The Swim-Waukee Brace

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The child wearing a Milwaukee brace has many of his normal activities at least partially curtailed. In the hot months of summer the desire to partake in water sports can not be adequately satisfied. Although most children are given about one (1) hour a day of swimming without the brace this does not seem very much for the active child. Particularly since she must don her brace immediately upon leaving the water. Naturally, other water sports such as water skiing are out of the question. Thus it seemed proper to design a brace allowing the child more privileges; a brace which is waterproof and so constructed and fitted to give the same amount of correction as the conventional apparatus; a brace which can be worn comfortably in as well as out of the water; hence, the Swim-Waukee brace.

Some of the materials used to construct the brace have not been in long use in orthotics. Namely, Orthoplast, a vinyl in sheet form, and Medical Silastic.* Others such as SS, dural, and nylon are of course well known.

To construct the pelvic girdle Orthoplast was chosen for reasons of lightness, strength, good appearance, ease of molding, and relative low cost.

Ready for a cool and refreshing dip.

* Orthoplast, as offered by the Johnson & Johnson Co., and 385 Medical Silastic as offered by the Dow Corning Co.

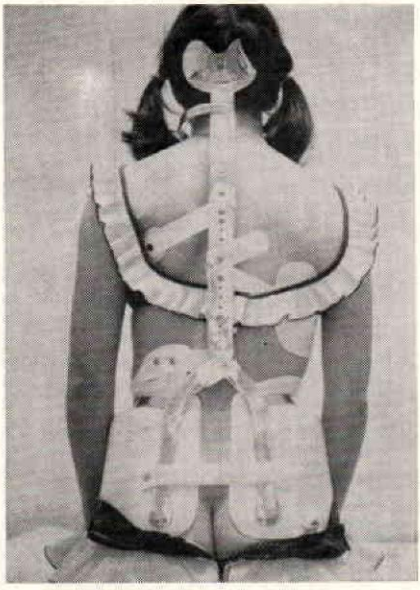
At first laminating of the girdle with Polyester resin was considered. However, time consuming laminating procedure, extra weight, and the extreme care of cast preparation were much too disadvantageous to the Orthoplast. (In fact, the girdle was formed in less than 20 minutes).

Since nothing but the material was changed, the measuring, casting, and preparation of the cast remained identical to formerly advocated methods. Due to the relative inflexibility of the material it was necessary to mold the girdle in halves to be hinged in front. The hinges and tongue on the inside were made of polyethelene and riveted to the Orthoplast.

In order to allow maximum freedom of movement of the shoulder girdle (necessary for swimming), to minimize bulk of the superstructure, and to allow easy doning of the appliance, the metal framework was considerably changed.** The anterior bar is quite conventional. However, in addition to the standard hinge, the crest bands, as they are fastened to the hinge, are allowed to pivot; otherwise the girdle can not be easily opened. The crest bands were made of ⅛″ x ½″ SS. The single duralumin posterior bar was made so that it forked out and split just above the upper border of the girdle and connected by a knurled knob. This arrangement allows for opening of the girdle. Stabilization of the frame was achieved by a semi-dural neck ring, rigidly connected, and by the usual fastening of the crest bands to the framework. An additional velcro strap toward the bottom of the girdle helped to maintain a good closure.

All corrective pads were also made of Orthoplast. These were cut to proper size and directly molded on the patient. No padding was used on the dorsal pad and axillary sling. To lend additional strength to the sling and to prevent its distortion it was lightly reinforced with SS. All straps were fashioned of 1″ nylon webbing. The cushion for the lumbar pad, chin

Note pivot and hinge arrangement.



Note forked closing arrangement and semi neck ring.

** It should be mentioned that this writer for reasons of cosmesis contours the superstructure much more closely to the body than generally advocated.

and occipital piece were made of 385 Medical Silastic. It was first molded into ¼" thick steets and then glued to the respective pads. (A special Dow Corning bonding agent is required). This type of padding is absolutely waterproof, and from past experiences in other applications, its life is indefinite.

The particular patient shown in the accompanying photographs headed for the lake immediately following receipt of the Swim-Waukee brace. A week later she was seen at the clinic. She had received her first and conventional Milwaukee brace in March 1966. Both were present and X-rays taken with both. These indicated that correction in both was identical. The patient confessed that during this first week she had worn her new brace almost entirely.

The patient's reaction to this brace was favorable. The points favored were: 1. Lightness. The brace with pads weighed 4¼ lbs— vs. the 6¼ of the conventional brace. 2. Coolness. Although Orthoplast is not porous, the perforation of the girdle probably accounted for this reaction. 3. Greater comfort—particularly during rest. The posterior single bar is less of a hindrance in the recumbent position as well as its closeness to the body. Also, the rather large occipital piece exerts pressure more evenly over a greater area. 4. Better cosmesis. Due to the close contouring of the superstructure and the singly located posterior bar it permits a more normal fit of clothes. (It should be noted, though, that sufficient clearance is given so as not to interfere with exercising within the brace).

Dressed, many of the projections of the regular Milwaukee brace are absent.

Although this brace as described above was primarily built to increase the patients' realm of athletic activities, particularly watersports, its many favorable points warrant wider application. From the hygienic viewpoint the brace is unexcelled—it is totally washable.

One word of caution, however, is indicated. Due to the low melting point of Orthoplast the girdle should not be exposed to excessive heat (temperatures over 130 degrees F.). For forming it is softened in just below boiling water. Conversely, extreme cold should also be avoided. The material becomes more rigid and subject to breakage. Generally, when the brace is worn the body temperature maintains the material slightly flexible—not enough, however, to induce changes in shape.

In conclusion it might be correct to say that the Swim-Waukee brace increases the acceptance of this type of appliance because it is a more tolerable apparatus and its usage is not restricted to terrestrial activities.