

AAO Foundation Award Final Report

Principal Investigator	Ling Ye
Co-Investigator	
Secondary Investigators	
Award Type	Orthodontic Faculty Development Fellowship Award
Project Title	Biological response to mechanical loading in alveolar bone
Project Year	2010-2011
Institution	University of Missouri-Kansas City
Summary/Abstract (250 word maximum)	<p>Ulna loading model has been widely used to study the biological response to mechanical loading in long bone in rodents. However, there is limited information regarding alveolar bone remodeling in response to loading. We have developed an alveolar bone loading device for mice, to deliver calibrated loads in vitro & in vivo, and to study the response to loading in alveolar bone. Fresh dissected mandibles from 3-weeks old mice were loaded in vitro. Strain levels were measured by strain gauge. 5N loads (2Hz, 60 cycles) were delivered to alveolar bone through molars in mice in vivo. Micro-CT and fluorochrome labeling were used to evaluate the effect of loading on alveolar bone. Strain levels are increasing with the increase of loading in alveolar bone. In vivo loading in alveolar bone leads to increased alveolar bone formation as shown by fluorochrome labeling. Different levels of strain may lead to different responses in alveolar bone. In vivo alveolar bone loading device can be a useful approach to study the biological alveolar bone response to mechanical loading.</p>
Were the original, specific aims of the proposal realized?	Yes
Were the results published? If not, are there plans to publish? If not, why not?	<p>The results are not published yet. We are preparing the manuscript for publication.</p>
Have the results of this proposal been presented? If so, when and where? If not, are there plans to do so? If not, why not?	<p>The results have been presented in the IADR annual meeting April, 2011. In addition, two grant applications, one NIDCR R03 application and one application for University of Missouri Research Board, were submitted based on the data from the support of this award.</p>