

Electromyography (EMG)

- Electromyography (EMG) measures muscle response or electrical activity in response to a nerve's stimulation of the muscle during rest and contraction.
- EMG may be used to analyze muscle dysfunction in athletes, detect inappropriate muscle activation patterns and assist in establishing and assessing treatment outcomes in conditions like incontinence and low back pain etc.

Applications:

- 1.** Surface EMG is commonly used to quantify the magnitude and timing of muscle activation during various physical tasks.
- 2.** It provides immediate biofeedback for athletes learning and mastering a skill
- 3.** Useful in acquiring new information on a specific sporting task to model better performance, more resilience to injury and safe return-to-play following rehabilitation.
- 4.** Helpful in identifying nerve injury or muscle disease such as carpal tunnel syndrome, a pinched spinal nerve, peripheral neuropathy, myositis, or ALS,

Testing Protocol

Preparation of Subject:

- Fasting is not required before the test, but cigarettes & caffeinated beverages to be restricted 2-3 hours before testing. Ask the participant for any medication or cardiac pacemaker.
- No lotions or oils on skin on the day of the exam, Electrode placement site shaved & cleaned,
- Ask participant to remove jewelry, hairpins, eyeglasses, hearing aids, or other metal objects that may interfere with the procedure

Test Administration

- Ask participant to sit or lie down on a comfortable platform for the test.
- Locate the muscle(s) to be studied by palpation and mark the site. The electrode placement site may be one of these- (1) over the motor point; (2) equidistant from the motor point; (3) near the motor point; (4) on the mid-point of the muscle belly; (5) on the visual part of the muscle belly; (6) at standard distances of osteological reference points and (7) with no precision at all with respect to its placement.
- Skin to be cleansed with an antiseptic solution, place surface electrodes at the site, a ground electrode should be positioned under arm or leg.
- Run the software and enter the required information.
- Ask the participant to relax and then perform slight or full-strength muscle contractions.
- Carefully observe the electrical activity from working muscle being displayed on the computer screen.
- Remove the electrodes carefully clean the site again and save the results for further analysis.

