

Thank you Samiya

During my presentation today, I will be discussing the important role of early intervention in supporting the development of children with Down syndrome. Centers for Disease Control and Prevention (CDC) defines Down syndrome as a condition in which a person has an extra chromosome. In contrast, the National Health Service (NHS) defines Down syndrome as when you are born with an extra chromosome. Alternatively, NHS Wales views Down syndrome as a genetic condition that occurs due to the presence of an extra chromosome 21 in some or all cells. In comparison, all definitions of Down syndrome agree that it is caused by an extra chromosome. There has been a need to highlight Down syndrome in the early years setting. For children with Down syndrome, early intervention is key to unlocking their full potential (Evans-Martin, 2008). Early intervention for children with Down Syndrome may involve a range of therapies and support services that are designed to help them reach their full potential (Grieco *et al.*, 2015). Some of the key components of early intervention for children with Down Syndrome may include speech therapy, physical therapy, occupational therapy, and special education services (Lukowski, Milojevich and Eales, 2019). These interventions are typically tailored to the individual needs of the child and may begin as early as infancy. The goal of early intervention for children with Down Syndrome is to support their development in key areas such as communication, motor skills, and socialization, and to provide them with the skills and resources they need to succeed as they grow older. Children with Down syndrome may have unique developmental needs. It is important to work with a team of healthcare professionals, including pediatricians, speech therapists, occupational therapists, and physical therapists, to ensure that they receive the appropriate care and support. Early intervention programs as mentioned before can be helpful for children with Down syndrome to promote their development and address any delays or challenges they may be experiencing. My aim is to highlight the significance of early intervention for children with Down syndrome and emphasize the many benefits it can offer both the child and their family.

The chosen topic for today pertains to Down syndrome, a subject of particular interest to me. I intend to explore deeper into this subject matter, to expand my knowledge of its causes, symptoms, and treatments. Moreover, I am eager to explore ways to improve support for individuals with Down syndrome and their families. By gaining a better understanding of this condition, we can work together to create a more inclusive and supportive society that caters to the needs of all.

The presentation will be structured into three main areas, each of which will be covered in detail. Firstly, I will discuss the process of identifying and diagnosing Down Syndrome in children, including indicators to look out for and the different tests that can be done. Secondly, I will focus on the various barriers that children with Down Syndrome often face, such as language and communication difficulties, and how these can be effectively addressed. Finally, I will explore one strategy that can be employed to help children with Down Syndrome. By the end of the presentation, attendees will have a thorough understanding of how to best support and assist children with Down Syndrome.

IDENTIFYING AND DIAGNOSING DOWN SYNDROME

A genetic disorder called Down syndrome occurs due to the presence of an extra copy of chromosome 21. This extra genetic material alters the normal development of the body and brain, leading to characteristic physical and cognitive traits. It is one of the most common chromosomal abnormalities, occurring in approximately 750 births in the UK (Gee, 2016). The condition is typically diagnosed prenatally or at birth through genetic testing or physical examination. Skilled medical professionals can typically diagnose Down syndrome based on the observable characteristics of affected individuals. While there is no cure for Down syndrome, early intervention and specialized care can help individuals with the condition. However, identifying the condition may pose challenges in situations like premature births, older patients, certain ethnic populations (Agarwal Gupta and Kabra, 2014). Some families may decide to choose prenatal testing to detect the likelihood of Down syndrome before the baby is born. Various prenatal screening tests, including ultrasound scans, maternal serum screening,

and non-invasive prenatal testing (NIPT), can offer insight into the chances of down syndrome. If a prenatal screening test reveals a high probability of Down syndrome, families might opt for a prenatal diagnostic test to obtain more precise information (Bowden *et al.*, 2022). Which are amniocentesis and chorionic villus sampling. However these can provide a definitive diagnosis, they do come with a slight risk of miscarriage (Allyse *et al.*, 2015). However, even though there are tests available to diagnose a child with Down syndrome during pregnancy, not all parents have equal access to prenatal care. This might be due to a range of factors, such as financial constraints, lack of health insurance, or cultural barriers (Sapiets, Totsika and Hastings, 2021). This can lead to delays in diagnosis and access to necessary resources and support.

BARRIERS

Children who have Down Syndrome often encounter difficulties in their communication due to their cognitive and physical limitations (Grieco *et al.*, 2015). These obstacles can hinder their ability to express themselves effectively and interact with others, potentially leading to frustration, isolation, and a lower quality of life for both the children and their families (Chapman, 1997; Hendrix *et al.*, 2021). Studies indicate that speech and language delays are more prevalent among children with Down Syndrome, further amplifying language barriers. Moreover, Down Syndrome is frequently linked to hearing loss, which can magnify communication difficulties (Karmiloff-Smith *et al.*, 2016; Nightengale *et al.*, 2017). However, Bishop (2014) states that communication is considered crucial for social interaction, but it can be challenging for individuals with Down Syndrome. However, with early intervention and specialized therapy, this can significantly help in overcoming these language barriers (Scanlon, Anderson and Sweeney, 2017).

Children who have Down syndrome may encounter several attitudinal barriers that can significantly affect their lives (Scott *et al.*, 2013). These barriers may take the form of negative attitudes and stereotypes from others, inadequate education and awareness concerning the condition, and limited opportunities for social and educational inclusion.

When others hold negative attitudes and stereotypes, it can lead to exclusion and discrimination, making it challenging for children with Down syndrome to participate fully in society (Ryan and Scior, 2014). Additionally, this lack of understanding can significantly impact the emotional and social well-being of the child, as it can lead to a lack of support from others. However, professionals who work with children diagnosed with Down syndrome can benefit from specialized training programs (The Down Syndrome Association, 2023). By participating in these programs, practitioners and professionals can develop a better understanding of the condition and the best practices for providing appropriate care and support to children with Down syndrome.

Additionally, insufficient education and awareness about Down syndrome can also contribute to social barriers (Hodkinson, 2019). Many individuals still hold misconceptions about the condition, which can lead to discrimination. However, it is possible for multiple agencies to collaborate and organize workshops that aim to educate and inform people about how to provide effective support to children with Down syndrome (Bazzano *et al.*, 2015). These workshops can serve as a platform for sharing information about the best practices, strategies, and resources that can be utilized in order to ensure that children with Down syndrome receive the care and attention they need to thrive.

Strategy

Hippotherapy is a form of therapy that involves using horseback riding as a treatment method for various physical, emotional, and developmental conditions (Thompson, Ketcham and Hall, 2014). For children with Down syndrome, hippotherapy has been found to be particularly beneficial due to its ability to improve their balance, coordination, muscle strength, and overall physical fitness.

By riding a horse, children with Down syndrome can engage in a range of movements and activities that may help improve their core strength, posture, and overall motor

function (Portaro *et al.*, 2020). The movement of the horse also provides sensory stimulation, which can help improve their sensory processing and integration.

In addition to the physical benefits, hippotherapy can also help improve the social and emotional well-being of children with Down syndrome. The interaction with the horse and the therapist can help improve their self-confidence, communication skills, and ability to form meaningful relationships with others (Jackson-Maldonado, 2021).

However, Conroy *et al.* (2022) states that it is considered important to note that hippotherapy should always be done under the supervision of a trained professional who is knowledgeable about the specific needs of children with Down syndrome. The therapist should also work closely with the child's medical team to ensure that the therapy is safe, effective, and appropriate for their individual needs.

In summary, Down syndrome is a genetic disorder that affects many people worldwide. Early interventions are crucial to unlocking the full potential of those with Down syndrome. Inclusive and supportive environments are vital for their emotional, social, and cognitive growth. Additionally, therapeutic advancements may enhance their quality of life

What kind of interventions are available for individuals with Down syndrome?

As mentioned before in my presentation while doing research I came across various interventions available for individuals with Down syndrome, including early intervention programs, speech and language therapy, physical therapy, occupational therapy, behavioral therapy, and educational interventions. However for this presentation I am only focusing on hippotherapy.

How can educators ensure that children with down syndrome are receiving the appropriate level of support and intervention to meet their individual needs?

Educators can ensure that children with Down syndrome are receiving the appropriate level of support and intervention by creating individual development plans (IDPs) and working closely with parents and other professionals involved in the child's care (Welsh Government, 2020). Educators should also provide accommodations and modifications to the curriculum and instruction to meet the child's unique needs. Regular communication with parents and caregivers is essential to ensure that everyone is working together to support the child's progress and success. Additionally, ongoing professional development and training can help educators stay up-to-date on best practices and strategies for supporting students with Down syndrome.

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