



# Whiplash Associated Disorder

Integrating Research into Practice:  
San Luis Sports Therapy's Approach to Evidence-Based Practice

- PROBLEM:**                    **WHIPLASH ASSOCIATED DISORDER (WAD)**  
**Injury Impact** may result in bony and soft-tissue injuries which may in turn lead to a numerous impairments and a variety of clinical manifestations called WAD.<sup>1</sup>
- 27% of subjects who 6 months after initial injury still have pain<sup>2</sup>
- 15 - 20% of subjects develop persistent pain & disability<sup>3</sup>
- \$29 Billion** - The U.S. annual costs associated with WAD<sup>1</sup>
- INTERVENTION:**            • **Manual Physical Therapy & Graded Exercise**  
   • **Deep Neck Flexor Endurance Exercise**  
   • **Patient Education on Staying Active**
- EVIDENCE:**                    **Oxford Evidence Grade= A, B (level= 1a, 1b, and 2b studies)**
- Early referral to PT** results in superior short and long-term outcomes when compared to immobilization with a soft collar and advice to rest, even in patients with identified elevated psychological distress levels.<sup>4-6</sup>
- Associated mechanical thoracic spine impairments** may be more prevalent in patients with WAD (69%) than in those with mechanical neck disorders (13%).<sup>2</sup> and when treated with thoracic manipulation, patients with WAD demonstrate greater reductions in pain than patients with mechanical neck pain.<sup>2</sup>
- Retraining the deep cervical flexors** in conjunction with manual therapy to the cervicothoracic spine can effectively decrease neck pain and headache with results being maintained at one-year follow-up.<sup>7</sup>
- Reassurance** that there is no serious tissue damage, encouraging patients to stay active and maintain normal activities of daily living is effective in reducing delayed recovery.<sup>8-10</sup>
- Elevated psychological distress** is a nearly uniform finding in patients suffering from acute WAD and is associated with several predictive factors.<sup>11</sup>

**Predictive Factors:**

≥26 pts on the Impact of Events Scale (IES) is indicative of patients with higher levels of post-traumatic stress reaction, adversely affected recovery, and more likely to benefit from specific treatment. 12-14 In fact, an NDI score ≥30 combined with cold hyperalgesia results in a 10-fold increase in the odds of experiencing moderate to severe levels of posttraumatic stress.15

**Higher initial scores** on the Neck Disability Index (NDI), older age, cold hyperalgesia and higher acute post-traumatic stress levels accurately are predictive of those who will experience moderate to severe symptoms at 6 months.13

**Quebec Task Force Classification Scheme for WAD:**

<u>OTF Classification</u>	<u>Clinical Presentation</u>
Grade 0	No complaint about neck pain No physical signs
Grade I	<b>Neck complaint of pain, stiffness or tenderness only</b> No physical signs
Grade II	<b>Neck complaint</b> <b>Musculoskeletal signs including:</b> <ul style="list-style-type: none"> <li>• Decreased range of movement</li> <li>• Point tenderness</li> </ul>
Grade III	<b>Neck complaint</b> <b>Neurological signs including:</b> <ul style="list-style-type: none"> <li>• Decreased or absent deep tendon reflexes</li> <li>• Muscle weakness</li> <li>• Sensory deficits</li> </ul>
Grade IV	<u>Neck complaint and fracture or dislocation</u>

**Whiplash Classification Scheme** Spitzer WO, Skovron ML, Salmi LR, et al. Scientific monograph of the Quebec Task Force on Whiplash-Associated Disorders: redefining "whiplash" and its management. Spine 1995;20(8 Suppl):1S-73 1

**REFER:** Patients with Quebec Task Force WAD Grade I-III as early in the course of care as possible. This would include patients with headaches and non-progressive neurological symptoms

In particular, patients with the following factors should be referred in order to decrease the probability of developing chronic symptoms:

- IES score ≥26 pts
- NDI score ≥30 pts
- Older patients
- Cold Hyperalgesia

We can help determine if your patient has factors predictive of chronicity and the likelihood they would benefit from physical therapy intervention. Please give us a call or simply refer your patient. The best way is to send a consult with the “Evaluate and Treat” option checked. You will receive a copy of your patient’s initial note as well as a copy of the discharge note summarizing their outcome.

We look forward to the opportunity to partner with you in an effort to improve the health of your patients and enable their return to optimal function during work and leisure activities.

**CONTRAINDICATIONS:** Patients with rapidly progressing neurologic findings, suspected cerebrovascular events or complications, spinal infection, cancer, and fracture (WAD Grade IV) are obvious contraindications. Patients who have suffered moderate to major trauma may require x-rays before referral. Patients with previous history of cancer, significant night pain,

and unexplained weight-loss should be assessed carefully, and will be closely monitored following their referral.

## **MINIMALLY EFFECTIVE OR UNSUPPORTED INTERVENTIONS:**

Immobilization with a soft collar and the addition of an educational video to usual care have been found to be ineffective.<sup>4-6, 8, 15</sup> Treating WAD as a homogenous group is not helpful for identifying and preventing predisposed patients from developing chronic pain.<sup>4-6, 8</sup>

Patient selection using predictive factors and the Quebec Task Force Classification system as well as an early education<sup>15</sup> and early physical therapy referral approach is more likely to result in better outcomes and less long-term pain and disability than a uniform management model and “wait-and-see” approach.

## **INTERVENTION**

### ***Typical care episode***

Acute problems: 1 - 2 visits weekly for 1-3 weeks (total of 4-6 sessions)

Chronic problems: 2 - 3 visits weekly for 3-4 weeks (8-12 visits)

### **Content:**

1. Evidence-based examination of the cervicothoracic spine and upper quarter.<sup>16</sup>
2. Tailored, combined treatment approach of the cervico-thoracic spine consisting of manual therapy, exercise (flexibility, strength and endurance), and neuromuscular re-education

### **A. Manual Therapy**



### **B. Endurance Exercise**



### C. Strengthening & Stretching Exercises



### D. Neuromuscular Re-education



3. Education and advice based on emphasizing a stay-active and self-responsibility philosophy.
4. Home exercise and aerobic conditioning program

## References

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