

Using Sensory Interventions to Support Recovery

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What is Sensory Modulation?

What are the principles of SM intervention?

How can SM be used to support people in their occupational engagement and performance?

How can SM be used within inpatient settings to reduce seclusion and restraint?

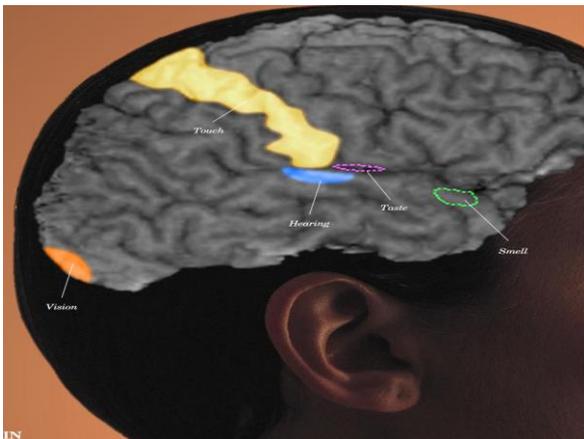
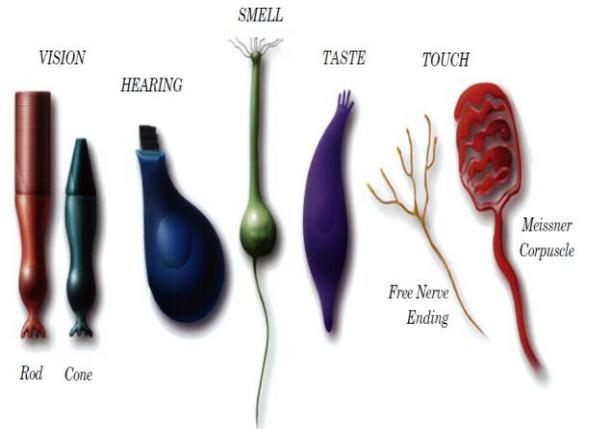
The body is our general medium for having a world.

Maurice Merleau-Ponty



“The experience of being human is embedded in the sensory events of our everyday lives”.

Winnie Dunn



• **Interoception** - awareness of one's internal state (ie. hunger, tiredness, illness)

• **Exteroception** - awareness of the world in relation to one's self: 'Distal' senses (sight, hearing, smell, taste, touch)

• **Proprioception** - awareness of one's body in relation to the world (works with vestibular and tactile input): 'Proximal' senses - body scheme, movement, orientation



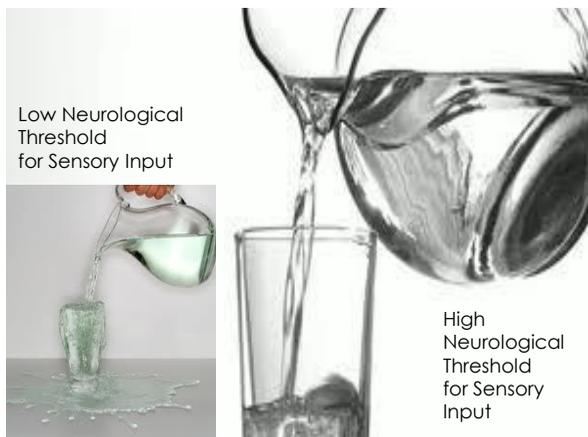
Sensory Processing Issues

- **Sensory Modulation Disorder**
 - Sensory Over-responding
 - Sensory Under-responding
 - Sensory Craving/Seeking
- **Sensory-Based Motor Disorder**
 - Postural Disorder
 - Dyspraxia
- **Sensory Discrimination Disorder**
 - Visual, Auditory, Olfactory, Gustatory, Vestibular, Proprioceptive, Tactile, Interoceptive

(Miller et al., 2007)

Sensory Modulation

- The ability to **regulate and organize** the degree, intensity and nature of responses to sensory input in a graded and adaptive manner.
- Strongly influences arousal levels
- Allows people to maintain an optimal range of performance and to adapt to challenges in everyday life



A Model of Sensory Processing

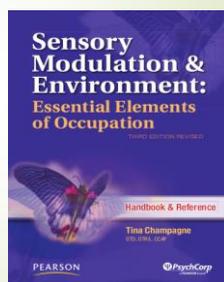
(Winnie Dunn, 1997)

	Passive Behavioural Response	Active Behavioural response
Under-Reactive System High neurological threshold: 'Big glass'	Low Registration Misses sensory stimuli/ slowed responses/ doesn't notice what others do	Sensation Seeking Enjoys sensory stimuli / creates sensation in the environment
Over-Reactive System Low neurological threshold: 'Small glass'	Sensitivity to Stimuli Distractibility or discomfort with sensation	Sensation Avoiding Limits exposure to sensory stimuli

Sensory Modulation and Mental Health Practice



Dr Tina Champagne
www.of-innovations.com



The lived experience...

"Part of the illness for me is hypersensitivity to light, to noise and to people. I couldn't bear people around me, couldn't bear the noise of television, even music which I adore - couldn't bear the sound, it just sounded like distortion. Television is the enemy, because it is loud, phones, phones, phones - I just wanted to have it cut off. I couldn't read - even a book would become an enemy, when I picked it up it proved that I couldn't do it".

The lived experience...

"I think that is what people think 'Oh she or he is just sitting in the corner saying nothing', but believe me, you may be numb to the world but in actual fact there are other parts of you, like your subconscious, your protection side is all working overtime because you are in a vulnerable position.

When people are vulnerable like that - your sensors are out so much and you pick up a lot of what happens almost by - it is a vibe thing, an emotional thing - you are picking up all the vibes. You seem as though you are cut off, but at the same time, you have this heightened awareness at an emotional level...."

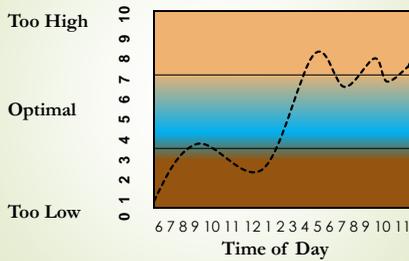
Finding the 'Just Right' Arousal

■ Arousal levels

Tense alert	Calm alert
Tense drowsy	Calm drowsy

■ Optimal arousal for every day functioning is a calm and alert state

Arousal changes through the day and in different circumstances...



Parasympathetic:
Rest, Digest & Bond

Associated with:

- Receptivity
- Slowness
- Relaxation
- Scope
- Divergent thinking
- Process-oriented
- Presence
- Elaboration

Central Nervous System

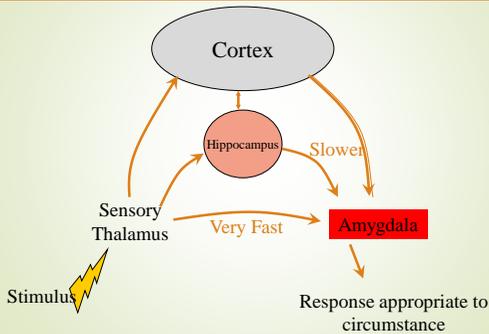
Sympathetic:
Fight, Flight & Freeze

Associated with:

- Activity
- Speed
- Tension
- Focus
- Convergent thinking
- Goal-oriented
- Agency
- Direction

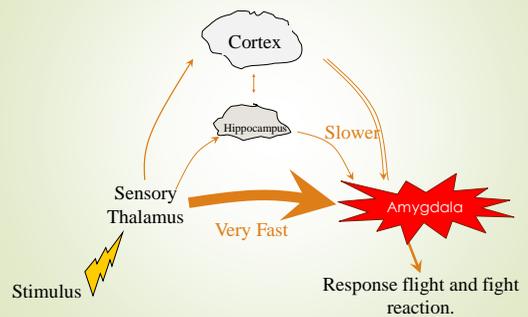
(Carroll, 2001 from <http://www.thinkcoo.com/papers/autonomic-nervous-system.html>)

Response to Threatening Sensory Stimuli



From: Le Doux (1996) in Glover (2010). Understanding the Biopsychosocial Impact of Trauma.

Trauma and Sensory Processing



From: Le Doux (1996) in Glover (2010). Understanding the Biopsychosocial Impact of Trauma.

Anxiety and Sensory Processing

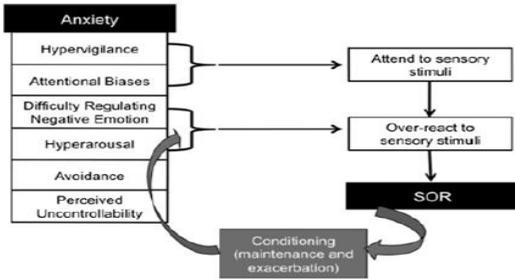


Fig. 1 Primary anxiety model portraying the theoretical pathway from symptoms of anxiety disorders to over-reaction to sensory stimuli. This pathway is then maintained and exacerbated through conditioning. (Green & Ben-Sasson, 2010)

Emotional Regulation Strategies

- Situation Selection
- Situation Modification
- Attentional Deployment
- Cognitive Appraisal
- Response Modulation

From: Gross, J. (2007) *Handbook of emotion regulation*

The Senses and Emotion

- Our senses can be used to help us
 - relax / calm down
 - be more alert / energised
 - be in tune with our body and the world
 - feel more organized
- Sensory preferences are individual, what calms some may irritate others.
- Sensory input is especially helpful when our ability to think clearly is impaired (ie. when we are upset, distracted, stressed or ill).

The 'Powerhouses' for Calming

- Tactile, vestibular and proprioceptive functions are the building blocks for emotional stability.
- Touching and being touched is central to
 - Sucking, eating, comfort & security
 - Emotional attachment from bodily contact
- Vestibular & proprioceptive input is essential for
 - Development of eye movements
 - Postural control
 - Awareness of where body is in space.

Characteristics of Calming and Alerting Sensations

CALMING	ALERTING
Slow	Quick paced
Simple	Complex
Soothing/relaxing	Irritating
Soft / Mild Intensity	Pronounced / High intensity
Rhythmic	Non-rhythmic
Positive associations	Negative associations
Predictable	Unpredictable
Familiar	Novel
Low demand	High demand



- Receptors in muscles, tendons, ligaments, joints
- Sense of:
 - a) Where the various parts of the body are located in relation to each other
 - b) Whether the body is moving with required force

Proprioceptive Input

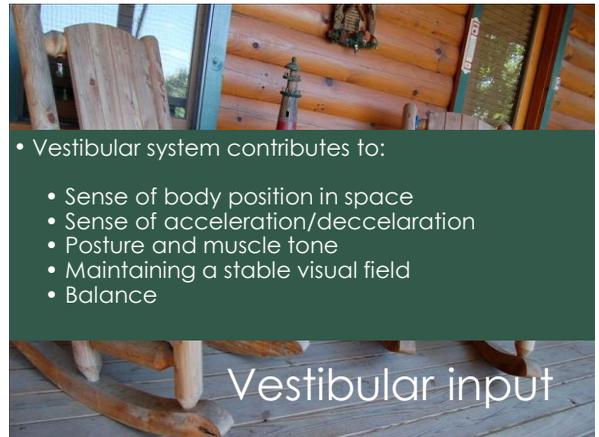
Proprioception

CALMING

- Isometric ms. contraction
- Movement against resistance
- Heavy work- digging, sweeping
- Balance trainer
- Exercise bands and equipment
- Medicine and Swiss Ball
- Stress ball – squeezing
- Climbing – push-pull activities
- Hiking
- Clay work / putty
- Kneading dough
- Yoga, Tai chi, Haka

ALERTING

- Fast movement
- jogging
- jumping
- aerobics



Vestibular system contributes to:

- Sense of body position in space
- Sense of acceleration/deceleration
- Posture and muscle tone
- Maintaining a stable visual field
- Balance

Vestibular input

VESTIBULAR



CALMING

- Linear input
- Slow rhythmic movement
- Rocking
- Swaying
- Gliding

ALERTING

- Sudden acceleration or deceleration
- Angled movements
- Spinning
- Uneven or unstable surfaces



Skin contains receptors for : Light touch, Pain, Temperature, Deep touch, Vibration, Stretch

- Has protective and discriminative functions
- Light touch is alerting – may provoke strong response
- Deep touch is calming – slower and longer lasting input

Touch

TOUCH

CALMING

(DEEP PRESSURE TOUCH)

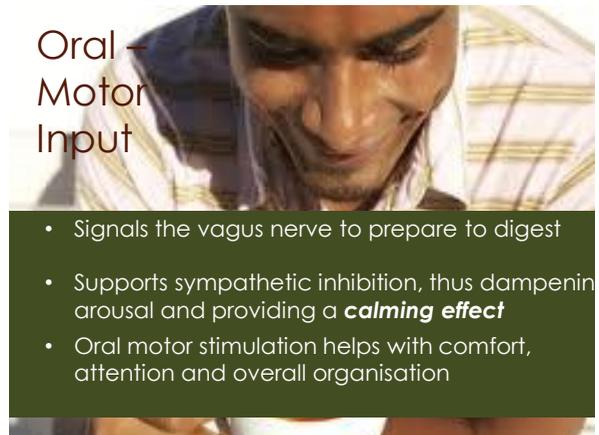
- Strong hugs
- Firm touch on the shoulder
- Massage
- Weighted blanket, lap pad, soft toy
- Squeezing a stress ball
- Use of hand lotions
- Neutral warmth
- Vibration

ALERTING

(LIGHT TOUCH)

- Tickling
- Light stroking
- Prickly or squishy
- Unfamiliar or unexpected touch
- Cool room
- Fiddling with a stress ball
- Snapping a rubber band on the wrist
- Use of fidget items

Oral – Motor Input



- Signals the vagus nerve to prepare to digest
- Supports sympathetic inhibition, thus dampening arousal and providing a **calming effect**
- Oral motor stimulation helps with comfort, attention and overall organisation

ORAL MOTOR

Calming Sucking	Organising Chewing	Alerting Crunching	Breath Support Blowing
Hard sweets Thick liquid through straw Orange slices Lollipops	Chewing gum Bagel Gummy bears Licorice sticks Dried fruit **caution: check re status of dentures or fillings!	Yawning Popcorn and pretzels Raw vegetables Crunchy vegetables Crushed ice	Blowing pinwheel Blowing bubbles Abdominal breathing

Olfaction (Smell) & Taste

Olfactory system is primitive, protective & powerful

Directly connected to the limbic system

Tastes that are calming are generally pleasant and familiar

Tastes such as mints, citrus and spice tend to be alerting

SMELL

CALMING

- Soothing scented candles – vanilla, lavender
- Mild fragrance
- Scented bath powder
- Pleasant smell
- Potpourri
- Positive associations

ALERTING

- Citrus, Peppermint
- Strong fragrances
- Perfume
- Noxious odour
- Room fragrance spray
- Negative associations

TASTE

CALMING

- Mild
- Sweet
- Lollipops
- Pleasant
- Porridge and brown sugar
- Apple juice
- Sweet fruits

ALERTING

- Strong or spicy
- Sour or bitter
- Lemon drop
- Strong peppermints
- Chilli
- Lemonade
- Pickles

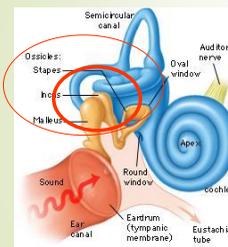


Can help

- ease transition
- reduce stress
- increase organisation and directionality
- provide distraction or a soothing focus
- provide positive associations
- affect muscle tone and equilibrium
- affect biological rhythms (entrainment)

Auditory and Visual Input

Hearing and arousal...



During fear, anger, rage, alarm (stress) muscles squeeze the ossicles together

Under conditions of arousal we hear:

- Low, rumbling noises
- Sudden hi-pitched tones
- Background sounds

But not the human voice

Porges, 2009a, 2009b

AUDITORY

CALMING

- Soft slow music
- Classical or new age music
- Humming
- Simple, melodic
- Repetitive sounds (ocean waves)
- Relax/Meditation CD's

ALERTING

- Offbeat, loud, quick paced music
- Whistling
- Singing loudly
- Hand held instruments
- Rock music

VISUAL SENSATIONS

CALMING

- Soft warm colours
- Natural or dim lighting
- Serene paintings
- Pleasant scenery
- Flickering candle
- Fish aquarium
- Bubble lamp
- Clean and sparsely furnished room

ALERTING

- Bright colours / lights
- Movt. in Peripheral vision
- Abstract art
- Complex visual images
- Changing patterns of light
- Video game
- Movies, you tube videos
- Messy and cluttered room

Sensory Modulation Intervention

- Sensory Modulation intervention uses the environment, activities and objects to help people regulate their physiological/emotional arousal
- Identify individual sensory sensitivities and needs
- Provide education about sensory processing & arousal
- Identify individualised sensory strategies
- Build sensory strategies into crisis and recovery plans
- Use sensory strategies earlier rather than later
- Support self-management of arousal in daily life

Sensory-Focused Assessment

- Sensory Profiles (available from Pearson)
 - Adolescent/Adult - 11 yrs plus (Dunn & Brown, 2004)
 - Child - 3-10yrs (Dunn, 1999-2001)
 - Infant/Toddler - 0-3yrs (Dunn, 2002)
- Non-standardised assessment
 - Sensory modulation screening tools
 - Checklists - sensory responses, sensory tools & activities
 - Practical exploration of different modalities
 - Interview & observation

Sensory Intervention Planning

- Is individualised & developed proactively by service user with staff support
- A therapeutic process that is trauma sensitive
- Considers life stage, gender, culture
- Written in easy to understand language
- Includes identifying:
 - SENSORY TRIGGERS
 - EARLY WARNING SIGNS OF SENSORY OVERLOAD
 - SENSORY BASED STRATEGIES
- May focus on crisis prevention and management and/or everyday functioning and wellbeing
- Considers safety and precautions

Grounding Techniques

- Simple strategies for self-regulation
- Helps orientate and focus on the present
- Helps restore 'balance' or sense of stability
- Calming stimuli – weighted blanket, massage, wraps, rocking chair, breathing, warm face cloth to neck and face
- Alerting stimuli - Ice, strong smells (citrus), pain (rubber band)

Integration with Treatment & Everyday life

- Incorporate sensory strategies into individual treatment and crisis plans
- Try using first before PRN medication
- Integrate into DBT, CBT, OT
- Perfect for teaching Distress Tolerance Skills
- Incorporate into everyday life (sensory diet)
- Create sensory area in own home
- Use individualised kits and daily activities

Sensory Diets

(Wilbarger, 2007)

- The preferred sensori-motor experiences that help individuals function optimally within their environments.
- People modify their sensory 'diet' automatically throughout the day to suit their needs, without necessarily being conscious of doing so
- Individuals with trauma histories, mental illnesses, or addictions, or who have developed problematic behaviour patterns, are sometimes unaware of their particular sensory needs or stress responses.

(Champagne 2003, Cool 1990, Reisman and Blankey 1991)

Overall benefits of sensory modulation

- Increased self-awareness
- Increased resilience and ability to self-nurture
- Increased self-esteem and body image
- Increased ability to engage in therapeutic activities
- Increased ability to engage in self-care activities
- Increased ability to engage in meaningful life roles
- Increased ability to engage in social activities
- Increased ability to cope with triggers

From: Champagne available at www.ot-innovations.com

Practice Example: Seclusion & Restraint Reduction



The Six Core Strategies to Reduce Restraint and Seclusion

(NASMHPD, 2005)

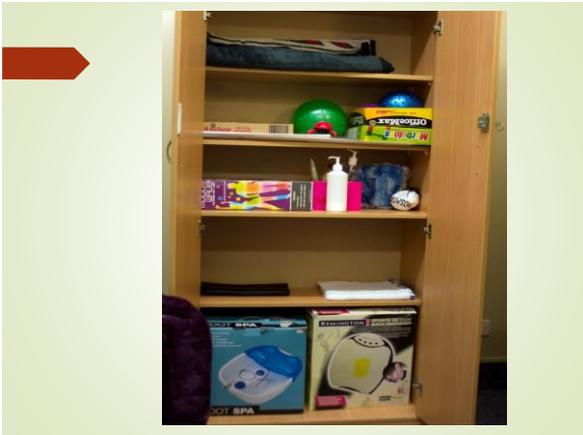
- Focus on organisational change for S & R reduction
 - Based on trauma informed and recovery model of care
1. Leadership towards organizational change
 2. Using data to inform practice
 3. Workforce development
 4. Use of seclusion and restraint reduction tools (Sensory Modulation)
 5. Consumer roles in inpatient settings
 6. Debriefing

Creating Calming Sensory Spaces

- Redesigning ward spaces – for soothing, alerting and grounding
- Designated sensory modulation rooms
- Mobile Sensory Carts
- 'Coping through the senses' groups
- Individualised sensory kits for soothing, sleep, sobriety, alerting, grounding

Sensory Tools and Equipment

- Colour wall wash
- Portable DVD player and calming DVD's
- Quiet music and calming sounds
- Aromatherapy - electric burner or scented spray
- Rocking/recliner chair
- Massage Chair
- Bean Bag chair
- Small balls – pressure
- Weighted lap blankets
- Faux-fur blankets
- Neck and Shoulder wraps
- Variety of candies: hard / chewy / minty / tart / fruity





Service User's Experience of Sensory Modulation

Key Processes	Immediate impact	Longer term impact
<ul style="list-style-type: none"> • Grounding • Soothing • Shifting attention • Shifting affect 	<ul style="list-style-type: none"> • Sense of safety • Sense of control • Expression/ release • Interpersonal trust 	<ul style="list-style-type: none"> • Self- management of arousal • Shift of power within service delivery • Capacity for greater participation in life

Service User Feedback

- *[Self harm] was one of the main reasons I was here on the ward, and for me, most of the time that's a way of grounding myself. The massage chair was actually a great safe alternative. It reduced the self harm behaviours quite dramatically.*
- *It's sort of like focusing on the here and now...So I had control over what I wanted to feel. I knew that was going to make me feel good and relaxed, and so in a way I was in control of my environment.*
- *It made you stop long enough to calm down and think about what you were doing...I mean it was far more beneficial learning how to cope with it than to pop a pill*

Service User Feedback

"It's totally changed my experience of being on the ward. Previously, the ward has been like a holding pen for me, it hasn't been a helpful place, 'cause there's no therapy takes place there, no intervention really that assists, it's sort of like a waiting, waiting, waiting until something happens. But I actually found I was a lot more aware, you know, around, having the room, having had the experience of the room".

Resources

- Tina Champagne' website ot-innovations.com
- Karen Moore's website sensoryconnectionprogram.com
- NZ Mental Health Workforce Development and Research organisation (Te Pou) tepou.co.nz