

What's Happening with Cervical Disc Replacements

Much has happened in the last few years related to disc replacements for the neck called cervical disc arthroplasty. The first FDA-approved studies on the subject have been published for three different devices: the Prestige System, the ProDisc-C system, and the Bryan disc. Since the first cervical disc replacement didn't come out until 2007, the results so far are fairly limited. Later implant systems weren't available until 2009, so research data is fairly limited as well.

What do we know so far? Short- and mid-term results are very favorable. Patients are able to get pain relief and return of motion and function. Results are measured using a specific Neck Disability Index (NDI) and assessment of neurologic function after surgery. A report of any adverse events, implant failures, or need for a second surgery is also reviewed.

One of the key areas of interest in these studies is the rate of adjacent-level degeneration. There is a belief and hope that disc replacement will reduce the risk of deterioration at the spinal level above and below the new disc. Disc replacements allow for continued neck motion so that force and load transmitted through the neck are not transferred to the adjacent segment.

It is believed that this scenario is more likely after a fusion procedure (compared with a disk replacement). But proving that normal neck joint motion prevents or reduces adjacent segment degeneration remains a goal for the industry.

Some experts have even suggested that the natural history of degeneration isn't stopped by replacing the disc. Patients with degenerative disc disease seem to continue experiencing an ongoing progressive disease process no matter whether they have disc replacements or spinal fusion. It's possible we may not be able to stop the disease but even slowing it down would benefit many people.

It should be noted that all the studies published so far were paid for and funded by the industry that makes the implants. Results should be analyzed carefully. Most of the studies done so far have compared the results of a disc replacement with the results of discectomy (disc removal) and fusion surgery. Trials comparing the cost and effectiveness of one disc device to another have not been reported yet.

In the future, we can expect to see continued changes and improvements in the technology behind cervical disc replacement. Answers are still needed to the question of whether cervical disc arthroplasty have similar problems to other joint replacements (e.g., wear and debris creating an inflammatory response).

Indications and precautions for the use of cervical disc replacements are also under investigation. Currently, anyone who is a candidate for a discectomy and fusion is also likely to do well with disc replacement. Patients with bone deformities, severe spinal joint arthritic changes, or osteoporosis (brittle bones) may be excluded from having a disc replacement. A history of prior neck surgery, bone or disc infection, and cancer metastases may also prevent a patient from having a disc replacement at this time.

Reference: Brian McHugh, MD, and Jeffrey M. Spivak, MD. Cervical Disc Arthroplasty: A Practical Review. In *Current Orthopaedic Practice*. May/June 2012. Vol. 23. No. 3. Pp. 172-176.