

THE STRONGEST MAN IN THE UNITED STATES.

Remarkable Feats of Physical Strength By the Muscular Student Lovering.

He Has Succeeded in Breaking the Highest Record at Harvard University.

STRONG MAN LOVERING ON HOW TO TRAIN.

Editor Sunday Journal:

I have been asked to write a short article, giving my views and experience in regard to training and physical development. The subject is a difficult one to treat briefly, for circumstances are so different and results are so much affected by the combined action of innumerable minor considerations, that it is very hard to formulate general rules. However, I shall attempt to consider some of the more important forces which come into play, and to show what results are likely to follow through the action of these forces. A discussion of this subject is especially interesting and valuable to young men, because youth is the time to lay the foundations of a fine physique and a healthy body, which will be of inestimable service to the other throughout life.

The mistake is often made of thinking that a strong man is the product merely of long-continued and vigorous exercise, and that any person, by devoting a sufficient amount of time to exercise, can acquire great physical strength. Exercise, however, is but one of many forces that go to make a strong man, and while it should be given its share of attention, it should not be allowed to lessen the consideration given to the others.

From the time that a child is first able to run around until the time that he has attained his full growth he has it in his power to influence by what he does his whole after life. But unfortunately his mind has not until the latter part of this period reached that state of development that he is able to distinguish between what is beneficial to his physical development and what is not.

But if the child is unable to discriminate, the parent, at least, should be, and it is he who is responsible to a great extent for the physical condition of his child. It is a fact too little regarded by the parent that the health and strength of his child in after life depend in great measure upon the food, the amount of sleep and exercise obtained by the child and the practice of three virtues—cleanliness, regularity and moderation.

Before leaving this phase of the subject we may go a further step in illustration of the importance of discriminating between what is beneficial to the system and what is otherwise. The effects are not limited to one generation. Hereditary strength means merely that some else has observed certain conditions for you. The "naturally strong" man is one whose ancestors have trained for him and have handed down to him their vigorous vital powers and their capacity for muscular development. If his ancestors have not observed those laws which are conducive to a sound body, it is only by the most strenuous efforts on his part that he will gain the strength he covets.

Turning to a consideration of the subject of exercise, it is possible to make only a few general observations when writing for the general reader. Out of door exercise is far superior to any form of indoor work. Games have many advantages over individual exercise, but as all games must necessarily give a more or less one-sided development, it is better to try one's hand at a number, rather than make a specialty of one. Football, baseball, tennis, ice polo, and all forms of track and field games are excellent.

In this connection I have been asked to give some conclusions from my own experience. I have never taken what a professional athlete would regard as a systematic course of exercise, but have found my recreation in such out of door sports as I have mentioned above. My own gymnasium experience could be included in two weeks' work. It is a mistake to think that gymnasium work and prescribed apparatus are essential to full development. Exercises for developing every muscle of the body without the use of any apparatus is easily devised.

In regard to lifting heavy weights and to heavy gymnastics in general there is a danger which does not exist in lighter exercises. It is one thing to do a little heavy work once in a while; it is another thing to do it every day. Again, there is a difference between lifting on strength machines and lifting dead weight. The lifting machine does not require a continued strain. Consequently much of the danger is avoided in using it. On the other hand, in lifting dead weight, there are two dangers: (1) the dead weight in taking the system constantly all the time that it is lifted from the ground; (2) there is always in heavy work of this kind the liability of strain, owing to the shifting of the weight.

This kind of exercise suggested caution which may well be mentioned in concluding and which is applicable to all forms of exercise. All mere muscular development—and by this I mean every addition to the muscular tissues—is obtained only by a sacrifice of one kind or another. To say nothing of the time consumed, which is often compensated by returns aside from mere physical development and abstinence from excesses and drains on the physical system, when this becomes a sacrifice, there is a sacrifice in its nature much more vital, in that it concerns the health. For when the amount of muscular tissue becomes such that the vital powers are not able to sustain and renew the system without abnormal effort, this strain of the organs will ultimately result in their exhaustion, although the athlete may be for the time deceived as to this danger by present muscular improvement.

It is as if a manufacturing plant were enlarged to such an extent that the engine must necessarily be run at forced draught all the time in order to keep the machinery in motion. Especially when one is working with heavy weights or on strength-testing machines he is apt to overlook this danger of overtaxing his system in his eagerness to surpass previous efforts. There is also the danger arising from the tendency of nourishment to go too much to those muscles which are being pushed to the detriment of the others.

ARTHUR LOVERING.

It is interesting to know that Klein has written to Dr. Sargent that he will be in Cambridge next Summer and try to break any record which may be made against him. He is now studying in California and is consequently eligible as a candidate to break the college record.

Lovering is unquestionably the best man in point of general development of the hundreds that have come under Dr. Sargent's eye during the long term that he has served as the head of the department of physical culture at Harvard. In track athletics he has excelled in putting the shot, in which event he is much the best man now in the university. He is also a strong runner, but has never trained for other running events. This year he is running with the university crew, and while he is a comparative novice with the oar, the coaches are hopeful of being able to utilize his great strength in the boat.

These are Student Lovering's chief measurements:
Height, 5 feet, 7.8 inches.
Weight, 146 pounds.
Girth of neck, calf and upper arm, 15 inches each.
Thigh girth, 22.5 inches.
Forearm girth, 12.3 inches.
Chest girth, 38.4 inches.
Full chest girth, 42.5 inches.

HARVARD'S SYSTEM OF TESTS.

The system of testing the strength of athletes at Harvard is the same at the present time as in 1879, when Dr. Dudley A. Sargent introduced it at the university. The record-holder is not only the strongest man in Harvard at the present time, but he holds the record in competition with Harvard students for the past eighteen years. During this period between seven and eight thousand men have taken the strength test under the personal direction of Dr. Sargent, and the champion strong man is therefore "one among thousands." It is this fact of the long continuance of this system with the same apparatus and under the same conditions that gives a peculiar interest to the tests and makes the strength record of historic value.

The strength tests are made not only by candidates for the record, but, by a rule of the faculty, all students of Harvard University desiring to enter as competitors in athletic contests are required to give evidence of their ability by reaching a required standard in the strength tests. In addition to the regular physical examination. This regular examination includes examination of the heart and respiratory organs, besides a complete measurement of the body.

In making the strength tests, the minimum total required for the athletes varies with the branch of athletic sport in which they are desirous of competing. Candidates for the university crew and football team, as well as weight-throwers, are expected to make a total strength test of 700 points; candidates for the university and class baseball, the lacrosse team and the Mott Haven teams are only required to reach a total of 500 points.

THE LUNG TEST.

The strength tests are six in number, and are termed the "lung test," "grip," "back lift," "leg lift," "dipping" and "chinning." When the measurements of a candidate have been finished he takes these strength tests successively, with only a brief interval of rest between. The test is aimed to show the strength of all the muscles of the body without any appreciable interval to recuperate the muscles between the trials. This regulation, allowing no rests between the tests, also operates to make the competition uniform for all competitors.

The first step is the "lung test," which is directed to ascertain the power of the expiratory muscles—not the capacity of the lungs. In making this test a manometer is used, and the candidate is required to exhaust his lungs with all the force that he can command into the manometer through a rubber tube. A dial connected with the manometer registers the amount of force with which the candidate can blow, and he is compelled to continue the pressure until the hand on the dial comes to a rest, showing the power of his expiratory muscles to hold air against pressure. The place at which the index finally rests is taken in computing the strength tests. Lovering the present champion, has excelled all previous competitors at this game of wind. He has registered nearly fifty points by a sudden blow, and has held the index at 38. There is a safe margin between this and the marks of his nearest rivals. This test calls in play all the expiratory muscles, including the chest, neck, throat and mouth muscles, as well as the lungs.

THE BACK AND LEGS.

The next tests measure the strength of the back and legs. For these the candidate mounts a small table, through which runs an iron chain connected with a spring underneath. The other end of the spring is attached to a hook securely screwed in the door. A crossbar handle can be inserted into the chain at any link, thus adjusting the length to the height of the person. By pulling on the chain the two sides of the spring are drawn together, and the amount of this contraction is registered on a dial in kilograms. This machine is called a back-and-leg dynamometer. The one now in use by Dr. Sargent came from France, and he has used it constantly in his work for more than fifteen years.

Mr. Arthur Lovering, of Harvard, is unique as an athlete in that his muscular development is not the result of long and regular exercise, like that of the professional strong man. His exercise has been occasional rather than systematic. His physique, for so strong a man, is not large, and his physical proportions are in no sense abnormal. He is an example of well rounded physical development, due to intelligent training and good judgment.

The back lift is made with the legs straight, the body being projected slightly forward, in order to pull up on the chain to the best advantage. The muscles called into action are primarily those of the back, but the shoulders, biceps and forearm also bear the strain. The best records for back lift are those of Lovering, and Klein, his predecessor as Harvard strong man. Both men have lifted as high as 370 kilograms in an official trial. This is equivalent to 816 pounds. Lovering has, however, exceeded this in practice, on one occasion breaking the handle bar at 420 kilograms (926 pounds). In making an official test the candidate is allowed as many trials as he wishes, but the maximum is sure to be reached in three or four attempts.

THE BACK LIFT.

On the leg lift the candidate assumes a different position, bending the knees and gripping the handle at a height slightly above the knee, the chain passing between the knees, as shown in the illustration. In this test all the muscles used in the back lift are again employed, and the extension muscles of the leg—hips, thigh, calf and foot—are called into action, as well as the muscles forming the side walls of the abdomen. With this reinforcement of the back muscles much heavier lifting is done. The record made by E. Klein two years ago, when he lifted 700 kilograms (1,543 pounds), has thus far proved too high a mark for any of the other aspirants. Lovering has lifted over 1,400 pounds.

THE LEG LIFT.

The amounts lifted on these trials are equivalent to the same number of pounds of dead weight, but the power is applied under the most favorable circumstances and at the angle of least resistance. In consequence, weights are lifted which seem fabulous. Klein's lift is more than the weight of a piano and nearly equal to a ton of coal. The fourth test is of a less exacting nature, being merely the squeezing of a hand dynamometer. Trials are made with the right and left hands, and the average taken of the tightest grip recorded by each. Lovering does this trick much better than any of his rivals, having registered 85 with his right hand and 82 with his left. This approximate equality in the strength of his hands is unusual and is a good instance of his even development. Klein's score with the hand dynamometer was 78 with his right hand and 68 with his left. The grip of the average man is about 40. The remaining two tests are aimed chiefly to measure the capability of the arm and shoulder muscles. The candidate first "dips" as many times as possible on the parallel bars, alternately lowering and raising the body. Afterward he grips two hanging rings and alternately raises and lowers his body by his arms, bringing his chin each time to a level with the rings. This feat, when performed on a horizontal bar, is a familiar form of exercise, but becomes much harder when executed on hanging rings. The two exercises are selected to call into play complementary muscles, the one being a pushing up of the body, the other a pulling up of the body.

THE GRIP OF THE HAND.

But in this line of exercise the body itself is the weight lifted, and the difference between the task of a heavy man and a light one becomes a factor for consideration. Naturally, a heavy man is able to raise his weight fewer times than his lighter competitor. The system of scoring devised is aimed to equalize the disadvantage and also to give these tests their proper relative importance in making up the total. The candidate's weight in kilograms is taken, and one-tenth of the weight is multiplied by the number of times he has raised this weight by "dipping" and "chinning." The method of computing may be illustrated by Lovering's record last December. He weighed 67 kilograms and lifted himself thirty-eight times on the parallel bars and seventeen times on the rings, making fifty-five times for both exercises. This number, multiplied by 6.7, gave him a total of 368.5 points. It was by remarkable ability in these two exercises that S. L. Foster made his strength record, which remained unequalled for ten years. He "dipped" sixty-eight times between the bars and pulled his weight up to his chin on the rings sixteen times. His achievement was the more surprising because he was a heavier man than the present champion.

OFFICIAL STATEMENT OF DR. SARGENT.

Hemenway Gymnasium, Cambridge, Feb. 20.—On Wednesday of this week Arthur Lovering, a member of the senior class in the academical department, broke the Harvard strength test record of 1529.2, made by E. Klein on June 10, 1885.

Previous to Klein's record S. K. Foster, of the class of 1885, had held the record for eleven years, his total of 1348.8 having been made on April 18, 1884. Lovering's total is 1660.

The record is made in competition with all students who have come under the direction of the department of physical training of the university since the tests were first instituted, in 1879.

Comparative tables of the records of Lovering, Klein and Foster are given below to show the points of superiority of the three men. It will be seen that half of Klein's total, lacking a few points, was obtained by the strength of his legs, while Foster's exceptional strength was in his chest and upper arm muscles.

Lovering's figures show a much more even development.

	Lovering.	Klein.	Foster.
Lungs.....	37	31	20.5
Back.....	410	370	270
Legs.....	665	700	375
Chest and upper arm.....	383	227.2	531.3
Right forearm.....	85	78	82
Left forearm.....	80	63	70
Totals.....	1660	1529.2	1348.9

D. A. SARGENT,
Director Hemenway Gymnasium.

Ten Safe Rules for Bicycling. By a Doctor.

Owing to the fact that I have been a wheelman from boyhood, I can perhaps speak more understandingly regarding diseases that result from bicycle riding than a physician who has merely gained his knowledge from observation.

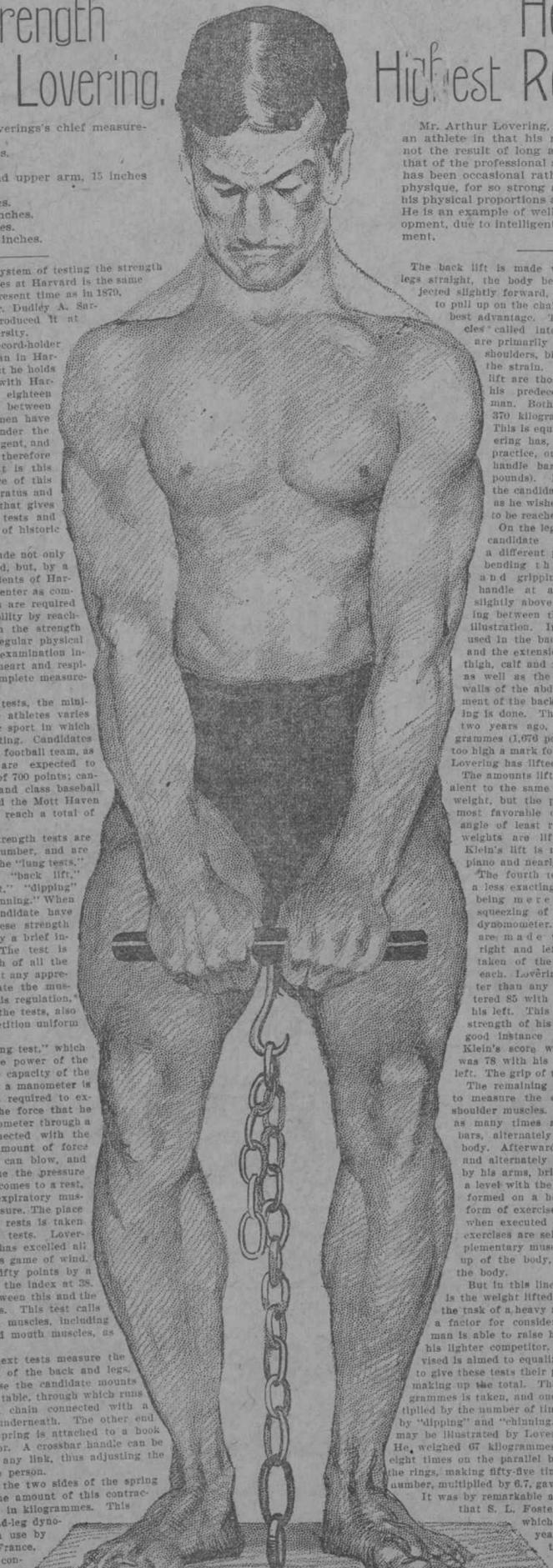
It seems to me that a word in connection with the bicycle in its relation to health is always in season. The family doctor is constantly called upon to express an opinion as to the wisdom of bicycling in individual cases, and, unless he happens to be personally devoted to the habit, under which circumstances he is likely to regard the wheel as an almost universal panacea for human ills, he is apt to consider it as most detrimental in its physical results.

For his benefit and that of the tyro who contemplates the purchase of his first wheel, and the scorcher, who is in the habit of devastating the ranks of mankind like the ancient car of Juggernaut, I would suggest to all bicyclists the observance of the following ten rules. If these rules were followed in their entirety objections to the use of the wheel from a health basis would soon cease to be heard.

1. In purchasing a wheel take as much care to have it fit you as you would in obtaining a gown or a suit of clothes.
2. Be sure that when sitting upright you do not have to reach to maintain the ball of the foot on the pedal during an entire revolution. In other words, when the pedal has reached the most distant point from the body be sure there is a slight bend in the leg at the knee.
3. Adjust the handle bars at a level, which, when the arms are fully extended, will keep the body in an almost upright position. In riding long distances, the handle bars should be dropped a trifle, so as to increase the leverage by a backward as well as a forward push.
4. Before purchasing a wheel make an arrangement with the dealer whereby you may be allowed to make trials of different saddles until you find one that is perfectly comfortable, for a properly fitted saddle is the most necessary element in safe and comfortable riding. No one saddle will fit all riders; sometimes many must be tried before the correct model is found. Incline to a saddle that is stiff and moderately provided with springs, and which is broad and short, rather than long and narrow. A soft saddle, whether of padded leather or inflated rubber, will always chafe when ridden a long distance. The pommel found on the majority of saddles is a very necessary adjunct; it cannot be dispensed with. There must be sufficient cut-out at the sides of the saddle so that there will be no interference with the muscles of the interior and posterior aspect of the thigh on the downward stroke. This lack of common convexity to the sides is a common defect in the many so-called anatomical saddles. The most important object to be attained in the adjustment of the saddle is to have the pommel high enough to give the body a slight tendency to slip backward, thus keeping the weight off the perineum, as it is most important that it should be borne by the gluteal muscles and the tuberosities of the ischium.
5. The average woman should never ride a wheel geared higher than 64 inches; the average man higher than 70 inches. Remember that the higher the gear, the greater the power required to move a given distance.
6. After having become accustomed to the use of a bicycle, never take a ride so long that a good night's sleep will not entirely remove all traces of fatigue. Twenty-five to fifty miles a day, according to the surface of the country, should not be exceeded by the average rider.
7. Always walk up a steep hill; it will save your heart.
8. Never ride simply with the idea of arriving at the earliest possible moment at a given destination; ride for the pleasure that is to be gotten from it.
9. While riding use the same sense in drinking that you would in watering a horse. Also, like a horse, stick closely to water as a beverage. Remember that alcohol stimulates the heart and circulation in much the same way that exercise does, and that if you use it in any form while wheeling the reaction is speedy and long-reaching.
10. Never ride on a full stomach; it will interfere with the heart's action and respiration.

It is my earnest belief, based on years of experience, that an abuse of the exercise of bicycle riding is strongly inimical to a proper physical condition. Properly used, it will be found to be most efficacious in the same class of cases in which physical exercise is usually recommended. Under these latter circumstances, the so-called bicycle diseases which physicians are compelled to treat would not exist at all.

EARL S. BULLOCK, M. D.



HOW THEY TESTED LOVERING'S GRIP AND

THE STRENGTH OF HIS WRIST AND FOREARM.