AAO Foundation Award Final Report

Principal Investigator	Ki Beom Kim
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Award Type	
Project Title	Numerical simulation of pharyngeal airways of obstructive sleep apnea patients following maxillomandibular advancement surgery using computational fluid dynamics.
Project Year	2010
Institution	Saint Louis University
Summary/Abstract (250 word maximum)	The purpose of this project is to calculate airflow in obstructive sleep apnea (OSA) patients following maxillomandibular advancement (MMA) surgery. Computerized models of 15 patients, pre- and post-MMA surgery, were created from cone beam tomography scans. Computational fluid dynamics (CFD) was used to simulate airflow through a created model. From the simulations, maximum velocity, the relative pressure and eddy viscosity coefficients were obtained. The preliminary results show a decrease in maximum velocity, the pressure gradient, and the eddy viscosity coefficient. Conclusion: CFD simulation of OSA patients indicated an improvement of airflow following MMA surgery
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?	Not yet. Not all the computer models have been tested yet.

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?	Not yet. As soon as we finish the simulation and measurement, then we will present in national or regional scientific meeting.