

SECTION O *revised 4/2019*

ERGONOMICS

Ergonomics is the study of the relationship between people and machines or between employees and their environment. This section has been included in response to the rapidly escalating incidents of repetitive motion injury (RMI) occurring from repetitive work place operations, including, but not limited to operation of computer terminals. Cal-OSHA regulations 5110 notes that RMI's were "predominately caused (i.e. 50% or more) by a repetitive job, process, or operation". Causes of RMI's include:

- Repetitive Activity
- Trauma
- Crystal Deposits (such as Gout)
- Friction
- Systemic disease (Rheumatoid arthritis, gout)

The most common types of repetitive motion injuries are **tendinitis** and **bursitis**. These two disorders are difficult to differentiate, and many times may coexist.

1.0 Tendinitis

- A tendon is a white fibrous tissue that connects muscle to bone and allows for movement at all joints throughout the human body. Because tendons must be able to bear all of the weight of the attached muscle, they are very strong.
- Tendinitis is an inflammation of the tendon. (Whenever you see "-itis" at the end of a word, think "inflammation.")
- Common sites of tendinitis include the shoulder, the biceps, and the elbow (such as in tennis elbow).
- Males are slightly more likely to have this disorder.
- The inflammation of the tendon usually occurs at the site of insertion into bone.
- Tendons run through a lubricating sheath where they connect into muscle, and this sheath also may become inflamed. This condition is known as tenosynovitis.
 - Tenosynovitis is almost identical to tendinitis because both have identical causes, symptoms, and treatment.
 - Tenosynovitis of the wrist may be involved in **carpal tunnel syndrome**, the most common compression nerve disorder, but this cause-and-effect relationship has never been proven.

2.0 Bursitis

- A bursa is a small pouch or sac that is found over an area where friction may develop and serves to cushion or lubricate the area between tendon and bone.
- Bursitis is inflammation of a bursa sac.

- Over 150 bursae are in the body.
- Most bursae are present at birth, but some come into existence in sites of repetitive pressure.
- Common areas where bursitis can occur include the elbow, knee, and hip.
- Different types of bursitis include traumatic, infectious, and gouty.
- Traumatic bursitis is the type involved with repetitive motion injuries.
- Traumatic bursitis is most common in people younger than 35 years.

3.0 To evaluate overall ergonomics and help reduce injuries due to RMI, school districts should:

3.1 Complete an injury record review (such as CAL/OSHA 300 Logs, workers' compensation loss run, etc.) to identify the frequency of RMI injury and risks in the work place.

3.2 If injuries due to RMI exist, then work place evaluations should be performed. The evaluations should include:

- Review of work activities
- Interviews with employees
- Identification of dangerous tasks
- Documentation of findings

Districts should contact the SIPE Safety Officer to perform work place evaluations.

3.3 A system to encourage employees to report RMI symptoms or risks should be established. School districts must ensure that all reported RMI symptoms are reported to Workers' Compensation Administrators and the SIPE Safety Office. Districts can use the hazard/suggestion report ([SIPE Form 2-588](#)) or an Employee's and Supervisor's Report of Industrial Injury/Illness Report ([SIPE Form 6-588](#)) to fulfill the requirement. These forms can be obtained from the district personnel office.

3.4 Based on the severity of the identified risks, risk control measures may need to be implemented. Such measures should include:

a. Engineering Controls - This can be accomplished by designing or modifying the work station, work methods, and tools to eliminate excessive exertion and awkward postures, and to reduce repetitive motion.

b. Work Practice Controls - an effective program for hazard prevention and control includes procedures for safe and proper work practices including training and wellness programs that are understood and followed by managers, supervisors, and workers. Key elements of a good work practice program for ergonomics includes proper work technique, employee training, regular monitoring, feedback, maintenance, adjustments, modifications and enforcement.

c. Personal Protective Equipment (PPE) - PPE should be selected with prevention of ergonomics stressors in mind. Appropriate PPE should be provided in a variety of sizes, should accommodate the physical requirements of workers and the job, and should help prevent extreme postures and excessive forces.

d. Administrative Controls - a sound overall ergonomics program includes administrative controls that reduce the duration, frequency and severity of exposure to ergonomic stressors. Examples of administrative methods include the following:

1. Reducing the total number of work repetitions per employee by such means as decreasing production rate and limiting overtime work.
2. Providing work pauses to relieve fatigued muscles and tendon groups. The length of rest time needed depends on the task's overall effort and total cycle time.
3. Increasing the number of employees assigned to a task to alleviate potential injury conditions, such as lifting heavy objects.
4. Using job rotation as an injury prevention measure, not as a response to symptoms.
5. Effective housekeeping program to minimize slippery work surfaces and related hazards such as slips and falls.

1.5 Training: General awareness and job specific training are available through the SIPE Safety Office, or through the getsafetytrained.com online training portal. Districts should contact the SIPE Safety Officer at 805-922-8003 to schedule such training. This training includes:

- Discussion of RMI risk factors, symptoms, consequences, safe workplace methods, medical management system and reporting procedures.
- Job specific training for all employees whose work activities engineering or administrative controls or require personal protective equipment.

Reference: [California OSHA Subchapter 7, GISO Article 106. Ergonomics Section 5110](#)