Comparison of occlusion in medieval and present-day populations in southeast France

Pascal Guichard, DS,a Bertrand Mafart, MD, PhD,a and Jean Daniel Orthlieb, DSb
Marseille, France

Two groups living in southeast France several centuries apart were compared to assess changes in occlusion from medieval times to the present day. The present-day sample included 82 people, and the medieval sample included the skulls of 58 people who lived between the 8th and the 17th centuries. Variations in tooth contacts were examined in accordance with Angle classification. A decrease in Class III occlusion (mesioclusion) was noted from medieval to present-day populations. The rate of Class II occlusion (distoclusion) has increased progressively and has become a general feature in the present-day population (34%). Although the rate of Class I occlusion has generally decreased from proto-historic and medieval times to the present day, it is still the highest percentage (45%) and thus the "normal" reference in European populations. This study highlights distoclusion in human teeth and allowed us to ask questions about functional, genetic, psychological, and environmental factors that cause this malocclusion as opposed to the global harmony that Angle described.

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RESULTS

In the medieval population, the incidence of Class III malocclusions was high (38%), but few had a Class II malocclusion (18.9%). In the present-day population, Class I was predominant, Class II was high, and Class III was lowest (Table). The chi-square test confirmed significant differences among the three categories ($P = .0398$). This did not apply to Class I alone, so the reversal of frequencies from Class II and Class III explained the difference between both populations.

DISCUSSION

Comparing 2 groups that lived at least 500 years apart in southeast France confirms that the “normal” reference is still the Class I occlusion. Class II malocclusion is increasing at the expense of Class III, which has become less frequent (21%). Thus, Class III malocclusions have apparently regressed in time. Contrarily, the high percentage of Class II distoclusions in the present-day population (34%) suggests that this definitely is an evolving phenomenon. Our results match those of Benauwt\(^3\) for 52 Gallic and Gallo-Roman skulls (Class I, 57%; Class II, 13.4%; Class III, 28.8%). Over 50 years ago, Siepel\(^4\) established the following standard with a group of 137 Swedes (Class I, 74.15%; Class II, 20.10%; Class III, 5.75%). These data demonstrate a malocclusion reversal from Class III to II in present-day people, and this study also highlights the increasing incidence of distoclusions compared to Class I “normal” occlusions. In addition, Slavicek et al\(^5\) showed the same change in a white population of 2235 persons in 1983, with a parallel (and even more significant) increase to 52% in skeletal Class II. These findings should raise questions about the origin of this occlusion modification in man. Several reasons are cited in the literature. Begg\(^6\) since 1954, has described the evolution of Class III according to interproximal wear by studying Australian Aborigines. Brace and Loring\(^7\) attribute the reduction in the biomechanical forces of chewing and less attrition of teeth to the appearance of refined flours and the fork in the 17th century. This agrees with a functionalist vision of evolution.

Likewise, the environmental and social factors inherent in a modern, stressful lifestyle and the lack of parental bonding may generate harmful habits. This is exemplified by thumb sucking at a late stage, which may affect the development of the dental arches and the occlusion in children.\(^8\) Van der Linden\(^9\) and Corruccini\(^10\) also studied the influence of the environment. The “leptomorph” evolution of the present day creates the appearance of a more posterior mandible by reducing the dimensions of the palate with a smaller respiration.\(^11\)

On the other hand, because this imbalance includes genetic and ontogenetic aspects of evolution\(^12\) characterized by our physical posture and current physiological development,\(^13,14\) it cannot be denied.

CONCLUSIONS

This study helped to place Angle classification in the dynamic perspective of human history. The significant emergence of Class II and the related distoclusion in European populations should raise questions about the evolution of the human race. However, the results of this study should be confirmed with further investigations on white and other ethnic populations.

REFERENCES