

Down's syndrome is caused by having an extra chromosome (NHS, 2023a). This means that there is too much genetic material in every cell, which disrupts how the instructions from the genes are carried out (NIH, 2024). This can affect physical development, learning, and how the brain and body function, as seen in the image, it explains how the body's systems depend on correct DNA instructions (Down's Syndrome Association, 2021).

Diagnosing and identifying Down's syndrome

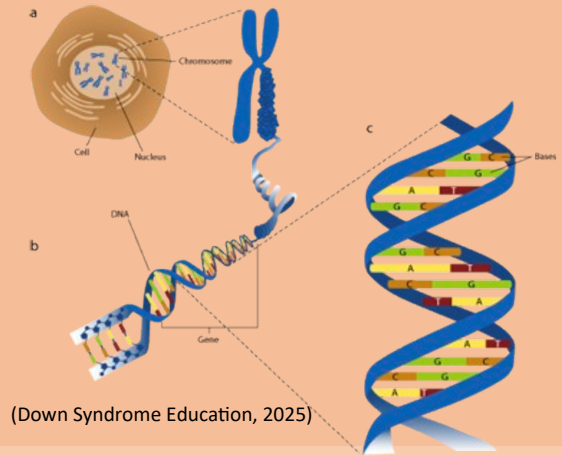
Down's syndrome can be identified both before and after birth through a combination of screening and diagnostic methods (NIH, 2023). Prenatal screening, such as nuchal translucency scans, blood tests, and Non-Invasive Prenatal Testing (NIPT), estimates the likelihood of Down's syndrome (NHS, 2021), while diagnostic tests like chorionic villus sampling (CVS) and amniocentesis confirm the presence of an extra copy of chromosome 21 (Down's Syndrome Association, 2024). After birth, diagnosis may be suspected based on physical characteristics and confirmed through a chromosome test (Down's Syndrome Association, 2024). While early diagnosis offers significant advantages, such as enabling early intervention, informed decision-making, and better support planning, it also presents emotional, ethical, and medical challenges (NHS, 2021). Invasive diagnostic tests, such as CVS and amniocentesis, carry a small risk of miscarriage (NIH, 2023), and screening can sometimes produce false positives or negatives, causing unnecessary stress (Honarjoo *et al*, 2023). Amniocentesis can also only be done between week 14 to 18 of pregnancy, which is another limitation (NIH, 2023). Barriers such as unequal access to testing, cultural sensitivities, and poor communication of results can further complicate the process. Additionally, concerns around disability bias and how a diagnosis is presented can impact family experiences. Therefore, it is essential that diagnostic pathways are balanced, accessible, and delivered with empathy and clarity to support families effectively (Down's Syndrome Association, 2024).

Learning and daily life

People with Down's syndrome can face several barriers that affect their learning and daily life. In school, they may struggle if lessons are not adapted to their needs or if there isn't enough support from trained staff (NHS, 2023b). Communication can also be a challenge, especially if staff are not familiar with tools like Makaton, making it harder for children to express themselves and take part (Makaton, 2025). Socially, they may feel left out or misunderstood by others, which can impact their confidence and emotional wellbeing (Global Down Syndrome Foundation, 2018). Families might also find it difficult to access the right services or support, especially if there are delays or complicated systems. These barriers can limit progress and independence, but with the right support—like inclusive teaching, staff training, and strong family-school partnerships—children with Down's syndrome can thrive and reach their full potential (Skotko, Levine and Goldstein, 2011).

Visual aids/timetables as a support strategy

One highly effective support strategy for children with Down's syndrome is the use of visual timetables (Early Years SEND Partnership, no date). These are structured, picture-based representations of a child's daily routine that help make the child's day more predictable and manageable (Advocate Health Care, 2025). Children with Down syndrome often have stronger visual processing skills compared to their auditory memory and verbal comprehension (Advocate Health Care, 2025). When used consistently, visual timetables promote independence by reducing the need for constant adult prompting, allowing children to follow routines and complete activities with greater confidence (Wilkinson and Bennett, 2019). They also support emotional regulation, as children feel more secure when they understand the structure of their day (Rutherford *et al*, 2019). However, success depends on staff using them consistently and with understanding, highlighting the importance of proper training and whole-school commitment to inclusive practice (The Sunshine Room, 2022).



The image above shows how bodies are made up of trillions of cells, each containing DNA with genes that give instructions for how the body grows and works, and that these instructions are what guide how our brain and body develop and function (Down Syndrome Education, 2025).

Conclusion

Down's syndrome is a complex genetic condition that requires early and accurate diagnosis to support timely intervention. While diagnostic methods such as prenatal screening and postnatal assessments are well established, challenges remain in terms of accessibility, accuracy, and the emotional impact on families. Barriers such as limited resources, cultural stigma, and lack of awareness can further hinder effective support. However, with the right strategies in place, including the use of visual timetables, children with Down's syndrome can experience significant developmental benefits. Visual supports help promote routine, reduce anxiety, and enhance communication, particularly in educational settings. A comprehensive, inclusive approach that recognises both the needs and potential of these children is key to improving outcomes and ensuring they are supported to thrive.