Sensory stimulation / sensory integration

for Huntington´s disease

Occupational therapist

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What is sensory integration?

It is a process that goes on our whole lives. Every time we are in a new situation receiving new sensory input, our brain must integrate these inputs, and at the same time build on the sensory inputs that is already integrated. Disturbed ability to process sensory input have great consequences for how to perform activities.
Wrong interpretation of sensory inputs often leads to altered performing.

Sensory integration (SI) is also a specific treatment for improving the integration of sensory inputs.

Everything happens in the brain!

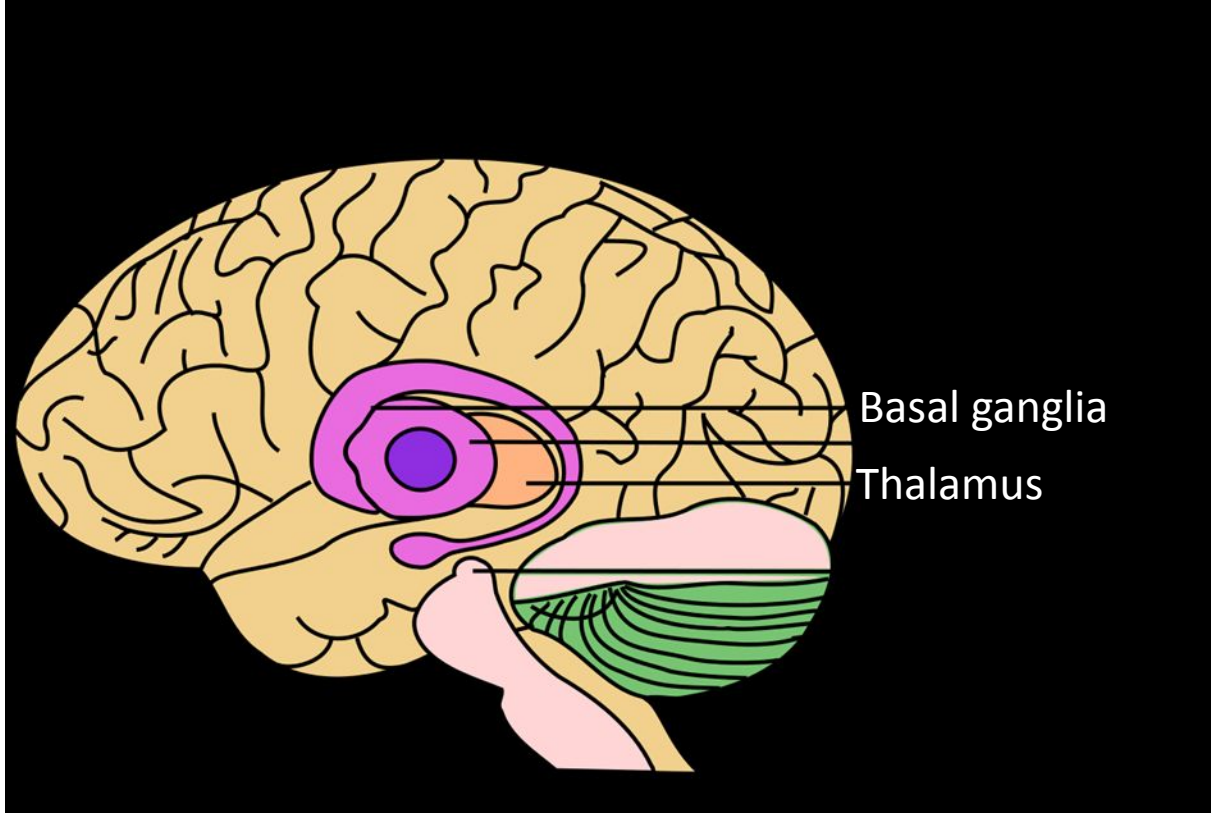
Huntington´s disease (HD) is loss of brain cells.
If we want better quality of life for a person with HD, we must influence the brain.

Reduced sensory integration

- Difficulties with integrating sensory input.
- Problems with conducting the behaviour lack of social adaptation.
- Will often be understood as hyper activity or bad behaviour.

Huntington's Chorea

- Inherited brain disease (gene mutations)
- Gives increased cell death in the brain.
- It is found all over the world.
- Expected to live 15 – 20 years after having got the diagnosis, but great varieties.
- «Dancing» movements, cognitive disorder, change of personality.



- The cortex and basal ganglia is especially hit.
- The basal ganglia regulates movements, change from one movement to another, change in muscle tone.
- Gives lack of memory, of concentration, of initiative, irritability, strong angry outburst, depression, lack of speaking or understanding, eating disorder, loss of weight.

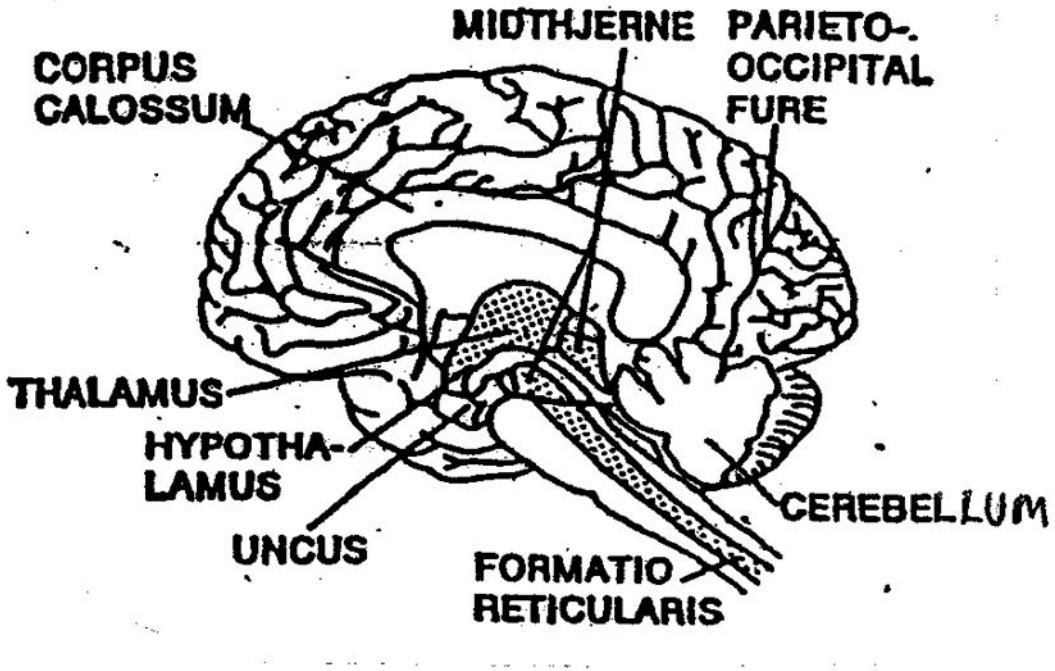
Luria: Three functional units of the brain

Luria: Unit 1

The unit for regulating muscle tone and wakening and mental states.

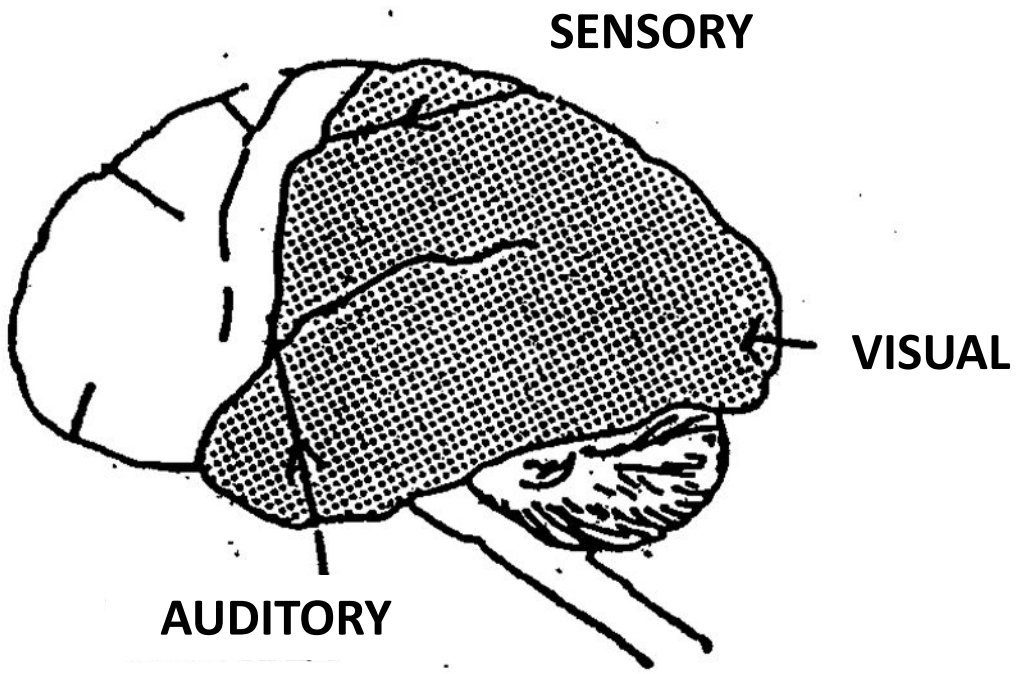
- Instant regulation of stimulus.
- Inhibit or promote impulses.

Unconscious processes



Luria: Unit 2

The unit for receiving, analyze and storing information.



- Receiving impulses from the specialists (look, hear, feel, motions)
- Pass on to analyze
- Associate / connect with earlier experiences

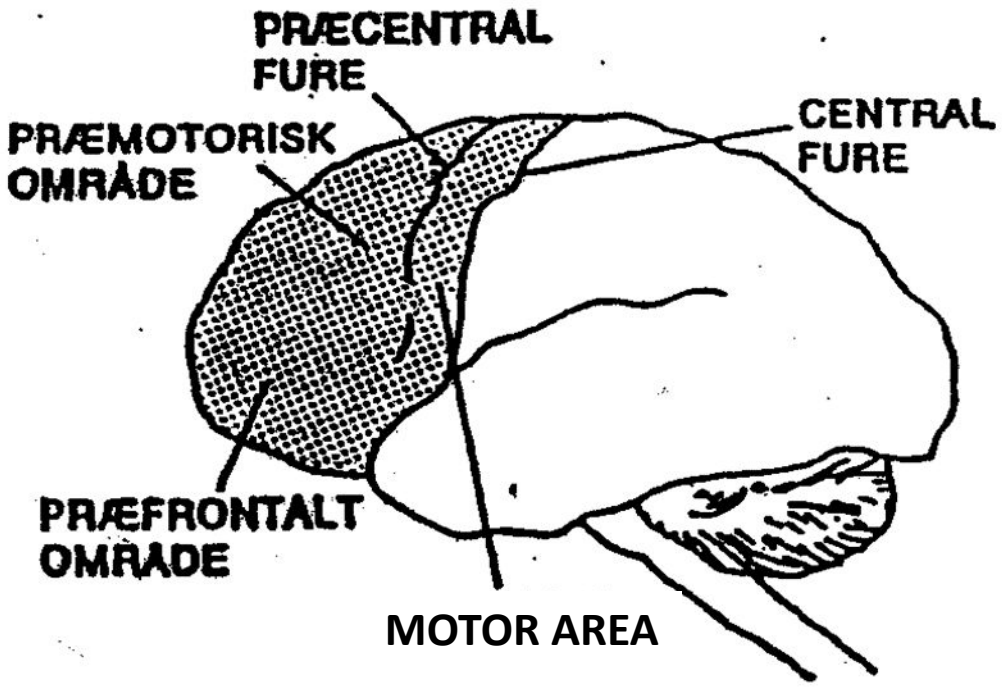
Conscious processes

Luria: Unit 3: The boss!

Frontal lobes
The unit for programming, regulation and verification of activity.

- Get ideas
- Make plans
- Initiate motor movements
- Control behaviour
- Correct behaviour

Conscious processes

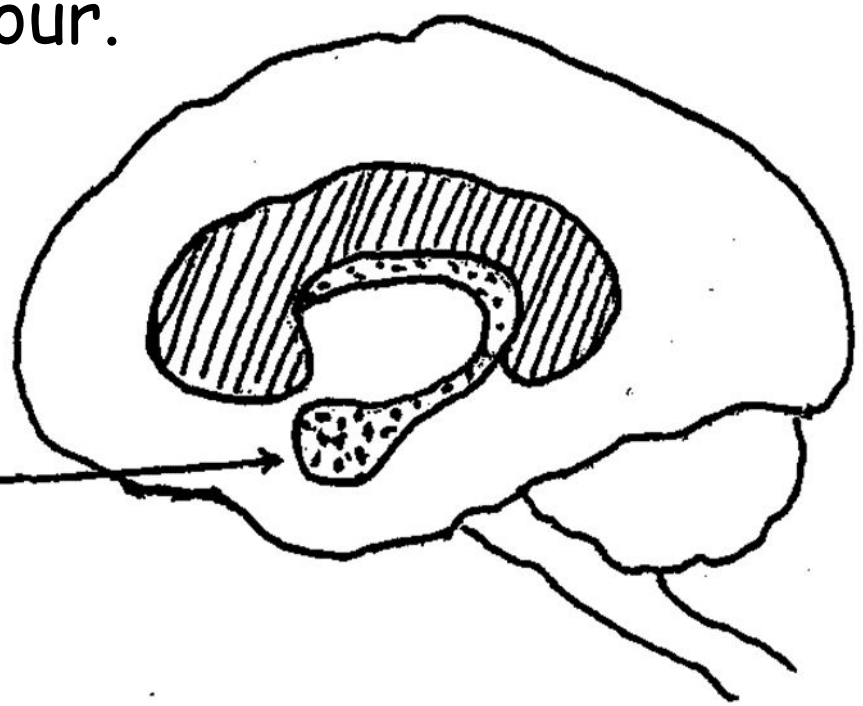


The limbic system: Emotions

The inside of all the lobes in the brain.

- Controls our emotional reactions.
- All sensory inputs are connected with feelings here.
- Has great influence on our social behaviour.

Unconscious processes!



Hippocampus:
A direct way to our long-term memory

Emotional changes in the limbic system

Frontal lobes:

Changed mental energy: - Apathy
- Disturbed control of impulses
- Latency

Loss of planning skills: - Incontinence for urine / stool
- Emotional incontinence

Loss of evaluation: - Indiscriminate
- Perseveration of movements / language
- Lack of inhibition

Emotional changes in the limbic system

Parietal:

Injured left hemisphere:

- Increased recognition
- Depression
- Self-blame
- Puzzled - what to do

Injured right hemisphere:

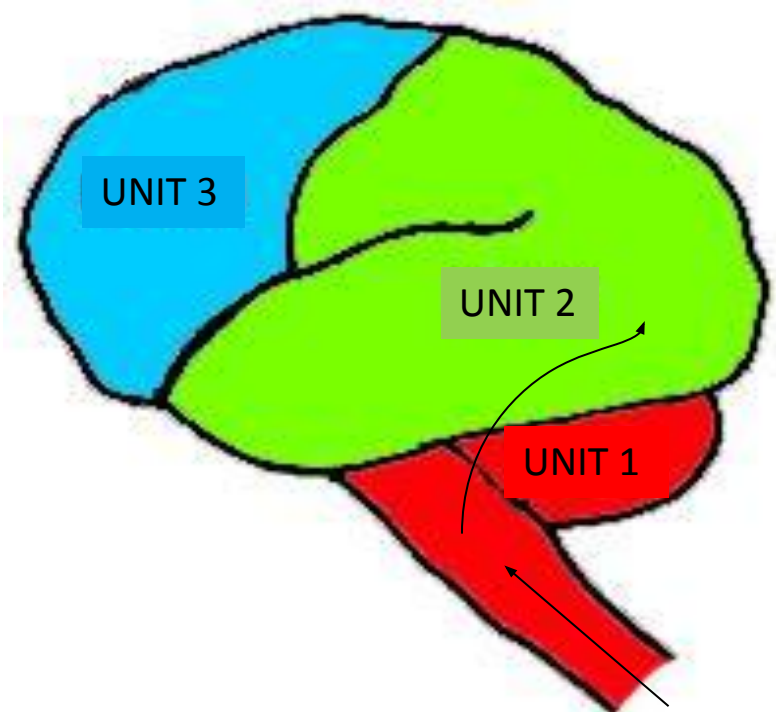
- Displace / deny
- Euphoria
- Projection
- Overconfident

Attention / Arousal

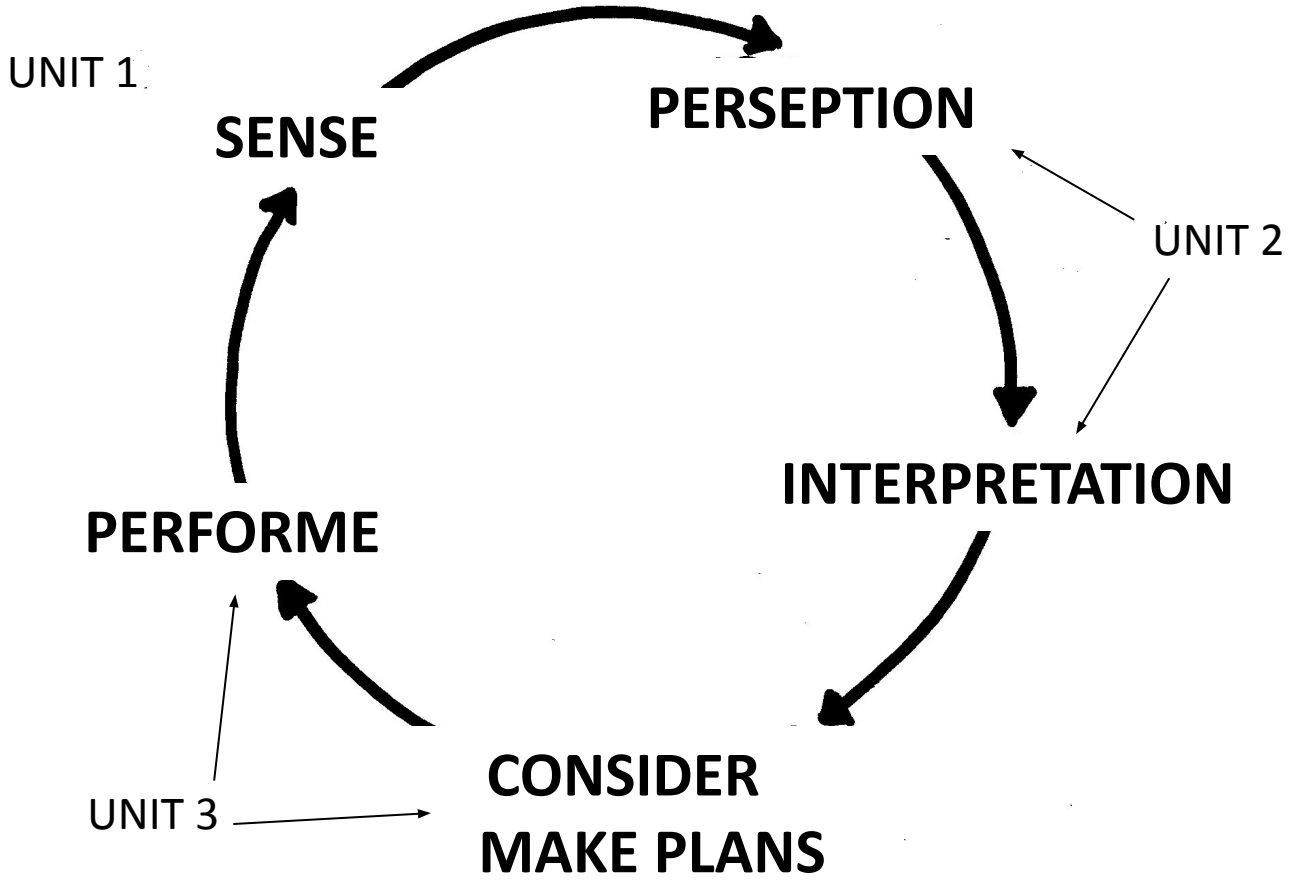
Cortex	Conscious Cognitive	•Abstract thinking •Analyse •Recognition
The limbic system	Emotional	•Chooses emotional fight or flight •Immediately reaction
Reticularis substance, Brain stem	Unconscious	Attention: Known or unknown, leads to stress

PERCEPTION:

Become conscious
of a
sensory stimulus



Sensing is a spiral process

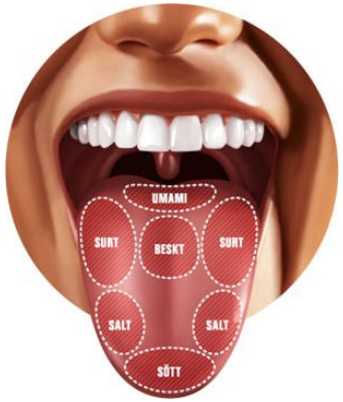


Our 7 senses

Hearing

Sight

Smell



Taste

Sweet, salt, sour, bitter, umami

Sensibility

Joint sense

Balance

Our systems of senses:

*Audited *Visual *Olfaktorius *Gustatory	Hearing Looking Smell Taste	Distant senses, register the surroundings
Tactile **Proprioceptive** ***Vestibular**	Feel: Surface (*face) Feel: Depth (muscle/joints) Balance, equilibrium	**Near senses, register sensing from your body**

BODY PERSEPTION
- the visual and mental recollection of the body

- **Tactile system** (feeling on and under the skin):
  Inside is me. Outside in not me.

- **Proprioceptive system** (tendons, muscles, joints):
  Feel positions of the body.

- **Vestibular system** (feeling of balance):
  Position in room / weight / direction.

When do we choose sensory stimulation / sensory integration?

- Low arousal, half asleep
- Uneasy, restless, confuse
- Low motivation
- Affective changes – apathy / aggressive
- Bodily disturbances

For whom?

- Craze / mania
- Delusions
- Hallucinations
- Self harming
- Splotchy
- Anxiety
- Tactile shyness
- ADHD
- Dementia
- Depression
- Huntington
-
-
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Increase alertness

- Lively music
- Vestibular stimulation (change speed, direction, order)
- Fresh air, wind
- Large movements, open up, stretch
- Ice cube in face, on artery in wrist
- Smells: Coffee, vinegar, garlic, lemon (vary!)
- Laughter is internal jogging ☺️
- Light and sound
- Light touch
- Small supporting area

The brain reacts before it acts!

If the patient shall be awake and more active, the brain needs something to react on.

Calming

- Calm music
- Firm, deep touching
- Massage with cream
- Rhythmic movements
- Rocking chair
- Walking in a rhythm
- Chewing
- Firm handling
- Wrapping of body
- Smells: Perfumes, oils
- Vibration
- Wide supporting area

Heavy tools

Weight makes a deep proprioceptive stimulation that:

- inhibits the stream of impulses to the CNS.
- increases body awareness,
  the patient feels the body borders,
  and therefore feels more calm.

Blanket with balls

Blanket with chestnuts

Blanket with chains

Heavy tools

Examples of diagnoses that can benefit from these:

- Neuropsychiatric diagnoses
- Mental health
- Dementia
- Neurological illnesses
- Brain damages
- Sleeping problems
- Spasticity
- Unrest and anxiety
- Anorexia /bulimia
- Elderly persons
- Huntington Chorea

Sensory stimulation for persons with Huntington

Examples of calming / soothing techniques:

- Heavy tools (during the night / in daytime)
- Massage (face, body)
- Brushing (tactile sense, the boundaries of the body)
- Pressing the joints together (the brain feels stability)
- Rolling a ball on the body (the boundaries of the body)
- Rocking (slow and soothing rhythm)
- Vibration (feel your "bones")
- Music (calm, mute the pulse)

You can use several stimuli at the same time:

- Blanket with weight + face massage + calm music
- Brushing, then blanket with weight in a rocking chair + calm music

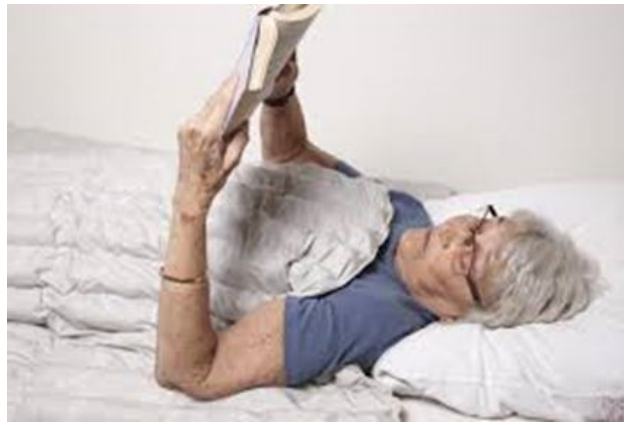
Therapressure Brush

I buy them from an occupational therapist in Denmark,
Birgitte Christensen Gammeltoft.

Price per brush: 35 DKK. (4,69 Euro)
A box with 48 brushes costs 1.660 DKK. (222,55 Euro) incl. the shipment
+ customs (25 % to Norway!)

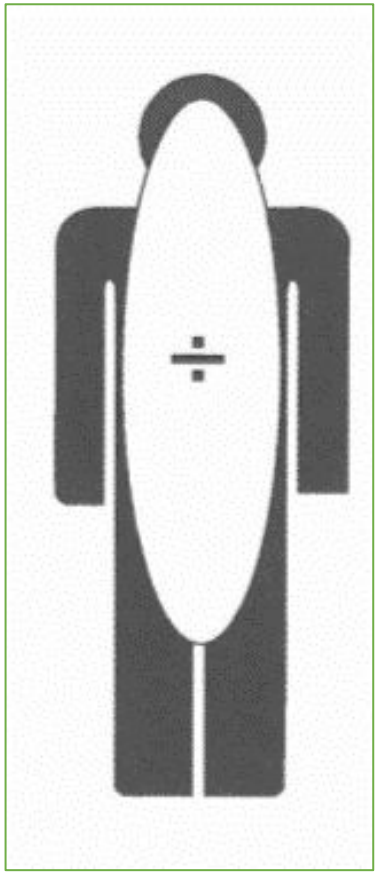
E-mail: kurt@gammeltoft.org
Website: www.gammeltoft.eu

Possible effects from sensory stimulation for persons with Huntington



- Stronger awareness of the body
- Less involuntary movements
- Become more independent in ADL
- Better sleep
- Better circulation
- Relaxation
- Better breathing
- Increased salivation (spit)
- Better swallowing
- Experience safety
- Wellness

How to use the brush



Tactile sense, the discriminating part.
Long and slow brushing back and forth. Hold the brush across. Firm brushing, but not hard. Try at yourself. Too soft brushing is unpleasant.

Brush the back, arms and legs, also fingers and feet.
Try not to lift the brush off the body if possible.
Avoid the oval area:
Face, chest, stomach, inside of thighs – only on the outside.
On the back *only down to the belt.*

Preferably on bare skin. Stop when you have cowered the skin, that is enough.

Think that you are giving the body back to the person ☺️

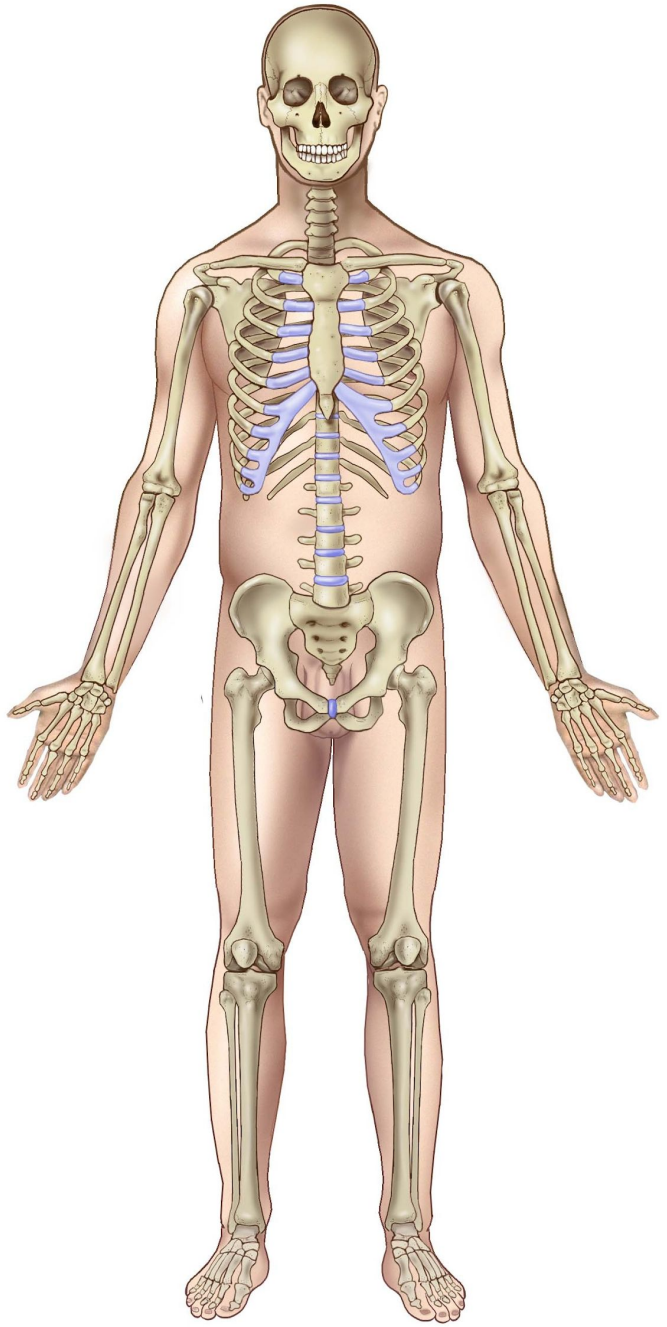
Approximation / joint compression

Use after the brushing:
10 small moderate pressings in all joints.
Brushing increases sensibility and attention, approximation is soothing.

Start proximally:

- Through the spine (sitting if possible)
- Shoulders
- Elbows
- Wrist
- Fingers
- Hips
- Knees
- Ankles
- Toes

Try to hold the joints in 0-position if possible (straight).

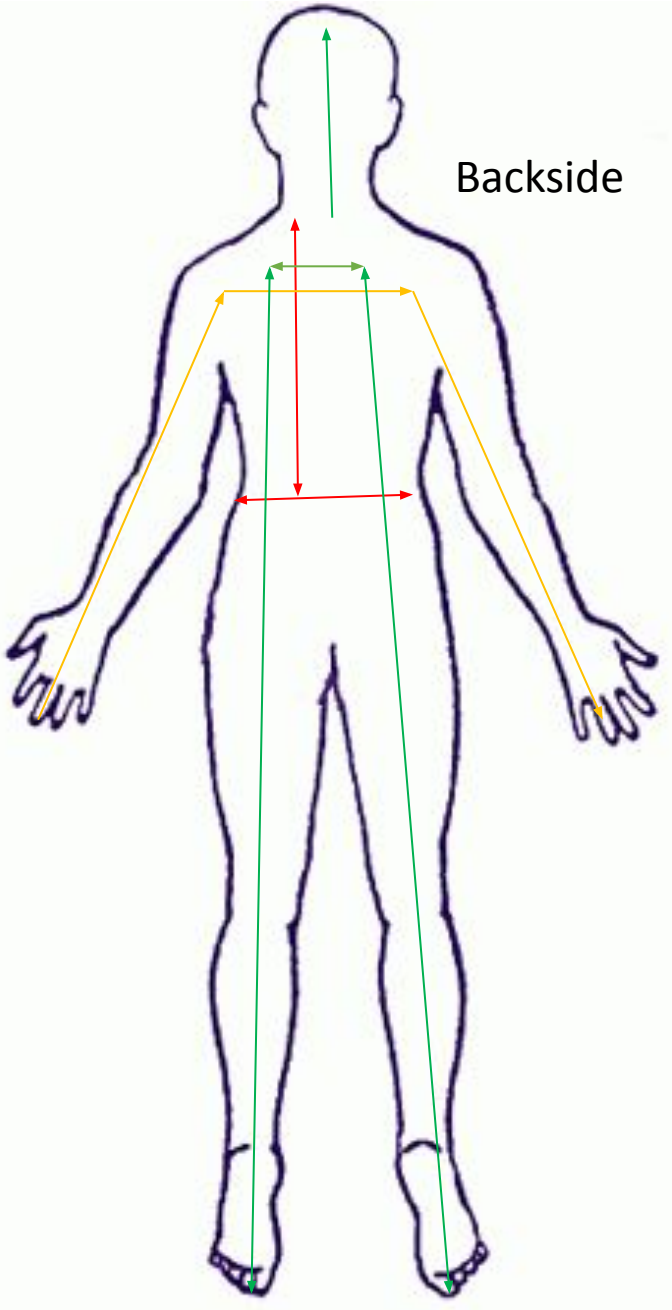


Rolling ball on body

The best position is lying on the stomach.
Roll the ball gently. Clothes are OK.
Start on the back, vertical, horizontally, cower the back with the ball.
Then the arms, from fingertips over the shoulders to the other fingertips x 3 ?
From shoulder to toe and up x 3?
End on top of head.

Do not lift the ball from the body at any time. Makes it predictable.

Do not press: We just want the brain to be conscious of the feeling of the ball moving around on the body, makes the brain relax.



Face massage

Sitting: You stand behind the back,
place a pillow in your stomach
and lean the patients head firm against the pillow.
Lying: Stand behind the headboard of the bed.

Put a little facial cream mixed with two drops of for ex. lavender oil
on your fingertips, use both hands with parallel movements.
Start on the forehead, move down to the chin, following
the bone structure. *Avoid eyes, nose, mouth.*
Use firm pressure, but not hard.
Do not lift your fingers from the face. Makes it predictable.

Facial skin gives access directly to the limbic brain. Massage provides good feelings and safety, which makes the patient relax.

Wrapping in with a sheet/blanket + vibrate

Patient is lying on the back.
Place the sheet over the patient.
Shove it under the patient on one side (the opposite side from you).
Roll the patient over on the side, lying on the sheet.
Strap the sheet around the patient and place your knees on the sheet
so it is tight. The patient´s arms may lie on the chest or down along the side.
Stand on your knees and lean the patient´s back against your thighs.

Place one hand on the patient´s shoulder, the other on the hip.
Do the vibration 5 – 10 minutes, gently pressing against the bed.
Play some calm music in the background.

Good luck with helping through the senses!