INTRODUCTION
This research explores the relationship between bone mineral density, physical activity, and lifestyle in Civil War soldiers. 19th-century civilians, and contemporary white males. To better understand factors leading to low bone density in young adults, this investigation first quantifies bone mineral density in 19th-century civilians, Civil War soldiers who died soon after receiving mortal injuries (less than 15 days); Civil War soldiers who lived longer than 15 days after injury, and modern individuals. This study then tracks the rate at which incapacitated soldiers lose bone density after traumatic injury. By examining the rate of bone loss after a crippling injury, we can appreciate the effects of severe trauma and immobility on bone mineral density. Broadly, this study explores how the lifestyles of modern white males compare with their active 19th-century counterparts, and, more specifically, it illustrates the effects of physical activity on bone mineral density.

MATERIALS AND METHODS
This study examined four samples of white males between the ages of 18 and 40 years. Femora from modern individuals (n=58) were obtained from the William Bass Donated Body collection at the University of Tennessee, Texas State University at San Marcos, and the Smithsonian Institution. The three 19th-century samples: civilians (n=11), Civil War soldiers who lived less than 15 days after injury (n=30), and Civil War soldiers who lived longer than 15 days after injury (n=24), were obtained from the National Museum of Health and Medicine, the Bureau of Reclamation, Drs. Richard and Lee Jantz at the University of Tennessee, Simon and Cass Taylor for their constant support and assistance, and Dr. Bruno Frohlich for his help with CT scanning. Thank you to your mentors, patience, enthusiasm, and wisdom, Kristen Pearlstein and Katie Barca for being wonderful role models, Vicki Adams, George Worthington Adams, George Worthington. Many thanks to the National Museum of Natural History, Smithsonian Institution for funding the National History Research Experience Program, and to program coordinator Carole Hart, Liz Goddard, and Vincent Power for going above and beyond to make this experience remarkable and productive. From the Smithsonian Institution, I would like to thank Dr. Richard Jantz and Dr. Bruno Frohlich for their mentorship, patience, enthusiasm, and wisdom. Kristen Pearlstein and Katie Barca for being wonderful role models. Vicki Adams, George Worthington for their constant support and assistance. To my Adjudant for being a friend to me. To my parents for being with me throughout this experience. Thank you to the National Museum of Health and Medicine, the Bureau of Reclamation. Drs. Richard and Lee Jantz at the University of Tennessee, Dr. Karen Schultz, Dr. Sarah Small at the University of Cincinnati, and the Bureau of Reclamation for providing the equipment for this study, and to Dr. Cass Taylor and the Institute for Technology in Health Care for funding the medical scanning. Finally, my thanks go to the National Science Foundation for funding the NSF program.

RESULTS

The lack of a statistically significant difference in bone mineral density across time is interesting given the perception of greater physical activity and a more strenuous lifestyle of 19th-century Americans compared with modern white males. This investigation first quantifies bone mineral density in 19th-century civilians, Civil War soldiers who died soon after receiving mortal injuries (less than 15 days); Civil War soldiers who lived longer than 15 days after injury, and modern individuals. This study then tracks the rate at which incapacitated soldiers lose bone density after traumatic injury. By examining the rate of bone loss after a crippling injury, we can appreciate the effects of severe trauma and immobility on bone mineral density. Broadly, this study explores how the lifestyles of modern white males compare with their active 19th-century counterparts, and, more specifically, it illustrates the effects of physical activity on bone mineral density.

CONCLUSION

This study is the first to quantify the difference in bone mineral density in young American adults across time and also breaks ground in its quantification of bone loss after traumatic injury. This project has clinical implications, as it emphasizes the importance of keeping patients active after surgery to avoid bone loss.