

# On the Application of Iron Supplements for Benign Fasciculation Syndrome – A Self-Administered Drug Trial

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## Abstract

*After noticing a possibly spurious correlation between taking iron supplements and temporary relief from hand fasciculations, the author undertook a self-administered drug trial. There were no conclusive results, but it is hoped that sharing the experience will encourage others to engage in rigorous tests of treatment options themselves.*

## I. INTRODUCTION

Over the last 18 months the author has experienced several episodes of mild fasciculations (muscle spasms), mostly in his hands. After going on iron supplements to help with seemingly unrelated anemia, the fasciculations were noticed to stop abruptly. Any possible causal relationship was unclear, however, due both to the limited data set and the lack of an obvious biological explanation for the effect. The author was particularly unsatisfied with the input of the medical professionals that were consulted, who advocated continuing the iron supplements “if it made him feel better” [Several doctors, 2016] despite the lack of specific medical reasoning.

When the fasciculations reoccurred in spring of 2016, the author decided to settle the question scientifically by running a double blind drug trial on himself.

## II. METHODS

The challenge of this experiment was for it to be as rigorous as possible while still being self-administered. The author (and all others involved) had to remain ignorant as to treatment/control status, while still being able to draw conclusions from the study. After expert consultation [B. Abbey, 2016], the following study design was decided upon.

### i. Pill compounding

The first challenge was to produce treatment and control pills that couldn't be distinguished from each other, even by the person who had made them. The author ended up using opaque white size 1 gel capsules, purchased from an online retailer. Some experimentation resulted in the following formulations:

Treatment: 1 iron supplement pill, roughly powdered using a mortar and pestle, with the rest of the capsule filled with granulated sugar.

Control: Capsule filled in equal parts with flour and granulated sugar.

This resulted in capsules that were indistinguishable to the author. Specifically, the mass, sound and feel upon shaking, and taste of residual powders provided no clues as to a capsule being control or treatment.

## ii. Treatment protocol

A total of 20 control and 20 treatment capsules were produced. These needed to be administered in alternating treatment/control phases of the study, but with the author/subject remaining blind as to which phase they were currently in. To achieve this, the capsules were randomly assigned by the author into groups labeled 'A' and 'B'. (Assignment was by coin flip, with the result of A = control and B = treatment.)

These groups were then given to a fellow researcher who was not told which was control and which was treatment. Using 2 more coin flips, they assigned the capsules to 4 dosing phases, recording the results. The phases contained 10 capsules in each, with the constraint that phases 1 and 2 would be from different groups, as well as phases 3 and 4. This constraint was added so that the subject would not know if the treatment was actually changing between every phase, thus reducing the chance of breaking the study blindness.

The randomized phase assignment was [B, A, A, B] (AKA [treatment, control, control, treatment]). As the fellow researcher did not inform the author of the phase assignments, nor did the author inform the fellow researcher which group was which, this resulted in all parties being blind as to treatment status until after the study was completed.

With the capsules prepared and placed into the 4 dosing phases, the study commenced. The author took 1 capsule twice a day, along with a vitamin C supplement (as that improves iron absorption). Vitamin C was included for all phases so as not to introducing a confounding variable. The possibility that the vitamin C had an interaction with the fasciculations was left for future investigation.

The author recorded all instances of fasci-

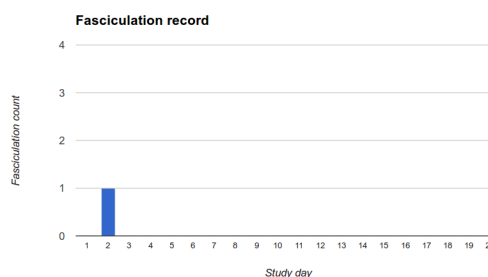


Figure 1: Study results

culations. These were kept in a draft email, as that was the most convenient note-taking method available.

## III. RESULTS

The full set of study results can be seen in Figure 1. Fasciculations happened at an exceedingly low rate during all phases of the study. With a p-value of 0.30302, the results are not significant.

## IV. DISCUSSION

While nothing can be concluded either way from this study, the author still feels it is important to the advancement of science to publish even null results so that others may learn from your failures.

In addition, it is hoped that other researchers may find inspiration in this effort. Because of the overwhelming complexity of the subject, it is easy to assume medical choices can only be informed by expert opinion or personal anecdote. As this study shows, however, it is entirely possible to run a rigorous, scientific, carefully designed study on yourself.

## REFERENCES

- [B. Abbey, 2016] B. Abbey, personal communication, May 31, 2016
- [Several doctors, 2016] Several doctors, personal communication, January-March, 2016