

## OPEN PEER REVIEW REPORT 1

**Name of journal:** Neural Regeneration Research

**Manuscript NO:** NRR-D-22-01190

**Title:** Treadmill exercise improves hippocampal neural plasticity and relieves cognitive deficits in a mouse model of epilepsy

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**Reviewer's country:** USA

### COMMENTS TO AUTHORS

Overall, I felt this is an excellent manuscript. I particularly appreciate how the effects of exercise are examined through two behavioral measures of memory, long-term potentiation in CA1, the appearance of microglia, the concentration of proinflammatory cytokines, the strength of the blood brain barrier and, crucially, the integrity of parvalbumin-positive interneurons.

The manuscript stands out for its conciseness and there are two areas where a bit more detail would be helpful: (1) To include the number of mice used in each experiment. (I realize this can be deduced from the degrees of freedom in the ANOVAs but mentioning it explicitly in the text would be helpful. And (2) including at least a reference and preferably a few sentences explaining the Paired Pulse Ratio test. This would also help in understanding the degrees of freedom for the corresponding ANOVA.

Again, however, I think the manuscript overall is strong.