



Family &
Community
Services

Sensory Processing

Practice Guide for Practitioners who Support
People with Disability



Document approval

The Sensory Processing Practice Guide has been endorsed and approved by:

Michelle Henwood
A/ Executive Director
Clinical Innovation and Governance

Peter Goslett
Director, Policy and Practice
Clinical Innovation and Governance

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Table of contents

Copyright	4
Disclaimer	4
1. Introduction to the Sensory Processing Practice Guide	5
1.1 Background and context of this guide	5
1.2 Common core standards.....	6
1.3 Evidence based practice in healthcare.....	7
1.4 International Classification of Functioning, Disability and Health (ICF) and sensory functions	8
1.5 Underpinning assumptions and principles in occupational therapy.....	9
1.6 Models of practice.....	9
1.7 The framework of sensory processing in current occupational therapy practice	11
2. Definitions of sensory processing	12
2.1 Multisensory stimulation.....	12
2.2 Ayres Sensory Integration® vs sensory processing	12
2.3 Sensory processing disorders.....	13
2.4 Sensory processing vs psychomotor patterning	14
3. Incidence of sensory processing disorder	14
4. Autism spectrum disorder and sensory processing.....	15
5. Assessments and checklists	16
6. Comprehensive assessment in a person centred and functional context 18	
6.1 Initial contact.....	20
6.2 Initial assessment	20
6.3 Generate hypotheses.....	21
6.4 Link hypothesis to functional, person centred goals	21
6.5 Complete assessment report	23
7. Intervention.....	25
7.1 Leading evidence based practices.....	26
7.2 Hierarchy of sensory interventions	26
7.3 Types of sensory interventions	27
7. Person centred outcomes review	35
8. Summary: best practice when working with people with disabilities and sensory processing disorders	35
Links to other Resources	Error! Bookmark not defined.
References.....	36

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Disclaimer

This resource was developed by the Clinical Innovation and Governance Directorate of Ageing, Disability and Home Care in the Department of Family and Community Services, New South Wales, Australia (FACS).

This practice guide has been developed to support practitioners who are working with people with disability. It has been designed to promote consistent and efficient good practice. It forms part of the supporting resource material for the Core standards program developed by FACS.

This resource has references to FACS guidelines, procedures and links, which may not be appropriate for practitioners working in other settings. Practitioners in other workplaces should be guided by the terms and conditions of their employment and current workplace.

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http://www.adhc.nsw.gov.au/sp/delivering_disability_services/core_standards.

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1. Introduction to the Sensory Processing Practice Guide

“Remember that you are occupational therapists, not sensory integration therapists. Focus first and foremost on the occupations identified by the [person with disability] and family that are of concern.”

Pollock, 2009

1.1 Background and context of this guide

Welcome to the Sensory Processing Practice Guide. This practice guide is one of several resources aligned with the sensory processing core standards program. Other associated resources are an appraisal in this topic area, and a Frequently Asked Questions document. The core standards program and associated resource materials can be found on http://www.adhc.nsw.gov.au/sp/delivering_disability_services/core_standards.

The topic was selected as one of the core standards by consensus of the lead occupational therapists in FACS (senior, consultant, and practice leader levels). Other occupational therapy core standards include:

- Seating and Positioning (including mealtime management and manual handling)
- Environmental Modifications
- Splinting and Casting (including body measurement)
- Play and Leisure Across the Lifespan
- Transport
- Activities of Daily Living (including mealtime management and sleep)

The occupational therapy core standards, and the foundation common core standards (see below), represent some of the more significant core knowledge for occupational therapists supporting people with disabilities of all ages. Although they can not cover all the knowledge required, they aim to enhance the capacity of occupational therapy practitioners by providing a convenient and up to date summary of information and links. Practitioners across FACS have provided significant content and consultation in developing the core standards. The core standards are intended to form part of a practitioner’s learning plan as developed with a professional supervisor (see [Supervision Core Standards Program](#)).

Use of the core standards to develop knowledge, skill and recognition is outlined in the [Frequently Asked Questions](#) document. This includes the importance of supervision, coaching and mentoring to build knowledge and application.

This sensory processing practice guide outlines:

- the occupational therapy model, theory and practice around sensory processing
- current evidence in sensory processing
- how best to use this knowledge to improve person centred outcomes for people with disabilities.

The Sensory Processing Core Standard relates well to the [Positive Approaches to Behaviour Support](#) Core Standard and the two may be cross referenced.

The information contained may be useful to others (eg carers, educators, practitioners, and managers) interested in the sensory processing model. The core standards aim to support role and resource sharing, transdisciplinary work and best practice to support person-centred outcomes in a modern world. A professional other than an occupational therapist may choose to complete an occupational therapy core standard and be appraised in the content area if there is adequate support, supervision, opportunity and relevance in developing these skills. Be mindful that the core standards should always be used in the context of the practitioner's scope of practice, their organisational policies and procedures, and their professional obligations.

The work place support person guiding participation in this core standard should have an extensive background in occupational therapy and sensory processing.

Feedback is welcomed via CICorestandards@facs.nsw.gov.au – please include the title of the Core Standard in the subject heading.

1.2 Common core standards

This practice guide is designed to stand alone as a resource, but is also intended to be used with the associated sensory processing core standards program materials of [Frequently Asked Questions](#) and [Sensory Processing Appraisal](#). It is enhanced when used with the [four common core standards](#) developed for across-discipline use. Information about related legislation, standards and guidelines are covered in the common core standard to guide the practitioner in their work in sensory processing.

The four common core standards are:

1. Professional Supervision
2. The Working Alliance
3. Philosophy, Values and Beliefs
4. Service Delivery Approaches

Professional Supervision

The Professional Supervision core standard is designed to help derive the most benefit from professional supervision. It outlines clearly the nature and purpose of supervision and explains how supervision assists practitioners to meet the person's as well as organisational goals. The different roles of the manager and the professional supervisor are explained as is the need to involve line managers in the process of professional supervision. The importance of reflective practice is considered and an explanation of this key process is provided. Finally, the nature of the supervisory relationship is set out and a way to measure this crucial interpersonal process is recommended.

The Working Alliance

Research has shown that the strength of the working alliance predicts improvement and better outcomes. In fact studies indicate the strength of the alliance may sometimes be more important than the type of treatment practiced. This core standard looks at what the working alliance is, how it is assessed and how it can be strengthened. It considers its central role in intellectual disability, both with the person and their families, and also with support staff. Practitioners also learn a helpful way to measure the working alliance.

Philosophies, Values and Beliefs.

Over time there has been a shift in how disability is conceptualised and how services are provided. This core standard covers:

- the definition of disability

- philosophies and values that direct the disability service system, for example:
 - social model of disability
 - international Classification of Functioning, Disability and Health
 - United Nations' Convention on the Rights of Persons with Disabilities
- national and NSW Specific strategies, schemes, frameworks and position statements
- related legislation
- models of support, for example
- person and family centred approaches
- strengths based approach
- prevention and early intervention
- lifespan and futures planning
- community development
- consent, dignity in risk and safeguarding
- the application of evidence based practice
- functional goal setting, outcomes based practice and outcome measurement.

Service Delivery Approaches

This core standard covers the types of service delivery approaches currently available including:

- settings
- team work models
- service delivery options (e.g. direct and consultative)
- appropriate services to culturally and linguistically diverse and indigenous populations
- the development of documentation appropriate to the audience (accessible information)
- the principles and strategies of positive behaviour support
- the links between communication and behaviour for people with disability

The common core standards include video footage of practitioners and family members discussing the relevance of the topic area to themselves. The common core standards also include practice guides and appraisals. The Frequently Asked Questions guide answers questions across all the core standards. All these resources can be found at: http://www.adhc.nsw.gov.au/sp/delivering_disability_services/core_standards (if log in required- please choose your own log in data).

1.3 Evidence based practice in healthcare

Despite the push and commitment towards evidence based practice, the reality is that there is still very little evidence for use by professionals when working with people with disability. Reasons for this included the vast resources required to produce high level evidence, the rapidly changing environment, and the complexity in researching at a high level. The estimate is that 30-40% of healthcare interventions are not able to be guided by evidence (Novak et al., 2013). This does not mean that these interventions can not be practiced, but that they should be used only if evidence-based interventions (see Chapter 7) are not applicable, should be ceased if new evidence shows that they are ineffectual, and should be closely monitored with good person-centred outcome measures. For more information on this, see the [Philosophies, Values and Beliefs](#) Core Standards Program.

Of much greater concern is the fact that approximately 20% of interventions provided are ineffectual, unnecessary, or harmful (Novak et al., 2013). A number of sensory based interventions fall into this category (see Chapter 7 Table 5: Sensory intervention types unsupported in disabilities). These particular interventions should therefore not be practiced. This does not mean that no sensory interventions can be practiced.

Good practice integrates practice wisdom (the proficiency and judgement gained from experience) with best available evidence, and knowledge of local and individual circumstances (Straus, Richardson, Glasziou, & Haynes, 2010).

The Core Standards Programs aim to outline the current state of the evidence, as well as guide practitioners in their application of the evidence into practice, and their practical use of outcome measures.

1.4 International Classification of Functioning, Disability and Health (ICF) and sensory functions

The World Health Organization International Classification of Functioning, Disability and Health (ICF) describes three levels of functioning- functioning at the level of the body or body part, functioning at the level of the whole person, and functioning at the level of the whole person in a social context (World Health Organization, 2002). For information visit [ICF Australian user guide](#) (AIHW, 2003)

Within this model, sensory processing is just one domain within the component Body Functions, and needs to be seen in the context of the whole person, and their social environment (Majnemer, 2012). That is, in supporting a person with disability, we need to consider all components of their functioning:

- Body functions are the physiological functions of body systems (including sensory and psychological functions).
- Body structures are anatomical parts of the body such as organs, limbs and their components.
- Impairments are problems in body function and structure such as significant deviation or loss.
- Activity is the execution of a task or action by an individual.
- Participation is involvement in a life situation.
- Activity limitations are difficulties an individual may have in executing activities.
- Participation restrictions are problems an individual may experience in involvement in life situations.
- Environmental factors make up the physical, social and attitudinal environment in which people live and conduct their lives. These are either barriers to or facilitators of the person's functioning.

The sensory processing core standard guidelines are intended to reflect the spirit of the ICF framework through the following two primary principles:

- 1) The primary focus of assessment and intervention must always be on meeting the needs of the individual and their family, based on an evaluation of how sensory processing difficulties impact on performance and participation
- 2) Assessment and intervention must always occur in the context of an ecological model, considering clinical, educational, social, vocational, and community needs.

1.5 Underpinning assumptions and principles in occupational therapy

It is acknowledged and accepted that occupational therapists:

- Have a unique expertise and knowledge in understanding the sensory needs of children and adults in their environments in accordance with the knowledge, training and principles of the profession.
- Draw-upon and integrate a range of theoretical models and practice frameworks in this practice area.
- Use good practice. Bundy, Bretnall, Hemsley and Marshall (2008) define good, or 'best', practice as a method that is based on experience and research that has been shown to reliably lead to a desired outcome. It combines the best available evidence with clinical reasoning, the proficiency and judgement that therapists acquire through practice, an awareness of local and individual cultural factors and the person's background, preferences and values (Bundy et al 2008: Law & Bennett 2009).
- Have a professional and legal responsibility to maintain currency of practice and strive to achieve evidence-informed practice.

For the entry level occupational therapist, or practitioner new to a practice area, supervision, ongoing professional development, and support are required to translate knowledge into practice and develop clinical expertise.

Roles and responsibilities of an occupational therapist may include:

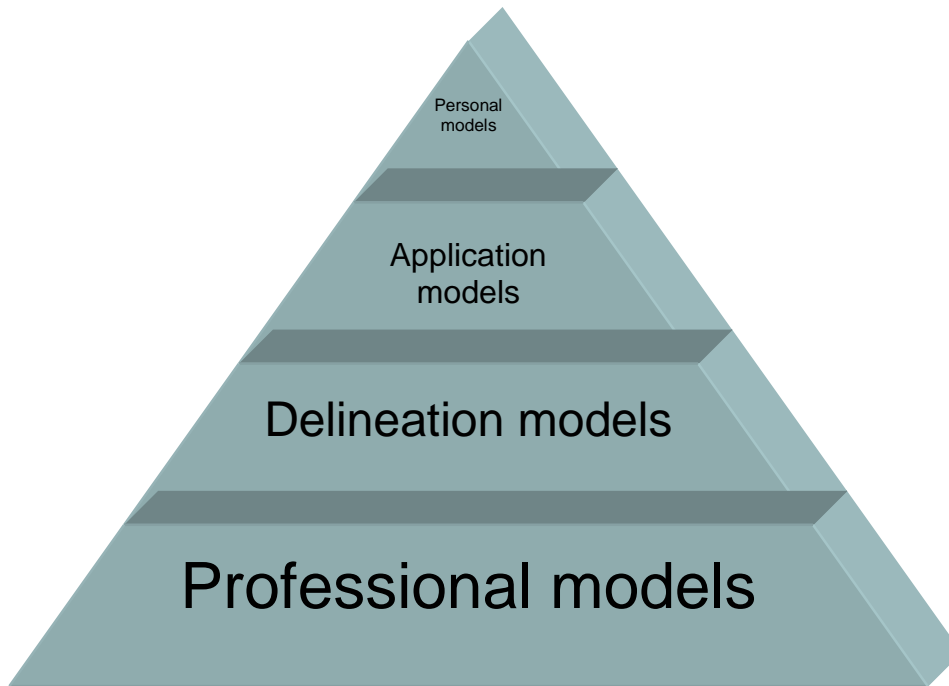
- Assessing the person's sensory preferences and impact on function.
- Seeking information from family, and other key people (remembering the therapist is not an expert on the person with disability).
- Making recommendations in collaboration with the individual, and where relevant their family and/or other key people.
- Measuring outcomes of relevance to the person, and making changes to recommendations and intervention as required.
- Training and educating relevant others about the person's sensory processing and how it may or may not impact on function.
- Training and educating relevant others in the techniques and strategies recommended.

1.6 Models of practice

Throughout this practice guide, reference is made to the sensory model and specific sensory approaches. As there is a confusing disparity between different theorists' use of terms such as model, paradigm, frame of reference and approach, the following definition is provided to aid clarity.

Kortman (1994) analysed major occupational therapy texts and articles on theoretical frameworks to reveal four types of occupational therapy models. The author was then able to propose a hierarchy of these models and to explain the individual's role in interpreting and filtering these models.

i. **Figure 1. Kortman's hierarchy of occupational therapy models**



Professional Models

Guided by philosophical ideals, e.g. the value of therapy to health and well-being, these provide a professional 'blue print'. They describe the unique roles, philosophies or values of a profession. Professional models apply to all client groups e.g. mental health, developmental disabilities, physical rehabilitation. These foundation models take many years to develop and to be accepted.

Professional models examples:

- Occupational Performance
- Human Occupation

Delineation models

These models sit over professional models to delineate approaches to certain client groups. They set boundaries and guidelines in terms of expected outcomes for clients and provide guiding constructs for assessment. They describe principles to be applied in intervention.

Delineation models examples:

- sensory
- biomechanical
- behavioural
- neuro-developmental
- motor learning
- psychoanalytical
- developmental
- functional

Application Models

The most practical of models, these describe exactly what procedure to use with a client. They clearly describe specific assessment and intervention techniques and are constantly developing as actual treatment methods are refined.

Application models examples:

- Specific Therapressure Protocols
- Ayres Sensory Integration®
- The Alert Program®

The practitioner's personal model

As individual practitioners, we see the world through biased eyes. Therefore, Kortman suggests a fourth type of model: The personal model. We rarely adhere to published models in their entirety. We tend to interpret and filter them based on our cultural and psychological biases. Models can be adapted to individual use while retaining the most salient points. An example in therapy would be changes in equipment, space, and method when conducting sensory interventions with a child in their local playground compared to conducting the same therapy, or rather following the same application model, in a clinic.

In conclusion, therapy practice is a product of established models together with individual interpretations by practitioners.

1.7 The framework of sensory processing in current occupational therapy practice

Since the 1990's there has been an intensified interest in the delineation model of sensory processing in the occupational therapy profession (Bundy & Murray, 2002). The work of Dunn and colleagues, and of Miller and colleagues, examining sensory modulation disorders in a range of populations, has received the most significant attention (Department of Education and Training Queensland, 2011).

Contemporary intervention based on sensory processing tries to understand and explain the person's behavior from a sensory perspective. Practitioners then adapt the person's environment in ways that will facilitate their ability to participate. This may be achieved for example by modifications to the individual's clothing, altering the noise or light levels, or experimenting with food textures. This model is designed to help individuals function to the best of their ability given their sensory processing capabilities as opposed to trying to change their underlying neurological functioning. See other core standards (such as [Mealtime Management, Positive Approaches to Behaviour Support, and Play and Leisure Through the Lifespan](#)) for examples of the sensory model in an holistic approach.

This core standards practice guide uses the above definition, or delineation model, of sensory processing and should be read with that model in mind.

The specialist role of occupational therapy in the area of sensory processing is acknowledged in current Australian reforms in disabilities under the National Disability Insurance Scheme. Occupational therapists are noted to assist with activities of daily living, focussing on meaningful activities of daily life to support positive changes in the person's functioning, development and wellbeing (which may include environmental barriers, sensory difficulties, and safety) ([National Disability Insurance Agency, 2014](#)).

2. Definitions of sensory processing

Sensory processing relies initially on the body's ability to perceive sensations via the senses. The primary senses are: visual, auditory, tactile, proprioceptive, vestibular, gustatory, and olfactory. Other forms of sensation, such as vibration, kinaesthesia, interoception, pain and temperature are commonly associated.

Sensory processing includes the ability to:

- detect sensory input (from both inside and outside the body)
- modulate responses to input
- discriminate the nature of the stimuli and store information about the experience so that it can be applied for function.

Sensory processing impacts on perception, movement and emotions and provides a critical foundation for functional performance, as per the International Classification of Functioning (Majnemer, 2012).

2.1 Multisensory stimulation

Multisensory stimulation impacts on growth, development and learning for all. It occurs naturally in all environments, and can be manipulated purposefully to enhance performance.

Miller, Nielsen, Schoen, and Brett-Green (2009) cite recent research supporting the use of multisensory stimulation. This includes neuroscience research showing that multisensory strategies can improve behaviour. While most studies have focused on learning within a single modality, recent studies examine the effect that intersensory interactions can have on perceptual learning and cognition. For example, compared to a visually trained group, an audio-visual trained group exhibited greater discrimination and detection learning, both within the first session and across multiple training sessions. Multisensory stimulation has also been found to improve cognitive functioning in those mildly impaired by Alzheimer's. In addition, research demonstrates that the use of multisensory systems may facilitate recovery from unisensory and spatial deficits. For example, in people with visual impairment, the association of a sound with a visual stimulus presented to their neglected field increased perception of the visual stimulus.

2.2 Ayres Sensory Integration® vs sensory processing

The term *sensory integration* is often used inaccurately, and has come to be synonymous with sensory processing delineation models and occupational therapy. The confusion has arisen as the first prominent advocate of the sensory model was Jean Ayres, occupational therapist and educational psychologist, who coined the term sensory integration in the 1970s to define a specific application model. This original, or classical, sensory integration model is therefore only one of the theoretical and therapeutic approaches applied to the delineation of sensory processing.

Classical sensory integration, now referred to as *Ayres Sensory Integration®* (Pollock, 2009, italics added) refers to the core principles of Ayres' original work. The aim of this treatment is to improve the underlying neurological functioning. This treatment includes individual treatment, a balance between structure and freedom, emphasis on the inner drive of the person, and therapy involving a special setting and special equipment such as ramps, scooter boards and platform swings (Heubner, 2001). The term has been

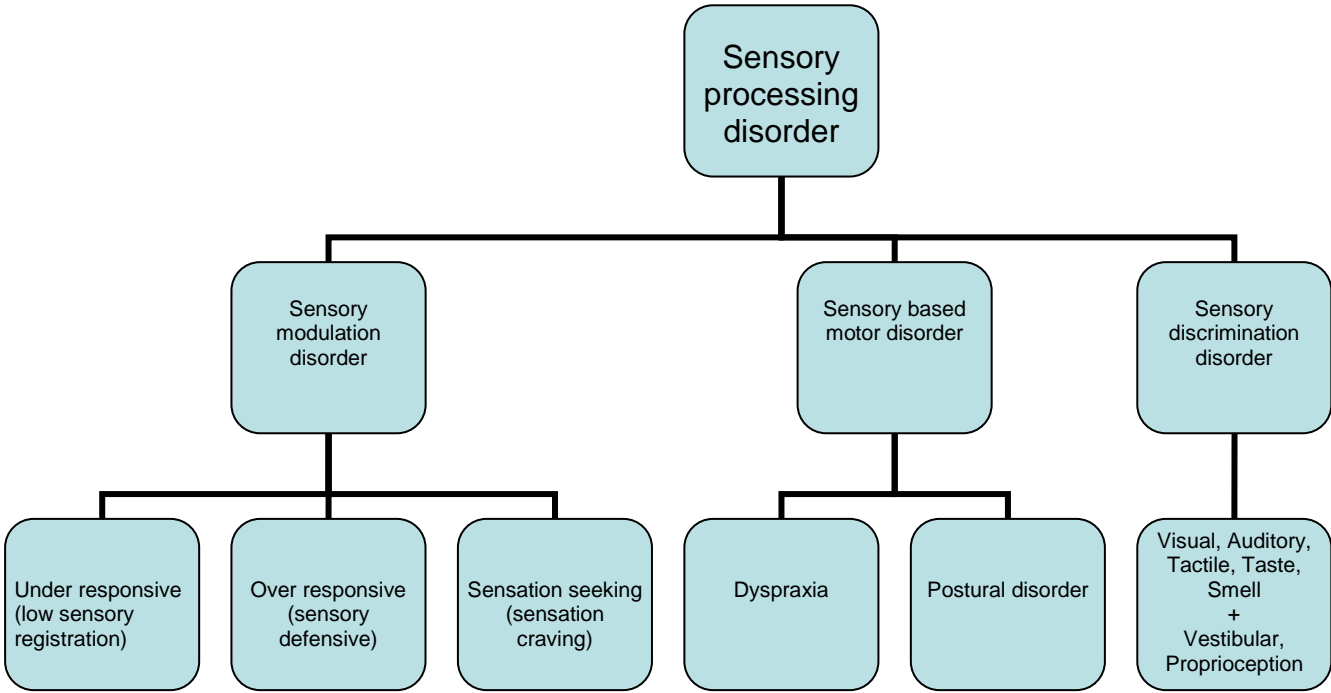
trademarked, and use of the trademark symbol helps to reduce confusion in language and model.

Current and cumulative research does not support Ayres Sensory Integration® as an effective intervention for children with autism spectrum disorder, developmental delays or intellectual impairment; nor has the research been able to sufficiently identify Ayres Sensory Integration® as an independent variable responsible for positive change in any child’s behaviours or skills to date (see Chapter 7.3).

2.3 Sensory processing disorders

Sensory processing is a broader term referring generally to the handling of sensory information by neural systems, including the functions of receptor organs and peripheral and central nervous systems. This includes the processes of reception, modulation, integration and organisation of sensory stimuli, including behavioural responses to stimuli (Miller & Lane, 2000).

A contemporary vocabulary has been developed by occupational therapists (Miller, Anzalone, Lane, Cermak & Osten, 2007) to further categorise sensory processing disorders. This provides a framework with diagnostic subgroups for sensory processing disorders as outlined below.



ii. Figure 2. Sensory processing disorder categories

The table above and the definitions below are adapted from Miller et al. (2007).

Sensory processing disorder

This is the blanket term for disorders results in impaired responses to, processing of, and/or organisation of sensory information that effects participation in functional daily life routines and activities.

Sensory modulation disorder

Sensory modulation refers specifically to the brain's ability to respond appropriately to the sensory environment and to remain at the appropriate level of arousal or alertness. A person who has sensory modulation disorder has responses that are not in line with the demands of the situation. There are three subtypes of sensory modulation disorder: under-responsivity (also known as low sensory registration or poor detection of sensory signals), over-responsivity (also known as sensory defensiveness), and sensation seeking/craving.

Sensory based motor disorder

Sensory based motor disorder consists of dyspraxia and postural disorder.

Dyspraxia is a difficulty to conceive, plan, sequence and execute novel motor acts. It can also be referred to as motor planning problems. People who have dyspraxia can appear poorly coordinated in gross, fine and oral motor areas.

Sensory based motor disorder also consists of postural disorder which is difficulty stabilising the body during movement or at rest to meet the demands of the task. People who have good postural control more readily complete activities that require reaching and resistance against gravity. When a person has difficulty with postural control, they often appear slumped in a sitting or standing position and cannot move body and limbs easily against gravity. People who demonstrate poor postural control may also demonstrate dyspraxia. Sensory under-responsivity usually co-occurs with postural disorder.

Sensory discrimination disorder

Sensory discrimination disorder is a difficulty in interpreting sensations such as detecting similarities and/or differences to determine what and where a sensation is. Sensory discrimination disorder can be present in any of the seven sensory systems (i.e. vestibular, proprioceptive, and the five basic senses).

2.4 Sensory processing vs psychomotor patterning

The model of sensory processing is not to be confused with the now defunct model of psychomotor patterning. Psychomotor patterning, popularized by Doman and Delacato, is a method that posits the child has not effectively acquired neurodevelopmental and evolutionary motor patterns. A diet of sensory input, appropriate nutrition, breathing exercises and series of patterned motor movements are proposed to cure learning disabilities, intellectual disability, brain injury and autism. The diet of sensory input and motor movements are quite similar to those now used in some unsupported sensory processing interventions (see 7.3). There has been no systematic appraisal of the effectiveness of this program, and serious criticisms about the use of the program have been raised by a number of authors (Roberts & Prior, 2006).

3. Incidence of sensory processing disorder

More high level evidence is required to understand the incidence of sensory processing problems. However, early indications suggest a significant proportion of with people with disabilities may have sensory processing issues. Conditions in which sensory processing disorders are known to coexist include autism spectrum disorder, fragile X syndrome, attention deficit hyperactivity disorder, developmental disability, postinstitutionalised children, low-birthweight infants, and some mental health disorders (Watling, Koenig, Davies, & Schaaf, 2011).

Schaaf and Miller (2005) reported an 80-90% incidence of sensory processing problems in children with autism spectrum disorder. Baranek, David, Poe, Stone, & Watson (2006) conducted screening, using the Sensory Experiences Questionnaire, with a group of 258 children 5-80 months of age. They were divided into five diagnostic groups including a group with developmental disabilities. The group with developmental disabilities displayed a rate of 38% of overall sensory processing disorders, with 40% of these showing sensory over responsivity and 30% showing under responsivity. Ahn, Miller, Milberger, and Mcintosh (2004) reported an incidence of 5.3% of sensory processing disorders in a kindergarten population of 703 children using the short sensory profile. This suggests that the rate of sensory processing problems found in the children with developmental disability is significantly greater than the typically developing population.

The condition of sensory processing disorders has more recently been acknowledged outside the occupational therapy profession in three diagnostic classification references: the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood Revised; the Diagnostic Manual for Infancy and Early Childhood of the Interdisciplinary Council on Developmental and Learning Disorders; and the Psychodynamic Diagnostic Manual (Miller et al., 2007).

4. Autism spectrum disorder and sensory processing

A growing number of people requesting a service from practitioners working with people with disability will present with autism spectrum disorder. There is emerging evidence to support the effectiveness of specific occupational therapy interventions in this area.

A study by Tavassoli, Miller, Schoen, Nielsen, and Baron-Cohen (2014) found that adults with autism spectrum disorder experience sensory over-responsivity to daily sensory stimuli to a high degree, and across various sensory domains (visual, auditory, tactile, olfactory, gustatory and proprioceptive). Therefore, the authors propose, understanding sensory over-responsivity and ways of measuring it in adults with autism spectrum disorder has implications for support services.

Case-Smith and Arbesman (2008) looked at 49 studies on the effectiveness of six types of interventions that may help children with autism spectrum disorder. Three interventions were closely related to occupational therapy. These included sensory interventions, relationship-based intervention such as *Floortime*, and developmental skill-building intervention. All of these were reported to be effective for some children with autism spectrum disorder. Practitioners can maximise effective support by designing goals and plans specifically for the child, changing therapies as the child's needs change (i.e. referring for an intervention from a different discipline if occupational therapy is not achieving outcomes), and including parental involvement and peer mentoring.

Sensory interventions are widely accepted and practiced by practitioners working with people with autism in Australia. It is important to distinguish between Ayres Sensory Integration® (see 2.2) and the management of the sensory characteristics frequently associated with autism spectrum disorder. Intervention to manage sensory issues may consist of environmental management or involve the person directly. The effective management of sensory issues, although still experimental, is potentially of significant benefit to people with autism spectrum disorder (Roberts and Prior, 2006).

However, precaution in clinical decision making must be taken. Lang, et al. (2012) completed a review of sensory processing interventions for people with autism spectrum disorder. Eligible studies had to contain at least one participant diagnosed with an autism spectrum disorder and had to evaluate some form of sensory based therapy that aimed to decrease symptoms, improve quality of life, increase access to typical environments (such as school or community) and/or improve academic performance. Therapy had to involve at least one of weighted vests, swinging, brushing, joint compression and/or alternative seating (such as therapy balls). Studies of multicomponent interventions were eligible. They found that many of the reviewed studies, including three studies reporting positive results, had serious methodological flaws. Therefore, they surmise that the current evidence-base does not support the use of the reviewed sensory processing interventions (weighted vests, swinging, brushing, joint compression and/or alternative seating) in the education and treatment of children with autism spectrum disorders. These authors advise that unless different findings come to light, practitioners and agencies serving children with autism that endeavor, or are mandated, to use research-based, or scientifically-based, interventions should not use these particular interventions outside of carefully controlled research.

It is worrying that when Kadar, McDonald and Lentin (2012) reviewed the practices of occupational therapists when working with children with autism in Victoria, Australia, they found that practice has remained relatively unchanged over the past decade. This is despite changes in our knowledge base. The authors note that it is essential not to neglect functional goals and functional interventions in the attempts to support sensory needs.

It is of interest that although sensory processing difficulties are often seen in people with autism spectrum disorder (Law, 2006); there is no evidence that sensory symptoms differentiate people with autism spectrum disorders from people with other developmental disabilities (Johnson, 2007). However, differences have been noted between children with autism spectrum disorder and children with sensory modulation disorder and no autism. Results indicated that physiological arousal was significantly lower in children with autism, whereas reactivity in response to each sensory stimulus was higher in sensory modulation disorder, particularly to the first stimulus in each sensory domain. Additionally, the children with autism generally had more taste/smell sensitivity and sensory under-responsivity, while the children with sensory modulation disorder had more atypical sensory seeking behaviour (Miller, Nielsen, Schoen, & Brett-Green, 2009).

For further information on effective occupational therapy for occupational therapists working with children with autism spectrum disorder, see the self-paced learning package [Helping Children with Autism Package](#) (these online modules are free to members of Occupational Therapy Australia. Non-members incur a fee).

Also refer to the Autism Spectrum Disorder extension skills within the core standard [Positive Approaches to Behaviour Support](#).

5. Assessments and checklists

Occupational therapy assessment should include evaluation of the person's sensory processing when indicated by broader evaluation of their functioning in goal related domains (Watling, Koenig, Davies, & Schaaf, 2011).

There are a wide array of assessments and checklists available to practitioners to assist with assessing sensory processing. Users have a responsibility to become familiar with the features of the available tools, then select and use the most appropriate tool available at the time. Standardised tools are not always suitable for people with a particular disability. Therefore, non-standardised checklists/instruments with consistent and repeatable recording methods may be useful in these circumstances.

Practitioners should consider a number of questions in order to select the most appropriate sensory evaluation tools, including:

- Is the purpose of the test based on functional tasks and in the context of the person's environment?
- What tests have been administered in the past and what were the results?
- Will the test yield the kind of information required?
- Are there more efficient means of gathering the same information?
- Are the administration procedures suited to the person/family/carer?
- How reliable and valid is the test for use in the specific situation?
- What is the competency level required for administering the test eg is the user required to be an occupational therapist, and is specialised training needed in the tool?

Tools that can be used to gather information to help generate your hypotheses may include:

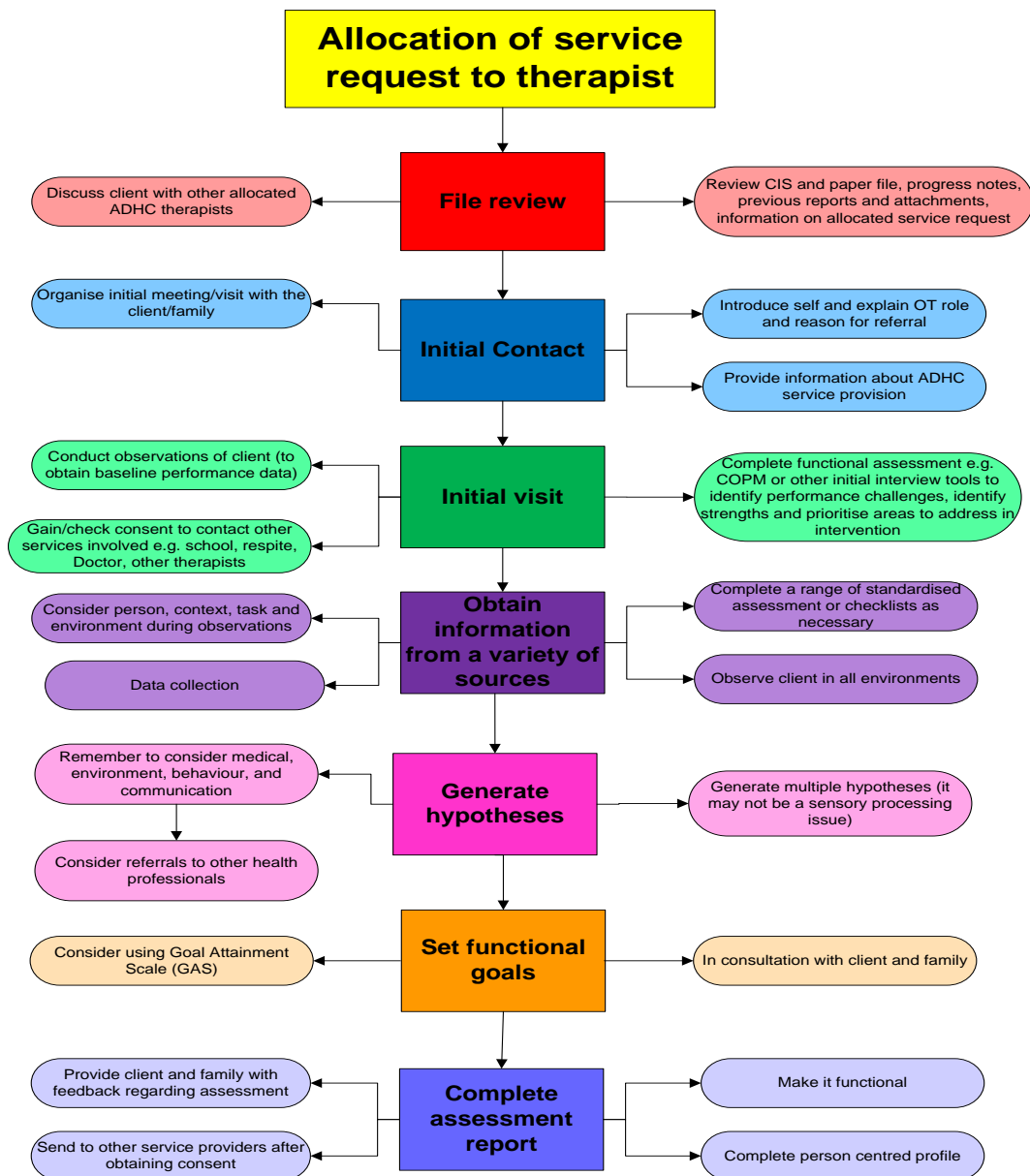
- Sensory Processing Measure, standardised assessment (available in home, school or preschool versions), recommended for use with children diagnosed with autism spectrum disorder, [Cincinnati Children's Hospital Medical Center, 2009](#)
- *Is it Sensory or is it Behaviour?* (Murray-Slutsky & Paris, 2005). Contains reproducible worksheets to assist the practitioner to distinguish between sensory-based and non-sensory based behaviours and suggests strategies for intervention
- Data collection sheets of behaviour (eg ABC charts)
- Sensory Profiles, standardised assessments by Dunn (available in the following versions: Infant/Toddler; School aged; School companion; Adolescent/Adult)
- The Sensory Integration Inventory - Revised, for Individuals with Developmental Disabilities, screening tool by Reisman and Hanschu
- Sensory Modulation & Environment: Essential Elements of Occupation (3rd Ed.) by Champagne (2011), contains screening tools

Note that these tools are not designed as outcome measures and should be used in the context of current evidence based practice as outlined in this guide. Refer also to the [Positive Approaches to Behaviour Support](#) Core Standard.

6. Comprehensive assessment in a person centred and functional context

This chapter outlines how the model of sensory processing may be incorporated into assessment alongside current philosophies, values, beliefs and processes. It explains how to safeguard practice so as not to follow one model at the expense of others, and how to introduce the model into a team that includes the person with disability, their circles of support, and other professionals.

iii. **Figure 3. Process of assessment**



The process of assessment may follow the sequence as shown in Figure 2 and as outlined below, and should encompass the values, philosophies and beliefs as described in the [Philosophies, Values and Beliefs](#) Core Standard Program. See also the [Service Delivery Approaches](#) Core Standard Program for general considerations in assessment.

The assessment and reporting processes require integrated interdisciplinary planning when more than one practitioner is involved.

File review

When a service request has been allocated, it is important to first review the person’s records to determine previous involvement across the range of disciplines. If other disciplines are allocated at the same time, the practitioners must discuss how the assessment will be completed collaboratively to allow a coordinated approach. An interdisciplinary model is best practice. Some instances may require a transdisciplinary

approach (see [Service Delivery Approaches](#) Core Standard Program). It is also important to consider that the reason for requesting a service may have changed since the service request was raised.

6.1 Initial contact

Organise an initial meeting/visit with the person and, if appropriate, their family/carer/other professionals involved to discuss the reason for referral, to explain the role of the practitioner, and to provide information about service options. The functional needs of the person are revisited at this time and a fit of need to service support confirmed.

6.2 Initial assessment

Current good practice in assessment is person centred and functional in approach, as well as outcome focused. Evidence indicates that interventions based on results of comprehensive functional assessment have significantly higher probability of being effective than those based only on other forms of assessment such as anecdotal observation, standardised testing and unstructured interview (Roberts, 2004).

Assessment supports professional performance roles and takes into consideration the person, the environment and the occupation. It is therefore recommended that a top-down assessment approach be used, beginning with an initial interview with the person and their family/carer to identify occupational strengths, performance challenges, and to prioritise areas for intervention. The Canadian Occupational Performance Measure ([Law, Baptiste, Carswell, McColl, Polatajko & Pollock, 2014](#)) is a useful tool to assist with obtaining this information.

If other relevant services are involved (e.g. school, respite, general practitioner, paediatrician, other practitioners), consent should be obtained from the person or their proxy so that timely liaison can occur following the initial visit. Initial observations of the person and the way they interact in their natural environment can also occur during this visit.

Comprehensive assessment should include information from multiple sources. These may include:

- Information provided at the time of referral
- File review and review of previous reports (e.g. medical reports, therapy reports, behaviour support plans)
- Interviews with the individual, their family, teacher, carer or other team members regarding the person's history, concerns, and their observations of the person's sensory preferences and sensory aversions. Ask the person and their family what a typical day looks like. Explore the person's and their family/carer's perceptions about current concerns and issues; be prepared that these may be valid barriers to successful implementation of recommendations
- Observation of the person participating in functional tasks across different environments (e.g. home, school, day program). This serves many purposes including assisting with the interpretation of any sensory assessment/screener completed, and assisting to generate appropriate hypotheses. The following are useful to consider during observation:
 - The person – what do they choose to do with their spare time, what things do they like/dislike?

- The context/environment – what environments does the person cope and function the best/ worst in, what are the sensory characteristics of this setting, who do they interact best/worst with, how does the person approach them?
- The task – how is the task delivered, when are they being asked to do something, is the level of performance expected realistic?
- Confirm that what was observed is typical.
- Film observations where possible (consent required). It is difficult to take in and remember everything (e.g. noise, a light turning on, a siren in the background) at once. Practitioners often habituate to and miss things that the person being assessed might orient to.

6.3 Generate hypotheses

It is now time for the practitioner to start generating multiple hypotheses on why a person may have functional difficulties impacting on their goals. It may or may not be a sensory processing disorder that is limiting the person’s ability to complete functional tasks. Remember the old adage: “If the only tool you have is a hammer, you’ll view every problem as a nail”.

The assessment process relies heavily on clinical reasoning, where the practitioner synthesizes knowledge of human development and conditions with the information gathered through interaction with the person to gain a greater understanding of their functional performance (Watling, Koenig, Davies, & Schaaf, 2011).

6.4 Link hypothesis to functional, person centred goals

Below is an example of how a sensory-based hypothesis can be related to a functional goal. It states how the intervention will be measured, allowing some evaluation of whether the hypothesis is correct.

iv. Table 1: Sensory model hypothesis linked to functional goals

Behaviour	... would like to participate in the class morning circle activity. During morning circle, ... often displays extreme anxiety, has difficulty attending to task, and is over-responsive to sensory input such as touch.
Goal	... will appropriately engage in the _____ morning circle activity for 10 minutes by 1 July 2014.
Hypothesis for observed behaviour	If ...’s anxiety is due to sensitivity and avoiding patterns of sensory processing, then the provision of calming proprioceptive and tactile input, and reduction of offensive input, can decrease the possibility of reaching an over-aroused state.
Intervention plan	Engagement in sensory desensitisation activities prior to morning circle. Elimination or reduction of unpleasant sensory input during morning circle.
Measurement strategy	... will attend to and participate in the _____ morning circle activity at a level predetermined by ..., teacher and parents. Duration to be recorded.

Decision-making plan	<p>If the data demonstrates a positive impact on ...’s ability to attend to and participate in the activity at morning circle, then further use of these sensory interventions will be explored and increased for other times of the day.</p> <p>If the data demonstrates no change in behaviour or an increase, then other hypotheses will need to be explored.</p>
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As part of the assessment phase, specific goals and outcomes related to the person’s sensory processing and their function should be established before commencing with intervention strategies (Mailloux et al., 2007b). This will allow for valid evaluation of the effectiveness of intervention techniques which is required, particularly as there is limited and sometimes contradictory evidence around sensory processing interventions (see Chapter 7). In the absence of clear scientific evidence in this area of practice, person centred outcome measures such as the Goal Attainment Scale (Kiresuk, Smith & Cardillo, 1994; Mailloux, et al., 2007a) are of value. An example follows (Table 2). For more information about setting functional goals refer to the [Philosophies, Values and Beliefs Core Standards Program](#).

v. **Table 2: Goal Attainment Scale (GAS) example**

SCORE	GAS GOAL
	By 1 December 2014, John will appropriately* engage in the kindy morning circle.
Current Skill Level -2	for 0-4 minutes
First Step Towards Goal -1	for 5-9 minutes
Goal 0	for 10 minutes
Greater than expected +1	for 11-15 minutes
Much greater than expected +2	for the entire morning circle ie 16-20 minutes

* predetermined by John, his teacher and parents; duration averaged over five days

6.5 Complete assessment report

At this point of the assessment phase it is important to convey the assessment findings to the individual and relevant carers, together with all other team members. This should be communicated via a collaborative (ie combined if more than one practitioner involved), accessible report and discussion. More information on providing accessible information can be found in the [Service Delivery Approaches](#) Core Standard Program.

If it has been identified that sensory processing difficulties are impacting on the person's functional skills, then it is important for team members to be knowledgeable about sensory processing. It is generally considered part of an occupational therapist's role to offer to share knowledge with the person, their family and all team members about sensory processing and its impact on the person, or this role can be filled by another practitioner with relevant expertise if an interdisciplinary/transdisciplinary model is used.

It is important that feedback provided:

- has a clear purpose
- clearly links findings and recommendations to function and participation
- is useful and relevant to daily living
- is understood by all relevant people
- is specific to the individual
- includes details of the proposed intervention plan or action.

Feedback should not:

- contain too much jargon
- be a record of just the scores
- be open to varied interpretation
- make sweeping generalisations.

Aspects to include in the assessment report:

1) Background

- ✓ Introduce the person in a positive way
- ✓ Describes functional discrepancies between what the person wants/needs to do and what they are able to do
- ✓ Leads directly to plan for assessment
- ✓ Should be one to two paragraphs.

2) Assessment:

- ✓ List of tests and other assessment procedures e.g. Sensory Profile, Canadian Occupational Performance Measure, parent interview, observations
- ✓ Enough description that the reader understands why that assessment was used e.g. if using a motor based assessment, it should state in the background

information that the person has difficulty with their motor skills. Link why this assessment tool was chosen to the background information.

3) Assessment Findings:

- ✓ Describe the significant scores and observations
- ✓ Include enough detail to tell the story
- ✓ Clear enough that the reader understands
- ✓ Avoid use of jargon.

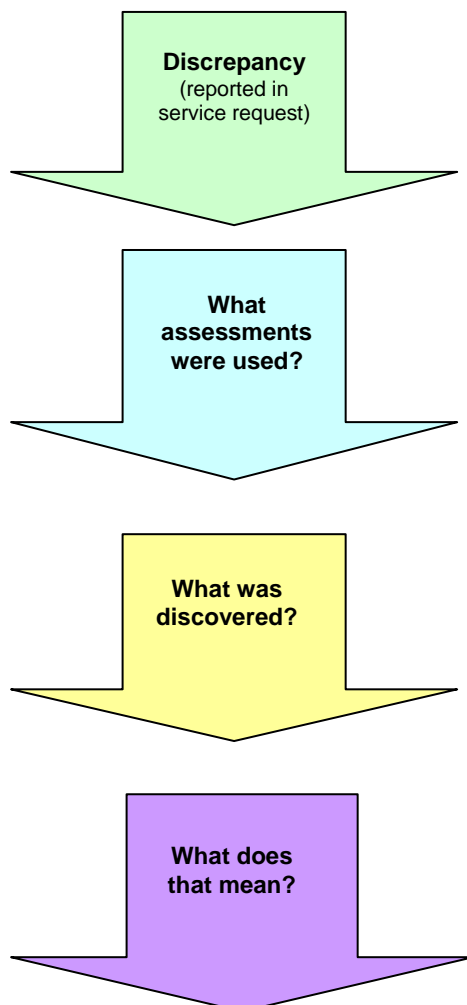
4) Conclusions:

- ✓ Tie together results of the assessment with the background information and reason for referral e.g. ...'s difficulty with processing sensory information contributes to her (discrepancy reported in the background info)
- ✓ Show to what extent your findings explain the discrepancies.

5) Recommendations:

- ✓ Can an intervention help to minimise the discrepancies?
- ✓ What will the intervention look like? Be specific.
 - In what form?
 - At what intensity?

Or, in summary:



Other points to consider when completing an assessment report:

- Ask someone with, and someone without, sensory processing knowledge to review the report
- Clarify the purpose and scope of the report. Consider the benefits of an interdisciplinary report
- Remember that sensory processing is rarely the only contributing factor; no one variable is likely in isolation.

7. Intervention

Research indicates that sensory-based interventions have potential in assisting people to increase their function and participation in daily life. Whilst exercising caution and sound clinical reasoning, practitioners can feel empowered with their knowledge and training to move forward with sensory-based interventions in enabling positive functional outcomes for people experiencing sensory processing difficulties.

Interventions can aim to:

- Establish/restore (focus is on the person's skills and abilities) – e.g. teaching someone to access a quiet space when they are getting worked up
- Alter (focus is on the context) – e.g. changing the way instructions are given
- Adapt/modify – (focus is on the context or task) – e.g. remove irritating clothing textures and tags to support concentration during table top activities
- Prevent behaviours of concern – e.g. implementing a sensory diet, routine, or visual schedule; removing noxious sensations from the environment
- Provide a calming influence.

Interventions should not be driven by sensory specific needs. Instead, the practitioners supporting the person should consider the impact of the sensory processing difficulty on the person from a holistic perspective, and use sensory-based techniques in combination with other intervention approaches to address functional goals. The determination of functional, person centred goals and administration of a functional outcome measure (e.g. GAS or Canadian Occupational Performance Measure) should precede any sensory specific assessments or strategies.

When implementing sensory-based interventions, practitioners should use thorough clinical reasoning around the person's individual and external factors impacting on their safety, function and participation. The practitioner should also consider the social and ecological validity of the approach (e.g. carers' capacity to implement strategies, social inclusion of the person with disability and the environment relevant to the established functional goal) as well as the available evidence.

At any time, the practitioner can call on the support of other specialists' expertise to provide a team approach of different skills and models.

Pollock (2009) recommends that if parents and practitioners decide to use sensory-based interventions, it should always be approached as a trial. Pollock adds that re-assessment using the pre-established outcomes should take place after eight to ten weeks of intervention. If the intervention is going to be effective, some positive benefits will be

evident by then. If these benefits are not apparent, another approach should be investigated, perhaps involving a different professional background.

7.1 Leading evidence based practices

If the sensory model is chosen for application, it should ideally fit within more conclusively evidence-based interventions as identified in the table below.

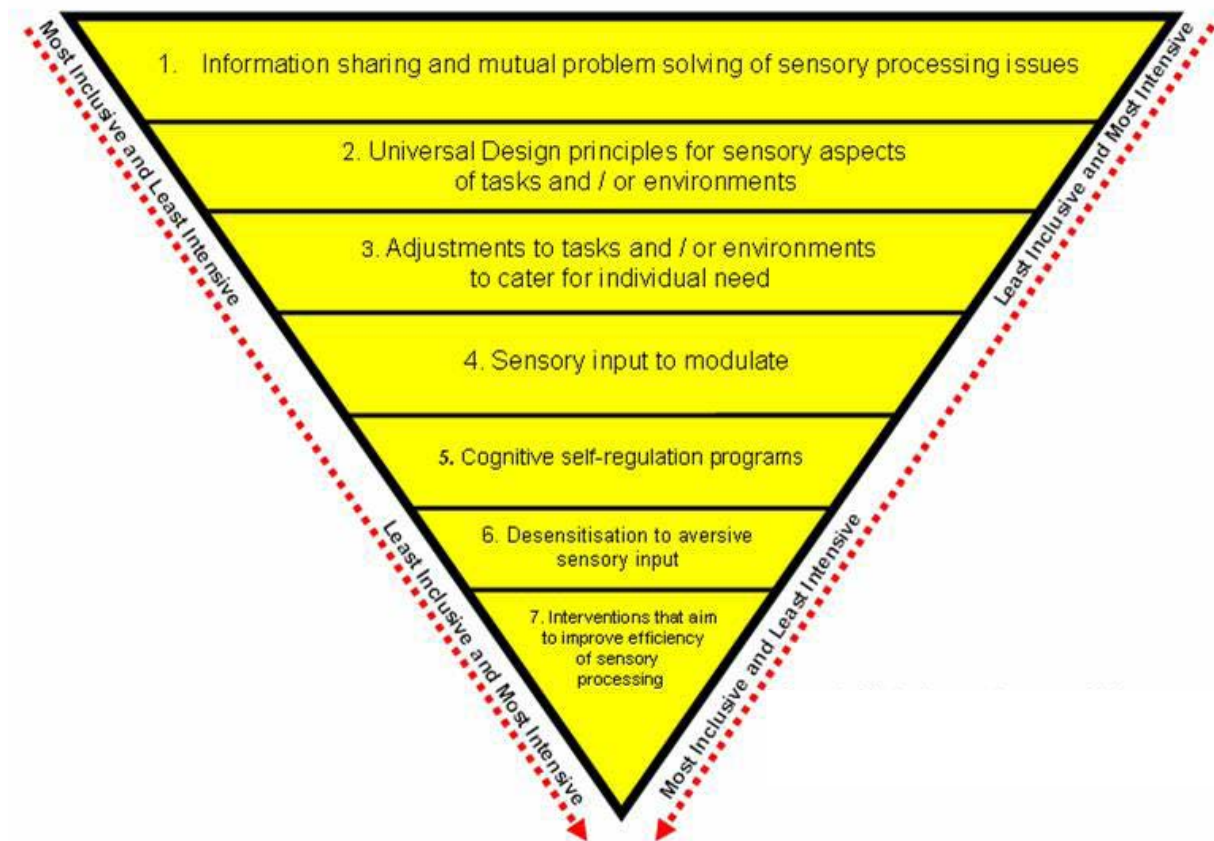
i. Table 3: Current leading practices supported by high level evidence

Intervention	Reference
<i>Context-focused therapy</i> : changing the task or the environment (but not the person) to promote successful task performance.	Novak et al., (2013)
<i>Goal directed/functional training</i> : task specific practice of person centered goal-based activities.	Novak et al., (2013)
<i>Home programs</i> : therapeutic practice of goal-based tasks by the person, led by the person and/or their carer and supported by the practitioner, in the home environment.	Novak et al., (2013)
<i>Working alliance</i> : eg for children, the ability of professionals to enhance the well being of the entire family, facilitating choice and control, and helping to navigate the complex service system.	Roberts (2004) Also see The Working Alliance .
<i>Early intervention for children with autism spectrum disorder</i> : Interventions which address the child and family's needs using a behavioural, educational and or developmental approach.	Prior, Roberts, Rodger, Williams, & Sutherland (2011)
<i>Consultation</i> : services provided on a consultation basis (eg for children and adolescents with sensory integration disorders, developmental coordination disorders, and learning problems).	Watling, Koenig, Davies, & Schaaf (2011).

7.2 Hierarchy of sensory interventions

Selection of sensory interventions starts from the most inclusive, least restrictive and least intensive interventions to those that are least inclusive and most intensive. Based on available research and evidence, practitioners are encouraged to consider the top of the hierarchy, before resorting to those at the lower end of the hierarchy.

Figure 3 illustrates intervention options and where they fit in this hierarchy.



vi. **Figure 3. Clinical reasoning pyramid for selection of sensory interventions, Department of Education and Training Queensland (2011).**

7.3 Types of sensory interventions

Several systematic reviews of sensory-based interventions have been completed in recent years.

Tables 4 and 5 below outline the commonly cited intervention types and evidence based recommendations based on strength of the evidence available.

Table 4 includes those interventions that are unestablished/ emerging/ inconclusive but considered acceptable to use with good clinical reasoning and person centred outcome measures.

Table 5 summarises sensory interventions unsupported in disabilities – these are not recommended without further high level evidence to justify their use.

The information summarised below was sourced primarily from comprehensive professional reviews completed by:

- Department of Education and Training Queensland (2011). Best Practice Guidelines for Department of Education and Training Occupational Therapists: Supporting Students with Sensory Processing Challenges. Author.
- Lang, R., O'Reilly, M., Healy, O., Rispoli, M., Lydon, H., Streusand, W., & ... Giesbers, S. (2012). Sensory integration therapy for autism spectrum disorders: A systematic review. *Research In Autism Spectrum Disorders*, 6(3)

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vii. **Table 4: Sensory intervention types with emerging evidence**

Sensory Intervention	Available Evidence	Precautions/ Risks
<p><u>Multisensory stimulation</u> (see 2.1)</p>	<p>Miller, Nielsen, Schoen, and Brett-Green (2009) cite recent research supporting the use of multisensory stimulation. This includes neuroscience research showing that multisensory strategies can improve behaviour. While most studies have focused on learning within a single modality, recent studies examine the effect that intersensory interactions can have on perceptual learning and cognition. For example, compared to a visually trained group, an audio-visual trained group exhibited greater discrimination and detection learning, both within the first session and across multiple training sessions. Multisensory stimulation has also been found to improve cognitive functioning in those mildly impaired by Alzheimer's. In addition, research demonstrates that the use of multisensory systems may facilitate recovery from unisensory and spatial deficits. For example, in people with visual impairment, the association of a sound with a visual stimulus presented to their neglected field increased perception of the visual stimulus.</p>	<p>Nil noted.</p>
<p><u>Fidget and fiddle items</u> Promoters advocate the use of 'fidgets' or 'fiddle' items for supporting self-regulation, attention, learning, behaviour, stress-management, calming the body and mind, and enriching sensory diets. While widely marketed and utilised for people with sensory processing challenges, there is scant research to date investigating the outcomes of implementation of fidgets and fiddle toys.</p>	<p>Evidence is currently insufficient to support routine implementation of fidgets or fiddle items (Department of Education and Training Queensland, 2011). Therefore, use with good clinical reasoning and person centred outcome measures.</p>	<p>Consideration of wear and tear and whether the item could be ingested or become a choking hazard. Risk of distraction from or disruption to the learning task. Potential for development of habits and rituals that may interfere with function.</p>
<p><u>The Alert Program™</u> Williams and Shellenberger (1996) developed this program that combines a cognitive-behavioural approach and sensory integrative elements to support a self-regulation and arousal modulation abilities.</p>	<p>The Alert Program™ has been designed specifically for classroom use by teachers, parents and therapists of children with attention and learning difficulties (aged 8-12). It has been adapted for pre-school children through to adults. Much of the support for the program to date is anecdotal and practice-orientated. The available studies have small sample sizes or are case-based, which limits</p>	<p>If incorporating items such as fidget toys, compression products, chewing products, or special seating- follow the precautions listed for that intervention.</p>

Sensory Intervention	Available Evidence	Precautions/ Risks
	the generalisation of the findings. The program, even in a modified form, has significant cognitive demands and applicability to students with disabilities has not yet been adequately established.	
<p><u>Compression products</u></p> <ul style="list-style-type: none"> • Compression • Squeeze machine • Therasuits <p>Compressive products have been increasingly utilised in recent years, purported to assist people with sensory processing and attention span issues to enhance functional attention to and participation in tasks (VandenBerg, 2001). Therasuits are designed to improve proprioception to improve gross motor function and reduce spasticity (Novak et al., 2013).</p>	There is insufficient or conflicting empirical support regarding the effectiveness of compressive products aimed at providing deep pressure. Small sample sizes and variance in groups limit the ability to generalise preliminary results. There remains insufficient evidence to guide wearing times and optimal weighting or compressive forces. The risk of negative biomechanical stress has not been adequately examined. Further research is required to inform development of specific guidelines and protocols for practice.	Currently there is inconclusive evidence to guide the application of compressive products. In addition, there is a potential risk of negative bio-mechanical stress on growing bodies associated with their use. Consultation with others such as the team physiotherapist or the student's doctor is recommended prior to consideration of a trial of these products.
<p><u>Oral- motor</u></p> <ul style="list-style-type: none"> • The oral tactile technique • M.O.R.E. program • Chewing products • Sensory stimulation to lips, jaw, tongue, soft palate, larynx, and respiratory muscles to stimulate the oropharyngeal mechanism 	There is no, or only incomplete, evidence available to support implementation of the oral motor strategies (Department of Education and Training Queensland, 2011). Therefore, use with good clinical reasoning and person centred outcome measures.	<p>Practitioners must prescribe only materials expressively designed for the intended application. Note that some tubing commonly used for oral motor purposes is intended for resistance exercise and should not be placed in the mouth.</p> <p>Oral-motor techniques may also present a number of workplace health and safety considerations (e.g.infection control, hygiene) requiring careful risk assessment and management.</p>
<p><u>Sensory diets with environmental adjustment focus</u></p> <p>These involve activities and environmental adjustments designed to complement the individual's sensory needs. Generally this is to meet an immediate need, or provide a preventative strategy, such as an intervention used prior to a challenging event (May-Benson & Koomar, 2008). This differs from Sensory Diets as coined by Wilbarger and Wilbarger (1991) to describe</p>	<p>There is emergent evidence to support more recent sensory diet approaches involving activities and environmental adjustments designed to complement the individual's sensory needs (Leong & Carter, 2008; Prior, Roberts, Rodger, Williams, & Sutherland, 2011).</p> <p>It is recommended that definitions be clarified and language used to distinguish these approaches from the Therapressure Program™ of Wilbarger and Wilbarger</p>	<p>A stress response can be generated by too much sensation.</p> <p>The use of the wrong type of input can negatively impact on a person's level of arousal, thus impacting on the person's ability to appropriately interact with the environment.</p> <p>Vestibular input can easily overload some</p>

Sensory Intervention	Available Evidence	Precautions/ Risks
<p>programs that prescribe regular vestibular and tactile activities to 'normalise' the sensory systems.</p>	<p>(1991) where a Sensory Diet involves specific time oriented vestibular and tactile activities.</p>	<p>individuals, causing either excitability, a nauseous response, or stimulate a shutdown response.</p> <p>Therefore, careful clinical reasoning, and person centred outcome measures are required.</p> <p>Source: Use of sensory diet in children with sensory processing difficulties http://www.guideline.gov/content.aspx?id=15242&search=sensory+diets</p>
<p><u>Alternate seating via therapy balls/ dynamic seating cushions</u></p>	<p>Use of therapy ball seating and other dynamic seating for people with attention deficit disorder and people with autism spectrum disorder shows initial promise. For instance, for children with autism, therapy balls used for up to 10 minutes a day, for three weeks as an alternate form of classroom seating may improve in-seat behaviour and attention to class activities by as little as 25% or as much as 80%. (http://www.otcats.com/topics/CAT-KHolman2005.html, accessed 14 Feb 2014)</p> <p>However, small sample sizes of available studies precludes generalisation of results.</p> <p>Preliminary findings lend some support to dynamic seating for students with difficulty attending in class; however, the effects on a clinical population (e.g. students with disabilities with attention difficulties) have not been established with these cushions (https://www.region10.org/r10website/assets/File/cats_dynseating.pdf, accessed 14 Feb 2014).</p> <p>Further study to examine impacts of dynamic seating on school performance and longer term effects is needed (Kennedy, 2006).</p>	<p>Consideration must be given to the potential risks to physical function or development such as fatigue, musculo- skeletal contraindications or postural compromise. Collaboration with a physiotherapist is recommended prior to considering a practice trial with alternate seating via therapy balls/ dynamic seating cushions.</p>

Sensory Intervention	Available Evidence	Precautions/ Risks
	Therefore, use with good clinical reasoning and person centred outcome measures.	
<p><u>Sensory rooms</u> Also known as Snoezelen rooms or multi-sensory environments, aim to provide sensory stimuli across the range of sensory modalities within a specially built room.</p>	<p>Limited Type 1 evidence. Limited evidence for rationale. Does not meet best practice criteria as a stand-alone intervention (Prior, Roberts, Rodger, Williams, & Sutherland, 2011).</p> <p>Although they promote an increase in positive moods during and immediately after the intervention, they are not useful in reducing challenging behaviour outside of the room (Chan, Yuen Fung, Wai Tong, & Thompson, 2005; Mckee, Harris, Rice, 2007).</p>	<p>Sensory rooms have been found to be little more than expensive leisure options. Intervention strategies incorporated into natural environments are more inclusive for the person, and therefore would be the preferred approach.</p> <p>Therefore, use only with good clinical reasoning and person centred outcome measures.</p>

viii. **Table 5: Sensory intervention types unsupported in disabilities**

<p><u>Sound or Auditory Based Therapies</u> A range of sound or auditory-based therapies including Auditory Integration Training[®], Therapeutic Listening[®], The Tomatis[®] Method, and The Listening Program[®] are widely promoted for people with sensory processing challenges to purportedly improve sensory modulation, sound sensitivities, attention, behaviour, posture, speech and language. The different programs, while distinct, appear to have a number of similarities. They generally involve intensive application of modified or filtered sounds or music and are most commonly applied with CDs and earphones in home and clinic-based programs.</p>	<p>There is insufficient empirical support regarding the effectiveness of sound or auditory-base therapies. Small sample sizes and hetero-genous groups limit the ability to generalise results (Department of Education and Training Queensland, 2011).</p> <p>At this time, these cost and time intensive interventions are not adequately tested or supported by research evidence (Dawson & Watling, 2000; Sinha, Silove, Wheeler, Williams, 2006), safety is not sufficiently established, there are potential adverse side effects (Baranek, 2002), and the protocols are incompatible with an inclusive education context. These approaches should be considered experimental only.</p> <p>Potential side effects have been identified to include distress and/or damage to hearing.</p> <p>Several concerns about the safety of the equipment used have been highlighted internationally.</p>	<p>Practitioners and agencies endeavouring, or mandated, to use evidence based interventions should not use sound or auditory-based therapies outside of ethics endorsed controlled research.</p>
<p><u>Specific Therapressure Protocols</u> Two deep-pressure proprioceptive protocols used in occupational therapy practice are the Therapressure Program[™] (Wilbarger & Wilbarger, 1991) and the Protective Response Regimen (PRR) (Hansch, 2002). The Therapressure Program[™] has been reprinted and renamed over the past two decades and may be known also as the Deep Touch Pressure Protocol, the Wilbarger Protocol or the Sensory Summation Technique. The developers of both protocols recommend use with individuals who are over-responsive to sensory stimulation (also known as sensory defensiveness).</p>	<p>No studies of the Protective Response Regimen (PRR) technique were located.</p> <p>The current evidence regarding deep-pressure proprioceptive protocols is inconclusive and not sufficient to support application of these techniques. There is inadequate empirical support to justify application of these approaches in clinical practice (Department of Education and Training Queensland, 2011; Prior, Roberts, Rodger, Williams, & Sutherland, 2011).</p>	<p>Practitioners and agencies endeavouring, or mandated, to use evidence based interventions should not use deep-pressure proprioceptive protocols outside of ethics endorsed controlled research.</p>
<p><u>Ayres Sensory Integration[®]</u> A resource intensive therapy involving large pieces of specialised equipment and intensive direct therapy with the child. Practice is typically</p>	<p>Current and cumulative research does not support Sensory Integration[®] as an effective intervention for children with autism spectrum disorder, developmental delays or intellectual impairment; nor has the research</p>	<p>Practitioners and agencies endeavouring, or mandated, to use evidence based interventions should not use Sensory Integration[®] outside of ethics endorsed</p>

<p>conducted by occupational therapists who have undertaken further specialised training in Sensory Integration®.</p>	<p>been able to sufficiently identify Sensory Integration® as an independent variable responsible for positive change in a child's behaviours or skills to date (Department of Education and Training Queensland, 2011; Watling, Koenig, Davies, & Schaaf, 2011). One study reports an increase in self injurious behaviour with this intervention (Roberts & Prior, 2006).</p>	<p>controlled research.</p>
<p><u>Weighted products</u> This includes the addition of weighted materials to vest and blankets for sensory interventions, ie</p> <ul style="list-style-type: none"> • Weighted vests • Weighted blankets <p>(This does not include the use of the person's preferred naturally occurring weights such as a heavy quilt at night to help with sleep, a snug sheepskin vest, or a self-chosen heavy object held in the hand for calming.)</p>	<p>At this time these interventions are not supported by adequate research and should not be routinely recommended in the absence of exhaustive clinical reasoning and caution (Department of Education and Training Queensland, 2011; Prior, Roberts, Rodger, Williams, & Sutherland, 2011; Wallen, & Joosten, 2012).</p> <p>Currently there is inconclusive evidence to guide the application of weighted products. In addition, there is a potential risk of negative bio-mechanical stress associated with their use.</p> <p>Reported suffocation of a child with autism spectrum disorder in 2008, highlighted the risks associated with use of weighed blankets.</p>	<p>Practitioners and agencies endeavouring, or mandated, to use evidence based interventions should not use vests and blankets with added weights outside of ethics endorsed controlled research.</p>

7. Person centred outcomes review

During the implementation phase, regular consultation with the person (and their support people where relevant) is necessary. Data should be collected and analysed to evaluate the effectiveness of implementation in achieving the functional goals that were set. Suitable person-centred outcome measures include the GAS and Canadian Occupational Performance Measure.

If the person's goals have not been achieved, interventions used should be re-examined and other hypotheses should be considered. This may also promote the need for re-considering other domains (e.g. medical, environment, communication and behaviour).

When the person's goals are met, a final evaluation of the intervention is necessary and future recommendations may be provided. Relevant recording and communication of findings is required. See the [Philosophies, Values and Beliefs Core Standard Program](#).

8. Summary: best practice when working with people with disabilities and sensory processing disorders

Since the 1970s, occupational therapists have specialised in using a sensory model and sensory interventions. This model is at times incorporated into the practice of others working in the disability sector. Research into the effectiveness of these interventions is now able to shed some light onto the effectiveness of these interventions. Without further high level evidence, the sensory approach remains controversial. There is enough support for some of the sensory assessment and intervention types for these to be practiced; other approaches have been clearly shown to be ineffective, if not harmful. This practice guide has summarised these for the practitioner working in the field of disabilities.

When considering sensory processing, the practitioner must adopt contemporary philosophies values and beliefs, and in the first instance use higher level evidence based practices. These have also been summarised for within this guide.

Feedback is welcomed via CIGcorestandards@facs.nsw.gov.au – please include the title of the core standard in the subject heading.

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