



A global proprioception concept after hand injury—Patient report

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ABSTRACT

Hand therapist should take into consideration the importance of hand proprioception in long-term functional outcomes and its potential impairment due to various factors. Rehabilitation programs should focus on proprioceptive training for hand injuries but also consider broader aspects such as global proprioception, plantar support, posture, and balance.

Patient's experience after a significant hand and forearm injury resulting from a sports accident, multiple surgeries, and the challenges of recovery emphasizes the importance of holistic approaches to rehabilitation, considering both physical and mental aspects, and praises the role of the physiotherapist in providing comprehensive support and building confidence.

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Introduction

Hand proprioception has a crucial role in the consolidation of long-term functional outcomes.¹ Impairments in hand proprioception can result from various factors, including neurologic conditions, peripheral nerve damage, musculoskeletal injuries, or sensory deficits. When proprioception is compromised, individuals may face difficulties in performing tasks that require precise hand movements and coordination. Rehabilitation programs, which include proprioceptive training exercises, can significantly improve proprioceptive abilities in the hand and aid recovery in cases of impairment.²

Nevertheless, global sensorimotor incongruence could arise not only due to problems with movements and/or sensations leading but also due to changes in the cognitive representations of the body and peripersonal space.³

After wrist or hand injury, not only patients present alterations of proprioceptive movement or sensation in the affected area, but we can also observe a globally modification in how they carry out their daily activities. It may be necessary to introduce the concept of "global proprioception" in the approach of hand injuries. Hand therapists should not focus the proprioception and re-education approach only to the hand. It could be necessary to evaluate-prevent and re-educate also plantar support, global postural changes, speed

changes during walking, balance, and many more things, as indicated by the following patient report.

Patient experience

I was asked to write this, and I must admit it was a struggle. Why? Each time I started, it felt like reliving the pain and memories of what I still endure. The need to treat the whole person, not just the symptoms, became apparent. As an avid sports enthusiast who loves adventure sports, from skiing to mountaineering, Jujitsu, and motorbiking, I've had my fair share of injuries. However, none compared to this. Strangely, not in terms of what I initially thought was the severity, but in its long-lasting effects.

A sports accident resulted in multiple fractures of all the bones in my forearm and wrist. The initial surgery lasted more than 4 hours and involved the insertion of multiple plates and screws. However, in subsequent follow-up operations with a different surgeon, what was meant to be a routine intervention to relieve compression of the Ulnar nerve led to the severing of the nerve and the creation of a tunnel for it to regenerate. It was explained that this was necessary, although I was not prepared for this or the implications it would have, all to avoid a claw hand. I still find this debatable.

The prescribed medications did little to facilitate continuous sleep, and the nerve-related medications (to reduce shocks) brought on a slew of side effects, including dizziness and nausea. Fortunately, my hand therapist understood that prescribing walks and runs alone wouldn't suffice. What about the fear of another fall? The immobility of the arm and hand led to additional issues, such as a frozen shoulder, subsequently resulting in lower back pain, and more. She not only provided physiotherapy with the Canadian table but also advocated a range of

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global exercises involving the entire body, including the use of balls, elastics, total resistance exercise, and more. The coaching extended beyond fingers, hands, and arms, encompassing the whole body.

It is a pity that such holistic approaches are not more readily prescribed, as opposed to merely treating localized symptoms. Being holistic and considering the mental aspect of recovery, especially for someone who is exceptionally active and then suddenly rendered nearly inactive for a year, is crucial. Moreover, the inability to drive can have further effects. The importance of the physiotherapist's role in providing this kind of support and building confidence should be emphasized.

Declaration of competing interest

No actual or potential conflict of interest exists in relation to the research topic, and no external financial support was received for the conduction of this study.

Explicit consent from the patient has been obtained for the anonymous publication of their personal story.

I affirm that the manuscript or any part of it has not been published or is being considered for publication elsewhere. The research will not be submitted for publication elsewhere until a final decision has been made as to its acceptability by the *Journal of Hand Therapy*.

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JHT Read for Credit

Quiz: # A67

Record your answers on the Return Answer Form found on the tear-out coupon at the back of this issue. There is only one best answer for each question.

- #1. The authors advocate expanding the rehab of hand/wrist injured patients to include a concept of
- hand-mind integration
 - global proprioception
 - total body synchronization
 - systematic proprioception
- #2. Subsequent surgery was performed to
- ablate the median nerve
 - ablate the ulnar nerve
 - establish a tunnel to guide the regeneration of the median nerve
 - establish a tunnel to guide regeneration of the ulnar nerve
- #3. The case report is presented by the
- CHT physical therapist
 - surgeon
 - patient
 - case worker
- #4. Unfortunately, the report
- was too detailed to allow readers to incorporate it into their own programs
 - offered no details as to the specifics of the rehab program
 - cannot be shared effectively with the rest of the hand therapy community
 - can only be applied to a Canadian population
- #5. Essentially the authors are advocating a holistic approach
- true
 - false