Experiencing Hypnotizability Scale
Motor Items by an Amputee:
A Brief Report

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The following brief report describes the experiences of a hand and arm amputee following the administration of the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) of Shor and Orne, 1962. The participant passed two of the three motor items involving his missing limb. This report discusses the results of a postsession interview regarding our participant’s experiences during hypnosis and briefly discusses phantom limb sensations in general.

Key words: Hypnosis, hypnotizability, phantom limb

Introduction

Reports of phantom limb awareness (and often phantom limb pain) have a long and rich history. One example is the phantom limb pain reported by Lord Nelson following the loss of his right arm in the attack on Santa Cruz de Tenerife (see Ramachandran & Rogers-Ramachandran, 2000). The awareness of phantom limbs tends to be rapid, often within days after an amputation (Shreeve, 1993). This awareness can persist for years. The occurrence of phantom sensations among amputee patients is high. Melzack (1992) estimated that as many as 80% of patients receiving amputations experience phantom sensations. Sherman & Sherman (1983) offered an estimate of 85% and Kamen and Chapis (1994) reported as many as 90% of patients with amputations

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experience phantom sensations. Phantom limb pain occurs less frequently. Sherman and Sherman (1983) reported that 50% of patients with amputations reported pain associated with their missing limb. Such pain has been described in various ways: burning; crushing; shooting sensations (Melzack, 1992); and as finger nails digging into phantom palms (Ramachandran & Rogers-Ramachandran, 2000). Clinical attempts to ameliorate phantom pain, including ultrasound, vibration, electrical nerve stimulation, and surgeries, have proven to be largely ineffective (Anderson, 1958; Melzack, 1992).

Building on earlier work (Melzack & Wall, 1965) that proposed the gate-control theory of pain, Melzack (1990; 1993) offered a neuromatrix explanation of phantom limb experiences. According to Melzack, the neuromatrix represents a widespread network of brain cells (linking the thalamus, limbic system, and somatosensory and association cortex). These receive and integrate sensory input from all peripheral body parts, as well as fully representing the body and the sense of “body-self” independent of the sensory input it receives. The neuromatrix is thus completely capable of generating sensations associated with a limb removed by amputation despite the cessation of sensory input. Melzack (1990) argued that the neuromatrix is genetically based and “pre-wired” into our nervous system. This postulation accounts for phantom limb sensations among children who were born with congenital limb deformities or missing limbs (see Poeck, 1964, and Weinstein & Sersen, 1961). Others (e.g., Skoyles, 1990) have challenged Melzack’s model and criticized many of the aforementioned studies on methodological grounds.

Another explanation of phantom experiences is exemplified by the work of the Ramachandrans (Ramachandran, Rogers-Ramachandran, & Stewart, 1992; Ramachandran & Rogers-Ramachandran, 2000). They argued that neural plasticity allows for a cortical reorganization or remapping of the somatosensory cortex following the deafferentation of neurons. Deafferented neurons expand or encroach upon receptive fields of other cortical cells and begin to respond to input from adjacent bodily representations. Amazingly, phantom sensations are modality-specific (Ramachandran et al., 1992; Yang, Gallen, Schwartz, Bloom, Ramachandran, & Cobb, 1994). For example, if heat is applied to an intact area of the face, a sensation of heat might be perceived as originating in the phantom limb. An unanswered question of the Ramachandran’s remapping model is whether the expansion of the receptive fields occurs by way of sprouting of new axons or the strengthening of preexisting latent circuits. The rapidity with which the encroachment occurs (sometimes within hours) would suggest the latter.

Hypnotizability scales have been constructed in order to accommodate clinical populations that may not be able to engage in certain motor activities. For example, the Stanford Hypnotic Clinical Scale for Adults (Morgan & Hilgard, 1978/1979) was designed for use with patients for whom traditional hypnotizability scales may be too lengthy, tiring, or too taxing. However, to our knowledge, no report to date has described the experiences of a participant missing a limb and being administered a hypnosis scale containing motor items requesting movements (and experiences) regarding the nonexistent limb. The following is a brief report of such a unique event.

Case History

The participant is a 31-year-old male who lost his right arm at the age of 5 in a farming accident. Until the time of the accident, his right hand had been his dominant
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hand. His arm was completely severed below the elbow. Following the accident, doctors were unsuccessful in their attempts to reattach his arm. Immediately upon waking from surgery he recalled experiencing phantom pain. He experienced constant pain for months. The pain became intermittent over a period of 10 years. Thereafter, the pain subsided and, at the time of this report, is only occasionally a problem. However, he experiences constant phantom limb sensations in his missing arm and hand (his “short arm,” as he calls it). For example, when putting on a coat, the sensory input received from the end of his arm is now perceived as coming from his missing hand and fingers. Telescoping (i.e., a gradually diminishing area of phantom sensation) has not occurred for him and his hand and arm are still experienced as being of complete length.

Assessment of Hypnotizability

As part of a comprehensive study, the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor & Orne, 1962) was administered via tape recording to a group of introductory psychology students at a Midwestern university during their regularly scheduled class time. During the administration, we noticed this individual responding to the hand and arm motor items despite the fact he was missing a large portion of his right arm. Following the group hypnosis session, he agreed to participate in a post-experimental interview. This occurred two days following the group hypnosis session.

The participant passed 8 of the 12 standard HGSHS:A suggestions. He passed two out of the three relevant motor items involving his missing hand/arm (item #5: Finger Lock, and item #7: Hands Moving Together). He did not pass the Arm Immobilization suggestion involving his right arm. When questioned about the Arm Immobilization suggestion, he responded, “It felt like I had my right hand and it was getting heavier. I was able to lift it a little, but it was very heavy.” Despite this experience, he believed that he was able to lift the non-existent hand and arm more than the maximum of one inch required to pass the item—thus failing the suggestion. When questioned about the next relevant motor item (i.e., Finger Lock), he stated, “It actually felt like I felt my fingers.” He reported that he was not able to pull his “interlocked fingers” apart during the 10-second trial adding that it was very difficult to separate his “hands.” Finally, regarding the motor item (Hands Moving Together), he reported that his “hands” touched. He stated, “It felt like I was clapping my hands.”

Discussion

The fact that this individual experienced the reported sensations seems extraordinary given that his right arm had been amputated over two and one-half decades earlier. Because he passed 8 of the 12 suggestions on the HGSHS:A, our participant is classified as a “moderately-high hypnotizable.” It appears that his ability to experience the HGSHS:A motor-item suggestions is correlated to his ability to experience phantom sensations in his missing limb. Further research needs to contrast amputee patients with and without phantom limb sensations across hypnotic suggestions involving imaginary sensations and experiences involving their missing limbs. Such research may answer questions regarding the potential association between cognitive variables such as absorption, dissociation, hypnotizability, fantasy and imagination, and the type and the intensity of phantom limb experiences. Future research may provide the answers to these previously unaddressed questions.
References


