

INTRODUCTION TO PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION

Proprioceptive Neuromuscular Facilitation (PNF) is a concept of treatment. The basic of this method works up an American physician and neurologist Herman Kabat with physiotherapists Margaret Knott and Dorothy Voss. Its underlying philosophy is that all human beings, including those with disabilities, have untapped existing potential (Kabat 1950).

Authors don't discriminate between weakened muscles from inactivity or from paresis (EIDE peripheral or central). That's why this concept is practicable in all medical branches.

The keystone of PNF: facilitation of motor efferent centres and pathways on the base of systematic stimulation of afferent systems. It means facilitation of movement per signalling from own's body (exteroceptors, proprioceptors). Impulses from these receptors influence motor neurons in front spinal horns in unity with efferent impulses from brain centres. We exploit impact of visual and auditive receptors.

The basic neurophysiologic principles

- **Afterdischarge:** The effect of a stimulus continues after the stimulus stops. If the strength and duration of the stimulus increase, the afterdischarge increases also. The feeling of increased power that comes after a maintained static contraction is a result of afterdischarge.
- **Temporal summation:** A succession of weak stimuli (subliminal) occurring within a certain (short) period of time combine (summate) to cause excitation.
- **Spatial summation:** Weak stimuli applied simultaneously to different areas of the body reinforce each other (summate) to cause excitation. Temporal and spatial summation can combine for greater activity.
- **Irradiation:** This is a spreading and increased strength of a response. It occurs when either the number of stimuli or the strength of stimuli is increased. The response may be either excitation or inhibition.
- **Successive induction:** An increased excitation of the agonist muscles follows stimulation (contraction) of their antagonists. Techniques involving reversal of antagonists make use of this property (Induction: stimulation, increase excitability).
- **Reciprocal innervation (reciprocal inhibition):** Contraction of muscles is accompanied by simultaneous inhibition of their antagonists. Reciprocal innervation is a necessary part of coordinated motion. Relaxation techniques make use of this property.

Server: <https://uloz.to> (there is the whole textbook)

Find the file: PNF in practice (pdf, 12 MB) – the author: Susan S. Adler, Dominiek Beckers, Math Buck (<https://uloz.to/file/ZLA6SDYh/pnf-in-practice-pdf>)