

# Proprioception

## Definition

Just as our eyes and ears send information about what we see and hear to the brain, parts of our muscles and joints sense the position of our body and send these messages to the brain as well. We depend on this information to know exactly where our body parts are and to plan our movements. Proprioception refers to the processing of sensations received from the muscles and joints of our body which gives information to the brain about where each part of our body is and how it is moving. If we close our eyes and move our arm, we know exactly where our arm is in relation to our body without having to look. This helps us to perform everyday tasks, (e.g. dressing) without having to rely on our vision.

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### This sense helps us to:

- Stay in an good position in a chair
- Hold utensils such as a fork or a pen in the right way
- Judge how to move through space so that we do not run into things
- Know how far to stand away from people so we are not too close or too far
- Change actions where we are not successful, as the throwing of a ball that was off target.

Proprioception is important for good motor planning, body awareness, co-ordination, balance, postural control and muscle tone, and is closely linked to vestibular functioning. When writing, proprioception provides feedback related to extent, weight, and direction of movement allowing appropriate pencil pressure and directing writing movements.

### Stimulating activities:

- active movement
- reciprocal movement, i.e. pushing/pulling
- muscle contraction, i.e. heavy work

### Relaxing activities:

- weight bearing
- chewing
- sucking
- blowing
- muscle contraction, i.e. heavy work

## Functional implications

Children tend to:

- Fidget and move a lot in order to produce the sensation to give themselves sensory input
- Have poor posture
- Slap feet when walking
- Use excessive or insufficient force on objects, e.g. holding the pencil so hard it breaks
- Have an awkward and inefficient pencil grip
- Be slow at writing which is not automatic
- Have spatial awareness difficulties e.g. bumping into people
- Be clumsy and fall frequently
- Have difficulty performing tasks without seeing
- Appear unmotivated/frustrated

