

# Sex/Gender Differences in Tooth Loss and Edentulism

## Historical Perspectives, Biological Factors, and Sociologic Reasons

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### KEYWORDS

• Tooth loss • Sex • Gender • Periodontal diseases • Dental caries

### KEY POINTS

- Across history and prehistory into the present day, sex and gender have played, and are likely to continue to play, major roles in differences in dental disease rates, and in the prevalence of tooth loss and edentulism.
- An anthropologic perspective on tooth loss is valuable to clinical dentistry because it provides evolutionary, prehistoric, and ethnographic contexts for understanding an important aspect of oral health in modern humans.
- Whereas in many populations across the world women most certainly had, and continue to have, higher rates of tooth loss and edentulism, differences in tooth loss by sex/gender are likely decreasing in North America.
- The relationship between sex/gender, dental disease, and tooth loss is inherently very complex; it seems likely that both biology and social factors associated with being female are important risk factors for tooth loss.

The retention or loss of permanent teeth is of central importance to an individual's oral health status and to quality of life. The loss of some or all teeth from the permanent dentition is closely associated with myriad dental and metabolic diseases and has multiple causes, including both systemic biological and cross-cultural behavioral etiology. Tooth loss as a measure of oral health has several advantages over other

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oral health and disease indices, including not only its direct associations with oral function and with overall health and well-being but also the ease by which the presence or absence of teeth can be measured. Sex and gender influence oral disease, including caries and periodontal diseases, and result in differences in tooth retention rates, edentulism, and in the incidence of tooth loss.

Tooth loss is influenced by biology and genetics, but is also a key indicator of dental care utilization and access (ie, teeth are “lost” mainly because someone extracts them), and is inherently associated with culture and attitudes, including patients’ and dentists’ philosophies of dental care. Indeed, it is a grave error to dismiss the importance of “the complex pattern of roles, responsibilities, norms, values, freedoms, and limitations that define what is thought of as ‘masculine’ and ‘feminine’ in a given time and place”<sup>1</sup> in influencing health. This article follows the convention of referring to differences by sex and gender as sex/gender differences, but when speaking solely of biological differences between men and women the authors use the word sex, and when speaking only of differences resulting from the cultural construction of male/female roles, the word gender is used. Differences in oral health are a function of differences in biology (sex) but also of differences in cultural context (gender).

The purposes of this article are:

1. To provide relevant anthropologic and historical background on sex/gender differences in tooth loss
2. To discuss the recent epidemiology of tooth retention and loss, focusing on North America, in the context of sex/gender differences and similarities
3. To elucidate ways in which biology (sex) and culture (gender) are likely to influence differences in tooth retention, tooth loss, and edentulism

### **SEX/GENDER DIFFERENCES IN TOOTH LOSS: AN ANTHROPOLOGIC PERSPECTIVE**

An anthropologic perspective on tooth loss is valuable to clinical dentistry because it provides evolutionary, prehistoric, and ethnographic contexts for understanding an important aspect of oral health in modern humans. This discussion of tooth loss focuses on “dental ablation” and adopts a bidirectional uniformitarian approach: the present informs us about the past; however, knowledge of the past provides a broad comparative context for understanding tooth loss and dental ablation in modern humans.

In anthropological terms, antemortem tooth loss (AMTL) is defined as “loss of teeth during life, as evidenced by progressive resorption of the alveolus,”<sup>2</sup> and differs from tooth ablation, which is defined as “... the deliberate removal of anterior teeth during life.”<sup>3</sup> Tooth ablation is a form of intentional dental modification that is commonly grouped with other forms of tooth modification, such as chipping, filing, inlays, and bleaching.<sup>4</sup> The etiology of AMTL and ablation is complex and multicausal.

In prehistory, skeletal series present unique challenges in the differential diagnosis of causal factors leading to loss of teeth before death. It should be noted that distinguishing the culturally mediated practice of tooth ablation from numerous other causes of tooth loss can be difficult, but this issue has a long history. It has been suggested that 7 criteria may be used for the recognition of ritual ablation: (1) no evidence of dental disease, (2) symmetry or near symmetry of tooth loss, (3) repetition of similar pattern of tooth loss in the group, (4) fracture of the labial wall of the alveolar bone, (5) indication that the tooth loss occurred in youth, (6) presence of the practice in neighboring or related groups, and (7) mention of the practice in myths and legends.<sup>5</sup> However, some have criticisms for each of these criteria, contending that a highly irregular pattern of loss contrasts sharply with the highly regular practices of tooth removal documented ethnographically in some African groups.<sup>6</sup>

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