

Hybrid III vs THOR

5th Percentile Female Dummies



Hybrid III 5th	Body Region	THOR 5th
Assesses risk of skull fracture only	Head	Can assess risk of skull fracture, brain injury, and facial fractures
Human-like bending in only one direction (forward/backward)	Neck	Human-like bending in three directions (forward/backward, side-to-side, twist)
Rigid spine	Spine	Human-like flexibility, can sit slouched or erect, and can measure forces in the lower spine
Chest deflection at one location only	Thorax	Chest deflection at four locations, load-sensing collar bone, and natural shoulder motion
No abdominal sensors	Abdomen	Measures pressure to assess risk to internal organs
No pelvis sensors	Pelvis	Measures pelvis and hip forces from seat belt and vehicle contact
Measures thigh, knee, and shin forces	Legs	Measures thigh, knee, and shin forces; and ankle motion
No arm sensors	Arms	Measures forces in upper and lower arms

Why use THOR 5th?

Improvements over the Hybrid III 5th percentile female ATD

- More biofidelic (human-like)
 - Neck bending in three directions
 - Shoulder and ribcage representative of anatomy
 - Flexible spine for accurate upper body motion
 - Abdomen and pelvis that mimic human seat belt interaction
 - Contains more female-specific anthropometry



- Enhanced instrumentation and injury prediction capability
 - Head 6DOF rotational and translational kinematics
 - Thorax displacement at multiple locations in three dimensions
 - Pressure-sensing abdomen
 - Pelvis and thigh forces; ankle motion