Surfer’s Myelopathy

The Queen’s Medical Center - Neuroscience Institute
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THE QUEEN'S HEALTH SYSTEM

Neurotrauma Advisory Board Meeting
October 24, 2024

KHON2 - Brandon's Story

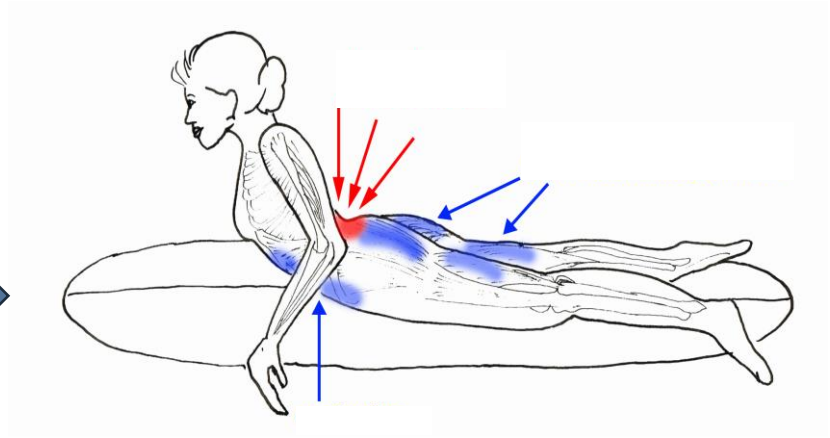
[Watch Brandon's Story on YouTube]

Overview

- **What** is Surfer's Myelopathy?
- What are the **signs and symptoms**?
- **How** does Surfer's Myelopathy happen?
- What are the **outcomes** of Surfer's Myelopathy?
- **Who** is at risk for Surfer's Myelopathy?
- What are the **treatment options** for Surfer's Myelopathy?
- How to **prevent** Surfer's Myelopathy?
- **What to do** in the event of Surfer's Myelopathy?

What is Surfer's Myelopathy?

- **<u>Non-traumatic</u>** spinal cord injury

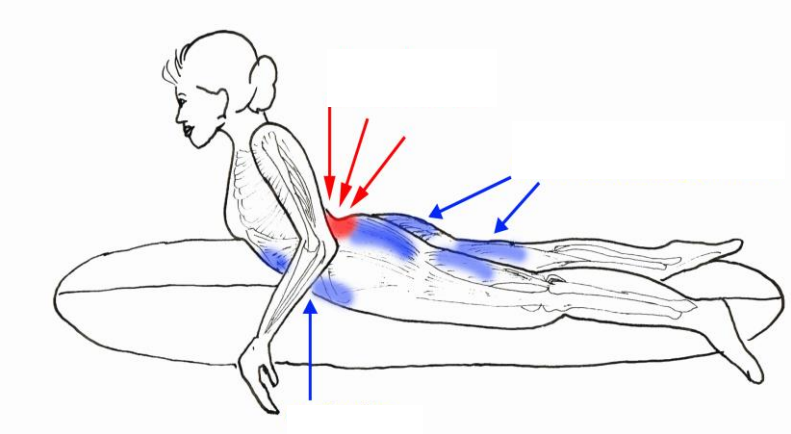


First-time or novice surfer
- Ages 16 – 39
- Healthy and active
- No previous back injuries

30 – 90 minutes
- Experience low back pain or leg weakness

30 minutes – 4 hours
- Inability to walk

What are the signs and symptoms?



30 – 90 minutes

- Experience low back pain or leg weakness

30 minutes – 4 hours

- Inability to walk

First Symptom

- Low back pain (7/10)
- Leg weakness (2/10)
- Other (1/10)
  - "Sharp nerve pain down my legs"

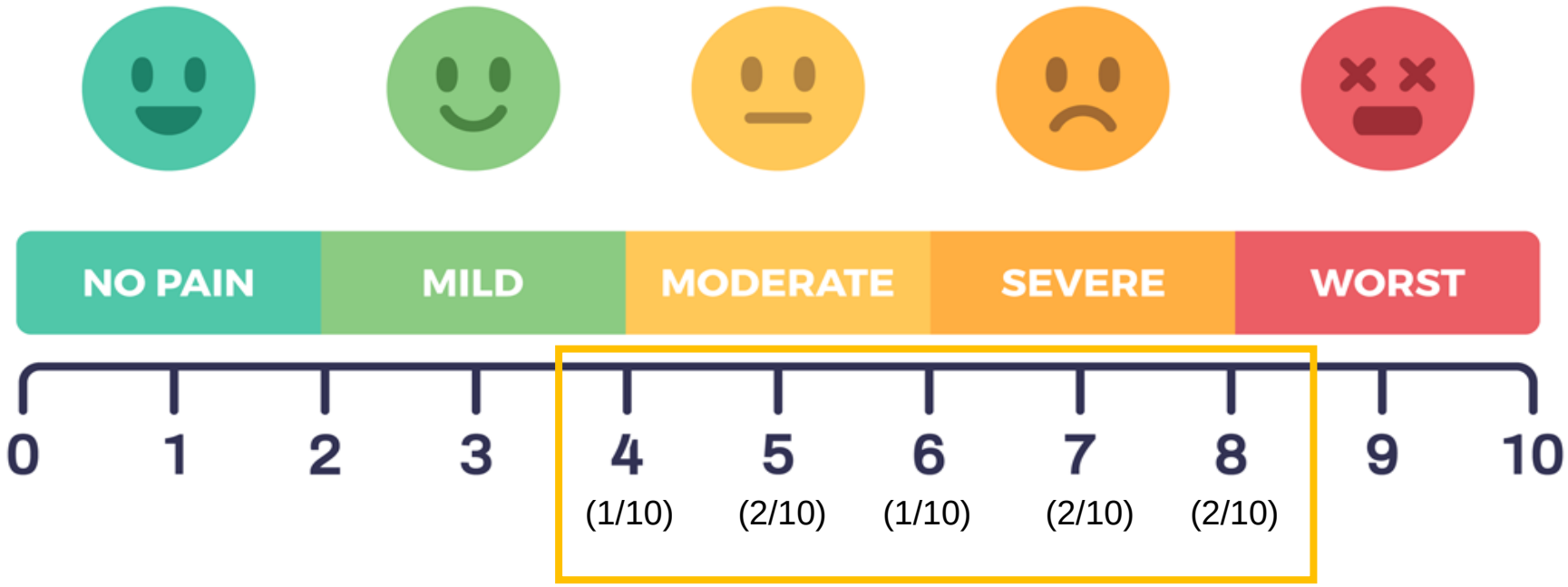
When did the back pain begin?

- Progressed subtly over time (4/10)
- While popping up to catch a wave (3/10)
- While paddling (1/10)

*Missing 2 responses

What are the signs and symptoms?

Initial severity on a 10-point scale



*Missing 2 responses

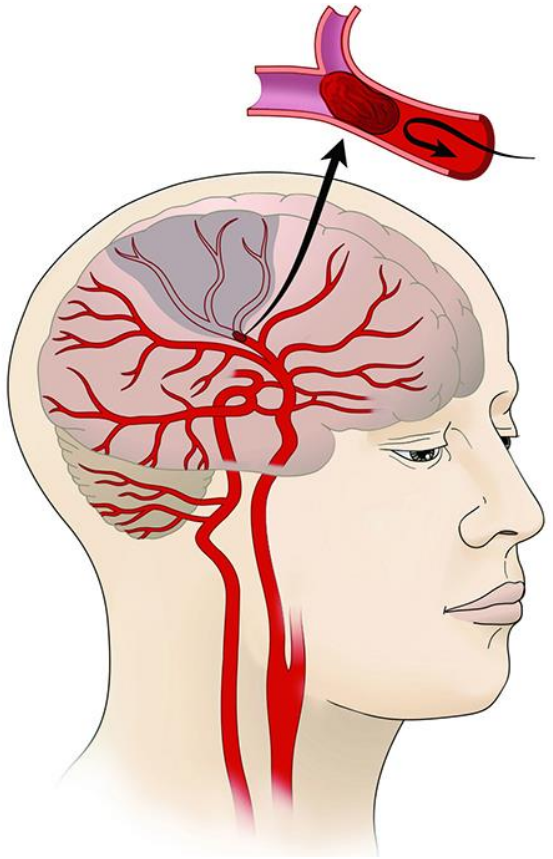
How does Surfer's Myelopathy happen?

- **Non-traumatic** spinal cord injury
  - Thought to be related to prolonged or sudden arching of the lower back

Freedman et al. 2016

How does Surfer's Myelopathy happen?

- **<u>Non-traumatic</u>** spinal cord injury
  - Thought to be related to prolonged or sudden arching of the lower back
  - This position can compromise blood flow to the spinal cord, similar to a **stroke**



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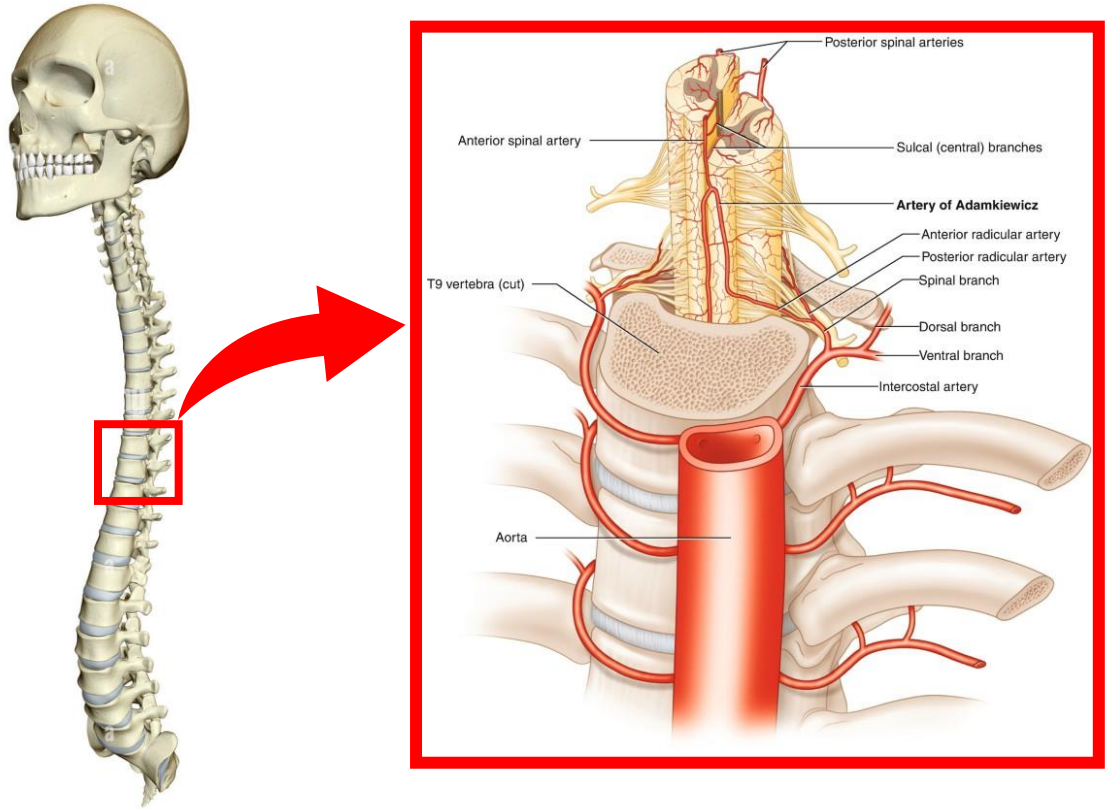
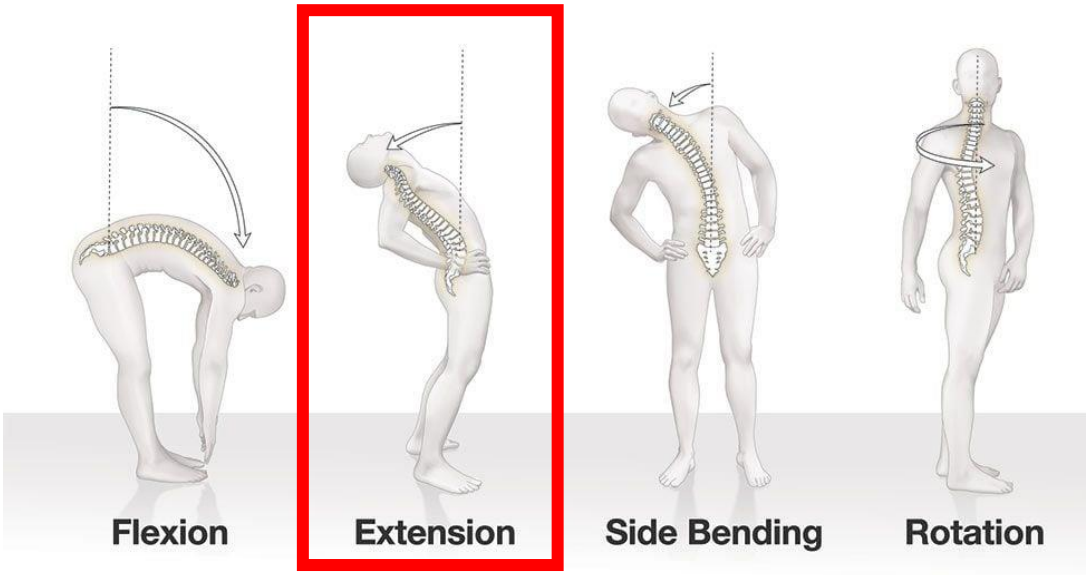
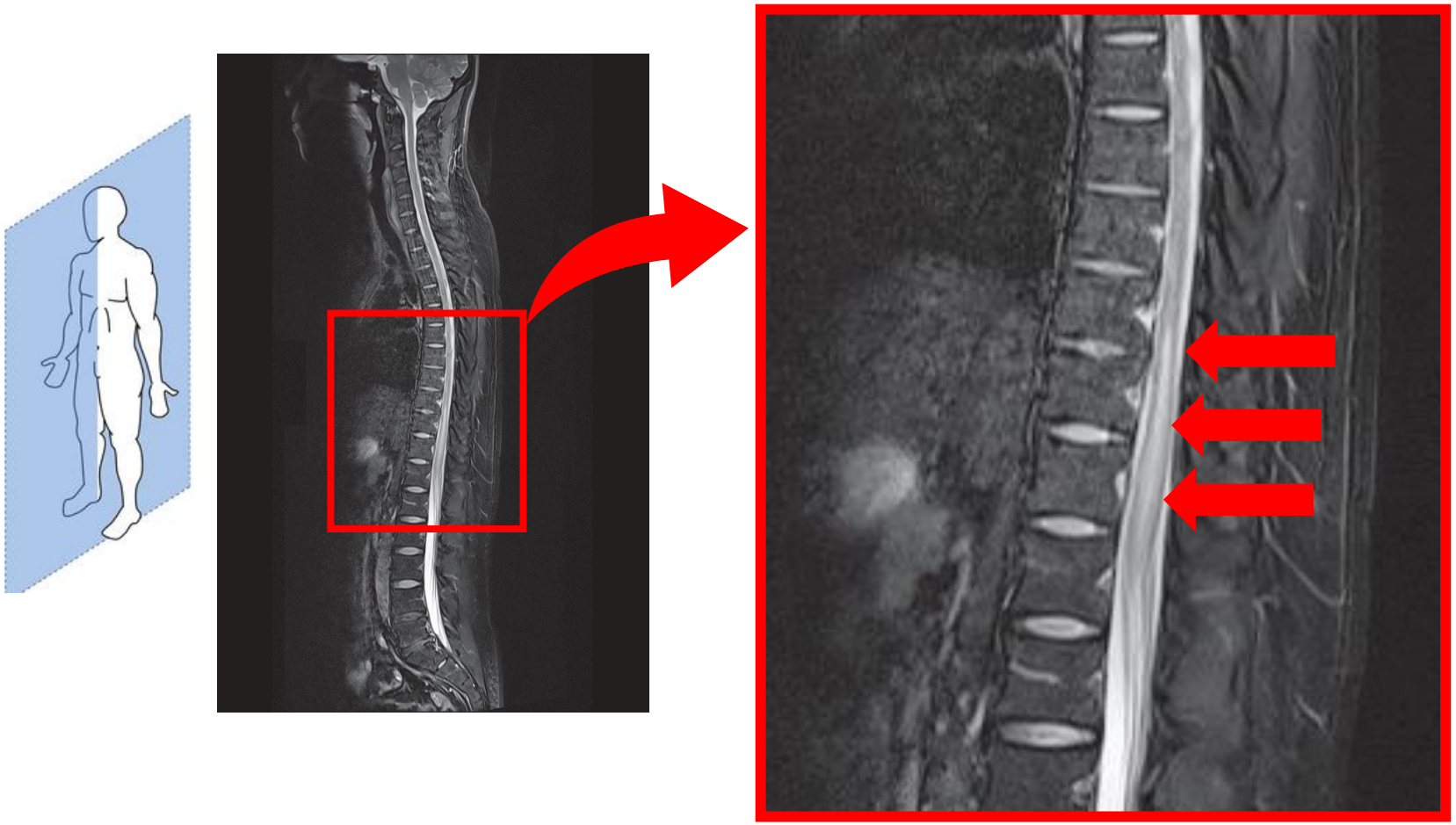




What are the outcomes of Surfer's Myelopathy?

- Often results in severe disability



Recovery at discharge:

- No improvement (26%)
- Partial improvement (38%)
- Total recovery (14%)
- Not reported (22%)

Choi et al. 2018; Alva-Diaz et al. 2022

Who is at risk for Surfer's Myelopathy?

- Rare – approximately 100 cases reported in the scientific literature
  - Young, healthy, first-time or novice surfers with no prior history of back problems

Table 1 Patient characteristics reported in the literature

Characteristics	*n* (%)
Sex	
Male	54 (52%)
Female	50 (48%)
Age (median, range)	19 (3.5–56)

Alva-Diaz et al. 2022

Who is at risk for Surfer's Myelopathy?

- Rare – approximately 100 cases reported in the scientific literature
  - Young, healthy, first-time or novice surfers with no prior history of back problems
  - Sports and activities that may strain the back

Flexion

Lifting at work
(Maharaj et al. 2016)

Extension

Gymnastics
(Dillen et al. 2018;
Bouattour et al. 2021)

Side Bending

Swimming
(cervical injury)
(Green et al. 2018)

Rotation

Golf
(Yang et al. 2020)

What are the treatment options for Surfer's Myelopathy?

Table 1 Patient characteristics reported in the literature

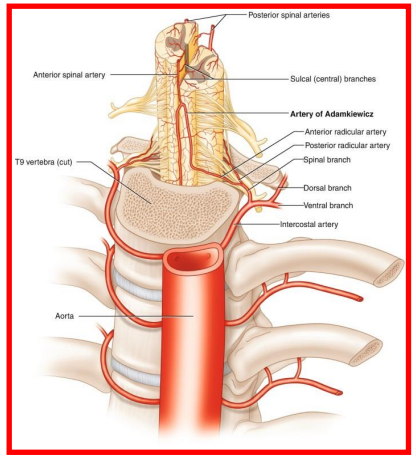
Characteristics	*n* (%)
Treatment[a]	
Steroids	50 (48%)
Physical therapy	26 (25%)
Antiaggregant/anticoagulants	5 (5%)
Others	10 (10%)
Not reported	45 (43%)

[a] = more than one possibility was possible per patient

Alva-Diaz et al. 2022

What are the treatment options for Surfer's Myelopathy?

- The Queen's Medical Center
  - Emergent Imaging
    - MRI
    - Spinal angiography
  - Pressure management
    - Blood pressure augmentation
    - Spinal pressure monitoring
    - Targeted spinal fluid drainage
  - Physical Therapy



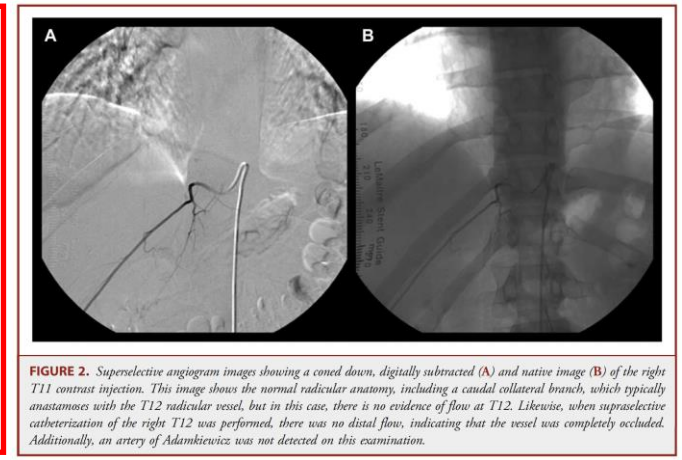
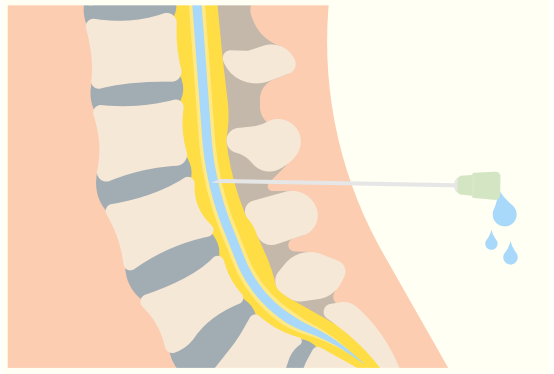


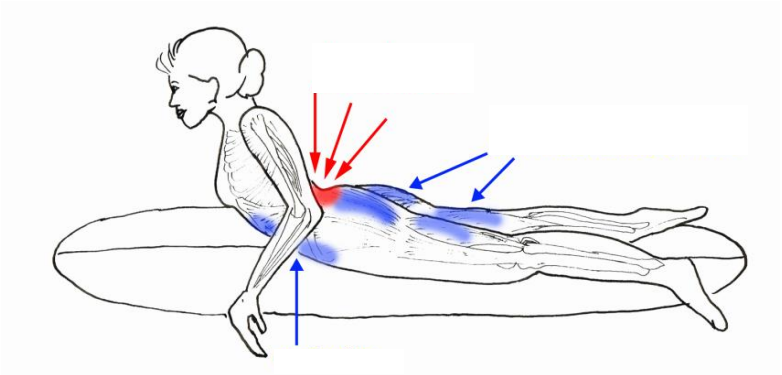
FIGURE 2. *Superselective angiogram images showing a coned down, digitally subtracted (A) and native image (B) of the right T11 contrast injection. This image shows the normal radicular anatomy, including a caudal collateral branch, which typically anastamoses with the T12 radicular vessel, but in this case, there is no evidence of flow at T12. Likewise, when supraselective catheterization of the right T12 was performed, there was no distal flow, indicating that the vessel was completely occluded. Additionally, an artery of Adamkiewicz was not detected on this examination.*



Choi et al, 2018; Freedman et al. 2016; Chen et al. 2017

How to prevent Surfer's Myelopathy?

- Signs, Symptoms, and Safety
  - **S** – **Sit up** on your board
  - **P** – **Pain** in your back and legs
  - **I** – **Imbalance/inability** to walk
  - **N** – **Numbness** in the legs
  - **E** – **Educate** new surfers



What do to in the event of Surfer's Myelopathy?

- Immediately seek medical care by calling 911
- Avoid dehydration by drinking plenty of fluids
- If you have been diagnosed with Surfer's Myelopathy and would like to participate in a research study at The Queen's Medical Center, please contact **nsi.research@queens.org**

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QUEEN'S NEUROSCIENCE INSTITUTE

SURFER'S MYELOPATHY

Surfer's Myelopathy is a rare but serious, non-traumatic, spinal cord injury that may result in a severe disability. The cause of this type of injury is suspected to be related to prolonged or sudden arching of the back–such as the position taken during surf lessons. This positioning may compromise blood flow to the spine similar to a spinal stroke.

SIGNS AND SYMPTOMS

Low back pain followed by:
- Numbness, tingling, or weakness in the legs
- Problems with bladder/bowel function

WHO IS AT RISK

- Beginner surfers
- Young, healthy, athletic people

PREVENTION

- Educate new surfers
- Sit up on the board between waves
- Stop surfing if you experience any of the above signs and symptoms

WHAT TO DO

- Immediately seek medical care by calling 9-1-1
- Avoid dehydration by drinking plenty of fluids

If you have been diagnosed with Surfer's Myelopathy and would like to participate in a research study conducted by The Queen's Medical Center, contact us at nsi.research@queens.org.

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SURFER'S MYELOPATHY

FOR PRE-HOSPITAL AND EMERGENCY PROVIDERS

Surfer's Myelopathy is a rare, non-traumatic spinal cord injury.

ETIOLOGY

It is suspected to be related to positional spinal ischemia from prolonged or abrupt hyperextension of the back.

SIGNS AND SYMPTOMS

- Non-traumatic low back pain
- Rapid progression to:
  - Paresthesias
  - Paraparesis or paraplegia
  - Bowel/bladder dysfunction

POPULATION AT RISK

- Novice surfers
- Healthy and athletic adolescents and young adults

ILLNESS SCRIPT

Young, otherwise healthy, novice surfers who develop back pain while surfing for the first or second time, followed by rapidly progressive leg weakness and paresthesias that are prominent by the time they have returned to shore.

YOUR QUICK ACTION MATTERS!

- Identify patients with ASIA A-C spinal cord injury and are within 24 hours of symptom onset
- Contact The Queen's Medical Center, Transfer Center at **808-691-5112** and ask to speak to the Neuro ICU
- Administer aspirin 81mg
- Provide IV fluid hydration
- Target MAP > 85 mmHg
- Obtain a stat MRI of the total spine, including T2, STIR, DWI, and SWI sequences

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QUEEN'S NEUROSCIENCE INSTITUTE

SURFER'S MYELOPATHY RESEARCH STUDY

The Queen's Medical Center in Honolulu, Hawai'i is conducting a research study to learn more about Surfer's Myelopathy.

WHAT IS IT

Surfer's Myelopathy is a rare but serious, non-traumatic, spinal cord injury that may result in severe disability. The cause of this type of injury is suspected to be related to prolonged or sudden arching of the back–such as the position taken during surf lessons. This positioning may compromise blood flow to the spine, similar to a spinal stroke.

WHO IS ELIGIBLE

- Inclusion criteria:
  - Diagnosis of Surfer's Myelopathy
  - Capable of providing informed consent
  - 14 years of age or older
- Exclusion criteria:
  - Patients with a clinical history or imaging that supports traumatic spinal cord injury

WHAT IS REQUIRED

- Complete two brief surveys (approximately 40 minutes)
- Obtain and share your medical records with the research team
- Answer questions about how you are doing when the research team follows up with you at 6, 12, and 24 months after your injury

WHY PARTICIPATE

There is no direct benefit from participating in this study. However, your contributed information may benefit doctors, researchers, and future patients by increasing the field's knowledge and understanding of Surfer's Myelopathy.

CONTACT INFORMATION
The Queen's Medical Center - Neuroscience Institute
nsi.research@queens.org • Phone: 808-691-2525

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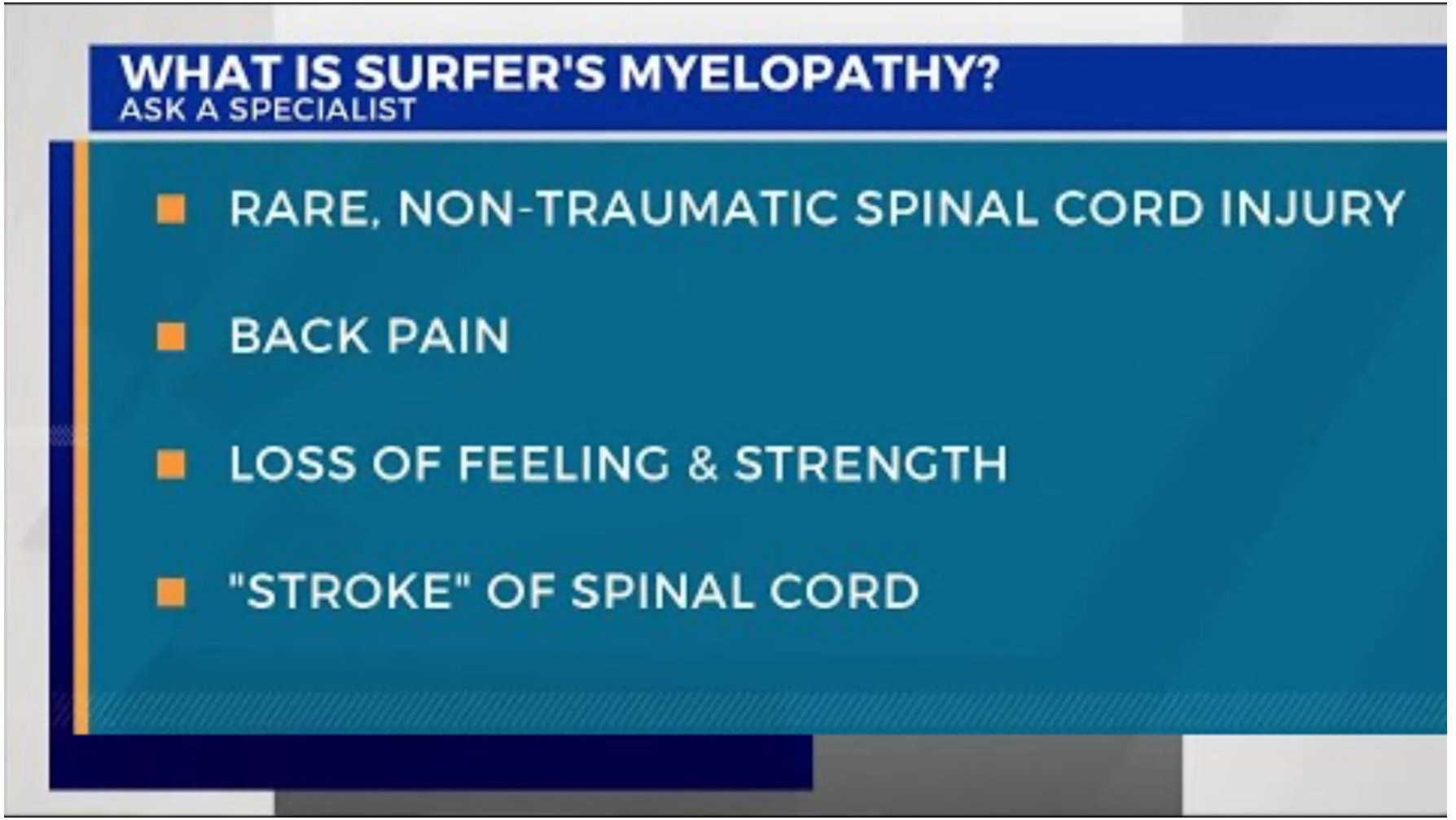
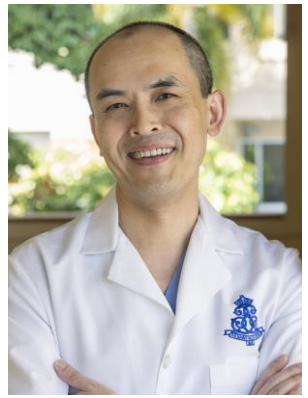
KHON2 Ask a Specialist – Dr. Stacy Brown 2024



Watch this video on YouTube





MAHALO!

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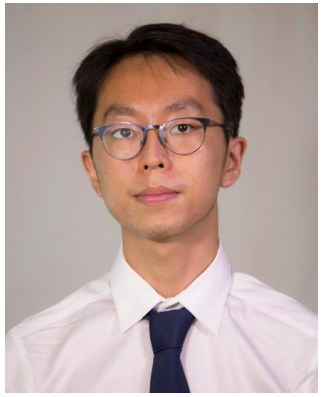
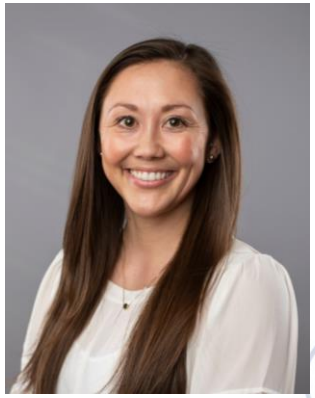
Surfer's Myelopathy Awareness Survey





Surfer’s Myelopathy Awareness Survey

Website: Complete the survey

QR Code: