

The Triple "P" Hyperextension Brace

By SIEGFRIED JESSWEIN, C.P.O.

*Becker Orthopedic Appliance Company
Birmingham, Michigan*

Recently the author of this article was asked to fit a "3" point hyperextension brace to a 70-year-old patient with fracture of D-8. The brace prescribed was the common anterior hyperextension brace having as its major components the usual sternal, pubic, and dorsal pad connected to an adjustable body frame.* Although the patient reacted favorably to the relief received from the placement of the dorsal pad and its applied pressure, her disapproval and complaint about the brace revolved around the confining and depressing discomfort of the sternal pad. The brace was adjusted as well as possible and met every check-out criteria; however, due to the bony area of the sternum and adjacent ribs, and although the sternal plate was padded with $\frac{1}{2}$ inch foam, the pressure over this area was merely tolerable.

Probably every fitter has heard the complaint from his patients, "But this pad on my chest bothers me. It interferes with my breathing." To which many a fitter could only give a sympathetic reply. As a result of this common unhappiness with this particular appliance, it was decided to alter the brace by splitting the superior pressure point and shifting them laterally so as to be located over the lateral aspects of the pectoral muscles. Therefore, the superior part of the brace has in a sense acquired the appearance of the commonly known Cowhorn brace. See figure below. It will be noted that the pressure pads are located approximately $\frac{1}{2}$ inch below the clavicles and slightly medial of the sub-clavicular fossa. The justification for this location is that in sitting the pads will approach the clavicles and that extreme pressure over the anterior thoracic nerves and the thoracoacromial artery must be avoided. Furthermore, too lateral placement of the pads would interfere with scapular abduction.

The advantages of this brace are threefold. Firstly, it is recognized that the "3" point hyperextension brace is widely accepted for the treatment of fractures of the vertebrae. Due to the high degree of adjustability of the appliance in the directions of width, length, degree of inclination of the pressure pads, as well as the vertical and sagittal adjustment of the dorsal pad, it has been favored by the fitter in the past. Secondly, this newer appliance has retained all of the above named characteristics. Thirdly, in addition to these characteristics the subtraction of discomfort over the sternal area has become its major advantage by means of the individually adjustable pectoral pressure pads. It should also be noted that the rigidity of the brace is maintained by the transverse plastic strap connecting the pectoral pads.

* Becker "3" point hyperextension brace.

The name Triple "P" Hyperextension Brace has been given to this appliance because it accurately describes the regions in which the pressure pads are found, namely, the pectoral, pubic, and para-spinal regions of the trunk.

Since an initial fitting of this appliance is usually not possible, a good set of measurements must be taken to assure a well-fitting brace. The measurements as listed below have been found adequate to achieve this objective.

Circumferential:

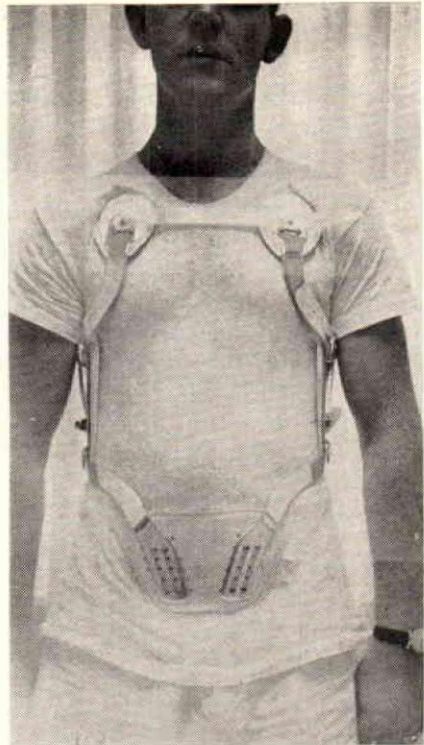
1. Trochanter
2. Iliac crest
3. Waist
4. Chest—2 inches below axillary folds or below breasts

Longitudinal:

1. $\frac{1}{2}$ inch above symphysis pubis to $\frac{1}{2}$ inch below clavicles

Horizontal:

1. Inter sub-clavicular fossa minus one inch
2. Width of crest of ilii
3. Width of chest 2 inches below axillary folds or breasts



The Triple "P" Hyperextension Brace as fitted and checked out on patient with fracture of D-12. Note location of pectoral pad. The effect, adjustability, and rigidity of the brace by means of this arrangement have not been impaired.

This Triple "P" Hyperextension Brace has widened its application. To illustrate this point the following case is given. A 24-year-old male with fracture of D12 was seen. The typical "3" point hyperextension brace was considered. However, due to high sensitivity of the sternum as a result of a previous fracture that particular brace was non-applicable. The Triple "P" Hyperextension Brace was prescribed and very successfully applied. Had this brace not been available braces such as the Cowhorn, Taylor, or Frankel would have needed to be considered.

In as much as the average orthotic facility will find it non-profitable to duplicate the adjustment mechanism of this appliance, information regarding the availability of the Triple "P" Hyperextension Brace may be obtained by writing to Mr. Siegfried Jesswein, Becker Orthopedic Appliance Co., 1776 South Woodward Ave., Birmingham, Michigan.

It is hoped that other orthotists will give this brace consideration because it has been shown that the comfort factor with this type of appliance has been considerably raised.