



# Physiotherapy Sessions

## Senses

[www.downsyndromeuk.co.uk](http://www.downsyndromeuk.co.uk)

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# Senses

## What are they?



### SIGHT

I see with my eyes



### HEARING

I see with my ears



### TASTE

I see with my tongue



### SMELL

I smell with my nose



### TOUCH

I touch with my hand

These are the senses that we all think of, but to maximise a baby's development other senses have to be taken into account.

### VESTIBULAR SENSE

Relates to our ability to balance and have good sense of space (spatial awareness).

The vestibular system includes the parts of the inner ear and brain that process sensory information involved with controlling balance and eye movements. If this system is not properly developed symptoms may include unsteadiness (clumsy), hearing issues, anxiety, lack of co-ordination, reduced concentration and memory. All senses are developed by stimulation which should include rocking, swinging, changes of position, being up-side down, dancing etc. In simple terms handle, play and have fun with your baby. Give them movement experiences that they can't achieve themselves just yet.

### PROPRIOCEPTION SENSE

The sensory receptors are located in muscles, joints and tendons.

This is your body's ability to sense movement, action and location. It means you

can walk without thinking about where your feet are and sense if a change of surface, or steps are coming up.

As the musculoskeletal system in a baby with Down syndrome can be affected by hypermobile joints and low tone in muscles, we can expect this sense to be affected. Proprioception works with your vision, nervous system and vestibular system to create the perception of where your body is and how you're moving. It also helps you to judge how much force to use when writing or pushing something.

To improve and develop this sense you should handle and touch your baby with firm pressure and talk about what you are doing. Making connections with left and right side of the body helps with this. Rhymes "This is the way we wash our hands..." will reinforce body awareness.

Any exercise that strengthens the core (hip, back and stomach muscles) are great as they give stability to a baby's limbs and help them have control over movement with less effort. Let's look again at what we all think we know:

**Sight:** In the early days baby can only see objects close to them and in high contrast colours. As baby develops they will be able to track objects in all directions and focus near/far. To help with this provide the right type of stimulation and engage your baby with suitable toys and encourage eye tracking following favourite toys.

**Hearing:** Evidence shows that the auditory brain helps up to develop spoken language (also known as the 3rd dimension of speech), helps us to learn to read (brain mapping research shows the primary reading centres in the brain are in the auditory cortex) and it is this that helps us develop cognitive skills.

## Here are five simple techniques to practice 'serve and return' interactions with your child:

- Talking ahead or the listening sandwich (if using sign, use sign as the "filling")
- Waiting (giving baby time to process and attempt a response. Do not underestimate the wait stage as this gives the baby time to process and attempt a response. If they don't get it this time they may well give up trying)
- Expectant look (lean forward)
- Auditory closure (fill in spaces)
- Modelling

It is important to talk first, then wait and only then give the visual cue. Talking to infants and toddlers about the real things that are happening to them is the most natural and powerful way for them to learn language.

**Taste:** Officially known as the Gustatory system, taste is the perception produced or stimulated when a substance in the mouth reacts chemically with taste receptors in the oral cavity, mostly on the tongue. This is important for oral sensitivities and eating/drinking.

**Smell:** The sense of smell is closely linked to the part of the brain related to memory. Studies have shown that people with dementia can remember better when certain smells are triggered.

As taste and smell are closely linked it is important to stimulate these to encourage good oral skills (eating and swallowing). This can be done by actively exposing babies to a variety of smells a on daily basis. You can do this with your baby with everyday smells like lemon, cinnamon or using essential oils on a cotton bud. To ensure stimulation try 3-4 pleasant smells and 1 unpleasant (for example vinegar) per day.

**Touch:** Thought to be the first sense that humans develop. It consists of several distinct sensations communicated to the brain through specialised neurons in the skin. These sensations are: pressure, temperature, light touch, vibration and pain (through various receptors in the skin).

To stimulate this sense you should use various touches with your baby: Stroking (light and deep pressure), tickling, vibration (for example using an electric toothbrush), roughness (for example a beard) and skinto-skin to expose baby to a wide variety of tactile surfaces. You can also use warm and cold hands when appropriate.