

Chiropractic Spinal Manipulative Therapy Versus Physical Therapist-led Exercise and the Risk of Cauda Equina Syndrome in Adults with Lumbar Disc Herniation, Stenosis, or Radiculopathy

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CES = cauda equina syndrome
 PTE = physical therapist-led therapeutic exercise
 SMT = spinal manipulative therapy

“Given the limited research on the topic to date, we aimed to investigate the association between SMT and CES in adults with low back disorders including disc herniation, stenosis, and/or radiculopathy.” Can SMT precipitate cauda equina syndrome? The follow-up period was 3 months.

After matching, there were 34,376 patients in both cohorts:

- Spinal manipulative therapy administered by a chiropractor
- PTE without spinal manipulative therapy

KEY POINTS FROM THIS ARTICLE:

- 1) Cauda equina syndrome (CES) is a clinically defined syndrome characterized by at least one of the following:
 - Bladder or bowel dysfunction
 - Reduced sensation in the saddle area
 - Sexual dysfunction
- 2) “[Cauda equina syndrome (CES)] is a surgical emergency typically caused by a lumbar disc herniation compressing the lumbosacral nerve roots.”
- 3) “Lumbar stenosis may cause CES, especially as narrowing of the spinal canal lowers the threshold for nerve compression with smaller disc herniations.”
- 4) “Low back pain and sciatica (radiculopathy) are common symptoms of CES, each present in >90% of patients.” **[Important]**
 - “Because chiropractors frequently treat patients with low back pain or radiculopathy by using hands-on manipulation of the spinal joints (ie, spinal manipulation therapy [SMT]), concern has been raised regarding an association between SMT and CES.”

- “Chiropractors are often the first clinicians to see patients with disc herniation, radiculopathy, or stenosis.”
- “Chiropractors are trained to recognize the clinical features of CES and refer suspected patients for emergency surgical care.”
- “CES may be preceded by mild initial symptoms such as low back pain for a median of 30 days.” **[Important]**
- “Only 27% of patients with CES initially present with more overt symptoms of loss of bowel or bladder function, making this condition challenging to recognize even among trained clinicians.” **[Important]**

5) CES primarily affects adults with a mean age of 50 years and has an incidence of 270 per 100,000 (0.27%) per year among those with low back pain.

6) “Observational studies and randomized controlled trials focusing on patients with lumbar disc herniation and/or radiculopathy have supported the safe use of SMT for sciatica without causing CES.” **[Important] [cites 4 references]**

7) “Like chiropractors, physical therapists are also direct-access clinicians who commonly manage low back pain.”

- “Between 36% and 40% of patients with lumbar disc herniation visit a physical therapist.”
- 16% of patients with lumbar disc herniation receive SMT administered by a chiropractor.
- “PTE is not associated with an increased risk of CES.”

8) Findings:

- After matching, the total number of CES cases was 14 in the SMT cohort and 16 in the PTE cohort.
- Compared to the PTE cohort, patients in the SMT cohort had fewer prescriptions for opioids, benzodiazepines, or gabapentinoids. [Article Review 38-25] **[Important]**
- “This study found that CES risk does not increase after SMT compared to PTE among adults with lumbar disc herniation, radiculopathy, or stenosis.”
- “The findings of our study are supported by various experimental and observational studies:”

- “Randomized clinical trials and multiple prospective observational studies investigating SMT for lumbar disc herniation or radiculopathy reported no serious adverse events such as CES.” **[Very Important]**
- “One observational study found no significant short-term changes in disc herniation size or morphology following SMT, suggesting that SMT likely does not acutely worsen disc herniations.”

9) “Chiropractors may tailor SMT techniques to the specific lumbar spine disorder(s) present (ie, lumbar disc herniation, radiculopathy, and/or stenosis).”

- One example is flexion-distraction, a technique involving non-thrust - mobilization and manual traction; a survey of 280 chiropractors indicated that 29% of respondents reported using flexion-distraction for lumbar disc herniation with radiculopathy.
- Thrust manipulation is still commonly used in these patients; 53% of respondents indicating they would use it in such cases. **[Important]**

10) “It remains essential for chiropractors to conduct thorough examinations and remain vigilant in assessing patients for CES, ensuring timely referral for emergency surgical evaluation when necessary.”

11) “The evidence supports the relative safety of SMT within this population, suggesting that SMT can be a viable treatment option in the absence of clinical features of CES or progressive motor loss.”

12) Conclusions:

- “The present study identified no increase in risk of CES or secondary markers of this condition among adults with lumbar spine disorders receiving SMT compared to matched controls receiving PTE.”
- “Based on an adequately powered sample of 68,752 patients, these results are reassuring and corroborate previous research on the topic.” **[Important]**
- “Among adults with lumbar disc herniation, stenosis, and/or radiculopathy, we did not identify an association between spinal manipulative therapy and an increased risk of cauda equina syndrome.”
- Comparing the SMT cohort to PTE cohort, the incidence and risk of CES did not significantly differ; there was no meaningful difference in the risk of CES.

We have reviewed these related studies:

Article Review 27-15:

Chiropractic manipulation in the treatment of acute back pain and sciatica with disc protrusion

Article Review 31-15:

Outcomes of Acute and Chronic Patients with Magnetic Resonance Imaging–Confirmed Symptomatic Lumbar Disc Herniations Receiving High-Velocity, Low-Amplitude, Spinal Manipulative Therapy

Article Review 25-17:

Association of Spinal Manipulative Therapy With Clinical Benefit and Harm for Acute Low Back Pain

Article Review 40-17:

Low Back Pain and Pain Resulting From Lumbar Spine Conditions

Article Review 1-18:

Manipulation in Back Pain

Article Review 12-19:

Chiropractic Care and Risk for Acute Lumbar Disc Herniation

Article Review 51-24:

Association Between Chiropractic Spinal Manipulation and Cauda Equina Syndrome in Adults with Low Back Pain