



Mouthguards may protect your teeth, but what about your brain? To investigate the protective aspects of mouth guards in relation to concussion, a headform with an articulating mandible has been developed. Based on the 50th percentile Hybrid III manikin skull, the new headform has a steel mandible with a steel upper and lower dentition and compliant temporomandibular joints (TMJ).



The TMJ provides a biofidelic range of motion to allow for the insertion of mouth guards. Mandible force-displacement response has been validated under direct chin impact against cadaver performance corridors recently developed at Wayne State University. The headform was developed in conjunction with the National Football League to assess the capacity of mouth guards to reduce concussion risk among helmeted players. However it may also be used for military and automotive research of mandible, TMJ and dentition injury.

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