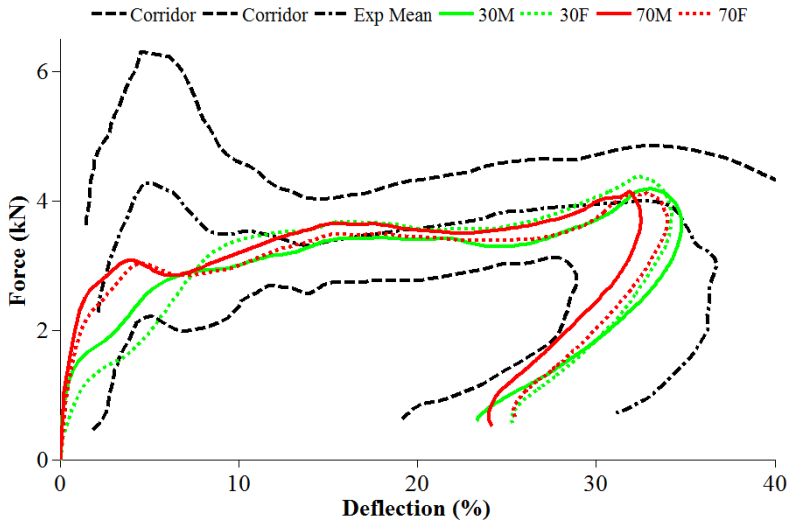
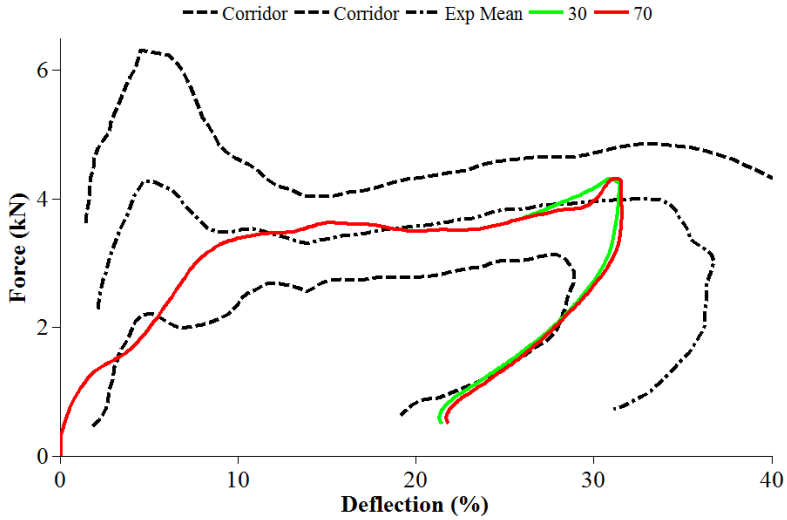
APPENDIX

Geometric Changes



Material Property Changes



Geometric and Material Property Changes

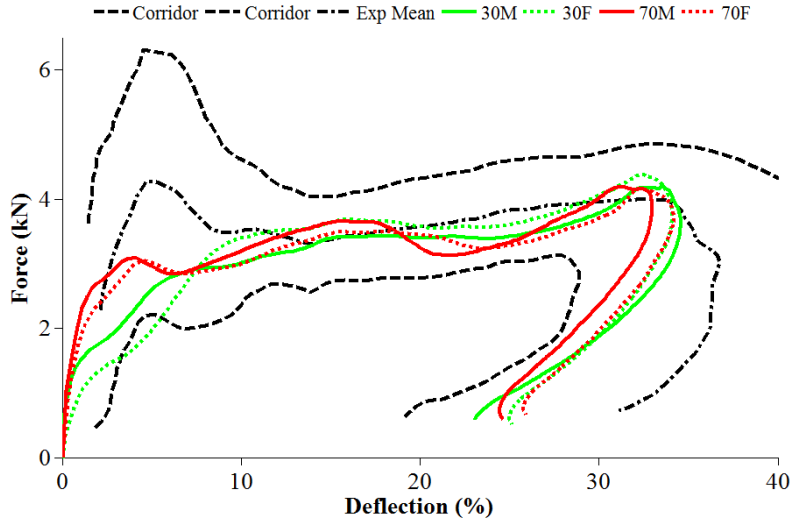


Figure A1. Force vs. deflection for thoracic frontal hub impact for geometric changes only (top), material property changes only (middle), and geometric and material property changes (bottom). The 30 YO and 70 YO male and female responses are plotted along with the Lebarbé corridors and experimental mean (Lebarbé, et al., 2012).

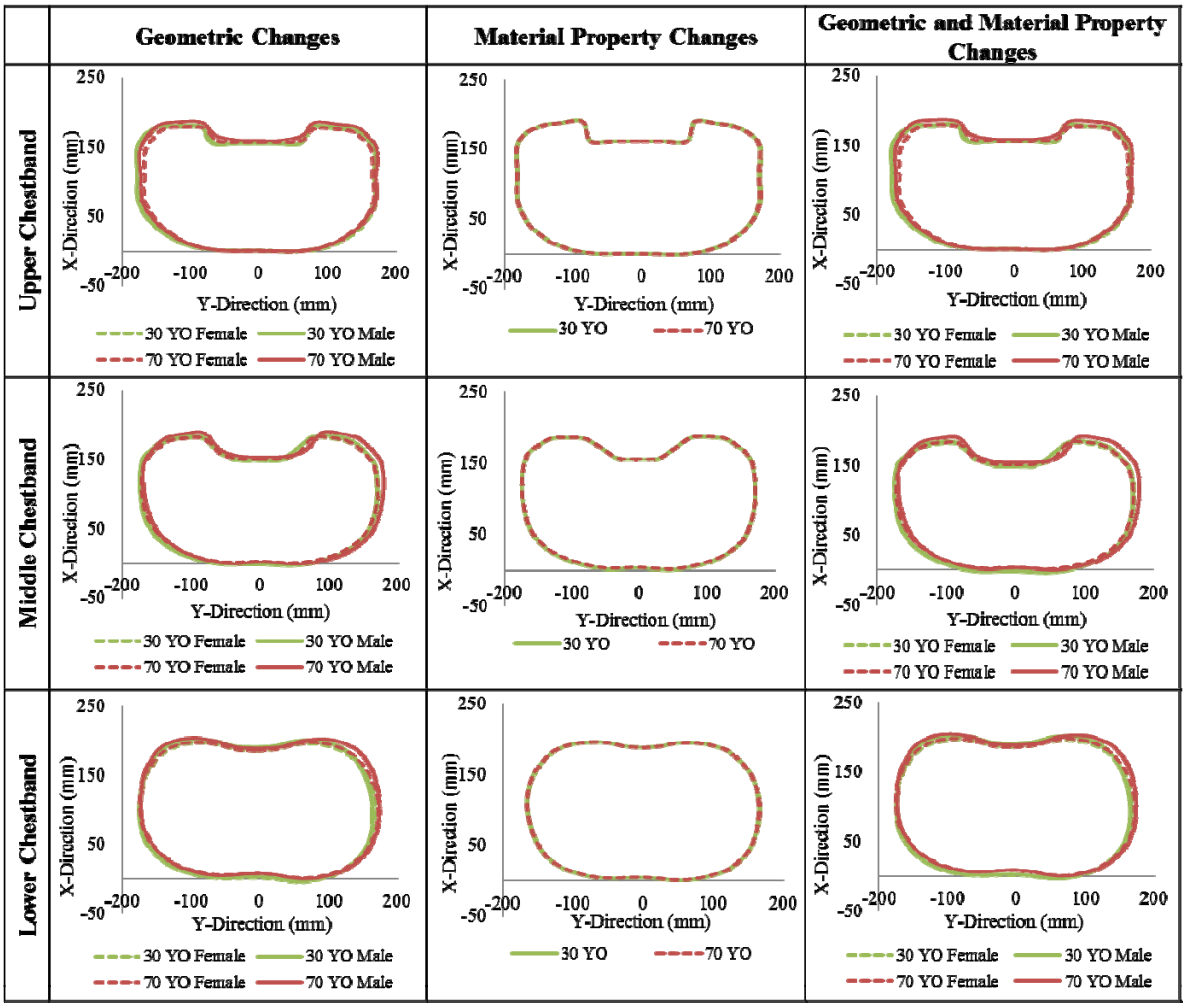
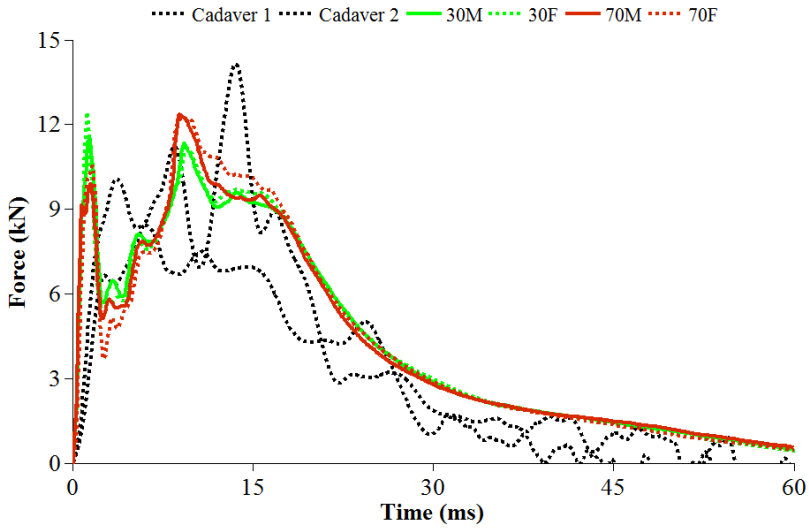
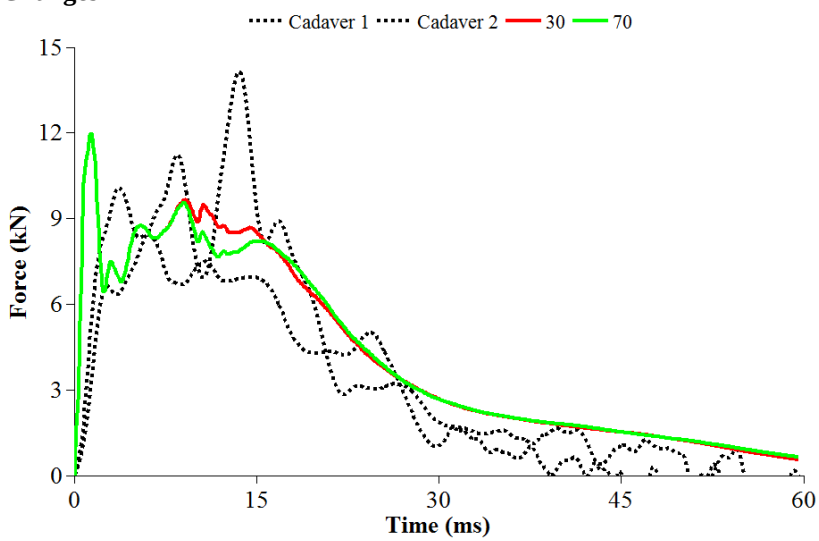


Figure A2. Age and sex-specific model response for the upper (top), middle (middle), and lower (bottom) chestbands in the maximum deflection state for the thoracic frontal hub impact for geometric changes only (left), material property changes only (middle), and geometric and material property changes (right).

Geometric Changes



Material Property Changes



Geometric and Material Property Changes

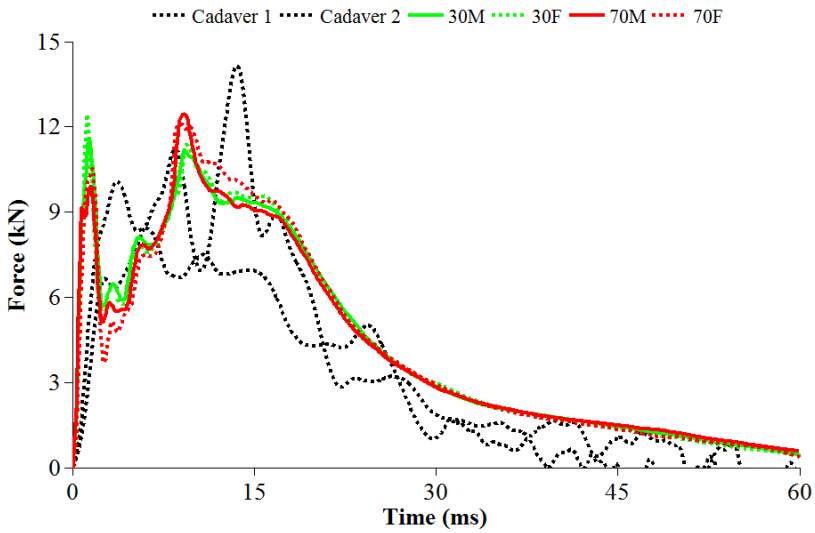


Figure A3. Force vs. time for thoracic lateral impact for geometric changes only (top), material property changes only (middle), and geometric and material property changes (bottom). The 30 YO and 70 YO male and female responses are plotted along with the experimental results from Kemper et al. (Kemper, et al., 2008).

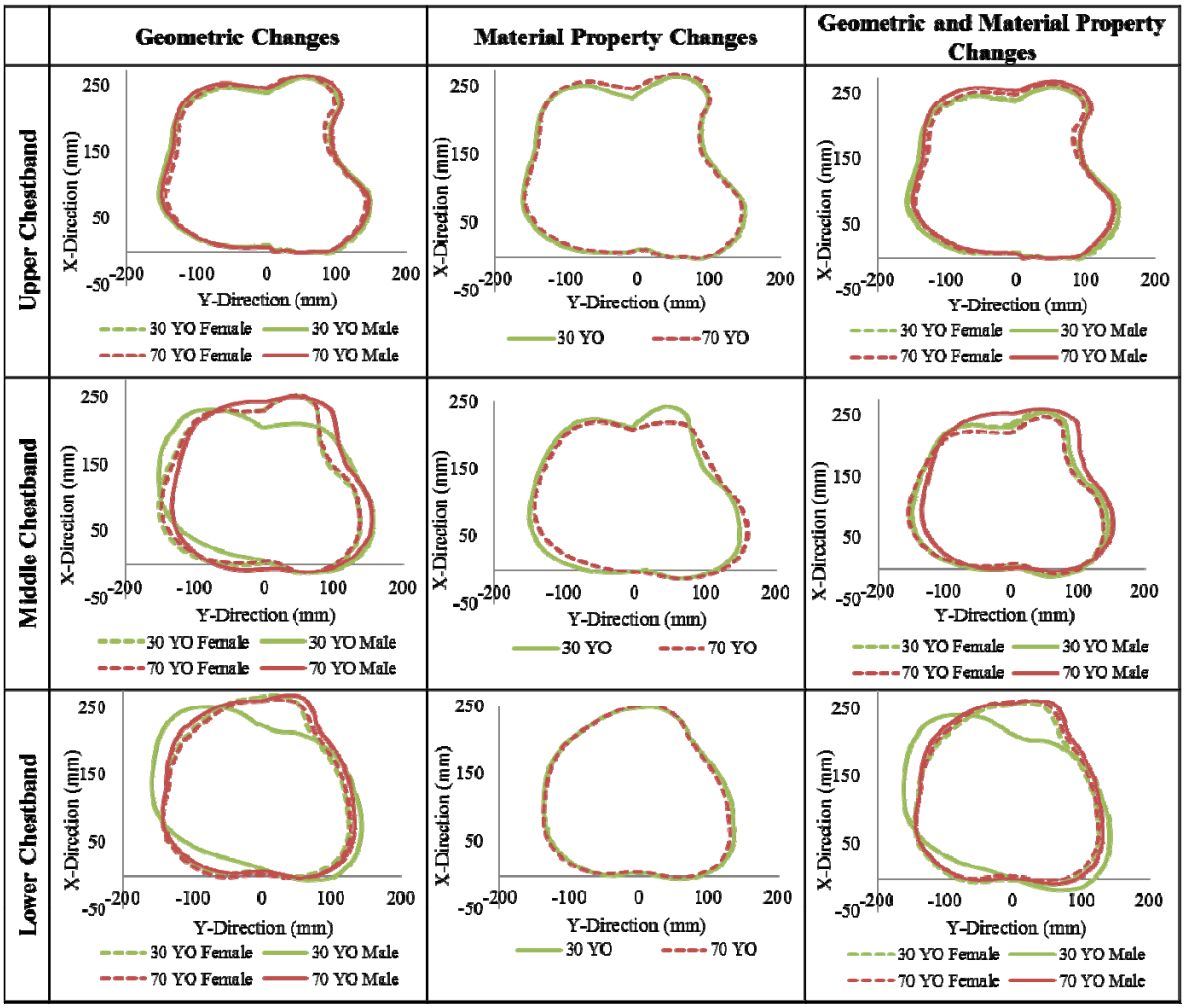


Figure A4. Age and sex-specific model response for the upper (top), middle (middle), and lower (bottom) chestband in the maximum deflection state for the thoracic lateral impact for geometric changes only (left), material property changes only (middle), and geometric and material property changes (right).