshold power. It will also establish your CP30 zone as described in Chapter 4.

The more times you do this or any of the previously described tests, the more reliable your training zones will be.

Lactate Threshold Test Results

Testing for lactate threshold reveals two elements of your race fitness – power at lactate threshold and anaerobic endurance. It also locates your lactate threshold heart rate – a key element of your training when using a heart rate monitor. In order to derive the full benefit of a workout, you should regulate the intensity of that workout using lactate threshold heart rate as a guide to set zones as listed in Table 4.6.

Power at lactate threshold is a good indicator of performance and will allow you to train the muscular system with a powermeter or CompuTrainer. Anaerobic endurance is important in criteriums and during the sustained, high-intensity efforts of road races. Most race-fit athletes can last four or more minutes beyond their lactate threshold on the indoor trainer test for LT. If you're unable to achieve that, then anaerobic endurance is a weakness. This is nearly always the case with tests completed at the start of the winter Base period so don't be concerned if it is early in the season and you are unable to last long on the test.

Table 5.2	Anaerobic Endurance Time indicates the athletes efforts from LT to end of test	级别
		优秀
		良好
		平均
		一般
		差劲

The lactate threshold test also serves as an excellent baseline of your fitness. By the

如果你使用功率计的话，采用上述方法计算的平均输出功率也能够反映出你的乳酸盐极限输出功率。你也可依此得到第 4 章所述的 CP30 区域。

该测试或前面所述的测试项目做的次数越多，依此得出的训练区域就越可靠。

乳酸盐极限阈值测试结果

测试乳酸盐极限阈值可以揭示你在两方面的比赛能力——乳酸盐极限输出功率和无氧耐力，而且还能定出你的乳酸盐极限心率——这是使用心率表进行训练的人必须知道的一个关键元素。为了让你的训练给你带来最大收益，你应该依据你的乳酸盐极限心率从表 4.6 中找出你的训练区域，并以此为指导调整你的每次训练的强度。

乳酸盐极限输出功率能够很好地反映比赛能力，而且是你用功率计或电脑训练台来训练肌肉系统的依据。对绕圈赛以及那些需要持续地以高强度骑行的比赛来说无氧耐力很重要。在室内训练台上做 LT 测试时，大多数适应比赛的运动员都能够在乳酸盐极限阈值之上坚持 4 分钟或更长时间。如果你无法达到这个指标的话，那么无氧耐力就是你的弱项。不过在冬季的基础期开始之前做这项测试时往往不会得到太好结果，所以如果你在训练季初期无法在这项测试中坚持很久的话，不必为此太过担心。

表 5.2	分数	时间
	5	>5:00
	4	4:00-4:59
	3	3:00-3:59
	2	2:00-2:59
	1	<2:00

无氧忍耐时间，即运动员从进入 LT 开始坚持到测试结束的时间

乳酸盐极限阈值测试也可用来建立你的身体素质的基准线。经过两轮或更多次的测

results from two or more serial tests, you can see the changes in your fitness throughout the year. Construct a graph by plotting heart rate on the vertical axis versus power on the horizontal axis. The Conconi Test, developed by Italian physiologist Francesco Conconi in the early 1980s, applied the method to Francesco Moser's training program in preparation for his attempt on the world hour record. The test relies on the establishment of the lactate threshold heart rate as the point at which the line on such a graph deflects or bends downward. I've found very few athletes who have an obvious deflection in their graph, so don't be concerned with looking for this in your test results.

试，你就能看到一年中身体素质的变化。把测试结果画在一张纵轴表示心率，横轴表示功率输出的坐标图上，这就是 Conconi 测试所使用的方法。该测试由意大利生理学家 Francesco Conconi 在 20 世纪 80 年代创建，Francesco Moser 在准备冲击世界记录时曾在训练中使用此方法。该测试需要你从作图曲线中标出乳酸盐极限心率对应的点，然后观察后续的一系列测试曲线是否发生偏离或下移。我发现几乎没有哪个运动员的测试图能够产生明显的偏离，所以如果你的测试结果也是这样的话，不必太担心。

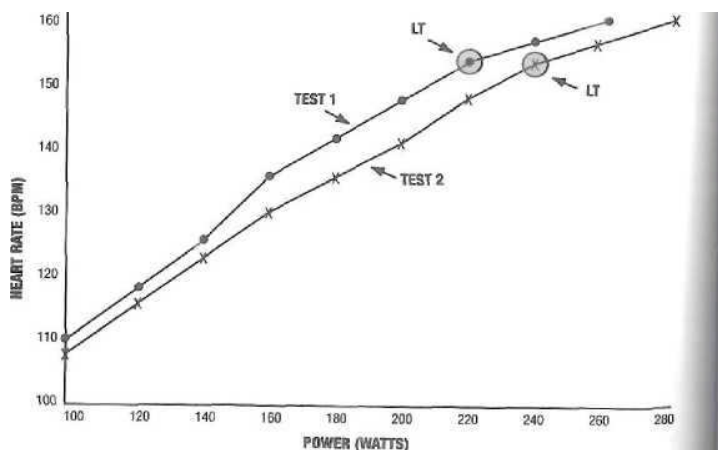


Figure 5.1 Graph of two graded exercise tests

图 5.1 两个递增出力测试图

Figure 5.1 illustrates the tracings of a lactate threshold test performed on two separate occasions. The first was conducted at the start of the Base period and second following twelve weeks of Base training. Notice that the tracing for Test 1 has shifted to the right and slightly down. This shows that the athlete has a lower heart rate at any given power level. That is one effective way of measuring progress. Another is that power has increased for every given heart rate. While the lactate threshold heart rate (indicated as LT) has not changed in twelve weeks, power has.

图 5.1 显示了在两个不同时期所做的乳酸盐极限阈值测试的结果曲线。第一次是在基础期开始前做的，而第二次是在 12 周的基础期训练结束后做的。请注意第二次测试曲线右移并下降了一点。这说明运动员在同样功率输出时的心率下降了。这是测量进步的最有效的方法之一。另一个说法就是在给定的心率下输出功率提高了。虽然乳酸盐极限心率（以 LT 表示）在 12 周后没有变化，但输出功率改变了。

Critical Power Tests

If you have a powermeter, establishing power-based training zones will allow more complete use of the unit in training while also providing you with valuable comparison points for fitness throughout the season. If you also establish and periodically update a personal critical power profile as shown in Figure 4.1, you will have a visual representation of how performance is changing over time.

To establish a critical power profile you will need to complete five time trials, one each of 12 seconds and 1, 6, 12, and 30 minutes. Each test is a maximum effort for the entire duration. It's best to spread these out over several days. Once your profile is established you may want to update only certain critical power points along the curve in subsequent tests without completing the entire battery.

There is a learning curve associated with this testing. It's common to start out too fast on each time trial and then fade near the end. It may take two or three attempts over a few days or even a few weeks to get the pacing right. To reduce the need for such continued testing, it's best to start each time trial test at a lower power output than you think is appropriate. This will pay off with fewer test failures. Begin such testing in the early Base period with at least one other battery of follow-up tests completed before beginning the Build period. (These periods are explained in Chapter 7.)

The longer durations of 60, 90, and 180 minutes may be estimated from the profile graph by extending the slope of the CP12 to CP30 line. You may also get an estimation of the values for these extended data points with a little math. To estimate 60-minute power, subtract 5 percent from your 30-minute average power result. For an approximation of 90-minute power, subtract 2.5 percent from the 60-minute power. Subtracting 5 percent from the 90-minute power figure estimates 180-minute power.

关键功率测试

如果你有功率计的话，建立以功率为基础的训练区域能够让你在训练中更加全面地使用这个工具，同时还能在整个赛季中为你提供关于身体素质的有价值的参考点。如果你能够按照表 4.1 那样定期地测试并画出个人关键功率曲线的话，你就能直观地看到你的比赛能力是如何日积月累地提高的。

为建立关键功率曲线，你需要完成 5 次个人计时测验，时间分别是 12 秒，1，6，12，30 分钟。每次测试都需竭尽全力，所以你最好是把它们分散在几天里面。一旦你已经建立了关键功率曲线，在后续的测试中你也许不需要完成所有这些测验，而是只更新曲线中的某些关键功率点就可以了。

对于这些测验你也需要有个学习过程。个人计时测验中经常出现的情况就是在刚开始时往往骑得太快结果测验还没结束就骑不动了，这会导致你也许要花上好几天尝试两三次甚至搭上好几个星期才能找到合适的节奏。为了避免这种原因造成的不停测试，你最好在个人计时测验开始时以稍低于你认为合适的功率骑行，这样就可避免太频繁的测验失败。在基础期开始时做一次这样的测试，然后到了发展期开始前再做一次这样的测试（训练周期会在第 7 章中介绍）。

按照关键功率图中 CP12 到 CP30 的倾斜度将曲线延长，就可得到较长距离如 60，90，180 分钟的估算结果。你也可以使用一点数学方法估计出这些延长线上的功率点的数值。比如要计算 60 分钟的平均输出功率，就把 30 分钟平均输出功率减去 5% 即可；要计算 90 分钟的平均输出功率，就把 60 分钟的平均输出功率减去 2.5% 即可；把 90 分钟平均输出功率减去 5% 就得到 180 分钟的平均输出功率。

Keep in mind that these power points beyond 30 minutes are estimates only and may well be inaccurate. That's acceptable since training with power is normally only recommended for shorter durations as when doing intervals, hill repeats, sprints, or tempo efforts. Long, steady rides are best done using heart rate or perceived exertion to regulate intensity.

Once all of these power data points are established you are ready to determine your critical power training zones as shown in Table 4.3.

Applying Test Results

Establishing a profile and completing selected tests is not enough – you must now determine what all of this data means for your training. Again, keep in mind that the results of these tests are only as good as the effort put into controlling the many variables discussed earlier. Sloppy testing provides no basis for measuring fitness. Also realize that there are many variables not completely under your control, such as weather. In addition, the changes in fitness can be so slight – 2 percent or less – that field testing may not be sophisticated enough to detect them. Because of these confounding factors, it might appear in subsequent tests that fitness is slipping even though you sense an improvement. Your feelings and indications of fitness from workouts are valid – don't completely disregard them in an attempt to train "scientifically."

Sprint Power Test

The purpose of this test is to determine whether sprinting is a weakness or strength for you. Table 5.1 will help you determine that. Bear in mind that even if it is a weakness, it is not necessarily a limiter. If your race goals do not include events that often come down to a sprint for the line, then it is merely a weakness but not a limiter.

请记住超过 30 分钟的那些功率点只是估算出来的，所以可能很不准确。这种误差对于以功率为基础的训练方式是可以接受的，因为这种方式一般只用于短距离的训练，比如间歇练习，重复爬坡，冲刺或快速骑行。对于长距离的平稳骑行，你最好使用心率或个人感知发挥度来调整强度。

如果所有这些功率点的数据都已建立，下一步你可以根据表 4.3 来确定你的关键功率训练区域了。

测试结果的应用

完成某些测试并建立测试数据还不够——你现在必须知道这些数据对你的训练意味着什么。再次提醒注意，所有这些测试数据只有在前面提到过的众多外界因素得到控制的前提下才有实际意义。马马虎虎的测试无法成为度量你的身体素质的基准。你还要明白有许多外界因素是你无法控制的，比如天气；另外身体素质的变化可以是很微小的——2%或者更小——甚至在专业场地上的复杂测试也无法探测到这种变化。正是由于这些令人困扰的因素的影响，所以也许会出现这样的情况：虽然自我感觉水平有进步，但测试结果却显示身体素质有所下降。所以在训练中表现出的身体素质的指标以及自我感觉仍然是有效的——不要让所谓的“科学”训练方法完全代替你的直觉。

冲刺功率测试

这项测试的目的是确定冲刺能力是否是你的弱项或者强项。表 5.1 能够帮助你确定这一点。记住：即使这是你的弱项，它也不一定是你的限制因素。只要你所参与竞争的不是那些需要靠冲刺来定胜负的比赛，它就只是你的弱项而不是限制因素。

While it seems that good sprinters are born that way, this does not mean that your sprinting cannot improve. Good sprinters have several things in common. The first is that they have a tremendous ability to instantaneously recruit a large number of muscle fibers to initiate and finish the sprint. They also can generate tremendous force on the pedals due to a high level of total-body strength. And they can turn the pedals at a very high cadence. These are all characteristics that can be trained. Some will find such training produces quick and easy results, while others, who do not have the sprinter body type, will not realize as much gain.

Graded Exercise Test

As mentioned earlier, this test provides a snapshot of your aerobic fitness and helps to establish a lactate threshold heart rate. Both are applicable only to you. Comparing the heart rate data of this test with another rider's will be of little or no value. Comparing your present results with those of future tests is quite revealing, however. Figure 5.1 is a graph of an initial test (Test 1) and a follow-up test done several weeks later (Test 2).

In subsequent tests, improving aerobic fitness is evident if the slope of the line moves to the right and down, as shown by Test 2 in Figure 5.1. This indicates that for any given power level, heart rate has dropped. Or, to look at it another way, for any given heart rate, power is greater.

Now let's determine your lactate threshold (LT). It may be estimated from the test data by observing four indicators: rating of perceived exertion (RPE), ventilatory threshold (VT), time above LT, and power percentage. For the experienced rider, LT typically occurs when RPE is in the range of 15 to 17. A rough estimation of LT is made by noting the heart rates that fall in this RPE range. If you are new to cycling, you may find it awkward to assign an RPE. The more experience you gain on the bike at various intensities, the easier this task

虽然好的冲刺选手基本都是天生的，但并不是说你的冲刺能力无法改善。好的冲刺手都有一些相同点。首先他们都有在瞬间调集大量的肌肉纤维参与做功的能力，并能坚持到冲刺完成；他们全身的力量都很强因此也能够向脚踏施加巨大的力量；另外他们都能够以非常高的频率转动踏板。这些能力都是可以训练的。通过这些训练，有些人能够快速轻易地获得进步，而另一些人，由于不具备冲刺手所需要的体质特征，收效会非常有限。

递增出力测试

前面曾经讲过，这项测试提供了关于你的有氧身体素质的一个缩影并帮助你确定了乳酸盐极限心率。把你在测试中获得的心率数据与其他人相比较几乎是没有意义的，但是把现在的测试结果与将来的测试结果相比较却是有启发作用的。图 5.1 展示的就是初始测试（测试 1）和几周后的后续测试（测试 2）的比较图。

在后续测试中，如果象图 5.1 中的测试 2 一样，曲线向右和向下移动，则说明有氧能力提高了。这表示在给定的功率输出级别上，心率下降了。或者从另一个角度讲，在给定的心率状态下，输出功率提高了。

现在让我们来确定你的乳酸盐极限阈值（LT）。你可以观察以下 4 个指标来估算该值：个人感知发挥度（RPE），通气量阈值（VT），LT 之上的持续时间，和功率百分比。对于有经验的车手来说，LT 一般是在 RPE 达到 15—17 级时出现，记录在此 RPE 范围内的心率就可得到 LT 的粗略估算。但是如果你刚开始骑车不久，也许你会觉得定义 RPE 很困难。你在自行车上感受不同强度的经验越丰富，完成这项任务就越轻松。

will become.

LT may also be estimated by your assistant's estimation of VT. If this falls in the range of RPE 15 to 17, it narrows the possibilities even more. Realize, however, that determining VT is quite difficult for the person who has never done it. Another way of determining LT is that a rider will typically not be able to continue for more than five minutes on this type of test once LT has been reached. So your LT is likely within the last five data points collected.

Power output may also be used to estimate LT for the experienced rider as it generally is found at about 85 percent of the maximum power achieved on the test. From these four indicators you should be able to closely estimate lactate threshold heart rate (LTHR). The more times you complete this test, the more refined the estimate of LT becomes.

Notice in Figure 5.1 that the lactate threshold heart rate has not changed from Test 1 to Test 2, although LT power has increased. This is typical of the results seen in experienced and generally well-conditioned riders during their base period. On the other hand, a novice, or someone who has had a long break from training, may expect to see the lactate threshold heart rate rise slightly in subsequent tests.

Lactate Threshold Test on the Road

This is a simple analysis. Your heart rate average for the last twenty minutes of the thirty-minute, all-out time trial done on the road as a workout is a close approximation of LTHR. If you compete in a time trial as a race, take 5 percent of your average heart rate and add it to the average to estimate LT. But if either of these is the only test done, it's a good idea to continue evaluating what you found your LTHR to be when on training rides. When riding steadily at this heart rate you should be aware of labored breathing and a feeling of burning tightness in the legs, and your RPE

你也可以靠助手对 VT 的观察估算你的 LT。如果 VT 的出现还落在 RPE15—17 级的区间内的话，估算的准确性就更高了。但是你要明白对于从没有测试过的人来说，确定 VT 时非常困难的。另外一个确定 LT 的方法是：一般来说骑手在达到 LT 时，将无法在这样强度下保持出力超过 5 分钟。所以你或许可以通过最后 5 个采样点的数据来估算出你的 LT。

功率输出也可以被有经验的骑手拿来估算 LT，因为在测试中 LT 一般会出现在最大输出功率的 85% 的时段。根据这四项指标你应该可以很接近地估算出乳酸盐极限心率（LTHR）。你测试的次数越多，LT 的估算结果就越准确。

注意在图 5.1 中，测试 1 和测试 2 的乳酸盐极限心率没有变化，虽然测试 2 的乳酸盐极限功率输出提高了。这是有经验的并且状态良好的骑手在基础期时的典型表现。另一方面，对于一个新手或者中断训练很久的人来说，也许在后续的测试中会看到乳酸盐极限心率稍许提高一点。

在公路上测试乳酸盐极限阈值

这是个简单的分析方法。你只需在公路上做一次 30 分钟的竭尽全力的个人计时测验，在最后 20 分钟里的平均心率就是很接近你的 LTHR 的估算值。如果你是参加个人计时比赛的话，把你的平均心率加上 5% 就是你的 LT 的估算值。不管是哪种方法，如果你只做过一次测试的话，那么你最好是在骑车训练中继续评估你的 LTHR 的准确性。在 LTHR 心率下平稳骑行时你应该感觉到呼吸粗重以及大腿的灼烧僵硬感，并且你的个人感知发挥水平应该在 15—17 级。所有这些测试，你做的次数越多，测试结果就越准

should be about 15 to 17. As with all testing, the more frequently this test is done the more refined the estimate becomes.

Critical Power Tests

The data gathered for the critical power tests should be graphed to produce a Power Profile as shown in Figure 5.2. The longer critical power durations may be estimated by extending the slope of the line for CP12 to CP30. This provides rough estimations that may be a bit low or high depending on your aerobic-anaerobic fitness balance. For example, in the early winter months your aerobic fitness is probably relatively better than your anaerobic fitness. As a result, CP12 may be lower than what would be found in the summer months, thus causing the extended slope of the line to be high on the right end. Follow-up tests done over the ensuing months of the winter and spring will help to correct this overestimation.

What should your Power Profile look like? This depends somewhat on the courses on which you race. A short-duration race contested on a course with short, steep hills favors a rider with high CP1 and CP6 power, whereas a longer race with rolling hills and long, steady climbs favors those with high CP12 and CP30 power. In theory, those power zones that are trained in most frequently will improve the most.

确。

关键功率测试

关键功率测试后，应该把得到的数据画在图上制成如图 5.2 那样的功率曲线。那些持续时间较长的关键功率数据可以通过按 CP12 到 CP30 的倾斜度将曲线延长来估算。这种粗略的估算值可能会与实际值有一点高低的出入，这要看你的有氧和无氧能力的平衡度如何。比如，在冬季早期你的有氧能力可能相对强于你的无氧能力，所以，CP12 也许会略小于在夏天时的测试值，这就会导致延长线的倾斜度较平以及右侧的估算值较高。在冬季接下来的几个月以及在春季的后续测试将帮助纠正这种过高的估算值。

你的功率曲线应该是什么样的？这在某种程度上依赖于你要参加的比赛的性质。短距离并且在途中有短而陡峭的山坡的比赛，适合于那些 CP1 和 CP6 功率值高的骑手；而长距离并在途中有连绵起伏的山坡，需要长而稳定爬坡能力的比赛，适合于那些 CP12 和 CP30 功率值高的骑手。理论上说，在哪个功率区域训练得越频繁，这个区域的功率能力提高得也越多。

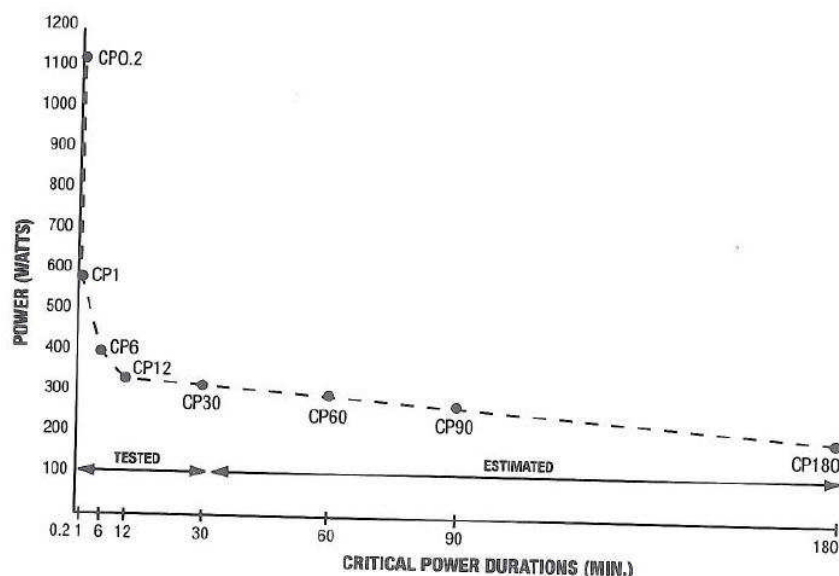


Figure 5.2 Power profile for hypothetical rider

图 5.2 某个假想骑手的功率曲线

So comparing your Power Profile with course and race requirements of the most important races of the season provides guidance in determining exactly how to train. Chapter 6 provides greater detail on this.

所以把你的功率曲线与本赛季你要参加的最重要的比赛的要求相对照，就能确定你的下一步训练的方向了。第6章将提供这方面的更多的细节内容。

Self-Assessment

自我评估

By now you've collected a lot of data on yourself. All of this is of no value unless the information is used to improve training and racing. Completing the following three profiles – Proficiencies, Mental Skills, and Natural Abilities – will provide a start toward doing that. Chapter 6 will take this one step further by providing a system for improvement in weak areas.

到目前为止你已经从你自己身上收集了许多数据。但是如果你不能运用这些数据改善你的训练和比赛的话，它们将毫无意义。完成以下三项个人情况的评估——专长，意志品质和自然能力——将是你迈向这一目标的第一步，而第6章将更进一步地提供一些改善你的弱项的系统方法。

If you have the equipment to conduct the performance assessment tests you now have a good idea of some of your areas of strength and weakness. Chances are, however, that you don't have access to sophisticated equipment. We can still get a pretty good understanding of your capabilities by asking the right questions and, of course, answering honestly. Even if you were able to do the performance testing, you should evaluate your proficiencies, mental skills, and natural abilities at the start of every

如果你拥有能力评估测试所需要的设备的话，那么现在你应该对你的强项和弱项有了很好的了解了。当然也有可能你根本没办法接触这些复杂的设备。那么我们仍然可以通过问一些合适的问题以及，当然啦，需要你诚实的回答来很好地了解你的能力。即使你有条件做能力评估测试，你也应该在每个训练季开始时评估一下你的专长，意志品质和自然能力。在继续阅读之前，请先完成工具栏 5.4—5.6 的问卷。然后我会解释你的得

The Cyclist's Training Bible (3rd edition)
Chapter 5 TESTING

training year. Before reading any further, complete the three profiles in Sidebars 5.4-5.6. Then I will explain your scores.

自行车训练圣经（第三版）
第 5 章 测试

分代表什么意思。

PROFICIENCIES PROFILE	个人专长情况
Read each statement below and decide if you agree or disagree with it as it applies to you. Check the appropriate answer. If unsure, go with your initial feeling.	阅读以下每个题目，想一下如果这是说你自己的话你是否同意，然后在对应的栏打勾。如果不能确定的话，以你阅读题目时的第一感觉为准。
A=Agree D=Disagree	A=同意 D=不同意
A D ___ 1. I'm quite lean compared with others in my category. ___ 2. I'm more muscular and have greater total body strength than most others in my category. ___ 3. I'm usually capable of single-handedly bridging big gaps that take several minutes. ___ 4. I'm capable of enduring relentless suffering for long periods of time, perhaps as long as an hour. ___ 5. I can climb long hills out of the saddle with most others in my category. ___ 6. I can do "wheelies," hop and jump my bike better than most. ___ 7. I can spin at cadences in excess of 140 rpm with no difficulty. ___ 8. I look forward to the climbs in races and hard group workouts. ___ 9. I'm comfortable in an aerodynamic position: aero bars, elbows close, back flat. ___ 10. I have a lot of fast-twitch muscle based on my instantaneous sprint speed, vertical jump, or other indicator. ___ 11. While I suffer, I seldom "blow up" on climbs even when the tempo increases. ___ 12. In a race, I can ride near my lactate threshold (heavy breaking) for long periods of time. ___ 13. In a long individual time trial, with the exception of turnarounds and hills, I can stay seated the entire race. ___ 14. In a pack sprint, I feel aggressive and physically capable of winning. ___ 15. When standing on a climb, I feel light and nimble on the pedals.	A D ___ 1. 在和我同级别的车手圈子里，我的体形显得相当瘦。 ___ 2. 在和我同级别的车手圈子里，我的肌肉更发达，体重也更大。 ___ 3. 我常常能够独立地骑好几分钟来赶上与前面队伍的较大的差距。 ___ 4. 我能够忍受长时间的连续不断的痛苦，有时甚至长达 1 个小时。 ___ 5. 和我同级别的大多数车手无法一口气爬上去的很长的山坡，我却能够爬上去。 ___ 6. 我能做车上的“特技”，以及提车跳跃等动作，并且比大多数人做的好。 ___ 7. 我能够毫无困难地高速旋转曲柄，并让踏频超过 140rpm。 ___ 8. 我很期待比赛中的爬坡路段，以及艰难的团队训练。 ___ 9. 我能够很轻松地保持空气动力学姿势：俯身握 TT 把，双肘靠拢，背部水平。 ___ 10. 从我的瞬时冲刺速度，垂直起跳高度等指标分析，我肯定有较多的快收缩肌。 ___ 11. 在我经历的痛苦记忆中，我很少在爬坡的时候“爆缸”，即使当时是在加速。 ___ 12. 在比赛中，我能够在我的乳酸极限区域附近（呼吸粗重）骑很长的时间。 ___ 13. 在长距离的个人计时赛中，除了在折返点和上坡时以外，我能在整个比赛中保持坐姿。 ___ 14. 在集体冲刺时，我感觉到好斗的欲望，以及赢得胜利的机会。 ___ 15. 采用站立式爬坡时，我感觉踩踏很很快很灵活。
Scoring: For each of the following sets of questions count the number of "Agree" answers you checked.	评分: 对于以下每一组问题，记录那些你回答“同意”的问题的个数。
Question numbers _____ Score _____ 1,5, 8,11,15 Number of "agrees"___ Climbing___ 2,6,7,10,14 Number of "agrees"___ Sprinting___	问题编号 _____ 分数 _____ 1,5, 8,11,15 “同意”的个数___ 爬坡___

3,4,9,12,13 Number of "agrees"__ Time trial__

2,6,7,10,14 “同意”的个数__ 冲刺__

3,4,9,12,13 “同意”的个数__ 个人计时__

Sidebar 5.4

工具栏 5.4

MENTAL SKILLS PROFILE

意志品质情况

Read each statement below and choose an appropriate answer from these possibilities:

阅读以下问题并根据可能性选择你认为最合适的回答:

1=Never 2=Rarely 3=Sometimes
4=Frequently 5=Usually 6=Always

1=从不 2=很少 3=有时
4=经常 5=通常如此 6=一贯如此

- ___ 1. I believe my potential as an athlete is excellent.
- ___ 2. I train consistently and eagerly.
- ___ 3. When things don't go well in a race, I remain positive.
- ___ 4. In hard races, I can imagine myself doing well.
- ___ 5. Before races, I remain positive and upbeat.
- ___ 6. I think of myself more as a success than as a failure.
- ___ 7. Before races, I am able to erase self-doubt.
- ___ 8. The morning of a race, I awake enthusiastically.
- ___ 9. I learn something from races when I don't do well.
- ___ 10. I can see myself handling tough race situations.
- ___ 11. I'm able to race close to my ability level.
- ___ 12. I can easily picture myself training and racing.
- ___ 13. Staying focused during long races is easy for me.
- ___ 14. I stay in tune with my exertion level in races.
- ___ 15. I mentally rehearses skills and tactics before races.
- ___ 16. I'm good at concentrating as a race progresses.
- ___ 17. I make sacrifices to attain my goals.
- ___ 18. Before an important race, I can visualize doing well.
- ___ 19. I look forward to workouts.
- ___ 20. When I visualize myself racing, it almost feels real.
- ___ 21. I think of myself as a tough competitor.
- ___ 22. In races, I tune out distractions.
- ___ 23. I set high goals for myself.
- ___ 24. I like the challenge of a hard race.
- ___ 25. When the race gets hard, my concentration improves.
- ___ 26. In races, I am mentally tough.
- ___ 27. I can relax my muscles before races.
- ___ 28. I stay positive despite late starts or bad weather.
- ___ 29. My confidence stays high the week after a

- ___ 1. 我认为我有成为优秀运动员的潜质。
- ___ 2. 我渴望训练并始终坚持不懈。
- ___ 3. 即使比赛进行的很不顺利，我仍能保持积极心态。
- ___ 4. 在艰苦的比赛中，我能想象自己发挥出色。
- ___ 5. 比赛前我能保持积极和乐观的心态。
- ___ 6. 我认为我更多的是成功者而不是失败者。
- ___ 7. 比赛前，我能够摆脱自我怀疑的情绪。
- ___ 8. 比赛日的早晨，我醒来时充满热情。
- ___ 9. 如果在比赛中表现不好的话，我也能从中学到一些东西。
- ___ 10. 我能够想象自己如何在比赛中处理艰苦的情况。
- ___ 11. 我能够在比赛中发挥出接近我的最好能力的水平。
- ___ 12. 我能很容易地让自己进入训练或比赛状态。
- ___ 13. 在长距离比赛中我能够很容易地保持精力专注。
- ___ 14. 在比赛中我不断调节自己的出力水平。
- ___ 15. 比赛前我会在脑子里把要用的技巧和战术过一遍。
- ___ 16. 随着比赛的进行我的精神会更加专注。
- ___ 17. 我会为达到目标而做出牺牲。
- ___ 18. 在重要比赛开始前，我能形象地预见到自己发挥出色。
- ___ 19. 我期待训练。
- ___ 20. 当我形象地预想自己的比赛过程时，它几乎和真的一样。
- ___ 21. 我觉得我是个不好对付的竞争者。
- ___ 22. 在比赛中，我不会分神。
- ___ 23. 我为自己定了很高的目标。
- ___ 24. 我喜欢艰苦的比赛带来的挑战。
- ___ 25. 当比赛变地更困难时，我的专注程度也会提高。
- ___ 26. 在比赛中，我的神经很坚强。
- ___ 27. 比赛前我能够放松肌肉。
- ___ 28. 推迟发车或天气很坏时我仍保持积极心态

bad race. ___30. I strive to be the best athlete I can be. Scoring: Add up the numerical answers you gave for each of the following sets of questions and rate the associated categories according to the scoring chart below.		___29. 经历一场糟糕的比赛之后，我只需一个星期就能恢复自信。 ___30. 我努力成为我能够企及的最好的运动员。 评分：把你对以下各组问题的回答数字相加，并根据以下的评分表格找出你的合计数值对应的分数。																			
Question numbers 2,8,17,19,23,30 Total___ 1,6,11,21,26,29 Total___ 3,5, 9,24,27,28 Total___ 7,13,14,16,22,25 Total___ 4,10,12,15,18,20 Total___	Score Motivation___ Confidence___ Thought habits___ Focus___ Visualization___	问题编号 2,8,17,19,23,30 合计___ 1,6,11,21,26,29 合计___ 3,5, 9,24,27,28 合计___ 7,13,14,16,22,25 合计___ 4,10,12,15,18,20 合计___	分数 动机___ 自信___ 思维习惯___ 专注力___ 形象化想象___																		
<table border="1"> <tr> <th>合计</th> <th>级别</th> <th>分数</th> </tr> <tr> <td>32—36</td> <td>优秀</td> <td>5</td> </tr> <tr> <td>27—31</td> <td>好</td> <td>4</td> </tr> <tr> <td>21—26</td> <td>平均</td> <td>3</td> </tr> <tr> <td>16—20</td> <td>正常</td> <td>2</td> </tr> <tr> <td>6—15</td> <td>差</td> <td>1</td> </tr> </table>		合计	级别	分数	32—36	优秀	5	27—31	好	4	21—26	平均	3	16—20	正常	2	6—15	差	1		
合计	级别	分数																			
32—36	优秀	5																			
27—31	好	4																			
21—26	平均	3																			
16—20	正常	2																			
6—15	差	1																			
Sidebar 5.5 NATURAL ABILITIES PROFILE Read each statement below and decide if you agree or disagree with it as it applies to you. Check the appropriate answer. If unsure, go with your initial feeling. A=Agree D=Disagree A D ___ 1. I prefer to ride in a bigger gear with a lower cadence than most of my training partners. ___ 2. I race best in criteriums and short road races. ___ 3. I'm good at sprints. ___ 4. I'm stronger at the end of long workouts than my training partners. ___ 5. I can squat and/or leg press more weight than most in my category. ___ 6. I prefer long races. ___ 7. I use long crank arms than most others my height. ___ 8. I get stronger as a stage race or high-volume training week progresses. ___ 9. I comfortably use smaller gears with higher cadence than most others I train with. ___ 10. I have always been physically quicker than most other people for any sport I've participated in. ___ 11. In most sports, I've been able to finish stronger than most others. ___ 12. I've always had more muscular strength		工具栏 5.5 自然能力情况 阅读以下每个题目，想一下如果这是说你自己的话你是否同意，然后在对应的栏打勾。如果不能确定的话，以你阅读题目时的第一感觉为准。 A=同意 D=不同意 A D ___ 1. 和大多数训练伙伴相比，我更喜欢较大的齿轮比和较低的踏频。 ___ 2. 我在绕圈赛和短距离公路赛中成绩最好。 ___ 3. 我擅长冲刺。 ___ 4. 在长距离训练的最后时刻，我比我的训练伙伴气力更足。 ___ 5. 在负重半蹲和/或躺式蹬举练习中，我能举起比同级别的大多数车手更重的重量。 ___ 6. 我偏爱长距离比赛。 ___ 7. 我使用的曲柄长度比大多数和我同样高度的人更长。 ___ 8. 随着多站式比赛或大运动量的训练周的进行，我感觉更强壮了。 ___ 9. 和大多数一起训练的人相比，我更喜欢用较小的齿比和较高的踏频。 ___ 10. 与大多数和我一起参加比赛的骑手相比，我能够在单纯竞速上胜过他们。 ___ 11. 在很多运动项目中，在接近终点时我都比其他大多数人气力更足。																			

than most others I've played sports with.
___ 13. I climb best when seated.
___ 14. I prefer workouts that are short but fast.
___ 15. I'm confident of my endurance at the start of long races.

Scoring: For each of the following sets of questions count the number of "Agree" answers you checked and rate the categories accordingly.

Question numbers	Score
1,5,7,12,13 Number of "agrees"___	Strength ___
2,3,9,10,14 Number of "agrees"___	Skill ___
4,6,8,11,15 Number of "agrees"___	Endurance___

Sidebar 5.6

___ 12. 我的肌肉力量比一起参加运动的其他大多数人都强。
___ 13. 保持坐姿时我的爬坡最快。
___ 14. 我喜欢距离短速度快的训练。
___ 15. 长距离比赛时我对自己的耐力很有信心。

评分: 对于以下每一组问题，记录那些你回答“同意”的问题的个数。

问题编号	分数
1,5, 7,12,13 “同意”的个数___	力量___
2,3,9,10,14 “同意”的个数___	速度技能___
4,6,8,11,15 “同意”的个数___	耐力___

工具栏 5.6

Proficiencies

There are three proficiencies that determine success in cycling:

- Climbing
- Sprinting
- Time trialing

It's an unusual cyclist who stores a 4 or 5 on each of these. Body size and shape, aerobic capacity potential, and muscle type often determine which of these are your strength. Just because you are a good sprinter, however, doesn't mean that you should neglect climbing. What value is it to have a tremendous sprint but be unable to climb and so arrive at the finish well after winners? You must work to improve your limiters. Any proficiency in which you scored a three or less needs work if it is a race-specific weakness – a limiter. Just how much work you need depends on the types of races you plan to be doing. We'll explore that issue in the next chapter.

Mental Skills

Mental skills are the most neglected aspect of racing for serious cyclists at all levels. I've known talented riders who, except for their lack of confidence, were capable of winning or

个人专长

决定能否在单车比赛中成功的个人专长有三项:

- 爬坡
- 冲刺
- 个人计时

以上三项中每项得分都在 4—5 分的车手相当少见。体形，身高，有氧潜力，以及肌肉类型往往决定了你的强项是其中的哪一个。就因为你是个好的冲刺手，并不等于说你可以忽略爬山。如果你不会爬山结果比别人晚很久才接近终点，那么即使你有超强的冲刺能力又有什么用呢？你必须着手改善你的限制因素。任何一项得 3 分或更低分数的专项能力都是你的弱项，如果它正是特定比赛所需要的能力那么它就是一个需要改进的限制因素。至于你需要改进到什么程度则依赖于你准备参加的比赛类型。我们将在下一章继续讨论这个问题。

意志品质

意志品质是最容易被各个层次的认真的车手所忽略的比赛因素。我知道一些很有天赋但缺乏自信心的骑手，他们应该能够赢得比赛或保持正常发挥，但实际上却很少成为强有

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always placing well, but were seldom contenders. Their heads were holding them back.

More than likely, you scored a 4 or 5 in the area of motivation. I always see this in the athletes I coach. If you didn't, then it may be time to take a long look at why you train and race bicycles.

A highly motivated and physically talented rider who is confident, has positive thought habits, can stay focused during a race and has the ability to visualize success is practically unbeatable. A physically talented athlete without these mental qualities hopes to finish with the peloton. If you are weak in this area, other than working closely with a good sports psychologist, one of the best courses of action is to read a book by one of them. Here are some books I've found to be helpful in improving mental skills. Some may be difficult to find as they are out of print:

Bull, Stephen J. *Sport Psychology*. Crowood Press: 2000.
Elliott, Richard. *"The Competitive Edge."* TAFNEWS: 1991.
Jackson, Susan A. and Mihaly Csikszentmihalyi. *Flow in Sports*. Human Kinetics: 1999.
Loehr, James. *Mental Toughness Training for Sports*. Stephen Greene Press: 1982.
Loehr, James. *The New Mental Toughness Training for Sports*, Penguin Books: 1995.
Lynch, Jerry. *Creative Coaching*. Human Kinetics: 2001.
Lynch, Jerry. *Running Within*. Human Kinetics: 1999.
Lynch, Jerry. *Thinking Body, Dancing Mind*. Bantam Books: 1992.
Lynch, Jerry. *The Total Runner*. Prentice Hall: 1987.
Lynch, Jerry, and Chungliang Al Huang. *Working Without, Working Within*. Tarcher & Putnam: 1998.
Orlick, Terry. *Psyched to Win*. Leisure Press: 1992.
Orlick, Terry. *Psyching for Sport*. Leisure Press: 1986.
Ungerieider, Steven. *Mental Training for Peak Performance*. Rodale Sports: 1996.

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力的竞争者。这是因为他们的头脑拖了后腿。

很有可能你在动机一项会得到4—5分，这在我训练过的运动员中常常看到。如果不是这样的话，你也许应该回过头去想你为什么训练和参加比赛。

一个骑手，如果他有很强的动机，很好的身体条件，又很自信，习惯于从积极方面思考问题，能够在比赛中保持专注，能够形象化地预想胜利，这种人是无法被击败的。一个身体条件很好但没有这些意志品质的运动员往往希望跟着大部队一起完赛。如果你在这方面比较弱的话，除了找运动心理学家好好谈谈以外，还可以读一本他们写的书，这也是一种很好的治疗方法。下面列出的是我能找到的有利于改善意志品质的书单。有些书比较难找，因为现在已经不出版了：

Bull, Stephen J. “运动心理学”. Crowood Press: 2000.
Elliott, Richard. “竞争的边缘.” TAFNEWS: 1991.
Jackson, Susan A. and Mihaly Csikszentmihalyi. “运动的流程”. Human Kinetics: 1999.
Loehr, James. “运动员坚韧意志力的培养”. Stephen Greene Press: 1982.
Loehr, James. “新编运动员坚韧意志力的培养”, Penguin Books: 1995.
Lynch, Jerry. “创新性教练”. Human Kinetics: 2001.
Lynch, Jerry. “Running Within”. Human Kinetics: 1999.
Lynch, Jerry. “思考的身体，舞动的心灵” Bantam Books: 1992.
Lynch, Jerry. “完全的跑者”. Prentice Hall: 1987.
Lynch, Jerry, and Chungliang Al Huang. *Working Without, Working Within*. Tarcher & Putnam: 1998.
Orlick, Terry, “灵魂的胜利”. Leisure Press: 1992.
Orlick, Terry. “运动的心理”. Leisure Press: 1986.
Ungerieider, Steven. “颠峰状态的心灵训练”. Rodale Sports: 1996.

Natural Abilities

Some were born to be cyclists. Their parents blessed them with the physiology necessary to excel on two wheels. Others were born to be soccer players or pianists. Many of us who are cyclists have chosen to race a bike regardless of our genetic luck. Passion for the sport means a lot and helps overcome many physiological shortcomings.

The right mix of three basic abilities determines success in any sport:

- Endurance: The ability to continue for a long time.
- Strength: The ability to generate force against a resistance.
- Speed Skill: The ability to make the movements of the sport at a required speed.

For example, an Olympic weight lifter must generate a tremendous amount of force, and needs a fair amount of skill and very little endurance. A pole vaulter needs tremendous skill, a moderate amount of strength, and little endurance. A marathon runner doesn't need much strength, only a little skill, but great endurance. Every sport is unique in terms of the mix of these three elements and, therefore, requires unique methods of training.

Road cycling puts a premium on endurance, but strength for climbing hills and skill for sprinting and pedaling correctly are also important elements of the formula. This unique combination of abilities is one of the reasons that cycling is such a difficult sport for which to train. A cyclist can't just put in a lot of miles to develop huge endurance and disregard strength and skill. It takes a mix of all three abilities to excel.

The Natural Abilities Profile you completed provides a snapshot of your individual capabilities for the three elements of fitness for cycling. A score of 4 or 5 for one of the abilities indicates a strength area. If all of your scores are 4 or 5 you undoubtedly have been a good athlete in many sports. A score of

自然能力

有些人天生就是运动员。他们的父母给了他们能够在两个轮子上出类拔萃的必备生理条件。还有些人天生就是足球运动员或钢琴家。我们中的许多人选择参加自行车比赛时并没有考虑这些遗传学上的运气。运动的狂热意味着一切，并帮助克服了许多生理上的弱点。

在任何运动中，以下三项基本能力的正确组合决定了竞赛的成功：

- 耐力：能够持续很长时间的能力。
- 力量：能够产生力量对抗阻力的能力。
- 速度技能：能够以该项运动所要求的速度做出动作的能力。

例如，一个参加奥运会的举重运动员必须有极其巨大的力量，需要一定的技巧但几乎不需要耐力。撑杆跳运动员需要极大的技巧，中等的力量，几乎不需要耐力。马拉松运动员不需要很大的力量，技巧只需要一点点，但需要很强的耐力。每个运动项目都是这三个元素的独特的组合，因此，也需要独特的训练方法。

公路车比赛需要超乎寻常的耐力，但是在爬坡时需要力量，在冲刺时需要正确的踩踏技巧，所以这两项也同样重要。这些能力的组合非常独特，这也是为什么自行车运动是最难进行训练的运动的运动的原因。一个骑手不能简单地靠骑很多里程来建立超强的耐力，却忽视了力量和速度技能的训练。他必须把这三种能力混和起来才能达到出类拔萃。

你完成的自然能力情况评估提供了关于你在这三方面的个人能力的一个缩影。得到4—5分的能力表示你的一个强项。如果所有的得分都是4—5分的话，那么毫无疑问你已经是个在很多运动项目上表现都很优秀的运动员了。3分或更低的能力表示你的一

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3 or less indicates a weakness, one that may partly be due to heredity and partly to training. You can't change your genes, but you can change your training, if it's needed. That's what you'll find out in the next chapter.

Miscellaneous Factors

There is a fourth category for self-assessment included in the Cyclist Assessment at the end of this chapter – Miscellaneous Factors. Most of these are quite subjective, but try to rate them using the same 1-to-5 scale as for the other profiles. The following brief comments may help you to do this.

Nutrition. Could your nutrition improve? Do you eat a lot of junk food? On a scale of 1 to 5, how strict is your diet? If it is very strict with no junk food, circle 5. If nearly all you eat is junk food, circle 1.

Technical equipment knowledge. How well do you know your bike's inner workings? Could you repair or replace anything that may need it? If you're a certified mechanic, circle 5. If you're unable to repair even a flat tire, circle 1.

Race strategy. Before starting every race, do you have a master plan of what you will do under various circumstances? If so, mark 5. If you never give race strategy any thought and just react to what happens, circle 1.

Body composition. Power-to-weight ratio is extremely important in cycling. Evaluate your weight side of the ratio. Are you carrying excess fat that if removed would make you a better climber? Use the following scale:

多余体重	等级
10 磅或更多	1
7—9 磅	2
4—6 磅	3
1—3 磅	4
没有多余体重	5

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个弱项，部分因为遗传，部分源于训练。你无法改变你的基因，但你可以改变你的训练，如果你需要这么做的话。这是在下一章中你将看到的内容。

杂项因素

在本章的结尾是第四类单车骑手需要了解的自我评估内容——杂项因素。这些因素里很多都是主观性的，但请尽量象前面一样使用从 1 到 5 的级别来积分。下面的简单介绍将帮助你做这件事。

营养：你能改善你的营养吗？你吃很多的垃圾食品吗？按 1—5 分级，你对你的饮食的严谨程度如何？如果你非常严谨，不吃任何垃圾食品，5 分。如果你吃的大部分食品都是垃圾食品，1 分。

技术装备知识：你对你的单车的内部构造了解多少？如果需要你能够修理或更换任何部件吗？如果你是个有认证的技师的话，5 分。如果你连补胎都不会，1 分。

比赛战术：在每次比赛开始前，你有一个在各种不同情况下该如果行动的指导计划吗？如果有，5 分。如果你从未想过比赛战术，只是依靠比赛中的本能反应，1 分。

身体组成：功率/体重比率对骑车运动极其重要。评估一下你的体重。你是否负担着多余的体重？如果减掉它就能让你成为更好的爬坡手？使用以下的分级标准：

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Support of family and friends. For those who are not fans of the sport, cyclists may seem somewhat strange. Those we are closest to have a tremendous effect on our psychological stress. How supportive of the time you spend training and racing are your family and friends? If they are 100 percent supportive, circle 5. If you have no support and are ridiculed by those who are close to you, or if they try to convince you not to devote so much time to riding, circle 1.

Years of racing experience. How many years have you been training and racing? Circle that number. If more than five years, still circle 5. Experience plays a significant role in high-level training and racing.

Tendency to overtrain. Do you come on strong about December – and are you ready to quit by June every year? If so, you're prone to overtraining – circle 1. Or do you frequently take rest breaks throughout the year and stay enthusiastic for training and racing right up until the last race on the calendar? If you're one of the few racers with such wisdom and patience, circle 5.

You've now evaluated yourself in several key areas. To compile the results mark your score for each on the Cyclist Assessment form (Sidebar 5.7). All of those with a score of 4 or 5 are strength areas. Scoring a 3 or less indicates a weakness. For each item, briefly comment on what you learned about yourself. Later on we'll come back to this form to help design your training plan for the year.

At the top and bottom of the Cyclist's Assessment, there are spaces for you to write in goals for the season and training objectives to help achieve them. Don't do anything with these sections yet. The next chapter takes a closer look at how to go about correcting some of the abilities that may be holding you back from better racing. In Chapter 7, the assessment will come together as you complete the last sections at the bottom of the form and begin the process of designing an annual training plan for better racing results.

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家庭和朋友的的支持：对那些不懂这项运动的人来说，单车手也许看上去有些奇怪。那些与我们关系密切的人对我们的心理压力有极大的作用。你的朋友和家人对你花费时间用于训练和比赛的支持程度如何？如果他们百分之百地支持你，5分。如果你得不到任何支持，并且被你身边的人冷嘲热讽，或者他们极力劝说你不要在骑车上面花费太多的时间，1分。

比赛经验：你已经参加训练和比赛几年了？以年头作为分数。如果超过5年，也是5分。经验在高水平比赛和训练中意义重大。

过度训练的可能性：你是否每年都是在12月份感觉很强壮但是到了6月份却要准备放弃比赛了？如果是，你也许有过度训练的倾向——1分。或者你经常在全年训练中穿插休息恢复从而始终保持训练和比赛热情高涨，直到赛季的末尾？如果你是少数几个能够如此明智并有耐心的车手之一的的话，5分。

现在你已经对你自己的某些关键因素做了自我评估。把这些得分记录在自行车手评估表（工具栏 5.7）里从而得到综合结果。所有那些得4—5分的都是强项。得3分或更低的是弱项。对于每一项因素，你都需要简单地描述一下你对自己的看法。以后在设计你的年度训练计划时，我们还会回过头来看这个表格。

在车手评估表的抬头和结尾处留出的空白是给你填写本赛季的目标，以及要达到赛季目标所需要的训练目标。但是先不要为此做任何事情。在下一章我们会进一步考察如果改善那些阻碍你在比赛中取得更好成绩的能力。在第7章，我们会评估你在表格最后部分的训练目标，并开始设计年度训练计划来取得更好的比赛成绩。

车手评估表

赛季目标

1	
2	
3	

	评分 (5=最好, ? =不确定)						评论
冲刺功率测试							
最大功率	?	1	2	3	4	5	
平均功率	?	1	2	3	4	5	
递增出力测试							
乳酸盐极限功率	?	1	2	3	4	5	
无氧耐力	?	1	2	3	4	5	
个人专项能力							
爬坡	?	1	2	3	4	5	
冲刺	?	1	2	3	4	5	
个人计时	?	1	2	3	4	5	
需要做什么来改善弱点:							

意志品质							
动机	?	1	2	3	4	5	
自信	?	1	2	3	4	5	
思维习惯	?	1	2	3	4	5	
专注	?	1	2	3	4	5	
形象化想象	?	1	2	3	4	5	
需要做什么来改善弱点:							

自然能力情况							
耐力	?	1	2	3	4	5	
力量	?	1	2	3	4	5	
技巧	?	1	2	3	4	5	
需要做什么来改善弱点:							

杂项因素							
营养	?	1	2	3	4	5	
技术装备知识	?	1	2	3	4	5	
比赛战术	?	1	2	3	4	5	
身体组成	?	1	2	3	4	5	
家庭和朋友圈支持	?	1	2	3	4	5	
比赛经验	?	1	2	3	4	5	
过度训练可能性	?	1	2	3	4	5	

为达到赛季目标所需的训练目标:

1	
2	
3	
4	
5	

Sidebar 5.7

工具栏 5.7