Mirror Box Training 2.0

Physical therapy, like all health care professions, is always changing. Using technology to our advantage as physical therapists is a must to keep up with the times. Simple and accessible tools are the keystone for patient adherence to treatment programs.

One tool that may commonly be overlooked in the treatment of chronic, phantom, and complex regional pain is the smartphone or tablet. It seems almost everyone, at least in the United States, has access to these devices.

Recently, I had a patient with complex regional pain syndrome walk in my door. I evaluated her and discussed our treatment options. I had not seen this type of patient many times before but told her by the next time I saw her, I'd have a plan.

After a few hours of research and discussion with my colleagues and the owners of my clinic, I had decided to go through a program that consisted of limb recognition, guided motor imagery, mirror training, and ultimately functional desensitization and adaptation training. The mode of treatment is beyond the scope and purpose of this article.

I eventually stumbled upon a new way to treat this challenging condition, which may be carried over to many other diagnoses. I discovered applications and programs that would keep track of her limb recognition scores and times to show objective improvements. This was done using a smartphone and a tablet. This approach also helps keep patients adherent to their program, as I can see exactly how many times they practiced their home program. This was encouraging, but not the most exciting thing I discovered.

THE DISCOVERY

When it came to mirror training, a little over a month later, we attempted to use the tall wall mirrors in the clinic as we were treating her left lower extremity. This worked fine, but the line of sight was always from the side, and if the clinic was busy, there was far too much distraction in the background of the mirror. The next obvious choice was buy or build a mirror box, but again the line of sight seemed unnatural to me.

One morning as I was on my couch at home playing with my tablet, I turned on a photo application. From there I selected the mirror mode and was looking around the room, and eventually looked down at my feet. Instantly, it hit me. I was looking directly down at my feet but they were reversed. I took one foot away and realized I was looking a much improved mirror box.

I brought my tablet into the clinic and could not wait to try it out. I first practiced with staff. When my patient came in, she was excited and motivated to progress with this new tool. She was most excited that we could practice this skill anywhere without distraction. More importantly, we had symptom onset and symptom reduction quickly. Also, we had direct line of sight mirror box training!

Direct line of sight training may allow the brain to “believe” what it’s seeing more easily. This may be due to the fact that with mirror training via tablet, the patient doesn’t have to hide the other limb. In fact, the exposed or affected limb can stay in the picture, as it may provide an improved reference for the brain to see the opposite side. Again, this may make it easier for the brain to believe what it’s seeing. Another positive is that the plane doesn’t have to buy larger equipment.

INTUITIVE APPLICATIONS

This technology could easily be transferred to other patients that will benefit from mirror box training. To more effectively use it on patients with upper extremity diagnoses, a stand can be used.

Also, as most patients typically carry their smartphones with them, accessing applications gives patients the power to reduce their symptoms independently, anywhere. It also allows them to complete their home exercise programs from anywhere at any time. This ultimately could improve adherence with mirror training, as practice time could be completed in a waiting room, at a lunch break, or at short intervals throughout the day.

Another benefit of technology is the overall outlook the patient may have. Using new tools shows that you’re up to date on emerging interventions and patients, like any consumer, will want to use the “new product.”

The best part is, you likely already own this product and can use it in the clinic tomorrow.

Future research will be necessary to demonstrate the advantage of mirror applications over a regular mirror box. But for the time being, it seems doubtful that improving line-of-sight with mirror training could be any less efficacious and is likely far more accessible for patients and physical therapists.

THE BOTTOM LINE

Using a tablet or smartphone with a mirror application is a viable treatment option that may provide better results due to the direct line of sight and visualization of two limbs for patients with complex regional pain syndrome/reflexive sympathetic dystrophy, phantom limb pain, or any other diagnoses where mirror boxes have been utilized.

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