



## MULTISENSORY STIMULATION

Multisensory intervention  
Multisensory stimulation room  
Multisensory environment –Sensory room  
Snoezelen room.

### KEY POINTS

- To stimulate cognition, promote well-being, reduce anxiety and/or depression, stimulate communication and provide comfort.
- This intervention involves sensory, physical, cognitive, psychological and social processes.
- Observed effects are a reduction in agitation, improvement in mood and stimulation of social interaction.
- In group or individually.
- For all people with dementia, regardless of the severity of the disease.

### PRESENTATION

#### A. Definition

The term “multisensory intervention” can be used to encompass any intervention aiming to stimulate two or more primary senses, including, visual, auditory, gustatory, olfactory, tactile. A multisensory intervention is purposefully designed to provide an enriched experience that stimulates multiple sensory systems. Multisensory stimulation (MS) is often equated with the Snoezelen room (or multisensory environment), which is a widely used approach. The term *Snoezelen* (lit. “sniffing and dozing”) refers to a safe, comfortable, demand-free environment designed to stimulate all the senses<sup>[1]</sup> frequently through the use of special equipment including e.g., coloured optic fibers, bubble tube lamp, aroma air spray, and digital interactive panels where colours, sounds, and images can be changed using a touch screen. The choice of supports and stimulation materials can also be very simple (perfumes, candles, lotions, etc.).

Other interventions using different approaches have been developed, among them multisensory tools (e.g., twiddle muffs, memory blankets), multisensory themed boxes, and multi-dimensional programmes such as Sonas or Namaste Care<sup>[2]</sup>.

#### B. Fundamentals

Multisensory interventions adopt a nondirective approach aiming to encourage people to engage with sensory stimuli as they choose<sup>[3]</sup>.

Among psychosocial approaches, MS has received great interest within the field of dementia care, particularly for the management of responsive behaviours (agitation, aberrant motor behaviour, anxiety, irritability, depression, apathy, disinhibition, and delusions). Sensory stimuli can offer the opportunity for meaningful interactions between people with dementia and those who care for them. This interaction can take place at the verbal and non-verbal level and is likely to boost relationships and improve communication.

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## THEORETICAL BACKGROUND

### A. Processes involved

The theoretical underpinning supporting MS posits that responsive behaviours and cognitive impairment associated with dementia are closely related to sensory decline.

Due to age-related sensory changes (e.g., limited vision and hearing) which are exacerbated by the condition, people with dementia may require more stimulation (strong stimuli, greater contrast between objects) in order to maximise perception. Consequently, the absence of appropriate activities and sensory enriched experiences put people with dementia at risk of sensory deprivation, defined as a prolonged lack of stimulation<sup>[4]</sup>. Empirical evidence demonstrates the detrimental effects of long-term sensory deprivation including changes in mood and behaviour such as depression, disorientation, irritation, apathy, and anxiety<sup>[5]</sup>.

As cognitive function deteriorates in dementia, the individual's ability to process and integrate external sensory information and to understand context are reduced<sup>[6]</sup>. Therefore, overstimulating environments which may exceed an individual's tolerance threshold can generate or increase maladaptive behaviours such as aggression and irritation. Tailoring environmental demand and providing appropriate sensory stimulation supports people with dementia to adjust and process information, reducing discomfort and confusion. In turn, MS may increase well-being, quality of life, social skills and support the management of behavioural manifestations of dementia.

### B. Neurophysiological correlates

Sensory information is transmitted via neuronal networks to the brain, which interprets one's environment. Neuroscientific studies suggest that older people benefit more from receiving multimodal stimulation compared to unimodal stimulation, in performing tasks such as detection or according judgement<sup>[7]</sup>. A sensory-enriched experience enables stimuli to be encoded into multisensory representations thereby activating a wider network of brain regions compared to those invoked by unisensory encoding, thus facilitating older peoples' task performance.

## SCIENTIFIC EVALUATION

There is some evidence suggesting that MS has a positive impact on people with dementia in reducing responsive behaviours (e.g., agitation, irritation), improving mood, facilitating interactions and interpersonal relationships with other care home residents and with carers.

A few studies reported positive benefits for carers following multisensory interventions including reduced caregiver stress, increased well-being, and job satisfaction<sup>[8-9]</sup>. However, the scientific effectiveness of interventions based on multisensory approaches is still fairly limited. The limited body of evidence, poor quality of studies, and variety of intervention protocols make it difficult to delineate an overall conclusion in relation to the effect of MS. Further research is needed to draw firm conclusions about its effectiveness and the key elements of different approaches to MS.

There are no cost-effectiveness studies to date. However, it is possible to speculate that MS utilising everyday objects e.g., perfume, candles, scented body lotion, since these are by definition highly accessible, hold promise as an individualised, easy-to-implement, cost-effective intervention.

## IMPLEMENTATION AND PRACTICAL ADVICE

### A. Training and/or knowledge required to provide the intervention

The authors suggest that MS facilitators should have training and education about dementia, good communication skills, and knowledge about the participants (e.g., past history, hobbies, etc.). This creates a person-centred care approach aiming to empower participants using bespoke activities created for each individual. This should result in appropriate support and engagement for people with dementia, thereby improving overall well-being for both residents and care staff or family supporters.

### B. Practical and clinical advice

The following practical guide is created for supporting the development and implementation of a multisensory intervention using themed boxes for people with dementia<sup>[10-12]</sup>. The example provided focusses primarily on tactile and olfactory (smell) stimulation. The following advice can also be applied to other kinds of sensory stimulation.

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THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p><b>Participants profile</b></p> <p>All people with dementia, regardless of the severity of the disease.</p>	<p>Open to anyone.</p>
<p><b>Indications</b></p> <ul style="list-style-type: none"> <li>■ Cognitive: memory, sensory integration, attention, and executive functions.</li> <li>■ Psychological: social interaction, mood, quality of life, well-being, communication, responsive behaviour, anxiety and depression.</li> </ul>	<p>Sensory stimulation, engagement in meaningful activity and socialisation.</p>
<p><b>Contra-indications</b></p> <p>Risk of allergic reactions; skin irritation; emotional distress due to overstimulation or negative memories.</p>	<p>Idem.</p>
<p><b>Contributors</b></p> <p>Occupational therapist; psychologist; psychomotor therapist; trained care staff or artist facilitator; two (or more) staff to support the session (if working in a group).</p>	<p>Anyone with good communication skills and knowledge of the participants.</p>
<p><b>Setting of intervention</b></p> <p>A quiet, relaxing, well-ventilated room with chairs and table. You might want to clear other items or smells (e.g., air fresheners) away and ensure you won't be disturbed during the activity. This will create space and quality time for you and the participants.</p>	<p>Quiet environment.</p>
<p><b>Dosage</b></p> <p>Group sessions of 5-6 participants.</p> <ul style="list-style-type: none"> <li>■ Period: 6 weeks.</li> <li>■ Frequency: once per week.</li> <li>■ Length: 15 minutes (preparation); 45-60 minutes (intervention). Participants should be given enough time to explore and comment on the materials according to their capacities.</li> </ul> <p><i>The intervention can also be offered individually. In this case, it is important that the participant does not feel examined/tested.</i></p>	<p>Not specified.</p>
<p><b>Session sequencing</b></p> <p>Item selection: think about objects that each people with dementia (participant) enjoys now or in the past, including their preferred smells. You can ask them, find out more about their life, or investigate what was popular when they were in their late teens or early 20's. Create six themed activities (e.g., childhood, vacations) based on each participant's preferences. Place the selected items related to each theme (6-8 is a good number to ensure variety) in a box or case.</p> <p>Introduce the activity: let the participants know that you would like to spend time exploring some interesting items together.</p> <p>Multisensory activity*: start by presenting one item to each participant or let them choose one from the box. Note how each participant interacts with the object (including smelling it if appropriate). Encourage each participant to handle and examine the objects. Allow them time to do this. When they are finished, you can handle the object and smell it as well and make comments, responding to what the participants said or did. Repeat, until all items in the box have been handled and discussed.</p> <p>For individual sessions, it is possible to remove the objects from the box and display them on a table. The participant will be able to choose the objects that interest him/her. The facilitator can also choose the objects that attract the participant's curiosity and attention the most.</p> <p>End session: thank participants for taking part and ask if they have any items or topic preferences for the next session.</p>	<p>Introduce items and activity, allow participants time to handle, explore, and comment, if they wish.</p>
<p><b>Observance / Attendance</b></p> <p>If an item does not interest the participants or they do not respond, you can move onto another one in the box.</p> <p>Be aware that people with dementia may have impairments such as a reduced sense of smell so do not worry if they do not respond. You may therefore choose items that have strong smells or focus on objects to handle and discuss instead.</p> <p>People with dementia may present physical impairment or pathologies that reduce mobility such as arthritis. If so, offer support to handle and explore the items.</p>	<p>Not specified.</p>
<p><b>Assessment</b></p> <p>E.g., COMMUNI-CARE scale;</p> <p>Observation of the participant's verbal and non-verbal responses <i>via</i> video recording;</p> <p>Visual analogue scales.</p>	<p>Not specified.</p>

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## \* Recommendations:

Allow time for participants to explore the object's sensory properties and to comment if they wish. Do not ask if they know what it is or what it is for as they may feel like they are being tested.

When you present a scent/smell, instruct the participant to breathe normally and present the next smell approximately 2-5 minutes later, to avoid overwhelming the senses.

If appropriate ask for opinions and not for factual information. For instance: do you like it? Does it have a smell? How does the object feel?

People who present communication impairments should be engaged at the sensory level e.g., handling and smelling items rather than discussing/commenting. It is recommended that carers engage with the participants' feelings and emotions expressed through facial expressions and body posture. An empathetic response may include verbalising the feelings and emotions observed.

## FOR MORE INFORMATION

- Using memory box objects and smells for people with dementia: guidance for carers <https://www.boots-uk.com/our-stories/treasured-items-from-the-boots-uk-archive-help-to-rekindle-memories-in-people-with-dementia/>

## ABOUT THE AUTHORS

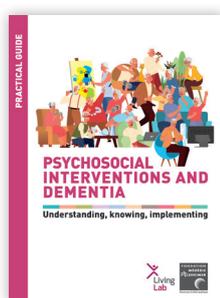
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This sheet corresponds to a chapter of the guide *Psychosocial interventions and dementia: understanding, knowing, implementing* directed by the Fondation Médéric Alzheimer.

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