

James A. Nicholas, M.D., P.C.

130 East 77th Street

New York, N. Y. 10021

212 RE 7-3301

September 20, 1991

Dr. William Thornton
Dept. CB
NASA
Johnson Space Center
Houston, Texas 77058

Dear Dr. Thornton:

It was a pleasure to speak to you on the phone particularly on the subject of inhibition of muscle strength that we described in our article.

As I said before we tried doing electromyography on athletes to see whether there was a change in the electrical conductivity after stimulation of various muscle groups in the distal segments that weakened temporarily. In some cases we have shown that, but we have had no significant data of any controls and we have wanted to do this. Unfortunately, our athletes are professionals and have not allowed us to do this.

I have looked up the literature on this and found very little, and I am interested in the Russian literature which you described. There is sometimes an inhibitory effect that I have read about in people who awaken during the period of REM in sleep where momentarily they have difficulty in mobilizing muscle strength, but I do not know whether that is a central effect or not. You have done a literature search as we have and I would like to compare them. Certainly the Russian data would be interesting to see. I can tell you a protocol that we have done sporadically on our athletes that you might want to try. We have never been able to show that it is not central in origin. I can do this inhibition on any segment of the body, incidentally. I can stroke the calf muscles and produce sometimes inhibition of dorsiflexion of the foot. I can stroke the lower abdomen and produce inhibition in hip flexion or the lateral abdomen and produce limitation of leg abduction. Apparently this inhibitory effect is best produced by stroking in levels that are proximal to the innervation of the segment that controls the muscles that move a joint. I have heard of it being done as

September 20, 1991

a trick, however, by simply putting one's hand on the head and at the same time stroking another part of the body. I have thought it to be akin to some type gate abnormality as we see in acupuncture. Obviously I have not been able to prove it. However, it is as real today as it was ten years ago. Indeed, I was able to take a man like Joe Klecko, one of the strongest football players in the history of football, a veteran weight-lifter, abduct his arm, not be able to push down with two arms, stroke his chest and then be able to put the arm down. The same was true with hip flexion, so even where there is massive power in an individual from weight-lifting and other methods, we have been able to measure the strength loss.

We have a manual muscle tester now which we have designed which is hand-held which we have been using for three or four years that documents the strength loss much more effectively than the one we had in the publication. Should you be interested in doing this type of work, you would find it very useful.

Anyhow, those are some of my thoughts. It was a pleasure again to hear from you.

Best regards.

Sincerely,



James A. Nicholas, M.D.

JAN:pp