

Response to Reviewer 3 Comment

Thank you for your thoughtful and constructive feedback on our manuscript. We are grateful for the time and energy you have spent on our behalf. We have revised the manuscript in accordance with your suggestions. Please confirm as follows:

Abstract: *Suggest to authors that they write out FE and UPI abbreviations as noted in Abstract lines 15 and 19.*

Following your suggestion, we modified FE and UPI abbreviations. Please refer to lines 15 and 19 in a revised paper.

Introduction: *It is not clear whether the authors' first sentence is in reference to the US or globally, would consider indicating the scale and/or place.*

We added "In the United States" in the line 33 of a revised paper.

Line 60 is the first mention of sled test. Suggest to the authors that a brief description of this test and its significance in the overall testing mechanisms be included.

Following your suggestion, we added a sentence about sled test. Please refer to lines 61-62 "A sled test is ..." in a revised paper.

Line 75-delete "of"; line 133 add "the" before uterine and suggest using uterus instead.

We modified according to your suggestions. Please refer to lines 76 and 134 in a revised paper.

Materials & Methods

Suggest to the authors that they indicate where the study was performed. It is unclear until the 2.3 section, line 141 that it is in Japan.

We modified the sentence to indicate where the study was conducted. Please refer to lines 142-144 in a revised paper.

The methods section 2.3 seems to indicate that there are two types of studies here. Survey with real subjects and a testing of models. Suggest to authors that they make this clear and indicate if IRB and informed consent was obtained and change lines 315-316. Survey details, participant recruitment, and

other original research data information need to be indicated. Otherwise suggest taking out section 2.3 for separate paper.

Surveys with real subjects were conducted previously by Hanahara et al. [25] and Acar et al. [26]. In this study, we tested only FE simulations using models with two types of seatbelt positions. The positions were based on the results of above surveys. We have changed the sentence of citing reference [25] to make that clear. Please refer to section 2.3 in the revised paper.

figure 4 lines 166-168, suggest adding appropriate explanation.

Following your suggestion, we revised the caption of figure 4. Please refer to the lines 167-168 in the revised paper.

Suggest to authors that the introduction of the use of NASS-CDS data set be introduced before the results section.

For your suggestion, we added the introduction regarding the use of NASS-CDS data set in Materials and Methods section 2.6. Please refer to the lines 178-186 of the revised paper.

Results

line 185 suggests deleting "was" before hit.

Following your suggestion, we deleted "was" before hit in line 191 of the revised paper.

In section 3.1 in the retelling of the MVC case, it is not clear initially whether there was fetal mortality, such to authors that they include fetal outcome around line 188. I found this out by Figure 7 case a.

We added a sentence regarding fetal mortality in lines 194 and 198-199 of the revised paper. Please confirm.

Line 199-there is a reference to a bonnet, not sure where that comes from don't see that early in methods, suggest if you leave it in then go back and explain clearly the use of the bonnet and what it tells the readers.

We revised the sentence to a clearer expression. Please refer to lines 205-206 in the revised paper.

Section 3.2 it would be helpful if authors included relevant NASS-CDS Traffic Accident Date cases for the placental position results.

We also agree with your suggestion. However, the information regarding the placental position is not included in NASS-CDS data. Therefore, we analyzed the rates of placental abruption considering two cases (both anterior and posterior attached placenta) and indicated the probability of the placental position in each case.

Discussion

It is unclear to me if the answer to the second aim of the study was met, suggest making that clear to readers in the discussion or results.

Following your suggestion, we added a sentence about an achievement of the second aim of the study. Please refer to lines 250-252 in the discussion of the revised paper.

Will the deployment of airbags during a crash make a difference in the outcomes and incidence of placenta abruption? It is clear that seatbelts clearly make a difference.

We hypothesize that airbags dose not affect the severity of placental abruption because airbags deploy in different positions from the uterus and have almost no interaction with the uterus, while a seatbelt directly loads the uterus.