

SENSORY INTEGRATION

Sensory integration is the ability to take in, sort out and connect information from the world around us. It takes place automatically as info is taken in through the senses (nerves, spinal cord and brain). It is refined and enhanced through out life by sensory experiences. It allows us to adapt to our environment and the events that come into our life.

A very important sense is proprioception. It is from the Latin word “one’s own”. It refers to perception of sensation from muscle and joints. Receptors tell the brain when and how muscles are contracting or stretching and when and how the joints are bending, extending or being pulled or compressed. This information enables the brain to know where each part of the body is and how it is moving.

Studies have found that stimulating the proprioceptive system through deep pressure clears the sensory defensiveness in other systems. Sensory defensiveness is a sensory integrative dysfunction in which sensations create negative emotional reactions. Associated with distractibility, restlessness and behaviour problems.

Hypersensitive Tactile System

An animal or human can be Sensory defensive or have tactile defensiveness. In the case of animals, a dog that dislikes being petted, routinely startles at someone walking by, likes to hide in small spaces, is overly stressed by loud noises, has great difficulty socializing or is challenged by new tasks or stimulus (or a combination of these things); MAY have a sensory defensiveness syndrome). The reticular formation within the brainstem filters information. Most of the information (99%) of it goes through the brainstem and is filtered out so that it does not come to the conscious level. One must be able to get past external stimuli to do a task. Animals or people that are sensory defensive (i.e. autistic children) do not filter out the sensory stimuli adequately and hence find some stimulus to be too much.

Temple Grandin (*Thinking in Pictures*) is an autistic individual that has used how her body ‘feels’ in certain situations to develop cattle handling systems that minimize stress on animals.

Treatment application: In order to calm an animal, Rhythmical, Smooth and Predictable movements or touch are required. Calming strategies (some listed below last for 2 hours in a human).

- ◆ Deep pressure (weight through the joints or on the muscles is settling, calming and organizing)
- ◆ Joint approximation / Compressions (slow and steady)
- ◆ Heavy weights and blankets (creates a secure feeling)
- ◆ Ear Pulls
- ◆ Tail Pulls

Hyposensitive Tactile System

An animal or child may be clumsy or have poor body awareness, get hurt easily or without knowing it, may not be able to localize touch on his body may have difficulty going up or down stairs, may walk with a wider base of support or slap his feet (to increase proprioceptive feedback). In order to stimulate an area (i.e. prior to competition or exercise) changes and incorporation of different movements, touches or patterns is useful.

Treatment application:

- ◆ Deep pressure (weight through the joints or on the muscles can be organizing and prepare the body for learning) I.E. clapping, tapping.
- ◆ Joint approximation (quick bouncy movements)
- ◆ Rubbing with Heat (hot packs) – rubbing vigorously
- ◆ Massaging before performance enhances proprioception and body responsiveness and learning ability.
- ◆ Deep pressure brushing to ‘wake up’ skin receptors, followed by deep proprioceptive exercises
- ◆ Low jumps (jt. approximation stimuli)
- ◆ Circles and patterns are calming and focusing
- ◆ PNF leg circles
- ◆ Rubbing against the hair
- ◆ Wringing the limb circumferentially

The teaching and then use of these techniques (when properly taught to the owner) can greatly change / improve the animal’s behaviour and stress level and therefore take away other sensory problems. This incorporates human neurological physiotherapy practices that are applied to patients suffering from strokes, spinal cord injuries, cerebral palsy and various neurological disorders.

Edge-Hughes, L. Sensory Integration. In Therapist Module of the Certification in Canine Rehabilitation Therapy course series for The Canine Rehab Institute. December 2009. Page 251 – 254.