# Clinical Evaluation of the Norton-Brown Brace

by DAVID L. BROOK, M.D.

*Chief of Orthopedics, Veterans Administration Hospital*
*Providence, Rhode Island*

*Clinical Instructor in Surgery, Boston University School of Medicine*
*Boston, Massachusetts*

The whole problem of disorders of the lower back is largely a subjective matter which gives rise to wide variations in opinion and interpretation from doctor to doctor, from patient to patient, and even from doctor to patient. The symptoms are always subjective, the physical signs are frequently sparse and the etiology, diagnosis, and treatment often controversial. In order, therefore, to keep one individual's evaluation of a specific modality of treatment in this nebulous field in its proper perspective, it is necessary to have a clear understanding of the criteria and expectations with which he prescribed treatment as well as the means used to judge its effectiveness. Before presenting our experience with the Norton-Brown[1] brace, it is necessary to elaborate on our indications for using it.

Over a period of three years, we have prescribed this brace for about 60 patients. Table One shows how the prescriptions were distributed throughout our patients during that time. These braces were not prescribed with any particular study in mind, but rather on the basis of a preconceived impression that their greatest usefulness would be found in patients whose symptoms were judged to be due to lumbar extension or hyperlordosis. It should be noted that this is at variance with the experimental findings accumulated during the design of the brace. We have no strain gauge or X-ray studies to prove our contention that the brace prevents hyperextension, but clinical experience seems to confirm this point. The Norton-Brown brace appeared to us to be an improvement on the Williams brace and we began using it on this basis.

Consideration of the prescription of the brace for any given patient was made only after a practical period of other forms of treatment. This treatment routinely consisted of bedrest, possibly with traction, followed by physiotherapy stressing Williams'[2] principles, as well as general reconditioning. If the patient was unable to carry out the physiotherapy program because of the signs and symptoms of nerve root compression, the offending disc was excised and then physiotherapy was begun or resumed, whichever was the case. If, after all these measures had been employed, we still had a patient who, although obviously improved, could not foresee continuing physiotherapy on an outpatient basis or returning to productivity within a reasonable time, we tried a sample brace on him. He would be allowed to wear it home over the weekend, or between clinic visits, and only if he convinced us that the brace seemed to help him off the plateau he had arrived

at in the progress of his rehabilitation would we prescribe for him a brace of his own. No patient was ever told that he had to wear a brace. This method of prescription after a trial period was originally an economy measure, but as it turned out, most patients learned rather quickly that the brace was only a temporary adjunct to the therapy or rehabilitation program.

**TABLE ONE**

| Category* | No. of Pts. | Braces Prescribed | |
|---|---|---|---|
| Lumbo-sacral strain, acute | 39 | 2 | 5% |
| Lumbo-sacral strain, chronic | 100 | 8 | 12% |
| Herniated I.V. Disc: | | | |
| Treated conservatively | 89 | 21 | 23% |
| Operated | 26 | 17 | 65% |
| Pseudarthrosis | 4 | 4 | 100% |
| Spondylolisthesis | 10 | 6 | 60% |

* All patients had symptoms severe enough so as to require hospitalization.

Since the brace was prescribed only for those patients who convinced us that it was effective, it would seem that a glance at Table One would reveal how useful the brace was as a part of our armamentarium in the treatment of low back disorders. It is apparent, however, that any conclusions based on the number of braces prescribed would be valid only if all patients were "cured." Theoretically, to cure a patient with acute or chronic back pain would mean that we must render him pain-free and eliminate any danger of exacerbation no matter what the patient chose to do with his back thereafter. Unfortunately this is seldom achieved and may be truly impossible in many instances, and both the patient and the physician must accept some compromise. In medico-legal language this compromise is frequently termed a "disability" and we must use some discretion to make certain our prescription does not tend to exaggerate this disability in the eyes of the laity. Nevertheless, most back problems involve either delay or possibly some reduction in the earning capacity of the patient. In some cases permanent reductions in earning power must be accepted in order to prevent real or theoretical recurrent injury. The time a man is out of work because of acute or chronic back injuries varies according to his age, general physical condition, motivation, and his ability to apply himself in his rehabilitation program. Theoretically, these variables should be carefully controlled if one is to evaluate any form of treatment in this area, but many of these factors are beyond the scope of the physician. Even such intangibles as the personalities of the physician, the therapist, or the orthotist may influence the outcome of the "back case." The point is that subjective evaluation, as unscientific as it may be, is unavoidable and at the present state of the art, may be a necessity if we are to communicate the results of our endeavors.

The intriguing feature of the Norton-Brown brace, in our experience, has been that when it is applied to a patient whose continuing discomfort is due to lumbo-sacral hyperlordosis, he feels better in the brace the moment it is applied for the first time. This point has been so dramatic that some of our residents have taken to trying the brace on a patient during the course of their work-up in order to ascertain how much of the patient's symptoms are on a postural basis. Whether the patient requires a brace

of his own for protection, as a reminder of what he should accomplish with his own muscles, or to get back to work before his rehabilitation has been completed, or whether it is to be used on a long term basis by the older patient who has little capacity or potential for corrective exercises, is a matter for individual consideration.

In conclusion, I would like to say that the Norton-Brown brace seems to satisfy us and some of our patients. Quite frequently it has served as the extra measure or extra ingredient in the formula that has spelled the difference between success and discouragement in an area which often taxes our art to the limit.

*ADDENDUM:* Since this paper was originally presented, it is only fair to say that we are not at present [November 1966] prescribing this brace as often as in the past. This is not meant as a reflection on the brace. On the contrary, what we learned about the importance of posture during the days when we employed the brace more frequently lead us to take advantage of the V.A.'s unique facilities and increase our periods of bed rest and intensify our corrective and reconditioning exercise programs. Nevertheless, the Norton-Brown brace remains the only appliance we consider using when we feel an appliance is required for conditions involving the lumbo-sacral area.

## REFERENCES

1. Norton, P. L. and Brown, T. "The Immobilizing Efficiency of Back Braces." *The Journal of Bone and Joint Surgery.* 39-A:111-139, 1957.

2. Williams, P. C. "Conservative Management of Lesions of the Lumbosacral Spine." *American Academy of Orthopaedic Surgeons Instructional Course Lectures.* 10:90-121, 1953.