

## ANSWERING REVIEWERS



April 7, 2014

Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: 8719-review.doc).

**Title:** Aerobic exercise improves gastrointestinal motility in psychiatric inpatients

**Authors:** Yeon Soo Kim, Bong Kil Song, Ji Sun Oh, Seung Suk Woo

**Name of Journal:** *World Journal of Gastroenterology*

**ESPS Manuscript NO:** 8719

The manuscript has been improved according to the suggestions of reviewers, as follows:

1 The format has been updated to meet the requirements of WJG.

2 The manuscript and figures/ tables have been revised according to the suggestions of the reviewer.

The current study by Kim et al. is methodologically sound and well written. There are a few suggestions that would help to strengthen the paper:

1. The statistics should be reported as mean +/- standard error of the mean (SEM) rather than reporting the standard deviation.

**Response:** The statistics have been recalculated as SEM.

2. What is the explanation for why physical parameters improved in the control group over the 12 weeks of the study?

**Response:** Each of the participants in the control group was instructed to maintain their ordinary daily activities, and no restrictions were placed on participation in the normal planned group activities for the ward, such as watching TV or partaking in a sing-along. However, the control group showed a shortening of CTT that had occurred during the study period. This may have been due to the fact that the individuals in this group had been placed under a well-regulated lifestyle and provided with a balanced diet during their time of residence in the closed psychiatric ward (i.e. reflecting a beneficial change in their overall lifestyle).

compared to that which they were living prior to hospital admission). Regardless, the increase in CTT experienced by the control group highlights the extensive increase in CTT that was experienced by the exercise group during the study period, that was still significantly better than that experienced by the control group. These issues have been clarified in the revised manuscript.

3. In addition to the tables, the data should be presented in graphical format for a visual comparison of the exercise group to the control group. Mean  $\pm$  SEM should be presented for each group and physical parameter.

**Response:** The key data of this study (i.e. the exercise-related changes in CTT, total and for each colonic segment) have been presented in a graphical format to facilitate ready visual comparison of the data between the exercise group and the control group; please see Figure 1. The specific values for each of the graphically presented data are given in the text of the Results section; in order to correctly present the data without unnecessary repetition of the data, the corresponding table has been removed. In addition, the secondary data for the weight-, cardiovascular- and fitness-parameters have been reorganized in the tables to ensure a logical and clear presentation corresponding to the study design and textual presentation. All of the data have been presented as mean  $\pm$  SEM.

4. The generalizability of these findings may be problematic given that this is a very specific patient population. Furthermore, intestinal diseases such as irritable bowel syndrome (IBS) are highly comorbid within the psychiatric patient population. It is unclear if this was part of the exclusion criteria for participation in the study. Exercise is known to affect IBS and so the increased transit time reported in this study might simply reflect an aggravation of IBS symptoms. This may also explain why other studies using individuals from the general populace may not have reported changes in CTT with exercise.

**Response:** Indeed, IBS is a frequent comorbidity of psychiatric disorders. To control against an artifactual study of IBS, our patient selection procedure was designed to exclude any patients with indications of IBS according to the Rome II criteria; in addition, each patient's medical records were reviewed and patients were excluded from study if they were taking any drugs to address diarrhea symptoms or functional stomach diseases, or were on a prescription course of anti-constipation drugs. Furthermore, patients were excluded from the study according to diagnosis or clinical suspicion of any diseases or disorders with potential effects on CTT, including cardiovascular diseases, hypertension, orthopedic diseases, and diabetes mellitus. These exclusion criteria have been clarified in the revised manuscript.

Although we tried to control the various factors that can affect to CTT in our study (such as excluding

patients with functional gastrointestinal diseases/disorders), it was impossible to control for individualized differences in physical activity, stress, amount of water intake, and amount of fiber intake among our study participants. Future studies using a substantially larger cohort may have adequate power to minimize such differences and provide results that are more amenable to generalization. Nonetheless, our study provides novel initial insights into the potential physical benefits of adding a long-term/sustained aerobic exercise program to the clinical management strategy for psychiatric inpatients.

5. It would be informative, from a psychiatric perspective, to present data separately for patients with different diagnoses (i.e. depression, vs. bipolar disorder, vs. schizophrenia). For instance, was exercise particularly beneficial in patients with depression versus those with schizophrenia? If separating the data for analysis is not possible due to a small or limited sample size, then, at the very least, additional information on patient demographics and diagnoses need to be provided in a table format.

**Response:** The patient diagnoses (determined by the Structured Clinical Interview for DSM-IV) have been added to the manuscript; please see Table 1. In addition, the patients' demographic information (including age and sex; all patients were males) have been added and/or clarified in the textual and tabular content of the manuscript. There were no significant differences between the exercise group and the control group in the amount of patients with the various diagnoses of psychiatric disorders.

3 The formatting of references and the typesetting were corrected to meet the requirements of WJG.

Thank you again for publishing our manuscript in the *World Journal of Gastroenterology*.

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