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Pediatric Evaluation

Introduction

An evaluation is the first step in the pediatric occupational therapy treatment process, so it's crucial for such encounters to be comprehensive and family-centered. Pediatric evaluations allow therapists to properly start off the plan of care with a child while identifying and working toward optimal outcomes. Pediatric OT evaluations are multifaceted and collaborative due to their ability to determine all of a child's areas of need and rank them based on priority and safety. In order for an OT evaluation to serve these purposes, a therapist must rely on effective, evidence-based tools.

Standardized assessments are some of the best resources for the pediatric evaluation process. While there are many standardized assessments across occupations, each tool varies based on style, administration time, age range, skill areas, and population. There are new assessments being developed each year, especially in pediatrics. This makes it critical for therapists to stay up-to-date on the validity, benefits, and critiques of the assessments that help us evaluate all of our patients' needs.

Section 1: Basics of Pediatric Evaluation, Practice Settings, and Special Considerations

References: 1, 2, 3, 4, 5, 6

There are several main components of a pediatric occupational therapy evaluation. The evaluation process for children is mostly similar to the evaluation process for adults in that it includes:

- Formal, non-standardized procedures, including parent, caregiver, and teacher interviews (with an emphasis on interviewing the referral source);

review of IEPs, report cards, and other school records (including disciplinary reports, if any), past therapy evaluations, medical records, writing samples, academic assignments, reports from professionals involved in the child's care (both educational and medical in nature), and other relevant information; task-based assessments where a child's decision-making and motor planning abilities are observed; and creation of the occupational profile

- Informal observations, including watching the child explore their environment (ideally in a natural context and with toys, equipment, and other materials available to interact with), communicate and otherwise engage with peers and adults, react to obstacles they may encounter, and manage their emotions
- The administration of standardized assessments, chosen according to the child's needs and the clinician's judgment

The first two parts of the evaluation can be structured in various ways according to a provider's therapeutic use of self and resources at their disposal. When it comes to standardized assessments, though, uniformity is important. Therapists must strictly adhere to standardized assessment protocols and utilize normative data to inform the interpretation of all raw scores. Normative data is important for several reasons. This data is what makes standardized tests so beneficial, as it helps therapists effectively understand a child's assessment results. By comparing a child's standardized assessment scores to those of children who are the same chronological age, therapists can understand where the child's deficits lie and structure treatment according to their functional abilities. This information is used to plan developmentally appropriate activities, select appropriate toys, and form relevant interview questions.

Data gleaned from a pediatric evaluation also allows clinicians to use the proper therapeutic approach. Children with a younger developmental age are usually better candidates for rehabilitation following a bottom-up approach, as this allows therapists to focus on formative motor and sensory skills first. These abilities serve as precursors to more complex skills and cognitive processes that develop later in childhood and adolescence. Therefore, older children typically respond better to top-down therapeutic approaches since these facilitate the development of executive functions such as problem-solving, self-awareness, and planning.

However, therapists should keep in mind that the selection of a therapeutic approach is not entirely black and white. A bottom-up approach has proven useful for anyone who has developmental delays, reports a history of trauma, or presents with a high level of arousal or dysregulation. Therapeutic activities associated with a bottom-up approach include sensory stimulation, movement-based exercises, and sensory-based play. Bottom-up methodologies take a more reactive approach as opposed to a proactive approach, which is more ideal for those in a dysregulated state.

Activities according to a top-down approach, on the other hand, typically consist of setting expectations, creating goals, using various types of reasoning, and comprehending, then following verbal instructions. Top-down approaches necessitate the use of intentional actions and conscious thought processes, which means they require children to have some existing executive functioning skills to work with. In terms of the pediatric evaluation process, a top-down approach involves a therapist firstly gathering information about a child's abilities and meaningful roles. When working with children of any age, this includes education, ADLs, leisure, play, and social participation. The evaluation process should also cover pre-vocational skills and work for older adolescents. Treatment location plays a large part in if and how a therapist addresses these areas, and we will discuss this in more detail next.

Pediatric Practice Settings

Standardized assessments are an integral part of the pediatric evaluation process. However, the breadth of outcome measures at a therapist's disposal can be overwhelming at times. This is especially the case when working with children, as therapists must gain insight into all formative skills during the initial visit in order to create an appropriate treatment plan. The standardized assessments used during therapy are jointly based on the clinician's judgment and their patient's needs at the time. Yet, there are other factors that play into the selection of evaluation tools.

The practice setting where the patient is being seen is one of these factors. This is due in part to the occupational areas that each practice setting is equipped to address. In addition, some settings present limitations in time and materials that impact the practicality of certain tests. To effectively determine the appropriateness of tests, therapists should firstly have an understanding of the basic skills they will need to measure in each practice setting.

The first practice setting within the realm of pediatric OT is early intervention (EI), which involves the treatment of children from 0 to 3 years of age. Since EI takes place within the most natural setting (the child's home), it is considered closely in line with the roots of occupational therapy. However, as clinicians in home-based settings know, patients do not always have ideal settings with the right balance of toys, equipment, and space to support therapy. Therapists can bring some materials with them, but only what can fit in their vehicles. In early intervention, skills such as head control, reach, grasp, feeding, bilateral integration, and early play are at the forefront of treatment. Parent training and education are also major parts of EI sessions. Next is school-based OT, which includes a much wider age range of children from 3 to 18. The focus of school-based OT is ultimately on academic performance, but how OT supports children within each age bracket

varies due to their understandably different needs. OTs who treat preschool-aged children between 3 and 5 typically focus on socialization (especially in groups), scissor skills, prewriting skills, self-care participation, and emotion/sensory regulation - specifically as it pertains to safe interactions with peers and ability to sit during classtime. From an OT perspective, children in this age bracket may need work on visual motor skills, bilateral integration, motor planning, fine motor control, dexterity, and grip strength, if they are determined to be the root cause of their academic concerns. When working with older school-aged children between 5 and 10, OTs continue to address self-care skills as well as handwriting, emotion/sensory regulation, and executive functioning skills (such as organization, time management, attention, flexibility, impulse control, memory, etc.).

OTs can also treat children within hospitals. Newborns may be seen by OTs while in the Neonatal Intensive Care Unit (NICU). NICU treatment places a large focus on sensory experiences along with environmental modifications, feeding, parent training, and establishing a child-parent bond. Older children with chronic conditions may be seen by OT in specialized children's hospitals. The focus of hospital-based OT treatment for children between 1 and 18 years of age is in large part similar to the focus for adults in hospitals. Skills addressed include coordination, strength, endurance, and range-of-motion with an emphasis on reengagement in play, leisure, and academic tasks.

Lastly, children between the ages of 1 and 18 may also be seen in outpatient settings. These clinics are sometimes called sensory gyms as sensory regulation can be a main focus of their treatment along with self-care skills. Outpatient pediatric OTs may also address motor planning concerns, coordination, and similar skills with play and independence in leisure exploration. Outpatient settings for children are a good place to work more on skills being addressed through a child's Individualized Education Plan (IEP). However, therapists in this setting usually

focus on carryover of these skills to the home and community since they are not limited to the confines of school performance.

Special Considerations

In addition to discerning assessments based on practice setting, there are other accommodations and considerations pediatric therapists should be mindful of during the evaluation process:

- Modify the instructions for assessment tools based on the child's cognitive abilities and overall developmental level. This may include the use of visual aids, simpler language, or plain language information summaries.
- In a general sense, play-based approaches are the primary way to structure evaluations for children. Specific techniques within the realm of play will vary based on the child's age, interests, and abilities.
- Ensure that testing environments are child-friendly to encourage optimal performance. If the testing location itself is not ideal and cannot be changed to another, the therapist should make an effort to incorporate toys, decor, equipment, etc. that are age-appropriate.
- Include any relevant adults in the evaluation as well as the treatment process. The evaluation is simply a snapshot in time, so parents, other family members, teachers, nannies, and caregivers can all offer more insight into the child's typical behavior, areas of concern, preferred activities, and priorities. This is especially helpful if the child is too young to be an active participant or is not an accurate historian. These social supports can also help during treatment to enhance carryover and speak on progress outside of sessions.

- Because of the rate at which children develop, their progress should be monitored especially closely at all times during the therapy process. While there are delineated reevaluation periods, goals and activities may need to be adjusted before reevaluation time or more frequently than they do for adults. Keep this in mind when choosing outcome measures, as a combination of long and short tools can be useful.

- Age-appropriate testing techniques for infants include keeping the environment free of noise as much as possible and using a gentle approach. When incorporating music into sessions, it should be low and soothing. Therapists should be especially mindful of non-verbal distress cues that may arise.

    - Depending on the baby's developmental age and personality, these cues may include widened eyes, rapid breathing, muscular rigidity/ stiffness, yawning, hiccuping, excessive squirming or fidgeting, arching the back, furrowed brows, clenched fists, lack of eye contact, skin color changes, flushing of the face (specifically the cheeks), pushing away when therapist attempts any form of touch, and excessive crying.

- Age-appropriate testing techniques and tools for preschoolers include the use of familiar characters, positive reinforcement, storytelling, gym equipment, a variety of toys, and sensory experiences. These all create opportunities for therapist observation and allow for seamless transitions between different parts of the evaluation.

- Age-appropriate testing techniques for school-aged children, on the other hand, consist of including clear explanations of activities and session expectations at the start. In addition, these children should be given the ability to choose and ask questions. For children nearing adolescence,

therapists should also be mindful of their right to privacy and limited disclosure regarding certain topics. That being said, therapists should not avoid sensitive topics when they come up, rather they should be tactful and honest about them.

    - When working with children of a certain developmental age, therapists should engage them more in the evaluation process. For example, the therapist can ask them to take self-report assessments. Therapists can also inquire about the child's insight into difficult tasks, how their occupational concerns have impacted their life, their motivation related to therapy in general, and more.

- Depending on a child's size, therapists may need to make physical adjustments to assist with posture and positioning. This may involve the use of cushions, wedges, mats, and pillows.

- Therapists must obtain informed consent from a child's parent or guardian before an evaluation begins. The informed consent process also includes an explanation of the evaluation components, benefits, and risks. This information should be provided according to the parent/guardian's literacy level.

    - However, therapists should remember that offering informed consent and education to a child's parents doesn't mean the child entirely gives up these rights. Therapists should still offer children they work with some form of explanation for each part of the evaluation and get their consent (both verbally and non-verbally) along the way.

- Flexibility is a tenet of rehabilitation therapy, as we need to remain adaptive to patient needs at any given time. With children, this is even more important as their wants and activity levels can shift rapidly during the

course of an evaluation. This is especially the case for children with behavioral concerns, trauma history, or sensory sensitivities.

- The testing environment should be adjusted throughout the evaluation visit as needed in order to accommodate the child's sensory concerns from a lens of safety and comfort.
- Cultural sensitivity during the pediatric evaluation process involves being aware and accepting of the ways in which a child is being raised, communication styles within their home, and their family/culture's views regarding illness, health, and happiness.

Section 1 Personal Reflection

What medical concerns might lead to signs and symptoms of distress in infants?

Section 1 Key Words

Informed consent - A process used in medicine and research to educate patients and study subjects about the risks, benefits, intended purposes, and processes involved in healthcare treatment or clinical research; informed consent must be obtained in order for healthcare institutions to remain compliant with legal and ethical standards

Normative data - A large set of data from a given reference population that serves as a basis for comparing standardized test results to; while it's not good practice to refer to anyone (or their abilities, test scores, etc.) as "normal" or "abnormal," normative data allows therapists to determine variations from what is generally accepted as normal

Section 2: Occupational Profile & Parent/Caregiver Interviews

References: 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26

As we mentioned earlier, parent/caregiver interviews and the occupational profile are two examples of formal, yet non-standardized procedures within a pediatric OT evaluation. Interviews and the occupational profile are closely related, as the former is used to glean information that will be used as the basis of the occupational profile. Most components of a child's occupational profile can be turned into questions used during a parent interview. There is a degree of flexibility in this process, as a therapist is not limited to a certain structure when speaking with adults involved in a pediatric patient's care. Pediatric occupational profiles cover many areas. Questions geared toward parents may include:

- Are you the primary caregiver for your child?
- Who lives in the home with you and your child?
- Either within or outside of the home, who looks after your child regularly?
- Does your child go to daycare or school? If so, do they spend a half day or a full day there?
- Do they transition to and from school or daycare without concerns?
- What are the goals you would like to see your child achieve through OT?
    - Some parents may not understand how OT can help children, so therapists can add to this question by probing about what daily activities parents want their child to participate in.
- What do you feel are your child's biggest challenges when it comes to engaging in daily activities?

- What daily tasks and activities do you feel your child is successful in? What activities do you notice they feel the most successful in?
- Were there any notable aspects of your child's prenatal and birth history?
    - Therapists may need to offer some examples or ask specific questions under this category, as parents may not understand the connection between health events such as premature birth or preeclampsia and their child's presenting concerns.
- If your child has siblings, did any of them have developmental delays? For example, did any other children in the family begin walking or talking later than other children their age did?
- What is your child's early developmental history?
    - Be sure to cover the major motor, social, and language milestones, including:
        - Holding their head up when in prone (should occur by 2 months)
        - Looking at your face (should occur by 2 months)
        - Reaches for objects of interest (should occur by 6 months)
        - Begins playing with toys in a more purposeful manner (should occur by 6 months)
        - Walking, with or without holding onto furniture (should occur by 1 year)
        - Putting words together to talk (should occur by 2 years)

- Describe your child's ability to move around when at home, in school, or in public.
    - Based on the child's age, the therapist may want to ask more specific questions about the child's habits when rolling, crawling, walking, climbing on furniture, running, jumping, skipping, hopping, ascending/descending stairs, using jungle gyms, throwing a ball, and kicking a ball.
- Describe your child's ability to engage with toys and other handheld objects.
    - Again, based on the child's age, the therapist should ask questions about picking up and manipulating small objects (blocks, beads, small pieces of cereal or similar snacks, etc.); holding a spoon, fork, and cup during mealtime; and fastening buttons, zippers, and snaps on clothing.
- How does your child play with their peers?
    - Therapists may need to directly ask whether or not the child initiates play with peers, how often they do this, what types of activities they engage in with peers, if they take turns and share without concerns, and if they are rough or kind with other children.
- Describe the play activities your child usually participates in.
- Does your child play by themselves? If so, for how long at a time?
- Does your child make eye contact with other children? Do they make eye contact with adults?

- If your child has a problem getting an object they want, making a toy work, or is otherwise upset and wants your help, how do they usually get your attention?
- How does your child soothe themselves when upset, if at all?
- How often do you need to intervene and help calm your child when they are upset? If you do this often, what helps the most?
- Does your child need help with getting dressed and undressed? If so, what help do they need?
- Is your child potty trained? If so, are they able to manage all aspects of toileting on their own, including dealing with their clothing, wiping, and washing their hands afterwards? If not, is your child able to tell you (using words or gestures) when they have urinated or had a bowel movement and need to be changed?
- Is your child able to use a spoon, fork, and cup in a purposeful and appropriate manner when eating or drinking? Do they use these utensils safely?
- What are your child's grooming and hygiene skills like?
    - For older children, it may be simpler and more beneficial to ask parents if their child can complete grooming and hygiene tasks (ensure you have information on teeth brushing, hair brushing, face washing, hand washing, and hair washing, as their abilities for each one may differ) on their own or with reminders. For younger children, therapists should ask more specific questions based on the child's age such as, "If given the right tools, is your child able to engage in teeth brushing on their own?" If parents indicate their child needs some help, ask them what aspects they are offering help with.

- Is your child able to help wash their body when taking a bath?
    - If a child is older (or even for younger children who take showers), therapists may want to phrase the question in terms of their presence during this task. For example, therapists may want to ask, “Are you present when your child is washing their body to offer any help or do they bathe completely on their own?”
- Is your child generally comfortable with the feeling of clothing on their body (including undergarments, socks, shoes, pants, shirts, and coats)?
- Is your child comfortable with basic grooming tasks, such as nail cutting, hair brushing, teeth brushing, washing hair, face and body washing, and cutting hair?
- Does your child have age-appropriate responses to self-care tasks?
    - Therapists can give examples based on the child’s age and abilities.
    - Let’s say the child being evaluated is a 3-year-old and parents report he is able to undress independently. The therapist might say, “Think of a regular day in your home where you ask your toddler to take their pajamas off before getting into their clothes for the day. Would they be able to take their pants and shirt off on their own? If they were wearing a onesie, would they ask for help with the zipper and do the rest on their own?”
    - A therapist evaluating an older child who is independent in dressing could phrase the question as follows, “If your 9-year-old was asked to wear their coat before going outside to play during the winter, would they whine a little before getting their coat, putting it on, and leaving?”

- Is your child generally okay with being moved off balance? For example, if they are standing on a surface that tips over or is rocked by someone else, do they continue what they are doing or have a strong reaction to it?
- Does your child seek out and enjoy movement-based activities such as those that involve rocking, rolling, spinning, climbing, and jumping? If so, would you say they seek this movement out more than other children their age?
- When you help your child with a task, do they anticipate your actions and move accordingly or do they react to your movements after they have already happened? For example, let's say you are helping your child dress in a pullover. When you hold the shirt above their head, do they raise their arms straight up independently? Do they raise their arms straight up after you ask them to? Do you need to lift one arm up at a time to put them into the sleeves?
- Would you say that your child moves around in a generally safe way? Are they able to avoid bumping into people, walk without touching furniture, and move between items that are in their way?
- Does your child enjoy the sounds around them? What sounds do they prefer?
- Does your child enjoy creating sounds, such as singing, making loud noises, and humming?
- Is your child mostly comfortable with typical household noises and background sounds that occur throughout a typical day in your home? This may include noises associated with a refrigerator, washing machine, toilet, fan, or air conditioner.

- Does your child dislike traditionally loud noises like fire alarms, the sound of a phone ringing, people yelling, loud music, or fireworks?
- Is your child comfortable in busy places such as malls, playgrounds, or fairs?
- Is your child comfortable in sunlight, such as when you are at the beach or outdoors on a clear day?
- Would you say your child's diet is limited based on the way certain foods feel in their hands or mouth? What foods does your child dislike based on how they look or feel?
- Does your child have a strong tendency toward any specific foods, so much so that they react negatively if not given that food or refuse anything other than those preferred foods?
- Is your child allergic to any foods?
- Does your child have sensitivities or strong reactions to certain smells, either during mealtime, when cooking, in the bathroom, or throughout the course of a typical day?
- How does your child typically react to internal sensations such as the urge to use the bathroom, being in pain, feeling tired, being thirsty, or feeling hungry?
- Does your child respond well to daily routines or is it more accurate to say they struggle to do things according to directions? If they do prefer a routine, what happens if their routine is changed for any reason?
- Describe your child's attention span. Is it difficult for them to participate in any task for a prolonged amount of time? Or can they sustain attention for long periods as long as they are doing an activity of their choice?

- What does your child enjoy doing for long periods of time?
- Would you say that your child goes with the flow of transitioning from one activity to the next or do they have difficulty moving between tasks?
- Do you consider your child's activity level to be typical compared to the levels of other children their age?
- Does your child enjoy socializing with other children or do they need encouragement to do so?

Using all of this information from parents, therapists should formulate clinical judgments about the child's development, deficits, and the direction the therapy plan of care should take. This may require documentation covering some of the following areas:

- What is the child's occupational history?
    - This includes notable life experiences, home situation, and extracurricular activities.
- What are the child's values and interests?
- What other services is the child receiving now?
    - This may include PT, SLP, special education, psychology, vision services, behavior therapy, and audiology.
- Has the child ever received OT services? If so, what was the focus of those sessions?
- What aspects of the child's life support their participation? What aspects of the child's life inhibit their participation?

    - Responses to these questions should be broken down into factors that pertain to the environment and factors that relate to the person. For optimal organization, these may be formatted as a table with the following headings:
        - Environmental factors that support participation
        - Environmental factors that inhibit participation
        - Personal factors that support participation
        - Personal factors that inhibit participation
    - Factors related to the environment may include relationships, services, policies, systems, natural environmental characteristics, manmade environmental changes, technology, products, and forms of support
    - Factors associated with the person/child can include demographics such as cultural associations, race, gender, ethnicity, sexual orientation, and spirituality along with how they are being raised, education, lifestyle choices, social background, and personality
- What client factors support or inhibit the child's engagement?
    - Client factors include spirituality, beliefs, and values along with body functions, and body structures
- What priorities and target outcomes have been identified by the child and/or their family in each of the following areas: prevention, health and wellness, quality of life, role competence, well-being, occupational performance, participation, and occupational justice?

- What are the child's patterns of engaging in occupations? How have these patterns changed over time? What are the child's daily life roles?

All of the above questions inquire about a child's habits, skills, and participation in their home and the community. For this reason, they are essential components of a comprehensive pediatric evaluation in an outpatient setting. Most of the above questions are still relevant for children receiving school-based OT. However, therapists working in this context should include additional questions to determine how a child functions in an academic setting. Some of these questions may include:

- What are the student's strengths in school?
- How does the student feel about school? What do they enjoy about school?
- Inquire about the child's school history, including IEP services received (and dates they were provided), goals for each service, the age the student was first enrolled in school-based services, any RTI services the student may have received, and overall grades
- What are the major priorities for therapy according to the student?
- What are the major priorities for therapy according to the student's parents?
- What are the major priorities for therapy according to the student's teachers?
- According to each member of the IEP team, what barriers and supports impact the student's academic performance?
    - **What aspects of the student's physical environment serve as barriers to the student's performance? What physical aspects serve as supports?** This includes but is not limited to the student's desk;

building lighting; accessible school restrooms; materials, technology, and tools for learning (both adaptive and standard issue); materials, technology, and tools for play (both adaptive and standard issue); the presence or lack of elevators, automatic doors, and ramps; space within each classroom; arrangement of materials within each classroom; room decor; noise level within communal spaces (bathrooms and hallways) and private spaces such as classrooms; ventilation systems; building temperature; and access to clean, and secure outdoor spaces.

- **What aspects of the student's social roles and expectations are barriers to the student's performance? What social aspects serve as supports?** This includes but is not limited to interacting with peers, interacting with adults, following directions, imitating others during play, attending scheduled classes, participating during classes, respecting authority figures such as teachers, counselors, and coaches, following school rules, completing assignments on time, participating in classroom discussions, asking questions politely and according to classroom rules when clarification or help is needed, working collaboratively in groups, offering ideas upon request, sharing with and supporting peers, managing time, and preparing personal materials.
- **What aspects of the student's culture serve as barriers to the student's performance? What cultural aspects serve as supports?** This can include but is not limited to the student's primary language (and how it compares to that of their peers and teachers); the presence of stereotypes and prejudices from peers and teachers; cultural assumptions from the student's family that govern their relationships with the student's teachers and coaches as well as their

fulfillment of expectations set forth in those relationships; social norms; and the student's learning style. In some cultures, memorization is considered more essential for learning than problem-solving and vice versa.

- **What aspects of the student's personal life act as barriers to the student's performance? What personal aspects serve as supports?** This can include but is not limited to the student's age; gender; likes; dislikes; motivation; self-esteem; mood; capacity for learning; self-talk; views on failure; level of interest in any given school subject or subtopic; the presence of test anxiety; ability to manage their emotions; difficulty seeing the value in education; lack of challenge in the subject matter they are learning; unclear goals for themselves; chronic health concerns (either behavioral or physical in nature); sleep habits; cognitive and physical energy levels; nutritional intake; pain levels; family conflict with loved ones; instability within the home environment; degree of parental (or adult) support; adjustment to significant life changes; and a mismatch of expectations between the student and their parents/guardians.
- **What temporal factors serve as barriers to the student's performance? What temporal factors serve as supports?** This can include but is not limited to the student's age grade level, and developmental age in comparison to those of their peers; amount of time students dedicate to academic work (studying, reading, and homework); consistency of academic coursework completed outside of class time; timing of assignments over the course of a quarter or semester; length of each school day; overall pace of classroom learning; task prioritization; allocation of equal time for each school subject; breaking up larger school tasks into smaller periods of work;

creating time-based routines; taking the right amount and length of breaks when doing schoolwork; and establishing circadian rhythms.

    - **What virtual factors pose challenges to the student's performance? What virtual factors serve as supports?** This can include but is not limited to safe, stable internet access; lack of face-to-face interaction with peers and teachers using online learning platforms; absent or insufficient skills related to technology; disorganization in the design and structure of online learning modules; difficulty initiating school tasks when using online learning platforms; inconsistent ability to access technical support using an online learning platform; accessibility of software and apps that the student can easily use; up-to-date, reliable technological devices; courses that contain too much text and not enough multimedia or other components; and lower amounts of immediate guidance or feedback from instructors.

- Describe how the student uses scissors.

    - Observations and teacher interviews can help therapists understand a student's skills in this area. While observing, therapists should look for details about grasp pattern, endurance, safety, appropriate use of their helper hand, ability to make consecutive cuts on paper, ability to cut on (or close to) lines on paper, ability to turn the paper when needed while still cutting. When speaking with a student's teacher, the therapist should ask about the quality of the student's work: Are their cuts choppy? Are they unable to finish tasks when they involve scissor use? Do they have an interest in working with scissors? If help has been given, do they respond well to instruction regarding proper techniques for scissor use?

- Describe how the student engages in writing.

    - Therapists should learn whether or not the student can identify, trace, and copy letters. It's often best for therapists to observe a student writing to get this information and then look more closely at the student's writing sample. When reviewing a writing sample for a younger student, therapists should focus on the student's ability to write letters with proper sizing, formation, spacing between letters, and line placement. When reviewing a writing sample from an older student, therapists might want to focus on areas such as spacing between words, punctuation, spelling, capitalization, and sentence structure (ability to write in complete sentences, use proper word order, and maintain appropriate sentence length). During the observational period for any student, therapists should hone in on endurance, pencil grasp, hand dominance, appropriate use of helper hand, and maintenance of web space.

- Describe the student's ADL function at school.
    - Is the student able to use the bathroom independently at school, including managing clothing and requesting to use the bathroom with sufficient time to get there? Are they able to manage their backpack, jacket/coat, and rain/snow boots when arriving at school and before leaving school? Can they eat independently in the lunch room with their peers?

- Describe the student's time management and study skills.
    - Teachers and parents are both likely to have important insights regarding these areas. For older students, therapists may want to ask about some of the following skills: Is the student able to move between assignments during class without concerns? Is the student able to locate and arrive at each class on time without help? Is the

student able to follow a daily schedule or help make their own? Can the student use their planner to track assignment deadlines and exam dates? Can the student utilize an up-to-date planner to prioritize the work they do? Is the student able to minimize or actively avoid distractions when completing schoolwork?

In addition to or in place of a traditional occupational profile, some therapists may opt to use the Short Child Occupational Profile (SCOPE). SCOPE is a standardized assessment developed with heavy influence from Gary Kielhofner's Model of Human Occupation (MOHO). Both MOHO and SCOPE take a large-scale look at a person's performance capacity, environment, habituation, and volition in order to understand their occupational engagement. These components are closely aligned with the purpose of SCOPE, which is to pinpoint challenges and strengths that children experience across various activity areas. SCOPE is a common tool within the pediatric population because of its versatility. Its age range extends to include children from birth to 21 years of age and it is suitable for patients with any diagnosis. However, if SCOPE is not readily available or a provider wishes to use other tools, there are a range of outcome measures pediatric therapists can incorporate during the evaluation process. We will discuss these at length in the next section.

Section 2 Personal Reflection

What strategies can an OT use to jointly address temporal and social factors that impact academic performance?

Section 2 Key Words

Response to intervention - A structured approach that guides schools in helping children at risk of falling behind academically; the first step in response to intervention (RTI) involves universal screening for all children; there are three intervention tiers: tier one involves classwide/schoolwide programs, tier two entails targeted interventions for students who need more focused help, and tier three offers customized, intensive work with students

Section 3: Informal and Formal Pediatric Therapy Assessments

References: 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61

The next section of the pediatric evaluation includes testing – both formal measures (chiefly, standardized assessments) and informal methods. The informal tests therapists use during a pediatric evaluation vary largely depending on their style, the child's participation, and how the environment around them is structured (if there is any large equipment or games at their disposal). There are no specific guidelines, as therapists can use informal methods at liberty to supplement other parts of the evaluation. We will discuss informal evaluation methods more later in this section.

Standardized assessments, on the other hand, must be integrated into the evaluation process in a more methodical manner. As their name suggests, these tests must be administered in a precise way to yield the most accurate results. This consistency means every single person who takes a particular test is asked the same questions that are all graded in the same way. By doing this, an individual's scores can be effectively compared to the scores of others who have

taken the same test. This last stipulation is part of the protocol for one type of standardized assessment called norm-referenced assessments.

Types of Standardized Assessments

Norm-referenced assessments compare a patient's performance on predetermined tasks to the performance of other patients who have completed the same tasks. The group of other patients someone is compared to are collectively known as the normative sample or normative population. Norm-referenced assessments yield results such as bell curves and course medians, which offer visual and numeric representations of how a patient scored compared to the larger group. As such, it's possible to identify the patients who performed the highest as well as those who performed the lowest. When a young child goes to their pediatrician for regular check-ups, they are often given several norm-referenced tests. Some examples include height and weight charts for infants. Parents are given numeric figures for their child's height and weight, but they are also told their children are in a certain percentile based on how their growth measures up to other children their age. For example, let's say a child's weight places them in the 25th percentile. This means they weigh more than 25% of children their age and less than 75% of children their age.

The second kind of standardized assessments are criterion-referenced assessments. These tests do not include the same comparisons that norm-referenced tools do and instead focus on the specifications of each task within the assessment. Criterion-referenced assessments measure a patient's performance on predetermined tasks according to certain standards set for those tasks. An occupational therapy board certification exam is a good example of a criterion-referenced assessment. Within the OT profession, the National Board for

Certification in Occupational Therapy (NBCOT) determines how many questions a candidate needs to answer correctly to obtain a passing score on their exam.

Standardized Assessment Characteristics

When using standardized assessments in the rehabilitation field, therapists must weigh a tool's characteristics before determining its suitability for a particular child. Firstly, a test's validity and reliability are important to know since they speak to a tool's credibility and efficacy. As we know, all the work therapists do should be supported by evidence so these assessment characteristics are considered priorities. In a general sense, validity aims to determine whether or not a standardized assessment truly measures what it states it does. This is called **construct validity** and is considered the most common type of validity**.** There are other types of validity a therapist should consider when weighing assessment options, and each type (including construct validity) is graded weak or strong. An example of construct validity may involve comparing a newly-developed assessment to a more established one. In particular, someone measuring the construct validity of a new handwriting tool may want to analyze this new measure according to the Evaluation Tool of Children's Handwriting (ETCH) to determine how accurately the new test covers the topic of handwriting skills. **Content validity** takes a more detailed look at tests, as it determines whether or not all test components represent what they are supposed to. In other words, construct validity takes a large-scale look at the actual purpose of a test while content validity views the intent of individual assessment parts. Since test constructs are often ideas, themes, or concepts - especially in the realm of qualitative testing - measurement styles are typically indirect. This can make measuring validity difficult. To better understand its aim, providers can refer to an example where content validity can be used in practice. For instance, let's imagine a therapist is measuring the content validity of a standardized assessment focused

on sensory processing. After reviewing the measure, the therapist determines the tool offers a thorough exploration of auditory, visual, vestibular, tactile, and proprioceptive functions, but there are little to no questions covering gustatory and olfactory function. This means the test doesn't have excellent content validity since it does not offer a complete look into sensory processing as it claims to.

Face validity looks at the outward portrayal of an assessment by measuring if the test visually appeals to measure what it says it does. As the definition suggests, face validity takes a much more superficial look compared to other validity types. Let's say a standardized rehabilitation assessment is purported to measure physical fitness levels in children. If someone takes a brief look at the test and recognizes components like push-ups, sit-ups, time trials of running laps, and arm reach distances, that assessment would have good face validity. Each of those listed areas are generally known to be associated with physical fitness, so they align with what the test initially appears to measure.

Criterion validity is more in line with content validity in that it weighs the assessment specifics. Criterion validity discovers if a test measures the predefined criteria it has set forth. This is an important subset of validity as it focuses on the real-world application of a test. If a test has particularly strong criterion validity, it may also be referred to as the 'gold standard' measurement in a particular subject area. When discussing research, the gold standard methodology is a double-blind, randomized controlled trial (RCT). The RCT process effectively minimizes bias, as it requires researchers to equally and evenly distribute participants with various characteristics (e.g. diagnosis, age, lifestyle habits, etc.) across two distinct groups. This allows for an accurate picture of the causal relationship between a certain intervention and the study's results. **Internal validity** refers more to the practical application of a standardized assessment, specifically how well its results reflect the actual perspectives and abilities of the population who uses it. Internal validity intends to relay whether or not study results were the product of errors in the

experiment's methodology. Some errors that internal validity may uncover include user confidence, attrition, the use of various instruments, the passage of time, external events, confounding variables, bias (typically on behalf of the study investigator), and acclimation to the test based on how often it has been administered. In short, internal validity looks at whether certain factors skewed the test's results. Research studies offer salient examples of how internal validity works. Let's say a study involves a treatment group with children who participate in a 10-week exercise program focused on fine motor coordination (in other words, a specific intervention) and a control group with children who do not receive any treatment. If therapists measure the coordination skills of both groups before and after the intervention is provided, this demonstrates internal validity for the results. Since studies such as these will ideally control extraneous variables through randomization and other procedures, this offers a good picture of the true relationship between the intervention and the childrens' coordination skills.

Predictive validity speaks to a test's ability to accurately predict outcomes that have yet to come. This is not commonly discussed in terms of rehabilitation assessments, as predictive validity is more appropriate in other professions. An example of predictive validity is a psychological test of cognition that measures someone's mental capacity as a way to predict their job performance. The results of such a test are then related to an employee's performance ratings once they begin a given job. Pre-employment tests are another way predictive validity is used in the field, as such measures may be able to identify someone's propensity for success in a certain work role. Predictive validity is discussed in a slightly different way than other types of validity, due in part to how it is calculated. This form of validity utilizes a correlation coefficient to yield a result, so the term correlation is involved in presenting predictive validity. For example, if the predictive validity formula yields a strong correlation, this means the measure's

predictive validity is high. On the other hand, a weak correlation points toward low predictive validity.

Concurrent validity describes how well the results of two standardized assessments agree with one another after being administered around the same time. For example, a pediatrician may use two (or sometimes more) standardized assessments to determine if a child meets the criteria for attention-deficit/ hyperactivity disorder. If the results of both measures suggest the presence of pathology, the child will receive a diagnosis.

Apart from the various types of validity, reliability is another key to determining the credibility of an assessment. Reliability involves taking a look at whether or not assessments produce consistent results when administered multiple times. Reliability is measured with the markers 'high' and 'low.' There are four main types of reliability, two of which are more common in the rehabilitation field. **Test-retest reliability** determines consistency by administering the same test to the same people at two different points in time. **Interrater reliability** measures a different sort of reliability based on user errors and interpretation. As such, interrater reliability determines the consistency of a test after it is administered by two different people. If two different testers yield similar results, this speaks to the uniformity of the test itself. If a test receives low interrater reliability, on the other hand, it means the test is being interpreted differently by people and cannot be trusted to be the same for everyone. As we mentioned earlier, uniformity is crucial for all standardized tests so this is especially critical. **Internal consistency** is a less common type of reliability that looks at consistency of individual test items. Similarly, **parallel forms** is another version of reliability that looks at consistency between two identical versions of a test.

While reliability and validity are some of the most important characteristics to weigh when looking at assessments, therapists must look at other factors before

selecting the appropriate measure for them. The feasibility of outcome measures and the practicality of using certain tests for a particular child are also key. For example, a therapist working with children during short-term hospitalizations will likely want to opt for a brief tool due to the time constraints that hospital-based settings present. A standardized assessment should also measure the specific skill areas that a child needs the most help with. If a child's presenting concern is handwriting, standardized tests that focus heavily on ADL function and social participation will not offer the type of insights a therapist needs to form goals. Feasibility also involves weighing cost and other resources required to administer the assessment as well as making the measure accessible for all children, especially those with disabilities since that is the target population for many OTs. Therapists should also look at a test's:

- Standardization
    - Is there consistency across all administration protocols and assessment questions?
    - If the test is criterion-referenced, does it have clear scoring guidelines for therapists analyzing results?
- Normative data
    - If the test is norm-referenced, are there readily available and established comparison groups so therapists can accurately score the assessment?
- Difficulty
    - Does the assessment offer a just-right challenge, where a therapist can clearly see the various skill levels but still remain accessible to the children it was designed for?

- Cultural sensitivity
    - Does the measure avoid bias?
    - Does the tool take cultural differences such as gender, age, socioeconomic status, sexual orientation, language, education level, ethnicity, religion, race, and national origin into consideration?
    - Is the test created in such a way that it weighs the impact of cultural values, cultural norms, and culture-related communication styles?
- Age range
    - Does the test outline a clear age range?

In the realm of education, there are additional factors to weigh. Therapists should reflect on whether or not the measure aligns properly with learning objectives outlined for a given child and integrated within their curriculum.

Formal and Informal Testing for Individual Skill Areas

There are a range of skills and skill components therapists should look for when choosing standardized assessments for children. The exact skills assessed will vary depending on the child's age and the foundational skills they possess. However, the main categories therapists should consider include:

Motor Planning and Praxis Skills

Any assessment that covers these skills may involve children bending, walking, carrying objects, and manipulating objects of all sizes. Tests focused on motor planning and praxis can involve performing novel motor tasks (this varies based on a child's experiences and preferences), exercising creativity when playing, maneuvering through obstacle courses, playing with objects in different ways

(mostly those that are non-traditional), performing multi-step tasks, or following patterns/motor sequences according to visual demonstrations or verbal directions. Motor/praxis testing also typically includes a closer look at a child's sequencing and planning abilities. In a functional sense, this involves being able to execute multi-step tasks such as simple meal preparation, playing games, getting fully dressed, and building visual models.

Standardized tests that measure motor and praxis skills include the Sensory Integration and Praxis Tests (SIPT), the Assessment of Motor and Process Skills (AMPS), the Movement Assessment Battery for Children (MABC), and the Florida Apraxia Battery (FAB).

Emotion Regulation

Assessments of emotion regulation should cover some of the following areas: appropriate expressions of happiness and sadness, frustration tolerance, controlling anger, utilizing calming strategies when dysregulated or otherwise stressed, persistence and motivation, recognition of others' feelings, showing concern for the emotions of others, and responses to others' feelings. Therapists can also gain much of this information by informally engaging a child in activities – ideally those that challenge the child, are non-preferred, or involve the child attempting to complete (or completing) a task multiple times.

Standardized tests that measure emotion regulation include the Emotion Regulation Checklist (ERC), the Cognitive Emotion Regulation Questionnaire (CERQ-k), the Preschool Self-Regulation Assessment (PSRA), the Early Emotion Regulation Behavior Questionnaire (EERBQ), and the Emotion Regulation Index for Children and Adolescents (ERICA). There are not many standardized OT tests that focus solely on emotion regulation as many are geared toward disciplines such as psychology and behavior therapy. Most OTs benefit from using comprehensive tools to assess a child's emotion regulation skills along with other functional skills.

Cognitive Skills

In order to glean the range of cognitive skills children will develop, both formal and informal assessments of cognition should cover some of the following areas: organization, prioritization, judgment, the maintenance of mental energy and attention to complete tasks, using their working knowledge to complete daily tasks, and using the proper tools during the right times to get certain tasks done. Therapists can also use informal methods to look at some of the following cognitive skills: object recognition (specifically with familiar objects), level of arousal, attention, ability to understand cause-effect relationships, object permanence, temporal organization, knowledge of basic concepts, and adaptation. Knowledge of basic concepts for preschool-aged children includes numbers, letters, colors, shapes, and patterns. For older children, these concepts encompass solving basic mathematical problems, learning new vocabulary, spelling words, and writing sentences using proper grammar and structure.

Standardized tests that measure cognitive skills include the Cognitive Assessment of Young Children (CAYC), the Cognitive Abilities Test (CogAT), the Differential Ability Scales (DAS), the Wechsler Nonverbal Scale of Ability (WNV), the Bayley Scales of Infant and Toddler Development, the Early Screening Inventory (ESI), and the Developmental Indicators for the Assessment of Learning (DIAL). There are not many standardized OT tests that focus solely on cognitive skills as many are geared toward disciplines such as psychology and speech-language pathology. Most OTs benefit from using comprehensive tools to assess a child's cognitive skills along with other functional skills.

Communication and Socialization

In the realm of social skills and verbal expression, therapists will want all testing to delve into a child's ability to develop friendships, take turns when talking or playing with other children, exchange ideas and information, share toys and other

objects with their peers, work together with peers on a shared task or common goal, and carry on a conversation with adults and peers. Other aspects of socialization to focus on include the ability to show empathy, ask questions (especially open-ended questions), actively listen, respect personal boundaries and space, make eye contact, resolve conflicts, follow rules, heed non-verbal social cues from others, use positive body language when speaking to others, use a respectful and welcoming tone of voice, and ask for help when in need of it. When evaluating communication skills in a child who does not currently talk, therapists should measure the child's use of gestures (waving hello and goodbye, pointing toward objects or people, etc.), ability to imitate simple words or sounds, and expression of spontaneous sounds or verbalizations when interacting with others. Since OTs focus on function and many areas of communication may fall to speech-language pathologists, occupational therapists should focus on the child's ability to use language (non-verbal or verbal) to get their needs met and share information. When looking into provision or adjustment of an augmentative and alternative communication device (AAC), OTs should compare the operational demands of a specific AAC with a child's ability to use that same device.

Standardized tests that measure communication and socialization include the Miller Assessment for Preschoolers (MAP), the Vineland Adaptive Behavior Scales (VABS), the Mullen Scales of Early Learning, the Bayley Scales of Infant and Toddler Development, the Children's Communication Checklist (CCC), and the Functional Communication Profile (FCP). There are not many standardized OT tests for children that focus solely on communication, since this is not a large part of our scope of practice and many such tests are geared toward speech-language pathology. Most OTs benefit from using more comprehensive tools to assess a child's communication skills along with other functional skills.

Gross Motor Skills

Gross motor assessments should cover basic and complex gross motor tasks, such as skipping, jumping, hopping, walking, running, and climbing. More specific play and functional tasks that can formally or informally test gross motor skills include moving around obstacles, using playground equipment safely and properly, moving across uneven surfaces, reaching for and carrying large objects, riding a bike, swimming, engaging in group sports, and participating in gym class (doing activities such as knee bends, push-ups, and sit-ups with a particular focus on postural control). In addition to these activities, tests should look at core skills such as range of motion, balance, endurance, agility, coordination, strength, and bilateral integration.

Standardized assessments may measure skills such as endurance by watching a child's postural control over the course of completing a given activity. Similarly, assessments may test range of motion and strength by asking a child to move their trunk or limbs against gravity or other resistance. Some standardized assessments that effectively measure gross motor skills include the Movement Assessment of Infants (MAI), Peabody Developmental Motor Scales (PDMS), Bruininks-Oseretsky Test of Motor Proficiency (BOT), Alberta Infant Motor Scale (AIMS), Test of Infant Motor Performance (TIMP), The Toddler and Infant Motor Evaluation (TIME), Gross Motor Function Measure (GMFM), and the Miller Function and Participation Scales (MFUN).

Fine Motor Skills

Any assessment covering fine motor skills should be comprehensive enough to include in-hand manipulation, bilateral hand use, hand preference, fine motor dexterity, fine motor strength, reaching for small items of various sizes, grasp and release patterns during a range of activities, and pencil skills. Some informal tasks that allow therapists to assess these skills include self-feeding, computer use,

lacing, using scissors to cut paper, functionally using clothing fasteners, stringing beads, stacking blocks, and opening packages. To be inclusive of all client factors that may influence performance, therapists should also evaluate a child's postural control and sensory factors as they pertain to fine motor engagement.

Some standardized assessments that cover fine motor skills include Quality of Upper Extremity Skills Test, BOT, PDMS, and the Erhardt Developmental Prehension Assessment.

Visual Motor Skills

The following visual motor tests should be included in a pediatric evaluation: following a moving target with only the eyes, ability to visually cross midline smoothly, ability to separate eye movements from head movements, smoothness of eye pursuits, rapidly alternating between visual fixation on two targets, visual accuracy, and following a finger when moving across all visual fields (one diagonal to another, up to down, and left to right). Informal activities that offer therapists an idea of a child's oculomotor function include putting puzzles together, copying a basic or complex design from a model, coloring, tracing shapes or letters, playing with shape sorters, drawing shapes or doodles, copying letters using a visual demonstration, using scissors to cut out lines and shapes, and using a mouse and keyboard.

Some standardized assessments that address visual motor skills include the BOT, PDMS, Beery-Buktenica Developmental Test of Visual-Motor Integration (Beery VMI), and the Test of Visual Motor Skills (TVMS).

Sensory Processing Skills

In the realm of sensory processing skills, therapists should look at a child's functioning across various sensory systems. When honing in on **visual processing**,

therapists may have a child read from a book, sort through a pile of objects, locate items in a crowded room or on a heavily covered book page, move through a given environment with obstacles present (either natural or pre-placed), use a computer, copy from a whiteboard or blackboard to a notebook, and complete puzzles. Some standardized tests that address visual processing skills include the SIPT, the Test of Visual Perceptual Skills (TVPS), the Developmental Test of Visual Perception (DTVP), the Motor-Free Visual Perception Test (MVPT), the Wide Range Assessment of Visual Motor Abilities (WRAVMA), the Sensory Profile (SP), and the Sensory Processing Measure (SPM). Therapists informally testing **auditory processing** may utilize tasks such as having a child locate sounds in their environment, asking a child to orient and attend to a person who has called their name, and offering them simple directions aloud to follow. Standardized tests that address auditory processing skills include the SP and SPM. If applicable, therapists should also look toward testing from audiologists and psychologists to gain initial information about a child's auditory processing skills.

When gauging a child's **sensory sensitivities and sensory modulation** abilities, therapists should include informal testing methods that weigh a child's sensitivity to sunlight or bright artificial lights as well as over- or under-responsiveness to input such as hugs, clothing textures, food textures, and grooming tasks like nail cutting, hair brushing, and face washing. Other components of these sensory skills include a child's awareness of injuries such as bruises and cuts, their response to messy or dirty tasks or activities that involve handling objects with novel or extreme textures, fear of unpredictable movement or being positioned on raised or unstable surfaces, their response to fast and slow vestibular input, and their overall movement preferences. Standardized assessments that cover sensory modulation skills include the SP, SPM, and the Touch Inventory for School-Aged Children. **Tactile discrimination** can be informally measured using a few methods. A test for light touch discrimination involves therapists occluding a child's vision

before lightly touching the child's hands or arms with their fingertips or a cotton swab. When administering this test, it is recommended to swipe from proximal to distal on the dorsal and ventral surfaces of the arms and hands. Therapists should then ask the child to identify (either verbally or non-verbally) where they felt the sensation. Informal tests can also be used for more specific aspects of sensation. To test sharp/dull discrimination, therapists should separately place the closed and open ends of a safety pin against a small spot on the child's arm and ask them to identify which was sharp and which was dull. In the same vein, informally testing temperature involves filling and capping one test tube with hot tap water and another with cold water. The therapist should then randomly place each tube in contact with the child's skin for 1 second and ask them to identify which is hot and which is cold. Other informal testing for tactile discrimination includes asking a child to identify tiny toys or objects with their vision occluded and observing their fine motor dexterity and in-hand manipulation of small objects or toys both with and without their vision occluded. Standardized assessments focused on tactile discrimination and processing include the Semmes-Weinstein Monofilament Test, the Two-Point Discrimination Test, the Texture Discrimination Test, the Pressure Sensitivity Test, the Sensory Profile, and the Sensory Processing Measure.

Testing for **vestibular function** may involve having the child assume antigravity postures including but not limited to prone extension and supine flexion. Informally, this type of sensory function can be tested by observing play activities that require balance such as walking toe-to-heel along a straight line on the floor, walking on a balance beam, playing a game such as Twister, standing on toes while reaching for objects posted on the wall or a shelf, riding a bike, or playing on suspended equipment such as swings. Standardized assessments that test vestibular function along with postural control and balance include the BOT, SIPT, TIME, MAI, and the pediatric Clinical Test of Sensory Interaction on Balance

(CTSIB). **Proprioception functioning** can also be easily measured informally. Tests for this sensory function include asking a child to imitate simple movements and postures following verbal directions. One such test involves having the child close their eyes, then moving their arm in a certain position and asking them to replicate the position with their other arm. Another similar task involves starting off with both arms out to each side and eyes closed, then having the child touch their index finger to their nose with one hand. Once this is done, have the child alternate between touching their nose with their right index finger, then their left index finger for a total of 10 trials. Therapists should be mindful of how frequently and how much the child uses their vision to keep their balance and navigate scenarios during play activities. As with most of the other sensory functions, the SIPT and SPM are key standardized assessments in these areas.

Feeding Skills

Many aspects of feeding are assessed informally during a pediatric evaluation. Therapists should begin by getting the child's feeding history, including their typical diet, food preferences, any nutritional concerns expressed by parents or the child's doctor, and body weight. Next, providers can visually inspect the child's oral structures for defects or abnormalities, including the soft palate, gums, lips, jaw, teeth, and tongue. OTs should also look at oral motor movements such as lip closure around a cup and eating utensils, capacity for jaw control, ability to initiate the swallow reflex, chewing skills, and if they can manage different food textures without signs of aspiration. Therapists should also test the child for sensitivity inside and outside of the mouth, as this can play a part in their feeding development. Other indications of oral motor abilities include a child's articulation when speaking, as this can potentially point toward concerns with swallowing, reflex integration, and oral motor control. In order to assess oral praxis, therapists can gauge a child's ability to imitate tongue and mouth movements such as

whistling, blowing kisses, sticking their tongue out to make a funny face, and age-appropriate actions for the child. In terms of reflexes, rooting, sucking, and tonic bite are some of the most central to test.

The Pediatric Eating Assessment Tool and Sensory Profile are just two examples of standardized tests that can offer more insight into feeding skills.

Muscle Tone

Therapists looking into muscle tone can test how much resistance a child can tolerate when various muscles are manually lengthened. The large joints of the body (shoulders, elbows, wrists, hips, knees, and ankles) should be taken through this process to get an accurate picture of the child's overall tone. This is just one informal way of testing muscle tone. The provider can also observe each of the child's muscle bellies at rest and look for tension or relative softness as indications of muscle tone. Joint mobility also offers insight into muscle tone, whereas low joint mobility may point toward high tone and hypermobile joints may suggest low tone. In the realm of pediatric standardized testing for muscle tone, therapists can use the Movement Assessment of Infants and the Toddler and Infant Motor Evaluation.

Complete List of Pediatric Standardized Assessments

- **Ages and Stages Questionnaire (ASQ-3)**
    - Age range: 1 month to 5.5 years
    - Norm-referenced screening tool that measures problem-solving, personal/social functioning, communication, and gross and fine motor skills

    - There are no recent assessment reviews, though dated studies found the ASQ has strong test-retest reliability, high accuracy with typically developing children as well as at-risk populations, and adequate sensitivity in identifying developmental delays

- **Alberta Infant Motor Scale (AIMS)**
    - Age range: 0 to 18 months
    - Norm-referenced measure of gross motor skills in supine, seated, standing, and prone positions
    - A 2023 review showed the AIMS has good to excellent concurrent and predictive validity when compared to the locomotion subtest of the Peabody Developmental Motor Scale
- **Assessment of Motor and Processing Skills (AMPS)**
    - Age range: 2 to 5 years (preschool version), 6 to 12 years (child version), 13 to 17 years (adolescent version)
    - Norm- and criterion-referenced measure of motor and process skills during ADLs
    - There are no recent assessment reviews for the AMPS, though dated studies support the test having strong validity despite a lack of research on its use with youth
- **Battelle Developmental Inventory (BDI-3)**
    - Age range: 0 to 8 years
    - Norm- and criterion-referenced measure of cognitive, communication, motor, adaptive, and personal/social skills

    - There are no recent assessment reviews, though dated studies found the BDI has strong test-retest reliability, good internal consistency, and good inter-rater reliability

- **Bayley Infant Neurodevelopmental Screener (BINS)**
    - Age range: 3 to 24 months
    - Screening tool that measures the presence of neurodevelopmental problems
    - A 2020 review found the BINS has adequate construct validity, reliability, convergent validity, and discriminating power when used with HIV-exposed infants
    - Dated studies show the BINS has high internal consistency, adequate test-retest reliability, high inter-rater reliability, and excellent construct validity when compared with the Bayley Scales of Infant and Toddler Development
- **Bayley Scales of Infant and Toddler Development (BSID-IV)**
    - Age range: 16 days to 42 months
    - Norm-referenced measure of language, motor, cognitive, adaptive, and social-emotional function
    - As of 2022, various assessment reviews state the BSID has:
        - Poor to excellent construct validity when compared to the PDMS total motor scale
        - Excellent internal consistency when used with those who were exposed to toxins in the womb, were born prematurely, or

have Autism Spectrum Disorder, language or motor delays, or Down Syndrome

- **Beery-Buktenica Developmental Test of Visual-Motor Integration (Beery VMI)**
    - Age range: 2 to 7 years (short form); 2 to 100 years (long form)
    - Norm-referenced measure of hand-eye coordination, visual perception, and fine motor skills
    - There are no recent assessment reviews, though dated studies found the VMI has:
        - Excellent inter-rater reliability
        - Moderate to excellent test-retest reliability
        - Adequate internal consistency
        - Moderate concurrent validity when compared with the copying subtest of the Developmental Test of Visual Perception and the Wide Range Assessment of Visual-Motor Abilities
        - Fair sensitivity in detecting changes in visual-motor integration
- **Bruininks-Oseretsky Test of Motor Proficiency (BOT-3)**
    - Age range: 4 to 25 years
    - Norm-referenced measure of fine and gross motor skills
    - There are no recent assessment reviews, though dated studies have tested the BOT and found it has:

        - Adequate test-retest reliability for the ages 13 to 21 subtest and excellent test-retest reliability for all other age-based subtests and composite tests
        - Excellent test-retest reliability and internal consistency for all subtests and composite tests when used with children who have intellectual disabilities
        - Varied results (most considered poor) when short form subtests were used with remote Australian Aboriginal children
        - Poor construct validity for typically developing children ages 7 to 10 when fine motor components were compared to that of the Movement Assessment Battery for Children

- **Child Occupational Self-Assessment (COSA)**
    - Age range: 6 to 17 years
    - Occupation-based tool that measures a child's perception of the importance of the activities they engage in on a daily basis along with their levels of occupational competence
    - A 2023 review found the COSA has strong concurrent validity when used to measure quality-of-life in children who have Attention-Deficit/Hyperactivity Disorder.
    - Dated studies also found the COSA has mixed external validity as well as good test-retest reliability for the value and competence sections.
- **Children's Assessment of Participation and Enjoyment (CAPE)**
    - Age range: 6 to 21 years

    - Criterion-referenced measure of enjoyment when engaging in non-school related activities
    - There are no recent assessment reviews for the CAPE, but dated studies have found this assessment has:
        - Adequate to excellent test-retest reliability and moderate construct validity when used with children who have cerebral palsy
        - Poor test-retest reliability when assessing social skills in children with high functioning Autism, but adequate to excellent test-retest reliability on all other subtests with the same population
        - Adequate to excellent interrater reliability with children who have physical disabilities
- **Clinical Observation of Motor and Postural Skills (COMPS-2)**
    - Age range: 5 to 15 years
    - Norm-referenced measure of supine flexion posture, finger-nose touching, prone extension posture, rapid forearm rotation, asymmetrical tonic neck reflex, and slow movements to determine whether or not a child has motor concerns with a postural component
    - There are no recent assessment reviews for the COMPS, but dated studies found this measure has strong inter-rater reliability, excellent construct validity, and high internal consistency. Research also found one major limitation for the COMPS is not being detailed enough to support the diagnosis of motor impairments.

- **Denver Developmental Screening Test (DDST)**
    - Age range: 0 to 6 years
    - Norm-referenced screening tool that looks at gross motor, fine motor, language, and personal/social development
    - A 2023 review found the DDST has fair accuracy in detecting motor concerns in school-aged children with a history of premature birth who may be at risk of Developmental Coordination Disorder.
    - One dated study found the DDST has adequate to excellent inter-rater reliability. A separate but similarly dated review suggests this tool has high sensitivity while other studies have varying results on its specificity.
- **Developmental Assessment of Young Children (DAYC-2)**
    - Age range: 0 to 5 years
    - Norm-referenced measure of cognition, communication, physical development, adaptive behavior, and social-emotional development
    - There are no recent assessment reviews, though multiple dated studies found it to have excellent criterion validity, construct validity, and content validity.
- **Developmental Observation Checklist System (DOCS)**
    - Age range: 0 to 6 years
    - Norm-referenced measure of social, motor, language, and cognitive skills

    - There are no recent assessment reviews, though multiple dated studies found the DOCS to have excellent internal consistency, and adequate to excellent content validity, construct validity, and criterion validity.

- **Developmental Profile 4 (DP-4)**
    - Age range: 0 to 21 years
    - Norm-referenced measure of adaptive behavior, cognitive skills, communication, social-emotional function, and physical development
    - There are no recent assessment reviews, though multiple dated studies found the DP-4 has excellent internal consistency, adequate test-retest reliability, excellent interrater reliability, and adequate content validity
- **Developmental Test of Visual Perception (DTVP-3)**
    - Age range: 4 to 12 years
    - Norm-referenced measure of copying, figure-ground, visual closure, form constancy, and eye-hand coordination
    - There are no recent assessment reviews, though multiple dated studies found the DTVP has:
        - Adequate test-retest reliability on the figure-ground and form constancy subtests, and excellent test-retest reliability on all other subtests
        - Excellent interrater reliability when used with the general population
        - Excellent internal consistency for all subtests

        - Adequate to excellent criterion validity on all subtests when compared with the Test of Visual Perceptual Skills

- **Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-Ch)**
    - Age range: 6 to 12 years
    - Criterion-referenced measure of spatial perception, orientation, praxis, visual-motor construction, visual-spatial memory, and thinking operations
    - There are no recent assessment reviews, though multiple dated studies found the DOTCA-Ch to have:
        - Excellent test-retest reliability for the orientation, thinking operations, and spatial perception subtests when used with children who have learning disabilities and intellectual deficits
        - Excellent interrater reliability for the orientation and spatial perception subtests when used with children who have learning disabilities and intellectual deficits; adequate interrater reliability for the thinking operations subtest when used with the same population
        - Excellent internal consistency for the spatial perception, thinking operations, and orientation subtests when used with children who have learning disabilities and intellectual deficits
        - Significant differentiation between the DOTCA-Ch scores for typically developing children, children with learning disabilities, and children with traumatic brain injuries
- **Early Coping Inventory (ECI)**

    - Age range: 4 to 36 months
    - Criterion-referenced measure of coping skills
    - There are no recent assessment reviews, though dated studies have tested the ECI and found it to have adequate inter-rater reliability, fair internal consistency, and the potential for high observer bias
- **Early Learning Accomplishment Profile (ELAP)**
    - Age range: 0 to 36 months
    - Criterion-referenced measure of social-emotional, language, cognition, fine motor, gross motor, and self-help skills
    - There are no recent assessment reviews, though dated studies have tested the ELAP and found it to have:
        - Adequate internal consistency
        - Excellent test-retest reliability
        - Excellent interrater reliability
        - Adequate construct validity
        - Excellent criterion validity when compared to the Bayley Scales of Infant and Toddler Development
- **Erhardt Developmental Prehension Assessment (EDPA)**
    - Age range: 0 to 15 months
    - Norm-referenced measure of hand function tasks

    - There are no recent assessment reviews of the EDPA, though dated studies suggest this measure has strong inter-rater reliability and adequate concurrent validity

- **Evaluation in Ayres Sensory Integration (EASI)**
    - Age range: 3 to 12 years
    - Norm-referenced measure of praxis, sensory perception, sensory reactivity, and integration of postural, ocular, and bilateral motor skills
    - A 2021 review found five of the six EASI subtests have moderate to strong internal consistency and construct validity
- **Evaluation Tool of Children's Handwriting (ETCH)**
    - Age range: 6 to 12 years (grades 1 to 6)
    - Criterion-referenced measure of penmanship legibility and speed
    - There are no recent assessment reviews of the ETCH, though dated studies have tested this tool's effectiveness and found it has:
        - Poor test-retest reliability for near-point copying and sentence composition; adequate to excellent test-retest reliability for all other subtests
        - Adequate to excellent inter-rater reliability for all subtests when used with children between grades 1 and 3
        - Adequate to excellent criterion validity when used with children in grade 4

        - Adequate construct validity when used with children in grades 6 and 7 regardless of writing difficulties

- **Functional Independence Measure for Children (WeeFIM)**
    - Age range: 6 months to 21 years
    - Criterion-referenced measure of mobility, cognition, and self-care skills
    - A 2022 review found the WeeFIM has adequate validity and reliability for children with cerebral palsy. Another dated review found sufficient reliability and validity when used with children who are recovering from burns.
- **Gross Motor Function Measure (GMFM)**
    - Age range: 5 months to 16 years
    - Criterion-referenced measure of gross motor skills (sitting, lying down, rolling, standing, walking, running, and jumping) in children with cerebral palsy
    - There are no recent assessment reviews, though dated studies have tested the GMFM and found it to have:
        - Excellent test-retest reliability across all five domains
        - Excellent interrater and intrarater reliability
        - Excellent internal consistency
        - Adequate construct validity for the lying and rolling domains, and excellent construct validity for all other domains
- **Handwriting Without Tears Print Tool (HWT Print Tool)**

    - Age range: children in preschool through grade 6
    - A screening tool used to measure a child's ability to legibly write individual letters and numbers
    - There are no recent assessment reviews for the HWT Print tool, but dated studies note:
        - Strong concurrent validity when compared to the Test of Handwriting Skills
        - Strong sensitivity to change when used to detect progress in handwriting skills over the course of OT intervention
        - Closely aligned with teacher perspectives of a student's handwriting skills
        - Overall, there is a lack of research supporting the reliability of this test, partly due to issues with its standardization of scoring.
- **Hawaii Early Learning Profile (HELP)**
    - Age range: 0 to 36 months
    - Criterion-referenced measure of language, self-help skills, social/ emotional abilities, cognition, fine motor, and gross motor function
    - There are no recent assessment reviews for the HELP, but dated studies suggest this measure has poor content validity (specifically pertaining to developmental order and skill alignment), poor inter-rater reliability, and lacks a strong basis of peer-reviewed research backing its effectiveness
- **Jordan Left-Right Reversal Test (Jordan-3)**

- Age range: 5 to 18 years
- Norm-referenced measure of visual symbol reversals when writing letters, words, and numbers
- There are no recent assessment reviews, but dated studies show the Jordan-3 has high test-retest reliability, strong criterion validity, strong construct validity, and excellent internal consistency

- **Miller Assessment for Preschoolers (MAP)**
  - Age range: 2 years, 9 months to 5 years, 8 months
  - Norm-referenced screening tool that measures verbal language, non-verbal language, coordination, foundations, and complex tasks, all of which are intended to target various aspects of cognition
  - There are no recent assessment reviews, though dated studies found the MAP has strong construct validity, adequate inter-rater reliability, and adequate criterion validity
- **Miller Function and Participation Scales (M-FUN)**
  - Age range: 2 years, 6 months to 7 years, 11 months
  - Norm-referenced measure of visual motor, fine motor, and gross motor skills
  - There are no recent assessment reviews, though dated studies found the M-FUN has:
    - Excellent test-retest reliability and interrater reliability for all subtests

        - Excellent internal consistency for all subtests when used with children who have motor delays and typically developing children
        - Excellent concurrent validity for the fine motor and visual motor subtests when compared to the Miller Assessment of Preschoolers
        - Adequate concurrent validity for the gross motor subtest when compared to the Miller Assessment of Preschoolers
        - Adequate construct validity for all subtests when used with children from 2 years, 6 months to 3 years, 11 months
        - Excellent construct validity for all subtests when used with children from 4 years to 7 years, 11 months
- **Motor Free Visual Perception Test (MVPT-4)**
    - Age range: 3 to 95 years
    - Norm-referenced measure of visual closure, visual memory, figure-ground discrimination, spatial relationships, and visual discrimination
    - A 2022 review found the MVPT has moderate to excellent test-retest reliability when used with patients who have sustained a stroke, but there are no recent studies on its use with children.
    - Dated studies show the MVPT has excellent test-retest reliability and excellent internal consistency when used with children and adolescents.
- **Neonatal Oral-Motor Assessment Scale (NOMAS)**
    - Age range: 0 to 8 weeks

    - Criterion-referenced measure of oral motor behaviors including sucking, jaw movements, and tongue movements
    - A 2023 review found the NOMAS has moderate validity and poor reliability
    - Dated studies yielded similar findings about the NOMAS, including moderate inter-rater reliability, varied results regarding test-retest reliability, and moderate convergent validity
    - Similar dated studies suggest a major NOMAS limitation is its lack of utility with infants who have severe feeding difficulties
- **Peabody Developmental Motor Scales (PDMS-3)**
    - Age range: 0 to 5 years
    - Norm-referenced measure of fine and gross motor skills with subtests including reflexes, stationary tasks, locomotion, object manipulation, grasping, and visual-motor integration
    - There are no recent assessment reviews, though dated studies have tested the PDMS:
        - Excellent test-retest reliability when used with children who have cerebral palsy and general motor delays
        - Excellent internal consistency when used with children who have intellectual disabilities
        - Excellent concurrent validity when used with infants both under and over 9 months old
- **Pediatric Clinical Test of Sensory Interaction in Balance (P-CTSIB)**

    - Age range: 6 to 12 years (child version); 13 to 17 years (adolescent version)
    - Criterion-referenced measure of balance, postural control, and stability
    - A 2022 review found the P-CTSIB has strong face validity as well as strong content and concurrent validity when compared to the Kids-Balance Evaluation Systems Test (Kids-BESTest).
- **Pediatric Eating Assessment Tool (PediEAT)**
    - Age range: 6 months to 7 years (full test); 6 to 15 months (screener); 15 months to 2.5 years (screener)
    - Norm-referenced measure of problematic feeding tendencies in children who are currently eating solid foods
    - There are no recent assessment reviews, though dated studies found the PediEAT has:
        - Adequate reliability and validity when identifying children at risk of aspiration
        - Adequate construct validity
        - Adequate test-retest reliability
- **Pediatric Evaluation of Disability Inventory (PEDI)**
    - Age range: 6 months to 7 years (manual version); 0 to 21 years (computerized version)

- Norm-referenced measure of functional skills, caregiver assistance, and modifications needed for complex functional activities across the domains of motor, cognition, and ADLs
- As part of a 2023 book, a group of researchers explored this test and 80% of the expert panel rated the PEDI as having good or excellent content validity.
- In addition, several dated studies have shown:
  - Excellent interrater reliability when used by nurses, rehabilitation staff, and family members
  - Poor internal consistency for caregiver assistance in mobility and social function when used with children under 5 years old
  - Excellent concurrent validity when compared to the fine motor subtest in the Peabody Developmental Motor Scales
  - Poor concurrent validity when compared to the reflexes subtest in the Peabody Developmental Motor Scales
  - Excellent concurrent validity when used with children who have either juvenile rheumatoid arthritis or myelodysplasia

- **Pediatric Glasgow Coma Scale (PGCS)**
  - Age range: 0 to 5 years
  - A screening tool that measures level of consciousness in young children
  - There are no recent assessment reviews for the PGCS, but dated studies show it is unreliable for children under the age of 3 due to its incorporation of verbal skills. Research also shows it is not useful for

children who have intellectual disabilities, are being treated with sedatives, or who have chronic/pre-existing neurological concerns.

- **Primitive Reflex Profile (PRP)**
    - Age range: 0 to 12 months
    - Norm-referenced measure of primitive reflexes in infants
    - There is not much evidence on the reliability and validity of the PRP, but dated studies note this assessment has adequate inter-rater reliability
- **Revised Knox Preschool Play Scale (RKPPS)**
    - Age range: 0 to 6 years
    - Norm-referenced measure focused on specific aspects of play, including participation, management of materials, space management, and pretense/symbolic play
    - There are no recent assessment reviews, though dated studies have tested the RKPPS:
        - Moderate to high intra-rater and inter-rater reliability
        - Satisfactory internal consistency
        - There are some concerns related to reliability and consistency for children at the younger end of the age range
- **Roll Evaluation of Activities of Life (REAL)**
    - Age range: 2 to 18 years
    - Norm-referenced measure of self-care abilities

- There are no recent assessment reviews for the REAL, but dated studies reveal this measure has excellent test-retest and inter-rater reliability for IADL and ADL subscales when used with children without disabilities, adequate to excellent construct validity for all subtests when used with children who do not have disabilities, and strong content validity when analyzed against the OT Practice Framework

- **School Function Assessment (SFA)**
  - Age range: 5 to 13 years
  - Criterion-referenced measure of participation, task supports, and performance across various school areas, including playgrounds, classrooms, transportation, bathroom, transitions between classes, and mealtimes
  - There are no recent assessment reviews, though dated studies have tested the SFA:
    - Excellent test-retest reliability when used with children who have a range of developmental disabilities
    - Adequate interrater reliability for all subscales when used with children who have disabilities
    - Excellent internal consistency when used with school-aged children who have cerebral palsy, exhibit handwriting difficulties, or receive special education services
    - Strong construct validity when used with children who have cerebral palsy or other developmental disabilities

- **Sensory Integration and Praxis Tests (SIPT)**

- Age range: 4 to 8 years
- Norm-referenced measure of motor performance, kinesthetic perception, visual perception, and tactile perception that contains subtests focused on balance, design copying, postural praxis, bilateral integration, figure-ground perception, and space visualization, among others.
- There are no recent assessment reviews of the SIPT, but dated studies have found it to have moderate to high inter-rater reliability and strong construct validity. In addition, research found this tool's limitations include the potential for bias to impact test results, the measure is complex to administer, and it excludes most children with developmental delays who fall within the test's age range.

- **Sensory Processing Measure (SPM-2)**
  - Age range: 4 months to 87 years
  - Norm-referenced measure of gustatory, olfactory, tactile, auditory, visual, proprioceptive, and vestibular system function along with social participation and praxis
  - A 2023 critical review and appraisal of the SPM found the test scored well for test-retest reliability, construct validity, content validity, criterion validity, scoring, ease of administration, explanation of the instrument, and internal consistency.
  - A 2024 pilot study found moderate convergent validity between the SPM home form and the Child Sensory Profile for school-aged children who are neurotypical.
  - In addition, several dated studies have shown:

        - Test-retest reliability is good to excellent for children ages 5 to 12 with sensory processing difficulties
        - Interrater reliability was adequate in terms of parent and teacher responses for Australian children ages 5 to 10
        - High internal consistency for the classroom and home forms
        - Moderate convergent validity between the home form and the Sensory Profile

- **Sensory Profile (SP-2)**
    - Age range: 0 to 35 months (infant and toddler version); 3 to 14 years (child/adolescent version); 3 to 14 years (short version)
    - Norm-referenced measure of vestibular, visual, taste, touch, smell, and hearing function
    - A 2021 review found that the SP has excellent internal consistency and strong patient-related outcome measures, but concerns related to construct validity and cross-cultural validity.
    - Dated studies show the SP has high test-retest reliability, strong internal consistency, and strong criterion validity.
- **Short Child Occupational Profile (SCOPE)**
    - Age range: 0 to 21 years
    - Occupation-based measure of ADLs, emotion, general health, sensory, motor, and cognition
    - There are no recent assessment reviews, though several dated studies have tested the SCOPE and found it has weak construct

validity. Two other studies had differing findings on interrater reliability, with one ranking the SCOPE as low and another as adequate.

- **Southern California Ordinal Scales of Development (SCOSD)**
    - Age range: 2 to 12 years
    - Criterion-referenced measure of communication, cognition, social-affective behavior, fine motor skills, practical abilities, and gross motor skills
    - There are no recent assessment reviews for the SCOSD, but dated studies state it has excellent internal consistency and strong concurrent validity
- **Structured Observations of Sensory Integration (SOSI-M)**
    - Age range: 5 to 14 years
    - Norm-referenced measure of motor planning, postural control, vestibular function, and proprioceptive function
    - There are no recent assessment reviews, though several dated studies have tested the SOSI-M and found it to have high inter-rater reliability, adequate test-retest reliability, and adequate construct validity
- **Temperament and Atypical Behavior Scale (TABS)**
    - Age range: 11 to 71 months
    - Norm-referenced measure of attention, attachment, play, sense/movement, self-simulation, self-injury, neurobehavioral function, temperament, social behavior, and vocal/oral behavior

    - There are no recent assessment reviews of the TABS, though several dated studies have found it has adequate reliability

- **Test of Ideational Praxis (TIP)**
    - Age range: 4 to 8 years
    - Norm-referenced measure of a child's ability to generate ideas for object use, recognize those actions, and otherwise conceptualize how to use various common objects
    - There are no recent assessment reviews for the TIP, but dated studies have found the test has strong inter-rater reliability and strong test-retest reliability
- **Test of Sensory Functions in Infants (TSFI)**
    - Age range: 4 to 18 months
    - Norm-referenced measure of visual-tactile integration, vestibular function, ocular motor control, tactile deep pressure, and adaptive motor function
    - There are no recent assessment reviews of the TSFI, though several dated studies have found:
        - Good reliability for the measure as a whole
        - Poor reliability for individual subtests, especially when used with children who have developmental delays
- **Test of Visual Perceptual Skills (TVPS)**
    - Age range: 5 to 21 years

    - Norm-referenced measure of visual closure, visual figure-ground, form constancy, spatial relationships, visual memory, visual discrimination, and sequential memory
    - A 2023 AJOT review found the TVPS has adequate discriminative validity, adequate ecological validity, and good convergent validity when used with patients who have schizophrenia. This review also found a strong correlation between the spatial relationships subscale of the TVPS and the Activities of Daily Living Rating Scale.
    - Dated studies found therapists must use careful consideration with the TVPS subtests, as some scores may need to be interpreted differently depending on the patient's age. This may be due in part to the wide age range this test is designed for.
- **Toddler and Infant Motor Evaluation (TIME)**
    - Age range: 4 months to 3.5 years
    - Norm-referenced measure of motor skills, including motor organization, functional performance, mobility, and stability, along with a social/emotional skills subtest
    - There are no recent assessment reviews, but dated studies have found the TIME has high test-retest reliability, good inter-rater reliability, and moderate construct validity
- **Touch Inventory for Elementary School-Aged Children (TIE)**
    - Age range: 6 to 15 years
    - Norm-referenced screening tool that measures tactile defensiveness in children

    - There are no recent assessment reviews for the TIE, but dated studies show it has excellent test-retest reliability

- **Transdisciplinary Play-Based Assessment (TPBA2)**
    - Age range: 0 to 6 years
    - Criterion-based measure of play behaviors across communication, motor, cognitive, and social-emotional domains
    - There are no recent assessment reviews on the TPBA2, though dated studies show this measure has strong inter-rater reliability and strong construct validity
- **Vineland Adaptive Behavior Scales (VABS)**
    - Age range: 0 to 90 years
    - Norm-referenced measure of socialization, daily living skills, and communication with optional subtests for maladaptive behaviors and motor function
    - A 2021 review found the VABS is lacking in structural validity.
    - Other dated studies have different findings, stating the VABS has high internal consistency, good inter-rater reliability, good test-retest reliability, excellent construct validity, and excellent criterion validity.
- **Wide Range Assessment of Visual Motor Abilities (WRAVMA)**
    - Age range: 3 to 17 years
    - Norm-referenced measure of visual-spatial skills (via matching tasks), fine motor skills (via pegboard tasks), and visual motor skills (via drawing tasks)

- There are no recent assessment reviews of the WRAVMA, but dated studies show this test has strong internal consistency and excellent test-retest reliability.

As you can see, there are a wide range of informal and formal assessments available for inclusion in pediatric occupational therapy evaluations. Some standardized assessments hone in on specific aspects of singular skills such as sensory processing (such as the Sensory Profile and Sensory Processing Measure) while others offer a more comprehensive view of a children's functional abilities (such as the Pediatric Evaluation of Disability Inventory). Therefore, it is up to each individual therapist to use all the information they have about a child when selecting assessment tools of any kind.

When therapists have completed all parts of the evaluation, they can use that data to inform the following steps in the OT service delivery process: creating the plan of care and providing interventions. Information from the evaluation is used continually from this point on, as therapists must compare a child's abilities at any given time to their skills during the time of the evaluation. There may also be instances when a child's needs change during the treatment process, such as after a major medical event or traumatic experience. If and when this happens, therapists should complete a re-evaluation that may incorporate new testing methods to reflect the child's new areas of need. Regardless of the child's situation when coming into the evaluation, it is a therapist's duty to use culturally appropriate, inclusive, comprehensive means to measure their abilities and track progress for the remainder of their time together.

Section 3 Personal Reflection

What are some benefits to utilizing informal testing methods such as observation?

Section 3 Key Words

Attrition - The rates at which participants drop out of a study before it is formally complete; attrition (also referred to as attrition rates) has a major impact on the validity of a study's findings with some studies being more impacted by this problem than others (e.g. long-term studies where members are followed over the course of years are especially sensitive to attrition); however, attrition can be problematic in any study if it is not managed or rates are exceptionally high

Augmentative and alternative communication device - Any tool (high-tech or low-tech) that helps a person communicate with others; also known as an AAC, such a device is commonly used by people with language, speech, or other communication deficits

Confounding variables - In research studies and other parts of the therapy world, these variables are known to influence both independent and dependent factors, and impact a study's results; because these variables are closely intertwined with the causes and effects of a study, it is very difficult to separate them to analyze results; therefore, they are considered causal and not related to correlation or association

Gold standard measurement - In the therapy world, a gold standard measurement is an outcome measure considered to be the best currently available; gold standard tests are compared against new tests to gauge their effectiveness; while gold standard measurements may not always be considered the best since times change and new measures are developed, they are considered the top quality in reasonable conditions at the present moment

Just-right challenge - A concept that is used to make an activity, task, or goal some degree more challenging than a person's present skill level; this concept is used to

encourage skill development since it helps create a task that is neither too difficult nor too easy

Observer bias - A limitation of research studies that involves the assessor allowing their predispositions to influence results and interpretations of results

Qualitative testing - A testing process that involves gathering information with non-numerical data; qualitative testing allows researchers to obtain deeper insight into someone's motivations, emotions, experiences, and sometimes also their performance

Randomization - A research process that entails the use of random mechanisms to place participants into separate groups; randomization is considered to prevent bias and yield quality results, which is why it's at the heart of one of the most well-respected research study designs, randomized controlled trials

Reliability - The level of accuracy that can be associated with a measurement or result; reliability can be used to describe accuracy in standardized assessments, research studies, and more; reliability is described as either high or low

User confidence - The amount of faith and reassurance a user has in a service, product, or system they commonly engage with or know of; user confidence means someone believes their product, service, or system is trustworthy, will work as they expect it to, and will deliver the results they are looking for; understandably, user confidence is a formative aspect of user experience design because it allows developers to weigh how well their solutions benefit end users over the course of a product's life

Validity - A description of how accurately a method or measurements calculates what it says it will calculate; validity is described as either weak or strong

Section 4: Case Study #1

An occupational therapist working in a pediatric outpatient clinic just got assigned to complete an evaluation with a 6-year-old girl. The clinic office did not get any other information about the child or their needs, so the therapist called the child's family to learn more and properly prepare for the session. After speaking with the child's mom briefly on the phone, the therapist believes there are concerns related to auditory processing and tactile defensiveness. The child's mom also reports the child has never received OT in any setting - home, school, or outpatient, and that there are no academic concerns at this time. The OT learned that the child is particularly struggling with bathing and dressing as well as other self-care tasks, which have all made it difficult to help the child get ready each morning. When the OT asked the mom about play and developmental milestones, she mentioned that her child only sometimes interacts with peers and mostly prefers solitary play. When she does initiate play herself, she engages with a very limited set of objects.

1. Is an evaluation the best option for this child, or is a screening more appropriate?
2. Based on the presenting concerns, what evaluation or screening tools are best suited for this child?
3. Does it sound like the child is a good fit for outpatient OT services or should sessions take place in a different setting?

Section 5: Case Study #1 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. Is an evaluation the best option for this child, or is a screening more appropriate?

   Since the therapist learned about the reason for referral directly from the child's mother, it stands to reason that they asked questions and were able to clarify presenting concerns at that time. This allowed the therapist to use clinical reasoning and surmise one or more deficits that may be the root cause of the child's concerns. That being said, it appears a full evaluation is the best option to determine if (and how) OT can help this child.

2. Based on the presenting concerns, what evaluation or screening tools are best suited for this child?

   It sounds like this child may have difficulty with sensory modulation and exploration, ADL function, social participation, and play. As a result, the Sensory Processing Measure is appropriate for use with this child. Not only does the child fall within the age range set forth by the SPM, but it delves into all sensory systems, socialization, and praxis, which are all potential areas of concern for this child. In addition, the Roll Evaluation of Activities of Life can help glean information about the child's ADL participation, as the REAL measures the ADL and IADL function of children between 2 and 18 years old.

3. Does it sound like the child is a good fit for outpatient OT services or should sessions take place in a different setting?

   The child does not qualify for early intervention therapy, since she is beyond the 3-year-old age limit for that practice area. In addition, the child doesn't have any acute medical concerns, so hospital-based therapy is not appropriate. It appears the child is not having academic concerns, so

school-based therapy also doesn't seem fitting. However, if setting suitability becomes a concern to either party (parents or the therapist) as the evaluation process continues, the therapist should contact the child's teachers and discuss performance from their point-of-view. If academic concerns do arise, the child should be referred for school-based therapy to address those issues.

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