



Motor units' relationship with Electromyography (EMG)

Motor unit—:

~~A single~~Each motoneuron ~~and its axons~~ supplies ~~not only just a muscle fiber, but also~~ several muscle fibers through its axons. A motor unit comprises all the muscle fibers that is supplied by ~~one a~~ motor neuron through ~~its a~~ single axon, along with its branches ~~are called a~~ **Motor Unit**. A variety ~~of numbers~~ of muscle fibers are present in a single motor unit—for instance, it has been reported that approximately 120,165 fibers are present in one motor unit. ~~It is observed in cat leg muscles that approximately 120, 165 fibers are present in one motor unit.~~

EMG

The first step in measuring a motor unit's activity is ~~measured through to placing~~ a coaxial electrode ~~in to on~~ the muscle ~~that is to be studied—~~ a hollow needle can be made into a coaxial electrode by adding an insulated inner wire. Next, ~~they are the muscle is~~ connected to an electromyography (EMG) device via the electrode. A recording (called an electromyogram) is then obtained during muscular activity. ~~This recording is called an electromyogram (EMG).~~

~~A hollow needle can be made in to a coaxial electrode introducing an insulated inner wire with in it.~~ After that, ~~p~~ossible changes are recorded from a small volume number of the muscle fibers near in immediate neighborhood of the tip of the needle. ~~Thus, it is~~ has been observed that most ~~of the~~ electrical activity comes is from the active fibers near the electrodes. Sometimes, surface electrodes ~~are is~~ used in-stead of deep muscle coaxial electrodes. In this ~~recording method case,~~ two surface electrodes are placed (at an appropriate distance from each other) over the muscles to be studied ~~muscle's at a reasonable distance.~~

~~When the muscle is at rest, no action is potential recorded~~ No action potentials are recorded when the muscle is at rest; however, potentials are recorded as soon as once the muscle

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Commented [E4]: Note that the abbreviation "EMG" was used for two different terms in this paper. Therefore, I have eliminated its use to refer to "electromyogram" to prevent confusing the reader.

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becomes active, ~~potentials are recorded~~. The ~~se potentials recorded during activity is as a~~
~~result of result from~~ the asynchronous discharge of motoneurons ~~in the vicinity of near~~ the
electrodes. During minimal voluntary activity, only a few ~~number of~~ motor units
discharges, ~~with more units becoming active, and~~ as ~~the~~ voluntary effort increases ~~the more~~
~~number of units is activated~~. This phenomenon is called ~~as the~~ recruitment of motor units
The gGradation of muscular activity is ~~a partly a of the function of the a~~ number of motor units
activated. Electromyographic studies have clinical~~ly~~ importance in diagnosing~~g of~~ motor unit
disorders, including peripheral nerve injuries ~~and~~ neuromuscular disorders such as myotonia
and myasthenia gravis, ~~so on and so forth~~.

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