

S.A.F.E. Protocol

For prevention of jaw joint and muscle sprain/strain injuries during dental treatment

INTRODUCTION

What is Jaw Joint and Muscle Sprain/Strain (JAMSS)?

Jaw Joint and Muscle Sprain/Strain (JAMSS) is the diagnostic term that describes an acute trauma to the jaw joint or muscles. JAMSS is characterized by sudden onset acute jaw pain, limited range of motion, tenderness or dysfunction. It is defined as a localized, acute musculoskeletal disorder caused by traumatic or mechanical injury or both. Sudden onset acute pain associated with JAMSS refers to a patient with no prior history of jaw pain or treatment for dysfunction. It is common for both muscle strain and joint sprain to coexist; therefore, it is not essential to differentiate for initial treatment of JAMSS.

JAMSS is one of the most common sequelae to dental procedures

Trauma during dental care may occur after local anesthetic injections, hyperextension from opening the mouth too wide or for too long a period, or placing excessive force on the jaw during a dental procedure.

Research indicates that more than 50% of patients with temporomandibular disorders (TMDs) report that the initial onset of pain was a direct result of dental care.¹

What are symptoms of JAMSS?

Symptoms of acute JAMSS (some or all may occur; no prior history)

- Acute jaw, face, ear, and/or head pain
- Limited, pain-free range of motion, less than 40 mm incisal to incisal edge
- Tenderness of jaw muscles and ligaments
- Dysfunction (difficulty chewing, opening or closing mouth)
- Inflammation with swelling and tenderness of joint
- Localized pain

What causes JAMSS?

Initiating factors of JAMSS

- Direct trauma to the jaw muscles or joints (including injections)
- Sustained or forceful contraction of the masticatory muscles
- Hyperextension of the masticatory muscles and temporomandibular joints
- Prolonged stretching of the masticatory muscles and joints, ligaments and tendons

Dental treatment causes of JAMSS

- JAMSS can occur after a dental procedure that requires opening the mouth widely for long periods or during dental care when placing pressure on the jaw.
- Procedures such as mandibular blocs, crown preparations, endodontic procedures, dental extractions, periodontal surgeries and others can sprain the TM joints and/or strain the jaw muscles leading to JAMSS.

What are risk factors associated with JAMSS?

Risk factors for JAMSS include behavioral, emotional, cognitive, and social risk factors, as well as comorbid conditions that are important in the progression to chronic persistent pain. Additionally, the patient's range of motion (ROM), the location and type of procedure, duration of the procedure, and type of anesthesia all factor into the risk for JAMSS injury. Refer to the S.A.F.E. Protocol – Procedure Risk Assessment Table for Jaw Joint and Muscle Sprain/Strain to identify and manage higher risk patients.

What is the S.A.F.E. Protocol?

The S.A.F.E. Protocol is a pre-treatment protocol to help dental professionals prevent and minimize Jaw Joint and Muscle Sprain/Strain (JAMSS) injuries during dental treatment.

The protocol is based on an orthopedic model of care that recognizes the unique characteristics of the jaw joint and facial musculature. The S.A.F.E. Protocol was developed by orofacial pain expert Bradley Eli, DMD, MS, with input from James Friction, DDS, MS, and Lee Ann Brady, DMD. The S.A.F.E. Protocol complements the JAMSS Speed-to-Treat Protocol, a comprehensive care plan to evaluate and manage acute jaw joint and muscle sprain/strain injuries over a 2 to 4-week period.

S.A.F.E. stands for:

- Set-up for safety
- Assess risk
- Follow protective measures
- Evaluate the patient post discharge

Risk Factors Associated with Jaw Joint and Muscle Sprain/Strain	
<i>Risk Factors</i>	<i>Examples</i>
Behavioral	Repetitive oral habits, muscle tension, jaw postural habits, diet, sleep, smoking, recreational drug use
Emotional	Anxiety, depression, fear
Cognitive	Poor understanding, unrealistic expectations, coping strategies, catastrophizing
Social	Lack of social support, secondary and tertiary pain, conflict, abuse
Comorbid conditions associated with chronic persistent pain	Fibromyalgia, migraine, back pain, other chronic pain conditions, history of acute jaw pain or injury

The S.A.F.E. Protocol is available to all dental professionals

Every team member needs to understand what JAMSS is, how it happens, and the systems in place in the office for prevention and management. The S.A.F.E. Protocol documents are made available free of charge to all dental professionals via www.quicksplint.com courtesy of Dr. Eli and Orofacial Therapeutics, LP.

A patient-centered portal, www.JawPainRx.com will be available soon, to educate and coach patients on jaw self-care measures that should be performed at home.

S – Set-up for Safety

- a. Educate your team about the risk of Jaw Joint and Muscle Sprain/Strain (JAMSS) injuries. Make sure everyone in your office, from the person answering the phone, who might take the post-op call, to your clinical staff of hygienists and assistants, need to know what JAMSS is and why speed-to-treat is important to prevent JAMSS injuries from progressing to a chronic pain condition. Demonstrate how you will screen for risk on a pre- and post-op basis, and how acute JAMSS should be treated using the JAMSS Protocol.
- b. Create patient education information on JAMSS to include in your digital signage, patient education materials in your waiting room, informed consent, and post-op instructions. Patients understand sprain/strain conditions for other joints and will relate to this concept as distinguished from other more chronic or complex orofacial conditions.
- c. Educate the patient prior to the procedure so that any post-op symptoms are not ignored and are identified and responded to promptly. Patient education about JAMSS should become a part of all pre-op and post-op patient instructions.

A – Assess Risk Associated with Patient and Procedure

- a. Complete the JAMSS Risk Assessment Questionnaire prior to the scheduled dental procedure. Signs and symptoms indicated in the JAMSS Risk Assessment Questionnaire can help identify a patient predisposed to jaw strain, delayed recovery, or chronic pain. Document any “yes” answers and specific information that will help with treatment planning or follow-up care.
- b. Perform an initial patient examination to check for acute JAMSS symptoms. The examination to diagnose and assess JAMSS risk should take no longer than 2-3 minutes and includes the following:
 - a. Range of motion (document pre-op and post-op)
 - b. Joint sounds
 - c. Signs of bruxism
 - d. Joint and muscle tenderness
- c. Consult the S.A.F.E. Protocol – Dental Procedure Risk Assessment Table which delineates the severity of risk for trauma or acute JAMSS injury from common dental procedures. Determine if the procedure to be performed is Low, Medium or High risk. This understanding can be used in treatment planning, informed consent, staff training, and patient education.
- d. If you identify a specific risk for JAMSS such as limited range of motion or prior history during your assessment, it is recommended that you fit the patient with a QuickSplint interim oral appliance for overnight wear and schedule a follow-up appointment in 2-4 weeks for an Extensive Evaluation. Use either the JAMSS Speed-to-Treat Protocol, or the Parafunction Risk Rating Protocol to help alleviate symptoms and gain diagnostic insight. The follow-up appointment should be documented and billed under D0160, as an Extensive Evaluation.

JAMSS Risk Assessment Questionnaire*

Use this questionnaire to evaluate patients for risk factors associated with Jaw Joint and Muscle Sprain/Strain (JAMSS)

1. Do you often have jaw or facial pain?	No	Yes
2. Do you often have headaches?	No	Yes
3. Do you have difficulty opening your mouth wide?	No	Yes
4. Does it hurt to open your mouth wide?	No	Yes
5. Does it hurt to chew hard or chewy foods?	No	Yes
6. Does it hurt after dental work is done?	No	Yes
7. Are your jaw and temple muscles tender when you press on them?	No	Yes
8. Do you often have aches and pain in your body?	No	Yes
9. Do you often notice yourself clenching or holding your teeth together?	No	Yes
10. Do you often feel depressed, downhearted, or blue due to pain?	No	Yes
11. Do you often feel anxiety or nervousness?	No	Yes
12. Do you often feel like you have had a lot of stress?	No	Yes

PATIENT NAME: _____

DATE: _____

PRIOR HISTORY: _____ No Yes

NOTES: _____

- A** Any "yes" answers suggest there is some risk of jaw joint and muscle sprain/strain (JAMSS).
- B** If the patient exhibits symptoms of JAMSS, implement the JAMSS Speed-to-Treat Protocol to reduce the chance of chronic jaw pain and dysfunction. The protocol manages and evaluates acute jaw joint and muscle sprain/strain over a 2 to 4-week period; it stratifies results and provides the practitioner with a clearly defined path for next steps in care.
- C** Even if you refer the patient to a specialist, you should initiate treatment of the acute pain symptoms with a QuickSplint® interim oral appliance and self-care measures.

*The JAMSS Risk Assessment Questionnaire is designed for use with the JAMSS Speed-to-Treat Protocol for treatment of jaw joint and muscle sprain/strain injuries, and the S.A.F.E. Protocol for prevention of jaw joint and muscle sprain/strain injuries during dental treatment.

For more information visit: www.JawPainRx.com



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S.A.F.E. Protocol Dental Procedure Risk Assessment Table* for Jaw Joint and Muscle Strain/Sprain (JAMSS)

Use this table prior to dental treatment to assess patient risk factors for Jaw Joint and Muscle Strain/Sprain, (JAMSS.) This table takes into consideration; site of procedure; anesthesia type; pain profile and duration of procedure; along with patient range of motion and prior history. Manage higher risk patients and procedures using prescribed JAMMS injury prevention measures.

LOW RISK	
<i>Prior History</i>	No prior history of acute jaw pain or injury
<i>Range of Motion</i>	Normal to 40 mm before procedure
<i>Site of Procedure</i>	Upper anterior(s)
<i>Anesthesia type</i>	Topical anesthesia and infiltration
<i>Pain Profile</i>	Type of care is not expected to cause pain
<i>Length of Procedure</i>	Short procedure with breaks
MEDIUM RISK	
<i>Prior History</i>	History of acute jaw pain or injury
<i>Range of Motion</i>	Less than (<) 40mm or hypermobility over (>) 50 mm before procedure
<i>Site of Procedure</i>	Mandible: anterior to 1st molar/premolar Maxillary: bilateral posterior
<i>Pain Profile</i>	Procedure may create mild to moderate pain without bleeding
<i>Anesthesia type</i>	Mandible: analgesia infiltration Maxillary: nerve block
<i>Length of Procedure</i>	Long procedure with breaks
HIGH RISK	
<i>Prior History</i>	History of acute jaw pain or injury. Signs of significant parafunctional behavior
<i>Range of Motion</i>	Less than (<) 25mm or hypermobility over (>) 60mm before procedure
<i>Site of Procedure</i>	Posterior lower molars, bilateral lower premolar/molars, bilateral upper molars
<i>Pain Profile</i>	Moderate to severe pain or bleeding with post-operative measures required
<i>Anesthesia type</i>	Multiple mandibular anesthetic injections
<i>Length of Procedure</i>	Long procedure with breaks

*The S.A.F.E. Dental Procedure Table is designed for use with the S.A.F.E. Protocol for prevention of jaw joint and muscle sprain/strain injuries during dental treatment.

For more information visit: www.JawPainRx.com



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F – Follow Protective Measures

The extent to which protective measures are followed should be customized according to the reasons for which the patient is in a specific risk category. For example, the use of certain dental technologies, materials and techniques may result in longer treatment times and the need for staged treatment. The more comprehensive the restoration plan, the more likely the patient could experience some level of JAMSS due to frequency of care. Special consideration must be made for appointment lengths and the frequency of breaks for jaw relaxation.

For high risk patients and/or special needs patients, the following measures can be implemented on the day of a dental procedure to decrease the risk of JAMSS injury:

1. Schedule intentional time for breaks during the procedure
2. Avoid opening the patient's mouth too wide or for too long a period
3. Minimize fulcrum pressure during operative work
4. Never force the jaw open
5. Limit the use of bite blocks that keep the mouth open for longer periods of time
6. Make a QuickSplint before the procedure for use by the patient during breaks
7. Avoid multiple injections to achieve anesthesia. If multiple injections are used, the use of the JAMSS Protocol (providing a QuickSplint post-operatively) could be used to prevent trismus and acute strain.

E – Evaluate the Patient Post Discharge

After the appointment, it is helpful to call and ask the patient if they have any pain in the jaw, temples, or joint, documenting symptoms that might indicate the presence of JAMSS. Schedule a follow-up appointment and conduct a post-treatment assessment for Medium and High-Risk patients using the same patient evaluation steps described previously.

Post discharge Evaluation:

- a. Complete the JAMSS Risk Assessment Questionnaire
- b. Perform a patient examination to check for acute JAMSS symptoms. The examination should take no longer than 2-3 minutes and include the following:
 - a. Range of motion (compare to pre-op measurement)
 - b. Joint sounds
 - c. Signs of bruxism
 - d. Joint and muscle tenderness

There are two situations where you should consider implementing the JAMSS Speed-to-Treat Protocol:

1. If the patient presents with pain and/or tenderness in the muscles or joints and/or limited range of motion (a decrease from the pre-treatment ROM measurement).
2. If the patient has a prior history of complications, or showed signs of jaw fatigue during surgery.

Reference

1. Brady LA, Friction J, Eli B, Postoperative Jaw and Muscle Pain, a guide to risk assessment, prevention, and treatment. *Inside Dentistry*. April 2017 69-76
2. Friction, James et al. Preventing chronic pain after acute jaw sprain or strain. *The Journal of the American Dental Association*, Volume 147 , Issue 12 , 979 – 986
3. Friction J, Kroening R, Haley D, Siegert R. Myofacial pain and dysfunction of the head and neck: a review of clinical characteristics of 164 patients. *Oral Surg Oral Med Oral Pathol*. 1985;60(6):615-623
4. Gatchel,RJ, Stowell AW, Wildenstein L, Riggs R, Ellis III E, Efficacy of an early intervention for patients with acute temporomandibular disorder-related pain, a one-year outcome study. *JADA*, vol.137 March 2006 pp 339-347

TO LEARN MORE ABOUT
JAW JOINT AND MUSCLE SPRAIN/STRAIN (JAMSS)

READ THE MOST RELEVANT CURRENT INFORMATION
Journal of the American Dental Association: Dec 2016
Preventing chronic pain after acute jaw sprain or strain
[http://jada.ada.org/article/S0002-8177\(16\)30569-4/pdf](http://jada.ada.org/article/S0002-8177(16)30569-4/pdf)

TAKE A CE COURSE ONLINE
Earn 2 CE units of peer-reviewed continuing education
via the online course, *Postoperative Jaw and Muscle Pain,
A guide to risk assessment, prevention, and treatment*
by Lee Ann Brady, DMD; James Friction, DDS, MS: and Brad Eli, DMD, MS
Cost is \$16.
https://cdeworld.com/courses/5065-Postoperative_Jaw_and_Muscle_Pain

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helpful educational materials and other treatment protocols
that are available free of charge to dental practitioners.
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when you order using this identifier code: JAMSS Protocol