INTRODUCTION
While attrition and caries both occur on the occlusal surface, the correlation between rates of dental attrition and occlusal surface caries remains in question. Known as the caries-attrition hypothesis, the analysis of a Dutch whaling station (17th and 18th century) suggested that a high level of attrition inhibits caries development. 2,3 Whereas, contradicting research from a Portuguese Mesolithic population conclude that caries and attrition develop independently of each other. 4 However, the relationship between caries and attrition will reflect diet in any given population. 5 To test the caries-attrition hypothesis’ population specificity and reliability, molar occlusal wear and caries were observed in two Paleo-Indian populations: Indian Knoll, KY (n=55) and Millstone Bluff, IL (n=54).

Palo-Indian Diets
1. Indian Knoll, KY (Eastern Archaic period; 8000-2000 BC): mounds of discarded shells indicate a diet consisting primarily of ground acorns and bivalve mollusks. 6
2. Millstone Bluff, IL (Late Woodland period; 600-900 AD): incipient agriculturalists but primarily hunter-gatherers: small animals, fish, domesticated plants, and wild plants comprised their diets. 6

RESULTS

Figure 6. Indian Knoll Results. There is a positive correlation between caries and attrition for the Indian Knoll population. Of the 541 teeth observed, 66 had carious lesions which may be affected by caries correction factor in both populations. It has been suggested that although a positive correlation may exist, it should not be assumed that caries are a result of attrition. 4 The sex difference observed in Indian Knoll may be due to poor diet and childbearing, which can lead to bone loss and a weakened immune system. 5 Furthermore, a significantly high number of caries with moderate attrition scores in Millstone Bluff is consistent with a diet of wild fruits, berries, squash and maize, based on the conclusions of paleo-botanical studies. 6 Testing the caries-attrition hypothesis on Native American populations provides a new insight to the underlying idea that diet influences both wear and caries separately.

Future Directions
Areas for further analysis include running a Bonferroni correction since not all molars are independent variables. Furthermore, the dental caries correction factor in both populations would account for antemortem tooth loss. An analysis using these factors would be applied to the entire dental arcade, as well as scores for carious lesions which may be affected by attrition.

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REFERENCES


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