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# Rigidity versus Spasticity: Review on the Differences



**Behzad Saberi\***

Medical Research, Esfahan, Iran

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\*Corresponding author: Behzad Saberi, Medical Research, Esfahan, Iran Email : sab64b@yahoo.com

## Abstract

Rigidity as a component of the extrapyramidal syndromes and spasticity as a component of the pyramidal ones can be seen at the bedside. This is a review on the differences between the two which having knowledge about them is of importance to diagnose such syndromes and make appropriate decisions in the treatment of the affected patients. This short review tries to point to some important clinical notes in determining the differences between rigidity and spasticity as the components of the pyramidal and extrapyramidal syndromes.

**Keywords:** Rigidity; Spasticity; Differences; Extrapyramidal syndromes; Pyramidal syndromes

## Body

Pyramidal and extrapyramidal systems are two important systems in the nervous system which mostly control various movements. There are some pathologies which can affect these systems and cause some abnormalities in the normal function of various movements.

There are two abnormal neurological assessment findings including rigidity and spasticity. Learning how to distinguish these findings is of importance in determining that which one of the pyramidal or extrapyramidal systems has been affected by the pathologies [1,2]. Rigidity and spasticity are two types of hypertonia which arise from different anatomical pathways. So, making distinctions between the two would be of great help to localize the site of damage or lesion to the relevant anatomical pathways.

Extrapyramidal system dysfunction or lesion specifically at the basal ganglia, mesencephalon and spinal cord can result in the occurrence of rigidity while corticoreticulospinal tracts dysfunction or lesion can result in the occurrence of spasticity [3,4].

In rigidity the lead-pipe phenomenon can be seen while in spasticity the clasp-knife phenomenon can be seen. Tremor at rest and cogwheeling can be seen in rigidity but in spasticity there would not be any specific associated neurological signs. Clonus can be seen in spasticity but not in rigidity. Extensor toe sign can be seen in spasticity. In rigidity plantar reflexes are normal [5,6].

Hyperactivity in muscle stretch reflexes would be seen in spasticity while changes in such reflexes cannot usually be seen in rigidity. The hypertonicity in rigidity would affect antagonistic muscles pairs in an equal manner while in spasticity such hypertonicity can predominantly be seen in one muscle set. The hypertonicity in spasticity may be hemiplegic, tetraplegic, monoplegic or paraplegic while in rigidity such hypertonicity may be seen in all extremities as usual and may be with having a hemi distribution [2,7].

## Conclusion

It is important for the clinicians to have knowledge about clinical findings in rigidity and spasticity and the differentiation between them to approach the affected patients appropriately and with more precision in relevant clinical settings.

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