

as the arms become stiff in their turn as they are extended in front of him. In fact, the rigidity extends more or less to *all* the muscles under these circumstances.

Breaking from a walk into a run is more easily performed; but, speaking generally, any throwing into action of a new group of muscles, or even any sudden extra-energizing of groups already in easy action, e.g., walking to running, evokes the tonic cramps.

In waltzing, after the preliminary "limbering up" process, the evolutions are performed correctly enough so long as "reversing" is not attempted. This causes at once severe rigidity, as the previously slightly used groups of muscles are brought into action.

"The ordinary gait, after limbering up", always shows a slight jerkiness and spasticity, especially if full extension of the leg be attempted in each stride.

In "punching the bag," the first blow is delivered a trifle slowly, but the arm reaches full extension, there is then an appreciable delay in drawing it back for the second blow owing to the extensor spasm. The second blow is slower and extension far less perfect from the powerful flexor spasm, at the third attempt the blow is more rapid, and the resulting spasm shorter in duration, though the patient can still *feel* the cramp. With each successive blow that he delivers this becomes less and less, until, as in the case of the lower limbs, it rapidly wears off and the blows become forcible and regular.

On turning the head suddenly to one side, spasm of the neck muscles concerned results, wearing off rapidly if the same movement be repeated. If, however, the head be turned alternately to either side resulting difficulty is aggravated for obvious reasons.

In shaking hands firmly there is often inability to relax the finger-flexion quickly (*vide* muscle tracings), a trifle which may give rise to misconception in ordinary social intercourse. If the patient will to close the hand forcibly the contraction of the flexors is slower than normal, the grip is powerful, but its full force is not attained at once. On attempting to unclothe the hand as quickly as possible a period of several seconds often elapses before full relaxation of the fingers is secured, the joints slowly extending from above downwards. If these movements be repeated as quickly as possible, it is again evident that the second extension act is initiated before complete relaxation of the opponents has taken place, that the flexor spasm is of shorter duration each time and the extension more complete, until, very shortly the movements are apparently quite normal. The myographic tracings show, however, that slight irregularities occur for many subsequent contractions—and this fact the patient himself recognizes. (Hale White).