THE CONDITIONING OF DISTANCE RUNNERS

Tom Oliver’s first effort as a running writer didn’t go too much farther than this one. Still running off the beaten path, he’s written millions of words on running, the 10,000-meter run, and the 100-meter dash. His work has appeared in various publications, and he’s been a contributor to the National Running News, the Runner’s World, and other magazines.

The art of training distance runners is in its infancy. Not anymore. But when Tom Oliver wrote those words in the summer of 1967, the pool of knowledge about running was a comparatively small one. Today, there’s an ocean of information, some of it new, much of it improved, and most of it directly descended from a small group of books and pamphlets released in the 1960s.

Oliver’s The Conditioning of Distance Runners was one such seminal publication. It extended the limits of what was understood about distance running and the community of those who understood it. As Oliver wrote in his introduction, “I often think that people who really understand distance running are the ones who can’t explain it.”

Perhaps that’s true. But for those of us who are interested in running, there are some very important secrets that are hidden in this book. And, as Oliver notes, “The secret is in the book.”

The book is 120 pages long, and it’s divided into three parts: the first two are devoted to the basics of running, and the third is devoted to the mental aspects of running. The first part is a bit too simplistic for my taste, but the second and third parts are excellent.

Two Aspects of Conditioning: Base Training and Sharpening

There are two aspects of running which are essential to the overall process of conditioning: base training and sharpening. Base training is the process of building up the body and the mind, and sharpening is the process of fine-tuning the body and the mind to achieve maximum performance.

Base training involves building up the body and the mind to a level where the athlete can perform at a high level. This involves building up the cardiovascular system, building up the muscular system, and building up the nervous system. Base training is the foundation upon which all other training is built.

Sharpening involves fine-tuning the body and the mind to achieve maximum performance. This involves fine-tuning the cardiovascular system, fine-tuning the muscular system, and fine-tuning the nervous system. Sharpening is the process of taking the athlete to the next level, and it’s the ultimate goal of every athlete.

In conclusion, Tom Oliver’s book is a valuable resource for anyone interested in running. It’s full of practical information, and it’s written in a way that is easy to understand. If you’re interested in running, this book is a must-read. If you’re not interested in running, you should still read this book, because it’s full of useful information that can be applied to any fitness program.

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Seventeen years ago a national-class competitor with "no natural talent" but a fascination with running published a treatise that offered a great deal of insight into long-distance training. *Runner's World* is proud to reprint this classic, which is as topical today as it was then.

by Thomas J. Oates

By base conditioning I mean that inner basic strength of the runner that produces a performance without specific muscular adaptation for that event. That is, to say, it is the combined effect of natural ability, years of training and overall stamina conditioning. Distance runners often develop a bias by using long, slow runs at a pace well within their capacities for a long period of time.

By sharpening, I mean those training techniques that produce efficient muscular coordination for a chosen event. A mile, for example, will do many 30s, to 60 seconds to condition his reflexes for peak efficiency at this speed. Sharpening work is basically muscular and neurological in nature, whereas basic work results primarily in the conditioning of the circulatory system.

Perhaps one can best explain the difference through an example. Consider runners A and B, who today run a mile race and both clock 4:45. It would appear to the casual observer that the runners are of equal ability and potential. But a more careful examination of their conditioning for this race reveals the following:

Runner A has for the past several months trained only at a pace that is well within his ability—say, seven minutes per mile. He has thus been conditioning his base, but has little specific training for this event. He feels awkward running a 4:45-per-mile pace and is not efficient in his muscular movements. Runner B, on the other hand, has trained at racing speed or even faster. He can thus relax and run efficiently at 4:45-per-mile pace. He has trained by doing fast repetitions at a short distance, including some sharpening training.

The figure on page 54 shows the situation.

Runner A, although obviously blessed with less potential, can match A because of his sharpening. Were he to run as A does in training, he would produce only a 4:55 pace. This is his base. Runner A, however, will be capable of running a mile in 4:45 after a short month of sharpening. Thus we see that we must have some measure of both the base and the sharpening training a runner has done in order to fully examine his future capacity for a given race.

Let's examine in detail the features of base and sharpening conditioning. We will observe that although both are necessary for the best results, they are in many ways opposite.

**Base Training**

As mentioned above, the base of a runner's conditioning can be measured by the performance he can produce without specific muscular adaptation for the event. This is best achieved through long, easy runs. The base has the following features:

- It can be improved continuously, even over many years.
- It can only be developed at a slow pace—in fact, much slower than the improvement observed from sharpening training.
- Its effects are long-lasting and are not easily destroyed. Runners who have taken the time to develop a good base often observe that upon a considerable reduction in training, performance in races remains essentially the same.
- Because of the slow pace used in its development and the necessity for maintaining freshness, base training reduces the likelihood of injury or illness.

**Sharpening Training**

Sharpening is performed to add muscular and neurological efficiency to the degree of circulatory efficiency that now exists at the runner's base level. Sharpening training is done by performing numerous repetitions of a short distance at racing pace or faster. Details will be discussed in Part II. The essential features of sharpening are the following:

- Its effects are short-lived and at times appear volatile. One can rarely maintain the high performance level resulting from this training for more than three months.
- When it is done properly, astonishing improvement can be observed in just six weeks.
- Special care is necessary when attempting this type of conditioning, for if it is not done properly, it can result in performances that are deleterious to the
Base can only be developed at a slow rate—much slower, in fact, than the improvement observed from sharpening...Base training is like putting money in the bank.

Base level of the athlete,
- Because of the faster pace necessary with this training, injury and illness are more easily provoked, and must be consciously avoided.
- If continued for too long a period, sharpening training can drive the athlete into a slump. It must, therefore, be terminated after about three months or when the symptoms of energy depletion are first observed.

It has been my observation that the two types of training cannot be combined for optimum results over a long period of time. This is because improvement of one's base level requires a large reserve of adaptation energy. (Adaptation energy permits the body to respond favorably to changing environmental conditions.) This reserve is depleted by fast running, which is needed for sharpening work. Base training is like putting money in the bank; sharpening, when done properly, is like taking out the accumulated interest. When done improperly, sharpening is like draining one's financial reserves.

To illustrate more fully the effects of these two types of conditioning, we will consider the performance of two runners of equal natural ability over the course of their college years. We will assume that they are entering their freshman year at a base level of 8:30 for two miles.

Their training over the first-year college period will be different and will reveal the features mentioned above. Runner A will work no base conditioning. Runner B will use a combination of base and sharpening conditioning you've tried, and Runner C will use base conditioning for most of the year.
One can rarely maintain the high performance level resulting from sharpening for more than three months... Done improperly, sharpening is like draining one’s financial resources.

Interestingly, the base level of the runner can be significantly improved through proper training. Although only a few percent of the maximum potential can be reached at any given time, the runner’s performance can improve dramatically over the long term.

The runner’s body is a complex system, and injuries can be prevented by focusing on specific aspects.

**Illness and Injury Two Obstacles to Progress**

Running long distances can place a severe strain on the body and cause illness or permanent injury. Distance runners tend to believe that no amount of training, no matter how hard, can injure the body. Those who believe this are correct, but not in the way they think. Running can indeed cause physical harm when done to excess and without reasonable caution. On the other hand, a state of superhealth can be attained, in which the chances for injury or illness are nil but eliminated.

Now to one of the most important points: injury and illness are the results of overstretching one’s energy reserves and mit, in what one could call the “result of accidents.” A properly conditioned runner, whose body can handle more than the daily training load, is virtually injury- and illness-proof. You may ask, “Isn’t running on a state of twisting one’s ankle on accident?” If you answer, emphatically, No! A fresh runner is an alert and quick to avoid trouble; 2) in possession of quick reflexes to respond imme-

The Three Types of Running: Good and Bad Effects

For simplicity, I have divided the many elements of training into only three types: slow running, race pace for long distances, and interval speed. Each has good and bad effects. I will outline these below, so that the reader will understand the overall training plan.

**Slow Continuous Long Runs**

Here I am referring to long runs at a steady pace well within the capacity of the runner, yet still requiring a real running commitment, as opposed to jogging. Most runners find running at about seven minutes per mile fulfill these requirements. I assume that the runner stays long before he is exhausted.

**Good Effects**

- **Control the circulatory system.**
- **Help develop a robust health.**
- **Helps avoid injuries.**
- **Conditioning improvement is likely, although at a very slow rate.**
- **Develops a runner’s base level.**

**Bad Effects**

- **Has a distracting effect, and thus permits the runner to conserve adequate energy.**
- **Has a detrimental effect, and thus permits the runner to conserve adequate energy.**

**December 1984 / RUNNER’S WORLD**
A runner who conditions himself with slow running first is like a builder laying a strong and deep foundation for a skyscraper. The runner who begins with speedwork is like a builder who lays a weak foundation.

**RUNNER A**
The hallmark of Runner A's performance is inconsistency. By doing only intense, sharpening type running, he fails to improve his base and ultimately limits his potential improvement. This type of running may yield terrific short-term results, but the long-term results will probably be disappointing. This amount of fast running aggravates the runner for injury and illness.

**RUNNER B**
Does not develop efficient coordination for racing pace.
Has a sharpening effect, resulting in slower racing times.

**Racing Pace for Long Distances**
Here we consider fast, continuous runs of about three-fourths the racing distance. This is perhaps the most taxing of all training techniques.

**Good Effects**
- Develops a keen sense of racing pace.
- Teaches one to relax at actual racing pace and to manage efficiency of movement.

**Bad Effects**
- Is very tiring on the runner.
- Is done frequently it will quickly break him down.
- The greater fatigue encountered makes the likelihood of illness and injury greater.

**Interval Speed Training**
I refer here to interval training in its common definition: frequent repetitions of a short distance at faster than race pace.

**Good Effects**
- Teaches the runner to relax.
- Helps the runner learn efficient coordination at a fast pace.
- Develops muscle strength.
- Has a fast sharpening effect.
- Often results in astonishingly rapid improvement.

**Bad Effects**
- Robs the runner of his reserves of adaptation energy, and thus, if continued for more than about three months, begins to break him down.
- The fast pace places a great strain on tendons and muscles and often results in injury.
- Great care must be exercised to see that this type of work is effectively executed. If done improperly, it can drive a runner into a slump as quickly as it can improve a runner who uses it well.

**The Basic Plan**
The basic plan behind the training program is designed to produce continuous improvement of the runner’s base level while allowing him to sharpen for important races once or perhaps twice a year. At first our runner will not be improving as rapidly as possible, since the base level of a runner reacts much more slowly to conditioning than does sharpening. Nevertheless, after a year or two his base level is sufficiently high to enter any times. Initially, and what’s more important, he will have laid the foundation for faster work in the years to follow.

Suppose we have a runner who wishes to run well during the fall and spring. Ideally he should spend one solid year doing slow running to ensure that his foundation is well-established. But he probably won’t have that much patience. So let’s say that he begins in the summer, laying the foundation with slow running. After three months he can do sharpening work during his cross-country season. Following this, he can do slow running again during the winter months and sharpen in the spring.
The best of the Cooper system is in the racing. G terse calls for many months of easy running with faster, more intense workouts as the sprinting season approaches.

A runner who conditions himself with slow running first is like a builder laying a strong and deep foundation for a skyscraper. The runner who begins with speedwork is like a builder who lays a weak foundation in order to get the first few stories of his structure up quickly. So it is that the runner who begins with speedwork shows the fastest initial improvement. However, just as the builders who had laid a weak foundation is severely limited in the height to which they can raise their structure, so it is that the future performance of our fastly runner will be limited. Our runner who started slowly will eventually surpass the other, for his foundation will provide the base from which higher and higher performances will be launched.

Designing a Schedule
By now the reader is familiar with the basic attack (this book is advice. I'll now describe how this theory is put to use in actual day-by-day workouts. We begin with a description of base conditioning. This should be carried out for three months to a year. A typical week's schedule:

Monday: 5 percent of weekly total
Tuesday: 15 percent of weekly total
Wednesday: 30 percent of weekly total
Thursday: 5 percent of weekly total
Friday: 15 percent of weekly total
Saturday: 10 percent of weekly total
Sunday: rest or easy time trial.

All runs are taken at about seven minutes per mile with the exception of the Sunday run. In order to use the above schedule the runner should first determine the average weekly mileage he has covered over the past three months. He should then decrease this by about 10 percent to determine his first week's mileage in his basic training program. As an example, suppose a runner was averaging about 35 miles per week over the past several months. His base mileage should be about 31 miles per week, and his first week's training would be something like this:

Monday: two miles
Tuesday: five miles
Wednesday: three miles
Thursday: two miles
Friday: five miles
Saturday: four miles
Sunday: rest or short four miles.

This weekly load will now be increased slowly. The easy runs will remain the same, but the medium runs will be increased by one mile every two or three weeks, and the long runs will be increased by a mile each week until they reach 22 or 23 miles.

The runner must be careful not to begin training mileage that is too great, for he will then not be able to tolerate this increased load. The schedule calls for without breaking down.

After 32 weeks, our runner will have increased his training load considerably. Although the mileage is now greater, he should be able to handle it with almost no strain. By now his training schedule looks like this:

Monday: two miles
Tuesday: 10 miles
Wednesday: 21 miles
Thursday: two miles
Friday: 10 miles
Saturday: eight miles
Sunday: six miles.
Total: 39 miles.

The runner should now seriously consider the possibility that his body cannot withstand this new, increased daily mileage. He should now experiment with occasional, more gradual increases in mileage, always taking care not to overload.

Here are a few miscellaneous tips to help the runner avoid difficulties.
* Keep a training diary and record of your daily mileage and how you feel before, during and after the workout.
* You must be sure that you are running well within yourself. Most runners like to run at 6:30 to 7:30 miles per hour. Do not run so slowly that you are not using the basic action that you will use when running at five minutes per mile. Do not jog.

Runner B
Runner B takes a more sensible approach to his training, considering various means of interval training year round. His base level rises considerably through his college years, and his racing performances are fairly consistent. Just as important, he's taking care of himself. This form of training is less likely to cause physical problems and more likely to prevent enjoyable racing and training.

Runner C
And the third was just right. Runner C is most successful at the long run because he never neglects the need to improve his base, which makes his potential ever greater. Speeding is done selectively, so that although Runner C is not competing at a high level at the time, he can produce and depend on right competitive pace. This program requires the most patience and pays the greatest dividends.
**Sportsmedicine**

In a study investigating the effects of long-term exercise on osteoporotic, Lunte and Joanne Slavin of the University of Minnesota found that few active or inactive women consumed the RDA for calcium, 1,000 milligrams. Nutrient intake of active women tended to be better than that of inactive women. The highest nutrient intakes of active women probably resulted from greater food intake rather than better food choices.

**Psychology**

Jogging helps some participants reduce stress. Little is known, however, about its benefits for people who aren't willing participants or its benefits in comparison with other stress-reduction techniques. A recent study at Brooklyn City College showed that both jogging and relaxation cause significant decreases in stress indicators.

The best athletes are relaxed before they compete. In a study examining the differences among elite and non-elite marathoners preparing for a race, marathoner Shirley Durtschi of the University of Oregon found that elite runners were less anxious than non-elites one week and one hour prior to competition, as well as during their warmup and at the starting line. Elite runners ran more miles and were motivated to excel in their sport, while non-elites were satisfied with keeping fit, feeling good about their fitness and the social interaction running provides. John Silva of the University of North Carolina found that he could predict the top finishers of the 1980 Olympic Trials marathon with 81.8 percent accuracy. They showed fewer signs of anxiety and appeared less intense compared before the race.

**Young Runners**

Running helps young runners avoid the early risks of heart disease. On the basis of their ranking among the top five distance runners in Michigan for their age groups, 13 girls and 13 boys were selected to be compared with a matched set of control youths. The elite runners of the Michigan State University study exhibited significantly altered serum lipids and lipoproteins. The changes in the young runners resemble the serum lipid and lipoprotein modifications seen in adult endurance runners, a pattern associated with decreased coronary artery disease risk.

The world has the second highest incidence of deaths per capita from cardiovascular disease. Two significant factors, cardiovascular fitness and body fat, were estimated in 100 Australian children aged 10 to 18 by Piero Russo and Ken Wade of the Cumberland College of Health Sciences in Liscombe. Generally, Australian children compare poorly with children from other countries in these two categories.

**Distance Runners**

- Remember that you cannot learn to run from a book. This booklet can only serve as a guide to help you discover yourself. There are certain basic principles that must be learned, but you and only alone must learn to make intelligent decisions regarding your training. You will make mistakes at first, but you will learn from experience.
- The schedule given here must not be followed religiously. You must not train hard when your body does not have the strength to respond.
- Be careful to relax all over when running. In the words of the great New Zealand coach, Arthur Lydiard, from whom this writer has learned much, "Train, don't strain."
- If you are overweight, consider going on a slow diet, losing about one pound per week. Too fast a loss in weight can result in illness.
- The time trial or race each week is an important part of the program. Without it you will not be able to respond in six short weeks to the sharpening program to be described later. It is important that the athlete run as fast as he would in a race. The runner should also take care that these trials are not so long that they create muscle soreness and prevent the runner from recovering completely in 24 to 48 hours.
- Be sure to take the easy runs each week. They are a built-in safety feature. They allow for any recuperation of your energy reserves. Remember that they play an important role as a safety valve in the development of the base.
- The long run should not be forced. You should be guided and running within yourself all the time. You may, however, on occasion be moderately taxed by this effort, although fatigue should be avoided. Runners vary in the rate at which the long run can be increased with progress after 18 miles is reached. Common sense and the progress of the athlete should be the guide. As I mentioned earlier, the runner must continually evaluate his response to this training program. If he begins to feel mild symptoms of being weak and run-down, or if he gets the sniffles, a headache or other signs of poor resistance, he must ease off. The athlete, when responding to this program, will experience an overall sense of well-being and superhealth. When used carefully, the system should result in a slow but steady increase in the level of the athlete's base. The race each week provides a mild form of sharpening training, but not enough to deprive the runner's reserves of adaptation energy. The next step in the program: to increase the stress load on the body while improving condition fast enough to maintain freshness.

RW will print the second half of the Conditioning of Distance Runners in January.

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