



# Using IVR in Occupational Therapy Practice



## What is IVR?

**Immersive Virtual Reality:** Three-dimensional, life-sized computer-generated environment interacted via a computer headset and controllers

**Research supports it!** (See Resource List for Some References)

- *What do I need?*
  - Headset (controllers)
- *What IVR Experiences are there?*
  - Passive
  - Interactive
  - Commercial or professional rehabilitation companies
- *Quality of Experience*
  - Immersion: the technology of the experience
  - Presence: the virtual environment of the experience
- *How does it work?*
  - Educate
  - Mindfulness, Meditation,
  - Augment other therapies
  - Engage/distract
  - Movement
  - Emotional Regulation
  - Embodiment
- *How much?*
  - ~\$30 → \$\$\$\$\$
  - Programs: Free → ~\$50

## How is IVR used?

- *Where?*
  - Anywhere!
- *Who?*
  - Anyone!
- *Set up?*
  - Quick! (>10 minutes)
- *Space required?*
  - Seated, standing, supine
  - Guardian boundary
- *Safe?*
  - Adverse Events: Motion sickness, dizziness
  - Take off the headset!
  - Monitor like any other OT treatment
- *How can it be cleaned?*
  - Wipe down with wipes following use
  - Silicone face covers
  - Do not wipe the lenses with any liquid, use gentle dry cloth
- *Some Barriers and solutions?*
  - Wi-fi: Program material stored locally on headset, screen casting
  - Technological knowledge: Quick user guidelines, play!
  - Time: 5-10 minutes for clients to see benefit
  - Logistics: Space required to allow for unobstructed arm movement
  - Billing: Same as any OT session!
- *How can I see what my client sees?*
  - Screen casting
- *How do I make VR fit my client's needs?*
  - Activity analysis - The same as any other OT treatment!
  - Modification Examples:
    - Activity duration
    - Limb involvement
    - Position
    - Experience type

**Key Take Away:**  
**IVR is just another tool  
in your OT toolkit!**



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- Appel, L., Kisonas, E., Appel, E., Klein, J., Bartlett, D., Rosenberg, J., & Smith, C. N. C. (2021). Administering virtual reality therapy to manage behavioral and psychological symptoms in patients with dementia admitted to an acute care hospital: Results of a pilot study. *JMIR Formative Research*, 5(2), e22406. <https://doi.org/10.2196/22406>
- Corrigan, N., Păsărelu, C.-R., & Voinescu, A. (2023). Immersive virtual reality for improving cognitive deficits in children with ADHD: a systematic review and meta-analysis. *Virtual*, 27(4), 3545-3564. <https://doi.org/10.1007/s10055-023-00768-1>
- Dias, P., Silva, R., Amorim, P., Lains, J., Roque, E., Pereira, I. S. F., Pereira, F., Santos, B. S., & Potel, M. (2019). Using virtual reality to increase motivation in poststroke rehabilitation. *IEEE Computer Graphics and Applications*, 39(1), 64-70. <https://doi.org/10.1109/mcg.2018.2875630>
- Donati, A. R., Shokur, S., Morya, E., Campos, D. S., Moioli, R. C., Gitti, C. M., Augusto, P. B., Tripodi, S., Pires, C. G., Pereira, G. A., Brasil, F. L., Gallo, S., Lin, A. A., Takigami, A. K., Aratanha, M. A., Joshi, S., Bleuler, H., Cheng, G., Rudolph, A., & Nicolelis, M. A. (2016). long-term training with a brain-machine interface-based gait protocol induces partial neurological recovery in paraplegic patients. *Scientific Reports*, 6, 30383. <https://doi.org/10.1038/srep30383>
- Eshuis, L. V., van Gelderen, M. J., van Zuiden, M., Nijdam, M. J., Vermetten, E., Olff, M., & Bakker, A. (2021). Efficacy of immersive PTSD treatments: A systematic review of virtual and augmented reality exposure therapy and a meta-analysis of virtual reality exposure therapy. *Journal of Psychiatric Research*, 143, 516-527. <https://doi.org/https://doi.org/10.1016/j.jpsychires.2020.11.030>
- Karami, B., Koushki, R., Arabgol, F., Rahmani, M., & Vahabie, A.-H. (2021). Effectiveness of virtual/augmented reality-based therapeutic interventions on individuals with autism spectrum disorder: A comprehensive meta-analysis. *Frontiers in Psychiatry*, 12, 665326-665326. <https://doi.org/10.3389/fpsyg.2021.665326>
- Khurana, M., Walia, S., & Noohu, M. M. (2017). Study on the effectiveness of virtual reality game-based training on balance and functional performance in individuals with paraplegia. *Topics in Spinal Cord Injury Rehabilitation*, 23(3), 263-270. <https://doi.org/10.1310/sci16-00003>
- Kwan, R. Y. C., Liu, J., Sin, O. S. K., Fong, K. N. K., Qin, J., Wong, J. C. Y., & Lai, C. (2024). Effects of virtual reality motor-cognitive training for older people with cognitive frailty: multicentered randomized controlled trial. *Journal of Medical Internet Research*, 26, e57809. <https://doi.org/10.2196/57809>
- Lan, X., Tan, Z., Zhou, T., Huang, Z., Huang, Z., Wang, C., Chen, Z., Ma, Y., Kang, T., Gu, Y., of virtual reality in burn rehabilitation: A systematic review and meta-analysisWang, D., & Huang, Y. (2023). Use. *Archives of Physical Medicine and Rehabilitation*, 104(3), 502-513. <https://doi.org/10.1016/j.apmr.2022.08.005>
- Maddox, T., Sparks, C., Oldstone, L., Maddox, R., Ffrench, K., Garcia, H., Krishnamurthy, P., Okhotin, D., Garcia, L. M., Birkhead, B. J., Sackman, J., Mackey, I., Louis, R., Salmasi, V., Oyao, A., & Darnall, B. D. (2023). Durable chronic low back pain reductions up to 24 months after treatment for an accessible, 8-week, in-home behavioral skills-based virtual reality program: a randomized controlled trial. *Pain Medicine*, 24(10), 1200-1203.
- Magrini, M., Curzio, O., Tampucci, M., Donzelli, G., Cori, L., Imiotti, M. C., Maestro, S., & Moroni, D. (2022). Anorexia Nervosa, body image perception and virtual reality therapeutic applications: State of the art and operational proposal. *International Journal of Environmental Research and Public Heal*, 19(5). <https://doi.org/10.3390/ijerph19052533>
- Matamala-Gomez, M., Diaz Gonzalez, A. M., Slater, M., & Sanchez-Vives, M. V. (2019). Decreasing pain ratings in chronic arm pain through changing a virtual body: Different strategies for different pain types. *The Journal of Pain*, 20(6), 685-697. <https://doi.org/10.1016/j.jpain.2018.12.001>
- Patsaki, I., Dimitriadi, N., Despoti, A., Tzoumi, D., Leventakis, N., Roussou, G., Papathanasiou, A., Nanas, S., & Karatzanos, E. (2022). The effectiveness of immersive virtual reality in physical recovery of stroke patients: A systematic review. *Frontiers in Systems Neuroscience*, 16, 880447. <https://doi.org/10.3389/fnsys.2022.880447>
- Percie du Sert, O., Potvin, S., Lipp, O., Dellazizzo, L., Laurelli, M., Breton, R., Lalonde, P., Phraxayavong, K., O'Connor, K., Pelletier, J.-F., Boukhalifi, T., Renaud, P., & Dumais, A. (2018). Virtual reality therapy for refractory auditory verbal hallucinations in schizophrenia: A pilot clinical trial. *Schizophrenia Research*, 197, 176-181. <https://doi.org/https://doi.org/10.1016/j.schres.2018.02.031>
- Perez, M., Pineda-Rafols, A., Egea-Romero, M. P., Gonzalez-Moreno, M., & Rincon, E. (2023). addressing body image disturbance through metaverse-related technologies: A systematic review. *Electronics*, 12, NA. <http://dx.doi.org/10.3390/electronics12224580>
- Risso, G., Pretoni, G., Valle, G., Marazzi, M., Bracher, N. M., & Raspopovic, S. (2022). Multisensory stimulation decreases phantom limb distortions and is optimally integrated. *iScience*, 25(4), 104129. <https://doi.org/https://doi.org/10.1016/j.isci.2022.104129>
- Smith, L. C., Mateos, A. C., Due, A. S., Bergström, J., Nordentoft, M., Clemmensen, L., & Glenthøj, L. B. (2024). Immersive virtual reality in the treatment of auditory hallucinations: A PRISMA scoping review. *Psychiatry Research*, 334, 115834. <https://doi.org/10.1016/j.psychres.2024.115834>
- Yeung, A. W. K., Tosevska, A., Klager, E., Eibensteiner, F., Laxar, D., Stoyanov, J., Glisic, M., Zeiner, S., Kulnik, S. T., Crutzen, R., Kimberger, O., Kletecka-Pulker, M., Atanasov, A. G., & Willschke, H. (2021). Virtual and augmented reality applications in medicine: analysis of the scientific literature. *Journal of Medical Internet Research*, 23(2), e25499. <https://doi.org/10.2196/25499>. <https://doi.org/10.2196/25499>