

# MARTY LIQUORI ON TRAINING

## ACCEPTING THE CHALLENGE

The first step in becoming a serious runner

I beg you take a moment here. The absolutely essential first step toward becoming a competitive runner, at any level, is to decide if you truly want to do it. Easy enough, you shrug. But the decision to undergo serious training should never be taken lightly. No one knows better than those who have been at the top of the heap. For them, the aching questions: “One more race? One more season?” are not at all rhetorical.

A commitment to serious training means that, no matter what else you are in the world—doctor, lawyer, Indian chief—first of all, you are a runner. If you are unable to live up to that standard, your running is not truly “serious” and you can expect your race results to show it.

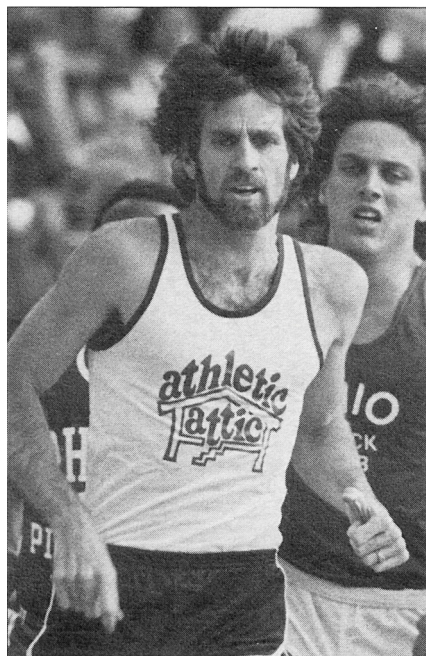
Running and other endurance sports are the most unforgiving of mistresses. You can drop out of law school for a year and come back to it later, picking up where you left off. Few things fade as quickly as the results of hard physical training. It is a flower that does not last long past the picking.

Training, therefore, must be constant. The first day you miss training, you begin a backward slide. You cannot pick up where you left off if you have already slid several feet back down the mountain. You cannot put your body on hold; in distance running, you either are getting better or worse at any given moment. There is no status quo.

Which is not to say that you must undertake, as some of the literature would have you believe, absurdly ascetic and eccentric lifestyle. You needn't ponder the prospects of dining on nuts and berries. You won't have to absolutely forsake drinking, late nights, carousing. What you will have to do is train. And train hard. Whatever else you can fit into your life after that is your own business. And before you make that “final” decision, consider your talent.

It sounds strange to hear good runners talking about talent. “Oh, so-and-so had a lot of talent...,” someone will say, usually in reference to how “so-and-so” managed to squander same.

But the term, when measured against its use in other sports, is very appropriate. “Talent” is simply that which you were given at birth to develop later on. With distance runners, talent is plumbing—the heart, lungs and circulatory system, and the muscles that rely on them. In short, it is the equipment needed to transport and burn oxygen and fuel in order to cover ground. That



Marty Liquori was ranked #1 in the world in 5000m in 1978

is a pretty fair *a priori* definition of the physical act of running; all that remains is to point out that some people are just naturally better at it than others.

We all know that it takes particular innate abilities to become a championship quarterback. We all accept the fact that not everyone can do it. But for some reason, many insist that the world of the competitive runner be more equalitarian.

There is perhaps no one truism of distance running more misunderstood than this: We all bring our own genetic pluses and minuses to the starting line with us. Given time and effort, almost anyone can cover relatively long distances. Almost anyone can show remarkable improvement through training. It is a seductive proposition indeed: Success in distance running depends solely on dedication and hard work.

Perhaps in no other sport is natural talent less admired than in distance running. To truly do well in highly competitive circles, absolute dedication is a prerequisite no matter what kind of lungs mom and dad bequeathed you.

The two controlling factors we are all, for better or worse, stuck with are: 1) our oxygen uptake rate (Max VO<sub>2</sub>), which is nothing more than our ability to utilize oxygen in the creation of energy; and 2) the proportion of slow-twitch to fast-twitch fibers in our muscle composition. Oxygen uptake can be improved to a certain limited extent by training. The proportion of slow-twitch to fast-twitch muscles is not subject to much alteration in this life.

These matters are subject to scientific measurement, and it might be advisable for the new competitive runner to know ahead of time whether he or she has been endowed with the kind of physical equipment that will allow for top performances somewhere down the road. It might not be the sort of thing to base your whole running future on, but it might well be helpful in setting realistic goals.

No matter what the findings, however, the runner should never be giddily encouraged or abjectly discouraged by them. Athletic history has taught us time and time again that, when two human beings compete against each other, the most important factor is not the body but the mind.

## PLANNING TO PEAK

Should you shoot for short-term or long-term success?

There are two separate and distinct approaches to training for foot racing, and each has powerful adherents who put forward good arguments to support their position. One school of thought has it that the runner should prepare himself for the One Big Race (such as the Olympic final), and all other races are considered expendable in terms of winning or losing. As a matter of fact, to the One Big Race people, all other races are considered part of the training for the Big One.

The other approach is to build up to a very high level of day-to-day, week-to-week training, and to try to win as many as possible, occasionally going for a very high peak in order to win the One Big Race. Americans such as myself, Frank Shorter and Bill Rodgers tend to fall in the second category, while Europeans, most notably Lasse Viren, fall into the first.

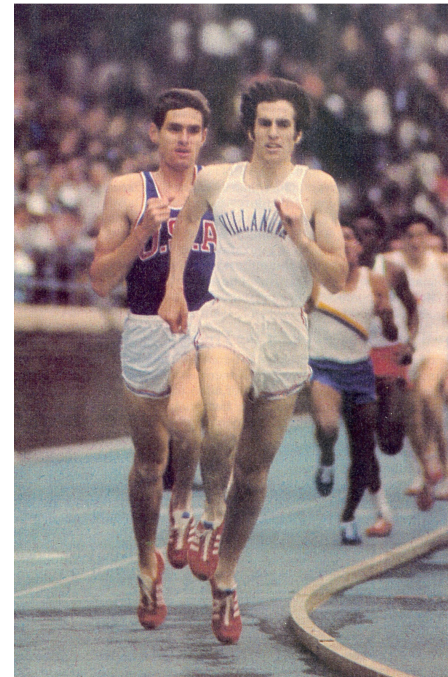
The argument the One Big Race folks put forward makes some sense. They say that from a psychological as well as a physical standpoint, the body and mind cannot continue to operate on a high plane over the course of several years and still be expected to mobilize for that one supreme effort. Better, they say, to plan ahead, train on a low-key basis, and when the time is right, put it all together in one long, sustained drive to the ultimate peak, forgetting wins and losses along the way.

My own training philosophy is a combination of the two. When preparing for competition in the World Cup or Olympics, I tried to build a very substantial base of over-distance, slowly programming in more and more intervals. Then I began racing at a fairly competitive level and finally sought the ultimate peak with three weeks of very fast interval workouts, with little rest between repetitions.

In such training, it is often necessary to “run through” races of little consequence, which simply means that no extra time is taken to rest for such races because they aren’t worth the loss of training time. This is a concept well known to the elite runners of today.

Most of the big-name runners are under a great deal of pressure to race constantly, if for no other reason than it is now financially rewarding. They can justify such racing only if they make the races part of their training and lose very little mileage in the process. Some have been very successful at this process over the years, but the increasing quality of the competition is beginning to tell.

Runners who wish to avoid the ultimate peaking process in order to continue training and racing at a very high (but not peaking) level need only leave off Phase Four of the system and continue to train and race at Phase Three. (These phases will be discussed later.) Barring stress injuries



Young Liquori of Villanova leading the King of the Mile, Jim Ryun, in the famous Dream Mile at Penn Relay in 1970. Liquori beat Ryun.

or illness, a runner should be able to maintain fitness at that level almost indefinitely. The runner who chooses to go all the way through to the last three-week peaking phase, though he can expect his ultimate performance for the given training, will have to begin the process all over again at Phase One after his racing peak has been exhausted. The axiom “what goes up must come down” is apt when applied to runners attempting to get the maximum performance possible from their bodies.

The Liquori System entails a six-month program broken into four distinct phases. I personally feel more comfortable with a program based upon a full year’s training, but it would be asking a lot of the reader to dedicate a year of his running life to a program that he is not sure will work for him. Thus, I have condensed my regimen into six months, which ought to be adequate for most runners to attain a very high level of racing fitness.

It is a totally subjective value judgment as to which kind of runner is the greater athlete, the one who wins two victories a year with no losses, or the one who races 14 times and wins 12. In Finland, the former is considered the ultimate athlete, but I believe in America we respect the athlete who goes out to face many challenges.

I personally have used both approaches. In high school and college I competed almost every weekend. Because of the sheer genius of Jumbo Elliot, my coach at Villanova, I was able to stay at a peak almost eight months of the year, running a 3:55 mile in January and continuing to hold that peak until I ran a 3:55 mile in August.

On the other hand, I used the Lydiard peaking method after college, and it enabled me to rise to first and second in the world 5,000 rankings in 1977 and 1978. It was the Lydiard method that enabled me to drop from 13:40 for 5,000 meters in May 1977 to 13:15 that July.

Such an approach has its drawbacks, however. It is difficult to train hard in September for a first race in April. Psychologically, most of us cannot put off gratification for six months to two years without some encouraging signs that we are doing the right thing. Certainly for the athlete who is stung by defeat, the Lydiard peaking method of training can present insurmountable emotional obstacles.

But whether the runner is going for the One Big Race or for a series of weekend victories, my recommendation is that he or she pick one big race to be the ultimate test for the season, whether that be the Boston Marathon or the Humpty Dumpty 10-km. Training should be geared toward that long-range objective.

If the runner then chooses to make concessions to the Consistency Ethic in order to pick up some lesser trophies along the way, then that is a matter of priorities, and the runner bears the responsibility for any disappointments that may accrue down the road.

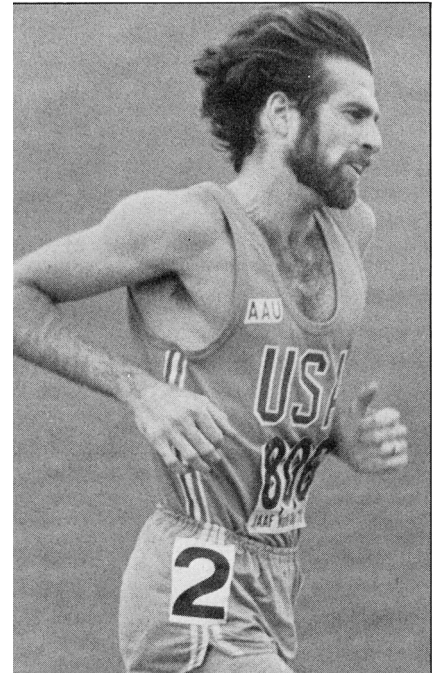
## **BUILDING THE BASE**

Phase I of a four-phase six-month schedule.

*This is the third in a series. In the first two installments, Liquori discussed: (1) the commitment of the serious runner and (2) planning to peak in preparation for competition.*

### PURPOSE

Phase One, which is essentially “LSD” running, is designed to get the body ready at the cellular level to perform the heavy demands that will be placed on it later on in more intense training and in competition. From a physiological standpoint, running long, relatively slow paces will do the following: 1) Begin working the heart at 120~140 beats per minute, a sub-maximal effort, but still a stressful, aerobic level of exercise. 2) Begin building the cellular mitochondria, the little “energy factories” of the muscle cells. 3) Begin building the mesh of capillaries throughout the muscle cells that will deliver oxygen and fuel and take away the waste products of exercise. 4) Begin the toning process of muscles themselves, slowly getting them ready for the more strenuous work ahead.



### LENGTH

This training period will last 12 weeks (unless you put yourself for the year-long program, in which case you simply double the length to 24 weeks). It is the longest of all the phases simply because the work accomplished during this time is probably the most important of all the phases. It is entirely possible to train by running only very long, relatively slow runs and to achieve moderate success in competitions, as runners of recent years have demonstrated. Most successful athletes, however, do a great deal more than the Phase One type of training.

### FUNCTION

While you are not yet ready to race at peak levels at the end of 12 weeks of over-distance runs, your body will be ready to move on to more advanced training. You will be more efficient in the mechanical motion of your stride, and you will be psychologically stronger because you have demonstrated the ability to handle many miles of training. For many runners, there will be confidence-building weight loss, and the built-up tension of forcing yourself only to run at moderate paces will provide some very real momentum when you begin the faster training required in Phase Two.

### INJURY STRATEGY

It is suggested that the runner run on flat surfaces, avoid hill and other types of rugged terrain that might take away from his or her goal of maintaining an even, sub-maximal heart rate\*; and that the heavier padded shoes be used to avoid footstrike-type injuries to the foot and knee\*\*. This is a good time to use a lot of stretching and every run should start off with on to two miles of *very* gentle running, that actually is the most important part of warming up. For example, if



the afternoon run is scheduled to be 10 miles at an eight-minute pace, the runner in Phase One should do the first mile or two at a nine-minute pace or slower. Even elite runners begin their training runs with very slow running in order to avoid injuries caused by simple inflexibility prior to exercise.

### METHOD

Phase One training is the easiest of all training to map out for yourself. A Category B runner with moderate background in training might decide to go for a 50-mile training week. Keeping in mind that he or she will be covering one longer run on the weekend (say, 10 miles), that leaves 40 miles to be covered in six days, or under seven miles per day. Knowing what kind of average is necessary, the runner simply juggles the numbers (within reason) to match his or her subjective feelings of fatigue. The important thing is keeping the overall quality of your training at a level you can live with, without having to take unscheduled days off “because I just couldn’t run a step!”

By the same token, an elite runner might well be shooting for 100 miles a week during this phase, using a 20-mile run on Sunday as his cornerstone. He would then have 80 miles to divide among the six other days, i.e., about a 13 miles average.

As a matter of fact, it is almost irrelevant to speak about mileage during this phase because the important factor is not mileage, but *time spent running*. Mileage is used as the most convenient frame of reference. But the runner should keep in mind during this early phase that it makes hardly any difference how far or how fast he or she is running, just so long as 40 minutes or more elapse before it’s time to hit the shower.

The psychology of Phase One training is important. The runner should think of himself

## **The Liquori System: Phase One Sample Workouts**

### **Elite Runners\*: Typical Week (116~120 miles)**

Monday:	AM:	7 miles
	PM:	8 miles, 16x100
Tuesday:	AM:	5 miles
	PM:	10 miles
Wednesday:	AM:	7 miles
	PM:	10 miles
Thursday:	AM:	5 miles
	PM:	12 miles
Friday:	AM:	8 miles
	PM:	9 miles
Saturday:	AM:	5 miles
	PM:	10 miles
Sunday:		18~22 miles

### **Class A Runners: Typical Week (73~76 miles)**

Monday:	AM:	3 miles
	PM:	4 miles, 8x100 easy
Tuesday:	AM:	
Wednesday:		
Thursday:	AM:	3 miles
	PM:	10 miles
Friday:		10 miles
Saturday:		8 miles w/ middle 6 brisk
Sunday:		12~15 miles

### **Class B Runners: Typical Week (51~55 miles)**

Monday:		6 miles, 8x100 easy
Tuesday:	AM:	4 miles
	PM:	8 miles
Wednesday:		8 miles
Thursday:		5 miles
Friday:		8 miles
Saturday:		3 miles hard
Sunday:		8~12 miles

### **Class C Runners: Typical Week (18~32 miles)**

Monday:		2~4 miles
Tuesday:		4~6 miles
Wednesday:		2~4 miles
Thursday:		2~4 miles
Friday:		2~4 miles
Saturday:		recovery; no running
Sunday:		6~10 miles

\*The Liquori System divides runners into four categories—Elite, Class A, B and C—based mainly on performances, competitive experience and training background.

or herself as a kind of thoroughbred disguised as a flow horse. It is far too early to give yourself away by running fast; the idea is to plod along, build up the odds and get yourself mentally ready to run the fast races you know you will some day run. During this phase of training, I don't mind wearing bulky socks, heavier shoes, sweat tops, etc., because I know it doesn't matter if I feel fast, look fast, or run fast at this point in the program. For those of us on a normal distance runner's competitive schedule, this Phase One training usually starts in the fall and goes on through the colder months of the year. This is a good time for meditation, for dreaming the dreams of spring and summer, of fast races on the roads and on the track.

#### CAVEAT

The womb-like serenity of Phase One has trapped many runners. Hypnotized by the simplicity and relative ease of the long, easy runs, they put off what they know they must do to prepare for top competitive efforts. They remain in Phase One and become what some call "training rats" or "distance bums," destined to eke whatever glory they can not from races but from their mileage charts. If that is your goal, fine. But I think you can do better.

## HOW HILLS HELP

### Phase II of a four-phase six-month schedule

*Thus far, Liquori has discussed: (1) the commitment of the serious runner, (2) planning to peak for competition, and (3) Phase I of a four-phase training program.*

#### PURPOSE

The runner can expect the Phase One training to get much of the desired cellular work done. The mitochondria will have grown, the network of capillaries will have blossomed, the heart will have increased in size and stroke volume.



Marty Liquori competing 1500m race in Japan in 1974

But the muscles themselves during this period will not have been put too much of a test. After all, the slow pace required on the long runs will have only exercised the aerobic, or slow-twitch muscles, leaving the anaerobic, or sprinting, muscles to lie dormant. (If you want to test this idea, run 70~100 miles per week—i.e. get “in shape”—and then go play an afternoon of sandlot basketball. The next day, your sprinting muscles, jumping muscles and the rest of your anaerobic system will scarcely allow you to hobble around without the constant reminder that you may be “in good shape” to run 10 miles a day, but that the Boston Celtics can still run circles around you on the hardwood.)

Thus, a transitional phase is necessary to begin preparing the muscles for some of the anaerobic work ahead. The hill work is geared towards stretching and strengthening primarily the upper thigh muscles (the quadriceps), while the light interval workouts will help prepare the anaerobic pathways for the more strenuous interval workouts of Phase Three.

#### LENGTH

Three weeks is desirable. If the runner is condensing his or her training in order to peak for a big race, this transitional phase is usually the one that gets squeezed or eliminated. Experienced runners can generally merge Phase One training right into Phase Three, but the less experienced runner risks a much higher chance of incurring injuries by leaving out this important bridge between long slow training and long fast training.

#### FUNCTION

The runner will emerge from three weeks of Phase Two with even better cellular and capillary development (remember, the mileage has been kept up, while the overall quality of training has also been improved). He or she can also expect to see much mechanical improvement in the running stride, particularly when running at faster speeds. This is brought about by the more flexible and more powerful muscles of the quadriceps beginning to play a more important role in the stride, with the addition of hill training and light intervals.



In general, Phase Two gets the runner ready for the most important and most difficult of all training, the combination of intervals and over-distance of Phase Three.

### INJURY STRATEGY

Since Lydiard teaches that only running uphill is beneficial in this phase of training\*, and that running downhill should be done on a more gentle descent, there are runners who spring like drunken gazelles to the top of the local hilltops, only to be solemnly driven down to the bottom again in automobiles by long-suffering relatives or coaches. You are not expected to ask that much of your friends and spouses, but you would be well advised to heed Lydiard's warning: Running downhill is very hard on the body. If you live in an area not provided with trolley cars, you would be well-advised to descend gently.

The penalties for doing otherwise include shin splints, puffy knees, sore hip joints and foot ailments too numerous (and—unless they are your own—too boring) to mention.

### METHOD

Lydiard recommends finding a hill at least 300 yards long, which rises one foot for every three horizontal feet covered. He also likes to find hills that have flat areas at the top and bottom for sprint work in between sessions of bouncing or springing up the gradient.

In the best of all possible worlds, the hill would be a part of a circuit, with the return downhill portion at a less steep incline in order to make it easier on the leg muscles while descending.

While specific workouts can be found in the chart, the basics of the workout are quite simple. The runner springs up the hill in slow bouncy strides, concentrating on form and stride, loosening and strengthening the quadriceps and calves. At the top of the hill, the runner jogs slowly, allowing the recovery (which comes with dispersing lactic acid and replenishing glycogen) to take place. He then runs the gentle downhill portion at a relatively fast pace, allowing the speed of the stride to further disperse the lactates. At the bottom of the hill, after four or five repetitions up the hill, the runner should do two to three “wind-sprint” type intervals of varying distances from 50~400 yards, in order to begin getting the body ready for the anaerobic work that will come later on in training.

It should be noted at this point that the hill training part of Phase Two is strenuous indeed, and the runner should not be surprised to feel that he or she has “overdone” it on the first day. Quadriceps and buttocks particularly will be painful after the initial shock of the first session. The runner is advised to take it very easy until this new territory is explored fully. For instance, once you have located your hill circuit, you would be well-advised to do only one set of four or five repetitions up the hill, with perhaps 10×100m wind-sprints at the bottom to finish off, following by several miles of light jogging. Even a “light” workout such as that might produce some soreness over the next several days.

### CAVEAT

It is very easy to allow mileage to slip once you begin programming hill work or intervals into your program. It is important that this not happen to any great extent. You should be concentrating on keeping total weekly mileage at more or less the same level in order to be assured that the aerobic cellular development continues apace while the muscles and the

anaerobic pathways are being prepared for racing. In short, even though the more strenuous hill work and light interval session twice a week will increase the overall quality of the weekly mileage, the runner strives for the same quantity nonetheless. The body is quite capable of adapting to the increasing stress you place on it. That is precisely the name of this game: getting racing fit.

**The Liquori System:  
Phase Two Sample Workouts**

**Elite Runners: Typical Week**

Monday: AM: 5 miles  
PM: 10 miles  
Tuesday: AM: 5 miles  
PM: Jog 3 miles; 4x110;  
8x200~300yd, bouncing  
stride and jog down;  
4x110; jog 2 miles  
Wednesday: AM: 7 miles  
PM: 10 miles very easy  
Thursday: AM: 5 miles  
PM: Jog 3 miles; 4x110;  
4x400~600yd, same hill;  
4x110; jog 2 miles  
Friday: AM: 5 miles  
PM: 10 miles  
Saturday: AM: 3 miles  
PM: Jog 3 miles; 4x110;  
4x200~300yd, same hill;  
4~8x300 on track or grass  
4x110; jog 2 miles  
Sunday: 15~20 miles

**Class A Runner: Typical Week**

Monday: AM: 3 miles  
PM: 5 miles  
Tuesday: Jog 3 miles; 4x110;  
8x200~300yd, hills  
or stadium steps;  
4x110; jog 2 miles  
Wednesday: 10 miles  
Thursday: 8 miles fartlek on  
hilly terrain  
Friday: 12 miles very easy  
Saturday: Race; or 5 miles fast  
Sunday: 12~15 miles

**Class B Runners: Typical Week**

Monday: 5 miles  
Tuesday: Jog 1 mile; 4x200~300yd  
hills; 4x110; jog 1 mile  
Wednesday: 5 miles  
Thursday: 5~8 miles  
Friday: Jog 1 mile; 4x300~400yd;  
hills; jog 1 mile  
Saturday: 5 miles  
Sunday: 8~10 miles

**Class C Runners: Typical Week**

Monday: 3 miles (hilly terrain)  
Tuesday: Jog 3~5 miles  
Wednesday: 4~6 miles  
Thursday: 4~6 miles (hilly terrain)  
Friday: 3~5 miles very easy  
Saturday: no running  
Sunday: 6~10 miles



Hill training is a form of plyometric resistance exercise. Everybody at all level will benefit.

## **SPEED WORKS**

### Phase III of a four-phase six-month program

#### PURPOSE

By combining over-distance training and interval training, the runner is preparing both aerobically and anaerobically to undergo the ultimate stress of the race. If he is prepared only in the aerobic phase, then he will be beaten by runners who can sustain a faster pace or who can out-sprint him to the finish. If he is prepared only anaerobically, he will be ready to sprint like a panther at the beginning and the end of the race, but he will win nothing because distance races are not won by those who can sprint short distances. Thus, Phase Three training is designed to put it all together—to develop the complete racing machine.

#### LENGTH

For the runner on the six-month program, this phase will last six weeks. For the runner on a year-long program, 12 weeks. For the runner who wishes to train and race at a high level year around, this phase is interminable, until injury interrupts it, or until the Big Race finally rolls around and the runner goes into the Phase Four peaking process.

#### FUNCTION

If the runner were fit enough to walk out the first day and begin training at Phase Three, that would be ideal, because this level of training is the most efficient, most beneficial, most well-rounded of all the phases. Although there is the constant danger of injury or staleness (over-training) because of the constant quality of the work performed, there is also the constant joy of knowing that a high quality competitive performance is but a few days rest away.

The over-distance is more than sufficient to keep developing cellular capabilities to their utmost, and overall, the aerobic system will be operating like a dynamo. Meanwhile, the twice weekly interval workouts on the track or grass field will have the fast-twitch muscles ready to deliver their quick bursts of speed when called upon. To sum up: Phase Three puts it all together.

#### INJURY STRATEGY

At no other time in training, it is more important to watch for injuries or illness. Since the earlier phases involve less overall stress on the body, and since by Phase Four, one would expect the body to have already been victimized by injury or illness if it were going to, Phase Three training is the real threat.

It is also easy to over-train during this phase, since the runner will be trying to maintain mileage while increasing the overall quality of his workouts tremendously with the double does of hard interval during the week.

That is precisely the reason one keeps an accurate calendar, listen to the subtle messages the body is constantly sending, and heeds the various warning signs when they appear. Although one wants to keep training at a very high level during this period, particular attention should be paid to injuries that don't "go away" or to such thing as sore throats, that may be harbingers of

worse things to come. The runner's resistance will often be low during this phase, and it is recommended that particularly at this time he or she take supplemental nutrients.

## METHOD

The overall mileage should remain at approximately the level established towards the middle of the Phase One training, but of course the quality will be improving markedly. Don't make the mistake one 3:57 miler I knew used to make. When he got into Phase Three one year, he ran the interval workouts with the milers on alternate days, then on the "off days" instead of running their normally paced over-distance runs, he attempted to workout with the three- and six-milers as they did much faster over-distance. In short, he was trying to match the "quality" work of both groups simultaneously. He was lucky to have lasted the season.

The long run on Sunday now becomes optional. For one thing, the runner may now begin to look at competition more seriously. A race on Saturday should definitely *not* be followed by a strenuous 15~20 miler on Sunday. That would be asking the body to stretch itself too far between the aerobic base-building running on the one hand and the competitive-level racing on the other. Far better to follow a serious race with a relatively easy 10-miler on Sunday. There is some degree of danger in over-training during the rosy afterglow of a good race effort.



Liquori putting pressure on Jim Ryun in 1970  
Dream Mile in Philadelphia

During this phase, the one hill work session per week is abandoned in favor of an afternoon interval workout every other day. These are what I call "in-and-out" intervals, which means that the rest recovery period is the same distance as the repetition, allowing for nearly complete recovery, i.e., the heart rate will come back relatively close to "resting" level. (By "relatively close" I mean within 10~15 beats of the base rate. If the runner does not achieve this rate during the recovery period, then it is not long enough and should be lengthened.)

Coaches and experts in the past have gone to great lengths to set repetition times for their runners and to explain in their writings why they recommend such and such a time, going through elaborate formulas to show why the conclusions have been "scientifically" reached. All that is basically unnecessary. I go by the training axiom Jumbo Elliot of Villanova used as a rule of thumb: the KISS principle (*Keep It Simple, Stupid*).

That means, one should run intervals slow enough on the first workout to be able to do them all comfortably. The next week, when the runner does the same workout, he or she should simply shoot for time that is a second or so faster. Its that easy. Over the course of the six weeks of Phase Three, the times should be dropping dramatically. Of course, they will drop more rapidly

at the beginning than they will later on as the runner gets close to the maximum of his or her abilities.

It is important not to try to start with too difficult a standard to maintain. That will only lead to a very rapid “breakdown,” and the runner will be extremely disappointed to find the times going *up* the next week, not down. It is for this reason that some runners, such as two-time Olympian Jack Bachelier, very rarely time early season interval workouts. Bachelier ran then on a big grass field in Gainesville without a watch, trusting his own internal clock to keep him on pace. He was much more concerned with keeping the effort at a high level, not his times.

Though the interval workouts will be quite difficult, the runner should never try to simulate the actual lactic acid build-up of racing conditions. He should stay well within himself, never truly straining at the end, never using the “afterburners.” The runner can usually tell when he or she is “straining” more than “training.” The use of the arms in pumping through the last 100 yards is a dead giveaway. When the runner has to use them with every ounce of strength, the “strain” is on. When he is able to use them smoothly, flowing through the end of the repetition without frantic pumping, then he is still “training.” It is a matter of control, of cadence.

### CAVEAT

This phase brings to mind one of the most perplexing ironies in all of distance running, and that is the very rare (usually *very* talented) elite runner who actually gets psychologically trapped in this phase of training and thus becomes what might be called a “superior” training rat.

He goes through week after week of absolutely astounding Phase Three training, “running through” all competition with abandon, generally doing quite well in those races but never quite working himself up to the ultimate peak. I am speaking of runners (I know several) who have run times under 2:20 for the marathon, under 4:00 for the mile, who are still unable to break away from that training in order to achieve the zenith of conditioning necessary to bring out “that one big race” everyone knows they have in them.

In short, they don’t understand the final step, the very important Phase Four training that allows every runner who has prepared himself to step out onto the road or track one sunny day...and run the race of a lifetime.

### **The Liquori System: Phase Three Sample Workouts**

#### **Elite Runners: Typical Week**

Monday:	AM:	5 miles easy
	PM:	Jog 3 miles; 8x110 strides; 10~15x440 @ 72 w/440 jog; 3 miles jog
Tuesday:	AM:	7 miles easy
	PM:	10 miles easy
Wednesday:	AM:	5 miles easy
	PM:	Jog 3 miles; 8x110 strides; 16~20x220 @ 33 w/220 jog; 3 miles jog
Thursday:	AM:	7 miles easy
	PM:	10 miles easy
Friday:	AM:	3 miles easy
	PM:	10 miles brisk
Saturday:		Race or Time Trial or 3 miles jog; 8x660 @ 1:50 w/330 jog; 3 miles jog
Sunday:		10~15 miles easy

**Class A Runners: Typical Week**

Monday: Jog 3 miles; 6~10x440 @ race pace w/440 jog; 2 miles jog  
Tuesday: 12 miles easy  
Wednesday: Jog 3 miles; 10~16x220 @ race pace w/220 jog; 2 miles jog  
Thursday: 10 miles easy  
Friday: Jog 3 miles; 4x880 @ easy pace w/880 jog; 2 miles jog  
Saturday: 8 miles easy  
Sunday: 12~15 miles easy

**Class B Runners: Typical Week**

Monday: Jog 1 mile; 8x110 strides; 8x440 @ race pace w/440 jog; 1 mile jog  
Tuesday: 5 miles easy  
Wednesday: 8 miles easy  
Thursday: Jog 1 mile; 10x220 @ race pace w/220 jog; 1 mile jog  
Friday: 4 miles easy  
Saturday: 3 miles fast or race  
Sunday: 8~12 miles easy

**Class C Runners: Typical Week**

Monday: Jog 1 mile; 4x110 strides; 1x880 @ race pace; 1 mile jog  
Tuesday: 4 miles easy  
Wednesday: Jog 3 miles; 4x110 strides; 4x440 @ race pace w/440 jog; 1 mile jog  
Thursday: 4~6 miles  
Friday: 3 miles easy  
Saturday: 3 miles hard or race  
Sunday: 8~12 miles easy

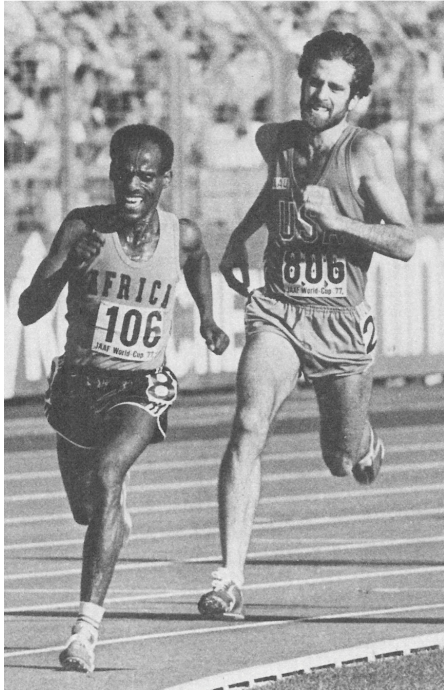


## GETTING READY TO RACE

How to sharpen your fitness for competition

### PURPOSE

Phase Four is designed to simulate racing condition in workouts and thus bring all of the body's physiological mechanisms to their absolute peak. No longer will the runner be concerned only with muscle tone, aerobic and anaerobic pathways, flexibility, etc. He will be more concerned with getting plenty of rest between these lighter, shorter but more intense "speed" workouts. He will be concerned with some of the more exoteric nuances of racing, such as the fluidity of the stride at fast racing speed. He will use this period to enhance his strengths, to bolster his weaknesses. If he expects to race against competitors who surge, he will practice surge training. If he expects to run against front runners, he will need to work on pace.



Liquori breathing down the neck of Ethiopia's Great Miruts Yifter in the final turn of the 5000m at 1977 World Cup in Dusseldorf, Germany, where Liquori ran then American record of 13:15

The workouts themselves will still be interval-type sessions (alternating with long, easy over-distance when necessary), but they will be faster and more condensed than the intervals of Phase Three. Nearly all sessions will be timed, and the runner will run the repetitions as if racing.

The rest/recovery period will also be different. The runner is no longer jogging between repetitions to disperse the lactic acid. Instead, in order to simulate racing conditions where the lactic acid will remain at a fairly high state (except during the very longest races), the runner will take only a short rest and will walk instead of jog. Thus he will be starting each repetition with at least a partial lactic acid build-up.

After just a week of each work, the runner will notice that he is "coming around." He will not have the same "Valley of Fatigue" sluggishness he did during the previous phase.

He will be more rested, more alert. He will feel an almost "itchy" sensation, a desire to get out and run fast almost all the time.

### FUNCTION

The heart will develop its top-end capabilities during this phase. After growing both larger and stronger during the earlier training, now it will be pushed to its limit during the very short interval recovery periods, as it tries to flush the lactic acid out of the laboring muscle cells. This is extremely important, because in a distance race, the heart will be called upon to labor at its absolute physical peak during the final stages, the last half-mile or so, as the runner calls upon it for the last bit of speed he can muster. This racing peak is developed in Phase Four workouts simply by keeping the heart rate elevated to its top-end capabilities for much longer periods than it will experienced in a race. The last 300 yards of a fast mile race may take only 40 seconds or

so, but in a Phase Three interval workout, the heart will be forced to remain at that level for as long as 8~10 minutes, when all the repetitions are added up.

The importance of this heart work is best exemplified by the cases of Villanova miler, Dave Patrick, and former work-record holder, Jim Ryun. Neither had a truly impressive low base heart rate (they were in the high 50s, low 60s), but both could get up over 220 at the top end and both were superior last-lap competitors.

### INJURY STRATEGY

This phase of training does not generally cause injury problems. For one thing, the runner has more energy, is more alert. The strides are light, fast and bouncy. There is very little “slogging” through workouts as he occasionally had to do while in Phase Three training. Thus it is not an injury-prone time. Perhaps the biggest danger during this phase is the runner’s abundance of energy. Occasionally a competitor, overwhelmed with this sudden excess of exuberance that was not available in previous training phases, will feel like going out and “hitting the old tennis ball” or “playing a little flag football with the boys.” That is a trap to be avoided at all costs. The snapped ankle or twisted knee incurred by such shenanigans makes an afternoon’s frolic a poor substitute for the victory circles.

### METHOD

Mileage at this stage of the season becomes almost irrelevant. It will generally drop to about 75% of the former totals to allow for the more intense work. The runner might spend as much as five days of the week on the track, but every workout will not necessarily be of the same intensity. The runner will always start off the workout with at least 8×110 “strides” or wind-sprints. Some runners have been known to do an entire workout of 110 sprints, several miles of them altogether!

Group training is helpful during this phase, as it teaches the runner to run fast in a pack and will keep his competitive juices flowing. These group workouts will be the highest quality running the competitor will produce, with the exception of the races themselves.

The elite runner will probably want to continue running twice a day, using the morning workout as a time to keep up his aerobic conditioning and to flush out the lactic acid from the previous afternoon’s exertions. The morning workout will help the runner loosen up for the afternoon session.

### CAVEAT

Once you’re in this phase, you’ve stepped over the line and are on your way to peaking. It is difficult to go back to any previous phase; it is a one-way door. The runner will be racing fit for as long as four to six weeks, with very little other than light jogging and occasional wind-sprints after the completion of this phase. It is very important for the competitor to keep racing regularly in order to maintain his edge, and if no races are available, he should do time trials.

Many runners have difficulty with this concept, and after several weeks of racing and little else, they get antsy about their condition. They want to bolster their flagging confidence (which, after all, derives from their miles and miles of logged training—and which they don’t get while in the racing phase) by going out and running hard workouts. What they generally find is that it is next

to impossible to run a good quality interval workout as they did in Phase Three. They have simply gone beyond that point and will need to go back and build their base again before they will be able to handle those long, stressful intervals.

It's all psychological anyway. The race is what you have spent all that time and effort for; you really ought to relax for as long as it lasts.

<b>The Liquori System: Phase Four Sample Workouts</b>	
<b><u>Elite Runners: Typical Week</u></b>	
Monday:	AM: 3 miles easy PM: 2-mile jog; 8×110; two sets of: 1×220 (30') 1×440 (60'), 1×660 (1:30) 1×440 (60'), 1×220 (29'), Recovery between runs is 60', between sets is complete 3-mile cool-down
Tuesday:	AM: 5 miles easy PM: 10 miles easy
Wednesday:	AM: 3 miles easy PM: 3-mile jog; 8×110; 2 miles at 80% effort (9:00~9:50); 3-mile cool-down
Thursday:	AM: 5 miles easy PM: 3-mile jog; 8×110 easy; 5 miles easy
Friday:	AM: 5 miles easy PM: 2-mile jog; 8×110; 10×440 @ 58~63' w/ 60' recovery; 3-mile cool-down
Saturday:	10 miles @ good pace
Sunday:	15 miles easy
<b><u>Class A Runner: Typical Week</u></b>	
Monday:	3-mile jog; 8×110; 1×220, 440, 440, 220 @ race pace, w/ 60' rest; 3-mile jog
Tuesday:	8 miles easy
Wednesday:	3-mile jog; 8×110; 8×440 @ race pace, w/220 jog between; 3-mile jog
Thursday:	3-mile jog; 8×110; 2 miles of 50/60 (surge training; sprint 50/jog 60)
Friday:	6 miles easy
Saturday:	Race or time trial
Sunday:	10 miles @ good pace
<b><u>Class B Runners: Typical Week</u></b>	
Monday:	3~5 miles
Tuesday:	1-mile jog; 1½ miles @ race pace
Wednesday:	5 miles easy
Thursday:	1-mile jog; 2 miles of 50/60 (see Class A Runner Thursday); 1-mile cool-down
Friday:	3 miles easy
Saturday:	Race or time trial
Sunday:	8 miles easy
<b><u>Class C Runners: Typical Week</u></b>	
I recommend that Class C runners not attempt peaking per se. Rather, when preparing for a big race, such runners should concentrate on taking at least three easy days before competition and should moderate or eliminate the regularly scheduled mid-week interval workout in the week prior to the race.	

## RACING FORM

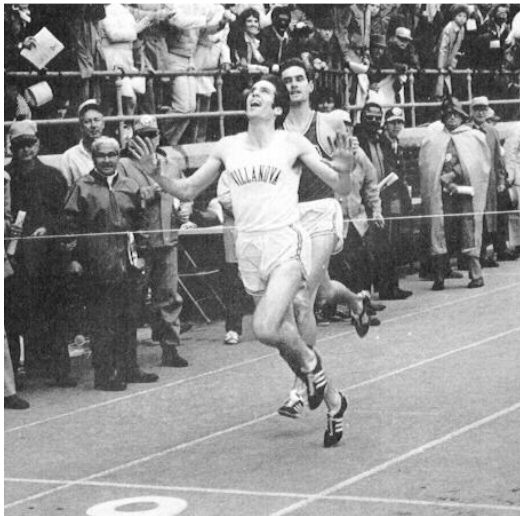
Now that you're ready, give it your best.

*Last of a seven-part series. The other installments appeared in the previous six issues.*

Strategy and tactics are military words describing the process of trying to outmaneuver or outwit an opponent. The first step in that process is to evaluate the weapons you have in your arsenal. Every runner has individual strengths and weaknesses, and the best runners are well aware of both and use that knowledge to their advantage.

It is not wise to attempt to decide what your strengths and weaknesses are too early in your running career. Many athletes decide in their first year or two of competition that they do not have a kick or that they are not very effective on hills. I advise against making such decisions until the runner is thoroughly tested.

For example, a runner may develop a well-hidden capacity for speed that neither he or his coach suspected was there. When Jim Ryun first ran cross-country at Wichita East High School, he never suspected that he would later develop the kind of speed most quarter-miler envy. Eventually, he was able to run 47 seconds for a mile-relay leg.



By carefully analyzing his own strengths and weaknesses as well as your opponent's; Liquori became the first American to beat the "King", Jim Ryun, at his prime

Once the runner has some racing experience, he should begin to evaluate what he has at his disposal to use against his opponents. For instance, a runner many recognize that he has a good kick, but what kind of kick does he have? Even some well-read track fans are unaware that some kickers are better with a long, sustained sprint (I fall into that category), while others are all but unbeatable in the last 100 yards.

Some runners have fairly good leg-speed but for some reason always get run down at the end of the big races. A strong surging technique might be their best weapon, utilizing both their strength and speed in the middle of the race when others might be just angling for position.

There are many other considerations. Do you run up hills well? Can you use such an advantage to "break" opponents? Do you have a nice long, flowing stride you can use to get away from the pack going down hills? Are you mentally strong enough to go to the front? Whether you're a champion or a challenger or a back-of-the-packer looking to move up, you have to know yourself, know the opposition and acquire the poise and intelligence to make the best of your competitive efforts.

I was very fortunate early in my running career to have a coach who recognized that although I could run the last 400 meters of a race very quickly, my greatest speed was during the first 300

meters of that kick, and that I was not an outstanding sprinter in the last 100 meters or so. Therefore, we adjusted my training to make sure that with 100 meters to go, I would already have made my move and have a four- or five-yard cushion.

Let's look at the situation 98% of all runners are faced with. Most runners who line up for a race are not thinking of winning the race. They are thinking of running the best race they can run at the moment, given their physical condition. Most of us are satisfied if we feel we have run up to our potential. So the first thing you must do is set a realistic yet challenging goal, keeping in mind what your training and previous racing experience tell you about your fitness. Then divide the race up into segments. In a mile, the race is divided into four quarter-miles, or laps; in a 10,000-meter race, into six separate miles with an extra 385 yards at the end.

Physiologically, there are only three ways to expend your energy to meet your goal. The first is to go out hard and fast and then try to hang on until the finish line. This is undoubtedly the most painful way as it involves a sustained oxygen debt. The second method is to be a master of pace judgment and try to run each segment of the race as fast as every other segment. The third method is to run a fairly even pace for 80% of the race and finish with a kick. Since the very first footrace thousands of years ago, men and women have experimented with these three styles, trying to decide which was the most efficient.

In the late 1800s, Walter George thought he could set the world records by running much faster during the first half of a race when he was still "fresh." And he did set records in that manner. In the late 1960s and early 1970s, most runners tried to use the third tactic. When the African runners appeared on the scene during those years, notably Kip Keino and Filbert Bayi, the idea of front-running again became popular.

Nowadays the physiologists tell us that the best way to run a fast time from a strictly scientific point of view is to run most of the race at a steady, even pace and then to kick at the end.

Part of the fun of competitive running is the process of finding out which system works best for you. Then you're ready to experience the biggest kick of all—sculpting a race that takes you from start to finish faster than you've gone before.

---

*This is a six-part series of article published in "The Runner" magazine; in February through August, 1981; by Marty Liquori, the world-class runner, and John L. Parker, Jr. It is excerpted from their book, The Elite Runner's Manual, published by Playboy Press. ©1980 Marty Liquori and John L. Parker, Jr.*