

Introduction

The Equality Act 2010 regards all people with Down Syndrome as having a disability. According to SNAP Cymru (no date) and the Additional Learning Needs and Education Tribunal (Wales) Act 2018 (Legislation.gov.uk, 2018), the term used to define an Additional Learning need refers to learning difficulties or disabilities that make it harder for a person to learn compared to other people of the same age. Dewis Cymru (2023) shares this view but outlines that the legal definition refers to children and young people who have learning, physical or sensory needs that impact their learning.

Definition

Down syndrome is the most common chromosomal disorder caused by the presence of an extra full or partial chromosome 21. According to Coppede (2016), this condition arises from errors in cell division during foetal development. The National Down Syndrome Society (NDSS) (2024) concurs, noting that each cell contains 23 pairs of chromosomes, half inherited from each parent, with the extra chromosome 21 originating from either parent. According to Sole-Smith (2025) experts have pinpointed three different types of Down syndrome, Trisomy 21 affecting around 94% of cases, Mosaic Down Syndrome which occurs in less than 5% of cases and Translocation Down Syndrome, occurring in 3% of cases. NDSS (2024) states that there is no definitive research indicating that Down syndrome can be caused by parental activities before or during pregnancy, or through environmental factors (NDSS, 2024). According to De Graff *et al* (2024) the only factor linked to an increased chance of having a baby with Down syndrome is the age of parents at the time of conception. However, Sole-Smith (2025) adds that Down syndrome can occur in children conceived by parents of any age, although the possibility increases with parental age. According to De Graaf *et al* (2024) 51% of children with Down Syndrome are born to women under 25 due to higher birth rates among younger women.

Signs and Symptoms

According to NDSS (2024) the extra chromosome 21 alters the course of development and leads to the characteristic features associated with the syndrome. Individuals with Down syndrome typically exhibit a distinct set of physical and developmental characteristics. The common signs outlined by NDSS (2024) and Hendrix *et al* (2020) include:

Physical characteristics	Developmental characteristics
• Facial dysmorphism • Small head and ears • Poor muscle tone and loose joints	• Delayed cognitive development • Speech and language difficulties • Deficits in attention
• Short stature • Small hands and feet • A single crease across the palm of the hand	• Behavioural challenges • Impaired hearing and vision •

However, according to Grieco *et al* (2015) it is important to recognise that whilst individuals with Down Syndrome may share common features, each person is unique and may exhibit these traits differently.

Understanding Down Syndrome

Diagnosis

According to Coppede (2016) and Hendrix *et al* (2021), Down syndrome can be diagnosed both prenatally and postnatally. NHS (2023) outlines that prenatal diagnosis involves screening tests between 10 and 14 weeks, this includes a blood tests and ultrasound scan, to assess the likelihood of the foetus having Down Syndrome. Diagnostic tests, such as amniocentesis or Chorionic Villus Sampling (CVS) are more invasive procedures but can provide more definitive results, analysing the chromosomes of the foetus to confirm the presence of extra chromosome 21. Additionally, according to Grieco *et al* (2015) postnatal diagnosis typically occurs through a physical examination and a chromosomal analysis called karyotyping, which confirms the presence of an extra chromosome 21 in the baby's cells. However, according to NDSS (2024) it is important to recognise that screening is based on probability, providing parents with an estimated chance, and cannot say for sure if the child has Down Syndrome. Furthermore, NHS (2022) states that one of the main risks associated with invasive procedures, such as amniocentesis, is miscarriage, the loss of the pregnancy in the first 23 weeks, which is estimated to occur in up to 1 in every 200 women. A further challenge to diagnosis may be the attitudes of caregivers and their reluctance to accept that their child may have ALN (Macintyre, 2014).



Barriers and Impacts

Children and young people with Down syndrome encounter multiple barriers that affect their quality of life, social integration, and participation in activities (Hendrix *et al.*, 2021). These obstacles span physical, social, political, and environmental domains. Physically, hypotonia (decreased muscle tone) poses challenges and socially, family attitudes, opportunities for interaction, and financial constraints can play a role. Politically, limited professional and specialized activities may hinder inclusion and environmentally, accessibility and transportation deficiencies present further difficulties (Coppede, 2016. Grieco *et al*, 2016). Furthermore, these barriers were recognised in a qualitative and quantitative study involving 206 participants, carried out by de Souza and Souto (2024). However, it was also noted that facilitators were seen to enhance participation. Personal motivators among participants included enjoyment, motivation and individual skills. Social support from family and peers was shown to further encourage engagement and specialized programs led by trained professionals provided necessary intervention. De Souza and Souto (2024) believe that addressing these challenges through advocacy, inclusive policies, and robust support systems is essential to fostering engagement and improving opportunities for individuals with Down syndrome.

Strategy

According to Grieco *et al* (2015) a particular strength of a child with Down Syndrome is non-verbal learning and memory. Down's Syndrome Association (2020) shares this view and highlights that an effective strategy for working with children with Down syndrome is using visual supports. Children with Down syndrome often learn best through visual-spatial information, meaning they benefit from seeing and doing rather than just hearing instructions. Visual supports can include, but are not limited to, visual timetables to help the child to understand routines. Visual guides for tasks, breaking them down into simple steps and Sign language or gestures to reinforce verbal communication. According to Down Syndrome Resource Foundation (2025) these tools help children process information more effectively, reduce anxiety, and encourage independence.



Source: Clipart, no date.



Conclusion

In conclusion, Down syndrome is a complex chromosomal condition that affects individuals in diverse ways, impacting their physical, cognitive, and social development (Hendrix *et al*, 2022). Furthermore, whilst children and young people with Down syndrome face unique challenges, including learning difficulties, physical barriers, and social stigma, Grieco *et al* (2015) believes it is important to recognise that each person is unique and has their own strengths and abilities. Strategies and support systems can greatly enhance a child's ability to participate and thrive. Fostering inclusive education and advocating for better accessibility are crucial steps toward creating a more equitable environment (de Souza and Souto, 2024). Additionally, by recognizing the strengths of individuals with Down syndrome and addressing barriers through informed policies and social encouragement, society can help ensure that every child and young person has the opportunity to reach their full potential.