

Kelowna Pain Clinic

Kelowna Pain Clinic - Intended for diagnosing neuromuscular disorders an electromyograph (EMG) is an instrument which can be used. It records the muscle fibers' electric activity and the motor neurons that activate them. The EMG makes a visual image on a television screen and an auditory record of the electric signal transmitted to the electromyograph from the muscle. The signals are measured in millivolts. The visual image comes out as a graph of a wave function. The auditory record makes a crackling sound. Together, the visual and auditory record can help to find out the causes of nerve damage and muscle weakness.

There are two types of electromyography: surface EMG and intramuscular EMG.

The intramuscular EMG method uses a thin needle electrode which is inserted into the muscle. After inserting the needle into the muscle, a jolt of electrical activity is generated as the needle moves throughout the muscle. The signal fades since the resting muscle usually generates no electrical activity. Hence, whatever irregular electrical activity the EMG picked out while the muscle is resting, like for instance fibrillation potentials, can signify disease or damage.

When a muscle contracts it will generate an electrical pulse which can be measured by an intramuscular EMG. Even being measured are which motor neurons are firing, the strength of the contraction, and the density of motor units in certain sections of the muscle. Motor units refer to individual neurons as well as the muscle fibers they control. Severe damage to the nerves causes some motor neurons to produce new branches and take over muscle fibers once belonging to nerves that are damaged. A higher frequency is detected in these neurons that are compensating for the loss of the damaged neurons.

Intramuscular EMG can provide doctors with a lot of information from which to make a probable diagnosis. EMG can help diagnose common neuromuscular diseases such as compression of a nerve root due to a herniated disc, trauma damage to nerves, and muscular dystrophy. The needle will be inserted lots of times in order to sample an adequate amount of muscle tissue for a right diagnosis.

The surface EMG method involves electrode patches on the skin's surface. Surface EMG normally does not provide as detailed a record of individual motor units as the needle EMG does. Nevertheless, surface EMG is useful for making general measurements of muscular activity in general areas of the body. It is used all through physical therapy with people who have nerve or muscle damage enabling them to see how strong their muscles are becoming and when their muscles contract. The surface EMG is thus utilized a biofeedback device.