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VP Research, Dean Research, New Zealand College of Chiropractic

Day 1 & Day 2

A Brain-Based Paradigm



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Case 1: 10 year old boy Luke (and his mum)

- Soccer player
- Back pain and headaches
- History of bedwetting
- Several injuries as a child

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ChirosAcademy

Background Prep Prior to First Meeting



CS2.12 Chiropractic Care and Enuresis

61 minutes

Enroll Now



CS2.01 Chiropractic Care and Lower Back Pain

67 minutes

Enroll Now



CS2.05 Safety of Chiropractic Care for Kids and Babies

54 minutes

Enroll Now



BS1.02 The Brain Model of the Chiropractic Subluxation

76 Minutes - How a healthy and a dysfunctional spine communicates with the brain

Enroll Now



BS1.03 Your first visit to a Chiropractor

45 Minutes - What to expect from your first visit and "what is that popping sound"

Enroll Now



BS1.04 Your first adjustment

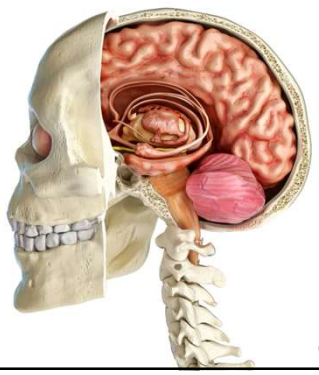
42 Minutes - What is an adjustment, how does it work and what to expect.

Enroll Now

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What is Chiropractic





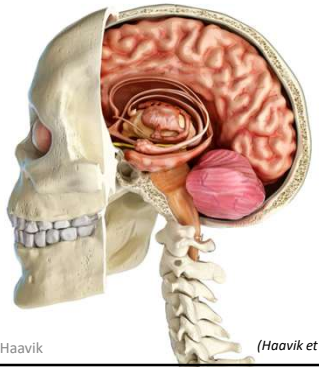
(Haavik et al 2021a; 2021b; 2024; Niazi et al 2024; Amjad et al 2025; Ghani et al 2026)

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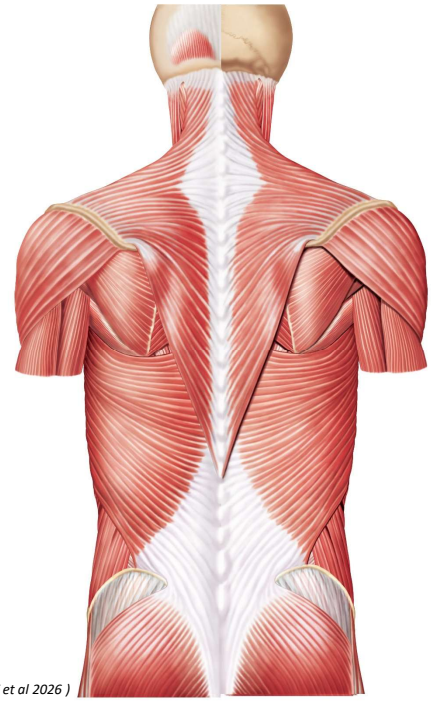
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A healthy spine moves!

Your Brain tells the muscles how to move your spine







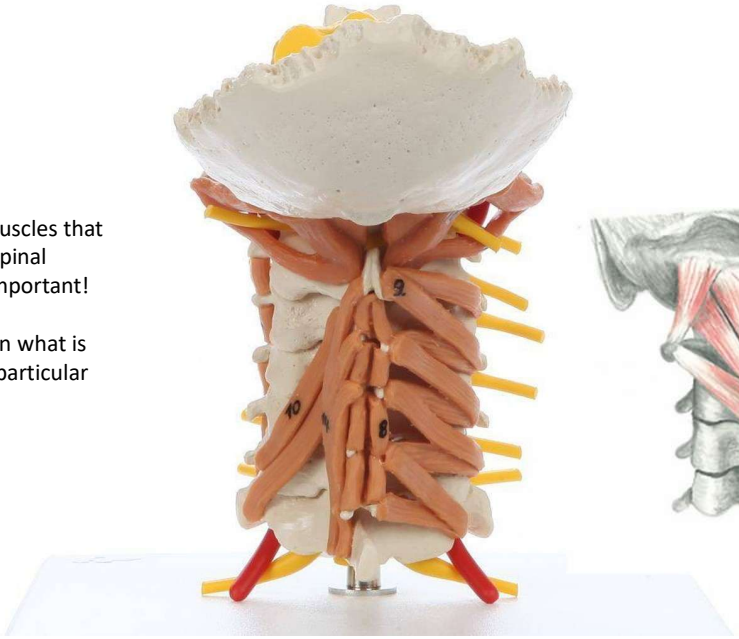
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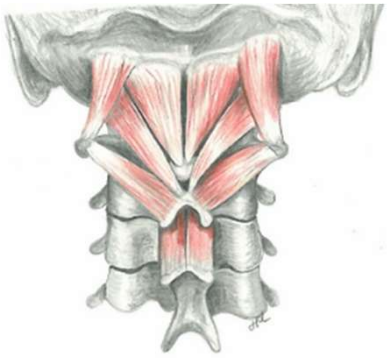
(Haavik et al 2021a; 2021b; 2024; Niazi et al 2024; Amjad et al 2025; Ghani et al 2026)

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So these small muscles that cross individual spinal bones are very important!

They tell the brain what is going on at that particular spinal level





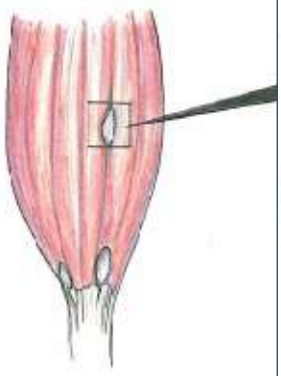
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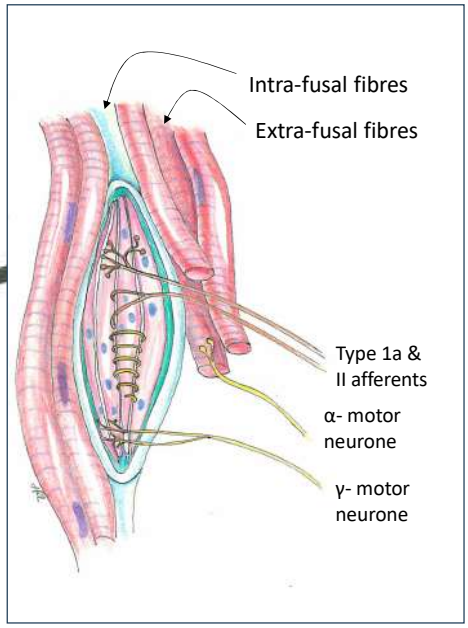
(Haavik et al 2021a; 2021b; 2024; Niazi et al 2024; Amjad et al 2025; Ghani et al 2026)

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MUSCLE SPINDLES



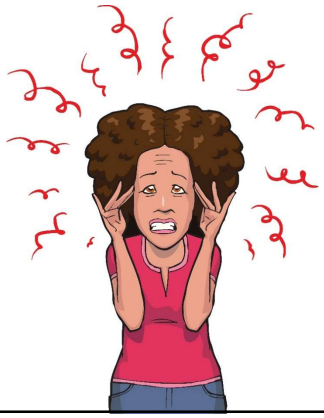


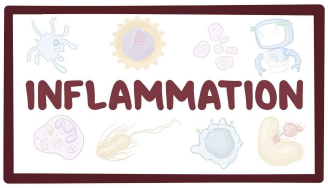
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(Haavik et al 2021a; 2021b; 2024; Niazi et al 2024; Amjad et al 2025; Ghani et al 2026)

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What can causes the breakdown?







(Haavik et al 2021 EJAP)

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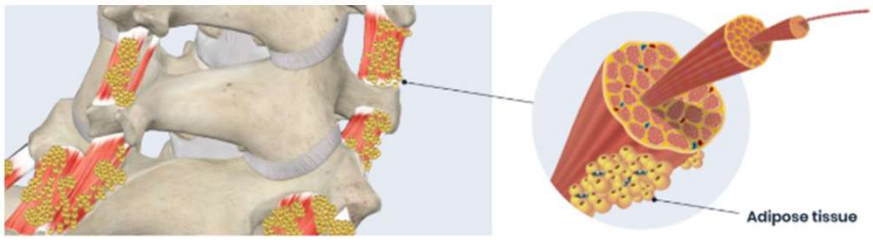
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HEALTHY



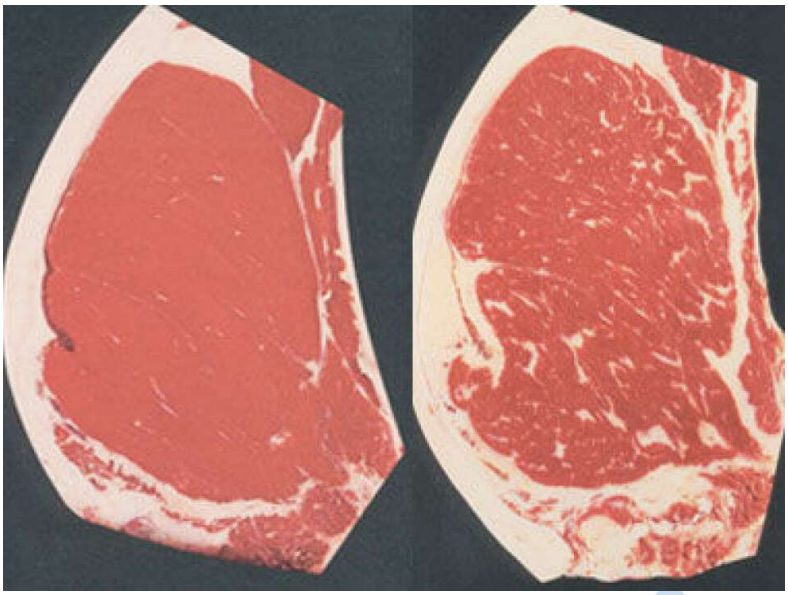


SUBLUXATED



(Haavik et al 2021a; 2021b; 2024; Niazi et al 2024; Amjad et al 2025; Ghani et al 2026)

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Deep paraspinal muscles

Healthy

- Larger in size
- Slow-twitch fibre type
- Minimal fatty infiltration
- Move freely
- Healthy stretch receptors (muscle spindles)

Good

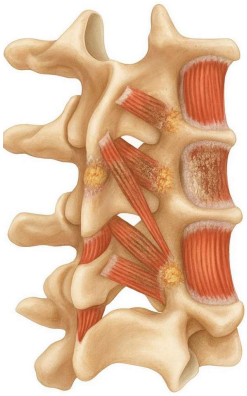


Dysfunction

over time become:

- Stiff and Fibrotic
- Atrophied (shrink)
- Fatty infiltration
- Change fibre type
- Stretch receptors dysfunction

NOT Good

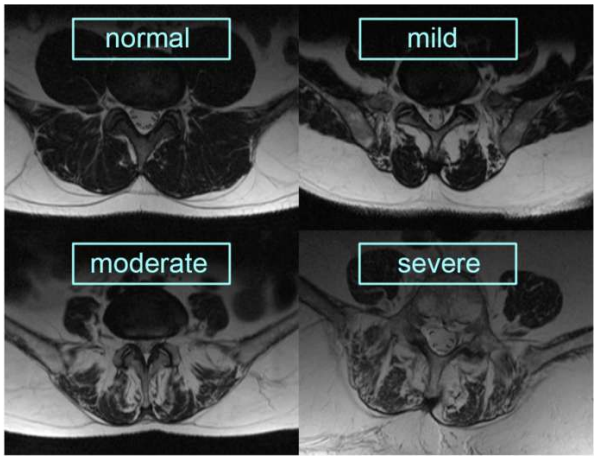


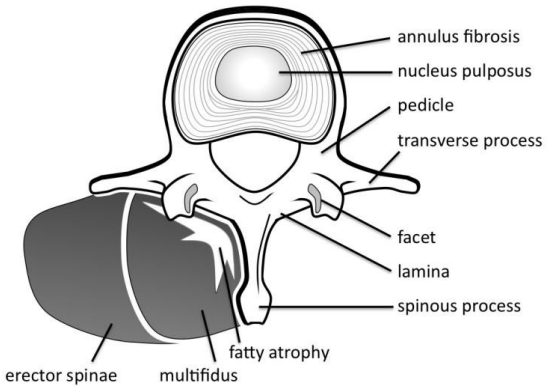
*(Hodges & Danneels, 2019. Changes in structure and function of the back muscles in low back pain: different time points, observations, and mechanisms Journal of orthopaedic & sports physical therapy **49**(6): 464-476)*

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Physical Injury, Emotional overload, Inflammation turn off the deep paraspinal muscles (neurological inhibition)

Haavik et al 2021 EJAP





Faur, C., Patrascu, J.M., Haragus, H. and Anglitoiu, B., 2019. Correlation between multifidus fatty atrophy and lumbar disc degeneration in low back pain. BMC musculoskeletal disorders, 20(1), pp.1-6.

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Your Brain Is Always Learning
But it can learn good things as well as bad habits
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Pain does not necessarily go away by itself!

- 1300 kids in Denmark aged 11 – followed for two years
- Pain is extremely common in 11–13-year-olds
- Pain spreads to more regions of the spine!
- Pain becomes more frequent and more intense!

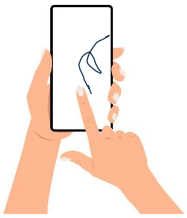


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(Aartun et al 2014 Spinal pain in adolescents: prevalence, incidence, and course: a school-based two-year prospective cohort study in 1,300 Danes aged 11–13. BMC Musculoskeletal Disorders. 2014;15:187)

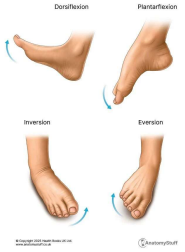
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When your brain and body aren't communicating properly, it can affect lots of things, not just pain.

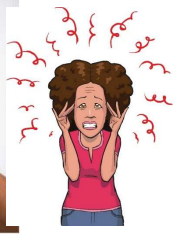






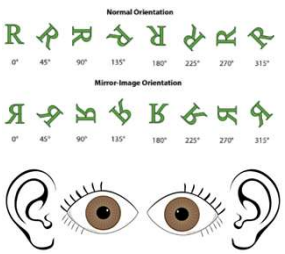
















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Poor spine-brain communication can lead to more sports injuries in students!

- Tested 303 young college students (who had no problems or pain)
- Tested for Spine – brain communication
- Predicted accurately which students would end up with an injury (based on those who had poor spine-brain communication at the beginning of the study)

(Cholewicki et al (2005). "Delayed trunk muscle reflex responses increase the risk of low back injuries." Spine (Phila Pa 1976) **30**(23): 2614-2620)



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Chiropractors Help Your Brain Get Better Information

- Adjusting your spinal subluxations is like rebooting your computer!
- Brain becomes more accurately aware of what is going on inside you and around you
- Brain can control your body better
- This can mean better feeling and function!

(Amjad et al 2025; Haavik et al 2021; Haavik et al 2024)



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Chiropractic Care helps kids with Headaches

Chiropractic spinal adjustments resulted in fewer headaches and higher global perceived effect, with only minor side effects!



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*(Lynge, et al (2021). "Effectiveness of chiropractic manipulation versus sham manipulation for recurrent headaches in children aged 7–14 years-a randomised clinical trial." Chiropractic & Manual Therapies **29**: 1-13.)*

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Chiropractic Care for Kids with Bedwetting

- Only 25% of the kids getting chiropractic care noticed improvements in their bedwetting
- But those kids who did respond – on average- got over 50% better
- And this was only a 2 week study!!



*(Reed et al 1994 "Chiropractic management of primary nocturnal enuresis." J Manipulative Physiol Ther **17**(9): 596-600.)*

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Chiropractic Care is Very Safe!!

Chiropractic care for children and infants is very safe and is rarely associated with adverse events.

When they do occur, they invariably involve short periods of muscle soreness or irritability following an adjustment.

When a thorough history and exam are performed, and appropriate technique choices are made, you can be confident that you are in safe hands.

(Alcantara et al 2009; Todd et al 2014; Doyle 2011, Driehuis et al 2019, Parnell et al 2019)

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This has the potential to help YOU…

- Move better
- Focus better
- Feel better
- Recover better
- Kick the ball harder (and more accurately)
- Think clearly
- Sleep better
- Learn better
- Be less clumsy
- Have less accidents
- Have less pain

(Amjad et al 2025; Haavik et al 2021; Haavik et al 2024)

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DAY 2 – REPORT OF FINDINGS

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ChirosAcademy

Background prep prior to ROF



CS2.05 Safety of Chiropractic Care for Kids and Babies

54 minutes

Enroll Now



CS2.01 Chiropractic Care and Lower Back Pain

67 minutes

Enroll Now



CS2.09 How Often Should You See Your Patients

73 minutes

Enroll Now

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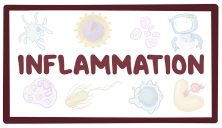


Reminder about the spine-brain communication



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OR

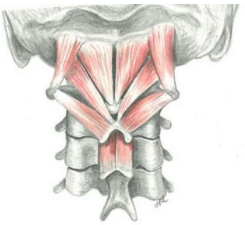


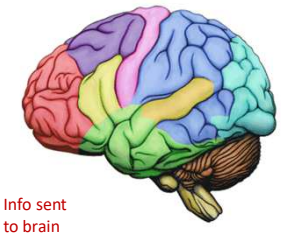
Stress



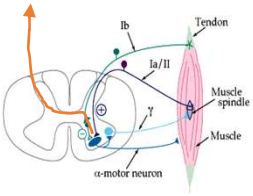
Injury

Small muscles closest to spine and skull go to sleep





Info sent to brain



Altered messages going to brain from spine

Poor body awareness
Poor body control
Poor function



So brain does NOT know accurately what is going on



Changes brains internal representations about what is going on inside and outside body

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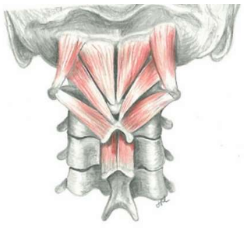
Haavik et al 2021 EJAP

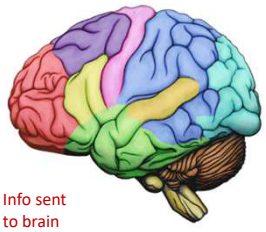
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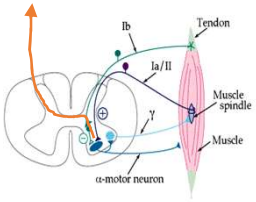
Adjustment

Stretches small muscles closest to spine and scull



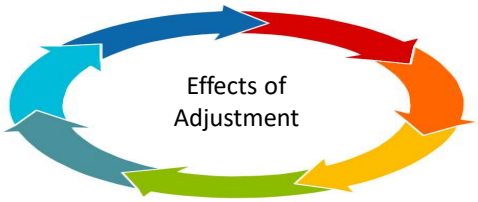


Info sent to brain



Bombards brain with mechanoreceptor input

Improved body awareness
Improved body control
Improved function



So brain knows MORE accurately what is going on



Changes brains internal representations about what is going on inside and outside body

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Haavik et al 2021 EJAP

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What we tested

- Spinal function
- Movement
- Strength
- Balance
- Posture
- Nervous system tests
- The peg test

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What we found for you

- When assessing you we found some areas of your spine aren't working as well as they could

What That Means

- Coordination not as sharp
- Body not responding as quickly
- Brain getting less clear input



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Why That Matters for you

- Sport performance
- Focus at school
- Energy
- Growing body
- Body (bladder) control



Move better | Focus better

Feel better | Recover better

Kick the ball harder (and more accurately) | Think clearly

Sleep better | Learn better

Be less clumsy | Have less accidents

Have less pain

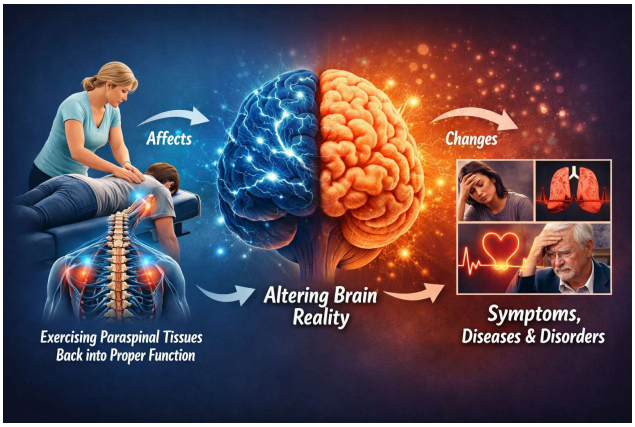
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(Amjad et al 2025; Haavik et al 2021; Haavik et al 2024)

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What We Can Do

Help improve communication between your brain and body



What we expect

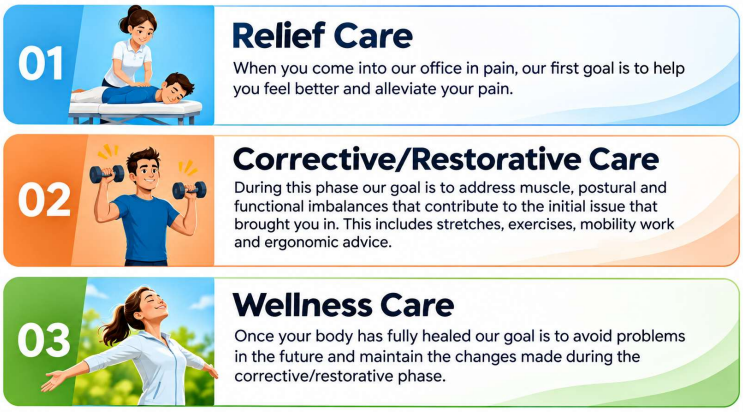
- Changes over time
- Not instant fix
- Brain adapting
- Step-by-step improvement
- Common effects
  - Minor aches and pains that go away by themselves (a bit like going to the gym)
  - Sleep better
  - Feel better
  - Perform better

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The Plan

- Types of Care
- Frequency of visits
- Re-checks



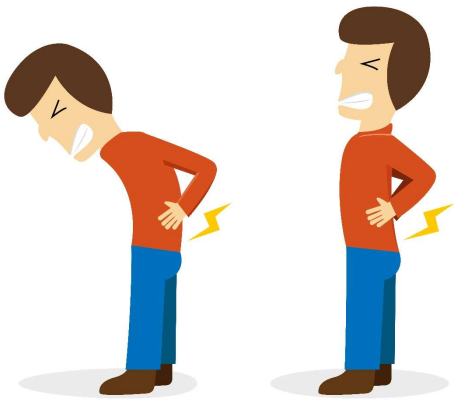
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Large Chronic Low Back Pain Study Shows More Frequent Care Early On is Best for You

400 patients with chronic low back pain	0,6,12, or 18 sessions of SM over 6 weeks
Pain scores better in groups getting adjusted	At 12 weeks- 2x per week had best results
At 52 weeks- 3x week had best results	2 -3 /week Best at One year follow up!!

(Haas et al 2014)



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Chronic Cervicogenic Headache study showed More Frequent Care Early On is Best for You!

- 256 participants.
- 1, 2, or 3 chiropractic visits per week for six weeks.
- Control group receiving light massage.
- Main outcome assessed of number of headache days at twelve and twenty-four weeks.
- Results:
  - The more adjustment visits, the fewer headache days at the end of the study (after one year!!!)



(Haas et al 2018)

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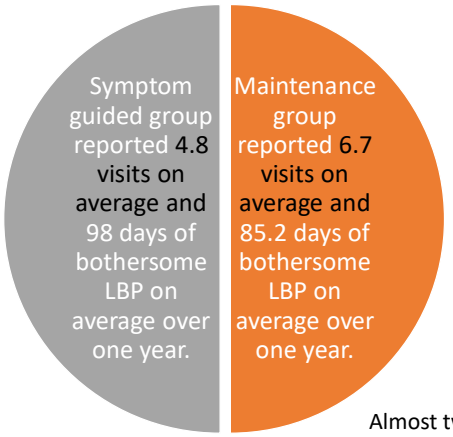
Nordic Maintenance Care Program

328 patients with non-specific LBP from 40 Swedish chiropractic clinics.

Good responses to care.

Received chiropractic maintenance care for the next year, or symptom-guided care.

Outcomes: number of days with bothersome back pain over one year.



Almost two weeks of less days with pain!!! Only 2 more visits to chiro!

(Eklund et al 2018 PLoS One)

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Take-home Message About Maintenance Care

"For patients with recurrent low back pain who respond well to chiropractic care, they should consider getting checked regularly by their chiropractor even if their pain doesn't come back because it may help them to have fewer days where their backpain interferes with their lives."

(Eklund et al 2018)

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Summary of Frequency of Care Evidence Based Chiropractic





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When to increase or decrease frequency of care

Increase care when:

- **A new injury or flare-up:** Pain, restricted movement or altered muscle control may indicate that the sensorimotor system is being challenged.
- **Increasing physical demands:** A return to sport, intensive training or unusually demanding physical work may warrant reassessment.
- **Periods of significant stress:** Poor sleep, psychological stress, illness and fatigue can affect brain processing, motor control, pain and adaptability.
- **A decline in function:** Increasing stiffness, reduced balance, poorer coordination or difficulty performing usual activities may indicate a need to reassess care.
- **When measurable improvements are occurring but have not stabilised:** A short period of more frequent care may help make improvements be more stable/reliable

Decrease care when:

- **Your spine is functioning better:** your chiropractor will tell you this.
- **Improved sensorimotor function:** Better movement, balance, coordination or muscle control.
- **Greater resilience:** You feel you can manage your usual physical and psychological demands without significant symptom flare-ups or functional deterioration.
- **Sustained improvements:** Benefits are maintained for longer between visits.

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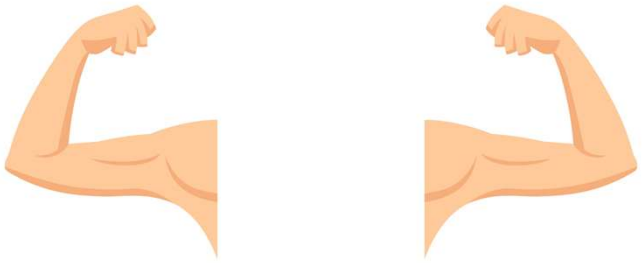
Chiropractic Care is all about exercising the small, deep paraspinal muscles back into proper function to enable the brain to more and more accurately perceive the internal and external environment so it can respond, adapt and heal better

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It takes more than two to four weeks of exercise before you alter the size (morphology) of the muscle



The first few weeks are mainly neural changes!!

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*Moritani & DeVries (1979). "Neural factors versus hypertrophy in the time course of muscle strength gain." American journal of physical medicine & rehabilitation **58**(3): 115-130.*

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The Goals

- My Goal is to Help Your Brain and Body Work at Their Best
- What goal would you like us to work towards?



- Do you have any questions?

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References

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