Introduction: In 2004 NuBac disc arthroplasty device was introduced as lumbar device that combines motion-preserving characteristics of total disc replacements with less invasive procedures to replace the degenerative nucleus. The NuBac device is made of two separate parts with an inner ball-and-socket joint that is positioned in the nucleus cavity and can be implanted via different approaches, anterolateral, lateral and posterior approach.

The purpose of this study is to evaluate the clinical results obtained with the posterior approach.

Methods: Patients with lumbar degenerative disease with disc herniation were included in the study. The patients had a minimal disc height of 5 mm. A minimally invasive posterior approach was used. With a unilateral laminotomy and partial medial facetectomy, the nucleus is removed and the NuBac is placed. Correct implant positioning is checked with fluoroscopic images.

Pain and function were evaluated by VAS and ODI questionnaires completed pre-operatively and postoperatively at respectively 6 weeks, 3, 6, 12, 18 and 24 months.

Results: The study group included 48 patients consisting of 33 males and 15 females. The mean age was 39.9 years (range 24 - 54 years). 71.4 % of the treated levels was at L5-S1, 26.5 % of the treated level was at L4-5 and 2.1% was at L4-S1 (1 double-level case).

Mean operative time was 125 minutes with a minimal blood loss of 35 -90 ml. No major intraoperative neurological or vascular complications. 1 case of minor dural puncture requiring gelfoam occurred.

Follow-up period varies from 1 to 24 months with an average follow-up of 16.6 months. Back pain improved as visualized by the decrease of preoperative VAS score of 82.4 to 36.7, 31.4, 30.8, 21.7, 21.4 and 21.2 at respectively 1, 3, 6, 12, 18 and 24 months post-operatively. Leg pain improved as visualized by the decrease of preoperative VAS score of 91.2 to 33.8, 28.4, 26.3, 13.8, 13.4 and 13.2 at respectively 1, 3, 6, 12, 18 and 24 months post-operatively.

Function measured with ODI improved from 54.8 pre-operatively to 32.4, 24.6, 18.3, 15.7, 15.5, and 15.1 at respectively 1, 3, 6, 12, 18 and 24 months post-operatively.

1 patient required re-operation after 3 months for migration after a road accident.

Conclusion: These results indicate that the NuBac device implanted via the posterior approach is effective in treating lumbar DDD with disc herniation in order to relieve pain and improve the function. This study indicates that the posterior approach is safe.