THE DENTAL AESTHETIC INDEX (DAI)

DEFINITION:

The DAI is an orthodontic index based on socially defined standards and is recognised by the World Health Organisation (WHO).

THE SCALE:

A dentist N.C. Cons and a sociologist J. Jenny felt that the need for orthodontic treatment should be based on physical considerations as well as the individual's social and psychological need for treatment.

The various dental deviations e.g. visibly missing teeth, overbites, crowding, spacing and teeth that fail to meet were designated scores.

A mathematical equation was then devised with which an individual's teeth could be assigned an index rating.

The DAI has been used in epidemiological surveys and can be used by medical schemes to determine the severity level and treatment need for orthodontics.

1. Missing maxillary and mandibular incisors, canines and premolars

The no. of missing permanent incisor, canine and premolar teeth in the upper and lower arches was recorded.

Teeth were not recorded as missing if spaces were closed, if a primary tooth was still in position and its successor has not yet erupted, or if a missing incisor, canine or premolar tooth has been replaced by a fixed prosthesis.

2. Crowding in the incisal segments

Crowding in the incisal segment is the condition in which the available space between the right and left canine teeth is insufficient to accommodate all four incisors in normal alignment. Teeth may be rotated or displaced or out of alignment in the arch.

3. Spacing in the incisal segments

Spacing is the condition in which the amount of space available between the right and left canine teeth exceeds that required to accommodate all four incisors in normal alignment.

If one or more incisor teeth have proximal surfaces without any interdental contact, the segment was recorded as having space. Both the upper and lower incisal segments were examined for spacing. The space from a recently exfoliated primary tooth was not recorded if it appears that the permanent replacement will soon erupt.

Spacing can be a symptom of missing or undersized lateral incisors, para-function habits such as thumb sucking, mouth-breathing, flared or rotated central incisors, anodontia, macroglossia, dento-alveolar disproportions and true tooth size/jaw discrepancies.

4. Maxillary midline diastema

A diastema is defined as a space greater than 0.5mm between the proximal surfaces of adjacent teeth, a midline diastema indicates a space between the central incisors. If the space between the maxillary central incisors is greater than 2mm, spontaneous closure is unlikely.

5 & 6. Maxillary and Mandibular irregularity

Irregularities may be either rotations out of, or displacements from, normal alignment. The four incisors in the upper (maxillary) and lower (mandibular) arch were examined to locate the greatest irregularity. Irregularities may occur with or without crowding. If there is sufficient space for all four incisors in normal alignment but some are rotated or displaced, the largest irregularity was recorded.

7. Anterior maxillary overjet

Anterior maxillary overjet is the measurement of the horizontal relation of the incisors with the teeth in centric occlusion. The distance from the labial-incisal edge of the most prominent upper incisor to the labial surface of the corresponding lower incisor was measured. Maxillary overjet was not recorded where all the upper incisors were missing or in lingual crossbite. If the incisors occlude edge-to-edge, the overjet was scored as zero.

Anterior maxillary overjet indicates an antero-posterior deviation in Class II direction.

8. Anterior mandibular overjet

Mandibular overjet was recorded when any lower incisor protrudes anteriorly or labially to the opposing upper incisor, i.e. in crossbite. Mandibular overjet was not recorded if a lower incisor was rotated so that one part of the incisal edge is in crossbite (i.e. labial to the upper incisor) but another part of the incisal edge was not.

Anterior mandibular overjet is indicative of Class III malocclusion or anterior crossbite.

9. Vertical anterior openbite

Anterior openbite is a lack of vertical overlap between any of the opposing pairs of incisors (openbite). Anterior openbite reflects discrepancies in the vertical plane of space. As a child becomes older, it is increasingly likely that malocclusion in the vertical plane of space, is related to skeletal jaw proportions and not just to displacement of teeth.

10. Antero-posterior molar relation

This assessment was based on the relationship of the permanent upper and lower first molars. The right and left side were assessed with the teeth in occlusion and only the largest deviation from the normal relation, Angle Class I was recorded.

DAI SCORING

		A	B	C
		No.	Wt.	
0	CONSTANT			13
1	Missing incisor, canine and premolar teeth Maxillary and Mandibular (Enter Total Number)		6	
2	Crowding in the incisal segments 0= no segment crowded 1= segment crowded 2= 2 segments crowded		1	
3	Spacing in the incisal segments 0= no spacing 1= 1 segment spaced 2= 2 segments spaced		1	
4	Diastema in mm		3	
5	Largest anterior irregularity – Maxilla in mm		1	
6	Largest anterior irregularity – Mandible in mm		1	
7	Anterior Maxillary Overjet in mm		2	
8	Anterior Mandibular Overjet in mm		4	
9	Vertical Anterior Openbite in mm		4	
10	Antero-posterior molar relation Normal = 0 ½ cusp = 1 Full cusp = 2		3	
11	Total (add lines through 10) = DAI score			

METHOD OF RECORDING:

Ten components are to be measured.
Column A provides the space to enter all the measured values.
Column B is the rounded weight of the standard DAI.
In Column C (the product of A multiplied by B) addition of all the lines (and the constant no.13) yields the DAI score.

SCORE INTERPRETATION

GROUP	SEVERITY LEVEL AND TREATMENT NEED
< 25	Normal or minor malocclusion No treatment need or slight need
26-30	Definite malocclusion Treatment elective
31-35	Severe malocclusion Treatment highly desirable
> 36	Very severe (handicapping) malocclusion Treatment mandatory

Definitive Malocclusion (DAI score = 30) Handicapping Malocclusion (DAI Score = 48)

Denis funding is for severe and very severe malocclusions