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Occupational Therapy Considerations for the School-Aged Child

Early Childhood

Ages 5-7, Kindergarten – 2nd grade

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Pediatric Primer Series

- Child Development, Birth – 5 years
 1. In Utero
 2. Premature Infant
 3. Newborns 0-1 year
 4. Babies 1-3 years
 5. Toddlers 3-5 years



Pediatric Primer Series

- School-Aged Children, 5-18 years
 - 6. **Early Childhood, 5-7 years**
 - 7. Mid-Late Childhood, 8-10 years
 - 8. Preadolescence, 11-13 years
 - 9. Adolescence, 14-18 years
 - 10. Transitions to Adulthood



Learning Outcomes

After this course, participants will be able to:

- List occupations of young children, ages 5-7.
- Describe typical and atypical presentation of young children, ages 5-7.
- List common conditions presenting in young children, ages 5-7.
- Describe OT's role with young children, ages 5-7.



Occupation in a young child

"There is in every child at every stage a new miracle of vigorous unfolding, which constitutes a new hope and a new responsibility for all,"
(Erikson, 1963)



Occupation in Children

For children and youth, occupations are activities that enable them to

- learn and develop life skills (school activities),
 - be creative and/or derive enjoyment (play, sports),
 - and thrive (self-care, communication, relationships)
- as both a means and an end (Clark & Kingsley, 2020)





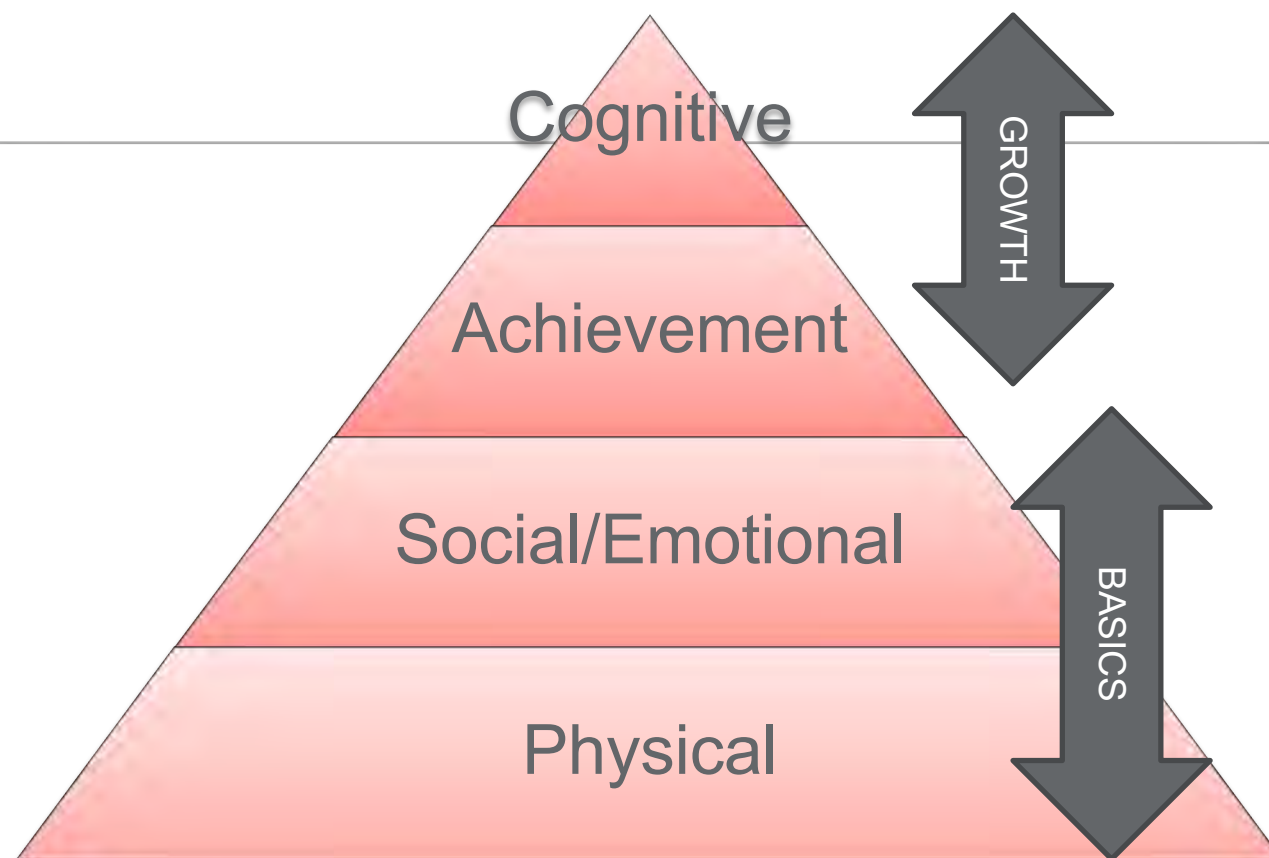
Occupation in Young Children

- Occupation refers to activities that support the health, well-being, and development of an individual (AJOT, 2017).
- Occupations are created as children seek to have their needs met at each developmental stage.

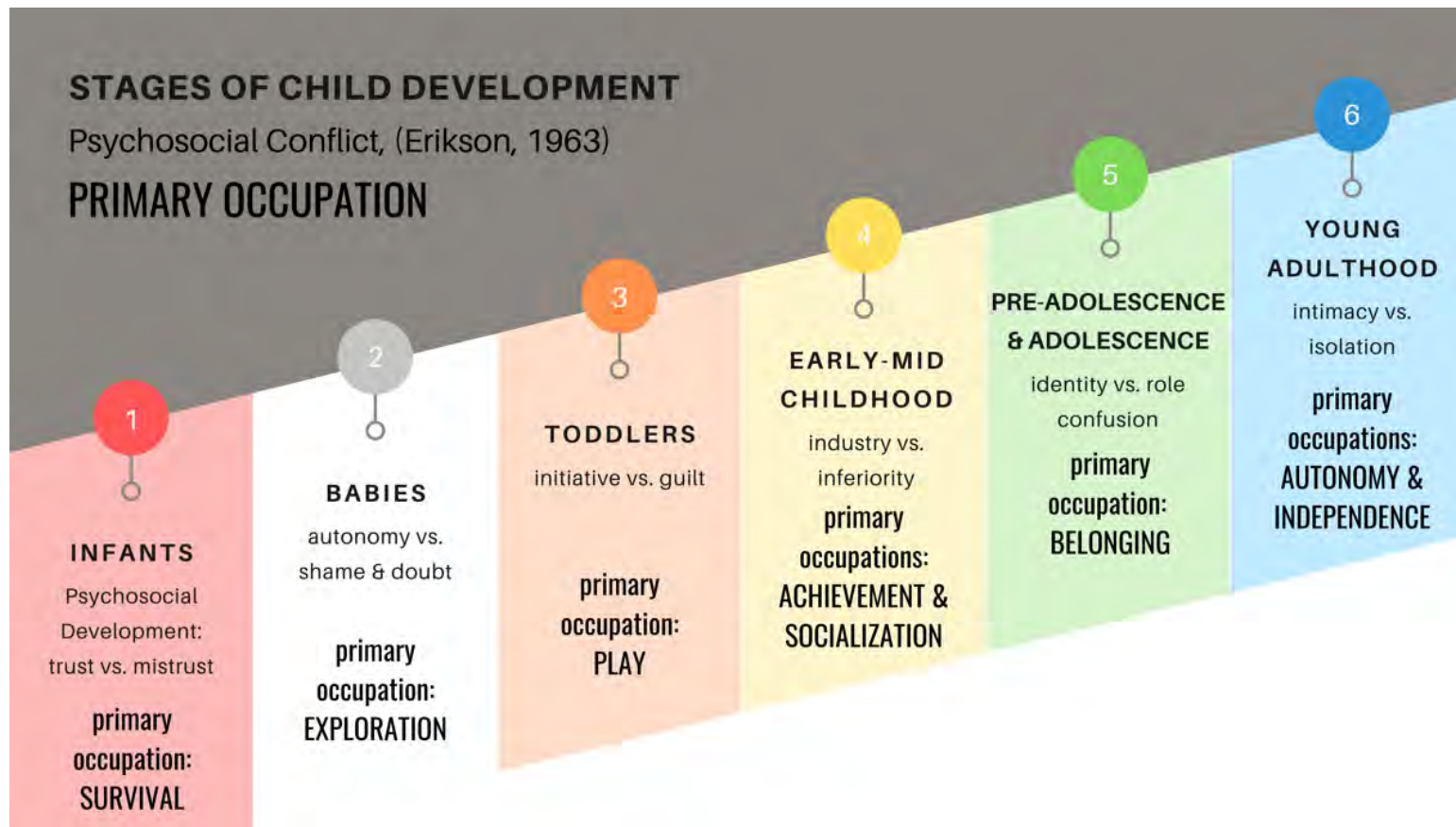


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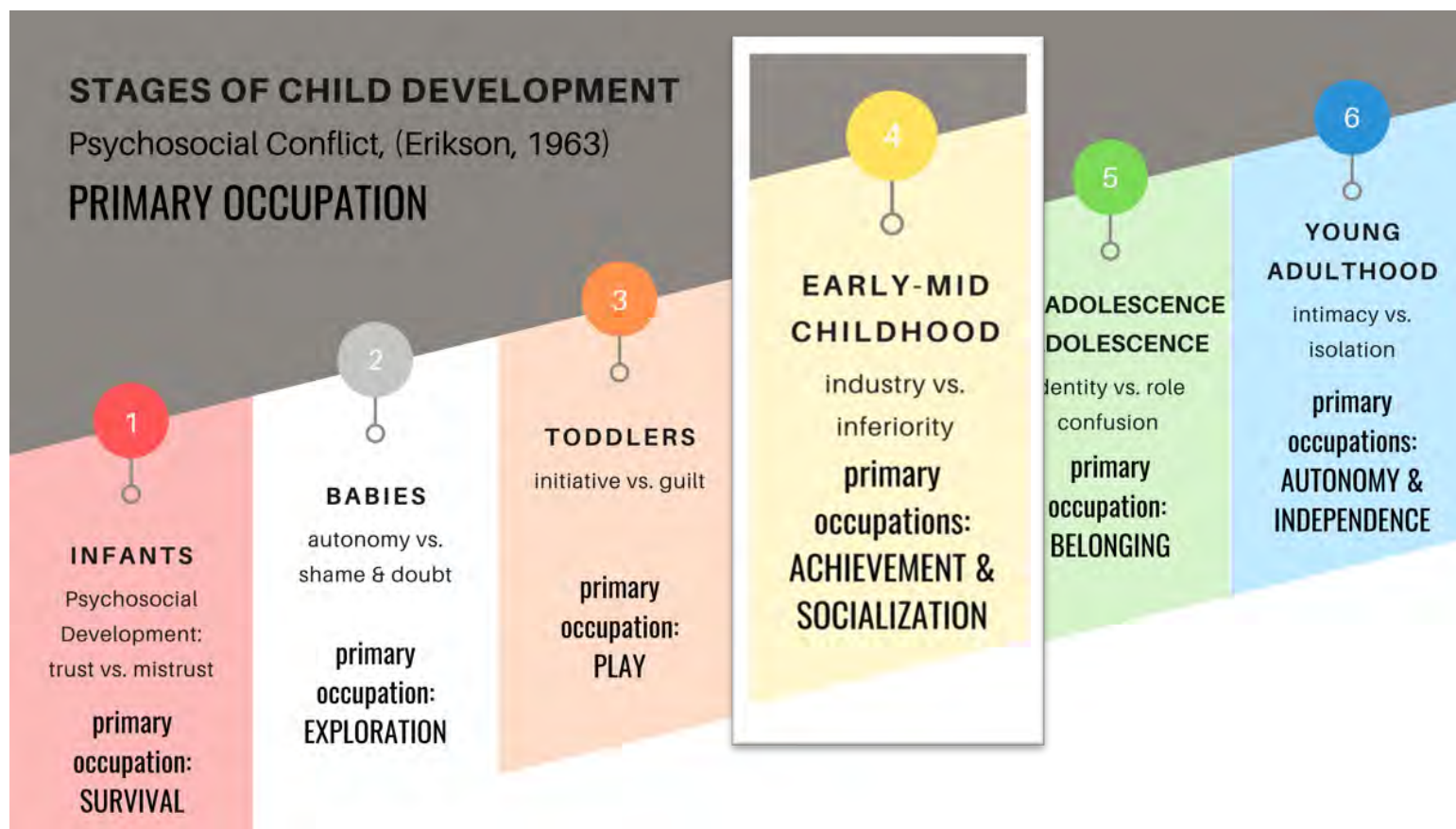
Needs in Young Children



What shapes child development?



What shapes child development?



Needs in Early Childhood

- Physical
- Social/Emotional
- Achievement
- Cognitive



Physical Occupations

- Form the basis for Activities of Daily Living (ADLs)
 - Nutrition – eating, self-feeding
 - Sleep – rest, recuperation
 - Comfort – dressing, bathing, toileting



Emotional Occupations

- Establishment of performance patterns (habits, routines, roles, rituals) builds trust (AJOT, 2017) and security (Kingsley, Sagester, & Weaver, 2020).
- Improved abilities and achievement leads to development of self-esteem.



Communication Occupations

- As speech becomes refined, kids become able to use words for appropriate communication in social situations (Whyte & Nelson, 2015)
- Pragmatic language skills - knowing what to say, how to say it, and when to say it



Social Occupations

- While engaging in cooperative play, kids begin to solidify social skills needed for participation with others in school and community
 - Sharing, cooperating, listening, following directions, respecting personal space, eye contact, and using manners (Jones, Greenberg, & Crowley, 2015)





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Achievement

- Achievement behaviors are an important part of development that leads to a child learning to be effective & developing mastery over environment (Schunk, 1984)
- Achievement → self-esteem, acceptance, worth



Cognitive Occupations

- Developing cognition sets the foundation for more complex occupations
 - Social participation
 - Play & leisure
 - Education & work



Cognitive Occupations

- Thinking becomes more complex and abstract
- Preoperational stage of cognitive development (Piaget, 1972); ages 2-7
 - Symbolism, representation
 - Egocentrism
 - Concrete in language



Educational Occupations

Readiness skills:

- **Kindergarten** – say the alphabet, count to 10, use a pencil & scissors, toileting independently
- **1st grade** – print capital & lowercase letters, understand symbolism of numbers, take turns
- **2nd grade** – read sentences, basic math up to 20, problem solving





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Participation in Routines

- When basic needs are met with the right resources, contexts, and supports, young children can start the process of participating in routines.
- Routines create confidence and encourage independence, which result in occupational participation.



OT's Role

- Occupational therapists partner with the school-aged child and their caregivers to improve occupational performance and competence in their natural environments
- Caregivers can include family, sitters, teachers, coaches



Typical Development

- Children generally develop on predictable timelines.
- Knowledge of neurological, physiological, biological, and emotional growth can serve as guidelines for occupational performance.
- Progressions vary by many contextual factors (Smet & Lucas, 2019).



5 Years - Physical

- Hops, skips, runs for long distances
- Stands on foot for 8-10 sec.
- Rides 2-wheeled bike (with/without training wheels)
- Learns specific skills – swimming, skating, dancing





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5 Years – Fine Motor

- Copies angular shapes
- Cuts lines & simple shapes with scissors
- Prints own name
 - Copies most lowercase and uppercase letters



5 Years - Self-Care

- Dresses unsupervised
 - Participating in clothing selection
 - Starting to do some ties
- Hygiene – brushing teeth, hair with supervision
- Showers with supervision, help for hair washing
- May enjoy participating in simple meal preparation



5 Years - Social/Emotional

- Develops a sense of pride in personal accomplishments, strives to master new skills
- Demonstrates understanding of others' feelings
- Has friends (typically same sex)
- Wants to please friends & be like friends



5 Years – Language/Communication

- Answers simple yes/no questions well
- Tells a short story
- Can keep conversation going
- Uses future & past tense
- Recites letters, numbers, full name & address



5 Years - Cognitive

- Reasons through simple problems
- Participates in organized games with rules
- Sorts objects in different ways
- Knows about every day use items



5 Years - Kindergarten

- Self-Care
 - Use bathroom independently, express needs & wants
- Reading
 - Engage in reading books (point out objects), start to connect letters to sounds, read basic sight words



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5 Years - Kindergarten

- Writing
 - Use a dynamic pencil grasp, form capital letters correctly, start to write words, label a picture with words
- Math
 - Count 1-10, match number to a group of objects



6 Years - Physical

- Have lots of energy, require lots of movement
- Rides a two-wheeled bike without training wheels
- Participates in organized teams and regular physical education programs at school



6 Years – Fine Motor

- Good control over tools (writing implements, utensils, hygiene items, etc.)
- Drawing & writing with increasing precision
- May begin to play an instrument





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6 Years - Self-Care

- Adept with most fasteners for dressing
 - Closes back zipper
 - Ties bows
 - Buttons back buttons
 - Snaps back snaps
- Gathers supplies/backpack for school
- Opens packages for snacks/meals



6 Years - Social/Emotional

- Views self positively, enjoys showing off talents, proud of achievement
- Want to perform perfectly; low frustration tolerance
- Plays well with others and enjoys social interactions, mostly with same gender peers
- Develops self-control over negative emotions



6 Years – Language/Communication

- Remember what they hear
- Learn and use new words to express thoughts, feelings, and ideas clearly
- Follow rules of conversation by listening and taking turns talking



6 Years - Cognitive

- Increased understanding of right/wrong; may tattletale
- Learning to express themselves well through words
- Begin to understand cause-and-effect relationships
- Academic performance becomes important



6 Years – 1st Grade

- Self-Care
 - Completes classroom routines without prompting
- Reading
 - Reads simple books





6 Years – 1st Grade

- Writing
 - Forms capital & lowercase letters correctly, writes simple sentences with correct grammar, spells & writes sight words



6 Years – 1st Grade

- Math
 - Good understanding of number sense - learning numbers and what they stand for
 - Uses objects or draws pictures to represent and solve simple addition and subtraction word problems



7 Years - Physical

- Develops better coordination and balance
- Uses motor skills in combination
- Participates in organized teams and regular physical education programs at school



7 Years - Fine Motor

- Competent with preferred skills requiring precision
- Writes well, uses tools well
- May begin keyboarding



7 Years - Self-Care

- Showers independently
- Completes dressing routines
- Makes simple meals/snacks
- Understands and utilizes time management
- Completes simple chores



7 Years - Social/Emotional

- Sense of pride & mastery, increasing confidence
- Increased awareness of and sensitive to the feelings of others
- Peer relationships in pairs and groups become very important



7 Years – Language/Communication

- Pronounces most words correctly
- Answers questions about what was learned
- Stays on topic, takes turns, and keep eye contact during conversations



7 Years - Cognitive

- Follows complex multi-step directions
- Has a solid understanding of time
 - Minute, hours, days, months
- Can solve simple math problems using objects
- Shows rapid development of mental skills



7 Years – 2nd Grade

- Reading
 - Phonological awareness – connecting sounds & letters to make words
 - Read & discuss short stories; Compares and contrasts elements of different stories
 - Participates in independent reading



7 Years – 2nd Grade

- Writing
 - Clearly writes a page about personal experiences
- Math
 - Understands whole numbers & place values
 - Adds & subtracts, does some word problems



Impairment in Early Childhood

- May be caused by
 - Chronic conditions
 - Evolution of a progressive disease process
 - Acute illness/injury



6-11 Yrs. – Common Diagnoses

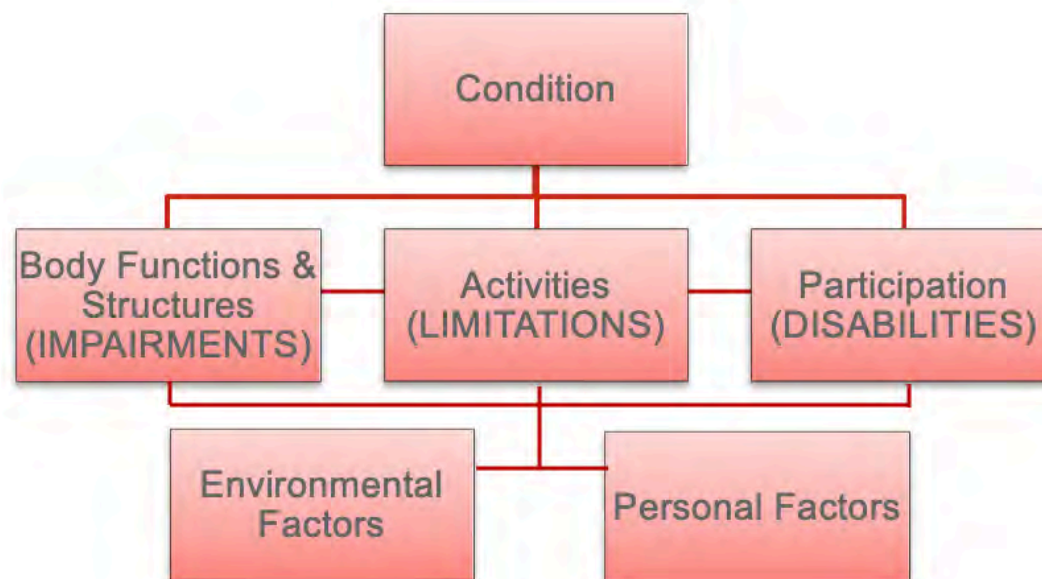
Most prevalent developmental disabilities in kids 6-11 yrs in the US (Zablotsky et al., 2019)

- ADHD (9%)
- Learning Disability (8%)
- Developmental Delay (5%)
- Autism Spectrum Disorder (2%)
- Intellectual Disability (1%)



ICIDH Model (WHO, 1980)

OT can help prevent an impairment from becoming a limitation or disability



OT Referrals in Young Children

- Common to wait on referrals until the end of the school year to allow for learning
- If referred during the school year
 - Obvious difficulty learning/performing expected skills
 - Social skills/behaviors/self-regulation are causing significant classroom disruption



OT Referrals in Young Children

- Failure to achieve expected motor skills
- Abnormal movement patterns or quality
- Lack of or regression in interpersonal engagement



Assessments for Young Children

- Motor skills –
 - Bruininks-Oseretsky Test of Motor Proficiency 2 (BOT-2; Bruininks & Bruininks, 2005)
 - Movement Assessment Battery for Children 2 (Movement ABC-2; Henderson, Sugden, & Barnett, 2007)



Assessments for Young Children

- School skills –
 - School Assessment of Motor and Process Skills (Fisher et al., 2007)
 - School Function Assessment (Coster, Deeney, Haltiwanger, & Haley, 1998)



Assessments for Young Children

- Handwriting Assessments
 - Evaluation Tool of Children's Handwriting (ETCH; Amundson, 1995)
 - Test of Handwriting Skills – Revised (THS-R; Milone, 2007)



OT Referrals in Young Children

- Difficulty in age-specific skills
 - Handwriting, shoe-tying, bike riding, ball skills
- Handwriting difficulties account for 40% of all referrals to school-based OT (Saleem & Gillen, 2019)



Fine motor skills

- Competence in fine motor skills in kindergarten is correlated with better reading skills in 1st grade
- This supports the idea of shared internalized motor processes between these skills (Suggate, Pufke & Stoeger, 2019)



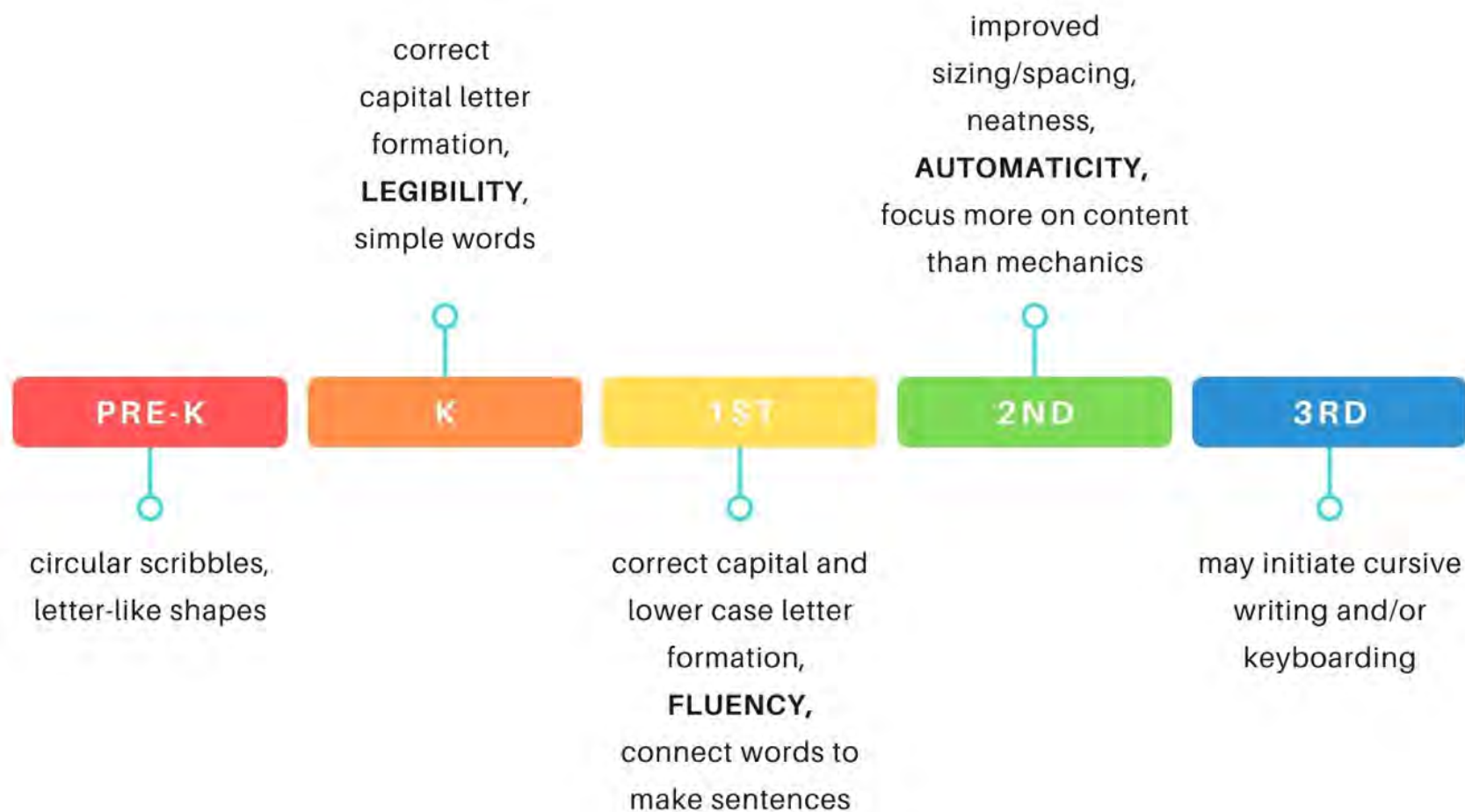
Importance of Handwriting

- Foundational skill crucial for literacy success
 - Handwriting leads directly to reading acquisition (James & Engelhardt, 2012)
 - Writing by hand engages the brain in learning James, (Wong & Jobard, 2010)
- Strong correlation between handwriting, reading, fine motor and visual-motor skills (Clark, 2010)



Typical Handwriting Progression

- Collette et al., 2017; Donica, 2015; Asher, 2006



Handwriting Difficulties

- Prevalence 5-30% of school-aged kids, 2-3x more boys than girls (Feder & Majnemer, 2007)
- There is evidence to indicate that handwriting difficulties do not resolve without intervention (Volman, Van Schendel & Jongmans, 2006)



Handwriting Difficulties

- May or may not have a diagnosis of Dysgraphia
- DSM-5 defines dysgraphia as a “specific learning disorder” with impairment in written expression resulting from fine motor, visual-spatial, and/or handwriting difficulties (APA, 2013)



Handwriting Difficulties

- Possible diagnoses/treatment diagnoses
 - Developmental Coordination Disorder (DCD)
 - Disorder of Written Expression
 - Lack of Coordination
 - Disorder of Motor Function



Handwriting Intervention

- Goals of OT for kids with handwriting difficulties
 - Legibility – readability as the intended letter or word
 - Fluency - rate at which children can access, retrieve from memory, and write letters accurately
 - Automaticity - ability to automatically recall letter formation patterns so the child can think about WHAT, not HOW to write



Handwriting Intervention

- Studies of handwriting remediation suggest that intervention is effective (Grajo, Candler & Sarafian, 2020; Novak & Honan, 2019; Feder & Majnemer, 2007)



Fix the grasp? NO!

- Grasp type is NOT strongly correlated with handwriting legibility and/or speed
 - (Donica, Massengill & Gooden, 2018; Schweltnus et al., 2012; Dennis & Swinth, 2001)



Handwriting Intervention

Interventions Within the Scope of Occupational Therapy to Improve Children's Academic Participation: A Systematic Review (Grajo, Candler & Sarafian, 2020).

- Strong evidence supports therapeutic handwriting practice
- Moderate - use of creative & sensory activities, parent-mediated interventions, and peer-supported interventions
- Low - use of weighted vests and stability balls



Handwriting Intervention

- Green-Light OT (Novak & Honan, 2019)
 - Goal Directed Training, Handwriting Task Practice, Motor Imagery
- Red-Light OT (Novak & Honan, 2019)
 - Sensorimotor Approach, Sensory-Based Intervention without Handwriting Practice



Handwriting Intervention

- Mental practice combined with repetitive task practice of handwriting resulted in significantly higher gains in handwriting rate, alignment, and size (Saleem, 2017)



Handwriting Intervention

- Visual and haptic perception training to improve handwriting skills in children with dysgraphia (Chang & Yu 2017)
 - Visual-perceptual and haptic-perceptual training program to enhance motor skills resulted in improved visual-perceptual skills, copy speed, and handwriting accuracy for Chinese students



School-Based OT

- Appropriate education and necessary supports should be provided for all school-aged children
 - Schools should be encouraged to meet the needs of all children in the "least restrictive environment"
 - Accommodations should be made to facilitate success at all levels of functioning
- Common to address handwriting



Case Study

- Charlie is a 6 year-old boy referred to OT for handwriting & fine motor coordination problems. He is sweet and polite, but clumsy. He knows his letters, but is only able to write the letter C legibly. He gets embarrassed and frustrated when asked to write more. He loves Legos.



Charlie - Evaluation

- Motor Skills – normal strength & tone; uncoordinated, clumsy, lacks any plan to move or modify movements; poor ball skills
- Self Care Skills – requires help with clothing fasteners, brushing teeth and cutting food
- Education Skills – teacher reports all work is illegible, has resorted to giving him tracing work



Charlie - Assessments

- MABC-2: <5th percentile for motor skills
- ETCH:
 - Letter legibility: 11.5%
 - Numeral legibility: 16.6%
 - Word legibility (copying): 0%



OT's Role

- OT practitioners offer services that are proven to be effective for promoting a child's ability to participate and engage in daily life activities (Case-Smith, 2013; Case-Smith, Frolek Clark, & Schlabach, 2013; Frolek Clark & Schlabach, 2013; Howe & Wang, 2013).



OT for Children

- Key Concepts (Case-Smith & Kuhanek, 2019)
 - Family-Centered Care
 - Strength-Based Focus
 - Cultural Competence & Humility
 - Therapeutic Use of Self



Strength-Based Focus

- OT focuses on identifying and building upon the child's abilities versus focusing on their limitations or disabilities (Arbesman, Bazyk & Nochajski, 2013)



Charlie – Problematic Occupations

- Self-Care – dressing, hygiene
- Leisure – team sports, neighborhood play
- Education - handwriting



Charlie – Barriers to Function

- What is getting in the way of Charlie's participation in motor skills?
 - Neuromuscular control is normal
 - Ability to understand and plan movements is impaired (motor planning & motor coordination)



Charlie - Interventions

- Strong evidence supports
 - Goal-directed training
 - Handwriting practice
 - Mental rehearsal
- Strength-Based Focus
 - Utilize Charlie's ability to build with Legos as a motivator, framework for understanding letter formation, and subject for writing practice



Charlie - Outcomes

- Charlie gained an understanding of how letters are formed, how to modify plans to form letters correctly, and how to increase awareness of performance.
- He improved to 80-90% legibility and age-appropriate speed within 3 months & assessment of school performance improved significantly





Thank you!

- Patti Sharp, OTD, MS, OTR/L

