

# Running with Style





\$1.50

WHO'S WHO  
BOX 276  
CANYONVILLE, ORE. 97417

*Ryan*

# Running with Style



*Published by*

**World Publications**

**RUNNER'S BOOK NO. 46**  
**April, 1975**

Copyright © 1975 by RUNNER'S WORLD MAGAZINE

*All rights reserved. No information in  
this book may be reprinted in any form  
without permission from the publisher.*

Library of Congress Catalog Card Number: 75-284  
ISBN: 0-89037-056-7

**World Publications, P.O. Box 366, Mt. View, CA 94040**  
*Cover photo of Martins Ande (by Stan Pantovic)*

# Contents

Foreword

## CHAPTER 1

What Comes Naturally .....	5
Watch the Young Girls .....	7
To Change or Not? .....	8
Pictures of Perfection .....	11

## CHAPTER 2

From the Ground Up .....	13
Running Footplant .....	16
Length of Strides .....	20
Straight-Up Posture .....	22
Arms and Hands .....	25
Head and Shoulders .....	27

## CHAPTER 3

All Together Now .....	32
Taking the Brakes Off .....	36
Uphill and Downhill .....	37
Breathing with a Beat .....	40
The Kick in Racing .....	44
References .....	47

# Foreword

How do you run? This isn't a question of how far or how fast, or what you do in training and racing—but rather how you get there. How do you put your feet down? How do you look when you run?

You probably haven't thought much about it, and most of the time that's good. You can't do much to change the form you've grown up with, and concentrating too hard on individual steps may throw off the overall flow of the run. Running is like breathing. It usually goes along just fine without thinking about it all the time, working most smoothly when it's unconscious.

The way you look doesn't matter much, either. This isn't gymnastics or figure skating, and stylish running scores no points. If it did, you never would have heard the names Emil Zatopek and Bob Hayes. Zatopek thrashed his arms and grimaced like a crazed street-fighter. Hayes was so pigeon-toed that he almost stepped on his own feet when he sprinted. Yet these two are among the greatest of Olympians. Their "faults" were no more than innocent personal quirks.

We have to be careful when talking about running styles to separate what's different from what's wrong. Running doesn't have to look pretty. It only has to feel right for the person doing it. "Right" covers a wide range of differences, and varies from person to person, event to event.

This booklet lists the fundamentals of right running, the elements of style which are adjustable. These styles are:

1. *Individually fitted.* A 5'2" runner, for instance, can't use the stride of someone a foot taller—any more than he can wear his pants.

2. *Speed adapted.* A sprinter can't fall back on his heels without getting slow, but a jogger can't stay up on his toes without getting sore.

3. *Mechanically efficient.* Man has evolved into an upright animal, and runs best that way—with a straight back.

4. *Relaxed.* Running with tension is like driving a car with the brakes on. You work harder to go slower.

We concentrate here on identifying correctable mistakes in running style and showing how to correct them. For this reason, the booklet is heavily illustrated with unposed pictures of runners doing what's right and wrong.

Running is a complete, flowing action—not independent moves by the feet, legs, hips, arms, hands, etc. But to improve the overall form, we have to take it apart like a broken machine and fix the faulty parts. Then go back on a kind of automatic pilot and think of more important things than each step.

Noted technical writer Ken Doherty advises, "Do what comes naturally, as long as 'naturally' is mechanically sound. If it isn't, do what is mechanically sound until it comes naturally."

That is the theme of this booklet.

# Chapter One

---

## What Comes Naturally

*“The centipede was happy quite  
until a toad in fun  
said, ‘Pray, which leg after which?’  
That worked her mind to such a pitch,  
she lay distracted in a ditch,  
considering how to run.”*

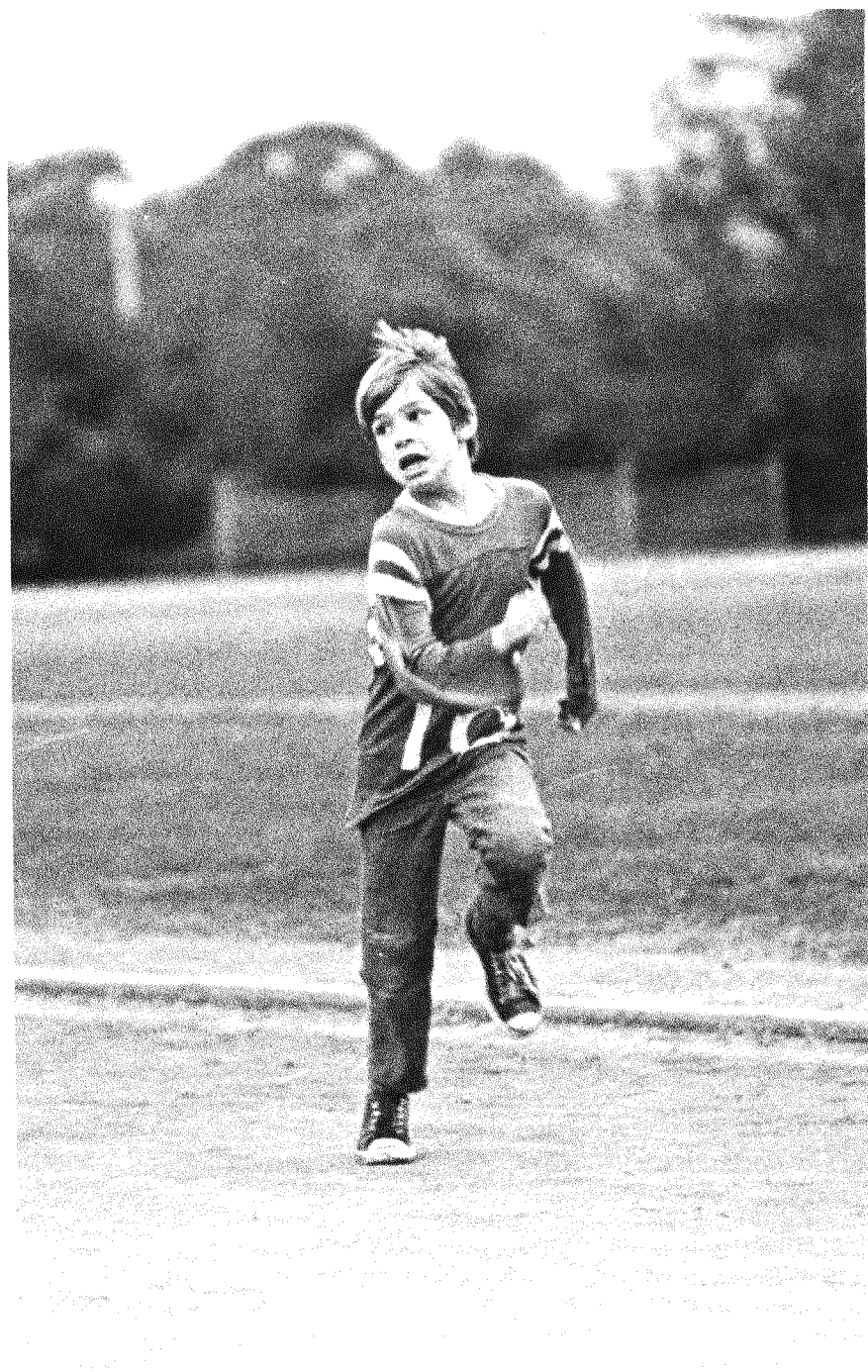
Ernest Hemingway once remarked, when asked about his writing style, that he had no “style.” He said the best writing is without style. Readers are aware only of what is being said, not how the writer is saying it. Hemingway considered “style” to be an affectation—a stage young writers pass through on their way to good writing . . . which is as simple and natural as good conversation.

Learning to be a writer is a process of moving back to what’s simple and natural, flowing and unconscious. It involves cleaning up sloppy habits that develop early, and hurdling mental blocks that come with thinking too much about “style.”

The same is true in running. The best runners don’t give much thought to how they look. They’re concerned with the overall action, its speed and efficiency, not with how far down this hand goes or how that foot contacts the ground.

Filbert Bayi of Tanzania appears to be running’s superstar of the 1970s. Tom Sturak wrote in the booklet *African Running Revolution* that Bayi “is the most natural runner I have ever seen. Most runners are distinguished by personal mannerisms and easily classified by style of stride (e.g., ‘pusher/puller,’ ‘driver/shuffler’). But Bayi simply runs, like water flows or the wind blows.”

Bayi simply runs the way that’s right for him. There is no conscious effort to make it look good. That just happens. It just happened, too, that the super-





star of the '60s, Jim Ryun, and the '50s, Emil Zatopek, had distinctive mannerisms. Zatopek thrashed with his arms and wore a tortured look. Ryun's head swung back and forth like a metronome, to the beat of his feet. These quirks were natural for them, and didn't change as long as they ran. It didn't seem to matter.

The questions to answer now are "What is natural?" and "What can be or should be changed in a runner's style so he or she can forget about style?"

## Watch the Young Girls

You won't see many champions, and they aren't always the best models, anyway. Forget them for now and watch the children play. Remember how you ran at that age, before you worried about form, or getting fit, or competing.

Percy Cerutti, an Australian who gives more attention to running technique than any other coach, writes, "If we study the movements of the child from three or four years to eight or 10 years, we will see in most cases free, uninhibited movements—no tensions, no poses, no false assumptions. But from puberty in particular, a growing boy acquires the postures, attitudes and movements of those deemed to be his peers."

Richard Westbrook, a coach of young runners in Florida, says boys start copying other runners at younger ages. He says if you want to know how to run naturally, watch the *girls*.

"Technically," Westbrook says, "the best natural distance runners are children. Further, the best natural distance runners among the kids are the young girls, ages 8-12." By "best," he means they have the most relaxed and efficient motion.

The young girls, as a rule, run more naturally than the boys the same age, Westbrook says. "The majority of girls 'run tall' (with straight backs). The boys lean . . . The girls carry their arms low. The boys have their arms high . . . The girls are dainty with their loosely-cupped hands. The boys clench their fists as if they're going to slug the girls running ahead of them."

He continues, "Body rotation (rolling the shoulders) is held to a minimum with the girls. The boys roll and run . . . The girls tend to have a shorter, more economical stride than their male counterparts . . . The footplant of the girls comes naturally, (while the boy) is bouncing around on his toes."

Westbrook concludes, "The overall action of the run is one of relaxation in girls. The boys seem to be constricted or overextended. The boys aren't as

*PAGE 6: Coach Richard Westbrook writes: "The boys aren't as smooth (as the girls). They have obvious bounce in their runs. They have wasted upper-body action." This young boy illustrates exaggerated motion in the head, arms and shoulders, and knee-lift. For contrast, see the girls on page 9. (OMPhoto)*

smooth. They have obvious bounce to their runs. They have wasted upper-body action in relation to the girls."

The coach has his own theory of why boys veer off into "unnatural" running form at a certain age and the girls don't. At eight or so, the boys are exposed to little league sports. They are coached. They develop athletic heroes and mimic their styles.

"One important fact that affects the boys' running style," Westbrook says, "is that their games are based on sprinting and sprint distances. Football, baseball, basketball and various playground games use short sprints as basic locomotion. The boys become accustomed to running on their toes, leaning forward. They transfer this running style to distance runs."

The girls, who rarely have these same influences, rarely develop bad habits. Not until they are in their teens, anyway, and start to run as they think young women are supposed to run.

## To Change or Not?

"It is dusk," the article began, "and you're running home into the lingering glow of the western sky." It was an article by the same name as this booklet. The writing was overly stylish perhaps, but it made important points.

"Up ahead, a quarter-mile away on the crest of a hill, another runner cuts across your path. He's silhouetted against the reds and golds of early evening. From this distance and with this backlighting, you can't see the runner's face. But you recognize him immediately. You know him by the way he runs. His identity is in his style of movement—his stride, his trunk, arm and head carriage."

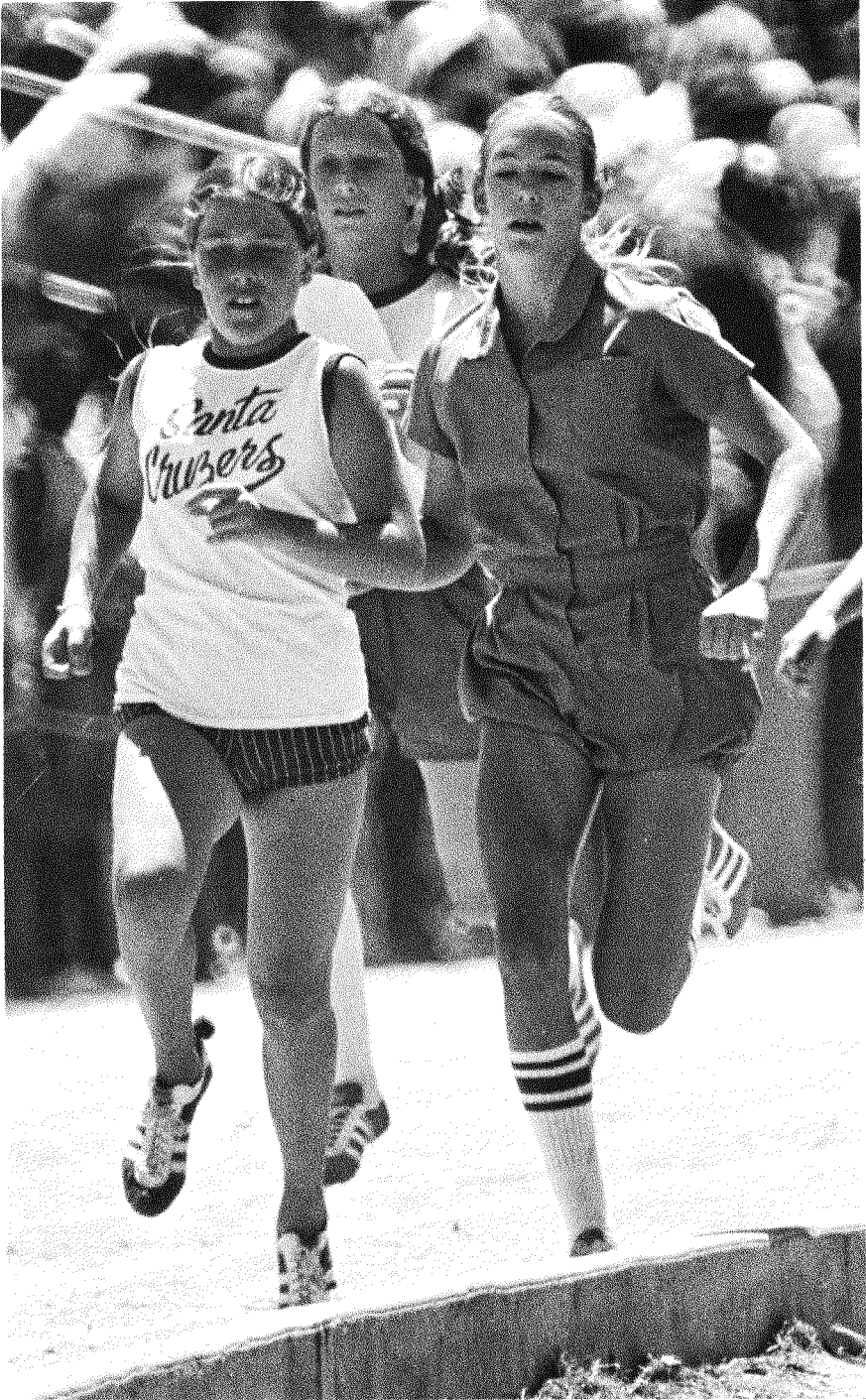
Point Number One: Running style is a personal trademark.

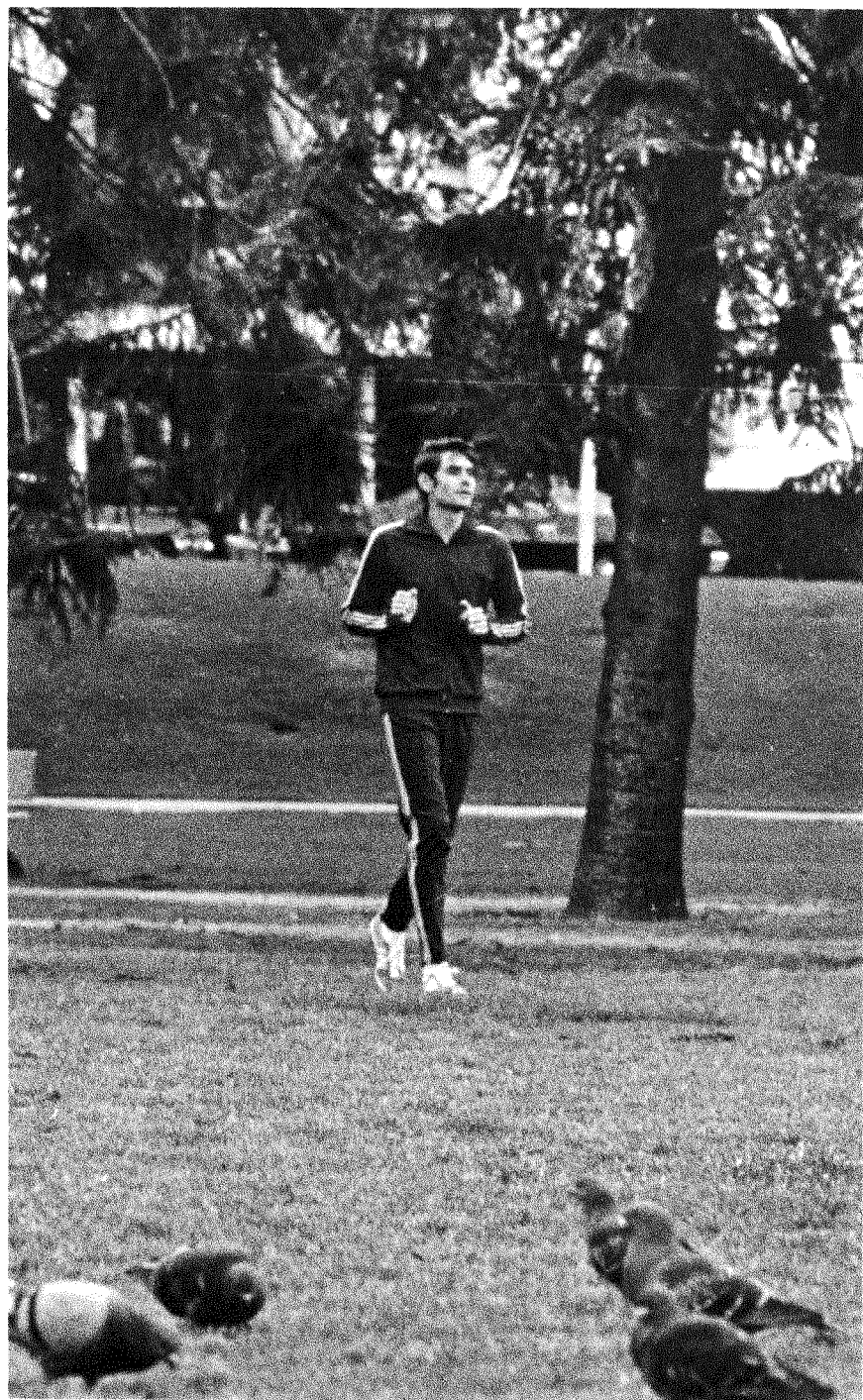
Point Number Two: "A runner looks much the same after a year or five or 10 years of work as he did when he started. He may be more efficient, but the basic habits are still there."

The way we run is determined largely by heredity, and by habits fixed during the years of growing up. It's changed only slightly by serious running training and force of will.

Ken Doherty, a former University of Pennsylvania track coach and the author of several books on running techniques, writes that one's form "is primarily an individual matter. It began when the athlete was two years or so of age, and over the course of a dozen or a score of years it has become so 'natural'—or at least so firmly established—as not to be changed without disturbing a man's inner as well as outer balance and relaxation."

*PAGE 9: "The majority of young girls," says Richard Westbrook, "run tall," carry their arms low, have loosely-cupped hands, and tend to have a shorter, more economical stride than boys the same age. "The overall action of the run is one of relaxation." These girls show the characteristics he mentions. (Marconi)*





Doherty adds, "A sound rule of thumb when it comes to running technique is to leave it alone." But he includes a significant "however."

"However, the technique of some (runners) can and should be improved, as long as we remember that improvement is related to performance, not to whether the technique is mechanically sound or aesthetically pleasing.

"Look for rhythm, smoothness, relaxation, ease of movement. If these are present, it means the runner has evolved a vital balance of various factors of style. These is a 'wisdom of the body' which compensates for this or that weakness and develops a technique which, taken overall, is sound."

Doherty's statement excuses the innocent quirks of Jim Ryun and Emil Zatopek. They've obviously compensated. But at the same time he tells some of us—those who are struggling along with a style that is neither normal nor natural for us—to pull ourselves together.

## Pictures of Perfection

All runners, not just young boys, carry pictures in their heads of how running should look. Most often, the pictures are of athletic stars they see on TV. They try to duplicate this form, but the copy usually comes out badly.

The booklet *First Steps to Fitness* tells the usual course a beginner takes: "He sees Steve Williams, up on his toes, pumping his arms powerfully, sprinting 100 yards. Jim Ryun gobbling up ground in a mile with great, smooth strides. A fullback breaking through the line, using his head and shoulders as a battering ram. These running styles are effective for their purposes, but they aren't right for running distances at 7-10 minutes per mile."

Form has to fit the purpose and pace of the run. The footplant and arm action of sprinting don't suit joggers. The stride length of a four-minute miler doesn't fit someone going half that fast. The forward lean of a fullback doesn't fit anyone without a tackler in front of him. The sprinter, miler and fullback themselves don't even run this way when they jog. They shift to a more effective gear.

Practice teaches what gear is right for what type of running. When our judgment is off, we have to shift manually for awhile before the automatic transmission goes to work.

Jack Pennington, a veteran Australian runner, had trained with long distances and slow paces for years. He was in his 40s when he decided to get serious about track racing again, but his body had temporarily forgotten how to run that way from lack of practice.

*PAGE 10: "Form has to fit the purpose and pace of the run. The stride length of a four-minute miler doesn't fit someone going half that fast." Not even Jim Ryun. He shifts gears when he runs slowly, and uses a style suited to jogging rather than 3:51 miling-short stride, little knee lift, etc. (Steve Sutton/duomo)*

Pennington's coach set out to replace one set of habits with another. He said, "You run like a bloody distance runner—no knee lift, no back lift, arms stuck out like a pair of wings. Now if we are going to get results, you will have to forget all you have learned. Be prepared to prance around like a fairy . . ."

It works both ways. Other runners have to forget what they've seen in runners who go fast. Instead, practice going slower—with less knee lift, less kick-up in back, less arm driving. Be prepared to shuffle along like Groucho Marx.

Practice doesn't make perfect, but then the sport doesn't ask perfection of form. Practice isn't likely to radically change one's basic style, but it can compensate for certain weaknesses by creating new strengths, and it can chip away the rough edges to produce new smoothness and efficiency. Most of all, practice can remove the self-consciousness which is the main block to naturalness in running.

# Chapter Two

---

## From the Ground Up

*“The answer to the question of why one man can run fast while another of similar physique seems forever destined to be slow is more often that the slow fellow is running incorrectly than that he was born that way.”*

—Gwilym Brown

The late Gwil Brown wrote for *Sports Illustrated*. He was a distance runner himself, a veteran of the Boston marathon, and he covered the sport for his magazine. One assignment several years ago was to examine running styles.

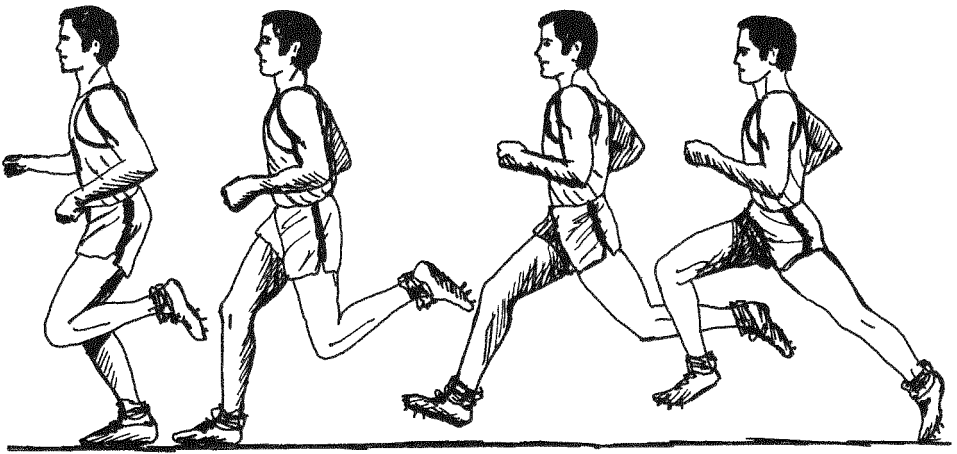
Brown went to the master for his information. Bill Bowerman. The sentence at the top of this page introduced the ideas of Bowerman, former University of Oregon and US Olympic coach and one of the more persistent seekers of truth in track and field.

Bowerman worried over details which most coaches ignored, and this was one reason his runners were so successful. They “ran tall,” in the words of a rival coach. Their trademark was their straight back. They didn’t run this way by chance.

Bowerman and medical doctor Donald Slocum analyzed reels of film showing runners in action. They reported their conclusions which the coach reinforced in a book he wrote a decade later.

Bowerman and Dr. Slocum started by defining running: “A running stride is a complete cycle of motion consisting of a period of weight-bearing or support on one foot, followed by a period of non-weight-bearing or ‘float,’ then a period of weight-bearing on the other foot and another period of float.”

They said the obvious—that different sports require different styles of running. “In track,” they noted, “speed and endurance alone are required. The center of gravity is little affected by outside forces, and movement consists essentially of straight-forward motion . . .”



*The middle distance runner drives off his rear foot, goes into the "float" phase of the stride in which both feet are off the ground, plants his foot, then bears his full weight. In comparison to the sprinter at right, this runner's stride is shorter, footplant is flatter, and arm action is more controlled.*

That brought them to their main stylistic point: "Therefore, the trunk is carried in an upright position and the feet track directly under the body along a line of progression. Equilibrium is maintained through postural control."

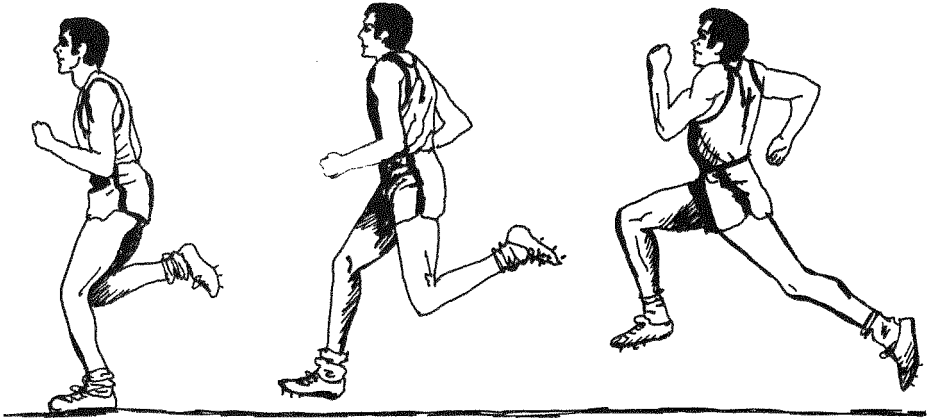
In Bowerman's and Slocum's view, good running form starts just below the waist. "The position of the pelvis is the key to postural control in running . . . It is a well-known principle of postural correction that forward rotation of the pelvis results in extension of the spine into a sway-backed position, increased internal rotation of the thighs, secondary lowering of the longitudinal arch, a relative lessening of the ability to flex the hip in relation to the ground, and a forward shift of the center of gravity so that weight falls more heavily on the ball of the foot."

You don't have to understand all of the mechanics to know that the overall influence of a forward pelvic tilt isn't good for runners. However, Bowerman and Slocum said, the opposite things happen when the pelvis is rotated backward—the spine goes into a flat-backed position, the thighs rotate externally, the hips flex more freely, the center of gravity shifts and the weight falls more toward the heels. These effects promote efficient running.

"There is little question," according to these two authorities, "that the less vertical displacement (forward lean) of the body, the greater the efficiency of the runner. Energy is not wasted in lifting the body upward with every step but is concentrated largely on thrusting it forward into the 'float' (off the ground) phase of the stride."

They added the advice that "side-to-side sway should be kept at a minimum." This is regulated to a great extent by the runner's arm action, which along with posture is a key factor in style.





*All the movements of the sprinter are more pronounced than the distance runner's: higher knee-lift, longer stride, landing more forward on the foot, more powerful drive with the arms. In this sequence, the sprinter is in the "float" phase of his stride in the first two drawings (from right), then "weight-bearing."*

In fact, Percy Cerutti says the arms are even more important than trunk carriage because they help determine that carriage. The student of "naturalistic techniques" writes, "According to my ideas, all running starts with the thumbs and ends in the feet."

In other words, if the hands are right and the posture is right, everything else must fall into line.

"There *is* a correct posture," Cerutti says. "It applies to all. There *is* a proper way of moving the arms and hands and fingers. Its variations (and there are many) apply to all. There is a true and proper way to move the legs and land on the feet."

The lumped-together advice from Bowerman and Cerutti is this: Run *from* the pelvis and hands, *on* the legs and feet.

We're not just juggling prepositions when we say run *on* the feet and legs, not *with* them. Running doesn't start there. It ends there. Footplant and stride length are the end result of the overall running action, which comes down from the top.

But we start talking through the action from the bottom because so many people insist on focussing their attention there. Go to a track and listen to the advice being yelled at runners:

"Get up on your toes."

"Stretch out your stride."

The words may be "get off the toes" and "shorten the stride," but the message is the same. The emphasis in running is from the groin down. And this emphasis is usually misplaced, since what's happening here results mainly from two factors: (1) the action from the pelvis up, and (2) the speed of the run.

# Running Footplant

Look at your shoes. Well-worn pairs give the best clues to how your feet meet the earth.

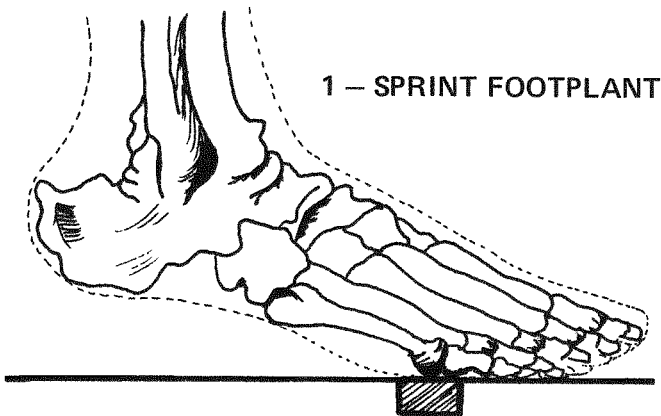
Look first at your street shoes. They're ground down way back on the heel because that's how you land when you walk—heel first.

Now check a pair of used training shoes, the ones you wear on slow road runs. The heels are the first part to go, but the tread is also gone from the balls of the feet—indicating a flatter landing than in walking.

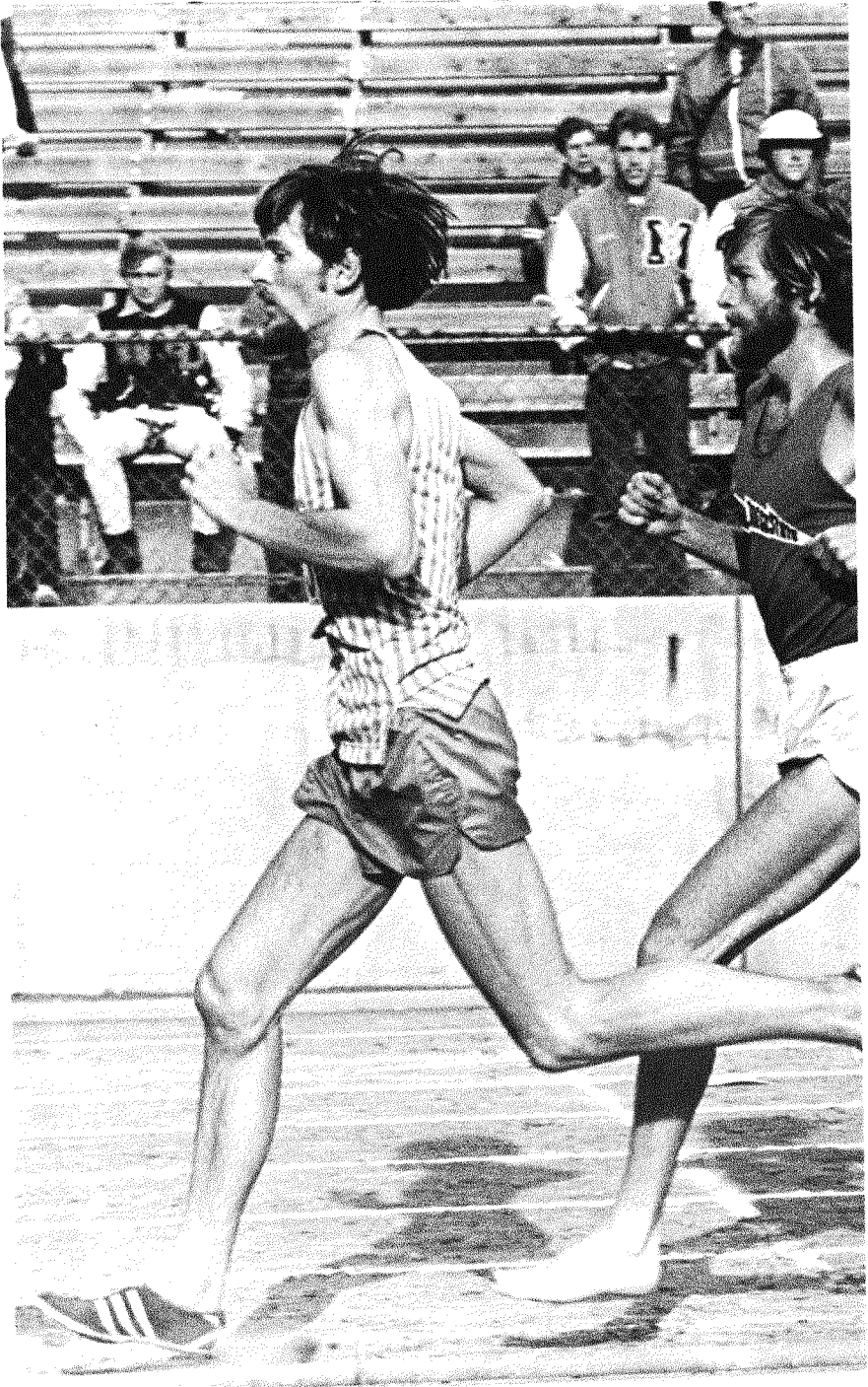
Finally, study a pair of sprint spikes. If they have a heel at all, it won't show much wear. If these shoes are worn through, it will likely be at the balls of the feet, on the outside edges. This is the usual contact point in fast track running.

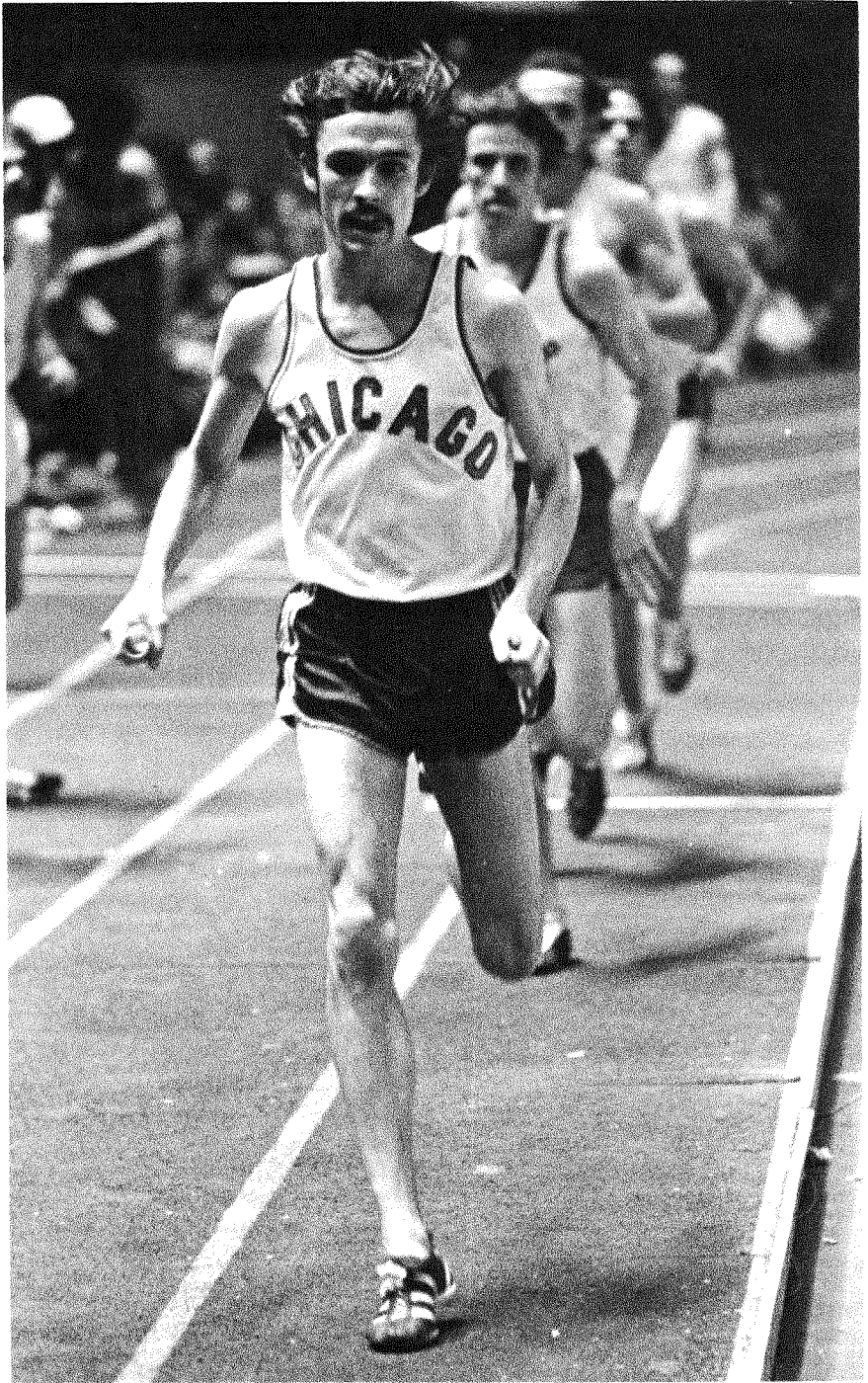
The impact area is increasingly forward on the foot as speed picks up—from the back edge of the heel in walking to the front edge of the ball of the foot in sprinting. It has to happen this way, says Toni Nett.

Nett is a German photographer and expert on track techniques. His specialty is the analysis of slow-motion and sequence photos of athletes. After studying the styles of hundreds of top runners, he concluded that footplant at a particular speed is the same with all of them. He called it a "universally applicable technique," while "in controlling of the arms, trunk and head, in the length of stride and number of steps, it is a question of individual style."



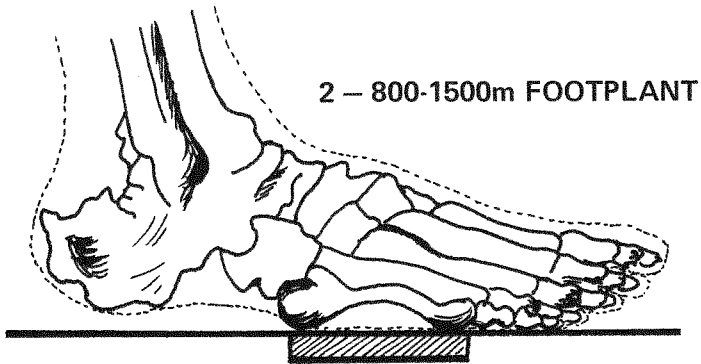
*Contrasting footplants at different speeds: on page 17, Kenny Moore is running 10,000 meters. Note the heel-first plant (and the bare foot of the runner behind him). (Stan Pantovic photo). On page 18, Rick Wohlhuter is running a high-speed half-mile. He lands on the ball of his foot, his heel slightly off the ground. (Jeff Johnson photo)*





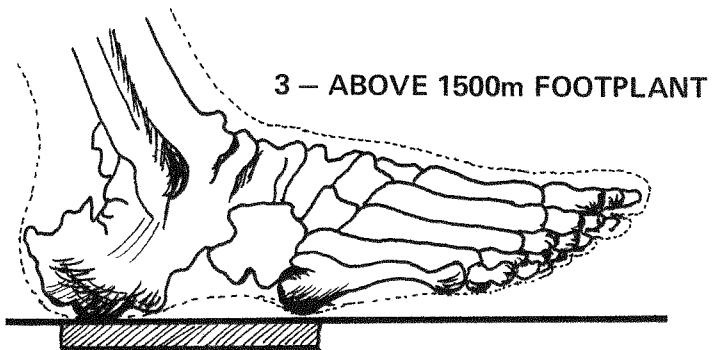
Nett's observations:

1. "All runners at all distances plant the foot on the outside edge. Here, the first contact with the ground takes place. (The foot then rolls inward. This action has a 'shock-absorbing' effect.)
2. "The point of contact with the ground (along the outer edge of the foot) is different according to the speed of running.
3. "At the fastest pace, therefore in 100- and 200-meter runs, the ground is contacted first on the outside edge of the sole, high on the ball (under the little toe; see drawing one, page 16).



4. "In the 400-meter run, which is a somewhat slower pace, the contact point lies a bit farther back toward the heel. The foot plant is now somewhat flatter.

5. "In the 800-meter run, the foot is planted throughout most of the race almost exclusively on the part of the outer edge of the sole which is within the metatarsal arch. Heels and toes are somewhat higher. In fact, the position of the foot is almost completely flat (see drawing two, above).



6. "In the 1500-meter run, a further transition takes place. Many runners still plant as in the 800, many also as in the longer distances.

7. "At all distances beyond 1500 meters, up to the marathon, a first con-

tacting of the ground with the outside edge of the arch between the heel and metatarsus is confirmed (see drawing three, page 19).

According to Nett, a runner has to make a conscious effort to plant the feet in any way other than the proper ones he describes.

Let the feet fall where they may.

## Length of Strides

Writers on running get almost poetic sometimes as they grope for words to describe a runner's stride. "Gazelle-like action," they might say. Or "so smooth and light that he barely touches the ground." Or "loping along with three-yard steps."

They can be excused for writing this way. The stride attracts comment because it's the most obvious and elegant feature of a runner's style. Somehow, it isn't as dramatic to talk about a pelvis tilted backward, a spine without a curve or an unlocked elbow . . . though these, along with speed, determine the stride's length and looks.

The real experts on running form barely mention stride—except to give two bits of general advice: (1) keep your feet under you, and (2) don't give it too much more thought.

Percy Cerutti writes, "No effort must be made to stride. Stride is truly related to strength and posture." (He might have added "speed," which may be the most important of the relationships.)

"In perfect running," Cerutti says, "there is no pronounced knee-lift or kick-up at the back. No effort must be made to run by controlled or 'taught' leg movements. They will be correct if all else is correct—therefore can be ignored in themselves."

Bill Bowerman agrees: "There is no conscious effort to reach with the knees. The leg and foot are dropped directly under the body for the stride, and the leg is not fully extended in front of the body."

According to Bowerman, "A relatively short stride is most efficient. It is better to understride than overstride."

Like footplant, the stride and its individual components—length, knee-lift, back-kick—are primarily functions of pace. The faster you go, the more you stretch up and out—and vice versa.

Each pace has a stride which is right for you—a "gear," to use an auto analogy. Sprints use high gears designed for speed and power (long strides, pronounced knee lift). The long distance stride (short and low) is meant for relaxed

*PAGE 21: The runner on top has a collection of form problems, all resulting from overstriding. His lead leg is straight on landing, he's leaning backward, and his trunk is twisting. (Steve Murdock photo). Contrast that with Jim Crawford's stride. He's erect. His knee is slightly bent, and his footplant will be under his knee. (Stan Pantovic photo)*



efficiency. There are dozens of other gears between these two extremes, and each must fit specific circumstances. Nothing, for instance, is more wasteful or ridiculous looking than a slow-motion sprint stride in a two-mile.

Bill Bowerman has two rules for striding at any pace:

- “First, your foot should strike *after* it has reached the farthest point of advance and has actually started to swing back.”
- “Second, when your foot first strikes, the point of contact should be directly under your knee, not out in front of it, and (as nearly as possible) squarely beneath your center of gravity.”

He says there are two easy ways to comply with these fundamentals: (1) “by keeping your knees slightly bent at all times,” and (2) “by not overstriding.”

Bowerman writes, “If the foot hits the ground ahead of the knee, the leg will be too straight and will act as a brake instead of an accelerator.”

He tells runners to watch an object on the horizon as a sign of overstriding: “If the object is bouncing, then the runner is bounding.”

Keep on top of your feet.

## Straight-Up Posture

First of all, it looks bad. The runner shuffles around the track like a beast of burden—eyes on his feet, back in the shape of a number 9, shoulders hunched, butt sticking out in back. It looks like gravity is dragging him down. He’s making running harder work than it has to be.

“A forward lean,” Bill Bowerman says, “might be useful for someone trying to bash down a wall with his head. But in running it merely gives the leg muscles a lot of unnecessary work.”

Straighten up, Bowerman advises. The only times you need to lean are when you’re starting a sprint, accelerating quickly, dipping into the tape or climbing a steep hill. (He also tells runners to fight the tendency to lean *backward* while doing downhill, but instead to keep their torso perpendicular to the ground.)

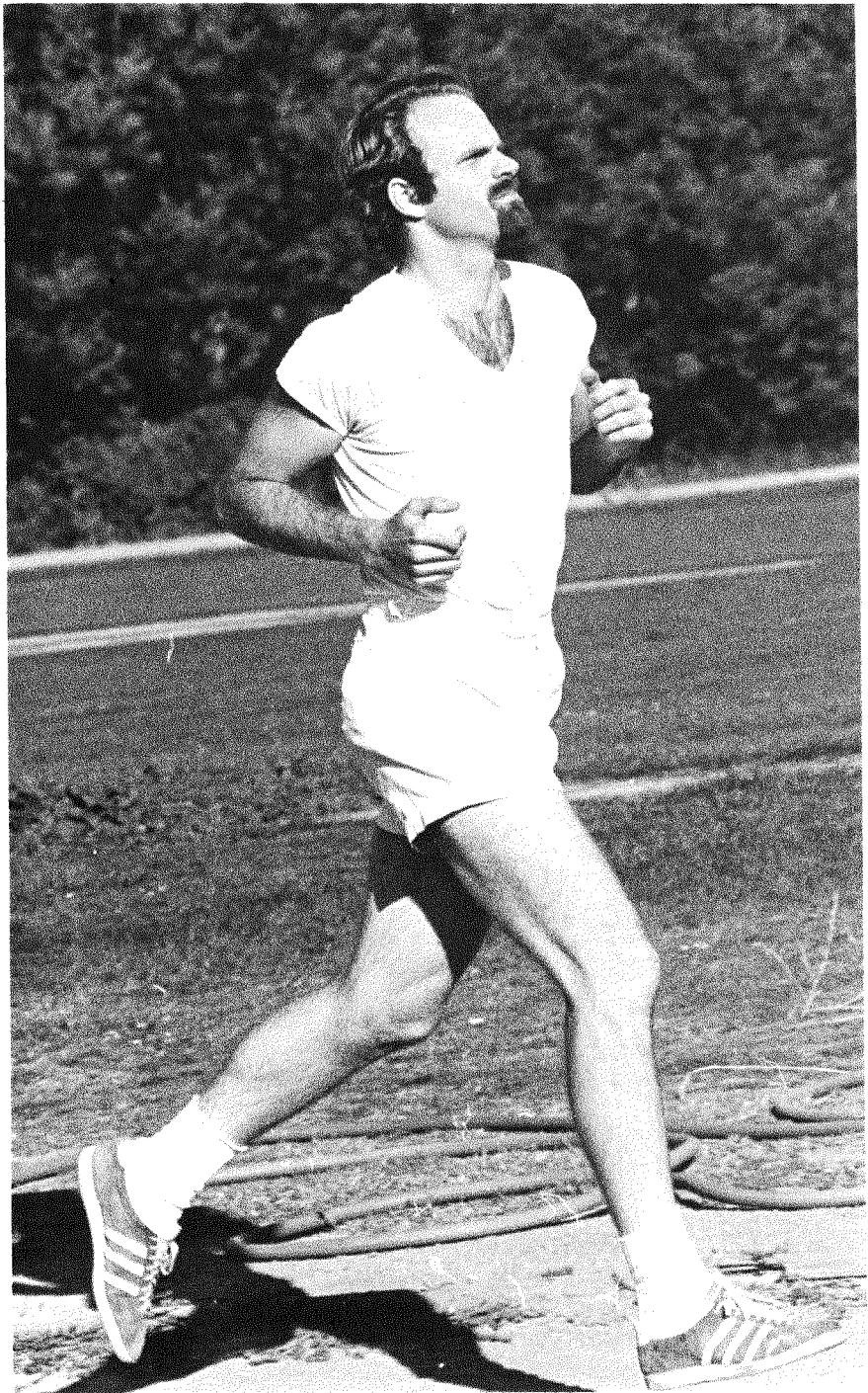
“The best postural position for a distance runner is an upright one,” the coach writes. “A line from the ear straight down to the ground should show the back is perpendicular to the ground while running. This is true even for sprinters once they have finished accelerating.”

He continues, “This basic running form permits easier use of the leg muscles, and aids in taking air into the lungs. A quiet, light stride is the most

*PAGE 23: “The only times you need to lean are when you’re starting a sprint, accelerating quickly, dipping into the tape or climbing a hill.” Benny Brown shows one of the exceptions as he gets out of the blocks and picks up speed in a 440. However, at top speed he’ll run erect. (Stan Pantovic photo)*







economical, and it is most easily maintained when the body is in an upright position rather than leaning forward.”

Pelvic position is the key to posture, Bowerman and Dr. Donald Slocum found when they studied runners. The pelvis should be “tucked under, or brought forward in relation to the rest of the body,” they say. “This assists in straightening the spine, which helps maintain an upright posture.”

Percy Cerutti adds this recommendation: “Imagine the pelvis to be a bowl filled with some precious fluid, as it is more or less. The front part is tilted upwards as we run (and walk) so that the contained fluid does not seep over the front edge. This posture makes for natural ease of movement of the knees. They will lift to the proper height commensurate with the demands of speed and the terrain traveled over.”

“Tuck under” the buttocks, straighten the back—but not so much that you run like a soldier at attention. Don’t bend over backwards trying to hold yourself up. Don’t puff out your chest. This causes you to pull back and tighten up your shoulders, and to put a reverse curve in the spine.

The chest should feel flat, says Cerutti, “never protruded in the ‘attention’ position.” The back should have no curves.

Bowerman says the ideal posture is one in which you could drop a plumb-line from ear level and it would fall “straight down through the line of the shoulder, the line of the hip and then onto the ground.”

It looks better and feels easier when you run tall. Run like a number 1, not like a 9.

## Arms and Hands

Not so long ago, in evolutionary terms, man stood up and walked and ran on his hind legs. He began then to use his “forelegs” for drive and balance. He used the two free legs and paws in coordination with the two on the ground. It still works that way. The hands and arms aren’t just along for the ride but have important functions to perform in two-legged locomotion.

In fact, Australian national coach Jack Pross says, “The thumbs could be considered the most important single part of the anatomy in relation to running.” He agrees with his outspoken countryman, Percy Cerutti, who remarked earlier that “all running starts with the thumbs.”

Pross says tension begins in the hands, and a chain-reaction of form problems is set off when the hands are held incorrectly. First, he writes, “we must drop the old-fashioned practice of open-hand movements.”

Hold out your hand. Straighten the fingers and notice the feeling of ten-

*PAGE 24: The advice is “Tuck under the buttocks, straighten the back—but not so much that you run like a soldier at attention. Don’t bend over backwards trying to hold yourself up.” This runner appears to be too stiff, with his head back, chest thrust out, and arms showing the tension of pulling his shoulders back. (OMPhoto)*



*Percy Cerutti observes that the unbending elbow is the most common form fault. This causes the shoulders to sway. The man here demonstrates that fault. Note the stiffness and imbalance from the waist up. (B. Rhine)*



*Jack Pross says: "Any form of 'relaxation' where the hands are allowed to swing about in an uncoordinated fashion is false." He tells runners to keep the fists loosely clenched and the hands in line with the arms--neither of which is being done here. (OM)*

sion and rigidity all the way up the arm. Make a fist and clench it tightly. You're tense again, right? Now make a loose fist. Feel better?

Pross says this is the best hand-hold: "The preparatory position for running is as follows—thumb on index fingers, fingers lightly clenched, palm turned slightly up, wrist firm but not tight, hand in line with forearms, elbow relaxed and not locked."

Pross notes that "any form of 'relaxation' where the hand is allowed to swing about in an uncoordinated fashion is false." Therefore, the hands should not flap like stale celery on the ends of limp wrists.

"The elbow must not be locked under any circumstances," Pross repeats. "There is no natural, dynamic movement in which the arm motion is carried out with a locked elbow." Try hammering a nail that way, he says, and you'll see his point.

Percy Cerutti observes, however, that the unbending elbow is the most common form fault. Ideally, he says, the shoulders show no apparent movement. They remain parallel to the running surface. But when the elbows don't flex, the shoulders sway and dip. This wasteful motion, according to Cerutti, "is the main reason why real speed is absent in those addicted to the rigid or fixed elbow."

The arms swing in rhythm with the legs. The faster the beat, the more violently the arms move. It's a piston-like drive with sprinters—nearly straight up and down, forward and back. The action is more pendulum-like in distance running. The range of movement is smaller, and the arms swing somewhat across the chest. In both instances, though, the elbow flexes and it's at more or less a right angle. The high and low points of the arc are determined by the speed of the run—the faster the run, the longer the arc.

Cerutti says, "The normal and most used arm movement is the low arm carriage. In this, the hand moves from a side position corresponding to the side seam of the running shorts. The arm, partly bent, throws upwards, forwards and partly across the body (the degree depending on the speed of the run) . . . The hands never pass a center line projecting out in front of the chest."

Run with loose fists, fixed wrists, flexible elbows and shoulders so level you could carry chips on them.

## Head and Shoulders

You've come this far in adjusting your running style. It would be a shame to spoil everything now by forgetting to put your head on straight.

If everything else is taken care of, the head should automatically sit on the shoulders the right way. Posture should keep the head level. Unlocking the elbows should keep the shoulders from rolling. This is the physical part of running style. But there's an emotional part to it, too.

If good, efficient style starts in the arms and torso, relaxed running begins in the head and shoulders. You feel tension here and can treat much of it here.





Next time you run, check yourself in three places:

- The large muscles at the base of the neck, in back.
- The jaw muscles just below and in front of the ears.
- The muscles around the eyes and the ones which wrinkle the forehead.

If any of them are too tight, simply let them drop. Shrug the shoulders a little bit. Let the jaw go slack. Iron the wrinkles from the forehead. Allow the energy you were using to keep those muscles up to flow down where it can do more good.

Bill Bowerman says the arms should swing from relaxed shoulders.

Percy Cerutti says the head should rest comfortably on its support. If posture is right, “without moving the head but by turning eyes down we should see the knees coming up and the track of each footfall.”

But who wants to watch the knees and the ground? Look up, look ahead, look around. Keep your eyes on your prize, whatever it may be.

*PAGES 28-29: Three key tension trigger-points are the muscles at the base of the neck, those in the jaw, and those which wrinkle the forehead. Mary Peters (Left) and Burglinde Pollack, Olympic pentathletes, are extremely tight in all three places. Compare them with the sprinter on the next page. (Tony Duffy)*

*PAGE 31: Mable Ferguson, US Olympic 400-meter runner, is striding powerfully, yet she wastes little motion and has little tension. (Stan Pantovic photo)*





# Chapter Three

---

## All Together Now

*“The great athlete of the future will be seen to have the relaxed power, grace and resiliency of the (race) horse . . . He will have the ‘upness’ and apparent faculty of being over the ground that the gazelle suggests in its stance and movement, and the litheness and resolute ferocity that is in the posture and movement of the panther . . .”*

—Percy Cerutti

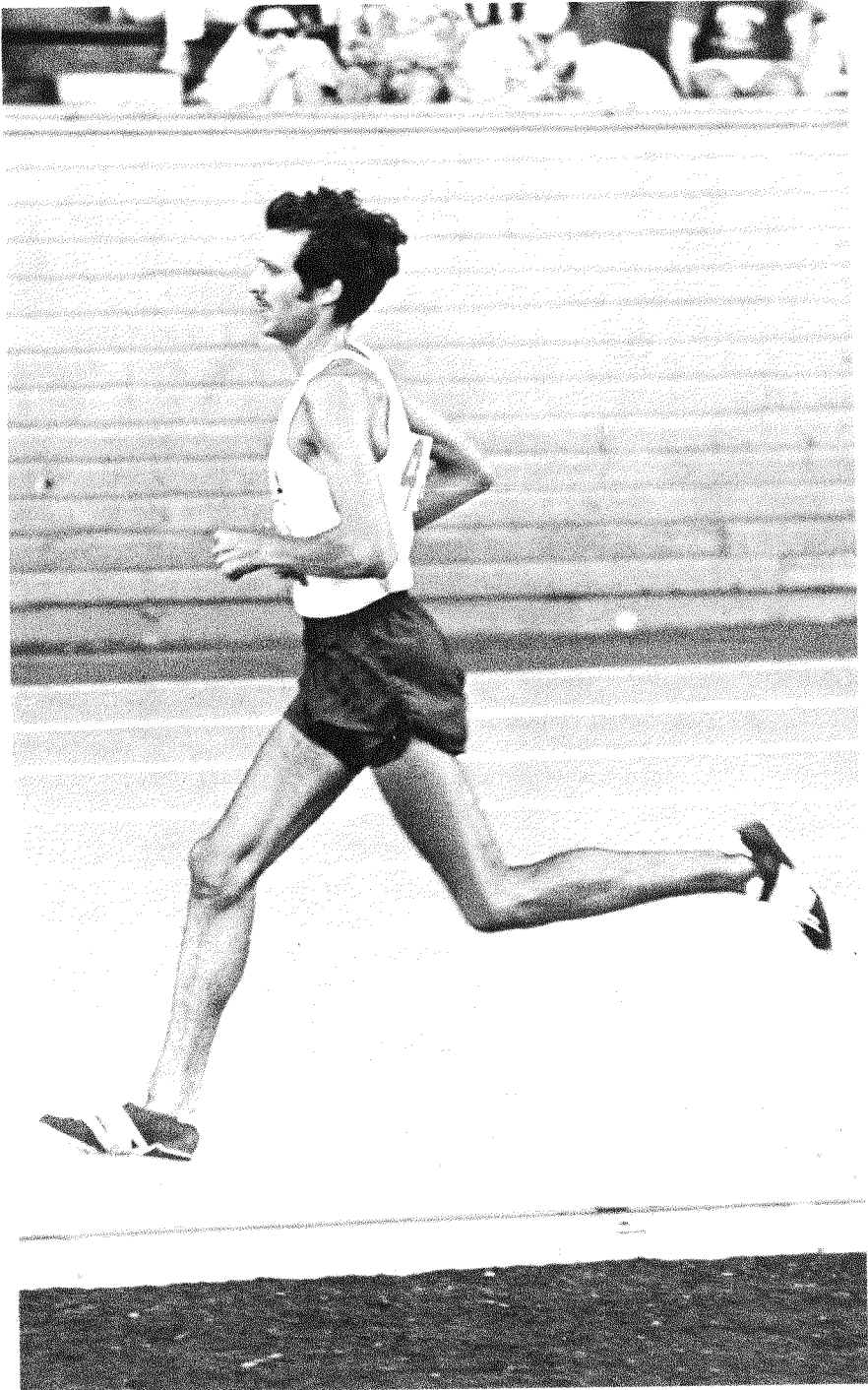
Cerutti once wrote that human runners should forget about running like conventional human runners. Instead, look to children and animals as models—animals more so than children. Run like a horse, he said. Trot, canter, gallop instead of jog, stride, sprint.

The Cerutti line is that “homo sapiens have lost most of the ability—through separation from natural and primitive living—to move as an animal.” He says we need “re-education as to movement, posture and relaxation.”

He isn’t telling us to get back down on all fours. He’s saying *study and practice*. Look at models of natural, smooth, relaxed running form. Look at yourself to see how different you are from that model. Then take steps to change the features in your style which you think need changing and can be changed.

Reread chapter two for pointers on how you should be running. Study the photographs of rights and wrongs. Fix an image in your head of what running should be, then try to run in that image.

*PAGE 33: Frank Shorter might serve as a model of “right running” in the middle and long distances. He runs tall, lifting out of the pelvis (note the straight back), runs on the legs (keeps his feet under him) and runs over the ground (with a light stride). (Stan Pantovic photo)*



Check yourself often for the sights and sounds of good running form. Look at the trail of your footprints in the fresh snow, on wet grass or on the beach. Listen to your footfall on the road. Watch your shadow in front of you. Glance at your reflection in store windows. Have someone take your picture. In short, be vain about your style if you think it needs changing.

Check yourself for any of six symptoms of bad form:

1. **Slapping**—excessive noise as the feet meet the road or track. Percy Cerutti says, “Pounding is evidence of absence of true lift.” You’re running with the feet rather than on them.

2. **Bouncing**—a rising and dipping with each step. According to Bill Bowerman, “If the horizon seems to be ‘bouncing’ the runner may be overstriding.” The head stays almost parallel to the ground when the stride length is correct.

3. **Leaning**—the head and shoulders thrust forward, the butt sticks out in back. The pelvis is tipped forward. Tip it back by tucking in the butt.

4. **Flapping**—hands and arms all over the place. When they hang limply, they provide no power or balance. Keep the fists loosely clenched, wrists fixed, elbows at a flexible angle.

5. **Boxing**—Hands and arms high, fists clenched tightly, elbows locked as if protecting the face against attack. This produces tension and a side-to-side sway. Lower the arms, relax the fists and unlock the elbows. Swing the arms low.

6. **Grimacing**—holding the shoulders up, tightening the jaw, wrinkling the forehead. These are three tension trigger-points. Let them all drop.

Focus in on a mental picture of how to run. Dr. Thomas Burke, track coach at Hunter College in New York City, writes that “visual imagery techniques may be used to reinforce the essence of running. For instance, a runner may concentrate on developing a sense of lightness by thinking of how it would feel to run as if he were ‘floating on a cloud.’”

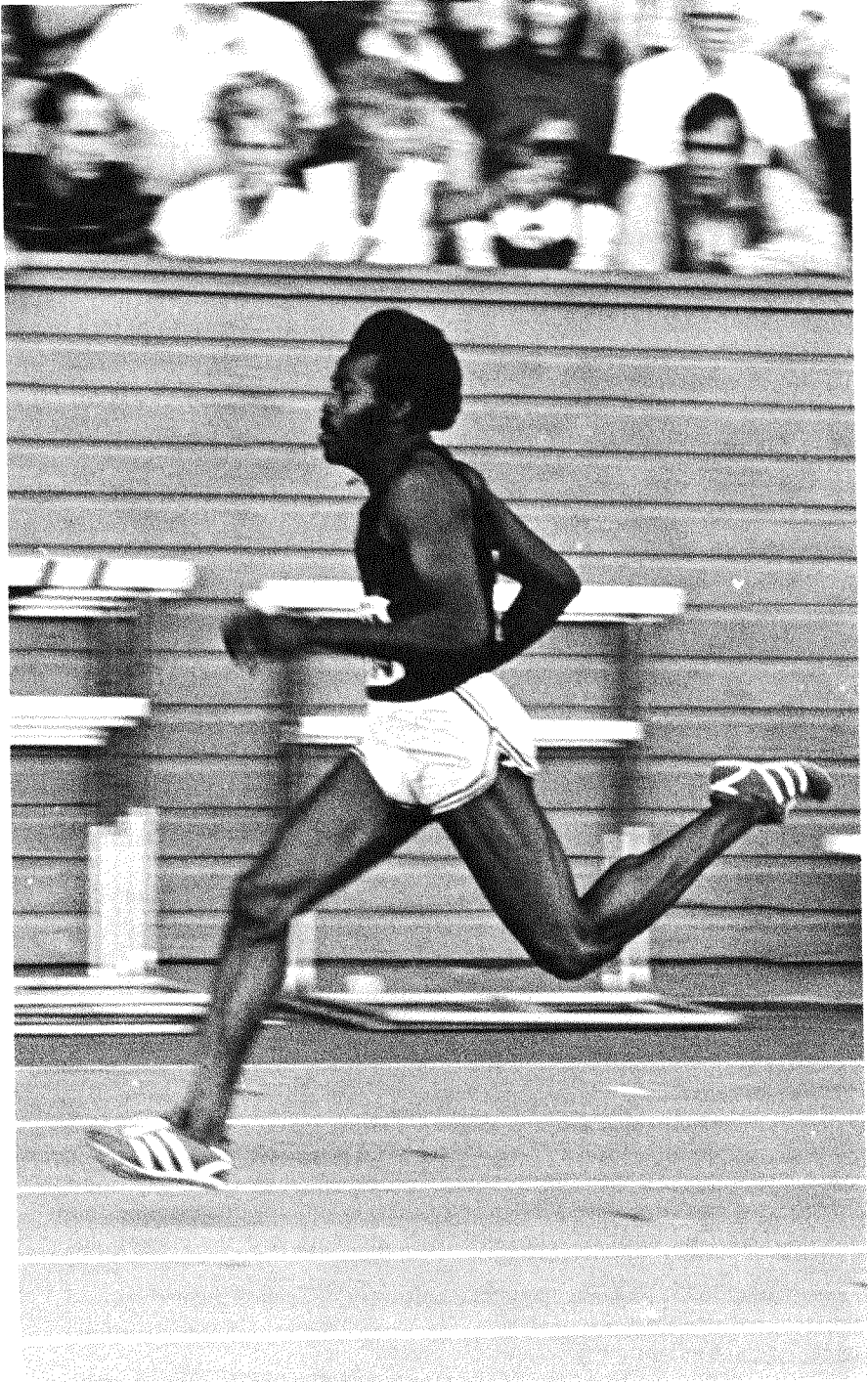
As you think, so shall you run. Think of three things: (1) running tall, lifting out of the pelvis; (2) running *on* the legs; (3) running *over* the ground.

Even if you’re running at a pace which might be called jogging, don’t think “jog.” The word has a jarring and pounding connotation.

UCLA coach Jim Bush says, “I hate the word ‘jog.’ It’s a word we ought to get rid of. When I hear it, I think of a guy plodding along, pounding the ground and jarring the whole body with every step.”

It’s better, Bush says, to concentrate on “brushing your weight over your feet” in the smooth, rhythmic motion of a runner. Whatever your speed, think “run.”

*PAGE 35: Lee Evans, world record holder and 1968 Olympic champion at 400 meters, is a Bud Winter pupil. Coach Winter says, “The key is learning to relax under the pressure of combat.” According to his teachings, relaxation begins with loose hands and a loose jaw. (Stan Pantovic photo)*



## Taking the Brakes Off

“The way to run faster is with a four-fifths effort. Just take it nice and easy.”

The speaker is Bud Winter. And if we didn't know his record, he would sound like a crank. Run faster by running easier! What's he trying to feed us?

Winter, in fact, has a most impressive set of figures to back up his words. He has coached the fastest runners in world history. No one yet has sprinted faster than Ronnie Ray Smith at 100 meters, John Carlos at 200 meters, Tommie Smith at 220 yards and Lee Evans at 400 meters. At one time in the late 1960s, Winter-coached athletes held almost every record between 50 and 660 yards.

So he rates our attention when he says, “Going all-out is counter-productive. Our greatest athletes have been the sleepy-looking guys.” They've had a relaxed fluidity to their style.

Winter learned about relaxation techniques during World War II while working in pilot training. He “took guys who failed in gunnery, who froze at the controls, and made them into some of the best shooters in the Navy. We had 100% results. After six weeks in our relaxation program, they could fall asleep—if they wanted to—in two minutes.”

While coaching at San Jose State College in California, Winter continued to research this subject as it applies to runners. That's when he came up with his startling advice: don't run all-out.

“The key,” he says, “is learning to relax under the pressure of combat. An athlete who wants to die for dear old Rutgers or San Jose State misses the point. He's as good as dead.”

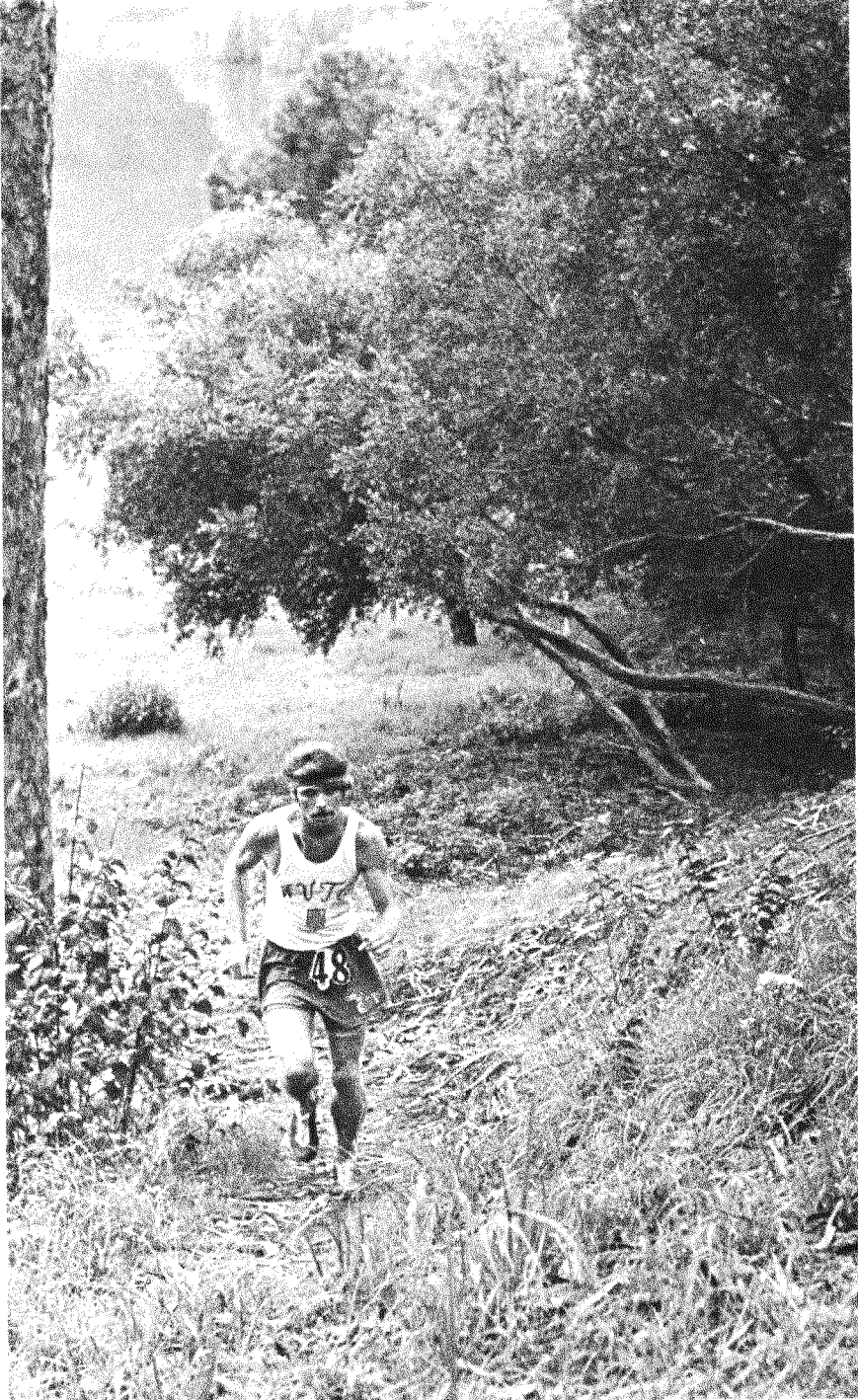
Trying too hard ties up the muscles, according to Winter. “In an all-out try, your antagonistic muscles mess up your performing muscles. A (tightly) clenched fist is the mark of a loser. So is a set jaw.”

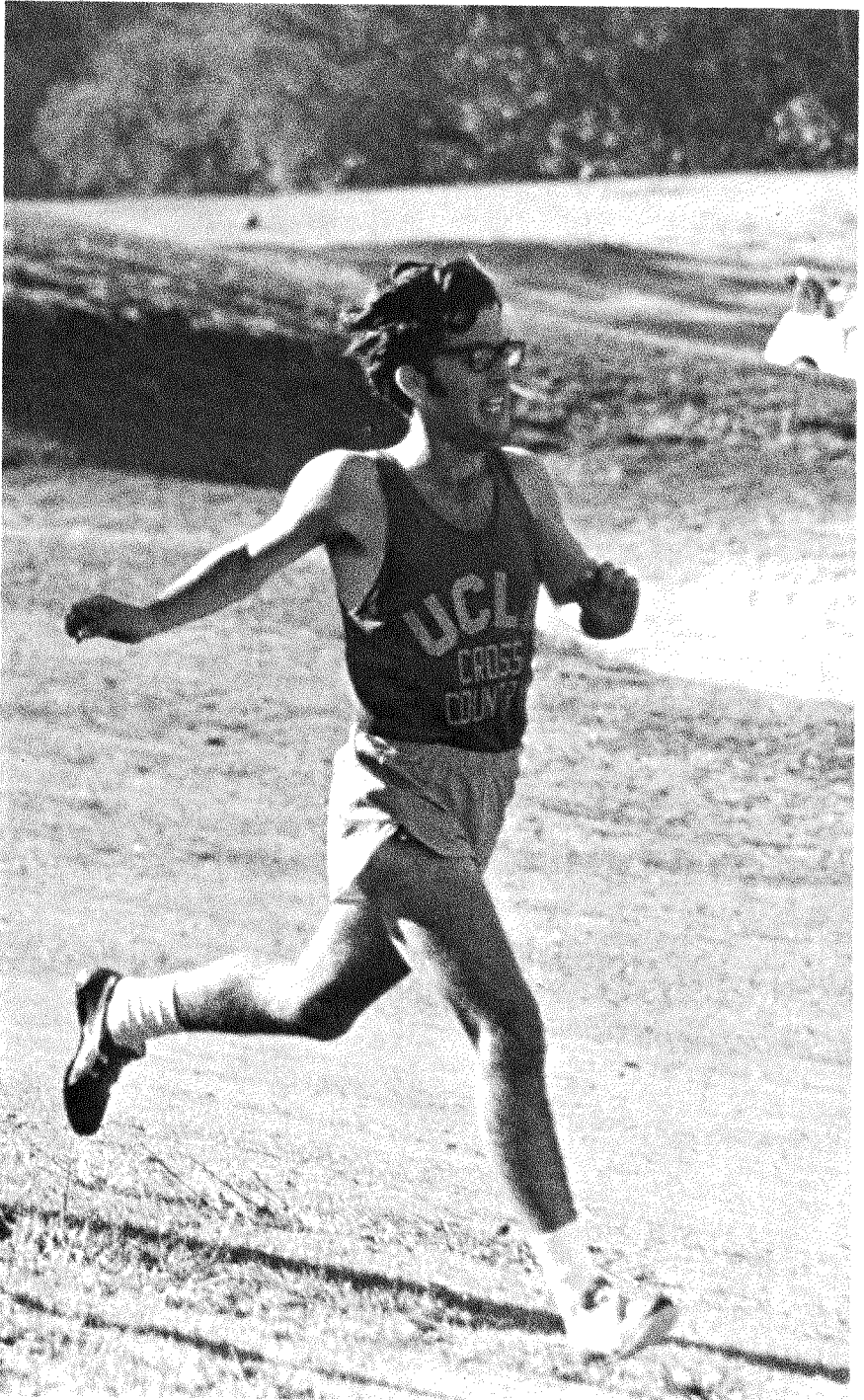
Antagonistic muscles, he explains, “are the reverse of performing muscles. Under conditions of tension, antagonistic muscles drag you back. Relaxation leads to full efficiency of performing muscles. The thing you want is leg speed, and relaxation achieves this. Therefore, to run at top speed you run with a four-fifths effort.”

How well does this work on the track? Winter gives an example. He uses 30 yards with a flying start as a test distance for a sprinter. “If he is any kind of athlete, he'll do it the first time in three seconds. Then we talk it over and I tell him to have two things in mind when he runs it again—keeping his hands loose and his jaw loose. Invariably, he takes from one-tenth to two-tenths off his speed.”

The sprinters improve when they quit working against themselves, and the same can be true at any distance. The tension almost always starts in the upper body and seeps down to affect leg-speed.

Dr. Thomas Burke writes, “Only after much practice do runners realize







that a smooth, rhythmical and relaxed running style cannot be achieved if all the upper-body muscles are tensed beyond the point of muscular efficiency for a given pace.”

Burke lists three steps to relaxed running:

1. Develop an awareness of these areas.
2. Alternately tense and relax major muscles of the upper body, in a definite sequence, during the warmup. “The order for practicing body-part relaxation,” he says, “is the face, the neck, the shoulders, the (upper) arms, the forearms, the hands, the upper and lower back, the chest and abdomen.”
3. Concentrate on relaxing a combination of body parts, “such as the face and neck muscles, the arms and shoulder muscles, or the entire back.”

The aim, of course, is eventual overall relaxation without having to think about it.

## Uphill and Downhill

Throw out most of the normal rules of running form when the terrain slopes either up or down. Hill running has a set of rules of its own.

Hal Higdon—a frequent national Masters champion on the road, cross-country and track—detailed his “secrets” of hill running in a series of *Runner’s World* articles during 1974, and they don’t much resemble what we’ve talked about to this point.” In brief, Higdon said:

1. “Don’t be afraid of hills.”
2. “Think about hills.”
3. “You must know a hilly course to run it successfully.”
4. “If you’re going to race on hills, train on hills.”
5. “Sprinting uphill can be used as a tactical weapon.”
6. “Techniques of running are different for different hills.”
7. “Position your hips to control your body.”
8. “Believe Kenny Moore.”

Taken out of context, these eight “secrets” don’t expose many truths. However, on examination they show three main areas for attention: practice, uphill style, downhill style.

Dr. Bob Fitts, an exercise physiologist and leading road racer, commented on Higdon’s articles: “I wish to re-emphasize the major principle of successful hill running to insure that it does not remain hidden . . . Higdon’s Secret Four, ‘Train on the hills,’ is the most important to successful hill racing. Hill training is the foundation upon which all of the other principles of successful hill racing must stand.”

“There is a simple reasons for this,” Fitts says. “When running up a hill, extra muscle fibers are used to perform the extra work. These fibers recruited

for hill running are not generally used while running on level terrain." Untrained muscles, of course, fatigue quickly.

Fitts' conclusion: "Train on the hills and almost any tactic will work. Without hill training, all tactics are doomed to failure."

After Hal Higdon's advice first appeared in *RW*, it was widely misinterpreted—often criticized. He later clarified one point, on the positioning of the hips.

"I was speaking of downhill," he wrote, "but I think the theory of positioning your hips works going uphill, too. Particularly this is true in cross-country, where you may have to adjust your (posture) several times in the course of one hill.

"I am trying to picture myself running uphill now. I think of myself with my feet fairly flat, my butt back, but my hips tilted forward. My chest is forward, but my chin is up. The result is less as though I am leaning forward in a straight line but leaning forward in a backward curving line. There is no way you can figure it out by reading it, however. Go out and try it on a hill."

Higdon says that while there are many effective ways to climb a hill, there is only one proper way to go down—the way Kenny Moore does it. Lean forward, keep the torso perpendicular to the ground, run with the same action and foot-plant as on the level. The normal tendency is to hold the arms high, lean back and brake with the heels.

Moore, a two-time Olympic marathoner and one of the best downhill runners anywhere, says, "The idea, of course, is to let gravity do all the work. And that can't happen if you're clunking down on your heels or shooting the soles of your shoes along the pavement."

He has one final tip: "Don't reach the top of the hill exhausted. I'll give up 5-10 yards uphill to anyone and get twice that down the other side if I'm able to save enough energy to keep my knees up."

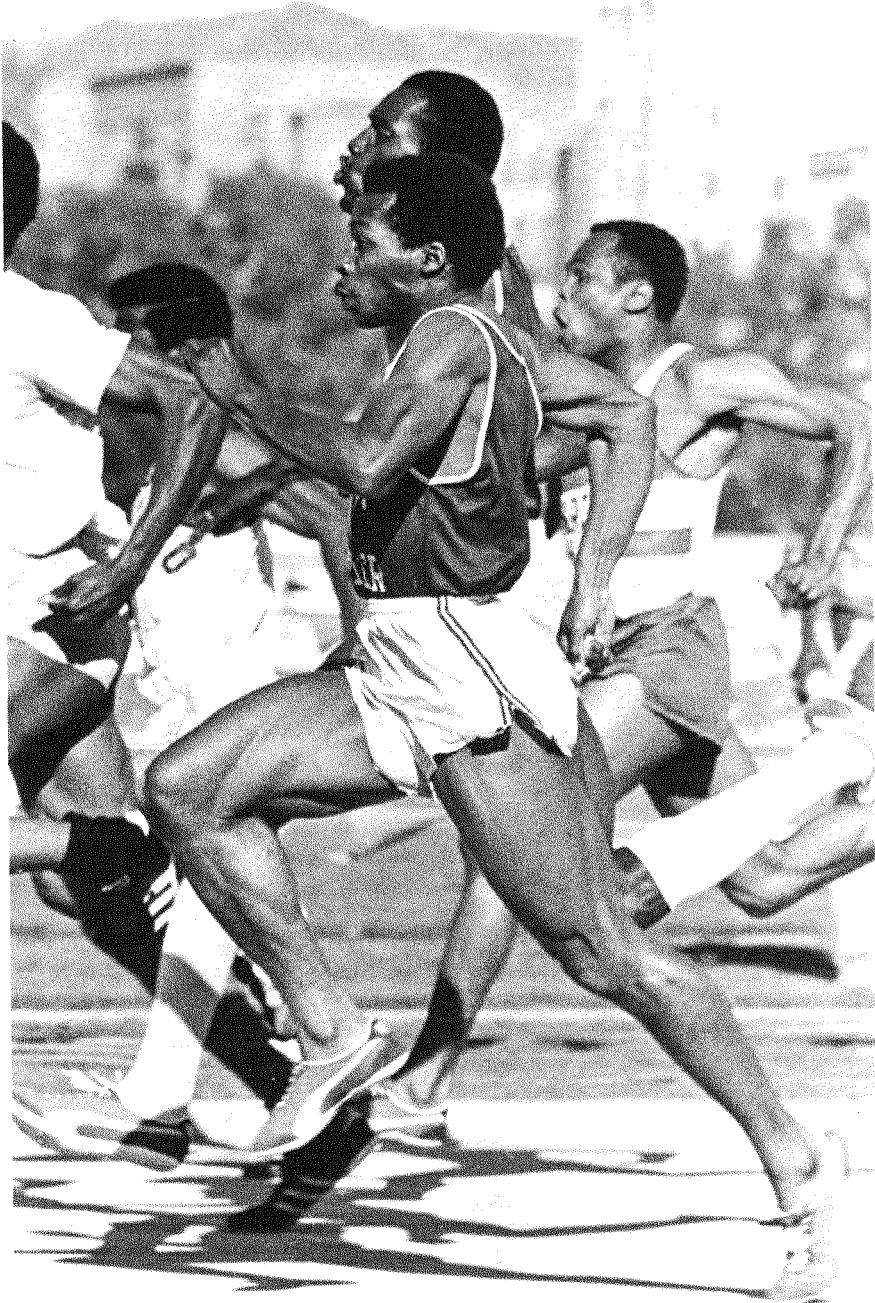
## Breathing with a Beat

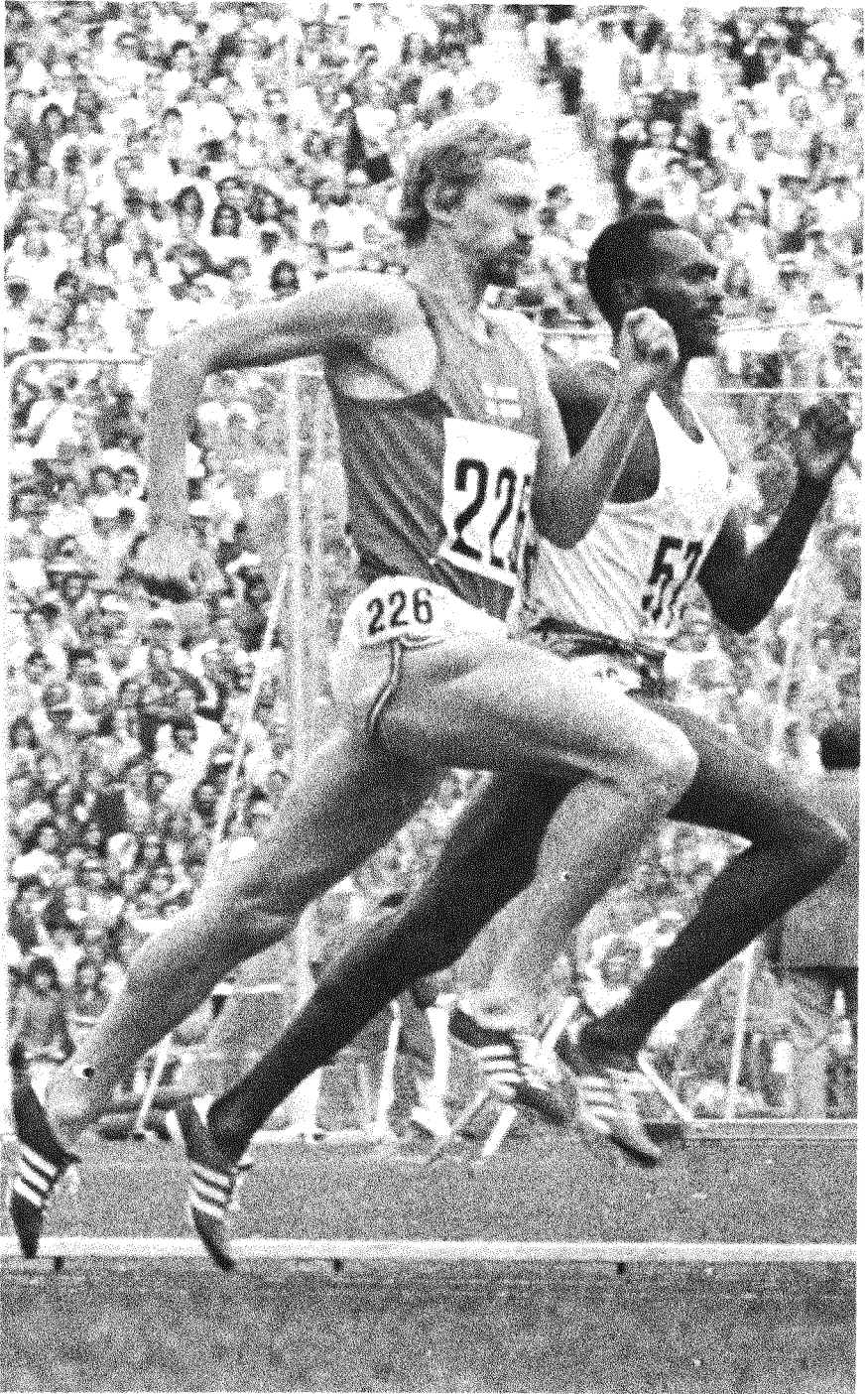
Inhale-two-three. Exhale-two-three. It's the simplest breathing technique imaginable. Yogis count their breaths this way. Weight-lifters control their breathing to increase their power. Runners use far more air than either of them, so might they benefit from something similar?

*PAGE 38: How not to run downhill—with the arms flying, a backward lean, and heels braking the forward momentum. Instead, stay perpendicular to the running surface and in control. (John Marconi photo)*

*PAGE 39: Positioning on the uphill: feet fairly flat, butt back, hips tilted forward, chest forward, chin up. (OMPhoto)*

*PAGE 41: Note the variety of ways these sprinters are holding their mouths. Whether they realize it or not, they probably are breathing with a regular beat. Most runners exhale when their "strong-side" foot hits the ground. Grace Butcher says there are advantages to switching sides. (Stan Pantovic photo)*





Grace Butcher posed this rhetorical question in 1969 to readers of *Distance Running News*, answered it herself, then said six years later, “I have yet to see this aspect of breathing discussed anywhere else.”

Grace is a longtime distance runner from Ohio who once competed in the International cross-country championships. She explained in the old *DRN* article that she time her breathing to her footfalls. In easy running, she could inhale for four steps—left, right, left, right—then exhale for four. She switched to a 3:3 ratio when the pace picked up, and 2:2 as it really got tough. (“This need is felt toward the end of each run,” she said, “whether it be five miles or 440 yards.”)

Butcher reported, “There are three valid benefits in the kind of breathing techniques I’ve worked out. One has to do with psychology, one with natural balance, and the third with alleviating pain.”

- **Psychology**—“Concentration on breathing is a well-known meditation device,” she explained, “and the overall effect is the same in running. The enforced rhythm of 3:3 or 2:2 breathing makes the runner feel like a real running machine. And even more important, the concentration on the ‘1-2-3, 1-2-3’ inhalation-exhalation gives the runner a center of concentration that is not the fatigue he is feeling, or the strong wind, or how hot or cold it is, or the pain he feels.”

- **Balance**—Butcher said everyone has a “strong side” in breathing as in throwing, kicking or jumping. Exhaling “feels more natural” when one foot hits the ground than the other. Let her explain:

“I feel that because of the natural drop of the chest area, the foot that hits the ground on the first stride of the exhalation is set every so slightly more firmly on the ground. In other words, if one the first step of the exhalation your right foot hits the ground, then you are said to be breathing on your right side.”

Grace said the significance of this information is that you can switch sides at will to gain subtle advantages. She’s naturally right-sided, but she can “rest” by changing to her left during a run. She goes to the stronger side when she kicks.

- **Pain Relief**—The third and perhaps greatest advantage of knowing your side, Butcher said, is in shifting part of the load away from an injured area.

“Suppose I’m doing a long training run and breathing on the left side (exhaling when the left foot hits the ground). But along comes a pain in my left leg. Then I simply shift the breathing over to the right foot. Because of the natural drop of the body as it exhales, the side that bears the brunt of the first step of exhalation must carry an ever-so-subtle difference in weight distribution. So to take off some of the strain, I put the breathing on the other side.”

Grace said her less-experienced running mates often asked why she wasn’t breathing as hard as they were. “Having the explanation, some seemed able to pick up the technique right away while others tried for awhile and gave up. I assume anyone could use it with some practice.”

*PAGE 42: When they kick, distance runners become as sprinters--as Pekka Vasala (left) and Kipchoge Keino demonstrate here. They get up on their toes, lift much more dramatically than they normally would, and pump harder with their arms. (Presse Sports photo)*

# The Kick in Racing

Running is physical, but racing is emotional. To race is to turn loose the competitive urges to go all-out, and these usually conflict with the body's messages, which shout, "Don't do this to me!"

Because they are so emotional, races are seldom so-so. They tend to be either very good or very bad—nothing in between. You remember them, one way or other, by how you finished. And that is decided to a great extent by how you ran the last quarter of it—the last 110 of a 440, the last 440 of a mile, last six miles of a marathon.

With most runners, form changes in the last quarter of races. It can go either way—shifting to a high-geared "kick" or deteriorating into a slow-motion "survival shuffle" for distance runners, the paralysis of "rig" (short for rigor mortis) in sprinters.

The latter happens when runners give in to advancing fatigue. The head lolls, the stride shortens, the lean is either dramatically forward or backward, the entire upper body locks up with tension. This happens to every racer sometime, and there's no good way out of it after it strikes. It's easy to say "fight through the the pain barrier," but nearly impossible to do when you hit it.

The way to hold form and to accelerate into a kick is to be prepared. Build up an energy reserve in training, spread it through the race with realistic pacing, and have the "psych" to carry out your plan.

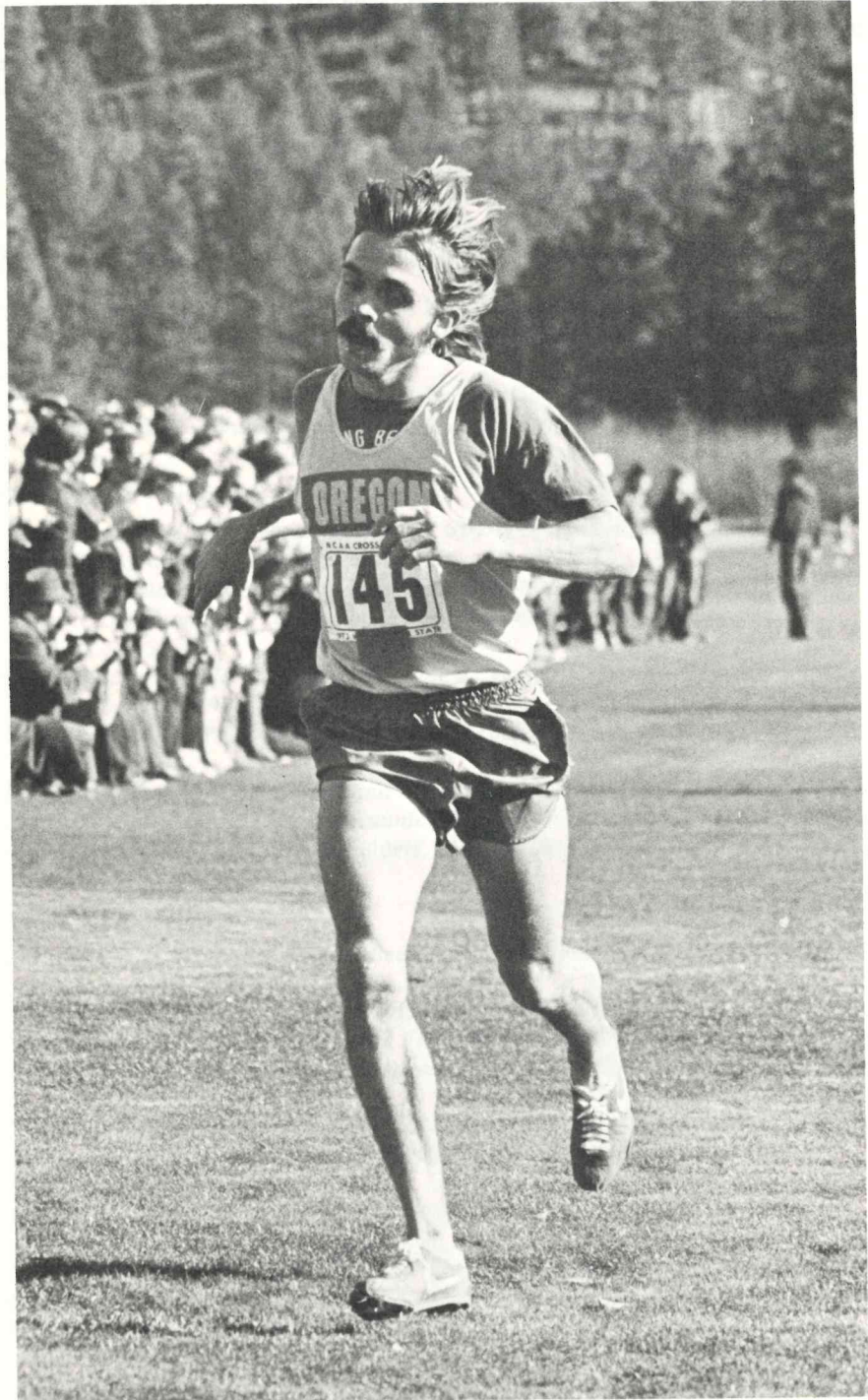
Tony Benson, an Australian who now competes on the ITA professional circuit, is a master kicker. He says, "I believe the possession of a big kick is partly mental faith, partly (pace) judgment, partly will to win and, most importantly, the result of the correct combination of cardio-vascular efficiency, basic speed capability and power training designed to allow fast changes of momentum."

These quick shifts of pace win middle distance races on the track. Benson, who seldom loses when he is with the field in the last quarter-mile, says his kick "relies specifically on the ability to open an unbridgeable gap of 15-20 meters, and is usually executed within the final 300 meters. Obviously, practice is necessary."

He practices kicking with fast uphill sprints, "oxygen-debt work" (5000 meters of 100 sprinting, 100 striding) and 150-300-meter accelerations.

The trick in the race, then, is to move suddenly to a faster pace. Put a new form and a relatively fresh set of muscles to work. Like all good running form, the kick starts in the hips and particularly the hands. Lift from the hips. Drive harder with the hands and arms.

*PAGE 45: "The head lolls, the stride shortens, the entire upper body locks up with tension. This happens to every racer sometime. . ." Even to one as good as Steve Prefontaine. Here, he's finishing a cross-country race and is obviously tired. But he's far enough ahead to win anyway. (Jeff Johnson photo)*



Bill Bowerman says, “The faster you swing your arms—so long as the action is rhythmic—the faster you will be able to move your legs.”

Bud Winter concurs: “The arms are a source of speed and power. The faster the arms go, the faster the legs will have to go.”

This, too, is easier to talk about than to execute. Shifting to a kick is to go against your natural urge to shift the other way. Practice and pacing give you the ability to kick, but emotion is the ultimate accelerator.



# References

Sources are listed in the order that they're quoted in the booklet.

## CHAPTER ONE

- Sturak, Tom—*African Running Revolution*, Booklet No. 47, May 1975.
- Cerutty, Percy—*Athletics, How to Become a Champion*, The Sportsman's Book Club, London, 1961.
- Westbrook, Richard—"Watch the Young Girls Run," *Runner's World*, Sept. '74, pp. 26-27.
- "Running With Style," *Runner's World*, Nov. '73, pp. 9-13.
- Doherty, Ken—*Track and Field Omnibook*, TAFMOP Publishers, Swarthmore, Pa., 1971.
- "Form," *First Steps to Fitness*, Booklet No. 40, Oct. '74.
- Pennington, Jack—"Shifting the Training Load," *Runner's World*, April '74, pp. 30-32.

## CHAPTER TWO

- Brown, Gwilym—"The Secrets of Speed," *Sports Illustrated*, Aug. 2, 1971.
- "Running With Style," *Runner's World*, Nov. '73, pp. 9-13.
- Slocum, Donald and Bowerman, Bill—"The Biomechanics of Running," *Track In Theory and Technique*, Worldwide Publishing Co., Richmond, Calif., 1965.
- Cerutty, Percy—*Athletics, How to Become a Champion*, The Sportsman's Book Club, London, 1961.
- Nett, Toni—"Foot Plant in Running," *Track Technique No. 15*, March '64, pp. 462-463.
- Bowerman, Bill—*Coaching Track and Field*, Houghton-Mifflin Co., Boston, 1974.
- Cerutty, Percy—*Middle Distance Running*, Pelham Books, London, 1964.
- Pross, Jack—"Hips, Arms and Shoulders," *Modern Athlete and Coach*, Jan. '70, pp. 11-13.

## CHAPTER THREE

- Cerutty, Percy—*Athletics, How to Become a Champion*, The Sportsman's Book Club, London, 1961.
- "Running With Style," *Runner's World*, Nov. '73, pp. 9-13.
- Bowerman, Bill—*Coaching Track and Field*, Houghton-Mifflin Co., Boston, 1974.
- Burke, Thomas—"Three Steps to a Relaxed Style," *Runner's World*, March '75, pp. 22-23.
- Oates, Bob—"Jim Bush: Over the Hill," *Los Angeles Times*, March 4, 1975.
- Oates, Bob—"The Race Goes to the Relaxed (Bud Winter Interview)," *Los Angeles Times*, May 21, 1974.
- Higdon, Hal—"Secrets of the Hills," *Runner's World*, July '74, pp. 32-34;  
"Advanced Lessons on the Hills," *RW*, Aug. '74, pp. 14-17.
- Fitts, Bob—"Hill Technique," *Runner's World*, Nov. '74, p. 6.
- Higdon, Hal—"Hills (Continued)," *Runner's World*, Feb. '75, pp. 6-8.
- Butcher, Grace—"Rhythm-Ratio Breathing," *Distance Running News*, May '69, pp. 26-27.
- Butcher, Grace—"Running on Air," *Runner's World*, Jan. 75, p. 9.

# RUNNER'S WORLD MAGAZINE

Are you reading **Runner's World**, the monthly magazine for all running enthusiasts? If not, you're missing—

- Complete coverage of the most interesting and dramatic races.
- In-depth interviews and penetrating personality profiles of the key figures in the sport.
- Running shorts, racing highlights, coming events, news and views.
- Medical advice column from Dr. George Sheehan.
- Each issue is a valuable addition to your running—each is solidly packed with practical, useful, informative articles.

## **RUNNER'S WORLD MAGAZINE**

**Post Office Box 366**

**Mountain View, CA 94040**

Please enter my subscription for the following—

Renewal     New Subscription

One Year (monthly – 12 issues) \$7.00     Two Years \$13.00

Three Years \$16.50     Five Years \$25.00     Ten Years \$48.50

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE/ZIP \_\_\_\_\_

For faster service, please enclose payment



# Running with Style

