

Each year there are approximately 11,000 case of spinal injuries that result in partial or complete paralysis. Significant portions of these cases are the result of sports related injuries that possibly could have been negated with proper protection. The project undertaken was a preliminary analysis of the feasibility of a personal airbag spinal trauma protection device. Using FEA commercial code ABAQUS/Explicit a mock torso was dropped from a 1 m height to determine the impulse forces associated with the fall. This was initially done with no protection and then with a prototype pre-inflated airbag. An identical mock torso was then fabricated out of wood and subjected to a 1 m drop. The impact accelerations were measured to experimentally validate and refine the ABAQUS model.