

Illustrated Manual of

PART I

**NEUROLOGICAL
Reflexes/Signs/Tests**

PART II

**ORTHOPEDIC
Signs/Tests/Maneuvers**

PART III

**PHYSIOLOGICAL
Signs/Tests/Maneuvers
& Phenomenons**

For Office Procedure

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The Proprioceptive System continued

The outstanding objective sign: Nystagmus (true), a horizontal, vertical or rotary oscillation of the eyeballs. True nystagmus must have both a fast and a slow component and must be sustained.

Such nystagmus may be elicited by having the patient look to the right or to the left and hold the gaze, the resulting action being characterized by a fast movement to the deviated side and a slow movement to the neutral side.

Nystagmus is referred to as right or left, superior or inferior, relative to the side of the fast component.

REFLEX STATUS

Reflexes constitute some of the most important findings in a neurological examination. The majority of times, improper procedure, interpretation and significance is given to these extremely helpful responses. When properly performed, however, an examination of reflex status will give such valid information as will be found in the neurological realm.

Reflexes are classified into three major categories:
I. The Deep II. The Superficial III. The Pathological

I. The deep reflexes, also called tendon reflexes (or redundantly, the deep tendon reflexes) are the responses of a muscle or a group of muscles to being quickly and controllably stretched, hence another term, the stretch or myotatic reflex is currently being used. An understanding of the mechanism of this reflex is essential for the examiner to intelligently interpret the significance of any pathological responses.

The deep reflex is dependent upon five anatomical divisions: One, a receptor in the form of a peripheral sensory nerve ending located in the muscle or group tendon, sometimes given the name of the Golgi Tendon Organ. When the tendon is stimulated by a quick and properly given stretch, e.g. a stroke with a percussion hammer, it will discharge an impulse along Two, an afferent (sensory) conductor. It is important to note that the stretch must be rapid and well applied, a slow or gradual stretch will not give proper stimulation. The impulse will be transmitted along the afferent conductor into and thru the sensory nerve root to the spinal cord where it will enter Three, a synaptic center which will convey the impulse over to Four, an efferent (motor) conductor to be distributed to Five, the efferent mechanism of muscle fibers. An interruption anywhere between the muscle and its receptor will give rise to the pathology of a Lower Motor Neuron Lesion. An interruption anywhere along the Pyramidal (Corticospinal) tracts which bring motor impulses from the cortex to the anterior horn cells of the spinal cord will give rise to the pathology of an Upper Motor Neuron Lesion. Therefore, the primary goal in the evaluation of deep reflexes is to determine if there is an Upper or Lower Motor Neuron Lesion.

When the criteria for properly taking deep reflexes is met, the reflex is almost totally involuntary, making it of special value as it cannot be faked by the patient and stands alongside other findings which cannot be simulated, e.g. unequal pupil size, unequal upper limb blood pressure, etc.

With every single stimulus (percussion hammer stroke) there should be one motor response, namely brief muscle contraction. When a single stimulus to tendon or skin elicits more than one or multiple responses, a condition of Clonus is evidenced; one of the criteria for an Upper Motor Neuron Lesion.

Deep reflexes can be graded as 1. Equal, Absent, Hypoactive or Hyperactive or by 2. The Wexler Scale, which is as follows:

0	Absent with reinforcement
1 (+1) (1+) (+)	Hypoactive
2 (+2) (2+) (++)	Normal (sluggish or brisk)
3 (+3) (3+) (+++)	Hyperactive
4 (+4) (4+) (++++)	Hyperactive with transient clonus
5 (+5) (5+) (+++++)	Hyperactive with sustained clonus

This author prefers the former method of grading by which one side is compared with the other giving a better anatomical reference. The determination in this respect is to elicit that of equality, which when presented indicates either a bilateral neurological pathology (a very remote possibility) or normalcy (the most probable and likely conclusion).