

Introduction

Down Syndrome, also known as Trisomy 21 (MedlinePlus,2019), is a genetic disorder caused by an extra copy of chromosome 21, which can occur at fertilisation during the formation of the egg and sperm where chromosome 21 does not separate properly, as a result, the fertilised egg has three copies of chromosome 21 instead of two. This happens in 95% of cases of Down syndrome (National Down Syndrome Society, 2024a; NHS,2023). According to the National Down Syndrome Society (2024b), there are three types of Down Syndrome. These are Trisomy 21(nondisjunction) (this occurs as previously stated), translocation, which occurs when chromosome 21 attaches to other chromosomes such as 13,14,15 or 22 (Children's Hospital of Philadelphia,2014) and accounts for around 3% of Down Syndrome cases. Additionally, Mosaic Down Syndrome can occur in around 2% of Down Syndrome cases, this usually happens after fertilisation where only some cells have the extra chromosome (University of Rochester,2024; International Mosaic Down Syndrome Association, no date; National Down Syndrome Society 2024c).NHS (2021) and Medline Plus (2020) suggest that children and adults with Down Syndrome can have a range of learning difficulties which vary from person to person. Adding that people with Down syndrome are more likely to have additional health issues such as heart conditions, vision and hearing difficulties and digestive abnormalities

How is Down Syndrome Identified?

Down Syndrome can be identified and diagnosed both before and after birth. According to the NHS (2021b), screening for Down Syndrome is offered to expectant mothers between 10 and 14 weeks of pregnancy. NHS Inform Scotland (2025) states that all pregnant women can be tested with a blood test and a Nuchal Translucency Scan. This is usually carried out at the dating scan. According to Care New England (2023) and Weiss and Paarz (2020) the screening measures the thickness of the space at the back of the baby's neck and the markers in the blood, such as the concentration of pregnancy plasma protein, both compared with the expectant mother's age to get an overall result. The results are screen negative or screen positive and are not a diagnostic tool but rather a measure of risk. University Hospital Sussex (2022) states that the screening will identify 85% of babies with Down Syndrome. Guy's and St Thomas' NHS Foundation Trust (2025) suggests that a higher risk result is shown as anywhere between 1 in 2 and 1 in 150. Additionally, a lower chance is shown as anywhere from a 1 in 151 to a 1 in 300 chance. Furthermore, Bowles (2021a) adds that this does not mean that the baby will or will not have Down Syndrome. However, Bowles (2021b) shares that this screening test is not very accurate and can give false negative and false positive results. Furthermore, Tan (2015) states that the false positive rate is high in this screening, leading to unnecessary worry in around 5% of expectant parents. To gain a more definite result, the National Institute of Child Health and Human Development (2017) suggests that Down Syndrome can be identified with certainty through a prenatal diagnostic test. However, NHS (2018) suggests that amniocentesis, a diagnostic test, can only give a definitive result in 98 to 99 out of 100 expectant mothers.

Barriers

Children with Down syndrome often face barriers due to a medical symptom of Down Syndrome, such as congenital heart conditions (Delany *et al.*,2021). The National Down Syndrome Society (2023) states that children who have had successful surgery often go on to thrive. Further adding that only some residual defects may remain and have a minimal effect on the child's health. The American Heart Organisation (2019) suggests that exercise may be limited, particularly if there are more complex problems. In research, Pastore *et al.* (2000) explored the cardiorespiratory fitness amongst children with Down syndrome who presented with and without congenital heart conditions. Findings highlighted that there was a reduced tolerance for exercise in children with the heart condition compared to children without a heart condition. Nevertheless, children who have Down syndrome without a heart condition still displayed a reduced exercise capacity. In addition to children, Clina *et al.* (2025) found that adults who have Down Syndrome also demonstrate a low level of fitness and physical exercise regardless of whether they have a congenital heart defect, further highlighting the importance of those with a congenital heart defect to take part in physical activity. According to Mendonca, Pereira and Fernhall (2010), studies have shown that individuals with Down syndrome become exhausted quicker than their peers who do not have Down Syndrome. Furthermore, Exercise is as important for children with Down Syndrome as it is for any other child, and the benefits outweigh the risks when monitored and performed at the appropriate level for the individual (Chandler, 2022; Department for Health and Social Care,2022).

Social Stigma is another barrier that children with Down Syndrome face. It is often rooted in misconceptions and social biases. This can lead to exclusions and discrimination, which can have a detrimental impact on relationships, education, quality of life, and, in later life, employment opportunities (McGlinchey *et al.*, 2025; Down's Syndrome Association,2020a; Pace, Shin, and Rasmussen,2010). Furthermore, Catama (2024) suggests that children with Down Syndrome may face challenges in forming and maintaining friendships because they are seen as different. According to research through quantitative and qualitative data analysis, Kwan, Gitimoghaddam and Collet (2020) state that children with a Neurodevelopmental disorder (NDD) and who experience social isolation and loneliness can find that this may have a lasting and negative impact on mental health and self-esteem. Additionally, practitioners may unintentionally create stigma. However, according to Krause (2020), practitioners can influence how well children with additional learning needs are included. Positive attitudes help practitioners support every child and encourage peers to be accepting. On the other hand, negative attitudes, even without awareness, can lead to low expectations and feelings of exclusion.

Conclusion

Understanding Down Syndrome is important for adopting inclusivity and supporting children with the genetic condition (Special Strong,2023). Whilst the condition comes with challenges, it highlights the importance of equity and respectful support. Barriers such as negative perceptions and limited expectations can be addressed through informed, compassionate approaches that focus on strengths (North Tyneside Council, no date). Furthermore, using tools like One-Page Profiles and IEPs, and by working with families and multi-agency professionals, practitioners can be sure that children with Down Syndrome are supported effectively to reach their full potential (Positive Action,2021).

Figure 1
A child with Down Syndrome.



(Source: Karr,2019)

Strategy

A key strategy to appropriately support children with Down syndrome is to provide inclusive, individualised support with staff implementing individualised strategies that have been developed with parents and multi-agency professionals who are involved with the child. Additionally, it involves skilled practitioners having a positive attitude (Bird,2021). The delivery of individualised support is adopted through a One-Page Profile alongside an Individual Education Plan (IEP) that emphasises strengths rather than focusing on limitations (Aspland,2014). This promotes fairness through equity and can support practitioners to meet diverse needs (Knipp,2024). The One-Page profile gives an overall idea of the child's interests, strengths, and preferences. This is valuable information for practitioners and other multi-agency services who may work with the child (Down Syndrome Australia, 2023). On the other hand, an Individual Education Plan (IEP) is a legal document for children with a disability. It identifies the learning needs, goals and specific support needed to develop and to help them thrive in school. For a child who has Down Syndrome, this may target specific areas such as language development, social and academic skills (Undivided,2023; Center for Parent Information and Resources,2017). According to Brown (2023), this combined approach paves the way for an inclusive, effective learning experience.