

girdle according to well-defined programme which includes manipulation of the joint according to the McMennel technique.

Particular attention should be paid to the scapulothoracic joint which often presents serious functional limitations as a result of retraction of the fixation muscles of the scapular. Therapy should then continue with the use of a continuous passive motion device such as the Fisiotek and performance of the Codman's pendulum exercise, first without weights and then with small wrist weights. At first the patient should be laid on a bed in the supine position, however, as the joint strengthens, the patient's body should be gradually raised until he or she finally reaches the vertical position. Should pain prevent the patient from recruiting specific motor units, the relative muscles may be stimulated using electrotherapy (medium frequency Kotz generator). If possible, a course of hydrokinesitherapy should also be completed, as the Archimedes principle encourages precocious mobilization of the joints and the temperature of the water - approximately 34°C - has lissive effects on painful muscular contractures.

Patients should also perform agonistic/antagonistic isometric contractions and self-assisted shoulder mobilization and postural exercises. Performing in front of a mirror, the patient must learn to observe him or herself and to correct any incorrect postures autonomously. Exercises designed to encourage smooth, harmonious movement of the whole body should also be completed, as it is almost impossible to work analytically on the upper limb alone.

When administering therapy designed to recover muscular function, the physiotherapist must aim to increase the flexibility of the ligament-capsule support apparatus in such a way as to make the joint ready for the stimulation incurred during everyday activities.

The patient should then continue with active mobilization exercises in such a way as to enhance hypotonized muscles, re-establish a correct kinesiology, normalize any altered patterns and allow recovery of motor coordination. Thanks to personal involvement in such exercises, the patient will be aware of the activation of his or her muscles and the consequent acquisition - slow and gradual - of automation, which together with resistance to fatigue, prove commencement of his or her clinical recovery.

Therapy should continue with active kinesiotherapy exercises designed to increase manual resistance and flexibility. Attention should be focused

on the choice of resistance, the distance of the elastic cord from the grip and the angle of inclination. Rhythmic stabilization exercises such as those suggested by Cailliet should also be performed. These exercises include the movements to stimulate the simultaneous contraction of several groups of muscles and thus generate continuous stimulation in varying directions.

As the rehabilitation programme progresses, techniques such as biofeedback and isokinetic exercise can be introduced. Use of the biofeedback technique ensures the full participation of patients who may risk becoming disheartened or poorly motivated in the long term as a result of tiredness and lack of interest. Indeed, this technique raises patients' awareness of the reawakening of their hypotonic muscles deriving from the lack of use of specific motor units. Isokinetic exercise allows the speed of execution of movements to be kept constant and thus adapted to the degree of resistance developed by the patient for each muscle group. Thus it is possible to focus on enhancing the function of individual motor units.

The rehabilitation protocol should conclude with a period of proprioceptive re-education in such a way as to re-programme any overshadowed or lost motor patterns and modify any anomalous reflexes which may follow trauma and immobilization. During the period of proprioceptive re-education, the patient should be encouraged to raise his or her awareness of any functional limitations in such a way as to permit resumption - through spatial and temporal control - of all the functional capacities of the capsular-myo-ligament structures. Thus, the patient should be taught how to react to specific "dysfunctions" of the joint by setting up compensatory or stabilizing mechanisms which allow him or her to achieve perfect neuro-motor coordination. The final goal will be effective and accurate performance of the movement.

The upper limb can be considered fully functional once the rhythm of the joints of the cage and the cervical column have been checked to ensure that the individual functions of these structures allow the smooth completion of even the most complex everyday gestures.

Indeed, full control of the static-dynamic capacities of the joint is a clear indicator of complete functional recovery. Once the patient has returned to his or her normal daily routine, he or she should prevent recurrence of the problem by adjusting his or her sports or work activities.