

# Difference Between Down Syndrome and Edward Syndrome

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## Key Difference – Down Syndrome vs Edward Syndrome

Even an insignificant change in the structure of a gene can have astonishing and sometimes lethal consequences. Down Syndrome and Edward Syndrome are two conditions that are due to such genetic defects. Down syndrome is an autosomal genetic disorder caused by the presence of an extra copy of chromosome 21. Edward syndrome or trisomy 18 is another autosomal genetic disorder that is due to the presence of an extra copy of chromosome 18. The key difference between Down syndrome and Edward syndrome is that **Down Syndrome is caused by the presence of an extra copy of chromosome 21 whereas Edward Syndrome is caused by the presence of an extra copy of chromosome 18.**

## What is Down Syndrome?

Down syndrome is an autosomal genetic disorder caused by the presence of an extra copy of chromosome 21. Hence it is also known as **trisomy 21**. Down syndrome is the major cause of mental retardation in children.

There is a strong correlation between the maternal age and the incidence of trisomy 21. The chance of having a baby affected by this condition is more in mothers who are above 45 years of age.

## Clinical Features

- Flat facial profile
- Oblique palpebral fissures
- Epicanthic folds
- Mental retardation

Most of the children with Down syndrome have an IQ in the 25 to 50 range. But in some cases, there can be patients who are having a normal or near-normal intelligence due to various phenotypical changes.

- Almost all patients with trisomy 21 develop neurodegenerative changes that are a characteristic of [Alzheimer's](#) disease after the age of 40 years.
- There are certain unclear abnormalities in the immune system that makes them vulnerable to get frequent [infections](#), especially in the lungs.
- Abundant neck skin
- Simian crease
- [Congenital heart defects](#)
- Intestinal stenosis
- Umbilical hernia
- Predisposition to [leukemia](#)
- Hypotonia
- Gap between first and second toe

Due to the vastly improved medical care, the median life expectancy of the patients with trisomy 21 has increased up to 47 years. In the early part of the millennium, it was around 25 years.



**Figure 01: Down Syndrome**

## **Management**

Down syndrome is incurable. But most of the clinical manifestations can be controlled, enabling the patient to lead a normal life.

- Special schools and institutes have been established in many countries to facilitate the education of the children with special needs.
- Speech therapy and occupational therapy can assist the children to improve their social interactions.
- A close eye has to be kept on the occurrence of other associated medical conditions such as leukemia and serious lung infections.

## **What is Edward Syndrome?**

Edward syndrome or trisomy 18 is another autosomal genetic disorder that is due to the presence of an extra copy of chromosome 18. Similar to the Down syndrome the occurrence of Edward syndrome also has a correlation with the maternal age.

Although it shares several common clinical features with trisomy 21, these clinical features are much more severe; therefore, the patient does not survive beyond the first year of life. Most of the affected infants succumb within the first few weeks.

## **Clinical Features**

- Prominent occiput
- Mental retardation
- Micrognathia
- Low set ears
- Short neck
- Overlapping fingers
- Congenital heart defects
- Renal malformations
- Limited hip abduction
- Rocker bottom feet



**Figure 02: Overlapping Fingers in Edward Syndrome**

## **Management**

There is no cure for the Edward syndrome. The aim is to prevent the occurrence of infections and minimizing the complications. Particular care has to be given for the management of heart defects and renal abnormalities.

## **What are the Similarities Between Down Syndrome and Edward Syndrome?**

- Both Down syndrome and Edward syndrome are genetic disorders due to the presence of an extra copy of autosomal chromosomes.
- Maternal age has a strong correlation with the incidence of both conditions.
- Mental retardation is a common clinical feature of Down and Edward syndromes.

# What is the Difference Between Down Syndrome and Edward Syndrome?

## Down Syndrome vs Edward Syndrome

Down syndrome is an autosomal genetic disorder caused by the presence of an extra copy of chromosome 21. Hence it is also known as trisomy 21.

Edward syndrome or trisomy 18 is another autosomal genetic disorder that is due to the presence of an extra copy of chromosome 18. Therefore it is called trisomy 18.

### Cause

There is an extra copy of chromosome 21.

There is an extra copy of chromosome 18.

### Extra Copy of Chromosome

The extra copy of the chromosome is either complete or partial.

There is a complete extra copy of the chromosome.

### Life Expectancy

Expected life expectancy of a patient with Down syndrome is 47 years.

An overwhelming majority of the patients dies within the first few weeks of life.

### Clinical Features

Clinical Features include

- Flat facial profile
- Oblique palpebral fissures
- Epicanthic folds
- Mental retardation
- Almost all the patients with trisomy 21 develop neurodegenerative changes that are a characteristic of Alzheimer's disease after the age of 40 years.

Clinical Features include

- Prominent occiput
- Mental retardation
- Micrognathia
- Low set ears
- Short neck
- Overlapping fingers

- There are certain unclear abnormalities in the immune system that makes them vulnerable to get frequent infections, especially in the lungs.
- Abundant neck skin
- Simian crease
- Congenital heart defects
- Intestinal stenosis
- Umbilical hernia
- Predisposition to leukemia
- Hypotonia
- Gap between first and second toe
- Congenital heart defects
- Renal malformations
- Limited hip abduction
- Rocker bottom feet

## Summary – Down Syndrome vs Edward Syndrome

Down syndrome is an autosomal genetic disorder caused by the presence of an extra copy of chromosome 21. Hence it is also known as trisomy 21. Edward syndrome or trisomy 18 is another autosomal genetic disorder that is due to the presence of an extra copy of chromosome 18. The major difference between Down syndrome and Edward syndrome is that in Down syndrome chromosome 21 has an extra copy whereas in Edward syndrome chromosome 18 has an extra copy.

### References:

1. Kumar, Vinay, Stanley Leonard Robbins, Ramzi S. Cotran, Abul K. Abbas, and Nelson Fausto. Robbins and Cotran pathologic basis of disease. 9th ed. Philadelphia, Pa: Elsevier Saunders, 2010.

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