

Dynamic Shoulder Abduction Splint*

by JOSEPH J. PANZARELLA, JR., M.D.

Associate Director, Specialized Service, Out Patient Dept.

SAMAR BANERJEE, M.D.

Fellow, IPMR

and

HANS R. LEHNEIS, C.P.O.

Chief, Orthotic Service

New York

Institute of Physical Medicine and Rehabilitation,

New York University Medical Center

The purpose of this splint is to provide a dynamic modification of a static abduction splint. Many times with injuries involving the shoulder, immobilization causes restriction of shoulder motion. A dynamic splint will provide support for the weakened or paralyzed abductors, while allowing movement in internal and external rotation, horizontal abduction and adduction. This type of orthosis would be indicated in conditions such as paralysis of the deltoid muscles, brachial plexus injuries and certain post-operative conditions.

The device was developed in the treatment of a patient who had a deltoid palsy and who was developing contractures while the deltoid muscle was recovering. The splint allowed the patient to support the arm in 90° abducted position while actively utilizing internal and external rotation (fig. 1), and horizontal abduction and adduction of the shoulder (fig. 2).

The adaptations made to the static abduction splint were (fig. 3):

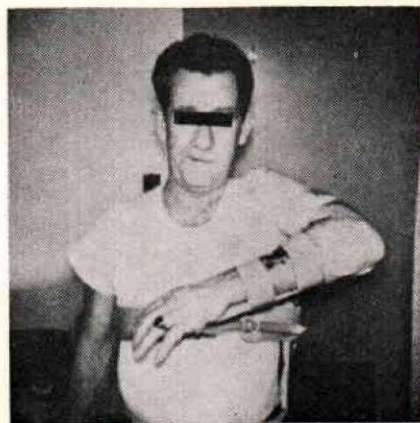


FIG. 1—90° active external rotation of the involved shoulder possible with the adaptation made to the abduction splint.

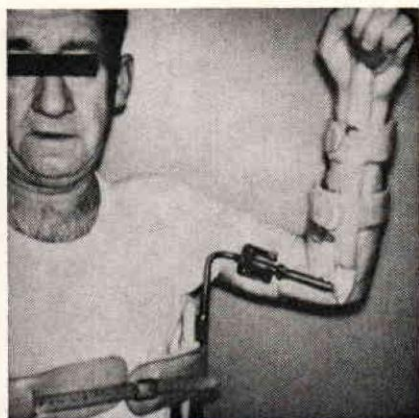


FIG. 2—45° horizontal adduction at the involved shoulder with the splint.

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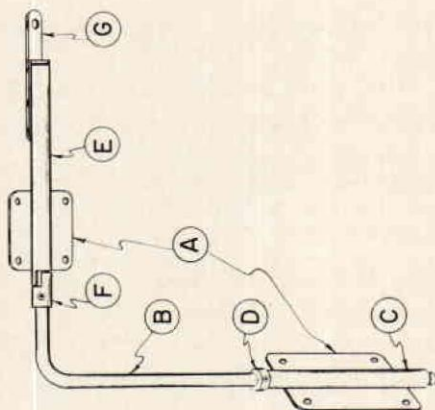


Fig. 3—Dynamic adaptation for shoulder abduction splint.

- A. Two attachment plates for installation on the existing splint.
- B. A $\frac{3}{8}$ " rotation rod.
- C. A $\frac{1}{2}$ " O.D. tubing providing humeral horizontal abduction and adduction in connection with the rotation rod B.
- D. An adjustable vertical support collar.
- E. A $\frac{1}{2}$ " O.D. tubing for external humeral rotation from the horizontal position in connection with the rotation rod B.
- F. An internal humeral rotation stop adjusted to prevent internal humeral rotation below the horizontal.
- G. A free motion elbow joint.

Summary

An orthotic device has been described which permits patients with involvement of the abductor mechanism of the shoulder to maintain range of motion while providing adequate support and protection for the shoulder abductors. The device consists of a simple dynamic adaptation to the conventional airplane (abduction) splint providing horizontal abduction, adduction, external and internal rotation range.

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