

Repetitive Nerve Stimulation (RNS): 3 Hz Trapezius Recording

Patient Position: The patient is examined while seated in a chair with the arm hanging straight down or the patient laying on the bed; the head of the bed is elevated 45 degrees from horizontal.

Skin Prep: Wipe with alcohol, temperature check.

Settings: Sweep Speed: 3 ms/div

Sensitivity/Gain: 5 mV/div

Filters: 2 Hz - 10 kHz

Recording:

Active: The active electrode is placed on the trapezius muscle one-half the distance along a straight line from the C7 spinous process to the prominence of the acromioclavicular joint.

Reference: The reference electrode is placed over the acromion.

Ground: The ground electrode is placed between the active recording electrode and the cathode.

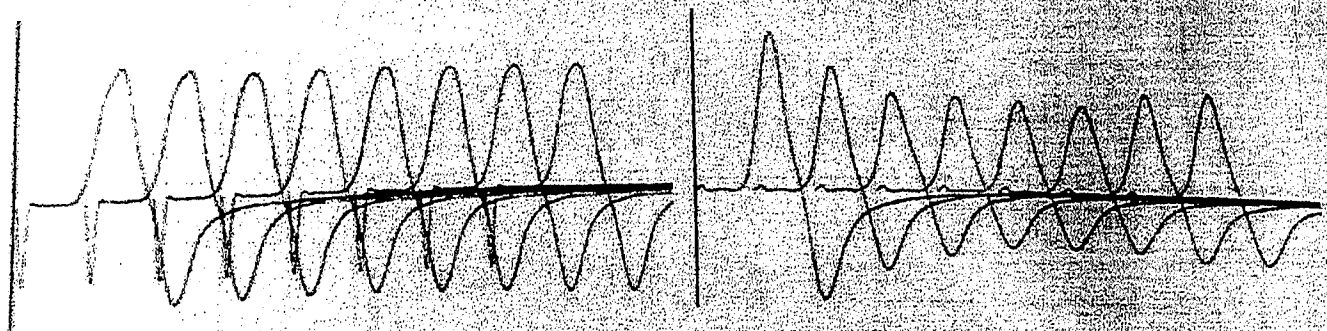
Stimulation: The spinal accessory nerve is stimulated at the posterior border of the sternocleidomastoid muscle behind the ear. The nerve is superficial at this point and can be maximally stimulated with low-intensity pulses, which minimize discomfort and avoid stimulating other muscles.

Measurements:

Amplitude difference of the compound muscle action potential from baseline to negative peak (%) between 1st and 4th waveform.

Key Points:

Recording difficulties may occur due to various technical issues such as excessive stimulation intensity producing large stimulus artifact, excessive movement artifact due to poor subject relaxation and inadequate immobilization, recording electrodes not properly immobilized over the muscle (secure electrodes with tape), stimulation electrodes moving during RNS (hold the stimulator firmly in one place during stimulation). Abrupt changes from waveform to waveform indicate technical problems whereas more or less smooth changes between consecutive waveforms are indication of a physiological cause (see decremental response below).



Normal response to repetitive stimulation

Decremental response to repetitive stimulation

