

Effect of Wearing a Corset After Lumbar Spinal Fusion

Surgeons at the Spine Institute (University Hospitals of Cleveland) are trying to find evidence to suggest bracing after spinal fusion for degenerative spinal disorders is advised. They would like to know if wearing a brace helps stabilize the spine and produce a better result.

There are multiple factors and variables in making this decision. Not all can be studied at once. But an awareness of each one can be helpful when studying one particular aspect of the decision. For example, spinal fusion can be done *anteriorly* (from the front of the body), posteriorly (from the back), or *posteriorlaterally* (at an angle between the back and side). The results of a brace or corset must be compared among these three approaches before a set of guidelines can be made.

The surgery may be with or without *instrumentation* (metal plate and/or screws). The use of instrumentation may or may not make a difference -- but we don't know that because there aren't enough studies to give us convincing evidence one way or the other. The same thing could be said about the results of bracing after fusion without instrumentation.

If the goal is to provide a stabilizing effect, then it's possible the type of support used would make a difference. And there are all types of support options. The two main choices are a molded, rigid *orthosis* (plastic brace) and a wrap-around canvas corset (with or without metal stays).

When and how long to wear the support is another factor to consider. Should it be worn just at night while sleeping? All day (every day around the clock)? For four weeks? Six weeks? Longer? We simply haven't had enough studies to examine the evidence around each of these factors.

In this study patients were compared after a posterior lumbar fusion both with and without bracing. Pedicle screws and bone graft from a bone bank were used in the procedure. For the group that wore a brace, the canvas type of corset with adjustable metal supports (*stays*) was used. The stays were placed inside the corset and positioned on either side of the spine. Patients who wore the corset kept it on full-time for eight weeks (except to bathe). They gradually weaned themselves off the supportive aid over the next four weeks.

Everyone was followed for two full years. The authors measured general health, function, complications, and number of patients who had further surgery after the fusion. Surveys used to measure before and after results included the *Dallas Pain questionnaire* (DPQ) and the *Short Form-36* (SF-36) instrument.

After following all patients for two years, there was no difference in outcomes between the two groups. In other words, there was no advantage (or disadvantage) in wearing a corset type support after lumbar spinal surgery in patients with degenerative spinal disease. Patients in both groups improved measurably. There were an equal number of complications and need for another operation in both groups.

X-rays were taken to evaluate the fusion. Bridging of the bone across the fusion site seen on X-ray was a sign of a successful fusion. The rate of failed fusions was equal between the two groups (with and without the corset). The incidence of fusion failures went up as the number of levels fused increased. For a one-level fusion, the nonunion rate was 20 per cent. For a two-level fusion, the rate increased to 28 per cent. Three-level fusions had a much higher rate of nonunion (63 per cent).

It's possible a different brace would have different results. This group of patients had a degenerative spinal condition. It's possible that other diagnoses might respond more favorably to the external support. And perhaps the level of fusion (upper lumbar spine versus lower lumbar spine) makes a difference.

Success may vary depending on the goals of therapy. For example, the idea of wearing a brace to limit motion may have different results when compared with using a brace to decrease pain, increase function, or improve fusion rates. The authors suggest that more studies are needed to look for different subgroups of patients who might benefit from bracing after spinal fusion.

A. J. Yee, MD, FRCS(C), et al. Use of a Postoperative Lumbar Corset After Lumbar Spinal Arthrodesis for Degenerative Conditions of the Spine. In *The Journal of Bone & Joint Surgery*. October 2008. Vol. 90-A. No. 10. Pp. 2062-2068.