

# FARE play

the publication of the Foundation for Athletic Research and Education

Vol. 1, Number 2

## Swimming: The Most Versatile Fitness Tool

- Water Babies
- Aqua Kinetics
- AquaAerobics

## Good News for Bad Backs



# FARE play

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On the Cover:  
John Nabers, Olympic Gold Medalist,  
works with a young swimmer (Photo: Elliot Framan)

## WHO'S NEWS

### Pat Hines: Pluck and Persistence Equal Success

As a child, Pat Hines wore a brace on her leg to help support weaknesses left from a knee and ankle injury. When she was 16, her doctor suggested she start swimming to loosen up the problem area.

"Even though I learned to swim very late, I was very determined," remembered Hines. "At first, the 8-year-olds used to swim right by me, but I worked hard, and by the time I was a freshman at the University of Miami, I was an All-American backstroke."

She became one of the first-ever female scholarship athletes in the country in 1974 and went on to become a four-time All-American swimmer. When Hines failed to make the 1976 Olympic team, she retired from athletics and returned to her home in Washington, D.C., to work on the Gerald Ford presidential campaign. When Ford lost his job, so did Hines.

"So I moved to California and took up surfing. That led to ocean swimming and masters' competitions. I was surprised, but with much less work, I was swimming just as fast as I had in college."

Looking for a challenge, she tried to swim around the island of Manhattan on the day of the 1981 New York City Marathon. A sudden storm dropped the water temperature to 48° and she had to give up, nearly frozen, after 17 miles. Less than a year later, though, she successfully swam the Catalina Channel off the Southern California coast. When she was less than 20 feet from shore she paused to savor the moment — and realized that there weren't many more channels she wanted to swim.

Still, she loved a good challenge, and later that same week she met triathlete Kathleen McCartney at a party. Conversation turned to the strange event in Hawaii called the Ironman. With only six months to train, Hines caught the triathlon fever. She led

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# FROM THE EDITOR-IN-CHIEF

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Swimming is one of the most important athletic activities, and one that almost anyone can do to help create and maintain good postural balance. Having worked with some of the swimming greats over the years—including Murray Rose, Mark Spitz, Barbara Housnel, Pat Hines and many more—one consistent observation has been true: swimmers generally seem more flexible and suffer from fewer back problems than do other athletes.

I came from a family of six children, all of whom were competitive swimmers and one of whom was an All-American and an Olympic trials participant; swimming has always been part of my heritage. Unfortunately, as Mark Spitz once said, it can also be very boring. As any competitive swimmer will tell you, getting up at 5:30 a.m. and putting in 1½ hours every morning and afternoon does not necessarily enhance your personal life. But the one thing swimmers have learned through their participation in this sport is determination.

Unlike many other sports, swimming allows you no excuses for not competing well. There's only you, the swimming lane, and the clock. Of course, swimming against a strong competitor helps to motivate you too. The self-motivation and determination that swimmers learn is quite visible in later years in their jobs and in a general stick-to-it competitive attitude that was developed during their years of hard training. Competitive swimming for many is a great lesson in self-improvement and self-realization.

Today, more retired athletes who were once competitive swimmers are returning to the water to indulge their drive for achievement in the U.S. Masters Swim Program. Many of these athletes are finding that they are able to return to competition and, in six months to a year, are able to compete within seconds of their most competitive times even after 10-to-15-year layoffs.

It seems our central nervous system,

much like a computer, has a memory.

The more we stress our bodies physiologically, the more our bodies try to react. Activities like swimming—particularly freestyle and backstroke—help coordinate muscle development and control symmetrical training of our bodies to achieve neuromuscular efficiency. Much can be said for this concept and about the way it can aid both children and adults, the swimmer and non-swimmer, alike.

All of us need coordinated muscle development. The more efficiently our bodies work, the less stress we are under and theoretically, the better we should perform. To an athlete, performance is life. To the nonathlete, just being healthy is a big enough concern. F.A.R.E. believes that an athlete exists in each of us; the Foundation's job is to help that athletic potential develop, so we can all live to the highest level of our physiological potential.

Swimming is the most basic attempt to do exactly that. Water density decreases gravitational pull on the body, thereby decreasing the stress and strain often associated with many other sports. By using special flotation belts and elastic bands, patients with severe spinal compression, disc problems and sciatic neuritis can participate in their own rehabilitation. This concept is called aquakinetix: a rehabilitative exercise program in a pool to re-establish proper muscular balance and coordination in the spine, legs, knees, shoulders—the whole body—to maintain proper movement.

Aqua-aerobics is another extension of this swimming concept that allows the swimmer to use any small pool, large Jacuzzi or hydrotherapy tank as an endless pool. With the aid of an elastic band, the patient or athlete can attach himself to a swim ladder or rail and swim against it. The harder the pull and stronger the kick, the more cardiovascular is the activity. This technique is also greatly beneficial in improving stroke technique as the swimmer is able to accelerate the

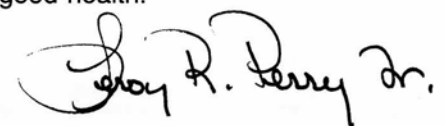
level of exertion, best done with a coach closely available to monitor the movement.

This method of swim monitoring is also an integral part of another part of Aquakinetix called aquafitness training. This swim program is developed for those who are overweight and out of shape and who are trying to find their way back on the road to health.

F.A.R.E. has been instrumental in developing many of the abovementioned programs. We have tried to learn from the Olympic and professional athlete, and to apply what we have learned to patients in rehabilitation and to children so they may learn and develop their bodies with all the advantages available. Much like the East Germans and Russians, we believe that balanced, coordinated muscular education should start as early and as nontraumatically as possible. The sooner the body learns to develop neuromuscular control, the greater potential the child will have.

Aquakinetix for infants is just such a program. It was developed for children 3 months to 3 years old. Children swim in the pool with their parents, learning coordinated drills so they can develop proper skills at the earliest possible age.

Many runners today are finding that by supplementing their running programs with swimming a few days per week, they are able to reduce their susceptibility to injury, and, as a secondary benefit, their running skill improves. Much can be said for the benefits of the cross-crawl technique of swimming and of running with the opposite-arm, opposite-leg movement, all of which enhance coordination. The runner who has everything should treat his body to an occasional swim. He may find a new sport—or at least one that can help rehabilitate those running injuries so he can get back on the road to recovery and good health.



# SWIMMING: THE MOST VERSATILE FITNESS TOOL

by Lynda Huey



Maureen Bender

As more and more top athletes are discovering, swimming can be an excellent conditioning tool for any sport. In fact, aquatic workouts may well be the most versatile of all forms of exercise. From pregnant women and injured athletes to back-pain patients and out-of-shape sedentary workers, swimming can provide the opportunity for gravity-free exercise and conditioning. Because swimming puts an equal demand for effort on all four limbs, it helps develop overall body strength and coordinated balance.

"After several years of effort, Dr. Perry finally got me in the swimming pool," says Olympic high jumper Dwight Stones. "It was quite a revelation for me. Now I do 90% of my cardio-respiratory work in the pool, and I don't have to worry about getting injured, because swimming is a non-stress activity."

In addition to high jumpers, baseball players now jump in the pool to pull their sore throwing arms through the water in their regular range of motion.

*Dr. Perry adjusts elastic band and flotation device for Tom Petranoff, world record holder in the javelin.*

Tennis players, javelin throwers and football players also use this form of hydrotherapy for their aches and injuries. Because of the resistance of the water, the speed and snap of an actual throwing motion are avoided, yet muscular conditioning and coordination are maintained. It's an ideal resistance exercise.

Olympic quarter-miler John Smith runs in chest-deep water across the indoor swimming pool at the International Sportsmedicine Institute (ISI) in West Los Angeles, California, home of F.A.R.E. He swings his arms powerfully, directing the rest of his body through perfect form as he works against the strong resistance of the water.

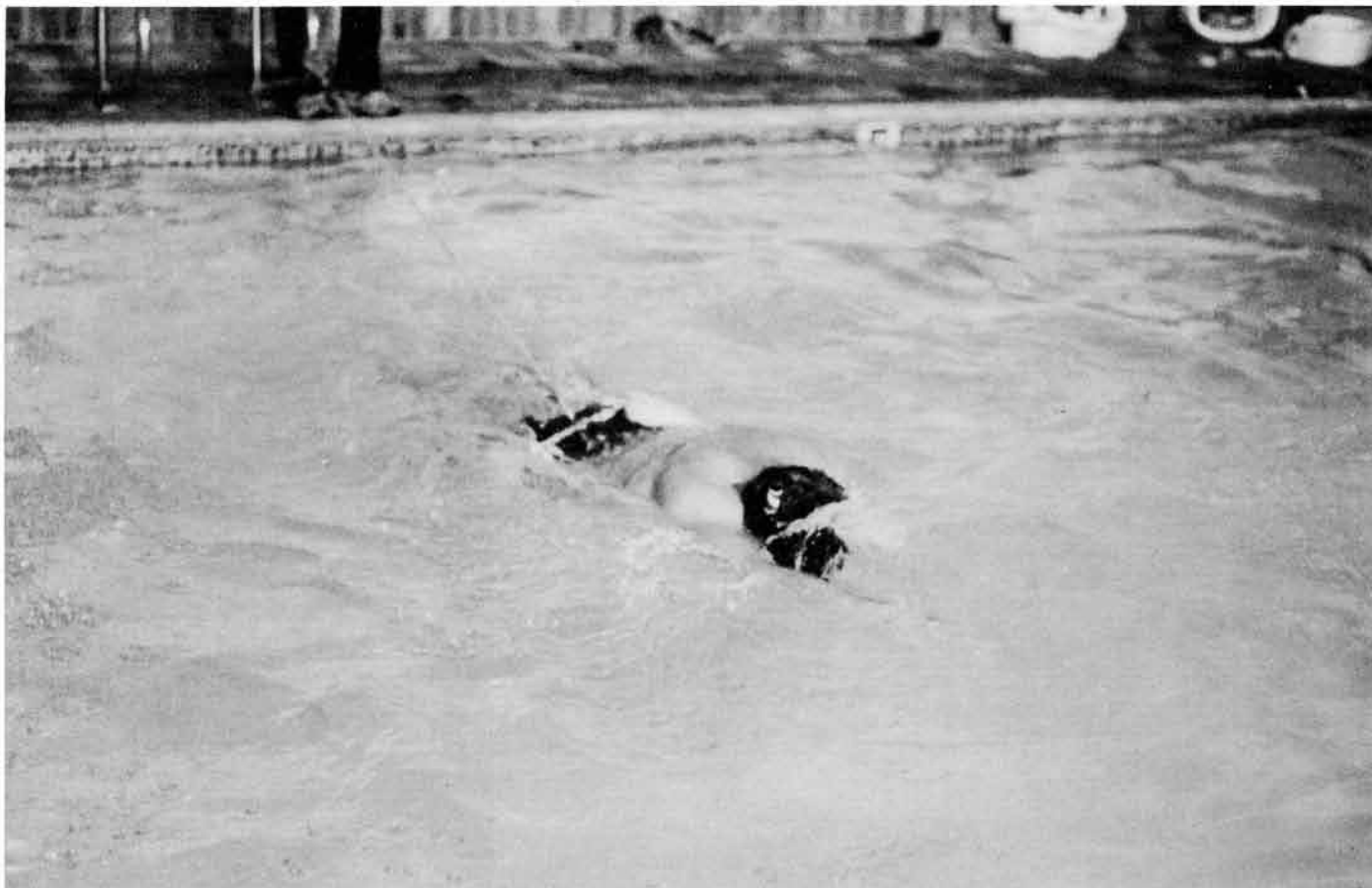
"Even when I can't run hard because of a hamstring problem or an Achilles' tendon injury, I can still go through my normal running pattern in the pool," Smith explains.

Dr. Perry oversees many such pool therapy programs for Olympic and professional athletes. His work with baseball players Rick Monday and Doug DeCinces, tennis stars Stan Smith and Tracy Austin, and a host of track and field Olympians has resulted in the development of Aquakinetics, a means of developing neuromuscular coordination skills in the water.

"We've had great results with Aquakinetics," Dr. Perry says. "In fact, we have a patient here at the Institute with chronic back pain who does better on Aquakinetics than she does on manipulations."

Research done under the auspices of F.A.R.E. at the ISI has led to the development of elastic bands and flotation devices that aid in decompress-





Maureen Bender

*Tom Petranoff works out using the elastic band and flotation device to increase cardiovascular exercise while decompressing the lumbar spine.*

ing the spine while controlling posture in the water. (See box on page 8.) Patients at the ISI apply this knowledge to their pool workouts to obtain a strengthening exercise session without overstressing injured body parts. Usually, the patient slowly goes through a general range of motion for the injured area. Then as strength returns to the problem area, more power can be exerted. The concept is to strengthen an elbow or a knee first, then strengthen the whole arm or leg, then the entire body. All this can be done in the water.

One of the benefits of swimming is that people can work a joint in water that might be too painful to work on land. The stress can be spread out and allow for work without gravity. F.A.R.E.'s basic rehabilitation programs begin with 10 minutes of easy swimming. A doctor or kinetic therapist watches to make sure that proper biomechanics are being used. Power

in the stroking and kicking action is built up until the patient is going through a complete range of motion with full power.

But swimming is not just therapy for the injured. It can provide all levels of exercise, from beginning to highly advanced. It's an ideal form of conditioning for people who find that running and jumping causes sore ankles, knees or shins. Instead, work can be done in water toward the same goals of toned muscles and cardiovascular fitness without the jolting and jarring of floor or road exercise.

Olympic gold medalist Murray Rose (swimming, 1956 and 1960) has seen a trend toward larger numbers of people using swimming as their main form of exercise. He recalls that when he was competing seriously, it was often difficult simply to swim from one end of the pool to another. The majority of people in the pool were merely

standing around talking. Now, he says, people are more concerned with exercising in the water.

"Today people are doing everything more for fitness," Rose explains. "And swimming is part of that fitness boom. Everything I've read has led me to believe that swimming has been and still is the No. 1 recreational sport in terms of numbers participating."

And Rose believes that swimmers can avoid the majority of athletic injuries because the buoyancy of the water seems to assist in the correct alignment of the body while it also diminishes the stress placed on the body by such activities as running.

"A fitness or recreational swimmer will seldom get injured," says Rose. "It takes an enormous amount of work for a swimmer to get into an injury situation."

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## GOOD NEWS FOR BAD BACKS

Bad back sufferers have literally been screaming for help since the first quadruped decided to stand upright. Gravity creates compression and compression results in a bad back. Doctors, scientists, engineers have been trying to solve this problem forever. There is now a new concept that should be examined. It's not just a device but an entirely new philosophy in inverted traction. It's called the Orthopod.

The Orthopod has been ingeniously designed in a way that allows the user to receive the benefits of inversion therapy while performing active, strengthening exercises and relieving many low-back problems. What's new about this, you ask? What's new is that users of inverters no longer have to tolerate discomfort and possible injury to the ankles, knees, or hips because users of the Orthopod hang from the thighs. No more boots, no more climbing precariously to the inverted position and no more ankle, knee or hip strain.

Instead, the user simply steps in front of the padded rollers, leans forward to grasp the handgrips, bends the knees and raises the feet. Inverters then hang from their thighs, with their heads down, in an easily retained position of comfort. The rest is up to gravity.

From the basic inversion position, users can enhance their current exercise programs with a myriad of movements ranging from passive stretching to active, rehabilitative exercises. For example, by placing hands on the buttocks, bringing the chin to the chest, and curling upwards, the perfect abdominal curl is performed. By using the unit's legs for leverage, the lower back can be rotated to help release tension that accumulates from the pounding effects of running, etc. When the user rises in a back-extension movement, gluteal muscles (hips and upper thighs) are strengthened along with the all-important lower-back muscles. To any of these basic movements, a

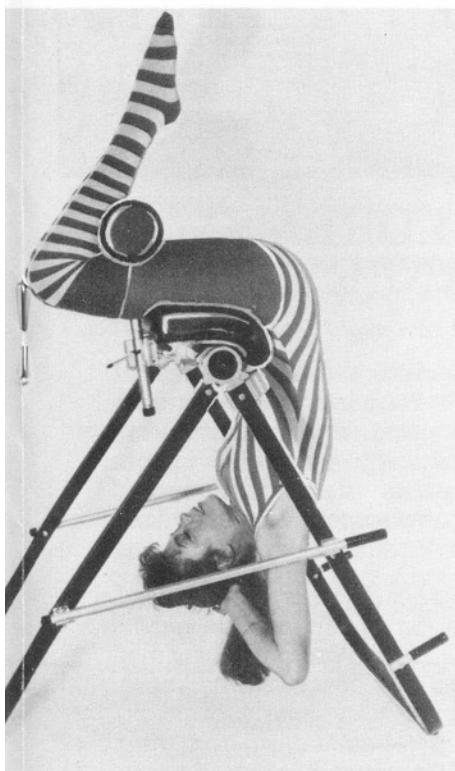
weight may be added in order to increase their strength-building effects.

Aside from the obvious benefits users receive by being able to isolate and strengthen major muscle groups, the inversion position creates a condition of spinal decompression. Simply stated, this means that throughout the exercise period, disc and nerve root pressure are reduced while the spinal lumbar curve is decreased. This phenomenon frequently produces quick and dramatic relief for headache and neck, low-back, shoulder and leg pain sufferers. Additionally, circulation is increased to the head, neck and upper torso as the body is inverted, improving overall health.

Through the years Dr. Perry and other sports scientists have been evaluating inversion systems. When asked about the benefits of the Orthopod Dr. Perry said, "I believe it is one of the most important breakthroughs in health today to help bad back sufferers and also help athletes improve

# THE CHILDREN'S CORNER

by Lynda Huey



## Simple Stretch—

*The user steps into the Orthopod (left to right), leans forward, using the hand grips to balance his/her weight, and then completely inverts into a relaxed position.*

and enhance their performance. It is a futuristic, biomechanically sound concept whose time has come." The Orthopod unit's retail price of \$299 makes inversion-traction therapy a viable medium of exercise for most sports enthusiasts and back patients.

The Orthopod is precision-engineered, constructed of durable steel and aluminum, and has thickly cushioned support pads. The completely self-contained unit can be adjusted to fit users of most heights and weights. It is portable, and can fold down for storage when not in use.

F.A.R.E. members can receive a 10% discount by writing or calling Brilhante Co., Inc. at 3283 Motor Avenue, West Los Angeles, CA 90034, (213) 559-6904.

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## WATER BABIES

During the 1976 Olympic Games in Montreal, Dr. Leroy Perry was a guest aboard the royal yacht Britannia. Queen Elizabeth and her surgeon told Dr. Perry frankly that England's preventive health care program was a failure because it had been designed for adults rather than for children. "Childhood," the queen said, "is the time for learning proper health habits."

Dr. Perry took that conversation to heart, and brought the royal wisdom back to the Foundation for Athletic Research and Education. Since then Dr. Perry and the F.A.R.E. staff have been deeply committed to youth development and educational programs. Aquakinetics is one of them; Dr. Perry says that children will have better overall neuromuscular coordination if they begin receiving basic physical skill training as infants.

"Water is just dense space to babies," he says. "If you submerge a child, he'll simply go into free-flow movement, dog-paddling. Sooner or later he'll start trying a full arm stroke that would be the equivalent of crawling on dry land. The sooner you get kids learning about hand-arm-body relationships in space, the better will be their coordination and neuromuscular response."

The International Sportmedicine Institute, home of F.A.R.E.'s research efforts, offers Aquakinetics classes

for infants and children starting at 3 months of age. Children up to 3 years old are accompanied in the water by a parent. There are never more than three students per instructor in the classes, so children receive close attention.

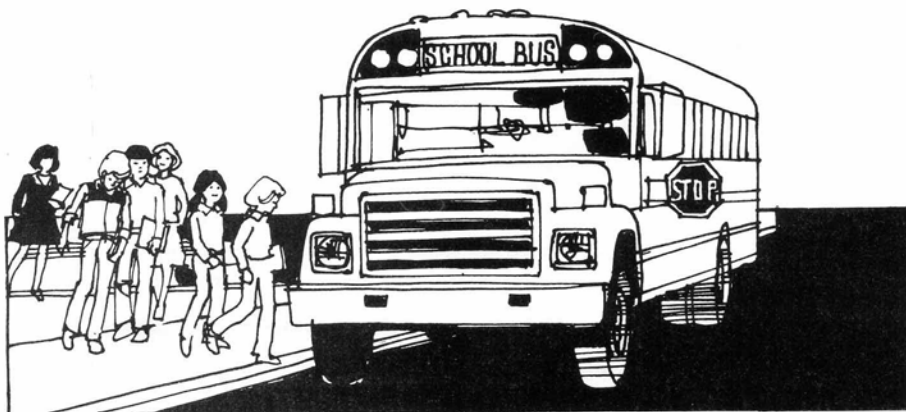
Qualified instructors teach the tiniest of new swimmers to dive for colored hoops in the pool. Soon the infants are swimming enthusiastically through an underwater obstacle course. Some, in fact, will be excited enough by the adventure to swim the entire width of the pool, maneuvering through the hula hoops. Young swimmers are interested enough in their environment to remain submerged for long moments, but they come up for air whenever they need it. It's a reflex they don't have to be taught.

Contrast that ease in the water with an older child's initial fear of it. According to F.A.R.E. Play editor and long-time swimming enthusiast Judi Richey, youngsters 7 to 9 years old are the most afraid of water when they first are introduced to swimming.

"They've already developed a fear of water," said Richey. "When I directed the swimming program at the Arcadia, California, YWCA, my most successful students were 2-year-olds and under. Most of them would take off swimming by their second day."

Former Soviet Olympic sports scientist Mike Mirsky, Ph.D., now an advi-

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# NOTES ON SWIMMING

F.A.R.E.'s intensive aquatic research has resulted in the design of flotation devices and elastic bands that allow people to swim virtually in place and therefore better control their posture. Instead of having to focus on movement across a pool and turning when reaching the end, the swimmer can place complete attention on correct body alignment and proper mechanics of the movement.

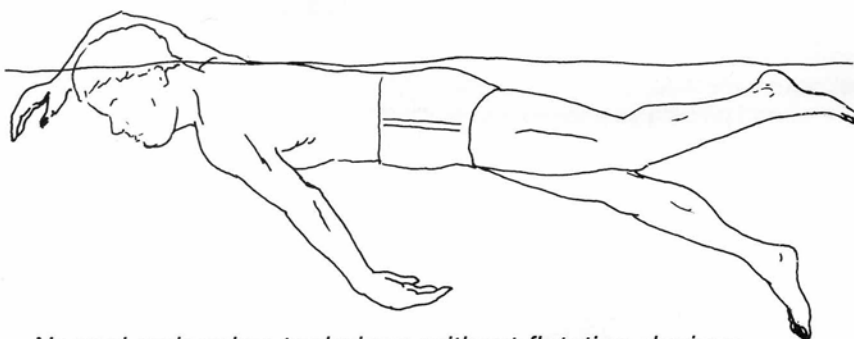
These implements are used extensively as therapy at ISI. Patients with lower back problems are put into the pool to begin the self-help strengthening process. However, people who have cervical or lumbar problems shouldn't swim with an increased arch in their backs or their necks. To decrease these two spinal curves during rehabilitation, Dr. Perry puts face masks, snorkels and flotation devices on his patients. The mask and snorkel allow the patient to lower his or her head while swimming, and by breathing through the snorkel, the patient doesn't have to rotate the head. A flotation device similar to a water ski belt lifts the back, decreasing the sway while rocking the pelvis forward and decompressing the lower back. All of these procedures take pressure off compressed and painful areas of the spine. The patient is instructed

to kick from the hip without bending the knee. This allows the patient to kick biomechanically efficiently in the water, thus decompressing and strengthening the problem area.

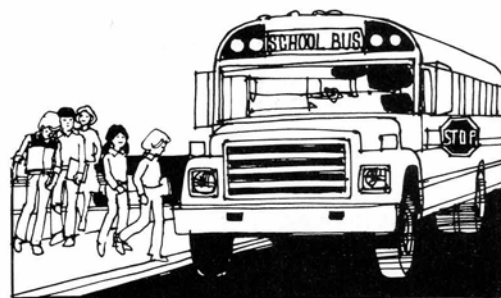
Since a bad back often is associated with weak stomach muscles, one of the goals of the rehabilitation program is to strengthen the abdominal wall. Sit-ups may not be appropriate for a person with an acute back ailment, but swimming can start the toning process. By kicking with the feet in a slightly pigeon-toed position, a patient can firm the muscles on the insides of the thighs (adductors). Adding stability and strength to these adductor muscles is a key factor in beginning to build abdominal tone. When the muscles of the stomach, back and hip areas are strengthened and balanced, fewer back problems are likely to occur.

Here's how to use the elastic band and flotation device for the crawl stroke:

1. Strap a flotation device around the lower stomach area. Turn the strap to the back so that more flotation lift is under the body.
2. Attach one end of the elastic band around the waist, above the flotation device. Tie the



*Normal swimming technique without flotation devices often creates lower back sway and bent knee movement.*



## CHILDREN'S CORNER

*Continued from page 7*

sor to F.A.R.E. and ISI, concurs that infancy is the best possible time to start swimming. In fact, he believes, humans actually unlearn their inborn ability to swim by not immediately getting into the water when they are babies.

"We begin our development in water," says the former Moscow University professor. "When we come out of that quietness, that peace and darkness into a dry and noisy world, it's a shock. We need rehabilitation from that shock. All mammals, and especially primates, are born with a reflex mechanism that automatically causes them to hold their breath when under water. That's true of the seal, the dolphin and the human child. The animal in us lives in water for its first nine months. Then, instead of letting it be born in water, we remove it, taking it back to the water later to relearn at a more difficult level."

"Leave it to the built-in instincts and memory of the species," Dr. Mirsky sums up.

Several of Mirsky's colleagues in the Soviet Union were involved with infant aquatic programs. From the results they reported, Mirsky learned that the children in these programs often walked sooner, ran better and developed better overall hand-eye coordination.

Water may be our most comfortable, most dynamic environment. Children and infants should certainly have access to the stimuli and learning possibilities of that environment as early as possible so that they can begin to develop their potential physical capabilities to their fullest.

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# Who's News

Continued from page 3

through the 2.4-mile swim and the 112-mile bike ride only to develop a stress fracture in her chronically painful ankle. She walked the last six miles of the marathon.

A year later, Pat Hines was a favorite to win the female portion of the Ironman. This time, the ankle became a problem at the very beginning of the running event.

"I walked the whole marathon. It was dark when we finished. I will never forget the sight of Dr. Perry trudging along in front of me with his little black bag so that he could work on me at each aid station. You know, you put an inconceivable amount of stress on the legs in biking and running compared to the stress of swimming. I've been running injured for a year and a half now. So it's time to rest for the next few months. I won't be in the 1983 Ironman."

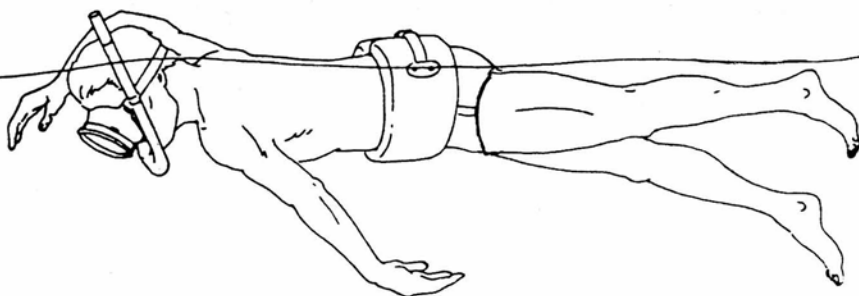
Instead, Hines will be cycling. Recently she qualified for the national championships at the 25-mile time trial. And she hopes to earn a berth on the 1984 Olympic cycling team, the first-ever Olympic bicycle competition for women.

Still, her first love is the triathlon, no doubt because her strongest sport, swimming, plays a big part.

"I haven't lived up to my potential in the triathlon yet because of injuries, and that irks me. Without injuries I felt I could have finished the Ironman in 10 hours, 30 minutes. (The 1983 female winner Julie Leach came in at 11 hours.) But sometimes you have to let something go, then come back again later."

Look for Pat Hines in Hawaii in 1984.

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*Proper positioning of flotation device, and use of face mask and snorkel will help decompress the spine.*

- other end to a ladder or railing on the side of the pool.
3. Place face mask over the eyes and nose, making sure a tight seal is obtained.
4. Place snorkel in mouth and bite lightly on teeth grip.
5. Lower head in water and breathe through snorkel.
6. Begin swimming; concentrate on correct body alignment and proper mechanics of arm and leg motions.

For backstroke:

1. No flotation device is used, only the elastic band.
2. Attach the elastic band around the waist with the tubing coming from behind the back, through the legs to attach to the side of the pool.
3. Begin swimming the backstroke, focusing on correct biomechanics of the stroke.

#### DON'T'S:

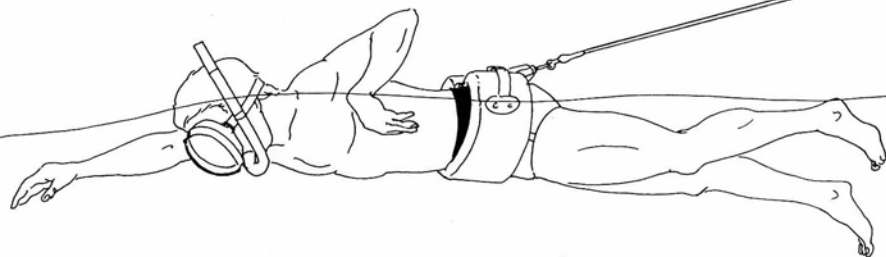
1. Never swim the backstroke with a flotation device around

the waist. This causes extreme and unwanted hyperextension of the lower back.

2. Never attach the elastic band below the flotation device. It belongs above the device for maximum benefit.
3. If you have a knee or hip problem, never swim breaststroke. Even swimmers who are not injured enjoy swimming with these devices, because they can turn even the smallest of pools into a serious training center. Simply remove the face mask and snorkel for practicing the breathing portion of the stroke.

Dr. Perry has seen many patients recover from back pains by using these methods. In fact, he states emphatically:

"Ninety to ninety-five percent of the people I treat would no longer have to see me if they'd only swim with flotation devices and face masks."



*Using the elastic band as a tether and a harness attached above the flotation device, the swimmer achieves maximum cardiovascular activity & spinal decompression.*

# SWIMMING Continued

However, as with any exercise, certain precautions should be taken. Muscles should be warmed up before any strenuous work is attempted. Stretching the arms, legs, and torso is recommended even before entering the water. Virtually every movement done in the water is a mild form of resistance exercise, but at least 20 to 30 minutes of constant swimming a day are needed for top levels of fitness.

F.A.R.E.'s advisory staff of experts offer several suggestions if you intend to begin an aquatic fitness routine. Don't rush into it, and don't expect immediate results. Establishing and maintaining good muscle tone and cardiovascular fitness takes time. Think of the long-range goals and work toward them by starting slowly at first, making sure that you feel exhilarated after each workout, not exhausted. Stay with the program you establish for yourself. If you can't swim daily, aim for at least three days a week. Less than that amount of work seldom brings significant gains in fitness.

Don't lay off for longer than three days at a time. Conditioning can be lost much more quickly than it is acquired. And since the benefits of any exercise program are predicated on the participant's use of correct biomechanics, a fitness expert should observe and evaluate your movements in the water.

The crawl stroke works all four limbs in a well-coordinated cross-crawl motion. The backstroke helps develop back and shoulder muscles, especially in round-shouldered indi-

viduals. The breast stroke develops and tones chest and inner thigh muscles, but should be avoided by anyone with knee problems.

Forward leg movements give the abdominal and upper thigh muscles a workout; pulling the legs backward gives exercise to the muscles of the back and buttocks. Spreading and closing the legs works the hips and thighs, while swinging both arms out and back works the front and back of the torso. Any muscle group that needs toning can be worked through its normal range of motion in the water to develop strength and endurance.

Murray Rose is much more inclined to swim than to engage in any other physical activity, probably because he does it well and it is ingrained in his awareness. But additionally, he says, he finds a feeling of vitality in swimming that is unequalled by any other activity he participates in because of the nongravitational aspect.

"I run and play squash, but I can never achieve the same relaxation that accompanies a swim," he states. "An additional benefit of swimming is that it demands a level of focus that also gives you a mental rest. You can go into the water with mental problems, but you cannot hold onto them when you're swimming. This is more true in the water than with any other activity,

because you are immersing yourself in a totally different medium. The rest of the world is blocked out."

Perhaps that's why so many business executives use swimming pools and hydrotherapy pools for relaxation after long work days. People aren't the only ones to benefit. Even race horses are taking the plunge. Sunny's Halo, winner of the 1983 Kentucky Derby, had stress fractures in both shins as a 2-year-old and swam daily for two months in the Hollywood Park pool to recover. His trainer says that the swimming not only helped the stress fractures, but also developed the horse's muscles and wind.

Athletes and nonathletes alike have found that aquafitness programs can relax muscles, raise cardiovascular levels, and increase the fluidity of body movement. Injured athletes and back-pain patients can use Aquakinetix, and thus take an active part in their own healing process.

"Self-help is what it's all about," sums up Dr. Perry. "Whether you're injured, out of shape or looking for a nongravitational form of fitness exercise, swimming can do the trick." **F.A.R.E. Play**

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*Lynda Huey sprinted for Wilt's WonderWomen in 1974 and was one of the first athletes ever treated by Dr. Perry.*

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