**Editorial comments**  
Changes to be made by the author(s) regarding the manuscript:

1. Please take this opportunity to thoroughly proofread the manuscript to ensure that there are no spelling or grammar issues. AR: done

2. Please provide an email address for each author. AR: provided

3. Abstract (line 25): Please do not include references here. AR: done

4. Please revise the Introduction to include all of the following:  
a) A clear statement of the overall goal of this method AR: Added, Line 39-41  
b) The rationale behind the development and/or use of this technique AR: the rationale is now stated lines 41-43

c) The advantages over alternative techniques with applicable references to previous studies AR: Added, Lines 44-54

d) A description of the context of the technique in the wider body of literature AR: we now discuss the advantages and the context of the technique on lines 44-54. These points are further presented in the discussion in lines 271-284  
  
e) Information to help readers to determine whether the method is appropriate for their application AR: potential application are now described on lines 60-62

5. JoVE cannot publish manuscripts containing commercial language. This includes trademark symbols (™), registered symbols (®), and company names before an instrument or reagent. Please remove all commercial language from your manuscript and use generic terms instead. All commercial products should be sufficiently referenced in the Table of Materials and Reagents. You may use the generic term followed by “(see table of materials)” to draw the readers’ attention to specific commercial names. Examples of commercial sounding language in your manuscript are: Ultimaker, SketchUp, Super-Bond C&B, Parkell bio-materials, etc. AR: the terms were replaced and the commercial names added on the revised table of materials

6. Please adjust the numbering of the Protocol to follow the JoVE Instructions for Authors. For example, 1 should be followed by 1.1 and then 1.1.1 and 1.1.2 if necessary. Please refrain from using bullets, dashes, or indentations. AR: indentations removed and dashes replaced by subpoints (1.1.1, 1.1.2, etc.)

7. Please revise the protocol to contain only action items that direct the reader to do something (e.g., “Do this,” “Ensure that,” etc.). The actions should be described in the imperative tense in complete sentences wherever possible. Avoid usage of phrases such as “could be,” “should be,” and “would be” throughout the Protocol. Any text that cannot be written in the imperative tense may be added as a “Note.” Please include all safety procedures and use of hoods, etc. However, notes should be used sparingly and actions should be described in the imperative tense wherever possible. AR: modification done, the action items are now all in the imperative tense

8. The Protocol should be made up almost entirely of discrete steps without large paragraphs of text between sections. Please simplify the Protocol so that individual steps contain only 2-3 actions per step and a maximum of 4 sentences per step. Use sub-steps as necessary. **Please move the discussion about the protocol to the Discussion.** AR:Done

9. Please add more details to your protocol steps. There should be enough detail in each step to supplement the actions seen in the video so that viewers can easily replicate the protocol. Please ensure you answer the “how” question, i.e., how is the step performed? Alternatively, add references to published material specifying how to perform the protocol action. See examples below. AR: Done

10. Line 85: Please specify the concentration of isoflurane gas and mention how proper anesthetization is confirmed. AR: Done, line 83

11. Line 99: How large is the spoon? AR: The spoon is provided in the implantation kit referred in the table of materials. Added in Line 100 ‘**(provided in the implantation kit)’ for specification.**

12. Please include single-line spaces between all paragraphs, headings, steps, etc. AR: Done

13. After you have made all the recommended changes to your protocol (listed above), please highlight 2.75 pages or less of the Protocol (including headings and spacing) that identifies the essential steps of the protocol for the video, i.e., the steps that should be visualized to tell the most cohesive story of the Protocol. AR: Done

14. Please highlight complete sentences (not parts of sentences). Please ensure that the highlighted part of the step includes at least one action that is written in imperative tense. Please do not highlight any steps describing anesthetization and euthanasia. AR: Done

15. Please include all relevant details that are required to perform the step in the highlighting. For example: If step 2.5 is highlighted for filming and the details of how to perform the step are given in steps 2.5.1 and 2.5.2, then the sub-steps where the details are provided must be highlighted. AR: Done

16. Figure 3: Please include a space between numbers and their corresponding units (i.e., 0.5 Hz, 2 s, 5 s). AR: Done

17. Figure 4: Please describe what “\*\*\*” represent and define n.s. in the figure legend. AR: Done

18. Please include all the Figure Legends together at the end of the Representative Results in the manuscript text. AR: Done

19. Please revise the table of the essential supplies, reagents, and equipment to include the name, company, and catalog number of all relevant materials. Please sort the items in alphabetical order according to the Name of Material/ Equipment. AR: Done

20. References: Please do not abbreviate journal titles. AR: Done

**Reviewers' comments:**  
  
  
  
**Reviewer #1:**  
Manuscript Summary:  
The described protocol produces a persistent sensory conflict for experiments aimed at studying long-term consequences of sensory conflict. By permanently wearing a fixed device on their heads, mice are continuously exposed to a sensory mismatch between their visual and vestibular inputs. The proposed protocol provides significant advantages over existing method of inducing long-term vestibulo-visual conflict.  
  
Major Concerns:  
None  
  
Minor Concerns:  
-My only minor suggestion is to add some details regarding potential aims/relevance of future studies employing this protocol. Sensory conflict is a recognized cause of motion sickness - how proposed technique could help here? Another aspect: it's true that adaptation to visual-vestibular conflict is a form of learning, but does this type of very artificial condition has any significance for real life learning?

AR: The authors thank reviewer #1 for positive evaluation of the work and suggestions for modifications. The interest of the protocol for real life learning and motion sickness-related research is now stated one paragraph of discussion on lines 276-284

-L 141: Replace ground by cage floor AR: Done

-What is the incidence of fixation failure of the headpost with the cement? AR: the incidence is <10%. Added as a note on line 108.

-L 187-205: Description of recording system is missing AR: The description of the recording system is provided in reference number 13 (de Jeu, M. & De Zeeuw, C. I, 2012)  
  
  
**Reviewer #2:**  
Manuscript Summary:  
This study aimed at establishing a new protocol for testing the effects of sensory conflict on long term learning between the visual and vestibular systems. This was performed by applying a persistent visual sensory conflict and then measuring vestibular modalities (vestibulo-ocular reflex) and visual modalities (optokinetic reflex). Therefore enabling the study of multisensory interactions over long period of time and learning.  
  
Major Concerns:  
No Major concerns. the manuscript is well prepared and of general interest.

AR: the authors thank reviewer #2 for positive evaluation of the work and for carefully reading the manuscipt  
  
Minor Concerns:  
\*Line 51-52: "allowing protection of the snout and leaving enough space laterally to let the animal groom"- grammar AR: Done  
\*Line 62: Are the stripes creating the contrast or are they changed by some other means?  
\*Line 67: Change to "comfortably fit"? AR: Done

\*Line 108: change to "where"? AR: Done  
\*Line 110: change "close back the skin…" to "close the skin…" AR: Done  
\*Line 138: change "difficulties to properly orientate inside the cage and to reach…" to "difficulties orienting itself inside the cage and when reaching…" AR: Done  
\*Line 143: change "weight" to "weigh" AR: Done  
\*Line 155" remove "however" AR: Done  
\*Line 204: change "avoid" to "prevent" AR: Done  
\*Line 230: change "here described" to "described here" AR: Done  
\*Line 259: change "differentially movements" to "movements differentially" AR: Done  
\*Line 261: change "as well" to "also" AR: Done  
  
  
**Reviewer #3:**  
Manuscript Summary:  
The paper described a device that blocks mice visual inputs during active and passive head movements. It is designed to introduce vestibular-visual conflicts during natural movements to induce motor learning in the vestibule-ocular reflex. It is an excellent design and will be an important contribution to the field.

Minor Concerns:  
The authors need to be aware of the fact that vestibular signals are generated during both active and passive head movements during natural environments. It is also important to note the differences between the current device and the ones used in the monkey literature.  
  
VOR learning is frequency dependent. It is helpful to test more frequencies.

AR: the authors thank reviewer #3 for the positive evaluation of the work. We refer to active vs passive differences on lines 37-42; 245-247. Differences between the current device and the ones used in the monkey literature are stated in discussion lines 259-263. Finally, the authors completely acknowledge the frequency-dependency of the adaptation; this point has been extensively presented in our research papers based on the helmet methodology (Carcaud et al. 2017: Idoux et al. 2018) and we have therefore decided to present a simple case for the Jove, methodology centered, paper. We however indicate this point to interested readers on lines 209-201.