(of which the heart is the central force) is scarcely yet sufficiently appreciated." In an interesting paper on Strain in its Relation to the Circulatory Organs, in connection with heart disease, by Dr. Fothergill, that which is of the greatest importance, is that relating to the change in the valves at the junction of the great arterial trunk with the heart and the causes of that change. "Every increase in arterial tension will close these valves with greater force, and this tends to cause valvular disease of the heart. The arteries run along close to the muscles, sometimes within the muscle, or under it, or between it and a bone, or over or under a tendon. When an athlete is straining every muscle in the gymnasium, those muscles are in a state of contraction, in which condition they are hard and press on different arteries and obstruct the circulation. The heart, continuing to pump away with increased vigor, distends the arteries, and of course there is an augmented recoil; the heart first becomes hypertrophied, and then follows valvular disease of the heart. All have seen how the veins stand out on the wrists of men in the gymnasium when they are trying to perform some difficult feat which requires great muscular force. It is because the circulation is obstructed. A person who is suffering from a mitral disease of the heart frequently causes an atheromatous condition (a fatty degeneration from a chronic inflammation) of the pulmonary artery and its branches." Thus we have an inflammatory condition of the valves and atheroma of the arteries at the same time, which is seen frequently. The casual association between atheroma and strain has been shown by Dr. Clifford Allbut and Dr. Moxon. The latter says (1) that what is called atheroma of arteries is a subinflammation of various degrees, of which the lower degrees end in fatty degeneration of the coats, along with the inflammatory products, and (2) that the determining cause of the occurrence of this change is mechanical strain.

It is well known that women are much less the subjects of valvular disease of the heart than men are.

Violent exercises are not at all necessary for health, and are better not to be indulged in by any one; unless it be by a would be professional athlete who does not intend to use his brain, or has not much of this finer structure to use.

A few absolutely sound, vigorous individuals may indulge in great physical feats without appreciable injury; but as Dr. Tompkins, resident physician of the celebrated Hammond Sanatorium at Washington, said the other day in a lecture delivered before the Y. M. C. Association there, Every one who wishes to indulge in athletics should be thoroughly examined by a physician and pronounced perfectly sound beforehand, and even then there should be a competent instructor who should tell him what to begin with, just how long he should exercise, and not let him overtax his strength in any way.

Lifting heavy weights is not the best way to get strong, and yet a great many young men think that in order to increase the size of the muscles and be considered stronger than any one else they must lift some weight far too heavy for them. Mr. Sims, a noted instructor of Washington, in what he calls "dumb-bell body exercise," which gives thorough exercise to every muscle in the body, never uses a dumb-bell that weighs more that two pounds. He says that the Indian clubs that are swung should weigh only four or five pounds, instead of twenty-five and thirty, that he has seen in other gymnasiums.

The fullest amount of brain work and of muscular exertion can not be carried on simultaneously without injury to whoever is bold enough to try the experiment; only a certain amount of nervous energy being available in the system. "There is a reserve fund of nervous energy for explosive purposes," says Dr. Tompkins, "and when this is once exhausted it is rarely got back. This may be expended either chiefly in muscle work or chiefly in brain work, or in a proportionate combination of both, but not in the fullest possible amount of both at the same time. Therefore, when extra brain work is called for,