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IAP KI BAAT COMMUNITY KE SAATH
Recognize and Empower Down Syndrome

Convenor

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Dr Bappaditya Das

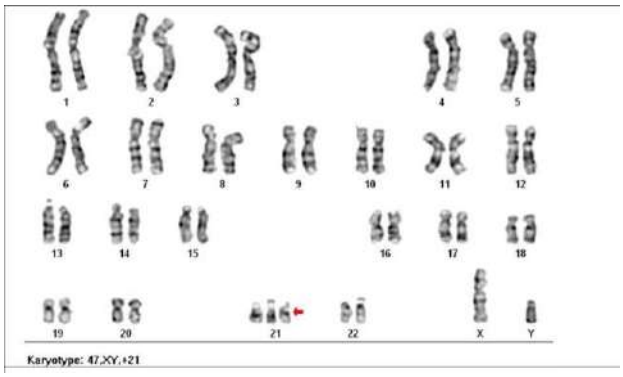
Introduction

Down Syndrome (DS)is a genetic disorder ,which is one of the cause of intellectual disability. It is identified because of characteristic physical features. The incidence of Down Syndrome is 1:700 worldwide and 1:1200 in India. With development in genetics and advanced technology more and more patients are diagnosed with Down Syndrome.

The societal change in the perspective towards and facilities for children with special needs changed the scenario for DS children. Now, individuals have opportunities to get incorporated in the society and contribute to by living a fruitful and happy life. The words like mental retardation and intellectual disability are getting replaced by “special children” with special needs and abilities.

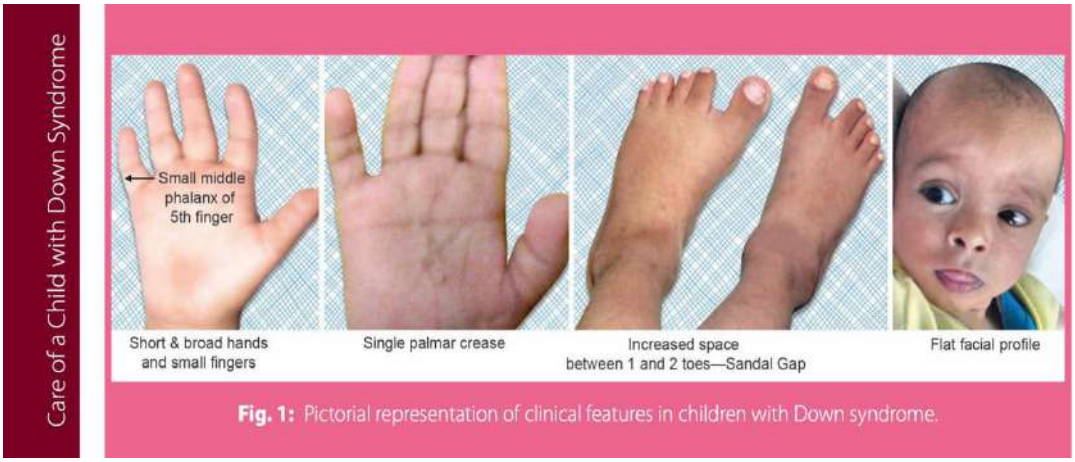
Pathophysiology

Human beings have 46 chromosomes . The 46 chromosomes are arranged in 23 pairs and arranged in a decreasing order of size. A child inherits one copy of each pair from the mother and the other from the father. The last 23rd pair are the sex chromosomes 46, XX in a female and 46, XY in a male. In children with Down Syndrome there is extra copy of chromosome on number 21 which causes intellectual disability, typical facial features and associated systemic problems seen in down syndrome.



Clinical features

The Down Syndrome children present with characteristic facial features. There are widely placed oblique eyes, small nose, depressed nasal bridge, low set ears, open mouth, protruding large tongue, dental abnormalities. There is a short and broad neck with excess skin, broad hand and short fingers , short limbs transverse palmar crease , short fifth middle phalanx.



There is a high prevalence of congenital heart disease(40-60%),thyroid disorders(25-40%) mostly hypothyroidism, hearing impairment(50%),ocular problems like cataract, watering from eyes, refractory errors and squint. They have recurrent respiratory infections. There may be obstruction in their stomach and intestine. There is a propensity to develop joint dislocation and poor muscle tone. There is a high incidence of autoimmune disease and blood malignancy like leukemia in DS children.

Unless serious malformations are present and are untreated ,usually life expectancy is not markedly reduced. Many malformations can be diagnosed in intrauterine life only.

Mental and Physical development in Down Syndrome

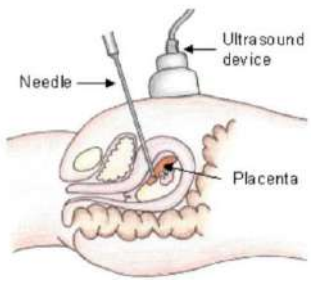
Growth potential of DS children is less as compared to normal children. Head circumference and height is 2-3 Standard Deviation less as compared to a normal child. There are separate growth charts for DS children to monitor their growth pattern. They are usually obese due to lack of physical activity. There is mild to severe intellectual disability. IQ is generally 40-70.They learn to walk, talk, communicate, do simple jobs, though little later than other children. They love the family and friends and can participate in school and family activities.

Training and special education have shown that grown-up individuals with DS do very well in special Olympics ,hospitality industry. They are lovable ,social and are mostly pleasant and happy, trainable , and can work and live under partially supervised setups.

Prenatal diagnosis of Down syndrome

In pregnancy when the antenatal ultrasound scan shows some characteristic findings with elevated biomarkers in the mother, (double ,quadruple markers) there is suspicion of Down syndrome in fetus. The confirmation is done by chromosomal study in fetal cells. Fetal tissue is obtained by chorionic villus sampling at 11-13 weeks or Amniocentesis at 16th week of pregnancy.

Chromosomal study of fetal cells i.e Karyotyping(chromosomal analysis)confirms the diagnosis



Chorionic villus sampling

Noninvasive prenatal testing (NIPT)

It is a screening test for Down Syndrome

1) collecting the mother's blood sample. Small amount of free fetal DNA is found in the mother's blood. This increases with gestation. A blood sample is collected at or after the 10th week of pregnancy from which fetal cells are separated. This sample is then studied by a special technique of DNA sequencing which can identify Down syndrome. By biochemical screening on maternal blood (first trimester) double marker test or (second trimester) quadruple test can detect DS .

2)Abdominal ultrasonography between 14 to 24 weeks of gestation used as a tool for screening based on soft markers like increased nuchal fold thickness, small or no nasal bone, large ventricles, echogenic foci in the heart.

After confirmation of Down Syndrome in Prenatal diagnosis, with the consultation of doctor appropriate decision to be taken.

Screening for DS should be offered to all pregnant women irrespective of their age, family history or ethnic background

Diagnosis of DS

In a child who is clinically suspected to have DS, diagnosis is confirmed by karyotyping (chromosomal study) in a blood sample. This takes 3-4 weeks. Other rapid methods of diagnosis of DS are FISH (Fluorescence in-situ Hybridization) and quantitative PCR, both of which may yield results in 5-7 days.

Recent methods are digital PCR, Next-generation sequencing(NGS)and paralog sequence quantification(PSQ).

Management of Down Syndrome

The management of patients with Down syndrome is multidisciplinary.

Over the years there has been a significant improvement in quality of life for affected people. Awareness of the issues pertaining to affected children, adolescents, and their caregivers can make a great difference in outcomes across the lifespan.

Treatment is basically symptomatic, and complete recovery is not possible.

Because almost every organ is involved, the child needs to be seen by the pediatrician, developmental pediatrician, pediatric pulmonologist, gastroenterologist, neurologist, neurosurgeon, orthopedic specialist, ophthalmologist, cardiologist, child psychiatrist, physical and occupational therapist, speech and language therapist, and audiologist.

Child should be immunized according to the schedule.

A balanced diet, regular exercise, and physical therapy are needed for optimum growth and weight gain.

Awareness of and routine screening for potential comorbidities is required to optimize the health of DS children.

Evaluation essential for a child with Down syndrome since birth

Evaluation	Age	Remark
Evaluation for congenital anomalies like stomach, intestinal obstruction, cardiac defects	Day 1	Urgent
Chromosomal analysis	Birth to 1month	As early as possible
ECG& Echocardiography	Birth to 1month	As early as possible if clinical symptoms suggest
Eye examination for cataract	Birth to 1month	-
Hearing evaluation	Birth to 1month	After 6 months and then every 2 years
Congenital hypothyroidism	3-7 days with other test done for newborn screening	6 monthly in first year and then yearly
Ophthalmological examination for squint , refractory error	6 months and then every 2 years	
Clinical evaluation for dentition, anemia, digestion problem (coeliac disease), neck pain , gait, tone	Yearly	If any signs and symptoms indicate
Behavioral assessment , speech problems	Yearly	Evaluation and management by specialist

Parental counseling

Parental education ,counseling is one of the foremost aspects regarding the realistic goals in management of Down syndrome, as parents should accept and need to be aware of the different possible conditions associated with it so that they can be diagnosed and treated appropriately.

Accepted place in family and community and nurturing environment gives the child the best chance to reach full potential.

Because individuals with Down syndrome often experience delays in reaching various developmental milestones, early intervention with speech therapy,occupational therapy, and

physical therapy is recommended as it maximizes long-term outcomes.

After age three, children with Down syndrome should have individualized education plans tailored to their needs

Risk of recurrence in siblings in most of the cases is only 1%.If one of the parents is carrier, the risk of recurrence increase

Higher-functioning adults with Down syndrome can successfully participate in a wide range of activities in social, physical, educational, and vocational contexts. At the highest end of the spectrum, some young adults are able to live outside of the primary household, obtain driver's licenses, get married, and maintain gainfule employment. Individuals with mild intellectual disability may go on to attend post-secondary education.

Community participation

When children with Down Syndrome are socially integrated, they will be more likely to participate

in activities, such as **sports, art, and music**. They bring a unique perspective and can help to foster a more inclusive(education , community activities) and accepting environment.

Community participation includes:

Financial and medical support programs and long-term financial planning for which the child and family may be eligible.

Injury and abuse prevention, with special consideration of developmental skills and intellectual ability and inclusion in appropriate physical and social activities.

Pediatricians should have empathy, communication skills and positivity in taking care of children with DS

Challenges in managing

Down Syndrome management involves addressing various challenges. Life expectancies for people with DS can be more than 60 years of age. We, the society, can help them to achieve a higher quality of life and improve their various abilities.

1)Cognitive development:. Managing cognitive development involves early intervention programs, special/inclusive education and ongoing support to help individuals reach their full potential.

2)Developmental Support: Many people with Down syndrome experience developmental delays, requiring early intervention services like physiotherapy, speech therapy, and occupational therapy.

3)Behavioral challenges: Some individuals with down syndrome may exhibit challenging behaviors such as impulsivity, stubbornness, etc. Behavior management strategies and support from caregivers and professionals is crucial.

4)Communication skills: Some may experience challenges with speech and language development. So speech therapy and assisted devices can help to improve communication skills.

5)Social inclusion: Promoting social inclusion and acceptance is essential and crucial for individuals with Down syndrome to participate fully in their communities.

6)Employment Opportunities: Ensuring equal employment opportunities and accommodations in the workplace is crucial for individuals with Down syndrome to pursue meaningful careers and contribute to society.

7)Legal and Financial Planning: Support with government benefit programs, to secure the future well-being of their loved ones with Down syndrome.

Down Syndrome is considered a disability(RPwD), under Disability Act of 2016.This act protects the rights of DS individuals and provides equal access to opportunities and services.

So now the DS children get advantage of all the schemes of government for disabled children. Rashtriya Swasthya Bima Yojna (RSBY) offers coverage to families of DS by providing help for treatment and therapies. " Down Syndrome Federation of India" DSFI offers support to DS children through various institutions across India.

8)Reproductive health: In the past sexuality was not considered an issue for any people with down syndrome because of the inaccurate belief that intellectual disability produces permanent childhood. They experience the same sequence of physical and hormonal changes associated with puberty and have normal genital anatomy. In fact, all people with Down syndrome specially Mosaic down have sexual feelings and intimacy needs. Males have delayed onset of puberty and are less fertile. Sex education is must for preventing sexual abuse, unwanted pregnancy and STDs. They can marry and can have conjugal life.

9)Transition to Adulthood: Planning for the transition to adulthood, including post-secondary education, employment, housing options, and healthcare management, requires careful coordination among families, educators, healthcare providers, and community organizations.

Experimental therapies like Piracetam , megavitamin therapy, stem cell therapy are not proved to be helpful

If all the caretakers support and empower

Divya S excelled in Bharat Natyam
She has record of performing for 2 hours

Gopalkrishna Verma awarded as lead actor in cinema

Ikkayees hotel in Kozhikode run by three DS youngsters successfully

The "Rubber Girl of India", Anvi is a 16 year old from Surat. She is a recipient of the "BEST CREATIVE CHILD WITH DISABILITY AWARD – 2020", and "PRADHANMANTRI RASTRIYA BAL PURASKAR – 2022".
Shr has participated in more than 100 toga competitions and has won 3 Gold Medals and 2 Bronze medals at the National and Regional levels. Anvi also holds 6 world records, the most recent one being a world record of doing 101 yogasnas in just five minutes.

Press Note

Down Syndrome is a genetic disorder. It was first described by British Clinician Langdon Down in 1862. It was called Mongolian idiocy as it is associated with intellectual disability

The incidence of Down Syndrome is 1:700 worldwide & 1:1200 in India. The risk of Down Syndrome increases with the mother's age.

Life expectancy is 60 Years in DS today which was ~9 Years in 1900 and 28 Years in 1984.

Normally, there are 23 pairs of Chromosomes. In DS, there is an extra copy of Chromosome 21. compared to normal which leads to typical features of DS.

There are characteristic facial features in DS with widely placed oblique eyes with fold, small flat nose with depressed nasal bridge, low set ears, open mouth with large furrowedtongue, small limbs broad hands with small fingers. There are some problems often seen in DS - heart diseases, intestinal problems, ocular problems, skin problems, endocrine problems like hypothyroidism, increased chances of autoimmune diseases and blood malignancy, hearing loss.

Generally IQ in DS is 40-60 but may be higher even up to 120 in Down syndrome with mosaicism. There is learning disability, impaired cognitive function, behavioral problems, defective socialization and speech disorder.

Antenatal USG findings and bio-marker studies give indication of DS. Further it can be confirmed by chorionic villus biopsy & amniocentesis done at 11-13 weeks.

In newborn, characteristic features suggest DS which can be confirmed by Karyotyping i.e. Chromosomal Study. The result comes in 2-3 weeks. Newer techniques like FISH & QF-PCR can diagnose DS in 2- 3 days.

DS persons have mild to moderate intellectual disability but have high potential to develop skills in various fields. Special education, early intervention, positive approach, parental counseling, community support and long term monitoring help DS children to grow normally, utilize their maximum potential and bring them to the mainstream. These are the children with special needs and abilities. The major step is to accept them, understand their needs, nurture them with love and care, support & help them to lead normal lives as much as they can.

The need is to accept them in community, understand their needs, nurture them with love and support and help them to be independent and self-sufficient in life.

FAQs

1)What is Down Syndrome?

Down syndrome is genetic disorder caused by an extra copy of chromosome 21,hence also called trisomy 21.It was first discovered by British Clinician John Langdon Down .It has characteristic facial features, systemic problems and intellectual disability.

2)What is Mosaic Down Syndrome?

When there are some cells with 2 copies and some with 3 copies of chromosome 21, it is called mosaic DS. The incidence of Mosaic DS is very less(<5%).Their IQ is generally better and allows them to lead normal lives.

3)How is Mental and Physical development of DS children?

Growth Potential of DS children is less as compared to normal children.

Head circumference and height is 2-3 SD less as compared to normal children of the same age and sex. They are usually obese due to restricted physical activity. There is mild to severe intellectual disability. IQ is generally 40-70. There is learning dysfunction, impairment in language and cognitive function and less socialization. They may have behavioral problems and psychiatric issues in adolescence. Special interventions, and counseling helps to overcome these problems.

4)What are the medical issues associated with DS?

There is a high prevalence of congenital Heart disease(40-60%), Thyroid disorders(25-40%) mostly Hypothyroidism, Hearing impairment(50%), Ophthalmic problems, dermatological problems and G.I problems. They are at increased risk of auto-immune diseases and hematological malignancies. They are susceptible to get infections.

5)Can DS have normal puberty? Can they achieve normal reproduction?

Puberty in boys having DS is delayed but in girls it occurs on time. Theyhave a normal menstrual cycle. The children with DS do have sexual feelings and intimacy needs. It is important to recognize this and educate them with proper counseling. Men with DS have poor fertility but 70% of women are fertile. There is an increased chance of mis-carriage, still births and congenital anomalies in fetus.

5)What is the recurrence rate of Down Syndrome?

The recurrence rate for DS in normal parents is 1%. If parents are carrier then risk increases from 2.5 to 10%.

6)How can one diagnose DS prenatally?

There are characteristic USG findings with positive maternal biomarker test which are suggestive of DS. Confirmation of DS syndrome is done by fetal chromosomal analysis. The material for which is taken by chorionic villous biopsy at 11 to 13 weeks and amniocentesis done more then 13 weeks. There is one test known as NIPS(Non invasive parental screening) inwhich maternal blood is collected after 10 weeks and free foetal DNA in maternal plasma is separated and subjected for chromosomal study.

7)How is DS diagnosed in children?

DS is clinically diagnosed by characteristic presentation. Diagnosis is confirmed by chromosomal study called karyotyping. The results come in 2-3 weeks. Molecular techniques like FISH and QF-PCR give report in 3-4 days

8)Does Maternal age affect the occurrence of DS?

The risk of DS increases with the mother's age. It is like 1:2500 for a 25 year old mother, 1:1000 at 31 years, 1:400 at 35 years and 1:100 at 40 years but mothers of any age group can have a baby with down syndrome and hence every mother should be investigated for down syndrome during pregnancy.

9) What is the life expectancy of a DS person?

Today life expectancy is 60 years, which was 9 years in 1900 and 28 years in1984.

10) What should be the approach in management of Down Syndrome?

Communication with family starts as soon as the diagnosis of DS is confirmed. The mainstay of the treatment is continued therapies and there is no medicine to modify chromosomal status. Counseling with accurate information is necessary. Physical and speech therapy should be started as early as at 3 Months of age. Developmental therapy, occupational therapy, behavioral therapy and cognitive therapies are introduced at appropriate age. Special education facility at an early age is needed. Vocational training to be initiated based on their aptitudes. Local support groups and special clinics help DS children to outgrow with their full potential.

Taglines

1. I'm Down, don't let me down.
2. ABC… Approach with Love, Be their friend, Care with caution
3. AAA… Accept them, Accommodate them, Appreciate them
4. EEE… Encourage, Empower, Enrich

   PEARL of DS

   Positive Attitude, **E**arly detection **A**cceptance by Community **R**egular Follow-up **L**earning Continuously

6. I am a little down boy

   I don't want to remain shy

   Don't call me a lazy guy

   It's not easy but I try

   Support my wings as I fly

   Because there is no limit but the sky!

IAP ki BAAT
COMMUNITY ke SAATH

by

Indian Academy of Pediatrics

DOWN SYNDROME

Let's build a world where every individual is celebrated for their unique abilities and contributions

FOR MORE INFORMATION

www.iapindia.org Write to ibc@iapindia.org

Recognize and Empower
Down Syndrome

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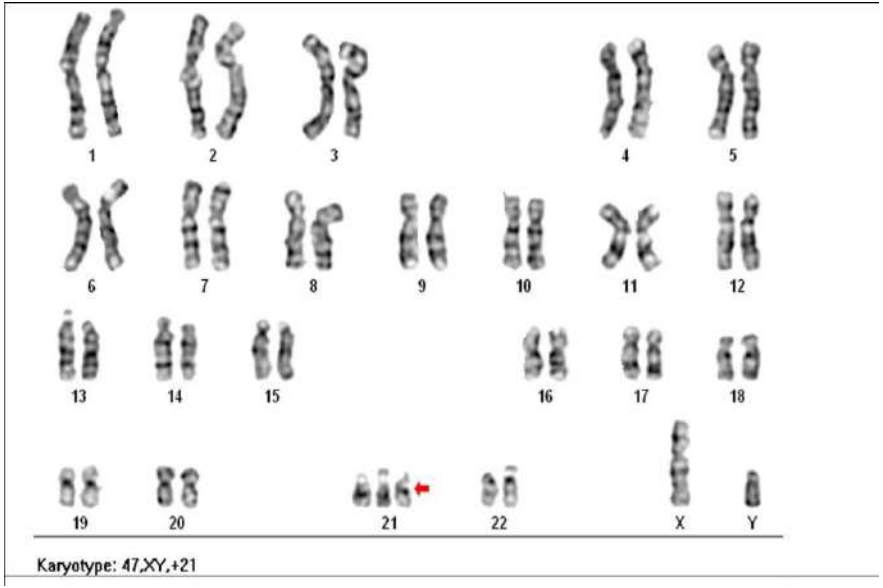
Dr TI Ratnakumari
Dr Priyanshu Mathur
Dr Meenakshi Bhat
Dr Bappaditya Das

Introduction

- Down Syndrome (DS)is a genetic disorder ,which is one of the cause of intellectual disability.
- The incidence of Down Syndrome is 1:700 worldwide and 1:1200 in India.
- The societal change in the perspective towards and facilities for children with special needs changed the scenario for DS children.
- Now, individuals have opportunities to get incorporated in the society and contribute to by living a fruitful and happy life.
- The words like mental retardation and intellectual disability are getting replaced by “special children” with special needs and abilities.

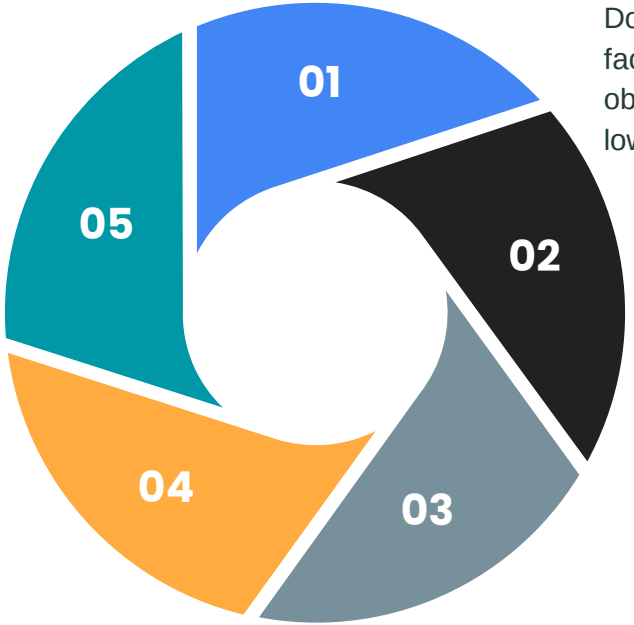
Pathophysiology of DS

- Human beings have 46 chromosomes arranged in 23 pairs
- In Down Syndrome, there is an extra copy of chromosome 21, hence also called Trisomy 21
- This extra chromosome causes intellectual disability and characteristic facial features



Clinical Features

Down Syndrome children have characteristic facial features. They may have widely spaced oblique eyes, small nose, depressed nasal bridge, low set ears, and large tongue.



There is a short and broad neck with excess skin, broad hand and short fingers, short limbs transverse palmar crease, short fifth middle phalanx.

Ocular problems (cataract, refractory errors, watering from eyes and squint), respiratory infections, poor muscle tone and joint dislocation are also common

There is a high prevalence of congenital heart disease, intestinal problems, thyroid disorders, hearing impairment and CNS disorders like Epilepsy

Higher incidence of autoimmune disease and blood malignancy like leukemia in DS children

,

Fig. 1: Pictorial representation of clinical features in children with Down syndrome.

Mental & Physical Development in DS

Growth potential of Down Syndrome children is less as compared to normal,

Head circumference and length is 2-3 standard deviation less.

There are separate growth charts for monitoring growth pattern of DS children.

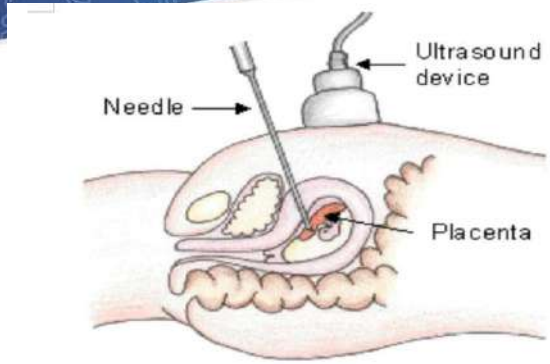
There is mild to severe intellectual disability. Their IQ is generally 40-70.

They learn to walk, talk, communicate and do simple jobs, little later than other children.

They can participate in school and family activities as they love family and friends. They are lovable, social, pleasant and happy, trainable persons who can work and live under partially supervised setups.

Prenatal Diagnosis of Down Syndrome

- Antenatal ultrasound shows some characteristic findings with elevated Biomarkers in mother gives suspicion of DS in foetus.
- **Ultrasound between 14 to 24 weeks of gestation used as a tool for diagnosis based on soft markers like increased nuchal fold thickness, small or no nasal bone, large ventricles**
- Foetal cells are obtained by Chorionic villus sampling or Amniocentesis between 11-16 weeks chromosomal analysis of foetal cells confirms the diagnosis.
- NonInvasive Prenatal Testing(NIPT):- A blood sample of mother is collected after 10th week of pregnancy from which foetal cells are separated and subjected to DNA sequencing which identifies DS.



Chorionic villus sampling

Screening for DS should be offered to all pregnant women irrespective of their age, family history and ethnic background.

Diagnosis of Down Syndrome

- Diagnosis of Down Syndrome is confirmed by Karyotyping i.e chromosomal study in suspected Down Syndrome. This takes 3-4 weeks.
- Rapid methods of diagnosis of DS are FISH(Fluorescence in-situ Hybridization) and quantitative PCR. Both give results in 5-7 days.
- Recent methods of diagnosing DS are Digital PCR, next generation sequencing(NGS) and Paralog sequence quantification(PSQ).

Management of Down Syndrome

- The management of patient with Down Syndrome is multidisciplinary.
- DS is defect in chromosome so no medicine can cure it, only different therapies, counseling, special education and training can bring good outcome in DS children.
- A balanced diet,regular exercise and physical therapy are needed for optimum growth and development.
- Awareness of and routine screening for potential comorbidities is required.

Rights of DS

- Down Syndrome is considered a disability(RPwD), under Disability Act of 2016.This act protects the rights of DS individuals and provides equal access to opportunities and services.
- So now the DS children get advantage of all the schemes of government for disabled children.
- Rashtriya Swasthya Bima Yojna (RSBY) offers coverage to families of DS by providing help for treatment and therapies.
- " Down Syndrome Federation of India" DSFI offers support to DS children through various institutions across India.

Evaluation of a child with Down Syndrome

Evaluation	Age	Remark
Evaluation for congenital anomalies like stomach, intestinal obstruction, cardiac defects	Day 1	Urgent
Chromosomal analysis	Birth to 1month	As early as possible
ECG& Echocardiography	Birth to 1month	As early as possible if clinical symptoms suggest
Eye examination for cataract	Birth to 1month	-
Hearing evaluation	Birth to 1month	After 6 months and then every 2 years
Congenital hypothyroidism	3-7 days with other test done for newborn screening	6 monthly in first year and then yearly
Ophthalmological examination for squint , refractory error	6 months and then every 2 years	
Clinical evaluation for dentition, anemia, digestion problem (coeliac disease), neck pain , gait, tone	Yearly	If any signs and symptoms indicate
Behavioral assessment , speech problems	Yearly	Evaluation and management by specialist

Parental Counseling

- Parental Counseling and education is the most important aspect in managing DS children.Parents should accept and be aware of the different possible conditions associated with DS.
- .They should provide love,support and care to DS children to help them to grow to their full potential.
- Early intervention with speech therapy,occupational therapy,physical therapy, special education and training brings the best outcome.
- After 3 years of age children with DS should have individualised education plans tailored to their needs.
- After assessing their interest DS children can be taught art, music or special creative work.

Community Participation

- Acceptance by community and nurturing them with love and special care increases participation of DS children in various community activities.
- There should be local support group which arranges various activities for DS children.
- There should be financial and medical support programs arranged in community to support the family of DS children.
- DS children should be encouraged to participate in different social, cultural and sports activities.
- Consideration of special needs of these special children by the community is to bring the best outcome in DS children.

Challenges in Down Syndrome

- Ensuring employment opportunities and accommodation in workplace is essential to provide meaningful career to DS person.
- Parents should be aware of government benefit programs to support and secure the future well being of DS children.
- Males with DS have delayed onset of puberty and are mostly infertile. Females with DS achieve puberty at normal age and are less fertile.They have same sequence of physical and hormonal changes with sexual feelings and intimacy needs.So sex education is must for preventing sexual abuse,unwanted pregnancy and STDs.
- DS persons can marry and can have a conjugal life but there is problem in having children as there are higher chances of miscarriage, congenital malformations and still births.

- Children with DS have cognitive impairment,developmental delay,poor communication skills and behavioural problems.All these need to be considered and handled properly.
- Planning for the transition to adulthood including post secondary education,employment,housing and healthcare management requires careful coordination among families and community organizations.
- Experimental therapies like Piracetam,megavitamin therapy,stem cell therapy are not proved to be helpful.

CONCLUSION

- DS children have high potential to develop skills in various fields.
- Early intervention program with early detection and management of comorbidities is the mainstay in managing them.
- Sensitization, counseling and training of parents, caregivers and community is very important.
- Long term monitoring and continuous surveillance is essential.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Achievers

DS excelled in Bharat Natyam

Gopalkrishna Verma awarded as lead actor in cinema

Ikkayees hotel in Kozhikode run by three DS youngsters successfully

The "Rubber Girl of India", Anvi is a 16 year old from Surat. She is a recipient of the "BEST CREATIVE CHILD WITH DISABILITY AWARD – 2020" , and "PRADHANMANTRI RASTRIYA BAL PURASKAR – 2022".
Shr has participated in more than 100 toga competitions and has won 3 Gold Medals and 2 Bronze medals at the National and Regional levels. Anvi also holds 6 world records, the most recent one being a world record of doing 101 yogasnas in just five minutes.

Thank You

Let’s work together for the betterment of DS children - Accept them, Accommodate them and Appreciate them.

Encourage, Empower and Enrich them to live happy and fruitful life.

Indian Academy of Pediatrics

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WORLD
DOWN SYNDROME
DAY 21st MARCH

"END THE STEREOTYPES"

IAP Stands with Down Syndrome

Let's give them a window of opportunity

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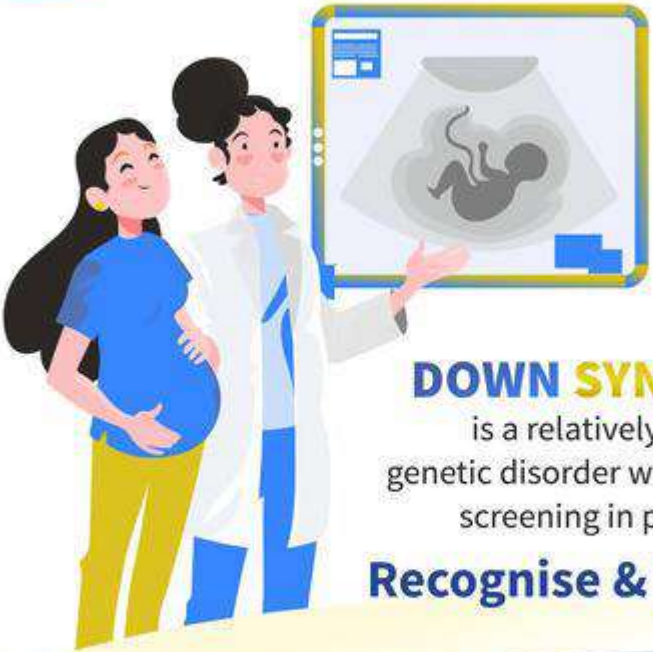

DOWN SYNDROME

is a relatively common genetic disorder which mandates screening in pregnancy

Recognise & Empower

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Cause of DOWN SYNDROME

46 + 1 extra = 47

One Extra Chromosome = Extraordinary Abilities

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DOWN SYNDROME can be identified during pregnancy.

Swipe to see the Answer

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TRUE!

- Maternal Biomarker tests can be suggestive of Down Syndrome
- Confirmation of Down Syndrome is done by fetal chromosomal analysis

The presence of the extra chromosome, makes them extraordinary.

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HOW TO IDENTIFY DOWN SYNDROME IN CHILDREN?

Look for these features

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Down Syndrome Health Challenges

Heart Conditions:
40-60%

Thyroid Disorders:
25-40%

Hearing Impairment:
50%

Ocular Problems:
Cataract, Squint

Respiratory Infections:
Recurrent

Gastrointestinal
Obstruction

Joint Dislocation

Muscle Tone:
Poor

Autoimmune Diseases

Leukemia: Blood Malignancy

Like Share Subscribe

For More Information

www.iapindia.org Write to ibc@iapindia.org

Indian Academy of Pediatrics

IAP ki BAAT
COMMUNITY ke SAATH

BREAK THE MYTHS

Down Syndrome children can never go to school.

EMBRACE THE FACTS

With inclusive education systems and tailored support, children with Down syndrome can thrive in school environments, learn, and grow alongside their peers. Education knows no boundaries. Every child deserves a chance to learn.

Like Share Subscribe

For More Information

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Indian Academy of Pediatrics

IAP ki BAAT COMMUNITY ke SAATH

BREAK THE MYTHS

Down Syndrome individuals have significantly shortened lifespans.

EMBRACE THE FACTS

With proper medical care and support, individuals with Down Syndrome can lead long, fulfilling lives.

Like Share Subscribe

For More Information

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Indian Academy of Pediatrics

IAP ki BAAT
COMMUNITY ke SAATH

PEARL of DOWN SYNDROME

Positive Attitude

Early detection

Acceptance by Community

Regular Follow-up

Learning Continuously

Like Share Subscribe

For More Information

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Indian Academy of Pediatrics

IAP ki BAAT COMMUNITY ke SAATH

ACTION PLAN FOR DOWN SYNDROME

ABCD

A

Awareness about Down syndrome & their social inclusion in community by widely sharing the resource material across all media

B

Biochemical tests & ultrasonographic screening (nuchal thickening, absent or small nasal bone) anomaly screening to all pregnant mothers to be encouraged

C

Counselling the family to set realistic goals. Community participation encouragement to Support the family

D

Developmental Support: Offering developmental support under the guidance of pediatrician/ family physician to help individuals with Down syndrome reach their full potential.

Request you to share the activities done till now by you (on individual capacity) & your branch to

ibc@iapindia.org