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EXERCISE AS A THERAPEUTIC
AGENT.

BY DR. B. E. M'KENZIE, TORONTO.

The inexactitude with which general directions are given to patients to "take exercise" has not done anything to lighten the force of the charge so often made against the science of therapeutics, that it is wanting in scientific accuracy. Systematic training in all forms of exercise, including gymnastics and calisthenics, is fast becoming popular in our schools, and good results may confidently be looked for as the outcome of this systematic culture and of the interaction of the nervous and muscular systems. Great benefit, too, will result from the habits acquired, and from the correction of faulty positions in standing and walking. Many persons who are round-shouldered, and many who have crooked spines have come into this condition through the formation of and indulgence in faulty habits of standing, sitting, and walking.

Of the physiology of exercise little is known by many of those who teach the various exercises employed for training. They do not know why exercise increases the functional activity of the organs, why it causes more growth and power in bone and muscle and ligament. If such a knowledge would be a great help to all who are engaged in this work, much more essential is it for those who would wisely pre-

scribe exercise as a means of treating disease. No careful physician directs his patient to take quinine, iron or other drug without specifying carefully the manner and time of taking it, the amount to be taken, etc. The physiological effects of action are not more difficult to understand than are those of drugs, nor are its results less prompt and helpful. The practice of massage, which is gaining for itself a secure and worthy place in the confidence of the profession, is based upon the same principles. In the treatment of deformities, more than in any other department of surgery, careful observations have been noted of the results obtained by following directions to exercise certain groups of muscles, joints, or ligaments. The motions recommended may be active or passive. This mode of treatment is employed especially for the treatment of deformities and weaknesses of the feet, spine, shoulders, and neck; and good results are claimed by Gibney, Reginald Sayer, Bradford, Roth, Beeley, Lorenz, and others. An article in Heath's Dictionary of Surgery on "Roto-Lateral Curvature of the Spine" fully sets forth Bernard Roth's methods.

The following cases I have treated during the last few months by means of systematic, graduated exercises.

Case 1; Nov. 15th, 1888. Miss J. F., 22 years, has always been healthy, except that four years ago she had rheumatism for three months, and was confined to bed about half that time. Several years ago it was noticed that the shoulders were not symmetrical, and that one hip