Supplementary Material

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| 50F | 50M |

Figure 1: HIC of impact at different speeds (centerline).

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| 50F | 50M |

Figure 2: HIC of impact at an offset of 25% tram width at different speeds.

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| 50F | 50M |

Figure 3: Probability for AIS1 head injury (DAMAGE) at centerline.

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| 50F | 50M |

Figure 4: Probability for AIS1 head injury (DAMAGE) at an offset of 25% tram width.

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| 50F | 50M |

Figure 5: Probability for AIS2 head injury (DAMAGE) at centerline.

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| 50F | 50M |

Figure 6: Probability for AIS4+ head injury (DAMAGE) at centerline.

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| 50F | 50M |

Figure 7: Probability for AIS4+ head injury (DAMAGE) at an offset of 25% tram width.

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| 50F | 50M |

Figure 8: Lateral deflection of HBM after impact.

Figure 9: Injury risk for femur proximity for impact on baseline and modified tram front for 50th percentile female HBM.

Figure 10: Injury risk for femur proximity for impact on baseline and modified tram front for 50th percentile male HBM.

Figure 11: Injury risk for femur shaft for impact on baseline and modified tram front for 50th percentile female HBM.

Figure 12: Injury risk for femur shaft for impact on baseline and modified tram front for 50th percentile male HBM.

Figure 13: Injury risk for tibia shaft for impact on baseline and modified tram front for 50th percentile female HBM.

Figure 14: Injury risk for tibia shaft for impact on baseline and modified tram front for 50th percentile male HBM.

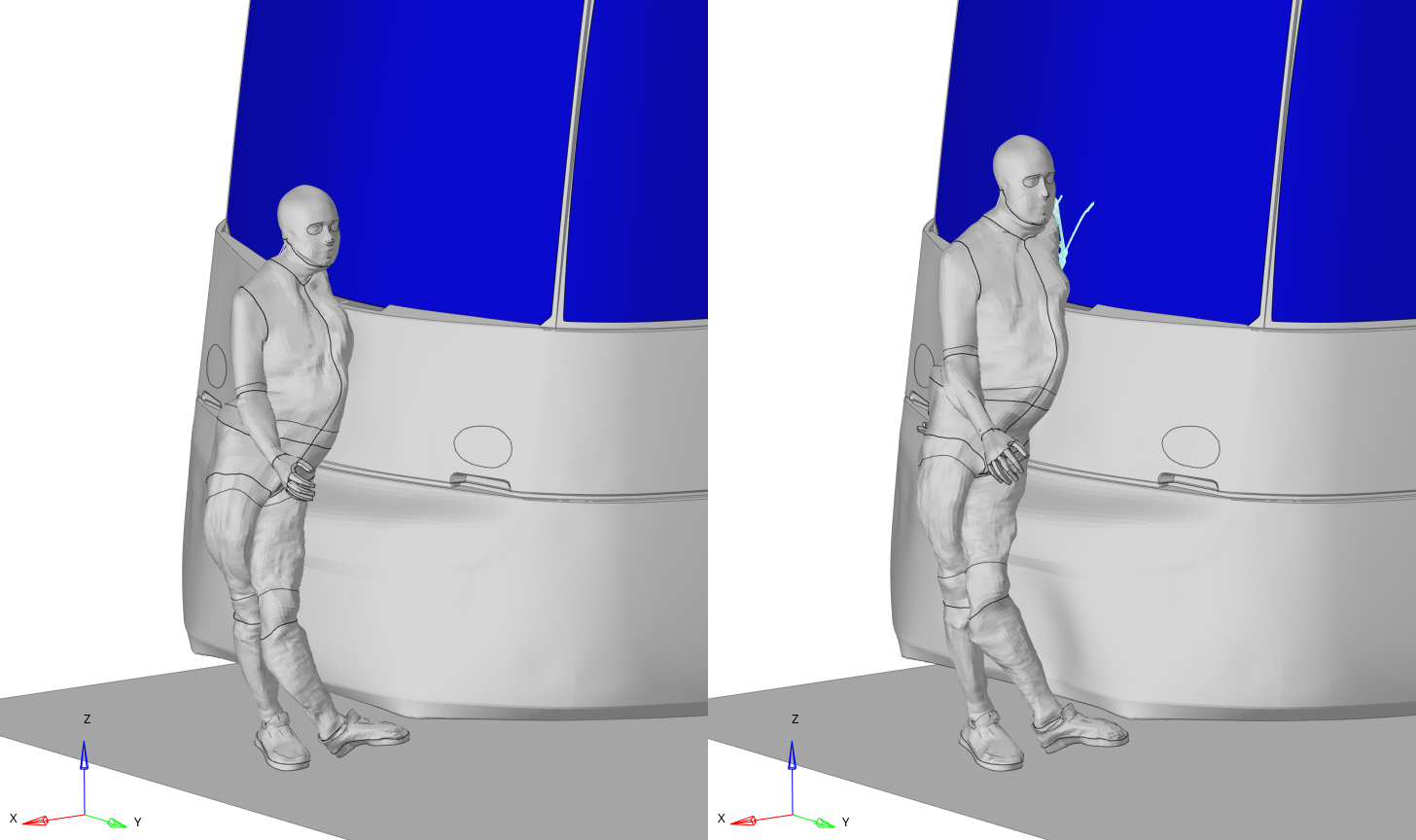
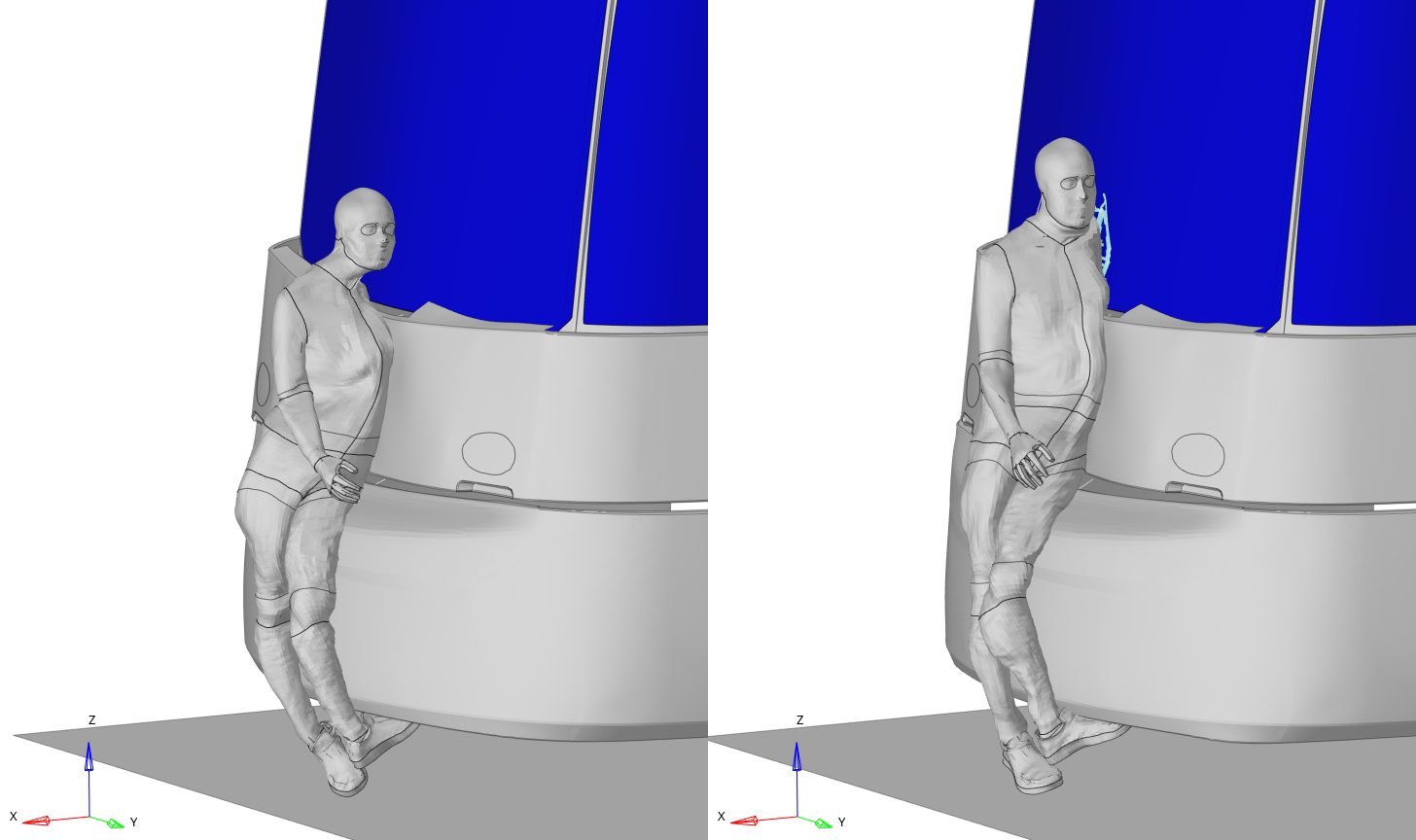


Figure 15: Centerline impact of 50F (left) and 50M (right) HBM on baseline tram front at 30ms simulation time (tram speed: 50 kph).

Figure 16: Centerline impact of 50F (left) and 50M (right) HBM on modified tram front at 30ms simulation time (tram speed: 50 kph).

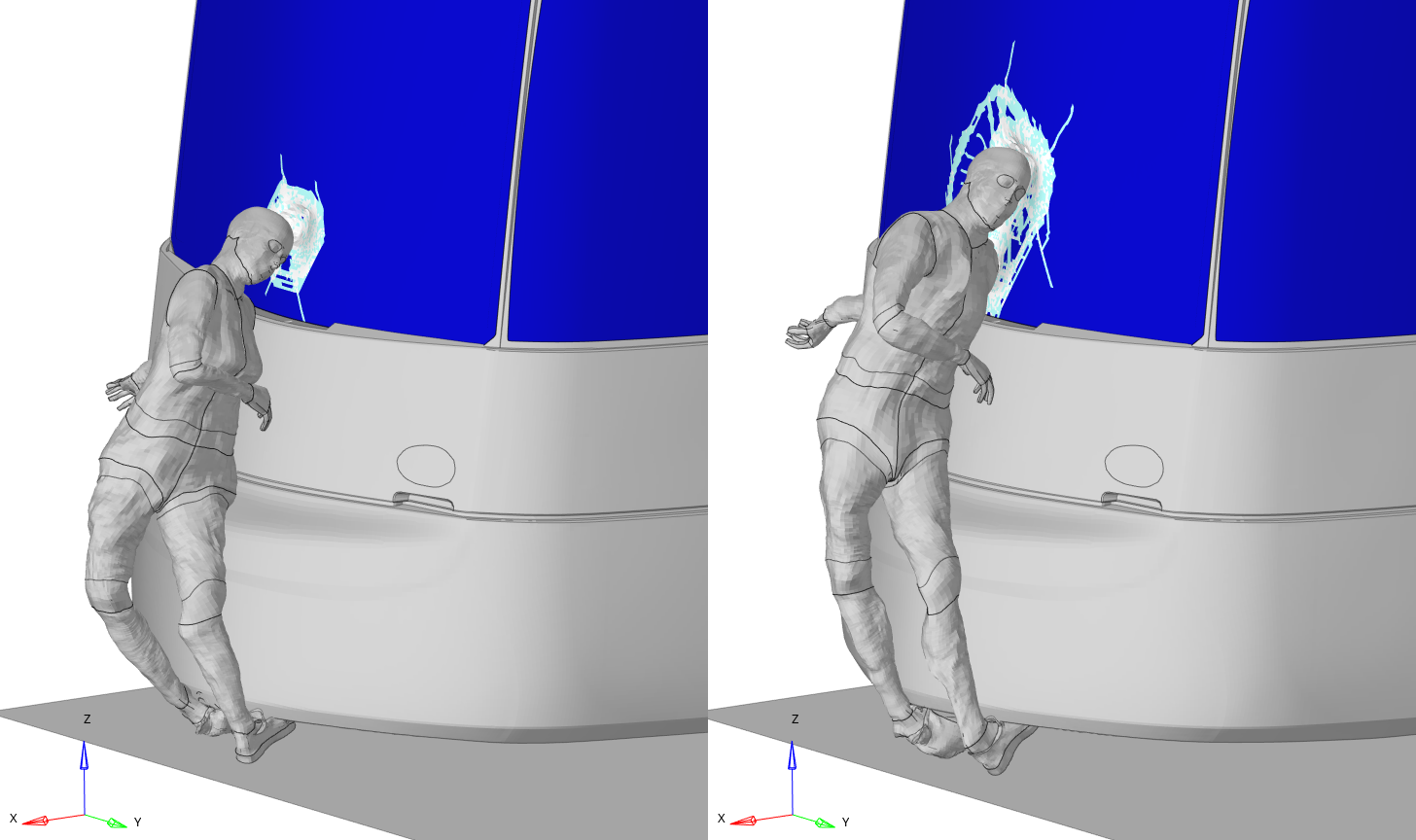


Figure 17: Centerline impact of 50F (left) and 50M (right) HBM on baseline tram front at 60ms simulation time (tram speed: 50 kph).

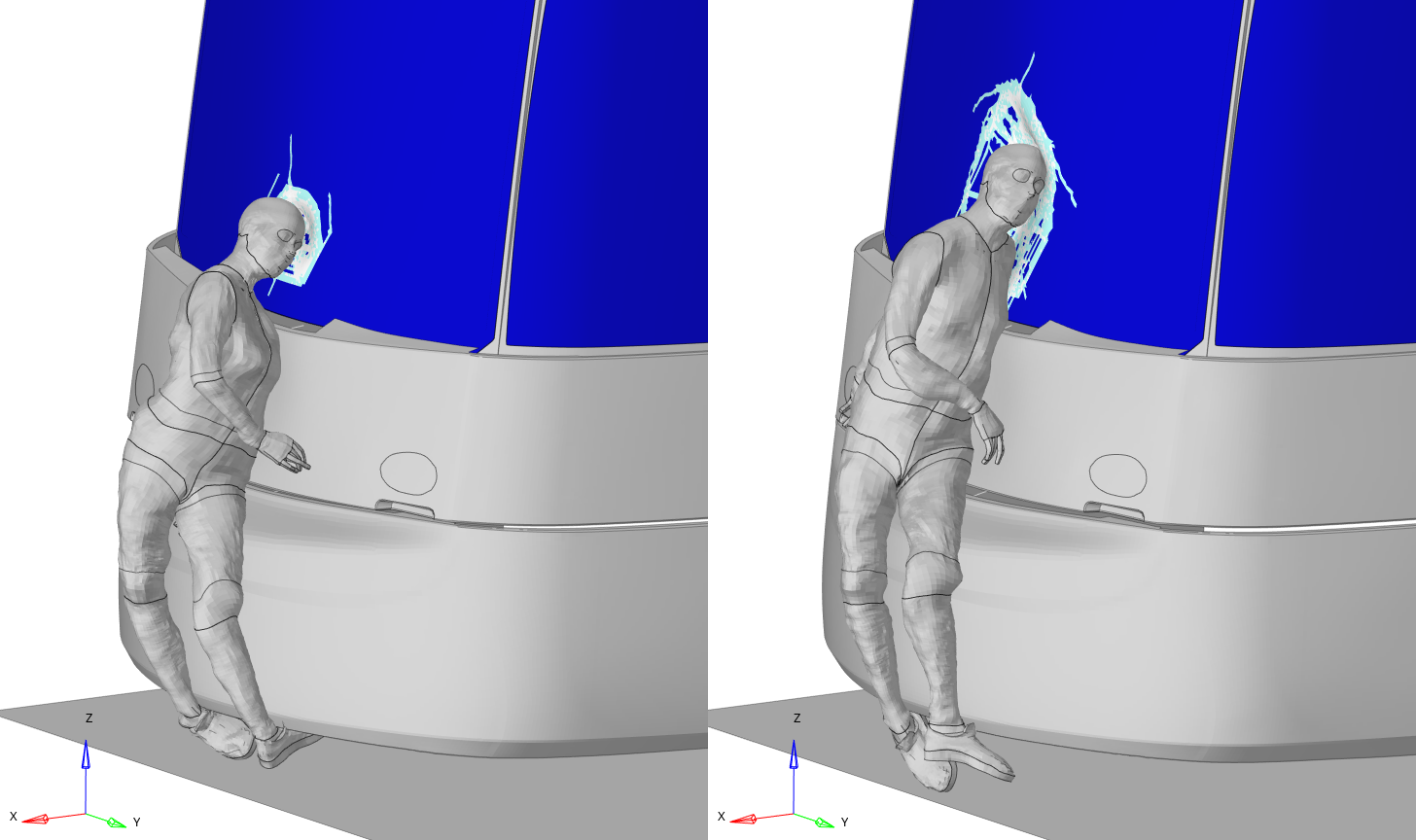


Figure 18: Centerline impact of 50F (left) and 50M (right) HBM on modified tram front at 60ms simulation time (tram speed: 50 kph).

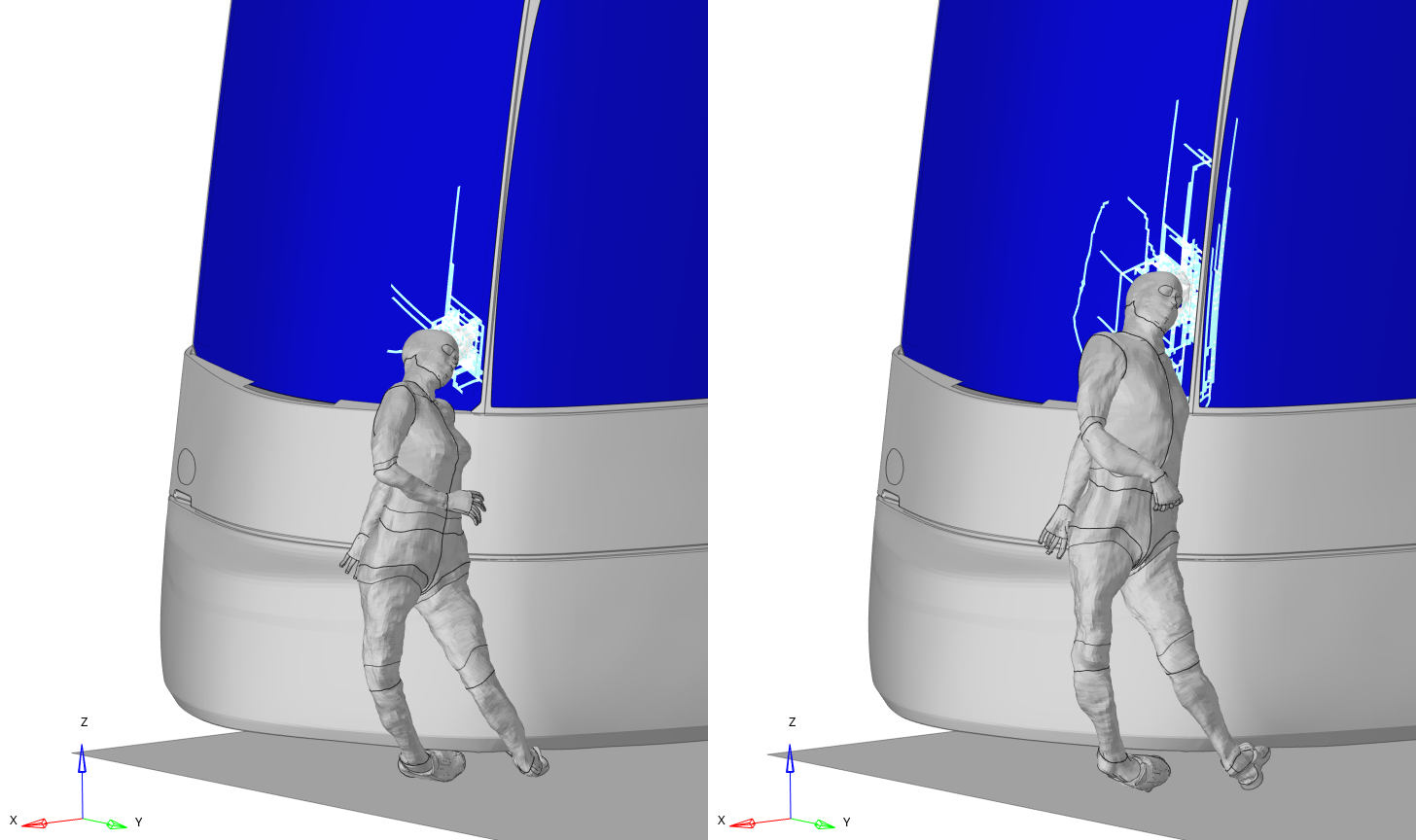


Figure 19: 25% offset impact of 50F (left) and 50M (right) HBM on baseline tram front at 60ms simulation time (tram speed: 50 kph).

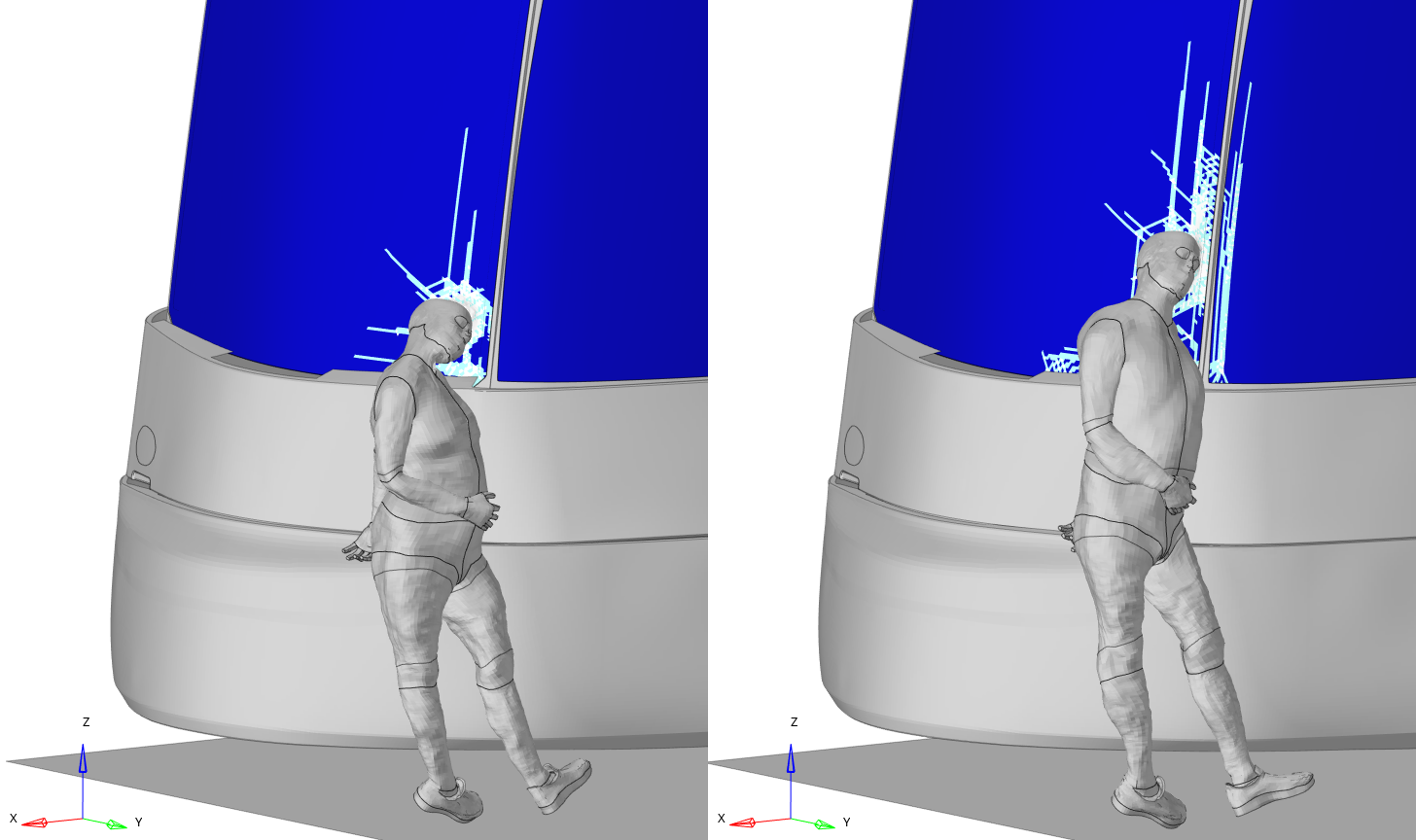


Figure 20: 25% offset impact of 50F (left) and 50M (right) HBM on modified tram front at 60ms simulation time (tram speed: 50 kph).

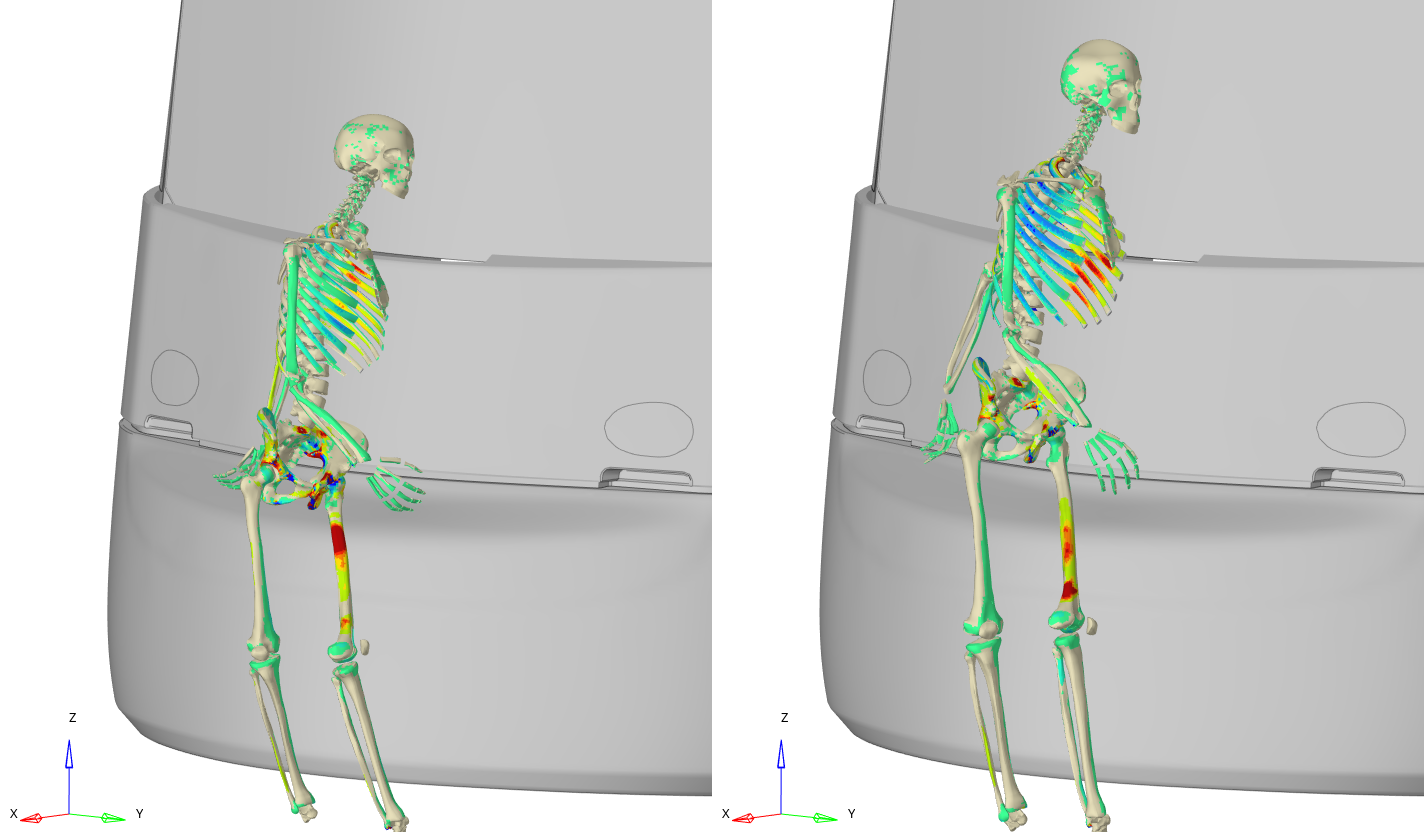


Figure 21: Centerline impact of 50F (left) and 50M (right) HBM on baseline tram front at 60ms simulation time (tram speed: 25 kph).

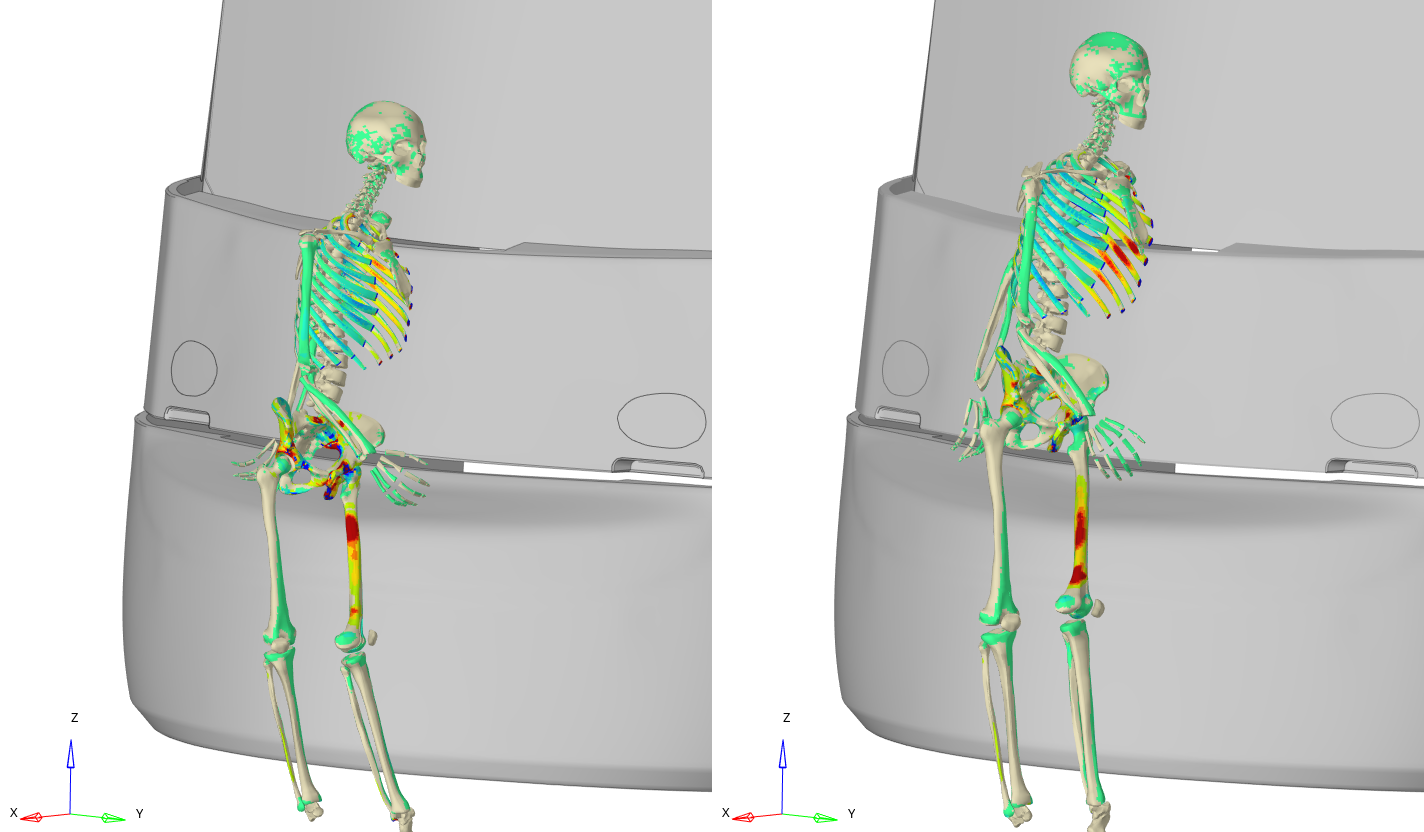


Figure 22: Centerline impact of 50F (left) and 50M (right) HBM on modified tram front at 60ms simulation time (tram speed: 25 kph).

Table 1: Occurrence probability for different collision speeds of tram to pedestrian collisions based on Lackner et al. (2022)

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| **Collision speeds tram Range [km/h]** | **Occurrence probability** |
| 0 – 10 | 0.0253 |
| 10 – 15 | 0.0805 |
| 15 – 20 | 0.1149 |
| 20 – 25 | 0.1471 |
| 25 – 30 | 0.1241 |
| 30 – 35 | 0.0943 |
| 35 – 40 | 0.0897 |
| 40 – 50 | 0.3034 |
| 50 – 60 | 0.0207 |

Table 2: Results of the overall injury assessment for pedestrian to tram scenarios based on the predicted injuries and the occurrence probability.

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| **Concussion injuries** | | | |
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| **Other skull/brain injuries** | | | |
|  | | | |
| **Rib injuries** | | | |
|  |  | |  |
| **Hip injuries** | | | |
|  | |  | |
| **Femur injuries** | | | |
|  | |  | |
| **Tibia injuries** | | | |
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Table 3: Results of the overall injury assessment for pedestrian to tram scenarios based on the predicted injuries and the occurrence probability.

