

## *Technical Note*

### An "Original" Idea

**I**t has been said "There is no such thing as an original idea." That may be, but each of us has thought of a product, process or approach to a problem that was "original" to us. We may never produce the product, use the process, or try the new approach but that is not to say the idea was not "created" by us.

I don't know if the ideas used to fabricate the orthosis described are original or not, but having never seen it done before this way, I offer for your consideration an "Original Standing Orthosis".

After lying dormant for quite some time, interest in a standing brace has been renewed at our local Children's Medical Services Orthopedic Clinic. Because the recommendations for standing braces have been sporadic and requests for them have been divided among the various facilities serving this Clinic, no single facility has had a great deal of experience in fabrication or with supply sources. After investigating central fabrication and prefabrication kits and finding neither one suitable to our particular needs, I designed the orthosis described here (Fig. 1).

The spinal deformities of the child for which the brace illustrated was intended required use of a custom molded body jacket. Other more conventional proximal body supports can be substituted in less severe cases. A negative cast and the

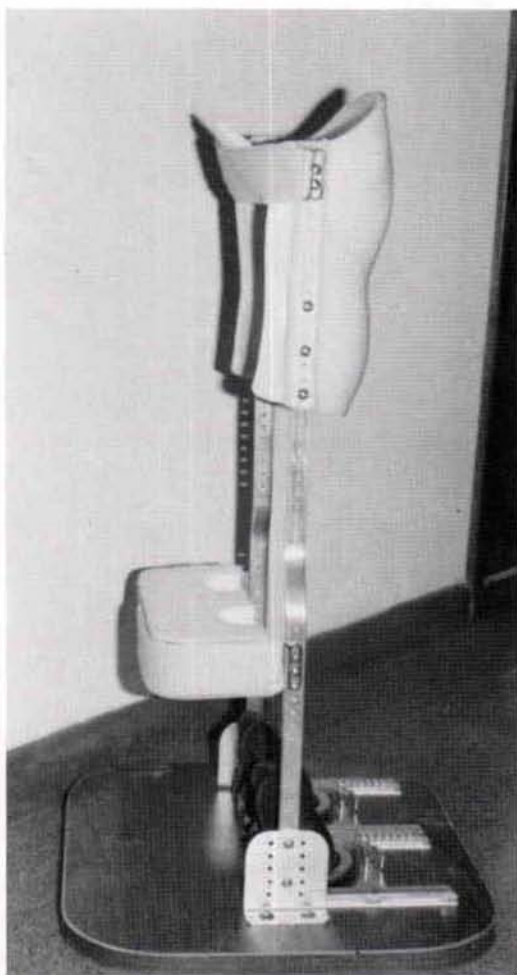


Fig. 1. The fully assembled standing orthosis.

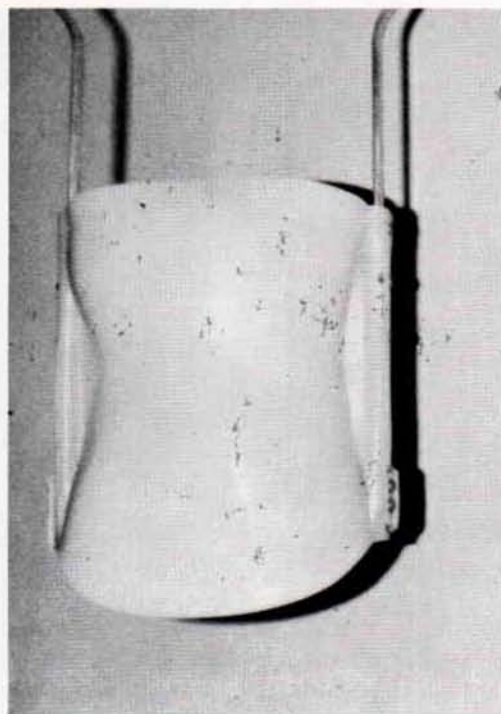
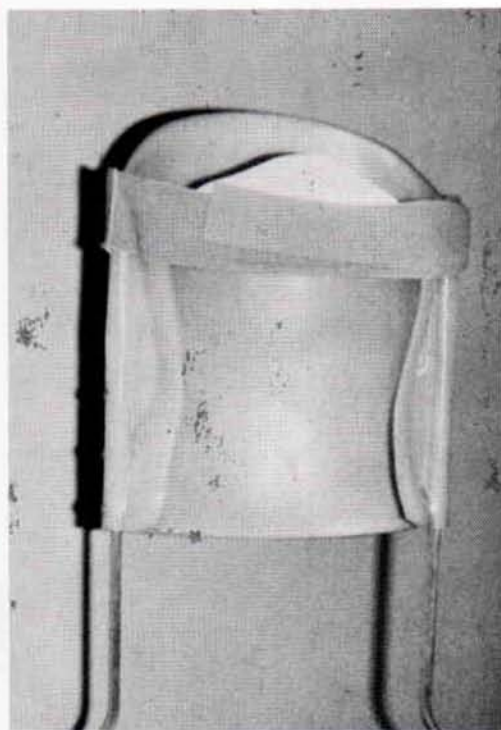


Fig. 2. Anterior and posterior views of the standing orthosis that show the channels molded to receive the aluminum uprights.

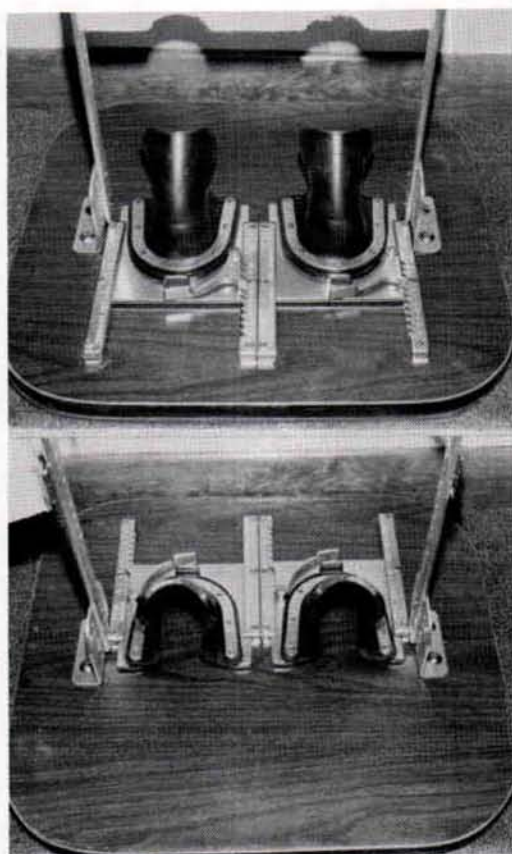


Fig. 3. Anterior and posterior views of the base of the standing orthosis that uses water-ski bindings to provide a stable attachment of the feet to the platform.

necessary measurements, along with specific instructions, were sent to Southern Prosthetics in Atlanta for fabrication. The instructions for fabrication were: material to be polypropylene lined with Plastazote; parallel, vertical channels to be molded on the outer lateral surfaces of the shell so as to accommodate 1/4-in. x 3/4-in. aluminum bars (Fig. 2).

The 18-in. x 12-in. base was fabricated from a sheet of 3/4-in. thick pressed fiberboard. The corners were rounded, and the top and sides were covered with Formica. A piece of 1/4-in.-thick crepe was cut to size for attachment to the bottom surface later (Fig. 3).

To provide a stable connection between the feet and the platform while allowing adjustment in size without interfering with ease of donning, I originally used child-sized water-ski bindings, but it was necessary to change to adult-size bindings because the heel cup on the child-size was too small to accept a shoe. Because of the bulkiness of the hardware, it was necessary to off-set the lateral supports, which proved to be no problem (Fig. 3).

The lateral uprights, which consisted of 1/4-in. x 3/4-in. aluminum bar stock that was drilled and tapped for length adjustment, were attached to the base with two pieces of 1/8-in.-thick aluminum sheet bent to form an "L" shape. Bolts, 1/4-in. in diameter, and "T" nuts were used to secure the brackets to the base. At this time the crepe rubber was glued to the bottom of the base.

The uprights were inserted in the channels provided in the body jacket and screwed to the base attachment brackets. The frame for the knee extension block was made from 1/8-in. x 1-1/2-in. aluminum band stock cut and formed to accept a foam knee block. One side was attached to the lateral uprights at approximately the level of the knees with a commercially available hinge. The other side was held in place with Velcro. The foam block was contoured later to fit the child's legs.

In order to provide anteroposterior trunk control, a 1-1/2-in. wide webbing strap with a sternal pad was positioned anteriorly at the most proximal point on the body jacket. This strap was secured on one side with a screw and Velcro through a loop on the other.

At the time of fitting the posterior body shell was checked for fit and adjusted for length. The ski bindings were positioned to hold the feet in the desired alignment. It was at this time that I realized that the toe pieces for the ski bindings would not be needed. This greatly simplified the donning of the appliance.

The foam knee block was adjusted to the proper height and cut out to accept the child's knees in the area just distal to the patella. The chest strap was secured and the child was placed in an upright position for the first time.

The orthosis received immediate and enthusiastic acceptance by the patient and his family.

It has been a pleasure to have had the opportunity to try my "new idea", and nearly as much fun writing about it.

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