

## Can Hand Tactile Stimulation Improve Body Balance in the Elderly? Dr. Faris S Alshammari

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Abstract : Two patients, one male with age of 82 and one female with age of 77 years. Both were diagnosed with Diabetes and peripheral neuropathy. According to recent blood analysis, A1C for the first patient was 6.9 and 5.7 for the second patient. Patients were complaining of poor body balance. Romberg test on noncompliant and compliant surfaces, and single leg stance test were conducted on both patients. Two small spongy balls, each of them weighing 50 grams, were used to provide tactile stimulation to hands. Tactile sensation of both hands and feet was evaluated using Semmes Weinstein monofilament from 1g to 10 g. Joint Position Sense was examined in both feet. Upon examining the tactile sensation of the sole of the foot, the first patient was able to feel 6 g monofilament in the mid left foot and 10 g monofilament on the mid right foot, and bilateral toes, forefoot, and heel areas. However, the second patient was able to feel 6 g monofilament on the whole planter aspect of the foot bilaterally. Joint position test was positive for the first patient and negative for the second patient. Upon conducting Romberg test on noncompliant surface, the first patient was able to maintain balance for 5 seconds, whereas, the second patient was able to maintain body balance for 7 seconds. Upon holding balls in hands, the first patient was able to maintain body balance in Romberg for 11 seconds and 12 seconds for the second patient. Patients were able to maintain balance for shorter time while conducting a Romberg test on a compliant surface. The first patient maintained body balance for  $\boldsymbol{3}$ seconds and second patient for 4 seconds. With hand tactile stimulation, the ability of the first patients improved to 7 seconds whereas the second patient improved to 8 seconds. The ability of first patient on maintaining single leg stance improved from 2 seconds to 5 and from 3 seconds to 5seconds for the second patient while holding the balls. Nerve damage in theperipheral neuropathy starts first in the feet then in the hands following a pattern. While the sensory impairment starts in the feet first, it could still intact in the hands. Therefore, stimulation of the hands can provide more sensory information regarding body orientation to the brain which can improve body stability.

## **Biography:**

Dr. Faris S Alshammari is a Physical Therapy Specialist in Loma Linda, California. Assistant Professor in the DPT program at the University of St. Augustine for Health Sciences. He finished his first degree in physical therapy in 2006 from the Hashemite University, Jordan with honor. He graduated with honors in 2010. Having more than 10 years of diverse experiences, especially in PHYSICAL THERAPY, Dr. Faris S Alshammari affiliates with no hospital, cooperates with many other doctors and specialists in medical group Power Center Physical Therapy Incorporated.



## **Publications :**

1. The Effect of A Single Intervention of Tactile Feedback (Novel Treatment) Compared to Visual Feedback on Body Sway in The Elderly; A Randomized Clinical Trial

2. Tactile Intervention as a Novel Technique in Improving Body Stability in Healthy Elderly and Elderly with Diabetes

3. The effect of visual feedback on sway in elderly compared to age matched diabetic subjects

4. Evidence-based use of cold for plantar fasclitis

5. Electroencephalography to Assess Motor Control During Balance Tasks in People with Diabetes

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