OT and People Living with Scoliosis and Undermineralized Bones

Katie Ramin
OCC 616
Occupational Therapy Defined

- **What are occupations?**
  - Occupations refer to all valued activities that occupy time (Schell, Scaffa, Gillen, & Cohn, 2014).

- **What is occupational therapy?**
  - Healthcare profession that assists clients to optimally perform the daily activities that are purposeful and meaningful to them and includes all of those activities that the client wants and/or needs to accomplish (American Occupational Therapy Association, 2017).

- **Goals of occupational therapy:**
  - To help the client maintain an active lifestyle, despite their disability, in activities they enjoy that maximize their health and quality of life across the lifespan.
  - To assist the client in finding meaning through performing and engaging in occupations that provide a sense of identity and purpose.
  - To gain, restore, or sustain skills and abilities that promote self-efficacy and independence as well as societal involvement and social engagement (Schell et al., 2014).
Our Client Educator

• This is Brendan.
• 7 year old boy
• Second grader
• Resides with his mother, father, sister, and dog
• Favorite occupations: Reading, writing short stories, drawing, & playing piano
• Desires to be as physically active as his peers in sports and Boy Scouts
• Diagnosis: Congenital scoliosis secondary to undermineralized bones
Scoliosis and Undermineralized Bones

- Bone mineralization
  - Provides us with a strong and resilient skeletal infrastructure ("Scientists gain new clues," 2006)

- Congenital scoliosis
  - "S" shape or “C” shape curve of spine (Shah, 2016)

- Detection:
  - Cobb Angle > 10 degrees
  - X-rays, MRIs and CT scans
  - Physical exam with forward bending test ("Congenital scoliosis," 2010)

- Rare type found in 1 of every 10,000 newborns ("Congenital scoliosis," 2010)

- Common signs:
  - Visible curvature of the spine (Shah, 2016)
  - Uneven shoulders, waistline and hips
  - Protruding ribs
  - Noticeable leaning to one side
  - One shoulder blade higher than the other ("Congenital scoliosis," 2010)
Managing Scoliosis and Undermineralized Bones

- **Observation**
  - In mild cases if Cobb Angle is between 10 and 15 degrees (Shah, 2016)
  - Child assessed every 6-12 months with x-rays until fully grown (“Congenital scoliosis,” 2010)

- **Bracing**
  - Does not assist in straightening, but prevents the curvature from worsening
  - Used if Cobb Angle is between 20-40 degrees
  - Prevents need for surgical procedures 60-70% of time (Shah, 2016)

- **Surgery**
  - Required in severe cases if Cobb Angle is greater than 40-50 degrees (“Congenital scoliosis,” 2010)
  - Without recommended surgical treatment, lung function could be greatly impacted (“Idiopathic scoliosis,” 2015).

- **Exercise**
  - Encouraged to maintain functional ability, increase bone density and to prevent osteoporosis (“Questions and answers,” 2015)
Impact of Scoliosis and Undermineralized Bones on Brendan’s Daily Life

- Bones not like that of a typical second grader
  - Foot shorter than peers
  - Cannot reach objects in the classroom and at home without step stool or assistance
  - Sports helmet to protect his skull and oversized fontanelle
  - Wears trunk brace for postural support and ankle braces for gait
  - Wide base of support due to poor balance
  - Requires pediatric wheelchair for postural support at dinner table in home and in cafeteria and classroom at school

- Ascending/descending stairs
  - Bedroom is on second floor
  - Parents frequently carry him up & down steps

- Play
  - Removed from Boy Scouts because activities have potential for injury
  - Removed from baseball because sport is becoming more competitive and client cannot keep up with running involved
  - Not permitted to pursue contact sports such as football, wrestling, and soccer due to fear of head or bodily injury
Impact of Scoliosis and Undermineralized Bones on Brendan’s Daily Life

- **Playing Piano**
  - Cannot reach pedals due to short stature
  - Lacks fine motor coordination due to slight fingers
  - Sometimes stands for better posture

- **Reading/Writing/Drawing**
  - Experiences discomfort and postural fatigue quickly and often prefers to sit on floor in awkward position

- **Eating/Feeding**
  - Lacks proper teeth to chew, so parents cut up meals into smaller bites to avoid choking hazards

- **Social participation with peers/friends**
  - Feels excluded from academic and physical activities because of disability

- **Toilet Hygiene**
  - Cannot reach to wipe

- **Dressing**
  - Requires assistance with ankle and trunk braces and tying shoes due to difficulty bending, reaching and some fine motor coordination

- **Bathing**
  - Parents wash his hair because of oversized soft spots and reaching overhead is difficult
OT Interventions with Scoliosis and Undermineralized Bones

- Managing physical symptoms such as back pain and spinal movement limitations with exercise and stretching routines
- Educating clients regarding different braces, their function and how to care for them
- Energy conservation techniques - routine breaks during activities, adapting activities, or exploring activities that match client’s abilities and interests
- Assistive devices designed to improve performance in everyday activities (e.g. specialized cushions and customized seating to improve postural control and stability and to decrease fatigue)
- Modifying home environments that promote both independence and safety (e.g. grab bars installed in the bath area, relocating bedroom to the first floor)
- Encouraging social participation in scoliosis support groups and foundations that empower, educate, and provide emotional support for clients and their families
- Advocating for the development of a community sports league for children with disabilities


