Expert Commentary
Have 1.8 Million Years Made A Difference?

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“Those who don't know history are destined to repeat it”
Edmond Burke (1729-1797)

From the dawn of existence, about 1.8 million years ago, our ancestor, Paranthropus Robustus existed in the Swartkrans caves near modern Johannesburg (South Africa). A skull found in 1938 and reviewed in 1990 for dental pathology revealed that he had the same periodontal disease pattern as is present in Homo Sapiens today.¹ Has civilization actually progressed in terms of oral health and hygiene? From the Pleistocene Era (1.8-1.5 million years ago) through the emergence of civilization and the existence of modern man, periodontal problems have been found in almost every population studied. Over the last two decades, numerous studies have been conducted on the evaluation of periodontal disease existence in ancient skulls starting from the Pleistocene Era (1.8 million years ago) to Neolithic man (12,000 years ago) and more recent civilizations such as the Late Antique and Early Medieval Age (2000 to 1000 years ago). (Figure 1) The single greatest oral health problem in the ancient age was dental attrition followed by periodontal disease. Infact, in some of the ancient jaw bones, the calculus deposits were so extensive that they held the teeth in their place for almost 2000 years.¹ Dental caries was, however, far less frequently seen amongst ancient civilizations than among the populations today. Periodontal disease has been known to be a multifactorial disease that is related to environment, diet, oral health awareness, oral hygiene and its aids, dental care facilities and reflects the overall quality of life of an individual. A shift from the hunter-gatherer society towards farm culture has been observed to be linked with a swing towards reduction of attrition and increase in caries incidence, with periodontal disease associated with bone loss being most marked in those societies with the greatest reliance on agriculture.²³

Paleoanthropologists from all over the world, have reviewed ancient skulls/fragments of jaws and associated teeth for parameters such as: calculus, alveolar bone resorption, fenestration and dehiscence.²³ Apart from the obvious evidence of periodontal disease in the form of bone loss, they also commented on the presence of dental calculus as a predisposing factor to periodontitis but not necessarily an indicator of periodontal disease. It was interesting to note that a clear relationship between progression of periodontal disease and increase in severity with age has been observed among the ancient skulls.²³ Intriguingly, a similar pattern of periodontitis prevalence is evident among
Figure 1

A historical time-line of periodontal disease

1,500 to 3,000 years ago
Europe
Yugoslavia: Evidence of periodontitis in all 595 specimens
UK: Evidence of gingivitis and periodontitis
Croatia: Calculus and alveolar bone loss in 409-508 specimens

4,000 years ago
South West Asia
Periodontal disease prevalence 42%

1,000 to 2,000 years ago
Egypt
Evidence of periodontitis in ancient Egyptian civilization

3,000 years ago
Japan: horizontal bone loss
Arabia: Calculus and increasing severity of periodontitis

5,000 years ago

Homo Sapiens in the Modern World
Advanced periodontal disease worldwide - 10%-15%
Periodontitis in USA - 47.2%
Periodontitis in India - 50%-80%

Have 1.8 million years made a difference......?

Evolution of Man & Periodontal Disease

Neolithic Era
12,000 years ago
China

Pleistocene Era
10,000,000 years ago
South Africa
Calculi in skulls of Paranthropus robustus

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La Ferrassie, Smithsonian Institution's Human Origins Program, 2010.
Christina Warinner: http://christinawarinner.com/image-gallery/
University of York, Centre for chronic diseases and disorders: http://www.york.ac.uk/c202/projects/cjr/periodontal/
Hirsch R: http://m.australianprescriber.com/magazine/172/2/36/8
living populations as in the archaeological material. In summary, it is seen that despite the tremendous time frame and geographical distribution of various prehistoric specimens, periodontal disease prevalence ranging from 40% to 65% has been observed consistently across the ancient globe.\(^{[2-8]}\)

Correlating the prevalence profile of periodontal disease with socioeconomic and cultural advances in civilization has revealed that prevalence rate of periodontal diseases in the ancient times was higher in regions that had a backward economy as opposed to developed regions.\(^{[3]}\) An analogous review of modern data also reveals a significant difference in periodontal disease prevalence between advanced nations (47.2%) and underdeveloped nations (50-90%) with advanced periodontal disease affecting 10%-15% of all adults worldwide today.\(^{[9-11]}\)

A comparison of prevalence and severity of periodontal disease trends illustrates that there appears to be no change in prevalence patterns of periodontal disease between our ancestors and the modern man. Despite the evolution of dentistry as a science, with all the technological advancements, oral health care aids and awareness of the pathophysiology of the disease, it is evident that our periodontal health has remained consistent over the millennia.

Have we really evolved dentally?

**References**


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