

PHYSIOLOGY

Athletes Have Good Hearts

Study of former champions now in their forties or fifties shows that their training makes them more fit, physically and mentally. Sedentary oldsters also benefit by exercise.

By MARJORIE VAN DE WATER

► "ATHLETE'S HEART" is a myth. There is a widespread impression that champion athletes when they reach middle age suffer from enlarged hearts, break down physically and are likely to die young of heart disease.

This impression is shown to be false by research performed by Dr. Thomas K. Cureton of the Physical Fitness Research Laboratory, University of Illinois.

Dr. Cureton, himself formerly a national champion in swimming, traveled about Europe and gave about 128 tests to 55 former athletic champions in seven nations, comparing the results with the same tests made on middle aged men who had not been athletes, and with non-athletic young men. The "Flying Finn" Nurmi and the French tennis star Henri Cochet were among those he studied.

When the champion athlete deteriorates physically in middle age, Dr. Cureton found, it is not because he overdid his athletic activity in his youth. It is because, after he won his title, he lapsed into a sedentary life, ate heavily, drank a lot, smoked too much, and so tore down with excesses the magnificent physique that his athletic training had built up. Those who have kept active are superior physically to the average middle-aged man and so is the average of all the former champions tested.

Average Former Champion

The average former champion tested by Dr. Cureton won his title ten years ago. He is close to 45 years of age. He has wider shoulders, smaller hips and less bay window than has the non-athletic middle-aged man. He also has better feet, stronger hands, and a more efficient heart and blood circulation.

The former champion weighs more than the non-athletic young man, but he is nearly five pounds lighter than the non-athletic man of his own age.

The extra weight he carries is not fat, for the most part, however. Dr. Cureton picked up those annoying rolls of fat and measured them—at the cheek (jowl), the inner tube around the abdomen and waist, in the seat of the pants, and front and back of the thigh.

When these measurements were added together, the sum came to only 78.84 millimeters for the former champions, compared to 139 millimeters for the non-athletic middle-aged men, and 135 millimeters for the non-athletic young men.

Dr. Cureton has another way of telling what proportion of a man's weight is surplus fat. He has them swim or dive down to a seven-foot depth under water and then measures the time it takes for them to float to the surface. The non-athletic middle-aged men pop up faster than do the non-athletic young men. This shows that the man who is "getting along" without physical training is softer than the younger men. Not all the former champions were given this particular test but those who did take the test required more time to surface than the men of their age who had not had physical training. The former champion is more solid.

On blood circulation and breathing tests, the former champions averaged better than the non-athletic men of their own age. Dr. Cureton could find no sign that the champions had deteriorated. He did find evidence that they have better blood flow and better tolerance of stress. Their general condition is more ready for action, psychologically and physiologically.

The former champions are stronger than the other men; they have more powerful backs and legs, and have greater strength in proportion to their weight. They are also

more agile and have better muscular endurance.

Dr. Cureton did not study baseball, basketball or football players, so he has no answer to the question of why some players have such a short time in stardom while others like the famous Satchel Paige never seem to grow too old to give a creditable performance.

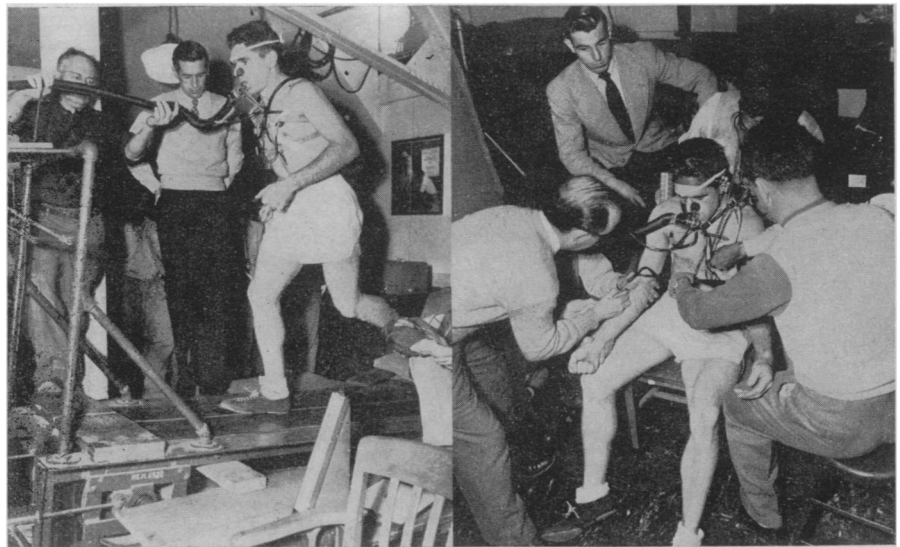
One reason, however, why he did not include them in his study is because they do not have the same kind of athletic training that individual athletes do. During the season they may be held to some sort of training rules, but out of season they are likely to let themselves go, eat and drink what they please and fail to get their customary exercise.

Variations With Sports

Different sports develop different parts of the body, Dr. Cureton observed. Middle distance runners and swimmers have the broadest chests. Swimmers also have the greatest shoulder width, hip width, chest depth and are biggest around the chest when it is expanded to the maximum.

Athletes in these two sports, however, are unlike in their fat. Middle distance men have the least fat. Swimmers have the most.

Chest expansion is greatest for the gymnasts, 3.90 inches, and next for the swimmers, 3.75 inches. It is smallest for the sprinters and hurdlers, 2.25 inches.



FORMER CHAMPION'S FITNESS—Gil Dodds, great American miler who won the American indoor record in 1948 by running a mile in 4 minutes 5.3 seconds, is shown here years later taking fitness tests. At the left, he is on the all-out treadmill run while scientists make their measurements. Dr. Thomas K. Cureton, University of Illinois, is holding the oxygen tube. At right, immediately after the all-out run, Gil looks very tired, but the doctors find that he stood up under the tests like the champion he is.

Swimmers have the poorest foot arches, but they have the fastest reaction times and the best breath holding times.

What of the man who has led a sedentary life until he has reached middle age? Can he start physical training then and improve his condition? Or is it dangerous for the oldster to begin to be active physically?

Dr. Cureton firmly believes that the middle-aged softy can and, by all means, should begin to exercise.

Mild Exercise Beneficial

He points to the example of a college professor 50 years old. This man did do a little gardening, fishing, canoeing and walking but irregularly and mostly in the summer. He was overweight, had rising blood pressure and sluggish circulation, couldn't sleep well, had weak and painful feet and just didn't feel well.

The pressure of work and responsibility on him was heavy. He was a little afraid he might have a breakdown as had several of his friends. So he consulted Dr. Cureton.

After careful tests and a thorough medical examination, Dr. Cureton recommended the following program:

Walking to and from work, five days a week, about two miles a day.

Home calisthenics twice a day for 10 to 15 minutes.

A daily bath, cool six days a week and a short hot bath once a week. Vigorous towel rubs after each bath.

Golf or a long hike once a week.

Ultraviolet baths three times a week.

Reduction of fried and starchy foods and eating relatively more fruits, vegetables and protein food.

After six months of this program, during which time the professor took no medicine and kept up his full professional load, the tests were repeated.

The professor had lost 28% of his over-all fat and 46% of his abdominal fat. His blood pressure had gone down—20% for the systolic pressure and 41% for the diastolic. His pulse was stronger, a 35% increase in the pressure lying down.

He also reported that he could do more work with less fatigue. He had better endurance.

This shows what the older man can do toward reconditioning himself by working alone and in moderation. It is quite possible, Dr. Cureton comments, that the professor in these six months increased his distance from death.

Classes for physical training of the middle-aged have been tried by Dr. Cureton. Men in classes improve their physical condition, but the changes are not so great as for the individual, when that person is conscientious and keeps up his exercise regularly six or seven days a week.

If more middle-aged people would keep to a regular program of physical exercise, it would lengthen life and cut down the tragic deaths from heart disease in men and women near the prime of life, Dr. Cureton believes.

Science News Letter, July 3, 1954

ASTRONOMY

Volcanic Ash on Mars

► THE DARK markings on the red surface of Mars are drifts of volcanic ash, not vegetation as many have proposed.

Active volcanoes on Mars have been suggested by Dr. Dean B. McLaughlin of the University of Michigan as the most plausible source of material such as is required to make the volcanic drifts. He told the American Astronomical Society meeting in Ann Arbor, Mich., that this idea was based on his analysis of the pattern of prevailing winds that should occur on Mars.

Astronomers all over the world are now training their telescopes on this fascinating planet, now making a very close approach to the earth. On July 2, it came within about 39,800,000 miles of us.

The dark green markings seen on the surface of Mars, Dr. McLaughlin believes, are mostly elongated streaks whose directions closely match those of the strong winds during Martian summers. During other Martian seasons, while the winds will have other directions, they will be so much

weaker that they cannot erase the pattern of drifted ash formed during the summers.

In the dry, oxygen-poor atmosphere of Mars, volcanic ash should be green rather than brown as on earth, he suggested. It has long been known that the dark areas on Mars become greener during the planet's summer, and some theories attribute this to the growth of vegetation.

However, the Michigan astronomer pointed out that this color change is just what would be produced by the greater spread of the green ash by the strong prevailing winds at that season.

Mars's canals, according to Dr. Laughlin, would be long, narrow, ash drifts, or in some cases, volcanic rifts in the planet's crust. According to the astronomer, the conditions on Mars correspond to an early stage in the earth's development, so that the red planet may possibly be one on which oceans have yet to form, and on which life is still to appear.

Science News Letter, July 3, 1954

WHAT MISTAKES IN DRIVING DO YOU MAKE?

CAN you start a wet motor, take curves without rubbing off miles of rubber, get juice from a battery that seems dead, put out a fire beneath the hood, start on ice without spinning the wheels, pull out of a skid without whirling into approaching traffic?

What common mistakes do you make on flooded roads, on icy hills? What do you do when a car darts out at you from a side road? Do you know how to stop a car FASTER when emergency demands you stop on a dime? Do you know how to avoid a sideswipe, pass a truck crawling up a hill, even what to do in that split second you can act when a head-on collision seems inevitable? Do you KNOW what to do or will you do the first thing that comes to mind in that moment of panic?

Are you sure your wife knows what to do—that she can handle the car in any emergency? That your grown-up son or daughter can?

Frank Williams' big new book, *How to Drive—and Stay Alive*, is the practical guide to safeguard anyone who drives from trouble on the road, from expensive delays, from emergencies of any kind—and from Sudden Death.

Based on the experiences of America's professional drivers, this book is packed with facts, lessons, and practical advice to save your time, your car, your money—and your life.

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- 110 point check-list that just about guarantees you'll get a really good used car, which won't need immediate repairs and will run economically for years. How to avoid hidden costs in your purchase order and installment contract. Simple clean-up steps that can boost the trade-in value of your car a hundred dollars.

- **SPECIAL FOR WIVES:** a whole section on **How to Be a Better Driver Than Your Husband**.