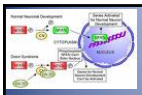
Down Syndrome

Piedad Suarez, D.D.S
Special Patients Clinic



Down syndrome (DS)

- Is the most frequent chromosomal disorder manifested in newborns worldwide.
- Is a congenital autosomal (non-sex chromosome) anomaly characterized by generalized growth and mental deficiency.
- The risk for this chromosomal aberration is one out of 600 to 1000 live births.
- DS has also been referred by the terms Trisomy 21, Trisomy G.
- DS children have characteristic orofacial features.

Maternal Age	Incidence of Down syndrome	Maternal Age	Incidence of Down syndrome
20	1 in 2000	35	1 in 350
21	1 in 1700	36	1 in 300
22	1 in 1500	37	1 in 250
23	1 in 1400	38	1 in 200
24	1 in 1300	39	1 in 150
25	1 in 1200	40	1 in 100
26	1 in 1100	41	1 in 80
27	1 in 1050	42	1 in 70
28	1 in 1000	43	1 in 50
29	1 in 950	44	1 in 40
30	1 in 900	45	1 in 30
31	1 in 800	46	1 in 25
32	1 in 720	47	1 in 20
33	1 in 600	48	1 in 15
34	1 in 450	49	1 in 10

The chances of having a child with Down syndrome depend on the age of the mother

Evaluate child/adult DS w/ behavior concern

- Vision or hearing deficits.
- Thyroid function
- Celiac disease
- Sleep apnea
- Anemia
- Gastro esophageal reflux
- Constipation
- Depression
- Anxiety

Common behavior concerns reported by parents/teachers

- Wandering/running off
- Stubborn/oppositional behavior
- Attention problems
- Autism Spectrum Disorder
- Obsessive/compulsive behaviors

The most common oral findings in DS

- Mouth breathing
- Open bite
- Macroglossia
- Fissured lips and tongue
- Angular cheilitis
- Delayed eruption of teeth
- Missing and malformed teeth
- Microdontia
- Crowding
- Malocclusion
- Bruxism 78.8% *
- Low level of caries
- Poor oral hygiene and abundant calculus and materia **

J Dent Child 1973;40:293-7 ;Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1997;84:279-85.

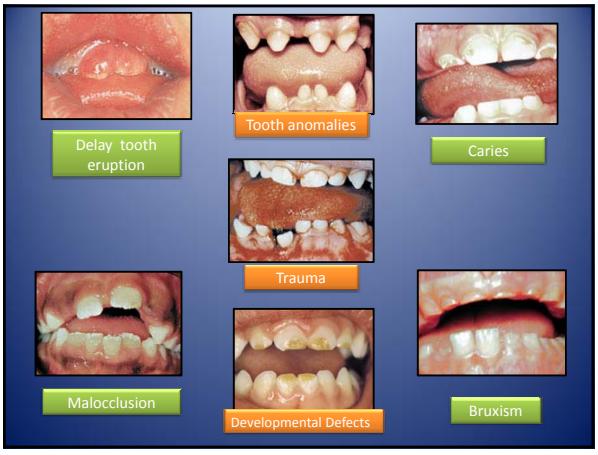


Table 3. Oral soft tissue anomalies: Age wise comparison

Particulars	Total (102)		0-5 years (21)		6-10 years (41)		11-15 years (40)		*P* value
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	
Angle of mouth pull down	65	63.7	17	81.0	26	63.4	22	55.0	0.13
Lower lip everted	67	65.7	11	52.4	27	65.9	29	72.5	0.29
Chapped lower lip	21	20.6	1	4.8	8	19.5	12	30.0	0.07
Angular cheilitis	23	22.5	1	4.8	12	29.3	10	25.0	0.08
Defects in palate	24	23.5	1	4.8	15	36.6	8	20.0	0.02
Scalloped/fissured tongue	42	41.2	3	14.3	19	46.3	20	50.0	0.02
Macroglossia	64	62.7	9	42.9	28	68.3	27	67.5	0.11
Protrusion/tongue thrusting	42	41.2	10	47.6	16	39.0	16	40.0	0.79
Lip incompetence	8	7.8	2	9.5	2	4.9	4	10.0	0.66
Enlarged tonsils	23	22.5	6	28.6	5	12.2	12	30.0	0.12
Others	3	2.9	3	14.3	0	0.0	0	0.0	0.003

Chi-square test was used to calculate the *P*-value

Indian Journal of Dental Research

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Close

Table 4: Oral soft tissue anomalies: Sex wise comparison

Particulars	Total (102)		Male (57)		Female (45)		*P* value
	Number	Percentage	Number	Percentage	Number	Percentage	
Angle of mouth pull down	65	63.7	34	59.6	31	68.9	0.45
Lower lip everted	67	65.7	37	64.9	30	66.7	0.98
Chapped lower lip	21	20.6	15	26.3	6	13.3	0.17
Angular cheilitis	23	22.5	14	24.6	9	20.0	0.76
Defects in palate	24	23.5	14	24.6	10	22.2	0.97
Scalloped/fissured tongue	42	41.2	28	49.1	14	31.1	0.1
Macroglossia	64	62.7	36	63.2	28	62.2	0.91
Protrusion/tongue thrusting	42	41.2	24	42.1	18	40.0	0.99
Lip incompetence	8	7.8	3	5.3	5	11.1	0.3
Enlarged tonsils	23	22.5	12	21.1	11	24.4	0.87
Others	3	2.9	1	1.8	2	4.4	0.58

Chi-square test with Yates continuity correction was used to calculate the *P*-value

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Sharath Asokan, MS Muthu, N Sivakumar, 2007

Incidences of dental caries in people with DS are extremely low and not rare.

Eruption of teeth in children with DS is delayed and this lowers the chances of caries formation.

Along with this, children with DS have higher salivary pH and bicarbonate levels.

They have more space between the teeth, shallow fissures of teeth

Less exposure to cariogenic food ⟹ lower prevalence of dental caries .

Down Syndrome and Periodontal Disease

- Severe periodontal breakdown is often associated with Down syndrome (DS);however, the etiology of this condition is not understood fully.
- Cellular motility of gingival fibroblasts is a critical event for wound healing and regeneration of periodontal tissues. Porphyromonas gingivalis is known to be a periodontal pathogen that invades host cells, contributing to periodontal destruction.
- Porphyromonas gingivalis readily invades DGFs and subsequently degrades paxillin, which impairs cellular motility and likely prevents wound healing and the regeneration of periodontal tissues.

To take effective measures to carry out early periodontal monitoring in children and adolescents that have this syndrome.

Down Syndrome

- The co-morbidity of Down syndrome and Alzheimer's disease is an increased reality due to an increased life expectancy among individuals with Down syndrome and the very early onset of Alzheimer's disease in this population

Ann Acad Med Stetin. 2006;52 Suppl 3:61-3

Down Syndrome

- A dyskinesia is a permanent disorder consisting of compulsory movements of the tongue, lips and facial muscles

Ann Acad Med Stetin. 2006;52 Suppl 3:61-3

Investigated Impacts	Affected Patients (%)
Speech impairment	95
Discomfort caused by bleeding gums	46
Halitosis	45
Pain	41
Discomfort caused by the appearance of the gum	40
Realising that gingival problems might be affecting her son's/her daughter's health	24
Discomfort while eating	24
Radicular sensitivity	19
Loss of taste	15
Realising that her son's/daughter's life might be worse than it should because of the problems in the mouth, teeth or gum	17
Irritated at other people	17
Difficulty to fulfil obligations	7
Complete inability to do activities	5

Table 2 | Percentages of the individuals who suffered, in the previous 6 months, each one of the repercussions in the questionnaire

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Tips for Health Care Providers

Take time to talk and listen to parents and caregivers.
Tell parents and caregivers to seek a dental consultation no later than a child's first birthday.
Seek advice on behavior management techniques; early intervention and familiarization with the dental team may take several visits.
Evaluate and treat orthodontic problems early to minimize risk of more complicated problems later in life.
Advise caregivers to avoid serving snacks at bedtime. www.nidcr.nih.gov/OralHealth/OralHealthInform

Systemic Considerations

- Obesity or short physical stature → sedation
- Ligamentous laxity and hyperextensibility of joints.
- Atlanto-axial instability → caution extending neck
- Immunologic impairment
- Upper respiratory disease and disorders
- Leukemia
- Hepatitis → particularly in the institutionalized pt
- Cardiac abnormalities.

References

- www.down-syndrome.org/information/development
- www.nidcr.nih.gov/OralHealth/OralHealthInform
- www.down-syndrome.org/research-practice