

ON HEALTHY EXERCISE.

BY A FAMILY DOCTOR.

IT is curious how many persons one meets, almost daily, who seem entirely ignorant that a great difference exists between adipose tissue—fat, in fact—and muscular flesh. This is simply one more proof of how much a really useful education is neglected at our public schools. Were the persons I refer to only found in the lower circles of life, we should not marvel so much, but it is just as often all the other way. I was fishing on the Thames, a few days ago, in company with a well-to-do City merchant. It was with a feeling of pride that nearly made his eyes water, that this gentleman, having had occasion to take off his coat and roll his sleeves up, slapped himself on the forearm as he made the remark—

“Look there, doctor. You don’t see the like of that every morning—eh? There’s flesh for you. There is solidity.”

It would have been a thankless task on my part to have striven to convince him of his error. I busied myself with a jack instead. But there was positively not more solidity in his arm, strong though it looked, than there is in a bladder of lard, or a prime Yorkshire ham.

If this City merchant wished to acquire real muscle, he would have to begin at the beginning, by taking “off his flesh and sitting in his bones.” And still my friend is not an obese man; not more so, at all events, than tens of thousands of people we see going about their usual avocations, and flattering themselves with the idea that, so long as their bodies are in good condition, so long as they have something to show, they are in excellent health. Were men of this sort to attempt to carry a sack of potatoes up an ordinary flight of stairs, the truth, I think, would soon manifest itself to them. Again, when such men are confined to the house for a few weeks with illness, how very quickly they go down-hill! This, for the simple reason that their bodies possess no staying power; for not only is the solidity of which they were erst so “vaunt” nearly all fat, but the little flesh with which it is mixed, so to speak, is poor, worthless, flabby stuff, and can no more be compared to the hardy red muscle of your healthy spare man, than can a worsted thread to a telegraph wire.

Now how is a man to know when his muscles are in proper condition? Probing one’s arm is hardly practicable. Well, I mean presently to try to explain to you what good muscle means, so that it will be as easy for you to tell it from the spurious article, as you can a silver half-crown from a pewter shilling.

But I may as well mention here that it is always a suspicious sign when a man weighs either much over or much under the standard of weight with reference to height. In persons, too, whose muscles are flabby and overloaded with fat, you will usually find slight

shortness of breath on exertion, clearly proving that the heart itself, which ought to be the strongest muscle in the body, partakes in some measure of the general deterioration.

I must now beg the reader kindly to follow me, while I give a very simple description of muscular tissue. Muscle is simply flesh, to begin with—flesh apart from fat, remember. With the involuntary muscles of the body I have at present nothing to do. I deal at present with those muscles we use in voluntary exercise. The biceps of the arm, which we all know, is a very good example of a simple voluntary muscle. In the middle there is the red fleshy part; at either end it is sheathed in strong fibrous tissue, which ends in tendons; these tendons are fastened, the lower in the forearm, the upper in the shoulder. Now, the lower ends of the tendons being fixtures, it is evident that if we shorten by nervous force the centre or fleshy portion of the biceps, one of two things must happen—either the forearm will be bent at the elbow, and the hand drawn towards the head, or, if the hand be clasping a beam over-head, the body will be drawn up towards this beam till the chin touches the hand. Now if we examine the fleshy part of the biceps anatomically (or any other muscle, for that matter) we shall find it does not consist simply of a red homogeneous mass, but of a whole collection of longitudinal fibres, joined together by a cobweb-like tissue, called the areolar or connective. In these you have only to bear in mind that the minute or ultimate fibres of the nerves, and the extreme ramifications of the blood-vessels, are spread out, the arteries conveying to them blood for their nourishment, and for that of the nerves which supply them with stimulus to action. The action of a muscle is to contract; in a state of contraction each individual fibre of the muscle is shortened, and being shortened is thickened, and the ends of the muscle are consequently drawn more closely together. Now, to produce a healthy contraction of any muscle, three things are required—first, the fibres of the muscle must have an average degree of bulk or substance in them—that is, they must not be attenuated; secondly, the muscle must not be clogged with fat, but possess merely enough of that substance around it to retain the animal heat; and thirdly, there must be sufficient nervous force. Now, while on the one hand we know that good health is conjugate only with a well-conditioned muscular system, it is pleasant on the other hand to remember that this can be attained by most of us by a course of carefully regulated bodily exercise; and also that the custom of taking judicious daily exercise has been proved, beyond a doubt, to tend to longevity.

Let me endeavour, then, in a few words to explain to the reader what the conditions of healthful beneficial exercise really are. In order to obtain good results from exercise, there are several things we must always bear in mind.

Exercise must be taken in moderation, and extend over some considerable time. "Spurts," and that amount of exercise which borders on fatigue, should be avoided. Whenever the body becomes tired, exertion, instead of being any longer of value as a tonic to the muscles, becomes a positive depressant, and results in evil not only to the muscular but to the nervous system as well.

A course of exercise, no matter what the kind of it is, ought to be begun and carried on by easy stages. Take the exercise of walking as an example. Here the strength should never be taxed, but the distance is to be increased day after day, till the person finds himself capable of performing a moderate journey in a reasonable time, and that distance ought to become his daily standard.

Do not forget that exercise is a tonic, and, like all tonics, benefit is not to be expected from a single dose. Its effects are gradual; hence exercise should be taken *with regularity*. If you are a pedestrian, the same hour every day ought to find you enjoying your round of "pedal progression;" and you must never, if possible, omit it the one day and take it the next. Look upon your daily walk as a duty, and let neither rain nor sunshine, snow nor hail, keep you from performing it. Of course, I am supposing myself addressing those in ordinary health; and even they ought to protect themselves from inclement weather. Only, pray don't patronise india-rubber emporiums; also leave respirators to quiet repose in the chemist's shop-window.

Never hurry your exercise. With the exception of getting out of the way of a mad bull, and one or two other odds and ends, everything in this world, I think, is better done leisurely.

The time at which exercise should be taken is of considerable importance. It ought to be, as nearly as possible, the same time every day. One should never take hard exercise either immediately before or soon after a heavy meal. I should be inclined to give Dr. Abernethy's advice, and say, "Rest for three hours after dinner."

Always take your exercise *in the open air*.

Exercise ought to be taken in clothes which are neither too cumbersome nor too heavy; and, if heated in the intervals of rest, be very careful you do not catch cold.

Work is not exercise. This may seem strange, but it is true. I tell my patients, "I do not care how much you run about all day at your business, you *must* take the exercise I prescribe quite independently of your work." There are perhaps no more hard-working men in the world than the Scottish ploughmen—wearily plodding all day long behind their horses, in wet weather or dry; no sooner, however, has the sun "gane west the loch," and the day's work is done, than, after supper and a good wash, those hardy lads assemble in the glen, and not only for one, but often three good hours keep up the health-giving games for which their nation is so justly celebrated.

It is of paramount importance that you should bear in mind what I am now going to say. Very kindly do so, reader, or I shall have written this paper in vain.

I have endeavoured to show you that work is not exercise; do your utmost, therefore, to prevent your exercise becoming work. If all that were expected of exercise were merely the increasing the bulk and firmness of the muscles, then a course of dumb-bells, and the performance of a few gymnastic feats daily, would be all that would be required. But proper exercise is meant not only to strengthen the muscles, but the nerves as well, and the brain and mind itself. Consequently your mind must go along with the exercise of the body. A long walk with a book will not do you one half the good, that half the distance walked with a genial friend would. My advice then is, choose what or which form of exercise you please; I do not care whether it be lawn-tennis, quoits, walking, or riding, but it must be something which interests you. *If you do your exercise as you would do penance, you are merely deceiving yourself.*

GOLD AND GILT.

BY THE AUTHOR OF "THE DINGY HOUSE AT KENSINGTON," "THE BRIDGE BETWEEN," ETC.

CHAPTER THE FIRST. IN EARLY SPRING.



HE was a very pretty girl, and she knew it, and did her best, in an innocent sort of way, to let other people know it; and she could not help thinking, as she walked along the Feltham road, that keeping company with Tom Dawlish—who was just a plain, honest, hard-working young fellow—was rather waste of time, and that marrying him would be altogether throwing herself away.

Her reflections came to an end at the door of Messrs.

Bradbury's office, and she walked in, wholly intent on the bill she had to pay. A smart-looking young man received the money; and when the receipt was made out and she turned to go, she found that the shower which had threatened for some time was coming down with a vengeance.

"Oh, dear!" she said, "and I have no umbrella."

"Wait here a few minutes, miss; it will soon be over," said the smart young man; and then, having accepted his offer of shelter, Mary found herself after a minute or two thinking that he was "a very nice-looking young gentleman" (as she afterwards described him to the cook), and that he had beautiful hair—it was so nicely curled—and he had a little dark moustache,