SYDOR

TECHNOLOGIES

BIOKINETICS MANDIBLE LOAD SENSING HEADFORM

COMPLEX MEASUREMENTS—CRITICAL RESULTS

FEATURES

- steel mandible woth a steel upper and lower dentition and compliant temporomandibular joints
- Developed in conjunction with the National Football League
- Interfaces with a standard Hybrid III neck, and may be substituted in applications or test setups where a standard Hybrid III headform is used
- Used for the investigation of the protective aspects of mouth guards

ABOUT THE BIOKINETICS MANDIBLE LOAD SENSING HEADFORM (MLSH)

Mouth guards 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 mannequin 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.

The mandible load sensing headform interfaces with a standard Hybrid III neck, and may be substituted in applications or test setups where a standard Hybrid III headform is used. The biofidelic TMJ range of motion permits the insertion of both single and bi-maxillary mouthguards. Force sensors are situated in three locations: left TMJ, right TMJ and upper dentition. Each sensor measures forces in the three orthogonal directions. The MLSH can also be instrumented with accelerometers to measure triaxial center-of-gravity kinematics. All components, from the steel mandible and the stainless steel dentitions, to the compliant temporomandibular joints combine for a durable test headform.

PRODUCT SPECIFICATIONS

- Tri-axial force transducers connected to both left & right TMJ's and the upper dentition (500 lb/2200 N capacity)
- Steel mandible and stainless steel dentitions enhance durability
- Optional tri-axial CofG acceleration capability
- Optional jig is available for forming "boil and bite" mouthguards