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ORIGINAL ARTICLE

# Odontometry of deciduous anterior teeth of the melano-Ivorian subjects

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## Abstract

**Background**: The permanent or deciduous anterior teeth is a factor of integration in society and is considered as a discriminating character in the identification of the individual.

**Aim**: The aim of the study was to determine the coronal diameters of the deciduous incisivo-canine group of the Melano-African children from Côte D'Ivoire.

**Methodology**: The study involved 1790 deciduous anterior teeth of 366 arches casts of 183 Melano-African children from Côte d'Ivoire, aged from 2 ½ years to 8 ½ years, in stable deciduous and mixed teeth. The coronal diameters were measured at the axial and cervical surfaces by an operator and using a dry-tip compass, transferred to a graduated ruler followed by statistical analysis. A comparative analysis based on the reduced gap test formula compared the coronal diameters of the incisivo-canine group of the right and left hemispheres, also those of the two sexes. The significance test was equal to "t" >1.96 at the 0.05 threshold.

**Results**: The coronal diameters of the teeth of the incisivo-canine group do not show any statistical difference between the right and left sides. The diameters of the central incisors are statistically identical to those of the lateral incisors in both arches. In the maxilla, the canines are wider than the lateral incisors but identical to the central incisors. On the other hand, at the mandible, the canine has larger diameters than those of the central and lateral incisors. There is no statistical difference between the coronal diameters of the incisive-canine group of boys and girls at both the maxilla and mandible.

**Conclusion**: The deciduous canine is the widest tooth in the mandible and competes with the deciduous central incisor in the maxilla. The incisivo-canine group does not have any sexual differences.

**Clinical significance**: The use of dental materials of leucoderma subjects has led to many therapeutic failures in our clinical practices, due to their unsuitability and inapplicability in Melano-African children. This work will make it possible to establish real, precise, and specific standards for the African subject, which will be used to design dental materials that can be adapted for the Melano-African children in Côte d'Ivoire.

## Introduction

Teeth are of undeniable interest to the dentist, forensic medicine, and paleoanthropology, due to their distinctive characteristics necessary for identification and their resistance to the evolution of time.[1,2] In dentistry, teeth are perfectly in line with the variability of the species both for their morphology and size.[3,4] Thus, the dimensions of the teeth were also considered as discriminating characteristics.[3] Therefore, dental dimension measurements are important for the dentist to know because they are a key element in describing dental anatomy, which must be taken into account in the various therapies.[5] To this

end, various studies have been carried out throughout the world and have made it possible to establish dimensional indicators of dental crowns in several populations.[6-15] The results led to the design of atlases for teaching, and dental equipment for clinical practice (commercial teeth, polycarbonate crown, ring, pediatric crowns...). In Côte d'Ivoire, most odontometric studies have been conducted on permanent teeth.[2,16-18] Very few studies have been done on deciduous teeth, especially anterior teeth. These teeth are an important factor for integration in African societies.[19] They occupy a special place in the harmony of the face.[20] In children, they contribute to their physical, psychological, and intellectual development. When these teeth are affected or disappear before they fall, they become a source of concern for parents and children because they cause behavioral problems and relational difficulties in those around them. Their therapeutic management poses enormous difficulties for the melano-Ivorian subject, due to the use of dental materials made to the dimensional standards of leuco-Europeans, which do not adapt to our clinical realities.

The objective of this study was to determine the coronal diameters of the deciduous incisors and canines of Melano-African children in Côte d'Ivoire.

## Methodology

### Materials

This is a retrospective study whose human material consisted of 183 African melanoderms children of both sexes from Côte d'Ivoire, without racial mixing, aged from 2 ½ years to 8 ½ years, from the commune of Yopougon, in the district of Abidjan. They were in stable deciduous and mixed teeth. The technical measuring equipment included maxillary and mandibular casts from the impressions of the children's arches, a dry-point compass, a double millimeter decimeter, and a survey sheet that recorded the metric data.

### Methods

*Selection criteria*

The study included melanoderms children from Côte d'Ivoire without racial mixing, aged 2 ½ to 8 ½ years old without distinction of sex, in stable deciduous and mixed teeth, who had deciduous incisors and canines that had completed their clinical emergence, healthy and without malposition.

The study did not include all subjects in active eruption in primary dentition and mixed dentition stage, and having a general pathology impacting dental morphologies.

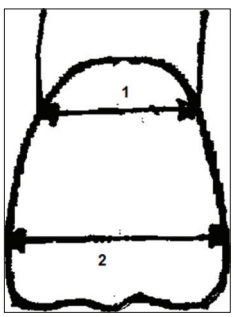
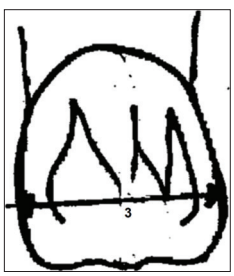
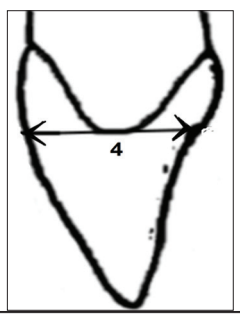
| Measures | Schematization | Benchmark |
|---|---|---|
| Vestibular |   | 1-Cervical Mesial and distal points of the vestibular view (ØMDcl)<br>2-Mesial and distal points of the vestibular view at the largest contour (ØMDV) |
| Lingual/Palatine |   | 3-Mesial and distal points of the palatal or lingual view at the largest contour (ØMDL, ØMDP) |
| Proximal |   | 4-vestibular and palatal or lingual of the proximal view at the largest (ØVP, ØVL) |

Figure 1: Marks of each diameter measurement on a deciduous anterior tooth

*Measured procedures and variables*

The recording of each subject was based on a survey sheet that included two parts. A first part was used to identify the subject and a second part was used to record the measured variables of the deciduous incisivo-canine group. Impressions of the jaws with AROMA® class B, type 2, fast setting, and immediately cast alginate allowed the production of molds based on FUJI or VEL MIX STONE® hard plaster with fast setting and minimal shrinkage. The measurements taken by a well-trained operator using a dry-point compass were transferred to a double millimeter decimeter.

The benchmarks concerned by each measure included [Figure 1]: The cervical mesiodistal diameter (ØMDcl), the mesiodistal vestibular diameter at the largest contour (ØMDV), the lingual mesiodistal or palatal diameter at the largest contour (ØMDL, ØMDP), and the vestibulo-palatal or vestibulo-lingual diameters at the largest contour (ØVP, ØVL).

The data collected were processed on the computer from Microsoft® Access® and Excel® software. Traditional statistics made it possible to carry out an initial descriptive analysis (mean, variance, and standard deviation), followed by a comparison test of two means or reduced deviation test, applied to the metric standards of the incisors and canines of the left and right hemi-arch and of both sexes.

This test is defined as follows: The comparison between two means is based on the reduced deviation. Thus, if the number $n_1$ is >30 and the number $n_2$ >30; the test formula "t

$$t = \frac{m_1 - m_2}{\sqrt{\frac{V_1^2}{n_1} + \frac{V_2^2}{n_2}}}$$

$m_1$ = average of first sample
$n_1$ = first sample size
$V_1^2$ = variance of the first sample
$m_2$= average of the second sample
$n_2$ = second sample size
$V_2^2$ = variance of the second sample

If t < 1.96, the difference is not significant at the 5% threshold.

If t > 1.96, the difference is significant and the risk of error corresponding to $t_0$ $\alpha$ ddl read in the reduced-spread table fixes the degree of significance.

## Results

The overall sample consisted of 49.50% boys and 50.40% girls. There were 1790 maxillary and mandibular deciduous teeth for both sexes, including 539 (30.11%) deciduous central incisors, 545 (30.45%) deciduous lateral incisors, and 706 (39.44%) deciduous canines. The results of the dimensions of deciduous dental crowns are given in millimeters.

1. Overall coronal dimensions of deciduous incisors and canines [Tables 1 and 2].
2. Coronal dimensions of deciduous incisors and canines by sex [Tables 3 and 4].

## Discussion

### The limits of the study

To obtain our results, we adopted an adapted and justified methodological approach. The distribution of our sample shows as many girls as boys with a sex ratio equal to one. 2/3 of the anterior teeth counted are incisors; on the other hand, canines represent slightly more than 1/3. This indicates a homogeneous distribution of teeth with each type of tooth mainly represented. This leads to less bias in the results. The risks of error associated with the use of the dry-tip compass and a ruler for taking coronal dimensions on casting have been minimized by choosing a single operator who has been well-calibrated and trained. The indirect measure adopted in this study was preferred to the direct method recommended by N'cho-Oka *et al.*;[21,22] because, according to Barrett *et al.* and Kaushal *et al.* cited by Sonan *et al.*,[1] measurements on castings would be more reliable. To reduce dimensional variations due to impressions, they were immediately cast after setting with a fast setting, minimally shrinking hard plaster.

### Descriptive analysis

*Coronal diameter comparison of the anterior deciduous teeth of the right and left hemi-arcade*

Descriptive analysis of the results shows that the means of the coronal diameters of the deciduous incisors and canines do not show any significant statistical difference between the right and left hemi-arcade, in the maxillary or mandibular jaws [Table 1]. This conclusion supports the work of Yuen *et al.*[10] which noted that no significant bilateral asymmetry, related to coronary mesiodistal diameter in children in southern China, has been detected as deciduous teeth, except for the second jaw deciduous molar. The same is true for Baik *et al.*[11] who did not observe any difference in mesiodistal and vestibulo-lingual or platinum dimensions between the left and right sides of the deciduous anterior teeth in Korean children. However, the results disagree with the work of Liu *et al.*[12] for the mesiodistal diameter. Indeed, these authors showed a significant difference of $P < 0.001$ between the right and left deciduous maxillary canines in Taiwanese children. In addition, Kuswandari *et al.*[13] note that in Indonesian children, the amplitude of asymmetry between the teeth on the right and left side would be greater for the deciduous teeth at the end of the series, in each group of teeth. This finding is consistent with Liu *et al.*[12] because, for the incisivo-canine group, the canine is the last tooth in this series.

### Comparison of groups of anterior deciduous teeth of the same arch

*Comparison of coronal diameters of canines and deciduous incisors*

The upper deciduous canines are statistically wider than the deciduous maxillary lateral incisors [Table 2], as confirmed by the literature review.[6,14,15,23,24] Indeed, for Meredith *et al.*,[15] the upper canine is the widest of all the deciduous anterior teeth. While Eigbobo *et al.*[14] note a progressive increase in the mean

**Table 1:** Mean coronary dimensions of the deciduous incisors and canines and the comparison test between the teeth of the right and left hemi-arch at the maxilla and mandible

| Teeth | Maxillary | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 51 | 61 | Test "t" | 52 | 62 | Test "t" | 53 | 63 | *t*-test |
| | Mean | Mean | | Mean | Mean | | Mean | Mean | |
| ØVP | 5.36±0.53 | 5.34±0.54 | 0.02 | 4.88±0.45 | 4.79±0.45 | 0.14 | 6.21±0.48 | 6.15±0.47 | 0.08 |
| ØMDV | 6.96±0.50 | 6.95±0.54 | 0.01 | 5.88±0.41 | 5.78±0.42 | 0.16 | 7.14±0.45 | 7.20±0.45 | 0.09 |
| ØMDP | 6.69±0.49 | 6.73±0.51 | 0.05 | 5.67±0.46 | 5.69±0.41 | 0.04 | 7.07±0.46 | 7.06±0.44 | 0.01 |
| ØMDc | 6.42±0.58 | 6.46±0.57 | 0.04 | 5.29±0.48 | 5.33±0.50 | 0.05 | 6.67±0.55 | 6.72±0.52 | 0.06 |
| Teeth | Mandible | | | | | | | | |
| | 71 | 81 | Test "t" | 72 | 82 | Test "t" | 73 | 83 | *t*-test |
| | Mean | Mean | | Mean | Mean | | Mean | Mean | |
| ØVL | 4.21±0.45 | 4.24±0.46 | 0.04 | 4.53±0.46 | 4.48±0.44 | 0.07 | 5.67±0.45 | 5.65±0.41 | 0.03 |
| ØMDV | 4.50±0.43 | 4.56±0.45 | 0.09 | 4.99±0.44 | 4.96±0.46 | 0.04 | 6.34±0.38 | 6.28±0.40 | 0.1 |
| ØMDL | 4.38±0.42 | 4.41±0.46 | 0.04 | 4.82±0.47 | 4.87±0.42 | 0.07 | 6.18±0.41 | 6.14±0.44 | 0.06 |
| ØMDcl | 4.13±0.45 | 4.14±0.42 | 0.01 | 4.54±0.44 | 4.45±0.43 | 0.14 | 5.92±0.44 | 5.91±0.44 | 0.01 |

**Table 2:** Statistical comparison tests between the mean diameters of the central and lateral incisors; lateral incisors and canine; deciduous canines; and central incisors, at the maxilla and mandible

| | Maxillary | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Teeth | 51/61//52/62 | | | | 52/62//53/63 | | | | 53/63//51/61 | | | |
| Mean | 51/61 M1 | 52/62 M2 | M1-M2 | *t*-test | 52/62 M2 | 53/63 M3 | M2-M3 | *t*-test | 53/63 M3 | 51/61 M1 | M3-M1 | *t*-test |
| ØVP | 5.35 | 4.83 | 0.52 | 0.69 | 4.83 | 6.18 | 1.35 | 2.02* | 6.18 | 5.35 | 0.83 | 1.19 |
| ØMDV | 6.95 | 5.83 | 1.12 | 1.66 | 5.83 | 7.17 | 1.34 | 2.07* | 7.17 | 6.95 | 0.22 | 0.26 |
| ØMDP | 6.71 | 5.68 | 1.03 | 1.52 | 5.68 | 7.06 | 1.38 | 2.13* | 7.06 | 6.71 | 0.35 | 0.56 |
| ØMDcl | 6.44 | 5.31 | 1.13 | 1.49 | 5.31 | 6.69 | 1.38 | 1.89 | 6.69 | 6.44 | 0.25 | 0.31 |
| | Mandible | | | | | | | | | | | |
| Teeth | 71/81//72/82 | | | | 72/82//73/83 | | | | 73/83//71/81 | | | |
| Mean | 71/81 M1 | 72/82 M2 | M1-M2 | *t*-test | 72/82 M2 | 73/83 M3 | M2-M3 | *t*-test | 73/83 M3 | 71/81 M1 | M1-M3 | *t*-test |
| ØVL | 4.22 | 4.50 | −0.28 | 0.49 | 4.50 | 5.66 | 1.16 | 1.92 | 5.66 | 4.22 | 1.44 | 2.30* |
| ØMDV | 4.53 | 4.97 | −0.44 | 0.79 | 4.97 | 6.31 | 1.34 | 2.35* | 6.31 | 4.53 | 1.78 | 3.20* |
| ØMDL | 4.39 | 4.84 | −0.45 | 0.69 | 4.84 | 6.16 | −1.32 | 2.17* | 6.16 | 4.39 | 1.77 | 3.04* |
| ØMDcl | 4.13 | 4.49 | −0.36 | 0.64 | 4.49 | 5.91 | −1.42 | 2.23* | 5.91 | 4.13 | 1.78 | 2.83* |

mesiodistal and vestibulo-buccal coronal diameters of the lateral incisors to the deciduous molar seconds at the maxillary arch. Compared to the upper central incisors, the maxillary deciduous canines are statistically identical to them [Table 2]. This is confirmed by Marseillier[6] and Papathanassiou[24] in terms of their mesiodistal diameter. Thus, these two types of anterior teeth compete in terms of their coronal diameters. On the other hand, other authors confirm the dominance of the maxillary central incisor over all maxillary anterior teeth.[14,25] Thus, for Paris and Etienne,[25] the central incisor is the widest tooth in the anterior block but shares the coronary length record with the canine tooth. For these authors,[25] his position in front of the smile gives the impression of a tooth that dominates and imposes itself on others. They call him the "smile star." Eigbobo *et al*.[14] made the same finding and noted that the deciduous maxillary central incisor is the largest of all the deciduous teeth in the maxillary arch. For Garcia-Godoy *et al*.,[26] the deciduous incisor and canines would show very high variability. This variability would be related to their growth rate, according to Moss and Chase.[27] For Kraus[28] and Mahoney,[29] the deciduous maxillary central incisor calcifies faster than the other teeth in the mesiodistal and vertical direction. In addition, the central incisor increases in height at a significantly faster rate than that of the canines and molars.[29] This growth of the enamel could explain the enlargement of the dimensions of the maxillary central incisor compared to the canine.

At the mandible, the canines have larger dimensions than those of the central and lower lateral deciduous incisors [Table 2]. These results are consistent with the results of the majority of authors with respect to mesiodistal and vestibulo-lingual diameters.[6,14,15,23,24,30]

*Comparison of coronal diameters of deciduous central and lateral incisors*

At the maxillary level, the mean coronary measurement values of the central incisors are slightly higher than those of the lateral

incisors. Unlike the mandible, it is the average diameters of the lateral incisors that are wider [Table 2]. However, the study shows that the deciduous central and lateral incisors are statistically identical at both the maxilla and mandible [Table 2]. These results are consistent with those of Choquet[23] at the mandible. However, they are contrary to the majority of the work. Indeed, according to the literature review, the central maxillary incisors are wider than the lateral maxillary incisors.[6,14,15,24,30] Meredith *et al.*[15] note a difference of 2.3 mm in diameter between the maxillary central and lateral incisors in white children in North America. These authors also specify that the central mandibular incisor is the smallest of all deciduous teeth.[15] In short, the authors describe incisors in series descending to the maxilla and ascending to the mandible.[6,14,15,23,24,30]

*Coronal diameter comparison of girls' and boys' anterior teeth boys*

The descriptive analysis of the mean values of the coronal diameters shows a difference between the anterior teeth of

**Table 3:** Difference in mean coronal diameters of the deciduous incisors and canines in girls and boys at the maxilla and mandible

| Arches | Teeth | Sex | Coronal diameters | | | |
|---|---|---|---|---|---|---|
| | | | ØVP/L | ØMDV | ØMDP/L | ØMDcl |
| Maxillary | 51/61 | Boy | 5.43 | 7.00 | 6.73 | 6.47 |
| | | Girl | 5.26 | 6.90 | 6.69 | 6.40 |
| | | Difference | 0.17 | 0.1 | 0.04 | 0.07 |
| | 52/62 | Boy | 4.90 | 5.80 | 5.69 | 5.30 |
| | | Girl | 4.76 | 5.85 | 5.66 | 5.32 |
| | | Difference | 0.14 | −0.05* | 0.03 | −0.02* |
| | 53/63 | Boy | 6.25 | 7,25 | 7,15 | 6,77 |
| | | Girl | 6.09 | 7.07 | 6.96 | 6.51 |
| | | Difference | 0.16 | 0.18 | 0.19 | 0.26 |
| Mandible | 71/81 | Boy | 4.29 | 4.56 | 4.40 | 4.15 |
| | | Girl | 4.16 | 4.50 | 4.39 | 4.12 |
| | | Difference | 0.13 | 0.06 | 0.01 | 0.03 |
| | 72/82 | Boy | 4.57 | 4.99 | 4.85 | 4.51 |
| | | Girl | 4.43 | 4.94 | 4.83 | 4.47 |
| | | Difference | 0.14 | 0.03 | 0.02 | 0.04 |
| | 73/83 | Boy | 5.75 | 6.36 | 6.20 | 5.99 |
| | | Girl | 5.55 | 6.26 | 6.12 | 5.83 |
| | | Difference | 0.2 | 0.1 | 0.08 | 0.16 |

**Table 4:** Statistical tests to compare the coronary dimensions of the deciduous incisors and canines of girls and boys in the maxilla and mandible

| Maxillary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Teeth | 51b/51g | | 52b/52g | | 53b/53g | | 61b/61g | | 62b/62g | | 63b/63g | |
| Test | t observed | R | t observed | R | t observed | R | t observed | R | t observed | R | t observed | R |
| ØVP | 0.13 | NS | 0.14 | NS | 0.23 | NS | 0.30 | NS | 0.32 | NS | 0.25 | NS |
| ØMDV | 0.11 | NS | 0.05 | NS | 0.30 | NS | 0.15 | NS | 0.11 | NS | 0.27 | NS |
| ØMDP | 0.05 | NS | 0.01 | NS | 0.03 | NS | 0.05 | NS | 0.10 | NS | 0.30 | NS |
| ØMDcl | 0.04 | NS | 0.02 | NS | 0.21 | NS | 0.03 | NS | 0.04 | NS | 0.23 | NS |
| Mandible | | | | | | | | | | | | |
| Teeth | 71b/71g | | 72b/72g | | 73b/73g | | 81b/81g | | 82b/82g | | 83b/83g | |
| Test | t observed | R | t observed | R | t observed | R | t observed | R | t observed | R | t observed | R |
| ØVL | 0.18 | NS | 0.21 | NS | 0.37 | NS | 0.21 | NS | 0.22 | NS | 0.43 | NS |
| ØMDV | 0.06 | NS | 0.08 | NS | 0.11 | NS | 0.17 | NS | 0.07 | NS | 0.03 | NS |
| ØMDL | 0.05 | NS | 0.06 | NS | 0.08 | NS | 0.06 | NS | 0.01 | NS | 0.18 | NS |
| ØMDcl | 6.4.10 | NS | 0.01 | NS | 0.3 | NS | 0.06 | NS | 0.11 | NS | 0.21 | NS |

b: Boy, g: Girl, R: Result, NS: Non significant

girls and boys [Table 3]. Indeed, the coronal diameters of boys' anterior teeth are larger than those of girls, except for the mesiodistal vestibular and cervical diameters of girls' deciduous lateral maxillary and mandibular incisors, which are slightly larger than those of boys. On the other hand, statistical tests show that this difference is not significant [Table 4]. Thus, the coronal diameters of the anterior teeth of boys and girls are statistically identical. Several studies agree with this result.[10,12,14,31] According to Lui *et al*.,[12] the deciduous maxillary canines, lateral incisors, and deciduous lower canines of boys and girls would not differ significantly in their mesiodistal coronary diameter. For Yuen *et al*.,[10] since sexual dimorphism is very low and even absent in the central and lower lateral incisors, it would vary from 0.06% to 1.97% in deciduous teeth. As for the Nigerian study conducted by Eigbobo *et al*.,[14] 47.7% of the deciduous teeth would not show a statistically significant difference between the sexes. On the other hand, other studies note statistically more distinct sex differences in deciduous teeth.[11,26,27] Thus, for Anderson,[32] the sexual dimorphism in deciduous teeth would be on average 3.5% in the jaw and 3.2% in the mandible. However, the difference between the coronal dimensions of the two sexes is mainly observed at the level of the permanent canine, as most studies around the world indicate.[1,14] This sexual dimorphism of the coronary dimensions of permanent canines is explained by the influence of the sex chromosomes "Y."[14] For Moss *et al*.,[33] the deciduous canine is affected by sexual dimorphism in the same way as the permanent canine. According to Anderson AA,[32] this difference would be related to an absolutely longer amelogenesis period for both deciduous and permanent teeth during coronary formation.

## Conclusion

The cross-sectional study carried out on 366 dental arch casts of young children determined the dimensional averages of the diameters of the crowns of the incisors and deciduous canines in the melanoderm African child from Côte d'Ivoire. The main results are presented as follows:

- The coronal diameters of the incisors and deciduous canines of the right hemi-arch are statistically identical to those of the left hemi-arch at the maxilla and mandible.
- The upper canines are wider than the deciduous maxillary lateral incisors and identical to the central incisors; on the other hand, at the mandible, they have larger dimensions than those of the deciduous central and lower lateral incisors. However, the deciduous central and lateral incisors are identical in both the maxilla and mandible.
- Statistically, there is no sexual dimorphism between the coronal diameters of the incisivo-canine group of girls and boys.

This study complements the preliminary study on the coronary dimensions of deciduous molars in Melano-African children in Côte d'Ivoire. This work constitutes a fundamental database for the pediatric dentist and orthodontist. However, a study on isolated natural teeth would be more interesting and would make it possible to obtain more precise and real values of the coronal diameters of all deciduous teeth in the African melanoderm children in Côte d'Ivoire. In addition, extending this study to the entire West African sub-region will provide dimensional standards for deciduous crowns for teaching, clinical and research purposes to make deciduous teeth, pedodontic crowns, and orthodontic braces.

## References


1. Sonan NK, Beugre-Kouassi AL, Diakite K, Kouadio M, N'dindin-Guinan B, Aka A, *et al*. Odontometric approach for the determination of dimorphism sexual. Study of the anterior human teeth of Melano-Ivorian subjects. J Afr Dent Maxillofac Surg 2012;19:20-5.
2. Ebrottie E. Study of Coronary Dimensions and Dental Arches in 254 Children of Ivorian Melanoderms Aged 2.5-13.5 Years, Thesis 2nd Cycle. Côte d'Ivoire, Africa: Abidjan University School of Dentistry; 2003.
3. Granat J, Peyre E. History of the human teeth and history of the origin of the genus homo. French Soc Hist Dent 2011;16:57-62. Available from: http://www.biusante.parisdescartes.fr sfhad/2011_13.pdf. [Last accessed on 2018 Sep 09].
4. Granat J. The History and the Man Told by the Teeth. SFHAD; 2001. Available from: http://www.biusante.parisdescartes.fr/sfhad/vol7/article01.htm. [Last accessed on 2018 Sept 05].
5. Berard R. Introduction to Dental Practice in Children. Paris: Masson Cie and Julien Prélat; 1972. p. 57-63.
6. Marseillier E. The human Teeth Morphology. Paris: Gauthier-Villars; 1958.
7. Cretot M. The Human Dental Arch Morphology. Paris: Julien Prétat; 1972.
8. Lautrou A. Dental Anatomy. 2nd ed. Paris: Elsevier-Masson; 2006. p. 264.
9. Ngom PI, Diagne F, Idrissi OD, Idrissi OH. Comparative odontometric data for Moroccan and Senegalese populations. Trop Dent J 2007;30:15-27.
10. Yuen KK, So LL, Tang EL. Mesiodistal crown diameters of the primary and permanent teeth in Southern Chinese-a longitudinal study. Eur J Orthod 1997;19:721-31.
11. Baik BJ, Jeon SH, Kim JG, Kim YS. A study on the size of the deciduous teeth. J Korean Acad Pediatr Dent 2002;29:382-8.
12. Liu HH, Dung SZ, Yang YH. Crown diameters of the deciduous teeth of Taiwanese. Kaohsiung J Med Sci 2000;16:299-307.
13. Kuswandari S, Nishino M. The mesiodistal crown diameters of primary dentition in Indonesian Javanese children. Arch Oral Biol 2004;49:217-22.
14. Eigbobo J, Sote E, Oredugba F. Tooth crown dimensions of primary dentition in the Nigerian population. Acta Stomatol Croat 2010,44:269-77.
15. Meredith HV, Knott VB. Coronal breadth of human primary anterior teeth. Am J Phys Anthropol 1968;28:49-64.
16. Bakayoko-Ly R. Ivorian typology: Study of the coronal dimensions of the first permanent molar. Trop Dent J 1989;12:117-24.
17. Pesson DM. Typology of Ivoirian subjects. Dissertation for Doctorate in Odontological Sciences. Côte d'Ivoire, Africa: Abidjan University School of Dentistry; 1997.
18. Pass C. Biometric and Cephalometric Standards for a Population of 75 Young Ivorians Aged 13 to 16 Years. Dissertation for

Doctorate in Odontological Sciences. Strasbourg: University of Strasbourg I; 1995.
19. Amani R, N'guessan KS, N'dindin AC, Adou M, Bitty MJ. Treatment of pathological biproalveolysis with partial dental prosthesis. Rev Ivoir Odonto Stomatol 2006;8:10-5.
20. N'guessan KS, N'dindin AC, Koffi NJ, Assi KD, Odi AL. Carnation and tooth shade in the African melanoderm subject: About a sample of 240 subjects. Trop Dent J 2001;95:25-8.
21. N'cho-Oka AE, Kouame KB, Bakayoko-Ly R. Mesio-distal and vestibulo-lingual coronary dimensions of the mandibular deciduous molars in the African child melanoderm. J Afr Dent Maxillofac Surg 2014;21:27-30.
22. N'cho-Oka AE, Kouame KB, Bakayoko-Ly R. Mesio-distal and vestibulo-lingual coronal dimensions of the maxillary deciduous molars in the African child melanoderm. J Afr Dent Maxillofac Surg 2014;21:28-32.
23. Choquet J. Precis of Dental Anatomy. Paris: Lamarre Poinat; 1967.
24. Papathanassiou G. Dental Anatomy. Study of the Morphology of Deciduous Teeth. Sculpture Applied to Dentistry. French: University Press of Reims; 1983.
25. Paris JC, Etienne JM. In the centre of the smile: The central incisor. Inf Dent 2007;18:1007-12.
26. Garcia-Godoy F, Michelen A, Townsend G. Crown diameters of the deciduous teeth in Dominican mulatto children. Hum Biol 1985;57:27-31.
27. Moss ML, Chase PS. Morphology of Liberian negro deciduous teeth. I. Odontometry. Am J Phys Anthropol 1966;24:215-29.
28. Kraus BS. Differential calcification rates in the human primary dentition. Arch Oral Biol 1959;1:133-44.
29. Mahoney P. Dental fast track: Prenatal enamel growth, incisor eruption, and weaning in human infants. Am J Phys Anthropol 2015;156:407-21.
30. Moorrees CF. The dimensions of the teeth and the stages of their formation. J Dentofac Orthop 1968;2:325-8.
31. Farmer V, Townsend G. Crown size variability in the deciduous dentition of South Australian children. Am J Phys Anthropol 1993;5:681-90.
32. Anderson AA. Dentition and occlusion development in African American children: Mesiodistal crown diameters and tooth-size ratios of primary teeth. Pediatr Dent 2005;27:121-8.
33. Moss ML, Moss-Salentijn L. Analysis of developmental processes possibly related to human dental sexual dimorphism in permanent and deciduous canines. Am J Phys Anthropol 1977;46:407-13.

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