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Dental Anatomy
Deciduous Teeth

This study guide will help you review the characteristics of deciduous teeth.

Eruption Ages

Permanent Dentition (Years)

	Maxillary	Mandibular
CI	7	7
LI	8	8
C	11	9
PM1	9	10
PM2	10	11
M1	6	6
M2	12	12
M3	18+	18+

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Deciduous Dentition (Months)

	Maxillary	Mandibular
CI	7.5	6
LI	9	7
C	18	16
M1	14	12
M2	24	20

Deciduous Dentition

Max	Initiation (In Utero- weeks)	Mineralization (In Utero- weeks)
CI	6	14
LI	6	16
C	7	17
M1	6	15
M2	8	19
Order of mineralization of cusps on 4-cusp type teeth: MB, ML, DB, DL		
One mineralization center for anterior teeth		

Deciduous dentition (A-T)

- Purpose
    - Mastication
    - Esthetics- maintain “normal” facial appearance
    - Speech
    - **Space maintenance** (this one is the most important)
    - Maintain proper diet
        - If decayed/painful- avoid eating properly
    - Maintain permanent teeth
        - Infection/abscess- affects development of succedaneous teeth; i.e. Turner’s spots (dark spots)

Development of deciduous teeth

- 6 weeks in utero- epithelial thickening= dental lamina
    - Dental lamina differentiates- 20 tooth buds
- Root begins- after enamel and dentin layed down on the area of the CEJ

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Chronology

- Deciduous teeth
    - Begins in utero 1st few months
    - Hard tissue- 4 months in utero
- Succedaneous teeth
    - Pre + post natal development
        - CI (5 months in utero); PM (10 month post)
- Non succedaneous teeth
    - M1- in utero
    - M1 (mineralization) hard tissue- at birth
- Permanent teeth
    - M1- in utero
    - M1 hard tissue- at birth
    - Hard tissue of rest- after birth
    - M3- 5 years of age
    - M3 hard tissue- 7-10 years

Eruption process

- Active
    - Prior to calcification of root
    - Tooth pushes through mucous membrane into oral cavity
- Passive
    - Continuous process of adaptation
    - Changing occlusal relationships (attritional wear)
    - Supra-eruption

Root completion- root apex funnel shaped post eruption

- Deciduous- completed **1 year** after eruption
- Permanent- **2.4 years** post eruption

Process of resorption of deciduous roots

- Roots completed 1 year post eruption
- 3 years after completion- process of resorption occurs where the permanent tooth is
    - Osteoclastic activity- due to pressure of perm teeth
    - Succedaneous tooth moves occlusally
- Incisors and canines (permanent)- lingual to deciduous roots
- Premolars- root furcations of deciduous molars

Exfoliation- process of “shedding” the deciduous teeth

Problems with resorption

- Incomplete resorption- **extract**
- **Ankylosis**- fusion of root to alveolar bone; often deciduous molars

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External comparisons of deciduous and permanent teeth

- Deciduous smaller
- Deciduous crown short
- Inciso-Cervically
    - Relative to crown: root of permanent
- Deciduous crown wider MD
- Whiter/bluish white
- Constricted at CEJ
- Cervical ridge/bulge
    - Anterior: facial + lingual
    - Posterior: facial
- Occlusal convergence- narrow occlusal table
- Roots:
    - Slender + longer compared to permanent
    - Flared
        - Space for permanent
        - Exterior can fracture
    - No root trunk- space for perm

Internal comparisons of deciduous and permanent teeth

- Enamel- very thin
    - Enamel rods slopes occlusally
- Dentin- very thin
- Pulp
    - Chamber- very large
    - Horns- mesial pulp horns of molars very large
    - Pulp horns higher

Deciduous anteriors

- **No depressions/no perikymata (facially)**
    - Perikymata
        - Fine horizontal lines on crown surface
        - Closer together in cervical ⅓
        - Lost with age- wear/abrasion
- **No mamelons**
- Prominent **cervical ridge (labial)**
- Cingulum- large (⅓-½)
- Roots- long and narrow (MD)
- Roots- S- **bend facially** (apical ⅓-½)

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Deciduous posteriors

- Wide MD/short cervico-occlusally
- M2 > M1
- Narrow occlusal table

Shallow occlusal anatomy

- Facial cusps not sharp
- Few grooves/depressions
- Mesial cervical bulge
- Enamel rods slope occlusally (at cervical ⅓)
- No root trunk (furcation near crown)
- Roots beyond crown outline
- Roots: thin slender
- M2 roots spread > M1 roots

Terminology: **primate space**

- Maxillary arch- LI and canine
- Mandibular arch- canine and M1

Baume

- Type I- spaced
- Type II- non-spaced

Incisor Liability- the size difference between primary and permanent incisors- measured mesiodistally.

- Upper arch: 7 mm
- Lower arch: 5 mm

Leeway space- the mesiodistal size differential between the deciduous canine and molars vs. permanent canine and premolars.

- Max- 0.9 mm/quadrant
- Mand- 1.7 mm/quadrant

Variations- there are fewer variations in deciduous dentition than in permanent dentitions

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Deciduous Dentition: Incisors

Facial Aspect	E/F	D/G	O/P	N/Q
Crown : root	6: 10 (mm)	5.6 : 11.4 (mm)	Crown MD : Root MD > permanent Mand CI	
Root	2x- cone shaped, long, slender	Longer than CI	2x length of crown	**Curves distal to apical third**
MD vs. IC	**MD > IC**	**MD < IC**		
Incisal edge	Straight	Distal edge more round than CI		
Other notes	Smooth surface, no depressions Flat mesial profile and convex distal profile Constricted cervix		Similar to permanent- smaller; symmetrical Crown wide in proportion to the root, compared to permanent	Similar to O, P, just slightly larger Distal contact slopes

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Lingual Aspect	E/F	D/G	O/P	N/Q
Cingulum	Very large- can come up to ⅓-½ of the lingual surface	Larger than permanent LI	Large	More pronounced than O/P but not as well defined as max incisors
MR	**Well defined, shovel-shaped**	Larger than permanent LI	More faint than maxillary	More pronounced than O/P but not as well defined as max incisors
Fossa	**Small fossa**	**Deep fossa**		
Root	Narrow root (triangular/cone -shaped)		Narrow/cone root	

Proximal Aspect	E/F	D/G	O/P	N/Q
FL length	Wide FL			
Incisal edge vs. Root Axis Line	Straight, centered over root	**Thick, facial to root axis**	In line with root axis	
Root	S shaped	S shaped	Straight, with bend facially on the apical portion	
Bulges			Prominent cervical bulge	**Distal side bulges**

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Incisal Aspect	E/F	D/G	O/P	N/Q
MD vs. FL	MD > FL			
Incisal edge	Straight, centered over root			
Geometry		Circular		
Other notes	Facial broader than lingual		Symmetry	

Deciduous Dentition: Canines

Facial Aspect	C/H	M/R
Cutting Arms	M > D	M < D
Cusp	90 degrees	Sharp cusp tip
MD vs. IC	MD ~ IC	
M and D contact	M contact more cervical than D (almost middle)	
Geometry	Diamond	Arrow shape- projectile point
Cervical line	Flat and constricted	
Ridges	Facial ridge present	
Root	Curves distally	

Lingual Aspect	C/H	M/R
Cingulum	Large and bulky Centered	
MR	Well developed but less prominent than permanent	
Ridges	Lingual ridge present	Barely discernible lingual ridge

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Proximal Aspect	C/H	M/R
FL width	Thick	
Cusp tip vs. root axis	**Facial to root axis**	**Lingual to root axis line**
Root	Apical portion bends to facial	Bulky root Facial bend in apical ⅓
Bulges	Facial and lingual cervical bulge	

Incisal Aspect	C/H	M/R
MD vs. FL	MD > FL	
Cusp tip position	Distal	
Cutting arms geometry	Not straight, angled	

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Deciduous Dentition: Molars

Facial Aspect	B/I	A/J	L/S	K/T
Cusps	No definite cusp→ scalloped MB > DB	2 cusps, well defined MB ~ DB	2 distinct cusps MB > DB	3 cusps ~ equal size
Grooves	No buccal groove or developmental grooves→ notch	Buccal groove	No developmental groove- developmental depression instead	MB and DB groove
Bulges	Mesial cervical bulge	Prominent cervical bulge	MF cervical bulge	
CEJ	More apical on M	More apical in the middle	Dips apically along bulge	
MD size	Wide MD		MD > occ-cervical	
Roots	No root trunk 3 roots: Pal > MB > DB (height)	No root trunk 3 roots- slender, but bulkier and longer than primary first molar 3 roots: MB > Pal > DB Palatal can be greater than MB in root length	2 long, slender roots M root > D root wider and longer	No root trunk 2 slender roots: M and D 2x crown length M root: broad/shallow depression
Other notes	Smaller than M2 Premolar-like→ closely resembles succedaneous tooth Larger than succedaneous tooth- MD by 14%	Constricted cervix Smaller than permanent 1st molars Larger than primary 1st molars Tooth germ of PM2	Straight M profile and convex D Taper to distal (M taller than D)	Smaller than permanent isomorph Straight buccal surface

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Lingual Aspect	B/I	A/J	L/S	K/T
Cusps	ML largest cusp DL small/almost missing- 3 cusp type possible	2 cusps: ML > DL Cusp of Carabelli	ML cusp- sharp, tallest, sharpest, almost centered	2 cusps: ML ~ DL A portion of 3 buccal cusps can be seen
Grooves		Lingual groove	No lingual groove→ lingual depression	Short lingual groove
Taper	Converges to lingual		Tapers to lingual- can see M surface or M root	Narrows to lingual
MR			MMR well-developed; almost looks like cusp from L aspect	
Other notes			Similar to primary 2nd M cusps over root base; lingual outline extends past root	

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Proximal Aspect	B/I	A/J	L/S	K/T
Crown taper	Tapers to distal	Tapers to occlusal		
Bulges	MB cervical bulge	Cervical bulge	Cervical bulge	
Cusps	ML taller than MF	ML > MB	MF cusp over root	
Roots	L root- largest and extends; curves in apical third	MB and palatal roots extend past crown MB root width >> Pal root	M root: broad FL, straight and parallel outline, root depression, flat and square root apex	D root ~ M root (although more tapered) M root broad and flat
Other notes		Narrow/small occlusal table Relatively short occ-cervically	Very narrow occlusal table Similar to primary 2nd M	High MMR (short cusp appearance)
Mesial Aspect				
Cusp and root visibility		Often has 5th cusp of Carabelli		Only M root is seen
Distal Aspect				
Cusp and root visibility	Can see M cusps too	4 cusps visible 3 roots visible		5 cusps visible
Other		Narrower than M		

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Occlusal Aspect	B/I	A/J	L/S	K/T
Geometry		Rhomboidal	Rhomboidal or oval	Rectangular/ ovoid
Cusps			Prominent MB cusp	3 buccal cusps 2 lingual cusps
Grooves	3 total Central: M pit→ central pit Buccal groove: MB/DB cusps Disto-occlusal groove: along DL cusp	4 total Same grooves Central groove: M pit→ central pit Buccal groove Distal-oblique groove Transverse groove of the oblique ridge	3 total Central: M pit→ central pit Buccal: MB to DB cusp Lingual: ML to DL cusp	
Fossa	Central fossa- central pit M triangular- M pit D triangular- very small	Same fossae D triangular fossa (tiny)	Mesial triangular fossa- M pit Distal fossa- large, central pit Very small Distal triangular fossa- distal pit	
Ridges	Transverse Oblique ML-DB sometimes	Oblique ridge	Transverse ridge- MB-ML	
MD vs. FL	Broad buccally and mesially	MD < FL	Wider on FL on distal aspect	
MR	MMR obliquely angled; DMR straight MMR more developed than DMR	MR well developed MMR = DMR		
Taper	Converges lingually and distally	Tapers D and L	Tapers to M→ narrow occlusal table	
Other Notes	H-groove pattern Premolar-like	Isomorph to permanent max M1	Tooth that resembles no other tooth	Isomorph with permanent Mand M1

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