

University of Basrah

College of Dentistry

Department of conservative
Dentistry



جامعة البصرة

كلية طب الاسنان

فرع معالجة الاسنان

Lecture 1

د. زهراء مازن الهواز

Dental Anatomy

Dental anatomy: is defined as the study of the development, morphology, function, and identity of each of the teeth in the human dentitions, as well as the way in which the teeth relate in shape, form, structure, color, and function to the other teeth in the same dental arch and to the teeth in the opposing arch.

Nomenclature

- *Mandibular refers to the lower jaw.
- *Maxillary refers to the upper jaw.
- *Deciduous tooth refers to milk tooth, which is defined as “one of the temporary teeth of a mammal that are replaced by permanent teeth, Also called baby tooth.
- *Permanent suggests a permanent dentition.

Formation of the Dentitions

Humans have two sets of teeth in their lifetime (primary or deciduous dentition and permanent dentition).

The primary dentition begins to form prenatally at about 14 weeks in utero and is completed postnatally at about 3 years of age. In the absence of congenital disorders, dental disease or trauma, the first teeth in this dentition begin to appear in the oral cavity at the mean age of 6 and the last emerge at a mean age of 28 ± 4 months. They remain intact (if not lost from dental caries or trauma) until the child is about 6 years of age.

University of Basrah

College of Dentistry

Department of conservative
Dentistry



جامعة البصرة

كلية طب الاسنان

فرع معالجة الاسنان

Lecture 1

د. زهراء مازن الهواز

At about that time the first succedaneous or permanent teeth begin to emerge into the mouth. The emergence of these teeth begins the transition or mixed dentition period in which there is a mixture of deciduous and succedaneous teeth present. The transition period lasts from about 6 to 12 years of age and ends when all the deciduous teeth have been shed.

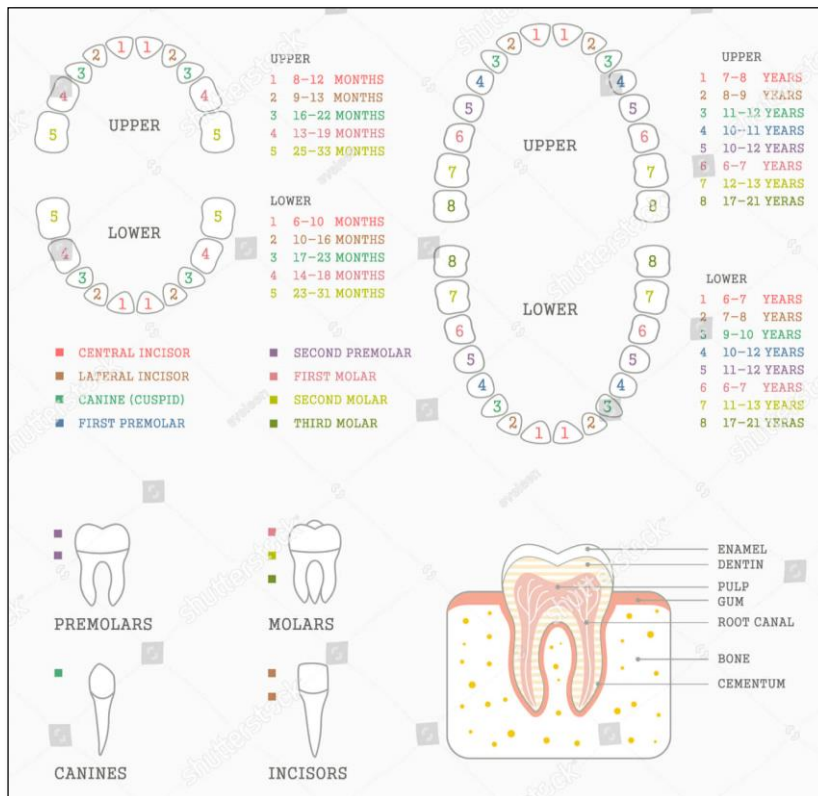
Thus, the transition from the primary dentition to the permanent dentition begins with the emergence of the first permanent molars, shedding of the deciduous incisors and emergence of the permanent incisors.

After the shedding of the deciduous canines and molars, emergence of the permanent canines and premolars and emergence of the second permanent molars; the permanent dentition is completed (including the roots) at about 14 to 15 years of age, except for the third molars which are completed at 18 to 25 years of age. In effect, the duration of the permanent dentition period is 12+ years. The completed permanent dentition consists of 32 teeth if none are congenitally missing.



Lecture 1

د. زهراء مازن الهواز



Formulae for Mammalian Teeth

-The dental formula for the *primary/deciduous* teeth in humans is as follows:

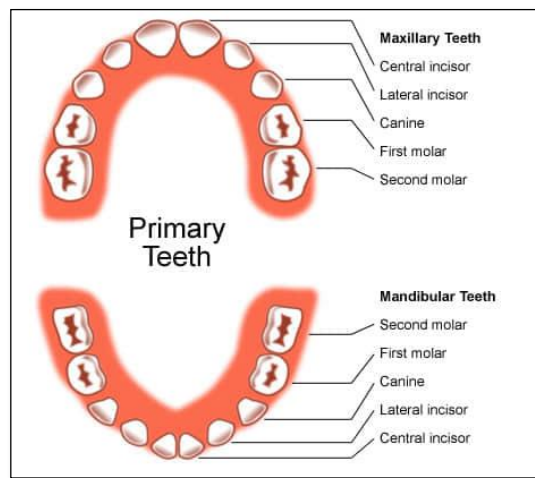
$$I \frac{2}{2} C \frac{1}{1} M \frac{2}{2} = 10$$



Lecture 1

د. زهراء مازن الهواز

This formula should be read as: incisors (two maxillary and two mandibular), canines (one maxillary and one mandibular), molars (two maxillary and two mandibular) or 10 altogether.



-The dental formula for the *permanent human dentition* is as follows:

$$I \frac{2}{2} C \frac{1}{1} P \frac{2}{2} M \frac{3}{3} = 16$$

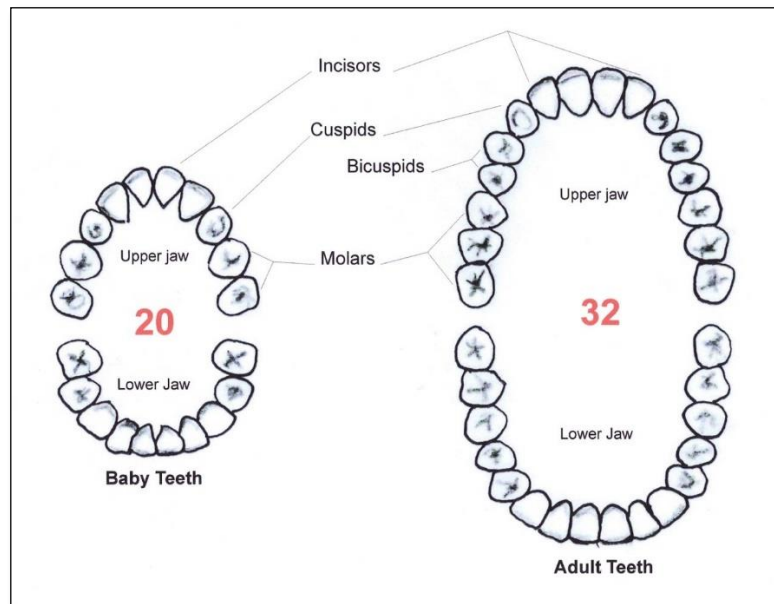
Premolars have now been added to the formula, two maxillary and two mandibular, and a third molar has been added, one maxillary and one mandibular.

[I for incisor, C for canine, P for premolar, M for molar]



Lecture 1

د. زهراء مازن الهواز

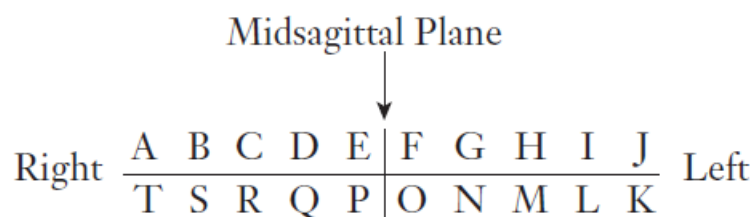


Tooth Numbering Systems

***Primary dentition**

1. Universal system

The universal system of notation for the primary dentition uses uppercase letters for each of the primary teeth. For the maxillary teeth: beginning with the right second molar (letters A through J), and for the mandibular teeth (letters K through T) beginning with the left mandibular second molar. The universal system notation for the entire primary dentition is as follows:





Lecture 1

د. زهراء مازن الهواز

2. Palmer system

Palmer system of notation in the United States. In this system the arches are divided into quadrants with the entire dentition being notated as follows:

E	D	C	B	A	A	B	C	D	E
E	D	C	B	A	A	B	C	D	E

Thus, for a single tooth such as the maxillary right central incisor the designation is \overline{A} .
 for the mandibular left central incisor, the notation is given as \overline{A} .

3. Fédération Dentaire Internationale (FDI)

Upper Right					Upper Left				
55	54	53	52	51	61	62	63	64	65
85	84	83	82	81	71	72	73	74	75
Lower Right					Lower Left				

Numeral 5 indicates the maxillary right side, and 6 indicates the maxillary left side. The second number of the two-digit number is the tooth number for each side. The number 8 indicates the mandibular right side, and the number 7 indicates the mandibular left side. The second number of the two-digit system is the tooth number. Thus, for example the number 51 refers to the maxillary right central incisor.



*Permanent dentition

1. Universal system

Universal notation system for the permanent dentition the maxillary teeth are numbered from (1 through 16) beginning with the right third molar. Beginning with the mandibular left third molar, the teeth are numbered (17 through 32). Thus, the right maxillary first molar is designated as 3, the maxillary left central incisor as 9, and the right mandibular first molar as 30. The following universal notation designates the entire permanent dentition.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

2. Palmer system

The Palmer notation for the permanent dentition is a four-quadrant symbolic system in which, beginning with the central incisors, the teeth are numbered 1 through 8 in each arch. For example, the right maxillary first molar is designated as 6, and the left mandibular central incisor as 1. The Palmer notation for the entire permanent dentition is as follows:

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

University of Basrah
College of Dentistry
Department of conservative
Dentistry



جامعة البصرة
كلية طب الاسنان
فرع معالجة الاسنان

Lecture 1

د. زهراء مازن الهواز

3. *Fédération Dentaire Internationale (FDI)*

Upper Right								Upper Left							
18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
Lower Right								Lower Left							

Thus, as in the two-digit FDI system for the primary dentition, the first digit indicates the quadrant: 1 to 4 for the permanent dentition and 5 to 8 for the primary dentition. The second digit indicates the tooth within a quadrant: 1 to 8 for the permanent teeth and 1 to 5 for the primary teeth. For example, the permanent upper right central incisor is 11 (pronounced “one one,” not “eleven”).