

**Multi-Sensory Stimulation  
Rooms for Persons with  
Dementia**  
Design-on-a-Dime

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**Objectives**

1. Identify calming and stimulating sensory interventions for persons with dementia
2. List the benefits of multi-sensory stimulation for persons living with dementia
3. Enumerate design principles to consider when designing a multi-sensory space
4. Recognize everyday objects, activities, lo-tech and sensory inputs to include in a multi-sensory environment to facilitate purposeful engagement



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**Dementia**

- Progressive decline in cognition along with a short- and long-term memory loss due to brain damage/disease
- Impairment in memory and at least 1 domain of cognitive functioning that represents a decrease from previous functional level & results in an impairment in daily activities

(Buffington, Lipski, & Westfall, 2013)



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## Background

- Estimated 5 million Americans suffer from dementia
  - More than 15 million provide caregiving
- Costly to treat (\$215 B in 2010)
- Caregiving is the most costly aspect of dementia care (AHRQ, 2014)



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## Background (Alzheimer's Association, 2015)

- In the US 1 in 9 persons over 65 have AD
  - 16 million by 2050
- Estimated 75% of persons with AD are admitted to a SNF
- AD is the 6th leading cause of death in the US
  - Only disease in the Top 10 that cannot be prevented or cured



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## BPSD

- Behavioral and psychological symptoms of dementia
  - Symptoms of disturbed perception, thought content, mood or behavior that frequently occur in patients with dementia.
- As many 76% of residents have BPSD
- Labels used to describe include agitated, aggressive, and disruptive (AHRQ, 2014)



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## Behaviors and Dementia

- “Behavioral symptoms related to dementia are defined as verbal, vocal or motor activities that are considered to be aggressive, excessive or lack adherence to social standards.”
- Behaviors result from interactions between the resident, the caregiver and the setting

(Boustani et al, 2005)



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## Disruptive Behaviors

- Inappropriate, repetitive or dangerous behaviors which are disruptive to the living and working environment in the NH
- Most common disruptive behaviors
  - Wandering
  - Aggression
  - Agitation

(Ahn & Horgas, 2013)



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## Behaviors

- ALL behavior has meaning and is indicating something
- Behavior is a form of communication
- Look at every behavior as unmet need
- Behaviors are considered a problem when
  - Safety or well-being of patient or others is compromised
  - A trigger or cause cannot be identified



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### Why Sensory Stimulation

- Everyday objects can trigger emotions and memories
- A way to explore a safe, stimulating environment with age-appropriate and enjoyable activities
- Can give a means for expression
- Can promote feelings of safety, relaxation
- Improves mood, self-esteem, well-being



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### Why Sensory Stimulation

- Familiar objects
- Focusing on one sense at a time
- Therapist provides reassuring nonverbal and verbal cues to stimulate a response
- Activities are often linked to interests the person had prior to dementia and can help build a connection to everyday life



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### Benefits of Sensory Stimulation

- Improve behavior and mood
- Promote alertness
- Increase brain function
- Improve communication
- Boost self-esteem and well-being



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**Examples**

- Multisensory activities are activities that combine two or more senses
  - Drawing and listening to classic music
  - Hand-massage and conversation
  - Relaxing on a beanbag while watching colorful landscapes on a TV screen
  - Having nails groomed in a garden setting



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**Multi-Sensory Interventions**

Increased engagement in multi-sensory environments (Heyn, 2003; Maseda et al., 2014)

- Sound
  - Natural environments decrease agitation (Whall et al, 1997)
- Sight
  - Light intensity improves performance and sleep (Koss & Gilmore, 1998)
- Smell
  - Lavender oil decreases agitation (Holmes et al., 2002; Thorgrimsen, Spector, Wiles, & Orrell, 2003)



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**Multi-Sensory Interventions**

- Snoezelen Multisensory Stimulation Therapy (MMS)
  - Combines the therapeutic use of light, tactile surfaces, music, and aroma
  - Neuropsychiatric symptoms may result from periods of sensory deprivation
  - Short-term benefits on behaviors were significant (Chung & Lai, 2009)



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**Multi-Sensory Stimulation**

- We can get information into our brains through our senses
- Too much stimulation – overwhelmed
- Too little stimulation -- lose interest and ability
- Sensory deprivation impacts wellbeing and health



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**Benefits of a Sensory Room**

- Stimulation provided in a controlled way
- Can be stimulating or calming in their effects
- Positive changes in mood and behavior for late stage dementia
- Improves staff interactions with residents



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**Deficiencies of Sensory Rooms**

- Aesthetics and functionality are not satisfying and appropriate
- The equipment and set up is not age appropriate; juvenile
- Difficult to connect with
- Cluttered and distracting
- Insufficient multi-sensory stimulation



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**Factors When Designing a Space**

- Feeling comfortable and safe
- Meaningful and familiar
- Multi-sensory experience
- Stimulation and relaxation
- Control and interaction
- Age appropriate and usable



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**Feeling Comfortable and Safe**

- Space should be intimate, contained and quiet space
- Minimized or zero capacity for disturbance or distraction
- Low-level sensory stimulation to activate parasympathetic nervous system



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**Feeling Comfortable and Safe**

- Textiles, fabrics and other soft materials
  - Soft blankets
  - Soft cushions and soft toys
  - Plain textile curtains



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**Feeling Comfortable and Safe**

- Appropriate Lighting
  - Soft, indirect light for general lighting
  - Dimmer switch
  - Daylight
  - Selective stimulating lights creating visual focus points



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**Feeling Comfortable and Safe**

- Avoid
  - Very dark spaces
  - Glares and flickering lights
  - Lights and reflections moving around the room
  - Over stimulation
  - Decorative lights



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**Feeling Comfortable and Safe**

- Contact with Nature
  - Bring the feeling of the outdoors inside
- Easy Access
  - No stark contrast between multi sensory room and rest of home
  - Sensory cues directing the resident to the sensory space
  - Visual contact with the rest of the facility



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**Feeling Comfortable and Safe**

- Over-Stimulation
  - Provide a visually calm space with a visual focus
  - Limit visually stimulating equipment
  - Eliminate disturbing noise
- Comfortable furniture
  - Soft, tactile surfaces/material
  - Comfortable and relaxing positions



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**Feeling Comfortable and Safe**

- Serving snacks and drinks
  - To enhance the sense of comfort
- Pleasant climate
  - Comfortable room temperature:
  - Good air quality and sufficient oxygen



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**Meaningful and Familiar**

- Provide familiar, personal, appropriate experiences
- Relevant to the resident's life and stage of dementia
- Everyday objects to trigger memories/ conversation
- Exploring and engaging in appropriate activity; create sense of purpose



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### Meaningful and Familiar

- Appropriate use of technology
  - Technology needs to be multi-sensory and age appropriate
  - Mix of natural things and technology
- A mix of the new and the familiar
  - Every day items, old items, familiar imagery
  - Playing old songs and music



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### Meaningful and Familiar

- Offering appropriate tactile stimulation
- Prepare the room for individual sessions
- Cultural relevance



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### Multi-Sensory Experience

- All the senses need to be addressed!
- Visual sense is often overvalued
- Tactile stimuli is limited
- Stimulating vestibular and kinesthetic sense
- Use equipment, items, material that are multi sensory in design



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## Multi-Sensory Experience

- Sight
  - Light and color
  - Films and videos
  - Projections on fabric
  - Material of different optical qualities catching the light in different ways
  - Food and natural things found outdoors
  - Motion



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## Multi-Sensory Experience

- Touch
  - Active tactile stimulation
  - Passive tactile stimulation
  - Natural and every day objects
  - Sensory cushions, blankets, books
  - Sensory armchairs and pockets
  - Tactile activities
  - Small vibrating items
  - Experiencing different temperatures



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## Multi-Sensory Experience

- Sound
  - Relaxation
  - Stimulation
  - Musical Instruments
  - Sing-along and rhythm sessions



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**Multi-Sensory Experience**

- Smell
  - Scented rooms/space
  - Hand massage
  - Scented bags
  - The smell of every day things
  - Continued throughout the facility and the day



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**Multi-Sensory Experience**

- Taste
  - Taste
    - Ensure you have a range of salt, sweet, sour, bitter
  - Texture
    - Ensure you have a range of different textures such as crunchy, soft, melting
- Movement
  - Different seating positions
  - Opportunities of movement



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**Stimulation and Relaxation**

- Stimulating
  - Sight
    - Lights of high intensity, color red, reminiscent images and objects
  - Smell
    - Citrus smells, peppermint
  - Sound
    - Loud music, fast tempo, sing-along tunes, abstract sounds
  - Touch
    - Textured objects, spiky balls, random contact
  - Taste
    - Citrus fruits, peppermint, sour sweets, sherbet
  - Movement
    - Random movements, spinning



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### Stimulation and Relaxation

- Relaxing
  - Sight
    - Low level, slow changing lighting, fairy lights, Christmas tree lights
  - Sound:
    - Quiet music, slow tempo, natural sounds
  - Touch
    - Hand massage, stroking, soft fabrics such as fur, velvet, silk or fleece
  - Taste
    - Milky foods such as chocolate, pudding, yogurt
  - Smell
    - Lavender, smell of baking cakes or bread
  - Movement
    - Linear rocking such as a rocking chair



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### Control and Interaction

- Right level for the individual
- Promotes brain activity
- Increases confidence/feelings of self worth
- Opportunity and empowerment to choose
- Mastery over the environment



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### Age Appropriate and Useable

- Not perceived as juvenile or childish
- Dignity is important
- Items are in easy reach
- Ergonomically designed for elders



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### Helpful Design Tips

- Less is more
- Familiar items promote relaxation
- Avoid dramatic smells
- Do not use overhead lighting
- Space should hold only 4-6 people



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### Helpful Design Tips

- Play music at a moderate level
- Start small. Find a balance between high-tech items and familiar household items.
- Think through each of the senses
- Keep rooms neutral and light
- Use contrast for better visibility
- Use less complex artwork



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### For Example

- Office
- Virtual Forest
- Rummage dresser
- Outdoor garden shed
- Old car



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**Multi-Sensory Interventions**

- **Massage and Touch**
  - To reduce depression and anxiety
    - Hand massage with calming music
    - Tactile input during meals
    - Gentle massage 3X/day
    - Intermittent touch with talking
  - Massage and touch therapy may have beneficial effects  
(Hansen, et al., 2009; Gleeson & Timmins, 2004)



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**Multi-Sensory Interventions**

Music

- Reduces repetitive disruptive vocalizations and self-stim behavior\* (Casby & Holm, 1994)
- Promotes mobility skills and body awareness (Pomeroy, 1993)
- Improves posture, competence, and sensory awareness (Gotell, Brown, & Ekman, 2003).
- Reduces agitation and time spent with meals (Sherratt, Thornton, & Hatton, 2004)
- Ambient music played other than at mealtimes can reduce undesired behaviors (Padilla, 2011)



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**Animal-Assisted Therapy**

- Robotic cats, plush toys, fish tanks, resident cat/dog
  - Decreases in agitated and disrupted behaviors
  - Increases in social and verbal interactions
  - Decreases in passivity
  - Increases in nutritional intake

(Greer, et al., 2001; Martindale, 2008; McCabe, et al., 2002)



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## Specialized Environments

- Moderate level noise promotes improved engagement in activities (Mercado & Mercado, 2006; Cohen-Mansfield, 2010)
- Homelike, personalized rooms reduce behaviors
- Small dining rooms, large clock, printed mealtimes help with confusion (Chaudhury et al., 2013)



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## Montessori Approach

- Dr. Cameron Camp adapted the Montessori method to treat people with Alzheimer's
- Engages the senses and evokes positive emotions
- Stimulation of cognitive, social, functional skills
- Conducted one-on-one



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## Montessori Approach

- Use Everyday Materials
- Match Interests & Skills
- Use Past Experiences & Preferences
- Adapt According to Cognitive & Physical Status
- Simplify as Much as Necessary



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## Montessori Approach

- Every participant should have an activity that he/she can successfully handle
- If materials are used inappropriately, but engagement is strong, let the activity occur
- Provide demonstration as needed
  - Matching Shapes/Colors
  - Color Sorting
  - Picture Puzzle
  - Pairing & Sorting
  - Sensory Boxes



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## Montessori Approach

- Sensory boxes
  - Offer an opportunity to stimulate as many senses as possible, for example:
    - Balls box
    - Cereal Box
    - Kinetic Sand
    - Seeds
    - Food



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## Activity Ideas

- Golf ball scoop
- Living/non-living or Happy/not-happy
- Memory BINGO



Source: Author - Kathleen Weissberg



Source: Author - Kathleen Weissberg



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### Activity Ideas

- Cognitive stimulation
  - Sorting
  - Matching
  - Discussion





Source: Author - Kathleen Weissberg

Source: Author - Kathleen Weissberg

Source: Author - Kathleen Weissberg



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### Activity Ideas

- Life Skills
  - Meal-related
  - Sorting
  - Pouring
  - Squeezing





Source: Author - Kathleen Weissberg

Source: Author - Kathleen Weissberg

Source: mentalfloss.com



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### Activity Ideas

- Sensory stimulation
  - Massage
  - Olfactory
  - Rice bin





Image sources: Author - Kathleen Weissberg



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### Activities by Stage

- Early stage of dementia
  - Activities that focus on the whole task
- Mid-stage of dementia
  - Activities that focus on the individual steps of the activity
- Late stages of dementia
  - Activities that focus on the sensory part of the activity



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