

L'Attelle Monotubulaire, a Review

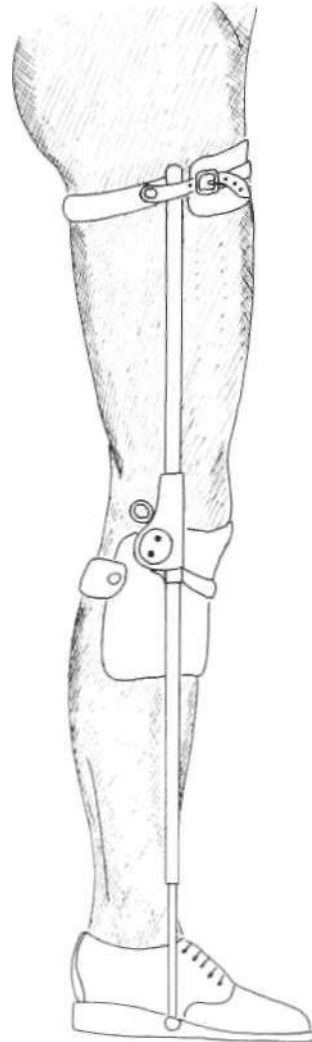
UATTELLE MONOTUBULAIRE (*The Monotubular Brace*), by Louis Pierquin, Guy Fajal, and J. M. Paquin, March 1964. Illustrated. Obtainable from Monsieur G. Fajal, 20 Rue d'Alsace, Vandoeuvre-les-Nancy, Meurthe et Moselle, Nancy, France. 84 pages. Price: 15 francs.

L'Attelle Monotubulaire is the second fascicle, or increment, of the *Atlas d'Appareillage Prothétique et Orthopédique* (Atlas of Prosthetic and Orthopaedic Appliances) being published under the direction of Professor Louis Pierquin of the Faculty of Medicine of Nancy (*Artificial Limbs*, Spring 1964). *L'Attelle Monotubulaire* describes a lower-extremity brace of novel design and function—the monotubular brace. This interesting departure in French orthotics utilizes a single straight tubular upright to provide lightness and strength. The conventional medial upright is eliminated.

Additional departures include a round caliper shoe attachment placed anterior to the ankle joint as well as below it. Geometry is accommodated during ankle movement and spring action is added to the joint by the use of a telescoping lower leg piece which inserts into an upper tube below the calf band. Stops and additional springs can be attached to the stirrup piece.

Thus there has been developed a brace that uses a straight upright anterior to the axis of the leg, which has a moderate posterior offset of the knee joint, which varies in length with ankle motion and is easily adjusted to the torsional alignment of the leg. Patellar-tendon-bearing-type leg bands and quadrilateral sockets can be utilized in place of narrow leg and thigh bands. Wide, contoured plastic bands are attached by metal bands soldered to the brace.

To evaluate such a novel device, one must determine whether construction would present significant problems, whether fitting and alignment procedures can be standardized, and whether utilization corroborates the claimed attributes. Unfortunately, the publication does not provide sufficiently detailed infor-



"When viewed laterally, the monotubular brace is straight; it does not show even the slightest curve at the level of the knee. It rests on a forward pin; that is, on a pin located in front of the axis of the limb." From *L'Attelle Monotubulaire*.

mation to answer these questions. This work is presented in broad terms for the general information of the physician-therapist-orthotist team. It does introduce the device but does not describe the metals used or the fabrication methods. Alignment procedures are not discussed, although two errors—improper depth of the thigh and leg bands and improper rotational alignment due to faulty positioning of the shoe piece—are demonstrated. No analysis of failure rates or comparison of the effectiveness of this brace versus that of standard braces is given.

Considerable thought and work have obviously been expended to bring this device to its present state. Thus it is unfortunate that one can only speculate concerning possible limitations or advantages that might be inherent in its design.

POSSIBLE LIMITATIONS

Difficulties in using this brace might be encountered if deformities of the knee in the frontal plane, for example, genu valgum or genu varum, are present. In addition, the management of any flexion contracture of the knee would apparently be most difficult.

Ankle instability would not be controlled by this device. While drop foot could be managed, varus and valgus deformities, both fixed and functional, might exceed the capacities of the brace. It is not apparent whether or

not a calcaneal deformity could be adequately stabilized.

The report notes the critical nature of the depth of the leg band, indicating that proper alignment and fit are vital factors in the application of this orthosis and that careful supervision by the physician would be required.

POSSIBLE ADVANTAGES

Certain advantages of the monotubular brace are apparent. The simplicity of the single-bar fabrication, the lightness of the device, and its potential for control of bilateral disorder without clearance problems are all positive values.

CONCLUSIONS

Since the monotubular brace appears to have potential value and its limitations can be only assumed, the device should be the subject of a controlled evaluation to identify problem areas and to demonstrate the usefulness of the device. This evaluation should include the training of others in fabrication, alignment, and fitting of the brace, and its utilization by a representative group of patients under controlled conditions.

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