Evidence Based Practice Training: Ayres Sensory Integration® (ASI)

ADAPTED FROM:
NCAEP April 2020 Report
Steinbrenner, J.R. et.al. (2020). Ayres Sensory Integration Evidence-Based Practices for Children, Youth, and Young Adults with Autism Spectrum Disorder Report, National Clearinghouse on Autism Evidence and Practice (NCAEP)
https://ncaep.fpg.unc.edu

AFIRM ASI EBP Module
https://afirm.fpg.unc.edu

CAPTAIN Presentation 3/1/22
Presented by those researchers who contributed to the NCAEP report and developed ASI module for AFIRM
https://www.youtube.com/watch?v=ArgUzF9OKOY

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What is CAPTAIN

The California Autism Professional Training And Information Network (CAPTAIN) is an interagency network developed to support the understanding and use of evidence based practices (EBPs) for individuals with Autism across the state of California.

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What is CAPTAIN

Marin County SELPA in partnership with CAPTAIN, are members of the Statewide System of Support as the Special Education Content Lead for Autism

This project is funded by the California Department of Education and the California Collaborative for Educational Excellence.

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Levels of Professional Development to Reach Implementation

This is an information session designed to increase your awareness and knowledge about ASI. In order to implement ASI certification is required.
Before We Begin…

Please complete the **Pre-Training Survey** sent to your email
Core Components: Learning Objectives

- Learn the basic knowledge about Ayres Sensory Integration®
- State the percentage of learners with autism estimated to have sensory processing challenges
- Describe the types of sensory modalities
- Describe ASI principles
- Define elements of an ASI assessment
- List other EBPs that may be included in ASI
What are Evidence Based Practices?

NCAEP definition of an EBP:

“Focused intervention practices that have evidence of efficacy in promoting positive outcomes for learners with ASD.”

### Table 3.7 Matrix of evidence-based practices, outcomes, and age categories

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**AVAILABLE ON CAPTAIN WEBSITE**

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Selecting EBPs

Before beginning a new practice with a learner, it is important to follow four planning steps

1. Identify the behavior
2. Collect baseline data on the behavior
3. Establish an observable and measurable goal
4. Choose an EBP
   – Consider the child and family characteristics
   – Consider the teacher and team characteristics
   – Consider other available resources
Selecting an EBP Checklist

---Selecting an EBP Checklist---

Learner's Name: ___________________ Date/Time: ____________
Observer(s): ___________________

Directions: Complete this checklist to select an appropriate practice to use with the learner with ASD.

IDENTIFY TARGET GOAL/BEHAVIOR/SKILL:

COLLECT BASELINE DATA (OR USE SELECTING AN EBP DATA COLLECTION SHEET):

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<th>Date/Time</th>
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DEFINE AN OBSERVABLE AND MEASURABLE IEP GOAL:

CHECK ANNUAL GOAL FOR:
1. Context (When/Antecedent)  ☐ Yes ☐ No
2. Target goal/behavior/skill (What/Behavior the learner is to perform)  ☐ Yes ☐ No
3. Mastery (How/Criterion for learner progress/mastery)  ☐ Yes ☐ No

IDENTIFY CHARACTERISTICS, CLUES, AND RESOURCES:

Child and Family Characteristics
Student strengths: ___________________ Student challenges: ___________________

Teacher/Team Characteristics
Knowledge level: ___________________ Successfully used EBPs: ___________________

Clues found in the IEP Goal
Goal domain: ___________________ Potential EBPs (Refer to the Domain Matrix): ___________________

Other Resources
Current student supports: ___________________ Available equipment: ___________________

Team members: ___________________ Additional learning experiences: ___________________

SELECT AN EBP:
☐ Reinforcement (R)  ☐ Prompting (PP)  ☐ Modeling (MO)
☐ Task Analysis (TA)  ☐ Time Delay (TD)  ☐ Visual Supports (VS)
☐ Functional Behavior Assessment (FBA)

ADDITIONAL NOTES:

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High Quality Training:
**Autism Focused Intervention Resources and Modules** (AFIRM)
Designed to help you learn the step-by-step process of planning for, using, and monitoring EBPs with learners with Autism from birth to 22 years of age.

**Ayres Sensory Integration**

Ayres Sensory Integration® (ASI) can be used to increase learner communication, socialization, cognitive, and adaptive skills while reducing challenging behaviors in learners with identified challenges in sensory processing.

Ayres Sensory Integration® (Ayres, 2005), has also been referred to in the literature as “Sensory Integration therapy as originated by A. Jean Ayres,” “classical sensory integration.” or “Ayres Sensory Integration.” We will use “ASI” throughout this module to refer to these models of sensory integration that are supported by the systematic review (Steinbrenner et al., 2020).

[www.captain.ca.gov](http://www.captain.ca.gov)
Ayres Sensory Integration® (ASI)

**DISCLAIMER:** The evidence base at this time only supports *Ayres Sensory Integration*. *Ayres Sensory Integration* requires specialized training with a certified provider to implement with fidelity. This training is most commonly completed by Occupational Therapists and, in some cases, other licensed therapists. This module is not intended to replace training in ASI and the certification process, but rather, to introduce basic knowledge of ASI as an evidence-based practice for learners with autism. (Nowell et al., 2021)
• Definition of the intervention
• Age Range
• Outcome Areas
• References (specific articles that provide the evidence for the efficacy of the practice)

https://ncaep.fpg.unc.edu/
Ayres Sensory Integration® (ASI®, Ayres, 1989) is a theory and practice that targets a person’s ability to process and internally integrate sensory information from their body and environment, including visual, auditory, tactile, proprioceptive, and vestibular input.

ASI® uses individually tailored activities that challenge sensory processing and motor planning, encourage movement and organization of self in time and space, utilize “just right” challenges, and incorporate clinical equipment in purposeful and playful activities in order to improve adaptive behavior.

ASI® is implemented by trained occupational therapists (OTs) and primarily takes place in clinical settings.
Evidence (Age and Domains)

In the table below, the instructional outcomes identified by the evidence base are shown by age of participants.

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<th>ACADEMIC</th>
<th>ADAPTIVE</th>
<th>CHALLENGING</th>
<th>COGNITIVE</th>
<th>COMMUNICATION</th>
<th>MOTOR</th>
<th>SOCIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>6-11</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>12-14</td>
<td>Yes</td>
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<td>Yes</td>
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Evidence for ASI

The National Clearinghouse on Autism Evidence and Practice (NCAEP) reviewed literature from 1990 to 2017 and reported their findings in 2020.\(^\text{10}\)

ASI is a focused intervention that meets the evidence-based practice criteria with **3 group design studies**. This practice has been effective for preschoolers (3-5 years), elementary school learners (6-11 years), and middle school learners with autism.

Studies included in the 2020 EBP report\(^\text{10}\) detail how this practice can be used to effectively address the following outcomes for a target goal/behavior/skill: academic/pre-academic, adaptive/self-help, challenging/interfering behavior, cognitive, communication, motor, and social.
What is Ayres Sensory Integration® (ASI)

Ayres Sensory Integration® (ASI) targets a learner’s ability to process and internally integrate sensory information from their body and the environment.
What is NOT ASI?

The following intervention approaches may be confused with ASI but have insufficient evidence and should NOT be considered ASI when used in isolation outside of a comprehensive ASI therapy plan:

- Use of specific equipment for passive stimulation like brushing protocols, swings, weighted vests, squeeze machines, and weighted blankets
- Sensory diets
- Use of a sensory gym
- Touch therapy
- Sensory-motor intervention
- Auditory Integration Therapy
Why We Would Use Ayres Sensory Integration® (ASI)

Research suggests that improvements may be seen in:

- Motor skills
- Adaptive skills (self-care such as feeding, handwashing, toileting)
- Cognition (flexibility, planning, working memory)
- Communication skills
- Social skills
- Academic/pre-academic skills
- Reduction in interfering behaviors (repetitive behaviors; repetitive motor movements)
ASI Principles | Ayres 2005

- Active engagement of the student
- Naturalistic intervention approaches for arousal, attention, motor planning including arrangement of the intervention environment
- Individualized treatment that is one-on-one with a trained therapist
- Clinic-based services
- Time intensity - usually multiple treatment sessions within a week
- Treatment delivered by occupational therapists who are trained in this approach
- Treatment of students with autism who have clinically significant sensory processing dysfunction

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This chart can be found in the ASI AFIRM Module
About how many learners with autism have difficulty processing and modulating sensory stimuli?

About **56% to 70%** (Baranek, David, Poe, Stone, & Watson 2006; Ben-Sasson et al., 2007) of learners with autism are estimated to have sensory processing challenges.

ASI can help learners with autism regulate their bodies and process sensory information so that they can complete daily activities.
Do all learners with Autism need ASI?

“It is only when sensory processing interferes with the learner’s functioning in daily activities (what therapists call “activities of daily living” or ADLs) or achievement of their goals that intervention is needed.”
Steps for Implementing ASI

1. PLAN

✓ Obtain ASI training from a certified provider
✓ Determine learner’s sensory needs
✓ Conduct an ASI Assessment by a certified provider
✓ Develop an ASI session plan (1:1 in clinic)
✓ Identify additional EBPs
✓ Discuss plan with team members
✓ Have materials ready and available
PLANNING for ASI Training

ASI requires training from certified providers. The University of Southern California, where A. Jean Ayres developed Sensory Integration, offers an in-person and online continuing education certificate program in ASI.

The USC program is presently* the only certification program recommended by the American Occupational Therapy Association. Clinicians who are not licensed Occupational Therapists may need additional documentation of their credentials in order to complete the program.

*March 2022
Develop a Session Plan

---Session Plan---

Learner's Name: ___________________________ Date/Time: ___________________________
Observer(s): ___________________________
Target Goal/Behavior/Skill: ___________________________
Directions: Use this form to develop a session plan for an ASI session for the learner.

<table>
<thead>
<tr>
<th>Objective/Goal(s):</th>
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<table>
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<tr>
<th>Sensory Modality:</th>
<th>Activities:</th>
<th>Materials Needed:</th>
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<tr>
<td>Visual: Vision/Sight</td>
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<tr>
<td>Vestibular: Balance &amp; Movement</td>
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</tbody>
</table>

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Nowell et al., 2021
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Additional EBPs to Consider

During ASI therapy, it is helpful to use additional foundational EBPs to help practitioners provide support for learners during the session.

• Modeling (MD) - In an ASI therapy session, the therapist may model a new sensory experience or a sensation. Modeling may also be helpful for a sensory experience that has been tolerated in therapy but not yet in the classroom. This can be done live by a teacher or student.

• Social Narratives (SN) - Social narratives can help prepare the learner for situations with new sensory stimuli.
Additional EBPs to Consider (continued)

During ASI therapy, it is helpful to use additional foundational EBPs to help practitioners provide support for learners during the session

• Task Analysis (TA) - Task analysis may help with establishing and executing a multi-step activity.

• Video Modeling (VM) - Some learners may also like to watch themselves or other students model using a video model.

• Visual Supports (VS) - Some learners may need visual supports or visual schedules to guide them through an ASI session or prepare them for sensory experiences coming up in their day.
Additional EBPs to Consider
(continued)

REINFORCEMENT IN ASI

ASI uses natural reinforcers in sessions to promote the learner’s intrinsic motivation to play.

This means that activities are designed to be naturally interesting and motivating to the learner and completion of those activities is rewarded naturally rather than with tangible rewards.

For example, a learner who likes Minecraft may be naturally motivated and rewarded to complete a Minecraft-themed obstacle course with similar components as the game.
Mary, a 4th grade student with autism, sees an ASI trained OT twice a week to address her sensory needs. Her ASI provider is working with her to increase her tolerance of unexpected sensory stimuli. Mary reads at grade level, follows written instruction, and uses a visual schedule at school.

Which two additional evidence-based practices may be useful in supporting Mary’s ASI sessions and why:

- Modeling (MD)
- Social Narratives (SN)
- Visual Supports (VS)
- Discrete Trial Training (DTT)
- Time Delay (TD)
Discuss Plan With Team Members

All members of the learner’s school team, including family members, need to understand the learner’s sensory processing challenges and how to implement ASI strategies (if appropriate).

The learner’s trained occupational therapist may:

- Provide some basic training on types of sensory modalities and how these sensory processing issues impact the learner
- Make sure that team members understand that many interfering behaviors are responses to the sensory stimuli and are not appropriate for disciplinary measures
- Discuss the ASI strategies that the team will use to support the learner in the school setting (if appropriate)
- Plan for unexpected sensory events and how to keep the learner and other students safe in these instances
HAVE MATERIALS READY

Use AFIRM ASI Planning Checklist

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Steps for Implementing ASI

2. USE

• Address the ASI Session goals

• Use other EBPs to support ASI sessions

• Promote generalization of learner’s target skills
Address ASI Session Goals

ASI therapy session plans will always be completed by a trained/certified ASI therapist in a specialized clinic environment.

These sessions will be individualized to the learner, be 1-on-1 with the therapist, and occur on a regular schedule.

Some essential components of an ASI therapy session as implemented by a trained therapist include the following:

- a sensory experience
- a response to a challenge
- an enriched physical environment
- context of play
- therapeutic alliance (the trusting relationship between the therapist and learner).

These components are deconstructed in the next table based on the fidelity scale.16
ASI FIDELITY

- Trained ASI therapist worked one-on-one with the learner
- Session occurred at the specified meeting time and place
- Therapist ensured physical safety of the learner
- Therapist presented sensory opportunities from at least 2 different modalities (for example, vestibular and proprioceptive)
- Therapist helped the child maintain optimal level of alertness for engagement
- Therapist supported and challenged at least one of: postural control, ocular control, and bilateral coordination
- Therapist challenged planning and organization of behavior or series of behaviors
- Therapist collaborated with learner in choosing activities and materials
- Therapist tailored activities to provide “just right” challenges
- Therapist ensured activities are successful
- Therapist supported the learner’s intrinsic motivation to play
- Established a therapeutic alliance (trusting relationship) with the learner

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Promote Generalization
QUESTION: Who should be involved in planning for generalization of ASI strategies and why:

- The ASI therapist
- The learner’s family
- The learner
- All of the above
Steps for Implementing ASI

3. MONITOR

✓ Collect data and analyze data

✓ Determine next steps based on learner progress
ASI MONITORING FORMS

Data Collection

Monitoring Practice

---Data Collection---

Learner's Name: __________________________ Date/Time: ____________
Observer(s): ______________________________________________________
Target Goal/Behavior/Skill: ____________________________

Directions: Collect data on the learner demonstrating the target goal/behavior/skill to determine if the learner is making progress.

MONITORING DATA:

<table>
<thead>
<tr>
<th>Goal:</th>
<th>Date</th>
<th>Sensory Stimuli</th>
<th>Behavior Observed</th>
<th>Support Needed</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Prompt Key: V = Verbal; G = Gestural; M = Model; P = Physical; I = No prompts needed/Independent; 0 = No response; MD = Modeling; SN = Social Narratives; TA = Task Analysis; VM = Video Modeling; VS = Visual Support
### Monitoring Progress Checklist

**Learner's Name:**

**Observer(s):**

**Date/Time:**

**Target Goal/Behavior/Skill (short):**

**Directions:** Complete this checklist to determine if the learner is making progress to the target goal/behavior/skill with this practice.

1. Has the learner achieved the target goal/behavior/skill?  [ ] Yes  [ ] No
2. Is the target goal/behavior/skill measurable and observable? Does it clearly state what the target goal/behavior/skill is, when it will occur, and how team members/observers will know it has been mastered?  [ ] Yes  [ ] No
3. Is the target goal/behavior/skill too difficult/complex? Does it need to be broken down into smaller steps?  [ ] Yes  [ ] No
4. Has enough time been devoted to using this practice (frequency, intensity, and/or duration)?  [ ] Yes  [ ] No
5. Was this practice implemented with fidelity?  [ ] Yes  [ ] No
6. Does the learner require additional adaptations/modifications/supports? Such as visual supports or a communication device?  [ ] Yes  [ ] No

### Monitoring Data:

**Goal:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Sensory Stimuli</th>
<th>Behavior Observed</th>
<th>Support Needed</th>
<th>Notes</th>
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</table>

### Anecdotal Notes:

- [ ] Did you feel comfortable implementing the ASI strategies?  [ ] Yes  [ ] No
- [ ] Did the learner respond positively to naturally occurring reinforcers?  [ ] Yes  [ ] No
- [ ] Did the learner seem to enjoy the activities?  [ ] Yes  [ ] No
### Assessment for ASI Checklist

<table>
<thead>
<tr>
<th>Signs a student may benefit from an ASI assessment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the learner distracted by sensory stimuli in a way that intrudes with their academic goals?</td>
</tr>
<tr>
<td>2. Is the learner showing challenging behaviors in response to sensory stimuli?</td>
</tr>
<tr>
<td>3. Does the learner seek certain sensory input in a way that interferes with their academic or social goals?</td>
</tr>
<tr>
<td>4. Does the learner avoid certain age-appropriate activities due to suspected sensory issues?</td>
</tr>
<tr>
<td>5. Is the learner distracted by sensory stimuli in a way that intrudes with social goals?</td>
</tr>
</tbody>
</table>

---

**Learner's Name:** [Name]

**Observer(s):** [Name]

**Target Goal/Behavior/Skill (short):** [Goal]

**Date/Time:** [Date/Time]
ASI PLANNING FORMS
Planning Checklist

---Planning Checklist---

Learner's Name: ______________________ Date/Time: ______________________
Observer(s): ______________________

Target Goal/Behavior/Skill (short): ______________________

Directions: Complete this checklist to determine if this is an appropriate practice to use with the learner with autism as well as if this practice is ready to be implemented.

GENERAL PLANNING:
1. Has the target goal/behavior/skill been identified? □ Yes □ No
2. Has baseline data and/or a functional behavior assessment been collected through direct observation of the learner? □ Yes □ No
3. Is the target goal/behavior/skill measurable and observable? □ Yes □ No
4. Is this selected practice appropriate for the learner’s target goal/behavior/skill? □ Yes □ No
5. Does the learner have needed prerequisite skills/abilities? □ Yes □ No
6. Does the learner require additional adaptations/modifications/supports? □ Yes □ No

ASI SPECIFIC PLANNING:
1. Is the learner distracted by sensory stimuli in a way that intrudes with their academic goals? □ Yes □ No
2. Is the learner showing challenging behaviors in response to sensory stimuli? □ Yes □ No
3. Does the learner seek certain sensory input in a way that interferes with their academic or social goals? □ Yes □ No

OBSERVATIONAL DATA:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Sensory Input</th>
<th>Behavior Observed</th>
</tr>
</thead>
</table>

https://afrm.bpg.ucnc.edu
### Session Plan

<table>
<thead>
<tr>
<th>Objective/Goal(s):</th>
<th>Sensory Modality:</th>
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<th>Materials Needed:</th>
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<td>Vestibular: Balance &amp; Movement</td>
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ASI Planning Forms

Planning for Practice

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ASI USING FORMS

Generalization Plan

---Generalization Plan---

Learner's Name: ___________________ Date/Time: ___________________
Observer(s): ___________________
Target Goal/Behavior/Skill (short): ___________________
Directions: Use this form to plan for supporting generalization of the learner's skills across settings.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Sensory Input</th>
<th>Behavior Observed</th>
<th>Possible ASI Strategies</th>
</tr>
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<tbody>
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### ASI USING FORMS

#### Generalization Plan

**--Session Components--**

<table>
<thead>
<tr>
<th>Learner’s Name</th>
<th>Date/Time</th>
</tr>
</thead>
</table>

**Observer(s):**

**Target Goal/Behavior/Skill:**

**Directions:**

**ASI SESSION COMPONENTS:**

1. Trained ASI therapist worked one-on-one with the learner
   - [ ] Yes
   - [ ] No
2. Session occurred at the specified meeting time and place
   - [ ] Yes
   - [ ] No
3. Therapist ensured physical safety of the learner
   - [ ] Yes
   - [ ] No
4. Therapist presented sensory opportunities from at least 2 different modalities (e.g., vestibular and proprioceptive)
   - [ ] Yes
   - [ ] No
5. Therapist helped the child maintain optimal level of alertness for engagement
   - [ ] Yes
   - [ ] No
6. Therapist supported and challenged at least one of: postural control, oculomotor control, and bilateral coordination
   - [ ] Yes
   - [ ] No
7. Therapist challenged planning and organization of behavior or series of behaviors
   - [ ] Yes
   - [ ] No
8. Therapist collaborated with learner in choosing activities and materials
   - [ ] Yes
   - [ ] No
9. Therapist tailored activities to provide “just right” challenges
   - [ ] Yes
   - [ ] No
10. Therapist ensured activities are successful
    - [ ] Yes
    - [ ] No
11. Therapist supported the learner’s intrinsic motivation to play
    - [ ] Yes
    - [ ] No
12. Established a therapeutic alliance with the learner
    - [ ] Yes
    - [ ] No

**ANECDOOTAL NOTES:**

- 
- 
- 

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**CAPTAIN**
California Autism Professional Training and Information Network

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Additional Resources

BOOKS:


APPLICATIONS:

<table>
<thead>
<tr>
<th>Developer</th>
<th>Available</th>
<th>Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensational Brain, LLC</td>
<td>Brain Works</td>
<td>Mac App Store</td>
</tr>
<tr>
<td>TriggerWave, LLC</td>
<td>Pocket Pond 2</td>
<td>Mac App Store</td>
</tr>
<tr>
<td>HAUS K. K.</td>
<td>Dropophone</td>
<td>Mac App Store</td>
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<tr>
<td>Seeb, LLC</td>
<td>Miracle Modus</td>
<td>Mac App Store</td>
</tr>
<tr>
<td>Padadaz</td>
<td>Heat Pad- Relaxing Surface</td>
<td>Mac App Store</td>
</tr>
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</table>

WEBSITES:

Sensory Integration Global Network [https://www.siglobalnetwork.org](https://www.siglobalnetwork.org)

USC Chan Division of Occupational Science and Occupational Therapy [https://chan.usc.edu/academics/continuing-education/sensory-integration](https://chan.usc.edu/academics/continuing-education/sensory-integration)

OTHER RESOURCES:

Set aside some time to look at this 1 ½ hour CAPTAIN presentation from the researchers and developers of the AFIRM ASI Module

Ayres Sensory Integration® (ASI):
Come Learn About This Newest EBP For ASD

Free | March 1, 2022 | 12:00 PM - 1:30 PM | Virtual | CEUs
REGISTRATION INFO COMING TO YOUR EMAIL SOON!
CAPTAIN CADRE ONLY

Your presenters are the developers of the new ASI AFIRM Module!

Sallie Wallace Nowell, Ph.D., CCC-SLP
Susan Szendrey, MOT, OTR/L
Frank Porter Graham Child Development Institute at University of North Carolina at Chapel Hill.

https://www.youtube.com/watch?v=ArgUzF9OKOY

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My Takeaways

1. What are 4 things you remember from today’s training?

1. What are 2 things you see yourself doing?

1. What is the 1 thing you can implement tomorrow?
After the Training…

Please complete the **Post Training Survey** that will be sent to your email