**Reviewers' comments:**

**Reviewer #1:**

The work is well written and its proposal is pertinent. However, I have some questions and suggestions.

Item 1.2:

- Does the weighing of the animals include the period of animal handling?

🡪 Yes, the weighing of the animals is also conducted in the period of animal handling. This has been included in the protocol (1.1.4.)

- Does this procedure (Apparatus Habituation and Food Familiarization) last 3 days? Since it is a precise description of a technique, maybe the authors could put the duration of each step more clearly stated (e.g. duration as the first topic of each item: "1.1.1) This step last 7 days."; "1.2.1) This step last 3 days."). If a step does not need a so precise duration, please inform it (e.g. I think the duration of 5 days can be sufficient for the step of Animal Handling).

🡪 This is a great suggestion. We have included precise time statements for the respective steps.

- Does the placement of the animal into the training box last the 3 days?

🡪 Yes, this step lasts 3 days. It has been included in the text under 1.2.3.

Item 2.2:

- I suggest standardizing the term "post" (post or pedestal).

🡪 The term post has been standardized throughout the manuscript

- Maybe the authors could put an item to describe the design and operation of the box. The figure 1 is not so explanatory (e.g. the sentence "replace the slide in front of the window with a pedestal" could be more understandable with a description of the operation of the box"). If it is explained in the video and the authors think that the written version does not need to be so detailed, OK.

🡪 This is a good point. There are several steps in this method that are difficult to explain in detail in text. This is why we consider the Jove video format as a useful way to give a more thorough understanding of the method to the reader. We believe that the combination of the text together with a detailed explanation in the video will display a complete understanding to the reader.

REPRESENTATIVE RESULTS:

- It would be very interesting to report the proportion of the "non-learners" rats, giving the absolute number of animals that were analyzed in this study. It is relevant because the proposed protocol increases the degree of difficulty and complexity of the motor skill task. Thus, for technical and ethical reasons, it is important to known the level of discarded animals in relation to the conventional protocol of skilled reaching task. This would help the researchers to choose which protocol to use.

🡪This is an interesting question. It is difficult to give a general number of non-learners since these vary from experiment to experiment. In our experience, the number of non-learners is higher with an unexperienced experimenter and decreases with time as the experience of the experimenter increases. The steps that are termed crucial for successful learning are explained in detail in the manuscript and should be handled with patience and care. To our understanding, these are the critical steps that distinguish a potential learner from being successful or a failure.

In each experiment, we observed at least 1-2 animals that simply did not learn due to lack of motivation. In general, we did not observe a larger number of non-learners in this modified technique compared to the classical single-pellet grasping paradigm. Of note, in order to correctly teach the animal, this paradigm is more time consuming compared to the classical paradigm

- The protocol of the "within-session" analysis was described in this item, after the indication of the figure 3. It has to be removed to PROTOCOL section of the manuscript. And the protocol of the "between-session" analysis has also to be detailed.

🡪 The protocol of the “within-session” analysis was initially placed in the protocol section. Due to editorial advice it was removed to the section after the indication of figure 3. The reason for the removal is that this part cannot be sufficiently filmed and thus is not listed in the protocol section.

- Isn't it better to reverse the figures 3 and 4?

🡪 The figures 3 and 4 had initially been listed as suggested by the reviewer and then adapted to the current order due to editorial advice. In the text in line 263/264, the fast learning component is described first, the slow learning component afterwards. This is the order of learning. Reversing this order may lead to confusion of the reader. The editor has advised us to list the figures in the order of their appearance in the text. This order also seems better for the flow of the video.

- Why the authors did not show the graphs with the means+SEM (or SD) of all animals analyzed (average learning courve)?

🡪 For this study, no quantitative analysis with statistical testing and means / SEM was conducted. We focused on method description and qualitative examples.

- Was Figure 5 also from a representative animal or an average graph? Was it the same of the Figures 3 and 4?

🡪 We focused on qualitative examples that demonstrate the respective learning effects in the best manner. Figure 5 stems from a different animal than figure 3 and 4

DISCUSSION:

- Maybe it would be interesting to discuss the possible reasons for the existence of the "non-learners" rats and what it might represent in terms of motor learning capabilities.

🡪 This is an important and interesting aspect. However, as stated above the possible reasons for non-learners are variable and broad, we believe that discussing these aspects is not directly associated with the specific paradigm of motor learning described here but rather a general question of motor learning and thus beyond the scope of this study.

**Reviewer #2:**

The manuscript is well written.

*Major Concerns:*

In the discussion section, the authors indicated that one of the differences between their skilled reaching paradigm and the classical skilled reaching paradigm is that in their paradigm "the animal is forced to realign its body and reaching orientation prior to each pellet retrieval". This statement is incorrect because in both paradigms the animal is forced to realign its body and reaching orientation prior to each pellet retrieval.

🡪 In our experience, we observed a number of cases with the classical paradigm where animals stand in front of the slit opening, outreaching several grasps repetitively and successfully collect several pellets. During such reaches, we did not observe realignment of the animal’s body prior to each grasp. Instead, the animal seemed to have found an optimal angle from which it successfully grasped the pellet multiple times. To avoid grasping from the same angle and force the animal to re-align the body and its proprioceptive coordination prior to each grasp, we chose this specific learning paradigm over the classical paradigm.

The authors should include an additional figure showing the body weights of food-restricted animals in comparison with non-restricted animals during an entire experiment. This information will be very helpful!

🡪 All examples from this study stem from animals that were food restricted. We did not perform a quantitative statistical analysis with multiple animals. To provide a figure with food-restricted animals vs. non-restricted animals requires a quantitative study with statistical analysis. Here, we focused on qualitative examples to describe the respective steps of motor learning in the best possible way.

*Minor Concerns:*

The authors should improve the quality of the figures.

🡪 Figure 1 has been modified. The figures were sent in pdf format due to size restrictions. For the publication TIFF format will be used and the resolution will be superior.

**Reviewer #3:**

*Manuscript Summary:*

Overall, the authors provide a method for evaluating the acquisition and across day learning of skilled forelimb and paw movements.

*Major Concerns:*

I have no major concerns.

*Minor Concerns:*

I have no minor concerns.