OMNI

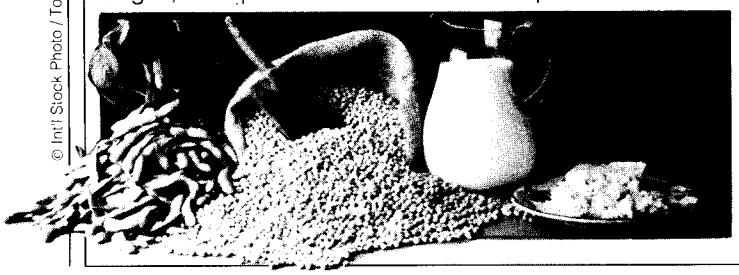
LONGEVITY

VOL.II NO.6 A PRACTICAL GUIDE TO THE ART AND SCIENCE OF STAYING YOUNG APRIL 1988

PEAK PERFORMANCE BRAIN FOOD

There are meals that bring you up and those that calm you down. When you're facing an all-day exam, or any number of other demanding mental challenges, an "up" diet is obviously the meal of choice. That means fortifying yourself with food that's high in protein and low in fat and carbohydrates, according to MIT researcher Judith Wurtman.

Lean protein sharpens mental performance because a critical ingredient, the amino acid tyrosine, stimulates production of the neurotransmitters dopamine and norepinephrine, explains Wurtman.



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"When the brain is producing dopamine and norepinephrine, distinct changes take place," says Wurtman. "People think more quickly, react more rapidly, and feel more attentive. Solving problems, even difficult ones, often seems more manageable because of heightened brain power."

Protein that's fatty won't do the trick. "Fat seems to slow other processes, like thought or movement," comments Wurtman. "It makes people very lethargic. During the long digestive process that follows a high-fat meal, more blood is diverted to the stomach and intestines and away from the brain."

Three to four ounces of low-fat protein food deliver enough tyrosine to stimulate the alertness chemicals, notes Wurtman. "Great" brain foods include shellfish, chicken, veal, and very lean meat. Almost as good are low-fat dairy products and vegetable protein sources, including low-fat cottage cheese, skim milk, lentils, and soybean-based foods.

—Pamela Weintraub

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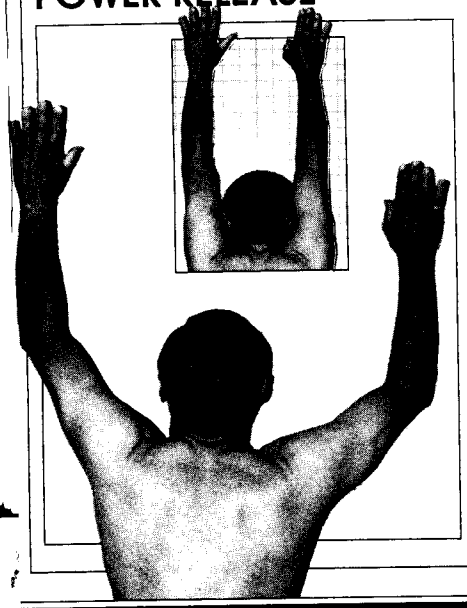
PEAK PERFORMANCE
POWER RELEASE



Small photo: After two treatments

Large photo: Patient before treatment

Kareem Abdul-Jabbar, one of the best basketball players of all time, decided to try and spruce up his game last summer by lifting weights. But he paid for his enhanced muscle strength with a decline in flexibility. Then he read about Robert Prichard, a self-styled California range-and-motion therapist. Within weeks, Prichard had released tiny adhesions within Abdul-Jabbar's muscular legs, and the athlete's flexibility—and his performance—had significantly improved.

Prichard had the first glimmer of his unique therapy about twenty years ago, as a pre-med student at the University of California at Berkeley. Working on a research project with fellow students, he noticed that stretching didn't always do that much to increase the flexibility of joints. But while working with an injured football player, one student tried to increase flexibility with massage and accidently released some micro-adhesions. Before long, the athlete's flexibility and range of motion had improved by 50 percent.

"The incident stuck," Prichard says. "And years later, when a friend suffered chronic neck pain, I tried massage to get the same sensation." While nothing else had helped, Prichard's treatment was a godsend—the pain vanished.

Prichard had spent years easing pain and improving flexibility through massage when a doctor at the University of California, Davis, remarked that the technique was probably effective because Prichard was loosening micro-adhesions—micro-fibers formed in the connective tissue as the result of physical or psychological stress. By releasing the micro-adhesions, he was able to increase flexibility, drastically easing movement and improving performance for injury victims and older athletes. "By reducing the number of these micro-adhesions, or

micro-fibers, in the body, you can reverse the two most visible signs of aging: loss of flexibility and deterioration of posture," Prichard explains.

Jay Lehr, 52, a world-class triathlete now writing a book about staying fit after fifty, has used Prichard's therapy, and testifies to its success. "When he releases the micro-fibers, it hurts," says Lehr. "But when he's done, I can move in ways that were completely impossible before. It has given me hope of achieving exciting new physical goals."—*Pamela Weintraub*

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PEAK PERFORMANCE **A TAILORED FIT**

A diagnostic and prescriptive tool developed at the Nicholas Institute of Sports Medicine and Athletic Trauma (NISMAT) at Lenox Hill Hospital in New York City can help those over 50 achieve optimum fitness and enjoyable performance in sports.

The NISMAT Sports Fitness Evaluation is based on the notion that fitness and performance depend not on any single trait, but rather, on what the Institute's director, James A. Nicholas, calls "linkage"—the whole package of muscles, joints, bones, speed, and strength. To achieve the ultimate orchestration of linkage, Nicholas has developed "The Profile," a battery of diagnostic tests so comprehensive it literally evaluates the outcome of almost every possible movement through analysis of over 600 muscles and 200 bones. Since older patients have often sustained hidden damage in a single body part, the exam's thoroughness is key.

About a week after all the tests are done, the Lenox Hill team recommends a program, depending on the particular patient's needs. "If the goal is simply overall fitness," assistant director Phil Rosenthal says, "we give them strength, flexibility, and cardiovascular programs. By pinpointing such problems as tight hamstrings or back muscles, or reduced range of motion in major joints, we can tell people how to proceed so they gain an excellent level of fitness without getting hurt."

Adds Rosenthal, the Lenox Hill team also guides older people through the potentially injurious arena of sports. "If we find patella or knee problems," Rosenthal explains, "we discourage a patient from running and direct him into swimming instead. If jogging is the goal, we set up a walk-jog program that changes day by day. If a patient is set on golf we might tell him to improve back, shoulder, and trunk flexibility and increase lower leg strength as he learns the game.

"In general," Rosenthal says, "research has demonstrated that, regardless of age, people can improve the important parameters of fitness as well as their performance in sports. Someone who follows our simple prescriptions with consistency will make unbelievable strides in ten weeks."

—Pamela Weintraub

INNER SPACE

DO MENTAL GIANTS LIVE LONGER?

Tenzin Chodrak spent 18 years in a prison camp after Communist Chinese military officials condemned him as "reactionary." Close to starvation, he once chewed his own leather jacket for nourishment while those around him ate rats and even the worms in excrement. His hair fell out. Only 25 of the 76 Tibetan prisoners in Chodrak's group survived.

But today in his 60's, 11 years after his release from the prison, Chodrak is in good health. "He looks about fifty," says Kenneth R. Pelletier, professor of psychiatry and medicine at the University of California in San Francisco. And that makes Chodrak a prime candidate for a new study by Pelletier on the mind's power to slow the body's aging. Pelletier believes that a major reason for Chodrak's survival was his prodigious ability to overcome physical affliction with the mind-over-body techniques of Tibetan Buddhism. Today, Chodrak is the personal physician of the Dalai Lama, the highest priest in the Buddhist religion of Lamaism.

Pelletier argues that researchers probing mind-body relationships should use mental champions as subjects. "If you wanted to study concert pianists, you'd learn absolutely nothing if you researched five hundred novice piano players," he says. Pelletier plans to study at least five Tibetan meditators to see how their spiritual exercises affect the body's disease-fighting immune system. If the Tibetan practices are associated with a robust immune system, he'll move on to a second phase of research to see "whether you have to spend ten years in a monastery to learn the techniques. We'll try to find out if a motivated but not particularly well-trained individual can learn this."

In the 1970's, Pelletier discovered the value of working with mind-control champions when he and Erik Peper ran a series of studies of three expert meditators. In one demonstration before a group of doctors in Oakland, California, one of the meditators entered a wakeful trance, then pushed a needle through his biceps. He apparently felt no pain. He didn't bleed. "Then one of the doctors in the front row made a crack like, 'What do you do for entertainment?' " Pelletier says. The trance broke. "The meditator said, 'Well I can show you how good the control is,' and yanked the needle out. He had nicked an artery, and there was profuse bleeding. Doctors jumped up to help, but he waved them off." He reentered the trance. "And the bleeding just stopped, within thirty seconds," Pelletier says. The demonstration convinced him that it would be valuable to look closely at the biochemistry of such champions.

Even before the new experiments are completed, Pelletier has some suggestions for novices. "Even now," he says, "there's evidence that people who practice *some* form of mind-body relaxation—either esoteric, or simply a regular period of quiet—experience better health and seem to have a longer life expectancy."

Pelletier says his research so far has also convinced him that many meditative or biofeedback practices that increase the production of alpha brain-wave activity can help control pain.

"The easiest way is to close your eyelids and roll your eyes slightly upward," he says. "In portraits of saints in ecstasy, they're often shown with their eyes rolled back." And—without elaborate ritual—that can help you master pain.

—Gurney Williams III

"PEOPLE WHO PRACTICE SOME FORM OF MIND-BODY RELAXATION EXPERIENCE BETTER HEALTH AND SEEM TO HAVE A LONGER LIFE EXPECTANCY."

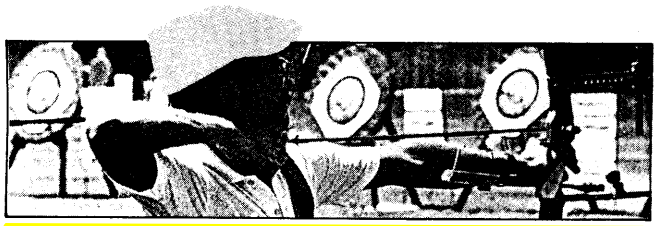
PEAK PERFORMANCE

TAPPING EXCELLENCE

It was the 1985 world archery championship in Korea. For the first three days, the weather was ideal. "No wind, slightly overcast, just what an archer would hope for," recalls Rick McKinney, arguably the greatest living archer. Then a typhoon hit, only 50 miles away.

McKinney was one of the few competitors who did not fall apart under the torrential downpour, and he won his third world title. He attributed his success partly to the well-trained right hemisphere of his brain, the seat of spatial coordination and intuitive skills.

The schooling of his right hemisphere was conducted by high-tech psychologist Dan Landers of Arizona



Before a match begins, McKinney wins it in his mind.

State University, in Tempe. When Landers measured McKinney's brain waves, he noticed that every time the archer performed well, his right brain activity increased while his left brain produced alpha waves, indicative of relaxation or decreased activity.

"The analytic left brain becomes less active when McKinney is performing at his peak," says Landers. "In its absence, the intuitive right brain takes over, controlling the subtleties of performance." This finding, replicated since then in a number of sports, verified what psychologists had long suspected: marshalling the right brain is a must for ideal performance.

One of the most effective strategies to enhance the right brain was developed by Richard Suinn, head of the psychology department at Colorado State University at Fort Collins. His technique is based on a method known as desensitization which is used to treat phobias.

Suinn asks athletes to start the exercise by tensing and relaxing their muscles for about twenty minutes. Then they breathe in and out deeply, entering an even more relaxed state. Finally, with the right brain tuned up and the left brain tuned down in this way, they imagine themselves practicing their athletic skills down to the finest detail.

Hundreds of people, athletes and nonathletes alike, have now used Suinn's method with great success. The reason for its effectiveness, Suinn believes, is that it taps a heretofore unknown modality of learning.

"When we enter this state," Suinn says, "we may have direct access to the portion of the brain in which actual motor memory is stored. We might create a template–a baseline model for behavior or performance–that can later guide us during the actual event."

–Pamela Weintraub and Mark Teich

BUILDING RIGHT BRAIN POWER

First create an imaginary scenario involving success in a desired activity, be it sports, or work, or health. You must work out a response to every situation or problem. Replace all the negative responses and feelings with positive ones, and compose a finale in which you have completed your goal with resounding success. Now, tense and relax every muscle in your body until you achieve a calm state. Then, close your eyes and breathe deeply for five to ten minutes. These two steps should allow you to enter what amounts to a waking dream, with your right brain turned on full force and your left brain turned down low.

Next, enter the script you just created. Review it to find any anxiety-producing situations. When you run into problem areas, edit them out with confident, positive responses.

Sports psychologists say that this exercise is so authentic that if your brain waves and muscle patterns are measured by electrodes, they will closely mimic the patterns you will subsequently exhibit during the actual event.

THE PRACTITIONER

What scientific breakthroughs might lead to a slowing of the aging process?
What steps do you take to promote your own longevity?

Nathan W. Shock, Ph.D., former head of the National Institute on Aging's Gerontology Research Center in Baltimore, has been a Scientist Emeritus at the Center since 1976. He is 81 years old.

Research concentration: Analyzing the Gerontology Research Center's longitudinal studies; studying the effect of aging on cardiovascular performance.

"We already know quite a bit about how to slow aging, but the hitch is getting people to do what's good for them.

"I think that we'll find out how to slow the aging process through our study of the immune system. Learning how our body fights disease will help us maintain that resistance well into our later years and give us healthy, active, and long lives.

"I quit smoking a long time ago in the interest of my own longevity and I exercise regularly. Walking is the best exercise. I propose that everyone who retires get a dog. I have a Yorkshire terrier; he isn't a lot of dog, but he sees to it that we go out for a two mile walk every day.

"I try to keep my cholesterol intake low, although on occasion I indulge in a marbled piece of beef. I take a One-A-Day pill plus iron because as you age you usually don't eat as much and may not get an adequate supply of trace elements."–*N.S.*

PEAK PERFORMANCE
WATER WATCH

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In the 1984 Ironman Triathlon race at Kona, Hawaii, Mark Allen took the lead from the start. He kept it through the swimming and cycling segments of the race. But during the third and last leg, the marathon run, the steamy lava fields became stultifying. Allen began staggering, swerving side to side in his path. Though the heat kept building, something strange happened: He stopped sweating altogether. That's when Allen slipped all the way to fifth.

Though Allen had started with a shot at first place, he'd made a simple but critical mistake: He'd failed to drink enough water. Once dehydration set in, his chances were gone. And according to the experts, it could have been far worse. Allen might have collapsed from heat shock or even died.

Fortunately, research has shown that water loss is easy to avoid. First, make sure you drink about eight glasses of water a day. If you're thirsty, drink two or three glasses of water immediately. Drink at least twenty ounces of water an hour and a half before you begin any strenuous activity. And drink some water around every fifteen minutes for the duration of your workout or event.

If you want to know whether you've been taking in enough water, Ann Grandjean, a nutrition consultant to the U.S. Olympics Committee, advises weighing yourself before and after athletic activity. No matter how good you feel, loss of a pound or two means that you've had too extreme a water loss. The solution: Immediately drink 16 ounces of water for every pound of lost weight.

"To prevent heat illness," summarizes Grandjean, "wear light, loose clothing that allows free circulation of air, move to the shade for regular rest, and drink water before, during, and after competition."

—Pamela Weintraub and Mark Teich

LONGEVITY

PEAK PERFORMANCE

BY PAMELA WEINTRAUB

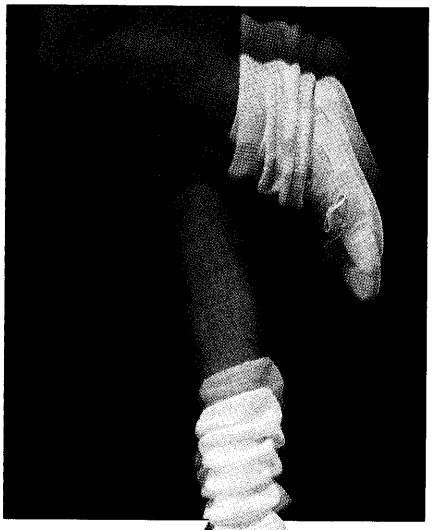
EXERCISE

ON THE REBOUND

Exercise physiologists use the term *soft aerobics* to refer to cardiovascular exercise that is easy on the joints and limbs. Rebounding, jumping up and down on tiny trampolines called rebounders, was once a highly touted form of soft aerobics. Recently, however, this activity has had manufacturers and exercise physiologists jumping down each other's throats.

Minitrampoline manufacturers have claimed that users have recovered from such maladies as bursitis, hypoglycemia, polio, and even cerebral palsy after jumping or jogging on rebounders for as little as 30 seconds a day. Health professionals, appalled by such statements, said that rebounding may have limited effects.

To settle the debate, Susan G. Gerberich, assistant professor in the School of Public Health at the University of Minnesota, studied rebounding in a control group of women. She found rebounding most beneficial when used by someone who's relatively unfit. "Rebounding can increase the heart rate to aerobic levels for those who are poorly conditioned," she says. "But once conditioning improves even a little, people require a more vigorous workout."



FUN

ANIMATED GOLF

In the end, performance in sports such as golf and tennis comes down to a question of engineering. If your strokes are poorly designed, you won't do well at the game. But now, thanks to a computer program pioneered at the Jack Nicklaus Academy of Golf in Orlando, Florida, just about anyone can perfect their strokes in a matter of weeks, sometimes days.

To design the program, biomechanist Ralph Mann culled hundreds of biomechanical and physiological details from the top 50 golfers in the world. The result: a composite model of the ideal golfer making the ideal swing. Problem was, because the model was a composite, it had specific physical characteristics: It had narrow shoulders, was 5'11", and weighed 160 pounds.

Since few people match these dimensions, Mann's computer is able to alter the stick-figure composite so that it retains its biomechanical efficiency while assuming the body size and shape of any individual under the sun. When students use the program, the perfect stick figure is superimposed on the video of the student performing imperfectly. By looking at the double image, the student can pinpoint errors and correct them.

DEATH AND THE WOUNDED KNEE

The knee, the most vulnerable and unwieldy joint in the body, takes a beating not only from strenuous exercise but also from the wear and tear of ordinary life. As many of us know, cartilage and ligaments in the knee can sometimes be destroyed beyond repair. When even the most sophisticated technique—arthroscopic surgery—cannot heal their weakened joints, many people resort to canes or just stay home. But now, there may be another way: use of an allograft, a body part received from a cadaver in a donor program.

To test the value of the allograft, orthopedist Douglas Jackson, director of the Southern California Center for Sports Medicine at Memorial Hospital Medical Center in Long Beach, recently studied 150 patients. First he removed a series of ligaments from cadavers. Then he used a special, two-week process to freeze-dry the specimens. Finally, he used arthroscopic surgery to transfer allografts to his patients' knees.

On the whole, Jackson's results were encouraging. Sixty percent of the operations were highly successful; 30 percent of the patients did not do as well as expected; and in 10 percent of the surgeries, the allograft failed.