Reviewer's report

Title: Handwriting performance in the absence of visual control in writer’s cramp patients

Version: 2 Date: 19 July 2005

Reviewer: Sonia Kandel

Reviewer’s report:

Review of the paper “Handwriting performance in the absence of visual control in writer’s cramp patients” by Chakarov, Hummel, Losch, Schulte-Mönting & Kristeva

Although I found this paper very interesting and very helpful for the study of handwriting and its pathology, there are a number of issues that would have to be resolved before I can recommend this manuscript for publication. My main concerns are essentially methodological. They regard the experimental situation as well as the data analysis.

Major Compulsory Revisions

1. Abstract
   The abstract is too long. It should be approximately 120-150 words. It should be a paragraph, without subtitles. Statistical analysis should not be reported in the abstract. I am a psychologist. I am therefore used to APA style; maybe this is why this kind of presentation surprises me.

2. Introduction
   I think the theoretical background lacks certain important references like:

   The authors do not say explicitly why it is interesting to study the effects of the lack of visual feedback on patients with writer’s cramp.

3. Method
   a) Why were the hand and arm supported in a rigid cast?
   
   b) Why writing 50 times the SAME sentence. I guess it is a standard sentence, but aren’t there any other standard sentences? Repeating the same sentence so many times may lead to practice effects. The authors should therefore control for differences in the first trials, the middle and end ones. Why did they ask them to write the same sentence the patients wrote during the interview?

   c) The authors argue that the fixation of the green light diode is enough to avoid the participant from having visual control of his/her handwriting. How were they sure about this? Couldn’t they have information from peripheral vision? Why didn’t the authors put any kind of mask to ensure that visual
information is indeed absent during handwriting?

d) I have not read Kisteva et al. (2005). Could you please send it to me so I can see some methodological details that are not specified in the paper. Maybe this is why I have certain doubts that could be solved by reading this paper.

e) Why was the sampling frequency of 166 Hz? The standard, and more precise, is 200 Hz. What kind of software did the authors use?

f) The authors speak about x and y axes, but they also measure pressure, so there should be somewhere an explanation on the z axis.

g) The authors should speak about Henry Kao’s work when dealing with pressure measures and the influence of attention on handwriting pressure.

h) I was a bit confused with some of the terminology. For example, was dysfluency what the authors called “number of velocity peaks in the velocity profile”? Dysfluency is a kind of measure, to my opinion, that should be very important for writer’s cramp patients. There are some studies using dysfluency measures that should be mentioned when dealing with dysfluency:

Is the “number of velocity segments” a dysfluency measure? I think the authors should check the handwriting literature so they use the appropriate terminology for each of the measures.

i) Another reference that I think should be mentioned is Sara Rosenblum’s work with dysgraphic patients and the “In air phenomenon”:

The “In air phenomenon” refers to the fact that dysgraphic patients have the pen in the air much longer that controls.

j) I did not understand how the stroke decomposition was done. Standard segmentation is done based on geometric parameters (xy coordinates) and kinematic parameters (minimal values in the velocity profile). This does not seem to be the case in this study, or maybe I did not understand it that way.

k) Maybe there should be a control condition in which the participants should write the sentence with visual feedback.

4. Results
a) The authors say that only one of the patients finished writing the sentence. So what does the significant difference between patients and controls mean? It is clear that the patients are slower than the controls, but the authors should specify which data were taken into consideration in the analysis, just like they did for the other measures, by analysing only the beginning of the sentence.
b) Why did the authors not do a by-item test in the statistical analysis of the measures they took? See above my point on the practice effect. There may be differences among the first, middle and last trials that do not appear in the results. A by-items test also makes the results stronger: when differences are found to be significant in the by-participants AND the by-items analysis.

c) The presentation of the statistical values should be in APA style; this kind of presentation surprises me.

5. Discussion
Please do not repeat the statistical analysis values in the Discussion section.

Minor Essential Revisions

a) “last reached sign” is hard to understand, maybe replace it by “number of written characters”.

b) Replace “length” and “path” by “trajectory”, which is more appropriate and more commonly used in the handwriting literature.

c) “duration of the data window” sounds awkward, and could be replaced by more common terms used in the handwriting literature like “movement time” or “movement duration”.

d) There are some problems with Figure 1:
- it does not show the trajectory values;
- the duration must be inferred from the lower panels;
- the pressure scales are not the same between patient and control, so it is hard to visualize the differences.

e) English should be improved in certain passages. Please avoid passive sentences.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No

Declaration of competing interests:
I declare that I have no competing interests
Sonia Kandel