

The Foot Core System Participation In Sensory Integration Disorders. Anatomical, Biomechanical And Sensory Implications.

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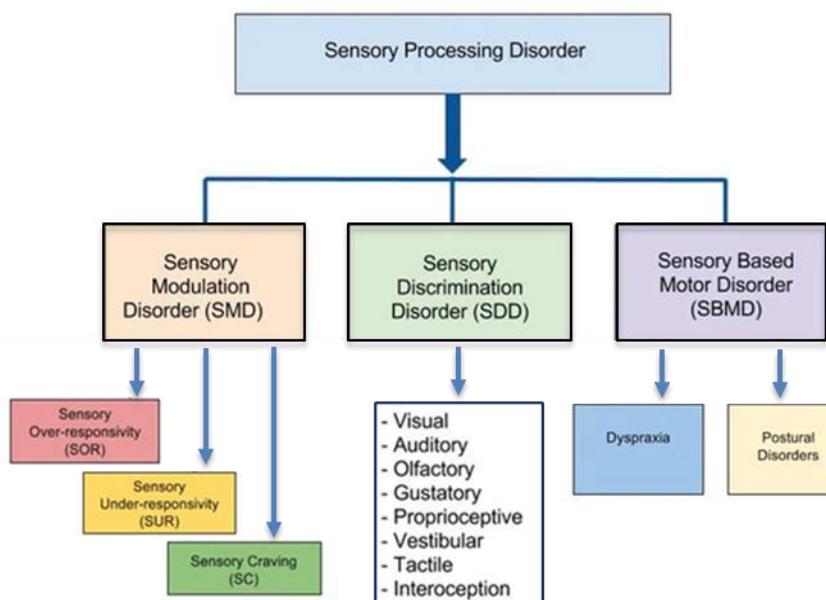


Keywords:

- Sensory Integration Disorders
- Sensory Processing Disorders
- Dys Proprioception Syndrome
- Foot Core System

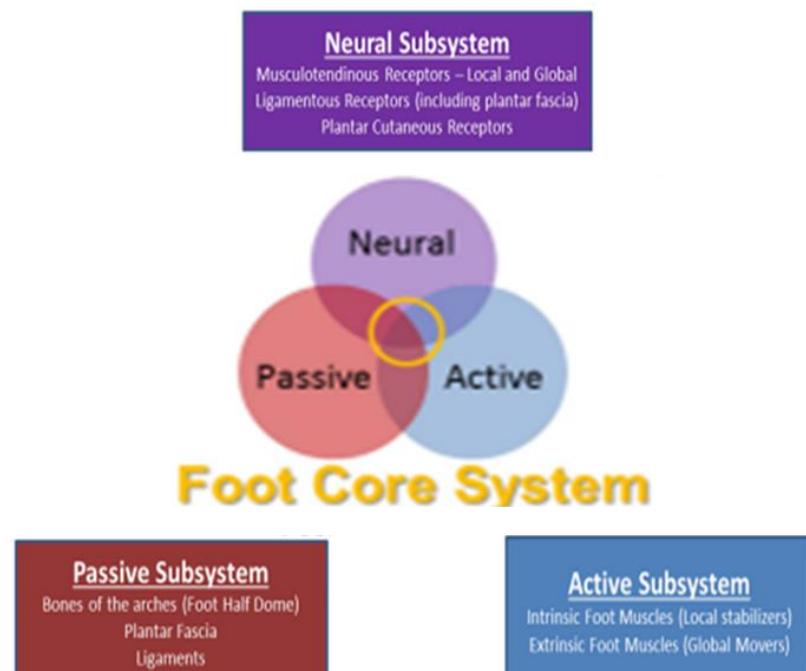
Sensory Integration Disorders, Sensory Processing Disorders or **Dys Proprioception Syndrome** are neurophysiologic disorders in which sensory input is poorly detected, modulated, interpreted and/or to which **atypical responses** occur induce a deficit in perceptuo-motor synchronization. Clinically objective signs are in 3 areas:

- **motor execution control**,
- **spatial location**
- **multisensory integration**

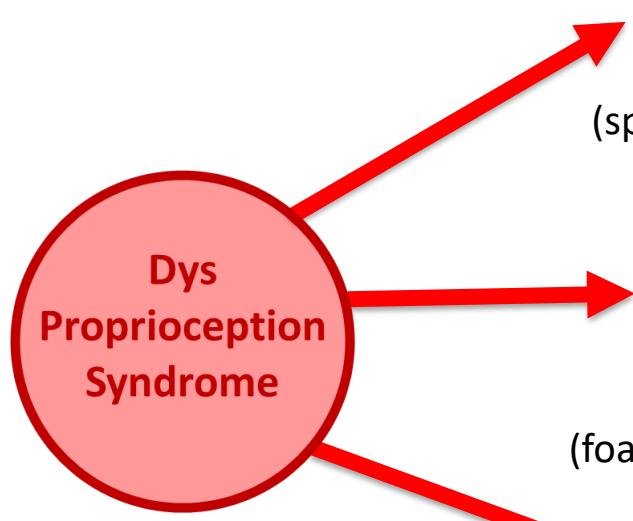


The **Foot** is a complex structure: many articulations and multiple degrees of freedom. To activate muscles for proper movement, the mechanical information's:

- **Passive**: bony & articular structures
- **Active**: muscles & tendons
- **Neural**: sensory receptors must be **combined continuously** with **multisensory information's**.



Foot is implicated in those 3 fields:



Motor Execution Disorders

principally: pelvic stability and walking parameters (speed & cadence, Biteau et al., 2019 ; 2021) could be improved through the use of plantar insoles (predictive responses).

Spatial localisation Labile

is modified by the localisation of plantar stimulations and materials used within the insoles

(foam and texture black pyramid, Loureau et al., 2022 ; Janin, 2022).

Multisensory Integration Disorders

temporary suppression of sensory and discriminations information by the brain (Mettey et al., 2019 ; Quercia et al., 2020). Foot sensory cues incongruity (conflict) with the others sensory processing/integration (Hide et al., 2021 ; Di Marco et al., 2021 ; Ayres, 1963 ; 1966 ; 1968 ; 1971 ; 1972).

To professionals concerned, there is strong evidence that Foot Core intervention demonstrates positive outcomes for improving individually generated goals of functioning, participation and cognition. To obtain results, treatment of the plantar modality must always be included in clinical multidisciplinary care.



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