Ayres Sensory Integration® Intervention Fidelity Measure©

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Introduction to the *Ayres Sensory Integration*® Intervention Fidelity Measure

Rater: _____ Case ID #: _____ Observation #: _____

Purpose

The purpose of this tool is to assure that research on Ayres sensory integration (SI) intervention demonstrates fidelity to the underlying SI theory and intervention principles developed originally by A. Jean Ayres.

Specific aims are to:

A. Document that intervention accurately represents occupational therapy (OT) using *Ayres Sensory Integration*® (ASI) intervention methods

B. Document that intervention has been carried out in accordance with the essential theoretical and procedural aspects of the intervention

C. Provide a reliable and valid method for documenting the fidelity and consistency of ASI intervention when it is provided in an efficacy, effectiveness, or outcomes study (e.g., case study, case-series study, group comparison cohort study, or randomized clinical trial)

D. To differentiate ASI intervention from other types of intervention in research and in clinical practice

Requirements for Using the Measure to Demonstrate Fidelity of ASI Intervention in Research

A. Research staff who administer the Fidelity Measure are occupational therapists who meet the criteria listed under *Structural Elements: Therapist Qualifications* within this measure.

B. Occupational therapists providing ASI intervention meet the criteria listed under *Structural Elements: Therapist Qualifications* within this measure.

C. Both Section I (structural elements) and Section II (process elements) of the Fidelity Measure must be scored and meet criteria for acceptable fidelity.

Section 1. Structural Elements

Therapist Qualifications: Each of the following criteria must be met by all intervention providers before any other sections of the Fidelity Measure are administered:
a. certification in SI or SIPT, or at least 50 hours of formal post-professional training in OT/SI
b. mentorship from an OT/SI trained and experienced therapist

Part I. Safe Environment
Part II. Assessment Reports
Part III. Physical Space and Equipment
Part IV. Communication with Parents and Teachers

Section 2. Process Elements

Part V. Observation of Intervention Using Ayres Sensory Integration® Principles

Video clips of intervention sessions, or live observations in real time, are scored by a trained rater. Video clips are probably more reliable, as they can be viewed multiple times if necessary. Video clips ideally should be at least 10 minutes long during the middle minutes of a session, and should be initiated after the child has already received their first few therapy sessions.

SECTION I: STRUCTURAL ELEMENTS

Essential Elements: Therapist Qualifications

THERAPIST QUALIFICATIONS (ALL of the following must be present to ensure fidelity in research)	**Yes**	**No**	**Evidence**
Post-Professional Training in Sensory Integration 1. Therapist providing intervention is certified in SI/SIPT or has a minimum of 50 post-professional formal education hours in SI theory & practice			
Supervision 2. History of mentorship for an equivalent of 1 hour per month for 12 months, with an advanced-level therapist who has 5 or more years of experience providing OT using ASI Intervention			
Continue with Study	**YES, both criteria are met.**		
Therapist training is not adequate for a study of ASI intervention	**NO, only one or no criteria are met.**		

Part I: Safe Environment

EQUIPMENT & MONITORING TO ENSURE PHYSICAL SAFETY	**Yes 2**	**No 0**	**Comments**
1. Mats, cushions, and pillows are available to safely pad floor underneath all suspended & climbing equipment during intervention			
2. Equipment is adjustable to child's size			
3. Equipment can be easily monitored for safe use by the therapist			
4. Equipment not being used is stored, anchored, or placed at the side of the room so children cannot fall or trip on it			
5. Routine & frequent monitoring & documentation of equipment & safety occurs (e.g. frayed ropes & bungee cords replaced; loose bolts secured for suspended equipment)			
Part I Total			

Part II: Assessment Reports

STANDARD INFORMATION PROVIDED IN OT ASSESSMENT REPORTS	Yes 2	No 0	Comments
History 1. Medical, educational, and therapeutic history, as appropriate			
2. Developmental & occupational history			
Current Profile & Reason for Referral 3. Occupational profile or interview documenting activities the child and families have done, are doing, and need and want to do.			
4. Activities child currently enjoys, seeks, and avoids			
5. Reason for referral			
Assessment Results 6. Structured evaluation tools used (clinical observations, questionnaires, standardized, or norm-referenced measures)			
7. Unstructured evaluation tools used (informal parent or teacher reports, observations of spontaneous behavior)			
8. Sensory modulation including sensory responsivity, sensory seeking and avoiding, and self-regulation			
9. Sensory discrimination in tactile, vestibular, & proprioception systems			
10. Postural, ocular, oral, or bilateral motor control (static and dynamic)			
11. Visual perception or fine motor skills			
12. Gross motor coordination or skills			
13. Praxis: imitating, constructing, planning, and sequencing one or more activities or interactions			
14. Influence of SI on performance and participation			
15. Organization skills such as managing materials, schedules, transitions, and social expectations			
16. Interpretation of the relationship of sensory integration and praxis to referring problems			
Goal Setting (when ASI Intervention is recommended)			
17. Goals and Objectives developed in collaboration with significant caregivers			
18. Goals focus on presenting concerns based on assessment findings			
19. Goals focus on improved skills & abilities to enhance performance.			
Part II Total			

Part III. Physical Space and Equipment

PHYSICAL ENVIRONMENT & EQUIPMENT FOR INTERVENTION	Yes 2	No 0	Comments
Physical Environment Setup			
1. Adequate space to allow for flow of vigorous physical activity			
2. Flexible arrangement of equipment & materials to allow for rapid change of physical & spatial configuration of environment			
3. At least 3 hooks for hanging suspended equipment, minimal distance between hooks 2 ½ - 3 ft. (enough to allow for full orbit on suspended equipment); recommend additional hooks depending on size of room			
4. One or more rotational devices attached to ceiling support to allow 360 degrees of rotation			
5. A quiet space (can be tent, adjacent room, or partially enclosed area)			
6. One or more set of bungee cords for hanging suspended equipment			
Part III A. Physical Environment Total			
Available Equipment *(at least one of each; similar equipment may be substituted)* 1. Bouncing equipment (e.g. trampoline)			
2. Therapy balls			
3. Rubber strips or ropes for pulling			
4. Platform Swing – square			
5. Glider swing – rectangular platform			
6. Frog Swing (sling swing for prone or sitting)			
7. Scooter/ramp			
8. Flexion disc swing			
9. Bolster swing			
10. Tire swing			
11. Weighted objects such as balls or bean bags in a variety of sizes			
12. Inner tubes			
13. Spandex fabric			
14. Crash pillow or pad that can be quickly moved to cushion child's impact when landing or bumping onto hard surfaces			
15. Ball pit or ball bag (large bag containing balls in which a child may play)			
16. Variety of tactile materials and vibrating toys (e.g. textured fabrics, brushes, carpet square, beans, rice, massagers, etc.)			
17. Visual targets (e.g. balloons, velcro darts, hanging objects)			
18. Inclines/ramps			
19. Climbing equipment (e.g. wooden, plastic, steps, ladders or stacking tire tubes)			
20. Barrels for rolling			
21. Props to support engagement in play (e.g. dress up clothes, balls/ bats, stuffed animals, dolls, puppets, sports equipment, bikes)			
22. Materials for practicing daily living skills (e.g. pencils, pens and other school supplies, clothing, grooming and other home-related objects)			
Part III B. Available Equipment Total			
Part III (A + B) Total			

Part IV. Communication with Parents and Teachers

DOCUMENTATION OF COMMUNICATION WITH PARENTS AND TEACHERS	Yes 2	No 0	Note source of Information
1. Therapists routinely have ongoing interchanges with child's parents or teacher regarding the course of intervention			
2. Therapists routinely discuss with parent or teacher the influence of sensory integration & praxis on the child's performance of valued & needed occupations			
3. Therapists routinely discuss with parents or teachers the influence of the child's sensory integration & praxis abilities on the child's participation at home, in school, or in the community			
Part IV Total			

STRUCTURAL ELEMENTS SCORE

Required: Therapist qualifications meet criteria for inclusion in a study: _____

Part I Total _____/ 10

Part II Total _____/ 38

Part III (A+B) Total _____/ 56

Part IV Total _____ / 6

Sum = Total Structural Score _____ /110

A score of 85 or higher is required to demonstrate structural fidelity of ASI intervention in a study.

SECTION II: PROCESS ELEMENTS

Part V. Observation of Intervention Using Ayres Sensory Integration® Intervention Principles

- Each numbered item on this instrument consists of a statement that represents a key therapeutic strategy that a therapist uses when delivering intervention to a child using sensory integration principles.
- Following each statement is a series of bullets that clarify and expand on the statement. The first bullet, or first few bullets, identify the key issues that the item targets. These are presented to help the rater focus on what to look for. After the key issues are listed for an item, subsequent bullets provide further elaboration. Bullets that begin with the word "may . . ." provide examples of therapist behaviors or actions that are common expressions of the strategy. Keep in mind that these are only examples, and are not the only ways that the strategy may be demonstrated.
- Rate each item, answering the question "Did the therapist do this as a key therapeutic strategy in this intervention session?" Place a check mark under the column that best fits your impression of the overall observation: 4,3,2,1, representing 4 different categories (See key below.) View the entire observation at least once before rating any items.
- Each rating should represent your overall impression of the entire observation. A therapist need not demonstrate any of the example behaviors listed to be rated as certainly or probably using a strategy. Do not count behaviors to obtain ratings. Instead, each rating should reflect your **global impression** of how evident a **particular therapeutic strategy** seemed to be as **an intentional part of what the therapist was doing**.
- Remember that you are rating the extent to which the therapist intentionally applies sensory integration principles during intervention. You are not rating whether it is a "good" therapy session. Also, not every sensory integration strategy may be observed in every therapy session.

Key to ratings:

4 Certainly, I think the therapist intentionally uses this strategy
3 Probably, I think the therapist intentionally uses this strategy
2 Doubtful, I don't think the therapist intentionally uses this strategy
1 No, I don't think the therapist intentionally uses this strategy

1. ENSURES PHYSICAL SAFETY	**Rating**
	4
The therapist anticipates physical hazards and attempts to ensure that the child is physically safe through manipulation of protective and therapeutic equipment and/or the therapist's physical proximity and actions.	**3**
	2
	1

Key issue: The therapist anticipates that the child may move, play vigorously, take physical risks, or crash.
Key issue: An existing room that is safe is important as is the therapist's attention to the child's abilities and potential dangers.

For example, the therapist uses equipment and strategies such as:

- mats or pillows located where child might fall
- moves or stabilizes equipment for safety
- moves or stabilizes child for safety
- stays close, ready to stabilize child or equipment
- anticipates need to maintain child safety

NOTE: If the therapist attempts to keep the child seated or engaged in a sedentary activity for most or all of the observation period, score 1.

Key to ratings:

- **4 Certainly, I think the therapist intentionally uses this strategy**
- **3 Probably, I think the therapist intentionally uses this strategy**
- **2 Doubtful, I don't think the therapist intentionally uses this strategy**
- **1 No, I don't think the therapist intentionally uses this strategy**

2. PRESENTS SENSORY OPPORTUNITIES	**Rating**
The therapist presents the child with **at least two** of the following three types of sensory opportunities: **a. tactile** **b. vestibular** **c. proprioception** in order to support the development of self-regulation, sensory awareness, or movement in space**.**	**4** **3** **2** **1**

Key issue: The therapist intentionally provides a variety of sensory opportunities with varying intensities, qualities, speed, and duration in order to enhance sensory awareness, support movement, or attain an adequate arousal state for sustained engagement.

a. Tactile examples
- provides experiences in which touch sensations are the dominant input including: vibration, massage, hugs, touch pressure, or light strokes to the skin
- activities may include play such as with food, shaving cream, or play dough; playing in a bubble ball pit; finding objects hidden in a box of beans, popcorn, or rice
- provides activities that allow deep pressure to body such as jumping into large, squishy, and textured pillows, crawling between mats or pillows, wrapping up in spandex fabric, or wearing pressure garments

b. Vestibular examples
- provides experiences involving linear, orbital, or rotary head movement
- may include rocking, rolling, swinging, somersaults, jumping from a height, and whole body movement through space
- uses suspended or non-suspended moving equipment

c. Proprioceptive examples
- provides experiences in which muscle tension or stretch sensations are the dominant input
- common examples are pulling, pushing, carrying heavy objects, hanging on to equipment

NOTE:

If the therapist attempts to keep the child seated or engaged in a sedentary activity for most or all of the observation period, score 1.

If therapist provides predominantly one type of sensory input, and other sensory inputs occur only incidentally (not intentionally), score 1. If in doubt regarding the second sensory system, score 2.

Key to ratings:

4 Certainly, I think the therapist intentionally uses this strategy
3 Probably, I think the therapist intentionally uses this strategy
2 Doubtful, I don't think the therapist intentionally uses this strategy
1 No, I don't think the therapist intentionally uses this strategy

3. THE THERAPIST SUPPORTS SENSORY MODULATION FOR ATTAINING AND MAINTAINING A REGULATED STATE. The therapist modifies sensory conditions and challenges in order to help the child to attain and maintain appropriate levels of arousal and alertness, as well as an affective state and activity level that supports engagement in activities.	**Rating** **4** **3** **2** **1**

Key issue: therapist initiates change to the environment, activity, social interaction, or sensory input
Key issue: therapist guides session to support arousal and affect for optimal task engagement.
Key issue: therapist supports and encourages co-regulation and child's self-regulative strategies for managing arousal, attention, and affect.

Examples of therapist strategies include:

- rearranges, removes, or replaces equipment or materials, or may verbally suggest such a change
- changes the intensity, duration, frequency, or rhythm of experiences, e.g., increase or decrease speed of swing
- introduces sensory experiences to calm or organize the child, e.g., deep pressure, heavy muscle work, blowing activity, slow rhythmical rocking, lower lighting
- allows the child to withdraw from the interaction for short periods as necessary to self-calm
- supports and encourages child's self-awareness of arousal and emotional state
- supports and encourage child's knowledge and use of self-regulative strategies for managing arousal, attention, and emotions
- backs off from one or more challenges when child strongly resists or begins to disengage
- changes the course of the activity in response to child's affect, attention, and ability to regulate response to challenge or stress
- offers equipment, ideas, and support but does not insist if child appears to disengage
- strategically times the challenge so the child can comprehend, attend, and engage

NOTE for cases when child appears to have autism or a developmental disability:
Therapist may initiate application of passive stimulation to help child modulate arousal and often must provide assistance in finding appropriate strategies for self-regulation such as a cozy corner, chew toy, familiar object or game, or withdrawal from a busy, crowded space. Therapist may be more directive than would be the case for less involved children, but will reduce directiveness strategically to support and encourage child's initiative.

Key to ratings:

4 Certainly, I think the therapist intentionally uses this strategy
3 Probably, I think the therapist intentionally uses this strategy
2 Doubtful, I don't think the therapist intentionally uses this strategy
1 No, I don't think the therapist intentionally uses this strategy

4. CHALLENGES POSTURAL, OCULAR, ORAL, AND/OR BILATERAL MOTOR CONTROL The therapist supports and challenges development of postural, ocular, oral motor, or bilateral motor control.	**Rating** **4** **3** **2** **1**

Key issue: The therapist challenges child to engage in sensory motor activities that build strength, dexterity, speed and agility in static and dynamic postural control and fine and gross motor skills.

Examples include engaging the child in activities that present:

- Postural challenges, e.g., head control, righting & equilibrium reactions, static balance
- Resistive whole body challenges through working against gravity and/or resistance to extensor and flexor muscles, e.g., lying prone over a frog swing while swinging, holding tight to a flexion disc while being bounced and swung
- Ocular-motor challenges that require visual localization of objects during body movement, e.g., smoothly using both eyes together to cross midline, eye-hand responses toward a visual target
- Bilateral challenges such as sustained holding onto a rope at midline with both hands, pumping a swing, or pulling or pushing with both arms or legs in a rhythmical sequence.
- Oral challenges such as bringing whistles or bubble wands to midline to blow while sustaining postural control
- Challenges to execute projected action sequences, e.g., throwing a ball at a target while swinging

NOTE: If the therapist attempts to keep the child seated or engaged in a sedentary activity for most or all of the observation period, score 1.

Key to ratings:

- **4 Certainly, I think the therapist intentionally uses this strategy**
- **3 Probably, I think the therapist intentionally uses this strategy**
- **2 Doubtful, I don't think the therapist intentionally uses this strategy**
- **1 No, I don't think the therapist intentionally uses this strategy**

5. CHALLENGES PRAXIS AND ORGANIZATION OF BEHAVIOR The therapist supports and presents challenges to the child's ability to conceptualize and plan novel motor tasks, and to organize his or her own behavior in time and space.	**Rating** **4** **3** **2** **1**

Key issue: therapist challenges child to engage in movement activities that place demands on motor planning, ideation, or planning of actions in future time and space

Key issue: amount and type of therapist structuring depends on the extent to which the child can successfully execute action sequences or create new action ideas within the context of the activity

Examples include encouraging or presenting challenging activities that involve:

- initiating, sequencing, and timing of movement tasks
- creating new ideas for movement activities
- using constructional praxis in body-centered space, e.g., building a bridge or house out of blocks large enough so that the child can go under or into it
- engagement in novel gross or fine motor activities, or the coordination of fine and gross motor actions within a novel activity
- developing ideas and plans for specific activities
- setting up activities or putting away equipment
- addition of a new action or new way of performing a familiar activity
- interacting with familiar equipment that has been re-arranged or set up by the therapist to present new motor planning challenges
- selecting or making a plan for a sequence of activities to be done during the session or at a later time

NOTE:
If the therapist attempts to keep the child seated or engaged in a sedentary activity for most or all of the observation period, score 1.

NOTE for cases when child appears to have autism, severe dyspraxia, or a developmental disability that interferes with ideation, initiation, and planning of movement: Therapist may need to provide a great deal of direction and structuring in order to help the child engage in activities that challenge praxis; however, the therapist continues to be responsive to child's initiation of goal-oriented behavior and will reduce directiveness strategically to support and encourage child's initiative.

Key to ratings:

4 Certainly, I think the therapist intentionally uses this strategy
3 Probably, I think the therapist intentionally uses this strategy
2 Doubtful, I don't think the therapist intentionally uses this strategy
1 No, I don't think the therapist intentionally uses this strategy

6. COLLABORATES IN ACTIVITY CHOICE	**Rating**
The therapist negotiates activity choices with the child, allowing the child to choose equipment, materials, or specific aspects of an activity. Activity choices and sequences are not determined solely by the therapist.	**4**
	3
	2
	1

Key issue: therapist provides structuring and support for adaptive responses while allowing child to be actively in control as much as possible

Examples include:

- responds to child's initiative, preferences, and interests when choosing activities
- suggests or chooses activities in response to child's abilities, interests, and initiatives
- therapist modifies or discontinues activities based on child's acceptance, interest, or abilities
- actively encourages child to communicate preferences and wishes
- encourages self-direction of child to the extent that the child can generate ideas for activities that present challenges

NOTE: If the therapist appears to have decided on activities prior to the session, or therapist initiates most activity choices for a child who has the capacity to initiate, score 1.

NOTE for cases when child appears to have autism, severe dyspraxia, or a developmental disability that interferes with ideation, initiation, and planning of movement: Therapist may need to provide a great deal of direction and structuring in order to help the child engage in activities that challenge praxis; however, the therapist continues to be responsive to child's initiation of goal-oriented behavior and will reduce directiveness strategically to support and encourage child's initiative.

7. TAILORS ACTIVITY TO PRESENT JUST-RIGHT CHALLENGE	**Rating**
The therapist presents or facilitates challenges to the child's postural/ocular/oral control, sensory modulation and discrimination, or praxis that are not too difficult or too easy for the child to achieve.	**4**
	3
	2
	1

Key issue: therapist tailors or changes the activity in response to the child's physical or emotional indicators, so that the challenge requires the child to exert some degree of effort.

Examples include:

- therapist makes adjustments to the challenge if child is becoming bored, disengaged, frustrated, anxious, or distressed by the activity
- changes can be performed, modeled, or suggested verbally or nonverbally by the therapist
- adds, removes, or rearranges equipment/materials
- makes other environmental changes
- alters activity to be more or less demanding, e.g., alters child's position, moves target closer, changes height of equipment
- when engaging in a game with rules, alters the game by changing the rules or modifying the way it is played

Key to ratings:

4 Certainly, I think the therapist intentionally uses this strategy
3 Probably, I think the therapist intentionally uses this strategy
2 Doubtful, I don't think the therapist intentionally uses this strategy
1 No, I don't think the therapist intentionally uses this strategy

8. ENSURES THAT ACTIVITIES ARE SUCCESSFUL The therapist supports the child's ability to respond successfully.	**Rating** **4** **3** **2** **1**

Key issue: allows child to experience success in doing part or all of an activity

Key issue: child success is NOT defined as compliance or adherence to therapist directives or to a structured program

Examples include:

- alters the activity at any point in the activity sequence to assure success
- coaches child on ways to alter approach to the activity to gain success
- asks the child questions to assist the child in arriving at successful alternatives

9. SUPPORTS CHILD'S INTRINSIC MOTIVATION TO PLAY The therapist creates a setting that supports play as a way to fully engage the child in the intervention.	**Rating** **4** **3** **2** **1**

Key issue: therapist values and builds upon child's intrinsic motivation to engage in and enjoy activities

Key issue: therapist creates a play context regardless of whether therapist's play style is reserved or outgoing

Examples include:

- allows child to explore or experiment with actions or objects
- supports child's desire to play through nonverbal or verbal messages
- facilitates reciprocal social, motor, or object play that the child initiates
- facilitates imaginative play to the extent that the child is able to participate
- uses story lines or fantasy play to engage the child in more complex activities
- expands upon or structures activities that the child initiates

Key to ratings:

4 Certainly, I think the therapist intentionally uses this strategy
3 Probably, I think the therapist intentionally uses this strategy
2 Doubtful, I don't think the therapist intentionally uses this strategy
1 No, I don't think the therapist intentionally uses this strategy

10. ESTABLISHES A THERAPEUTIC ALLIANCE	**Rating**
	4
The therapist promotes and establishes a connection with the child that conveys a sense of working together towards one or more goals in a mutually enjoyable partnership.	**3**
	2
	1

Key issue: Therapist and child appear to be partners.

Key issue: Therapist and child relationship goes beyond pleasantries and feedback on performance such as praise or instruction.

Examples of how this may be manifested include:

- shows respect for the child's emotions
- conveys positive regard toward the child
- displays empathy with child's abilities and struggles i.e. "that is heavy for you" "you worked hard to climb onto that swing"
- assumes responsibility for an activity not working out successfully, e.g., "I hung that swing up too high," to communicate a partnership with the child
- creates a climate of trust and emotional safety
- conveys appreciation of child's capabilities
- may defuse child's negative emotions by helping child regain feelings of comfort, competence, and success through verbal or nonverbal responses
- does not impose sensory stimulation or an activity on a child who responds with distress
- does not impose physical closeness or contact on a child who responds with strong distress