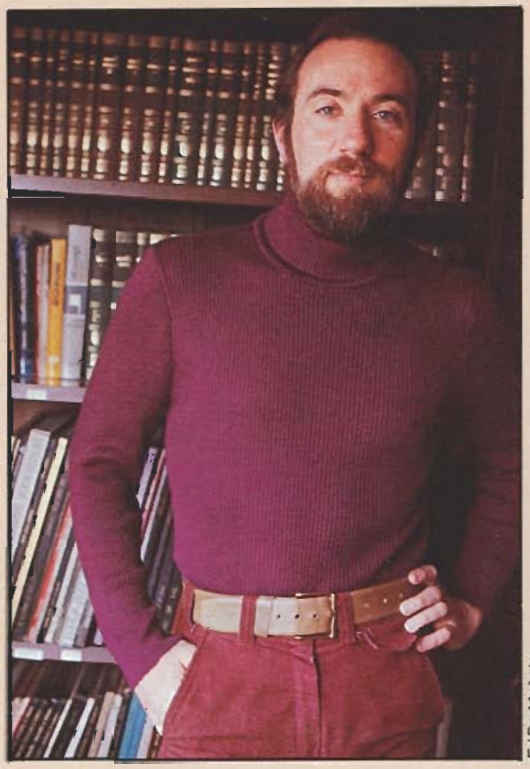
THE CONDITIONING OF DISTANCE RUNNERS

Tom Osler's first effort as a running writer didn't so much fill a need as help create one. Still running and still teaching college mathematics, Osler has welcomed millions of runners into the once-solitary sport, and he confidently offers the same wisdom he first set to paper in 1967. Osler's advice is simple, to the point, and on the mark.



Ed Dodd photo

The art of training distance runners is in its infancy."

Not anymore. But when Tom Osler wrote those words in the summer of 1967, the pool of knowledge about running was a comparative puddle. Today there's an ocean of information, some of it new, much of it improved, and most of it directly descended from a small line of books and pamphlets released in the 1960s.

Osler'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 Osler wrote in his introduction, useful knowledge about the sport was "too often the cherished secret of those in the know." As a national champion at many distances, Osler thought he had some worthy secrets of his own, and he took a step few had thought to take: He spread the word.*

Just how far it might spread he wasn't sure. "No one wanted to publish anything of that kind," Osler recalls. Nonetheless, he dedicated three summer afternoons to setting forth in a few dozen pages the practical, precise—and, for the time, somewhat arcane—lessons that 13 years of competitive running had taught him.

"At the time the only monthly publication was the Long Distance Log, *published by Browning Ross," Osler recalls. "It had about 200 subscribers, had been in existence for about 12 years and had lost money every year.*

"I had a friend who was a runner and a printer. He told me that if I could get my book typed up, he'd print 2000 copies for $200. He didn't make any money on it and I didn't expect to, either. But Browning put a little ad in the Log *saying that my book was available for one dollar. In a month I sold 200 copies.*

"I was afraid of losing my amateur status, because in those days they didn't like anyone making any money from anything connected with running. As soon as I broke even I took all my boxes of books, drove to Browning Ross's house and left them on his porch. He wasn't even home. I left a note that said, 'They're all yours, Browning. Use them for the log.' That's the last I saw of them."

But hardly the last the running world heard of them, or of their author. America's small but consolidated running community embraced Conditioning of Distance Runners. *Ross sold the remaining copies of the booklet, which enabled him to resuscitate* Long Distance Log. *Along with* Runner's World, *which (as* Distance Running News*) preceded* Conditioning *by 20 months, and such books as Arthur Lydiard's classic* Run to the Top, *Osler's guide helped sweep American running into the 1970s, when Frank Shorter and other forces of inevitability took over.*

From today's perspective, Conditioning *is both amusing and amazing. It's amusing because Osler foresaw the growth of distance running, but he could never have predicted that running would lose its simplicity, the very essense of its character in 1967. Osler wrote as a devoted innocent.*

Conditioning *is amazing for the number of times and ways in which it is simply right on the mark. In reprinting this classic, we've left the text—and, we hope, the spirit—essentially untouched. It's a little rough, but then, so was running. We hope you'll enjoy this look at what the art of distance running was, is, and will remain.*

Two Aspects of Conditioning: Base Training and Sharpening

There are two aspects of a runner's conditioning, which together result in the overall capacity he can display in a particular race on a given day. I call these *base conditioning* and *sharpening.*

PART I

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. Osler

Photo courtesy Tom Osler

High school was about as far as the careers of most runners progressed in 1955. America's awareness of running began and ended with the quadrennial Olympic celebrations, and how the foreign stars became so fast, no one knew. That started to change in the '60s, with the greater dissemination of information, and Osler made his contribution in 1967.

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 base 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 miler, for example, will do many 440s in 60 seconds to condition his reflexes for peak efficiency at this speed. Sharpening work is basically muscular and neurological in nature, whereas base 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 4:40. 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 4:40-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 4:40-per-mile pace. He has trained by doing fast repetitions of a short distance, including some sharpening training.

The figure on page 54 shows the situation.

Runner B, 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 mile. This is his base. Runner A, however, will be capable of running a mile in 4:25 after two short months 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 opposites.

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:

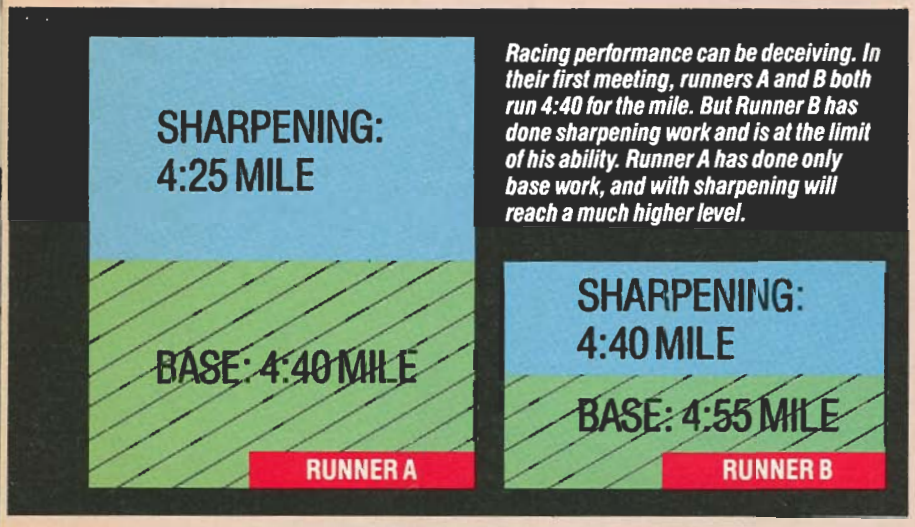
- It can be improved continuously, even over many years.
- It can only be developed at a slow rate—in fact, much slower than the improvement observed from sharpening training.
- Its effects are long-lasting and are not easily destroyed. Runners who have taken the time to develop a good base often observe 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 inferior 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.



Racing performance can be deceiving. In their first meeting, runners A and B both run 4:40 for the mile. But Runner B has done sharpening work and is at the limit of his ability. Runner A has done only base work, and with sharpening will reach a much higher level.

Photo courtesy Tom Osler

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 performances of three two-milers 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 10:30 for two miles.

Their training over the four-year college period will be different and will reveal the features mentioned above. Runner A will use no base conditioning. Runner B will use a combination of base and sharpening conditioning year round, and Runner C will use base conditioning for most of the year, sharpening only for championships.

Runner A

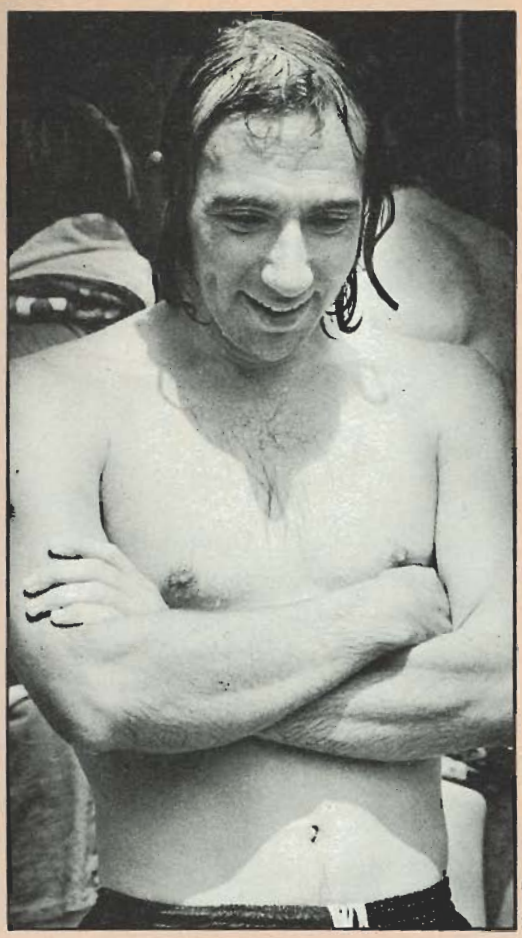
This runner trains only at race pace or faster, using successive repetitions at a short distance. In the diagram on page 56, the broken line illustrates his performance at two miles over his college years. The solid line represents his base level. Note that this base level has improved somewhat because of maturity. His performances, however, are quite erratic—sometimes totally unpredictable—and show little basic improvement from freshman to senior year. Because his base level remains low, he has little strength and can only maintain his peak performances for a few short weeks. The resulting severe strain on his body produces injury or illness and overall weakness, which results in a rapid slump and performances below his base level.

Runner B

Our second runner wisely uses a combination of various forms of interval training throughout the year. He does not, however, run himself to depletion, for he maintains a wise balance between stress and recovery. The diagram on page 57 reveals that his base level has improved significantly in four years, which, when combined with sharpening, results in a 9:30 performance in his senior year. Note that although his performances vary with time, he does not experience extreme slumps such as those experienced by Runner A. Runner B accomplishes this by not running so hard or so fast.

Runner C

Runner C uses the type of training that produces optimum results over many years, because it most



Mary Rosenfeld photo

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.

dramatically improves the base level of the runner. He does sharpening training only before his most important races. The rest of the year he trains at a slow pace to improve his base level.

Although Runner C spends much of the year at his base level, he performs better in his senior year than runner A or B. This is because his base level is higher than either A's or B's, and when sharpening is added, optimum performance is attained.

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. These people reason that any injury or illness must be the result of hard luck or accident. Nothing could be further from the truth. Running can indeed cause physical harm when done to excess and without common sense. On the other hand, a state of superhealth can be attained, in which the chances for injury or illness are all but eliminated.

Now to one of the most important points: *Injury and illness are the results of overtaxing one's energy reserve and are, in almost all cases, not the result of accidents.* A properly conditioned runner, whose body can handle even more than the daily training load, is virtually injury- and illness-proof. You may ask, "Isn't stepping on a stone or twisting one's ankle an accident?" I'd answer, emphatically, No! A fresh runner is 1) alert and quick to avoid trouble; 2) in possession of quick reflexes to respond immediately to a possible sprain; and 3) sufficiently healthy to recover quickly from minor sprains and strains. On the other hand, the tired runner is 1) sluggish and not observant of possible trouble; 2) dull and unable to react in time to avoid a sprain; and 3) run down generally and unable to recover from the minor problems that in turn may develop into serious injuries.

Injury and illness are serious threats to the future improvement of the athlete and can with reasonable care be avoided. The trick is to maintain at all times a sense of overall well-being and freshness, which in turn is the best insurance of good health. It is ironic that the enormous tenacity and perseverance that are necessary parts of every distance runner, when not tempered by careful judgment, destroy the athlete. Yes, one can have too much guts.

The training program to be described later requires the runner to at all times maintain good health and freshness. Such features are the mark of any sane running program.

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 its good and bad effects. I will outline these below, so that the reader will understand the overall conditioning 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 movement, as opposed to jogging. Most runners find running at about seven minutes per mile fulfills these requirements. I assume that the runner stops long before he is exhausted.

Good Effects

- Conditions the circulatory system.
- Helps develop robust health.
- Helps avoid injury.
- Continuous improvement is likely, although at a very slow rate.
- Develops a runner's base level.
- Has a desharpening effect, and thus permits the runner to conserve adaptation energy.

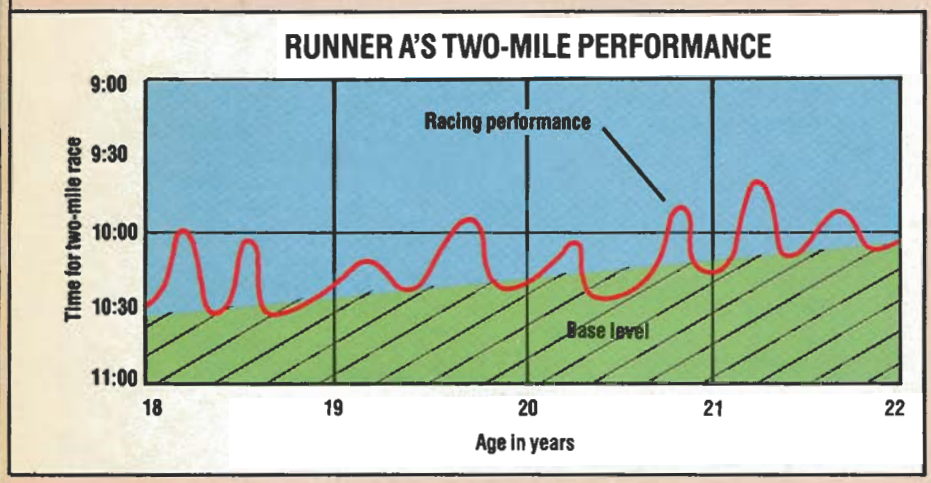
Bad Effects

- Has little effect on the muscle strength of the runner and thus does not prepare him for fast racing.

Osler was never training and racing better than when he wrote his booklet. Always talented in the longer races, he proved the strength of his ideas by winning the Road Runners Club 50-Mile title in late 1967. His formula calls for solid base work, intelligent sharpening and, ultimately, the reward of success. Innate ability is part of the equation, but only through years of consistent work do a runner's natural gifts receive full play.

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.

Ed Dodd photo



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 immediate satisfaction, but its long-term results will probably be disappointing. This amount of fast running also sets up the runner for injury and illness.

- Does not develop efficient coordination for racing pace.
- Has a desharpening 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 master efficiency of movement.

Bad Effects

- Is very taxing on the runner.
- If 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 can easily result 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 counter any losses 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 test of the Osler system is in the racing. Osler calls for many months of easy running with faster, more intense work only as the short racing 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 builder who has laid a weak foundation is severely limited in the height to which he can raise his structure, so it is that the future performances of our hasty 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 booklet advises. 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:

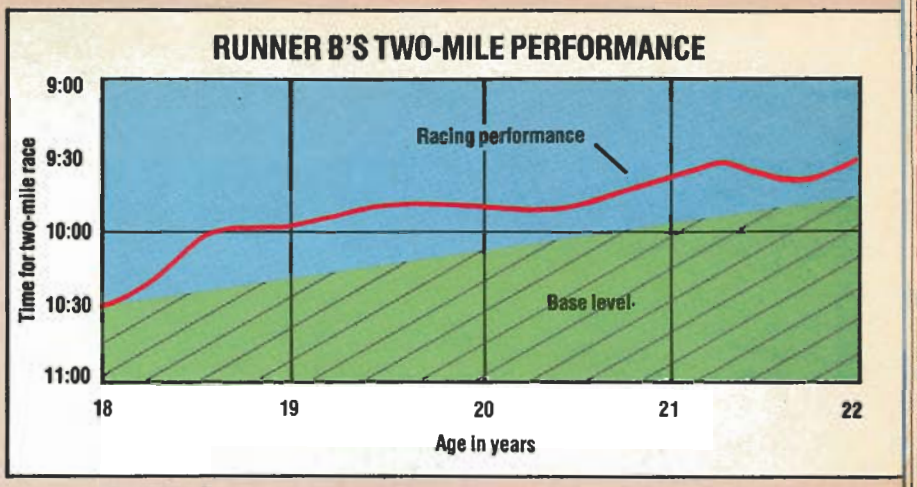
Monday: 5 percent of weekly total
Tuesday: 15 percent of weekly total
Wednesday: 30 percent of weekly total
Thursday: 5 percent of weekly total
Friday: 15 percent of weekly total
Saturday: 10 percent of weekly total
Sunday: race or time trial

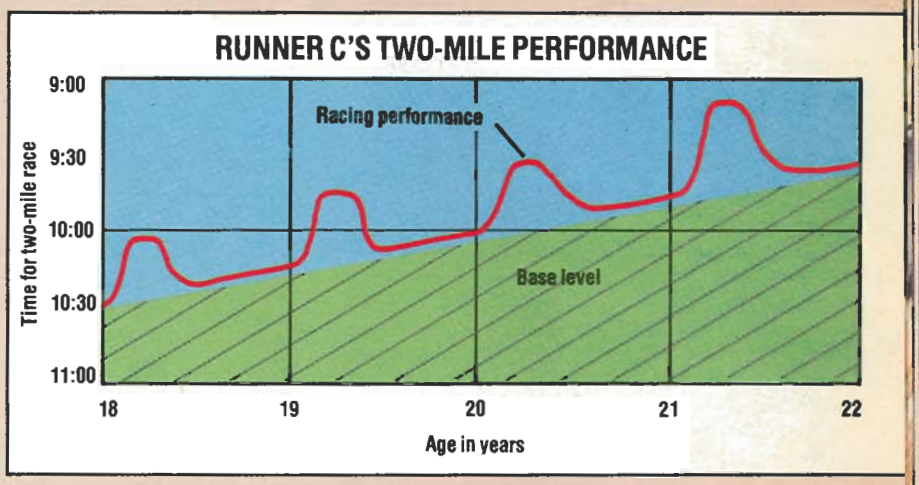
All runs are taken at about seven minutes per mile with the exception of the Sunday run.

In order to use the above table 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 this base training program. As an example, suppose a runner was averaging about 35 miles per week over the past several months. His initial 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: nine miles
Thursday: two miles
Friday: five miles
Saturday: four miles
Sunday: race about four miles

The 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 with training mileage that is too great, for he will then not be able to tolerate the increased load the schedule calls for without breaking down.





After 12 weeks, our runner will have increased his training load considerably. Although the mileage is now greater, he should be able to handle it without any real 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: 59 miles

The runner should now seriously consider the possibility that his body cannot at this time handle a further increase with profit. He has now essentially doubled his initial mileage. He should now experiment with occasional, more gradual increases in mileage, always taking care not to overdo it.

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 per mile for this purpose. Do not run so slowly that you are not using the same basic action that you will use when running at five minutes per mile. Do not jog!

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RUNNER B

Runner B takes a more sensible approach to his training, combining various forms 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 permit enjoyable racing and training.

RUNNER C

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

Sportsmedicine

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cium. In a study investigating the effects of long-term exercise on osteoporosis, Lutter and Joanne Slavin of the University of Minnesota found that few active or inactive women consumed the RDA for calcium, 800 milligrams. Nutrient intakes of active women tended to be better than those of inactive women. The higher 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 between 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 themselves and enjoying 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 confused 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, 15 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.

Australians have the world's second highest incidence of deaths per capita from cardiovascular disease. Two significant factors, cardiovascular fitness and body fat, were estimated in 1500 Australian children age 10 to 18 by Perce Russo and Ken Wade of the Cumberland College of Health Sciences in Lidcombe. Generally, Australian children compare poorly with children from other countries in these two categories.

DISTANCE RUNNERS

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- 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 you alone must learn to make intelligent decisions regarding your training. You will make mistakes at first, but you will learn from experience.
- The schedules 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 miscalculation of your energy reserves. Remember that rest plays as important a role as stress in the development of the base.
- The long run should not be forced. You should be relaxed and running within yourself at all times. You may, however, on occasion be moderately taxed by this effort, although this should be avoided. Runners vary in the rate at which the long run can be increased with profit after 18 miles is reached. Common sense and the progress of the athlete should be the guide. As I mentioned before, the runner must constantly 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 deplete the runner's reserves of adaptation energy. This is the whole point of the program: to increase the stress load on the body while improving conditioning fast enough to maintain freshness.

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