

## SURGERY OF THE THORAX AND PHYSICAL THERAPY

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The frequency of hypertrophic and keloid wounds - which are of course pathological - subsequent to surgical operations on the region of the sternum prompted us to give particular attention to their treatment.

The treatment performed should be carried out in parallel with cardio-respiratory re-training, if necessary, under the direction of specialists.

This «difficult» zone of the trunk, the scapular region, the neck and the face is subjected to alternate tension and relaxation which can explain the excess production of scar tissue. Some observers think that the extent of surgical intervention might also be an aggravating factor.

The most effective techniques used have proved to be:

1. hydrotherapy which we practise in the form of water micro-jets. These involve veritable water massage by percussion in the form of jets at pressures of more than  $10\text{kg/cm}^2$  through nozzles 4 to 6/10 mm in diameter and for 5 to 10 minutes depending on tolerance and on the zone to be treated. This achieves reflex vasodilatation favouring local metabolisms, generating better tissue blood supply, an increase in the evacuation of waste matter, an analgesic and anti-pruriginous effect and suppling up of sclerosis with detachment of the different layers;
2. continuous pressure therapy using tailor-made compression garments, which may or may not be associated with gel-sheet silicone applied to the wound, maintained by a foam plate. The garment is worn 23 hours out of 24 for several months if necessary. This technique has an ischemic effect and seeks to flatten the surface of the wound;
3. massage, the essential effect of which is to supple up the tissues through its depolymerisation effect on the fundamental substance of dermis, and through its vascular effect by reflex vasodilatation;
4. vacuotherapy which can achieve the same results more rapidly.

The range of treatment is all the more effective if it is applied early and regularly (3 times a week). Only pressure therapy can be postponed as a function of the results. In certain cases it is necessary to associate muscle stretching and chest expansion exercises.