



The Canadian Spine Society is a collaborative organization of spine surgeons and health care professionals from across Canada with a primary interest in advancing excellence in spine patient care, research & education.



Canadian Spine Outcomes and Research Network (CSORN):

2020 Annual Report



The Canadian Spine Research & Education Fund (CSREF) is a charitable organization whose mandate is to promote spine research and education in Canada.

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by Greg McIntosh, Director of Research Operations for CSORN

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The Canadian Spine Society established the Canadian Spine Registry pilot study in 2012; this initiative progressed to the full-scale project in 2015, becoming the Canadian Spine Outcomes & Research Network (CSORN). The Mission of the Canadian Spine Society is to advance excellence in spine patient care, research and education. CSORN identifies and assesses impact of different interventions on patient outcomes for various types of spine pathology.

The CSORN study provides a national record of the indications, techniques, complications and outcomes of spine surgery provides surgeons with data and research to improve spine surgery across Canada. Additionally, the CSORN registry will benefit

2020 CSORN Profile in numbers:

1237

Patients enrolled

712

Patients who have had spine surgery

53

Participating surgeons

82

Contributing research coordinators

21

Sites/hospitals

7

Publications

16

Abstract presentations

3

Prospective studies

CSORN Site Locations



Patient Demographics

59.1	average age (standard deviation = 14.2, range 19-90)
29.3	average Body Mass Index (standard deviation = 6.6, range 15.8-112.33)
51%	females
37%	high school education or less
83%	non-smokers
76%	thoracolumbar (TL) patients
66%	greater than 2-year symptom duration

Surgical Statistics

3.1	average length of hospital stay in days (standard deviation = 4.6)
2.3	average number of operated levels (standard deviation = 2.6)
8%	with previous spine surgery
1%	with tumour related surgery

medical practitioners across Canada and demonstrate surgical leadership on a global scale.

The CSORN dataset includes primary data collection, abstracted medical chart information, patient history and patient reported outcome measures (pain, function, disability and quality-of-life).

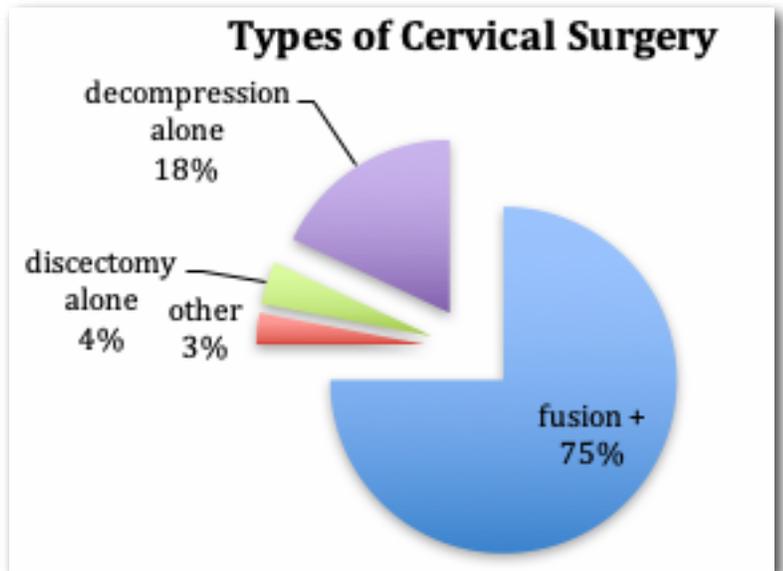
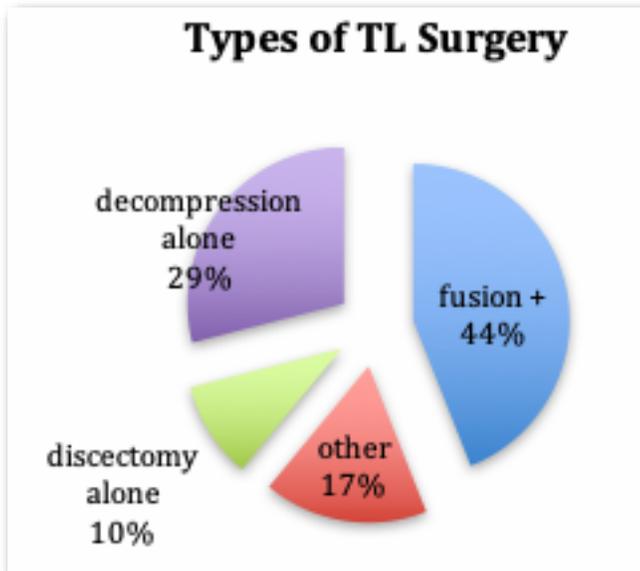
The data is held on the Praxis Global Research Platform (GRP). This platform is a web-based application that has been designed specifically for the collection of clinical and outcome data of spinal cord injury and spinal pathology in a user-friendly format.

Canadian Spine Outcomes and Research Network (CSORN): 2020 Annual Report

This Annual Report lists CSORN research activities and summarizes a variety of key data captured for the 1237 patients enrolled in 2020.

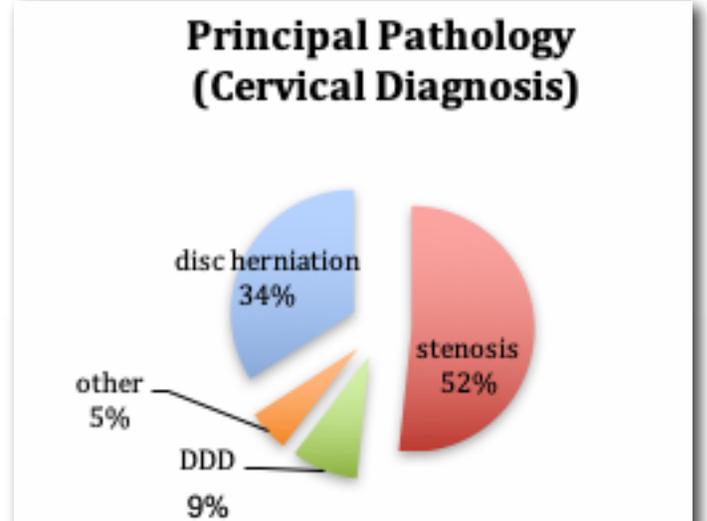
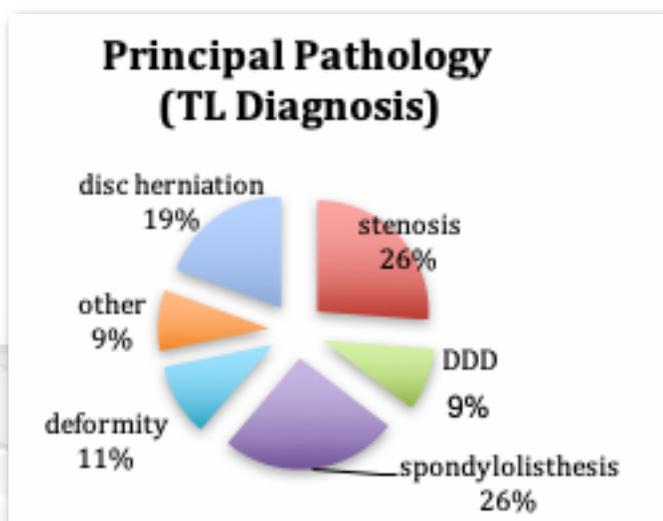
Types of Surgery

For elective surgery cases, Fusion (in combination with other operations) represented the highest percentage of thoracolumbar and cervical spine surgery procedures.



Principal Pathology

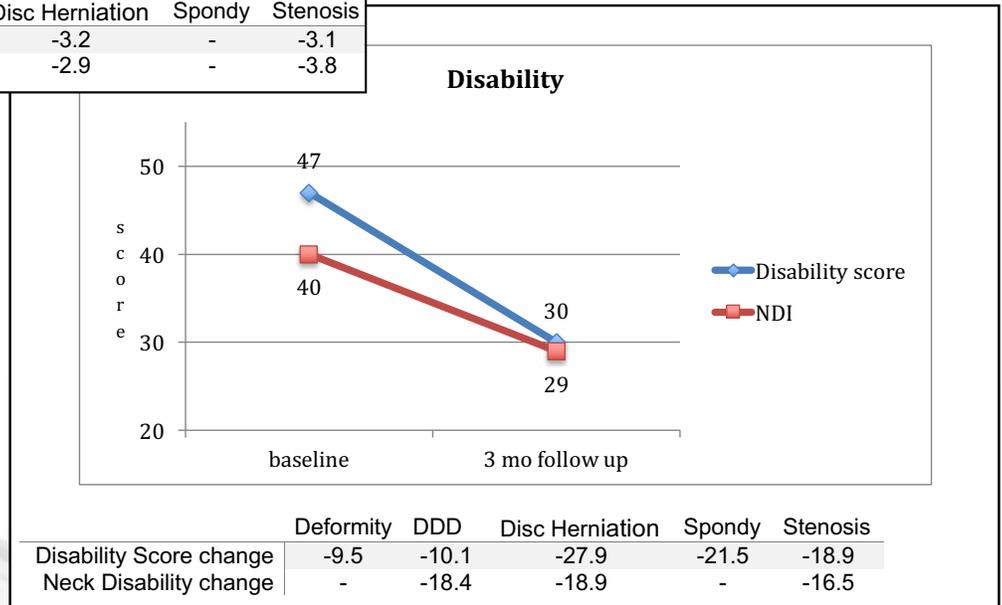
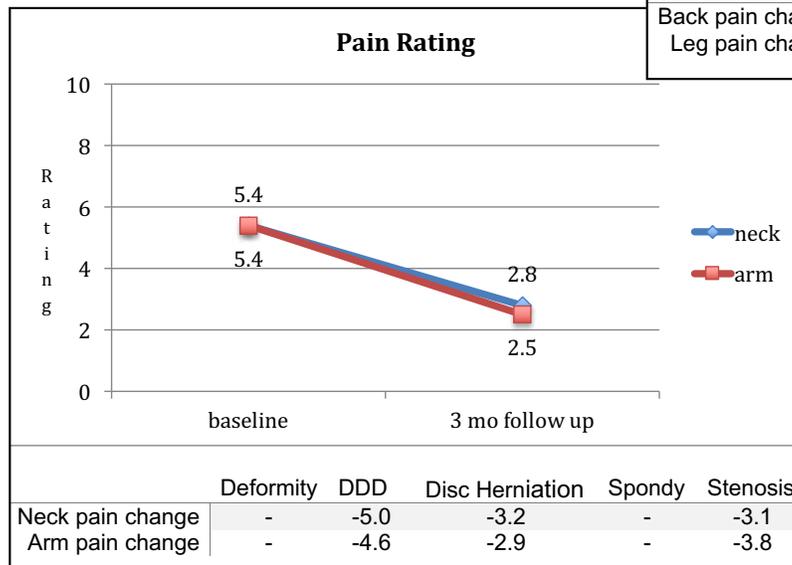
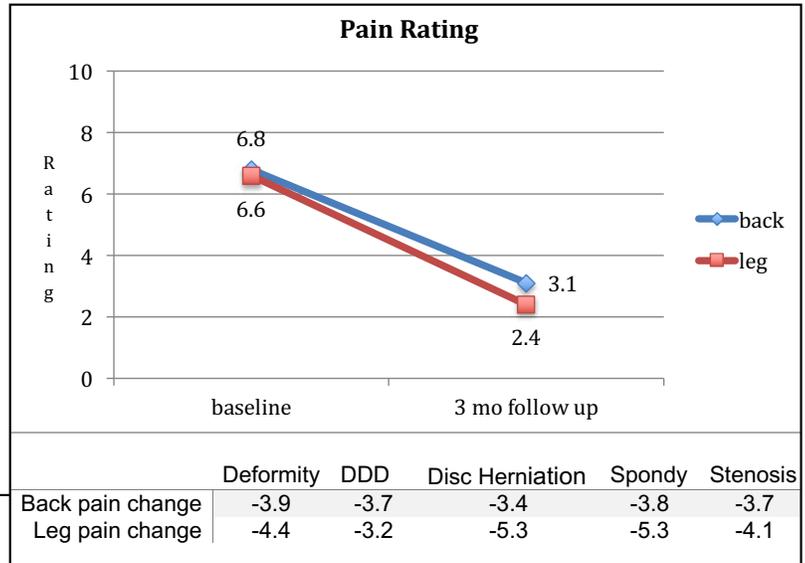
For thoracolumbar (TL) patients, the most common principal pathologies were stenosis and spondylolisthesis; for cervical patients, the most common was stenosis followed by disc herniation.



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Outcomes

Numeric Pain Rating. Improvements in thoracolumbar pain rating were 3.7 points for back pain and 4.2 points for leg pain. Improvements in cervical pain rating were 2.6 points for neck pain and 2.9 points for arm pain.

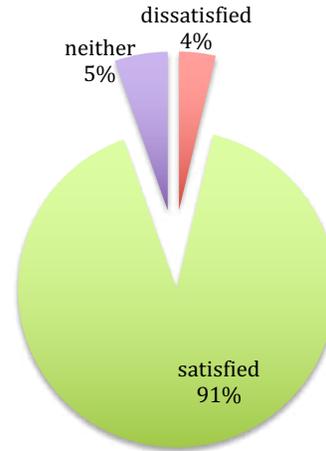


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Patient Satisfaction

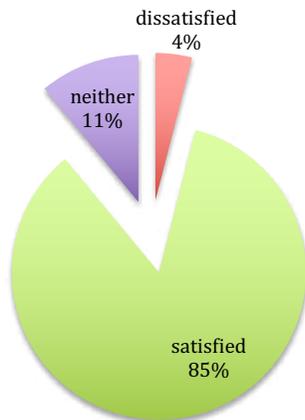
Approximately 91% stated that they were satisfied three months after thoracolumbar surgery; 85% stated that they were satisfied three months after cervical surgery.

TL surgery - satisfaction (3 month follow up)



	Deformity	DDD	Disc Herniation	Spondy	Stenosis
Dissatisfied (%)	0	0	8	3	2
Satisfied (%)	94	94	92	97	90
Neither (%)	6	6	0	0	8

Cervical surgery - satisfaction (3 month follow up)



	Deformity	DDD	Disc Herniation	Spondy	Stenosis
Dissatisfied (%)	-	0	0	-	3
Satisfied (%)	-	80	84	-	83
Neither (%)	-	20	16	-	14

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Research Activities

Prospective Studies

Ongoing in 2020:

Surgical treatment of degenerative spondylolisthesis: a standardized clinical assessment and management plan - Canadian Spine Society multicenter prospective cohort study (67 patients enrolled in 2020; total n=475)

Management and outcome of cervical spondylotic myelopathy: a standardized clinical assessment and management plan (132 patients enrolled in 2020; total n=854)

Decompression alone vs. decompression and instrumented fusion for the management of lumbar spinal stenosis associated with stable degenerative spondylolisthesis: a pragmatic randomized clinical pilot trial (10 patients enrolled in 2020; total n=61)

Retrospective Studies

Retrospective studies initiated and abstracts written in 2020:

1. Determining clinically important improvement following surgery for degenerative conditions of the spine
2. Impact of undergoing thoracolumbar spine surgery on patient psychosocial health
3. A comparison of functional and quality of life improvement in six different types of surgery
4. Association between patients reported outcomes and construct length in posterior cervical instrumentation for cervical spine myelopathy

5. Analysis of complication rates in cervical spine surgery between older patients and younger cohorts: is age just a number?

6. Factors associated with increased length of stay in degenerative cervical spine surgery

7. Lumbar fusion surgery for patients with back pain and degenerative disc disease

8. Minimally invasive vs open thoracolumbar surgery for lumbar spinal stenosis in patients with diabetes

9. Clinical and radiographic outcomes of m6l disc arthroplasty at a single Canadian centre

10. Postoperative recovery patterns following discectomy surgery for lumbar radiculopathy

11. A Canadian perspective on the effect of patient workload intensity on return to work after elective lumbar spine surgery

12. Comparison between primary and revision lumbar decompression outcomes

13. Decompression vs. decompression and fusion for "stable" degenerative spondylolisthesis: a randomized clinical trial

14. Development and validation of an objective version of the degenerative lumbar spondylolisthesis instability classification (DSIC) scheme

15. Exploring the ability of radiographic parameters of stenosis severity to predict patient recovery patterns

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Presentations

National and International presentations made in 2020:

1. Decompression compared to decompression and fusion for degenerative lumbar spondylolisthesis
2. Lumbar degenerative spondylolisthesis: factors impacting decision to fuse
3. Patient reported outcomes following surgery for lumbar disc herniation: comparison of a universal and multitier health care system
4. Do patients with recurrent lumbar disc herniations fair worse with discectomy than primary operations?
5. Clinical predictors of achieving minimal clinically important difference after surgery for cervical spondylotic myelopathy: an external validation study
6. Patient outcomes: Important psychological measures
7. Are there gender differences in pre-operative health status and health care delivery for patients undergoing scheduled lumbar surgery?
8. Disability or pain; which best predicts patient satisfaction with surgical outcome?
9. Clinical outcome of posterior cervical foraminotomy vs. anterior cervical discectomy and fusion
10. Comparing minimally invasive versus traditional open lumbar decompression and fusion surgery
11. Time to return to work after lumbar spine surgery

12. Patient reported outcomes following surgery for lumbar spinal stenosis: comparison of a universal and multitier health care system

13. Outcomes of surgery in older adults with lumbar spinal stenosis

14. A matched-cohort study comparing lumbar fusion and disk arthroplasty

15. Predictive socioeconomic factors following lumbar disk arthroplasty (poster)

16. Two-year results of lumbar disk arthroplasty (poster)

Publications

All CSORN published studies up to 2020:

1. Tripp DA et al. Biopsychosocial factors predict quality of life in thoracolumbar spine surgery. *Quality of Life Research Journal* 2017; 26(11): 3099-3110.
2. Morcos MW et al. Predictors of Blood Transfusion in Posterior Lumbar Spinal Fusion: A Canadian Spine Outcome and Research Network Study. *Spine*. 2018; 43(1): E35-9.
3. Ayling O et al. Clinical Outcomes Research in Spine Surgery: What are appropriate follow-up times? *J Neurosurg Spine*. 2018; 30(3): 397-404.
4. Eastwood D et al. Improving post-operative patient reported benefits and satisfaction following spinal fusion with a single pre-operative education session. *Spine J*. 2018; S1529-9430.

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5. Morcos MW et al. Predictive Factors for Discharge Destination Following Posterior Lumbar Spinal Fusion: A CSORN study. *Global Spine J.* 2019; 9 (4): 403-408.
6. Ailon T et al. Patient Reported Outcomes Following Surgery for Degenerative Spondylolisthesis: Comparison of a Universal and Multi-Tier Health Care System. *Spine J.* 2019; 19(1):24-33.
7. Srinivas S et al. Effect of spinal decompression on back pain in lumbar spinal stenosis: a Canadian Spine Outcomes Research Network (CSORN) study. *Spine J.* 2019; 19(6):1001-1008.
8. Thomas K et al. Decompression alone vs. decompression plus fusion for claudication secondary to lumbar spinal stenosis. *Spine J.* 2019; 19(10):1633-1639.
9. Sharifi B et al. Consultation and Surgical Wait Times in Cervical Spondylotic Myelopathy. *Can J Neurol Sci.* 2019; 46(4):430-435.
10. Cushnie D et al. Effect of preoperative symptom duration on outcome in lumbar spinal stenosis: a Canadian Spine Outcomes and Research Network registry study. *Spine J.* 2019; 19(9):1470-1477.
11. Hebert J et al. Patients undergoing surgery for lumbar spinal stenosis experience unique courses of pain and disability: a group-based trajectory analysis. *PLoS ONE [Electronic Resource].* 14(11):e0224200, 2019.
12. Bond M et al. Treatment of Mild Cervical Myelopathy: Factors Associated with Decision for Surgical Intervention. *Spine* 2019; 44(22):1606-1612.
13. Canizares M et al. Patients' expectations of spine surgery for degenerative conditions: Results from the Canadian Spine Outcomes and Research Network (CSORN). *Spine J* 2020; 20(3):399-408.
14. Stratton A et al. Opioid use trends in patients undergoing elective thoracic and lumbar spine surgery. *Canadian Journal of Surgery* 2020; 63(3):E306-E312.
15. Evaniew N et al. Clinical Predictors of Achieving the Minimal Clinically Important Difference After Surgery for Cervical Spondylotic Myelopathy: An external validation study from the Canadian Spine Outcomes and Research Network. *Journal of Neurosurgery: Spine* 2020; 33(2): 129-137.
16. Hebert JJ et al. Preoperative Factors Predict Postoperative Trajectories of Pain and Disability Following Surgery for Degenerative Lumbar Spinal Stenosis. *Spine* 2020; 45(21): E1421-E1430.
17. McIntosh G et al. Development and Implementation of a National Canadian Spine Surgery Registry. *Journal of Current Clinical Care* 2020; 10(2): 21-31.
18. Bond M et al. Back Pain in Surgically Treated Degenerative Lumbar Spondylolisthesis: What can we tell our patients? *Spine Journal* 2020; 20(12): 1940-47.
19. Yang MMH et al. Development and validation of a clinical prediction score for poor postoperative pain control following elective spine surgery. *Journal of Neurosurgery: Spine*, 2020 September 15.

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Conclusion

The Canadian Spine Outcomes and Research Network (CSORN) now contains more than 11,000 enrolments with 1,237 added in 2020. Enrolments were down 35% in 2020 as a result of hospital closings, lockdowns and cancellations of surgeries in response to the Covid-19 pandemic.

The Network contains a variety of spine diagnoses and surgical procedures and reflects a predominantly stenotic cohort of patients. There were 209 enrollments added to the prospective studies in 2020. From baseline to 3-month follow up, pain ratings improved and overall patient satisfaction with spine surgery was high. There have been 7 studies published in peer-review medical journals this year; 10 studies are currently in-press and will appear in print in 2021, bringing the overall total to 29. CSORN research initiatives including abstracts and presentations at scientific conferences were abundant once again in 2020.

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Governance

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Raja Rampersaud MD
Ken Thomas MD
Christopher S Bailey MD
Nicolas Dea MD
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The Canadian Spine Research & Education Fund (CSREF) has accepted the essential role of funding the **Canadian Spine Outcomes and Research Network (CSORN)**. To honour this commitment we require help from those most intimately involved with the provision of spinal treatment. Please plan to make a personal annual donation and consider canvassing your patients and colleagues to join your charitable efforts. Promotional materials; patient solicitation letters and brochures are available through the CSREF office; contact us and order yours today!

ONLINE DONATIONS:

(by credit card only)



Go to the CSS website at www.spinecanda.ca

Click on "GIVE" at the top of the CSS homepage

OR click on the CanadaHelps.org logo



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THANK YOU to all those who have donated to the CSREF - your support is greatly appreciated!