

Intellectual Characteristics

Individuals with fragile X syndrome have a general impairment in cognitive performance. Some cognitive abilities are more affected than others. Children with fragile X syndrome have relative strengths in vocabulary capacity, processing of simultaneous information, and long-term memory. Simultaneous processing refers to being able to integrate separate pieces of information into a meaningful whole.

The most pronounced difficulties are seen in verbal short-term memory, sequential processing of information, and executive functioning.

Verbal short-term memory refers to the amount of verbal information that a person can hold in mind for a task at hand (i.e. like trying to remember a phone number).

Sequential processing is the ability to store, process and use information in an orderly way. It is closely linked to executive functioning. Executive functioning refers to a set of cognitive skills including inhibition (putting the brakes on behaviour), cognitive flexibility (the ability to switch attention), and problem solving. Watch the video above for an overview of the term 'executive functioning'.

Inhibition difficulties have been found to be particularly pronounced in fragile X syndrome.

There is some evidence that, in comparison to typically developing children, individuals with fragile-X may have particular difficulties with cognitive flexibility. These difficulties might be apparent when asking a person with fragile X syndrome to switch their attention from one aspect of a task to a different aspect. One study of boys with fragile X syndrome aged 9-19 years found that those who preferred to have predictability in their environment, such as a particular routine, had greater difficulty in switching their attention.

[To download an original research article about this click here.](#)

Most individuals with fragile X syndrome develop speech; however language development is delayed. For more information on communication click [here](#).

In boys with fragile X syndrome, research indicates that there is steady cognitive growth in IQ until mid-adolescence. Development then tends to plateau around this time and the gap between individuals with fragile X syndrome and their typically developing peers widens. There is also some evidence that around half of individuals may show a decline in adaptive communication skills from around ten years of age and it is possible that this is associated with increases in social anxiety in adolescence.

The cognitive profile of fragile X syndrome clearly impacts on the educational needs of children with this syndrome as most individuals will need specialised education services. To download a helpful article from the Fragile X Society about education strategies click [here](#).