



**Effects of orthopedic force magnitude and miniscrew
length, diameter and insertion angle on
the stability of miniscrews.
A three dimensional finite
element analysis**

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Dedication

*To my beloved family for their endless help
and support.*

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List of Abbreviations

Abbreviation	Full term
FEA	Finite Element Analysis
U_x	Deformation in X axis direction in mm
U_y	Deformation in Y axis direction in mm
U_z	Deformation in Z axis direction in mm
U_{sum}	Total deformation (resultant deformation in X, Y, and Z directions) in mm
S₁	Maximum tensile stress in MPa
S₃	Maximum compressive stress in MPa
S_{int}	Stress intensity (shear stress indicator) in MPa
S_{von}	Von Mises stress (consist of formulae that include tensile, shear and compressive stresses applied all together with different magnitude) in MPa
MPa	Mega Pascal
με	Microstrain
BAMP	Bone anchored maxillary protraction
RME	Rapid maxillary expansion
FM	Face mask