



# VIRTUÁLNÍ REALITA V PSYCHOLOGICKÉM VÝZKUMU

JAN ONDŘEJ

# OSNOVA

HISTORIE VIRTUÁLNÍ REALITY

EKOLOGICKÁ & INTERNÍ VALIDITA

VÝZKUMY LÉČBY ÚZKOSTÍ  
A FÓBIÍ, ZA POMOCI VR

VÝZKUMY NA NAŠEM  
PSYCHOLOGICKÉM ÚSTAVU

PLUSY A MÍNUSY VR

# HISTORIE VIRTUÁLNÍ REALITY



# PRVNÍ PŘEDSTAVA VR

**STENGLY G.  
WEINBAUM**

**1935**

**PYGMALION'S  
SPECTACLES**

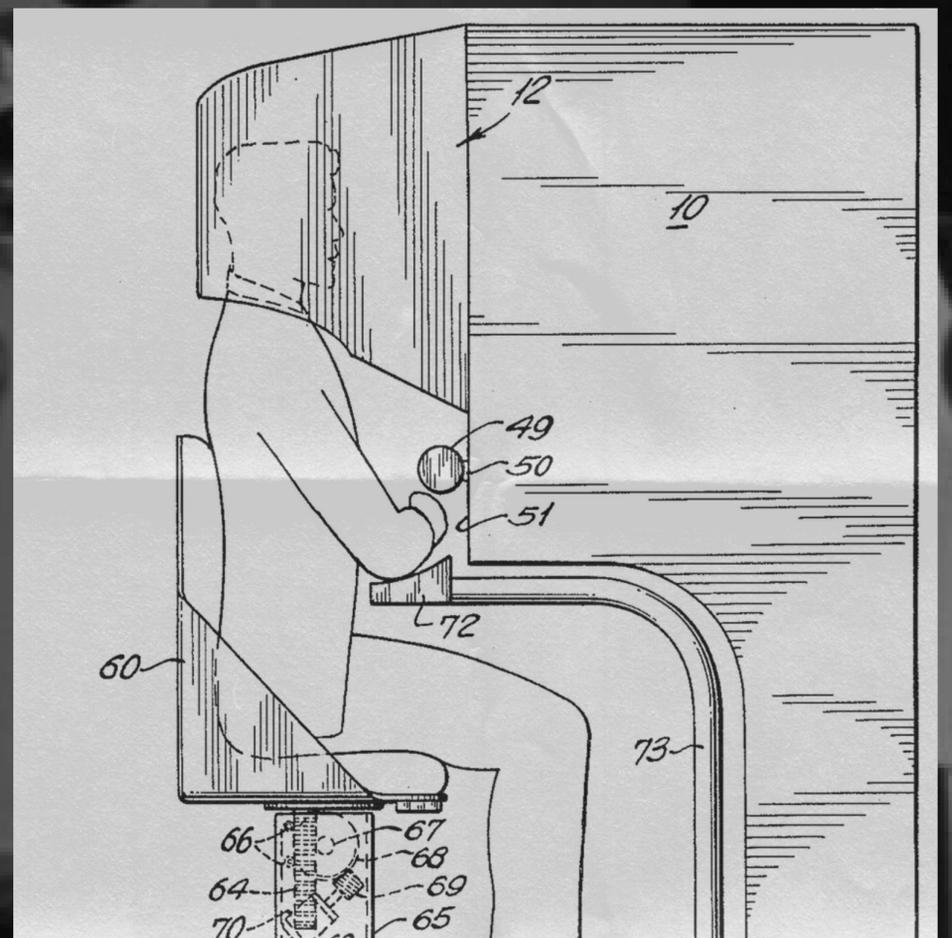


# SENSORAMA

MORTON HEILIG

1950

PŘEDCHŮDCE  
XD KIN?

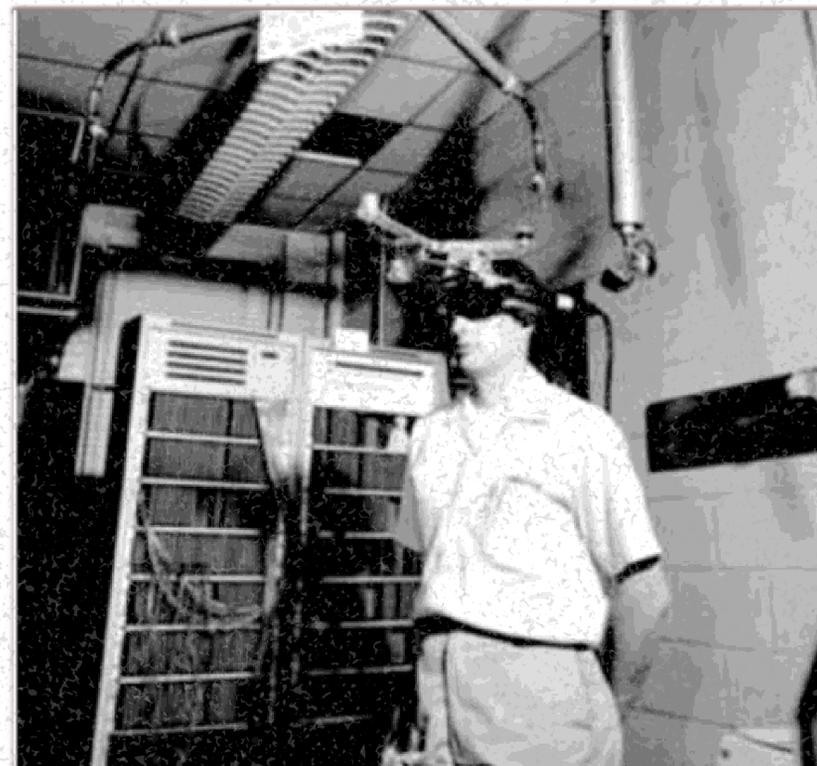
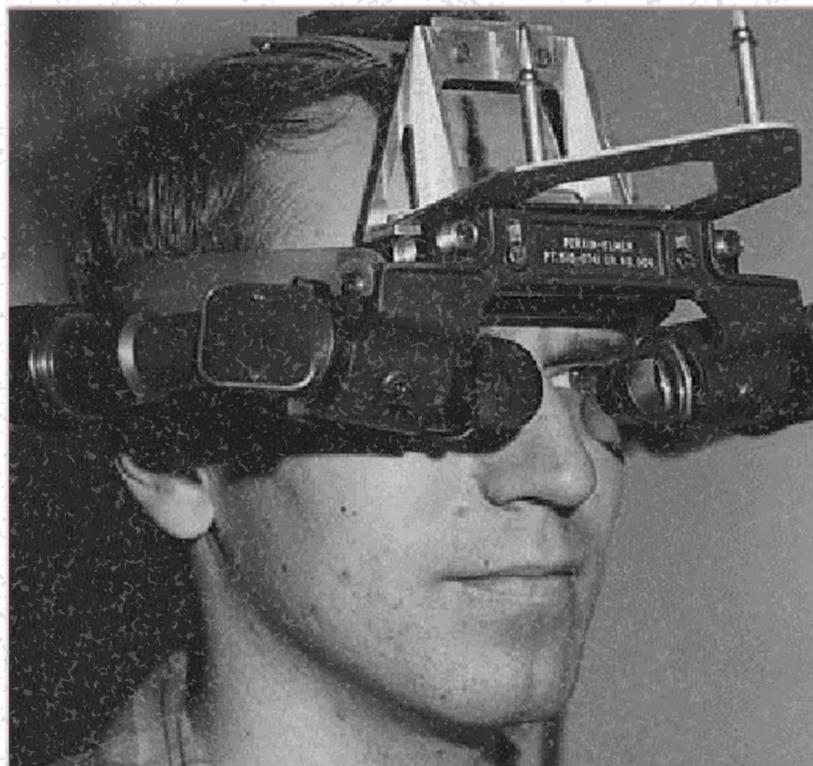


# THE SWORD OF DAMOCLES

IVAN  
SUTHERLAND

1965

PRVNÍ HEAD  
MOUNTED  
DISPLAY (HMD)

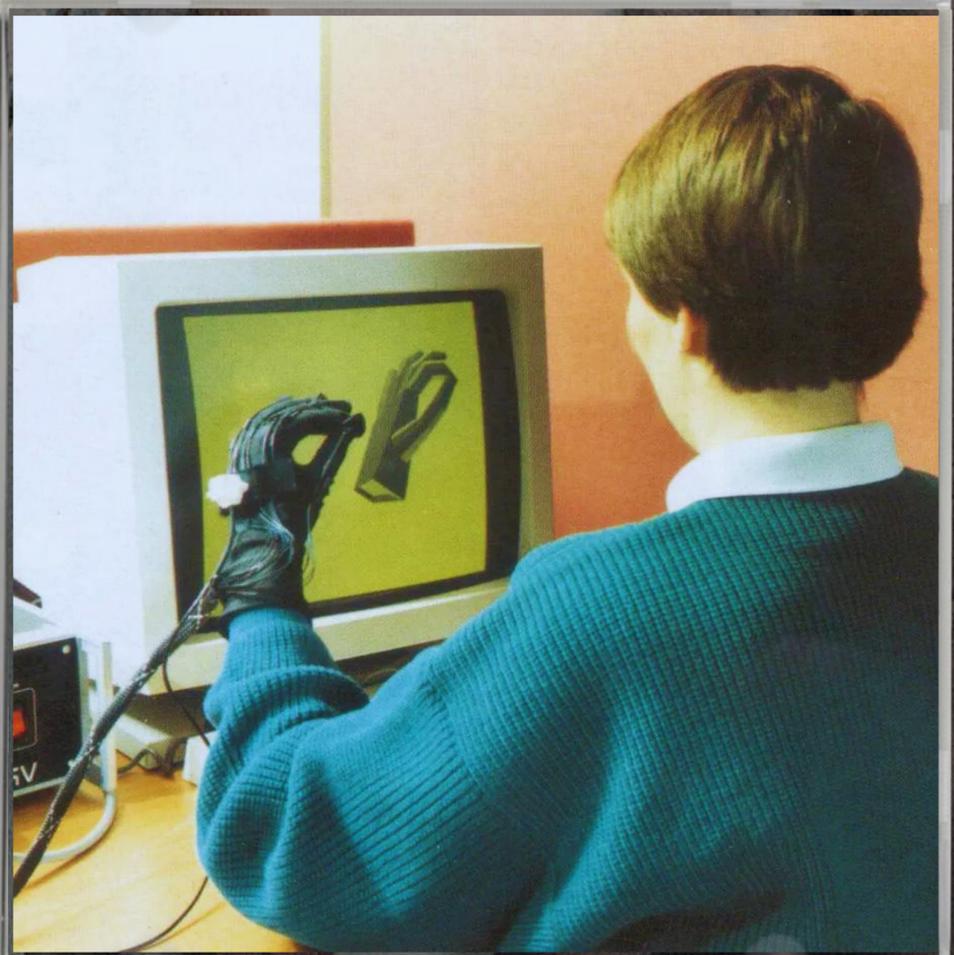


# VPL RESEARCH

JAROM LAINIER &  
VPL RESEARCH

1980

PRVNÍ KOMERČNÍ  
SPOLEČNOST  
VYVÝJEJÍCÍ VR





NASA



SCOTT FOSTER  
VYVÝJÍ VIRTUAL  
ENVIRONMENT  
WORKSTATION  
PROJECT (VIEW)



1989



VÝCVIK  
ASTRONAUTŮ  
VE VR





# ROZMACH VIRTUÁLNÍ REALTY

21.  
STOLETÍ



HTC VIVE



APPLE VISION PRO

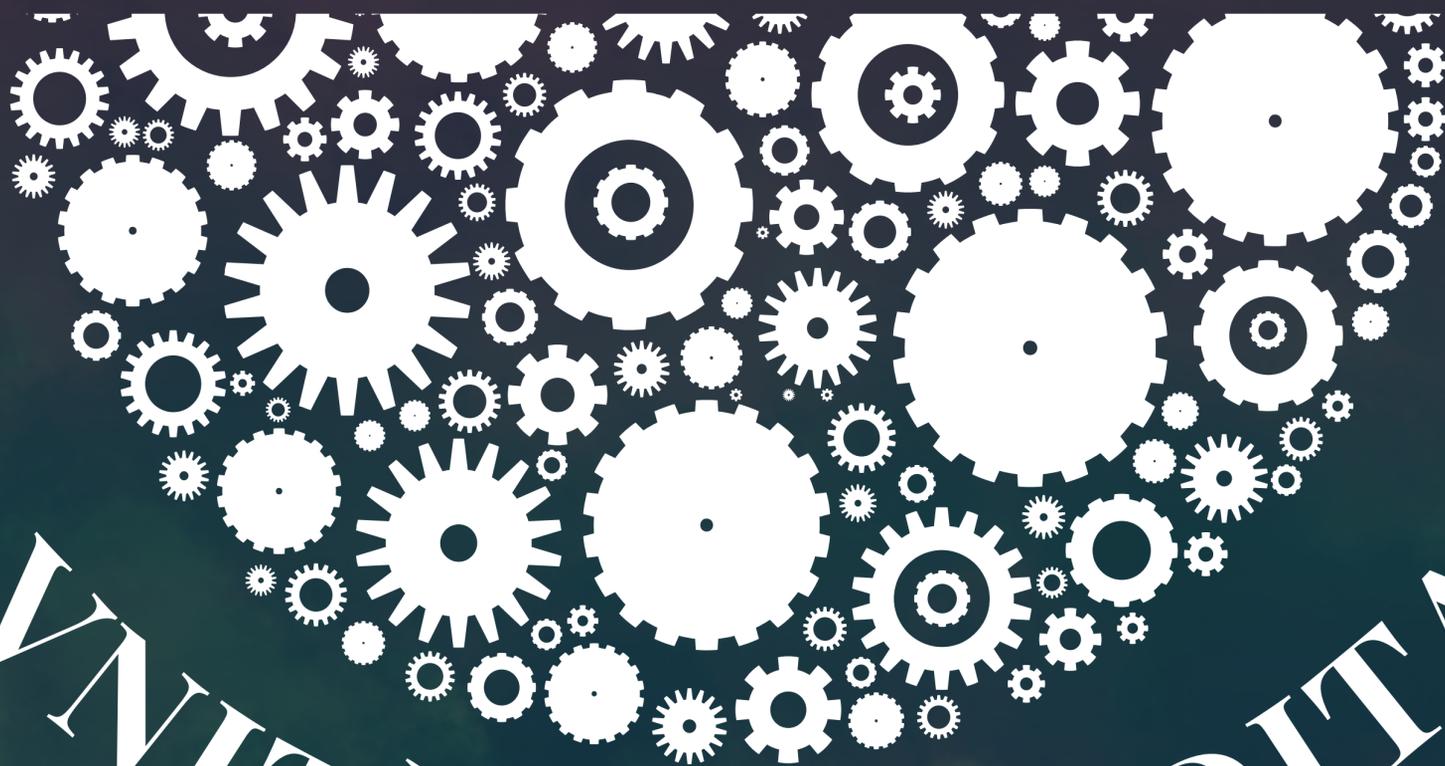


VALVE INDEX



OCULUS

EKOLOGICKÁ VALIDITA



VNITŘNÍ VALIDITA

VYSOKÁ

EKOLOGICKÁ VALIDITA  
NÍZKÁ



DESIGN VIRTUÁLNÍ REALITY  
STANDARDNÍ DESIGN



INTERNÍ VALIDITA

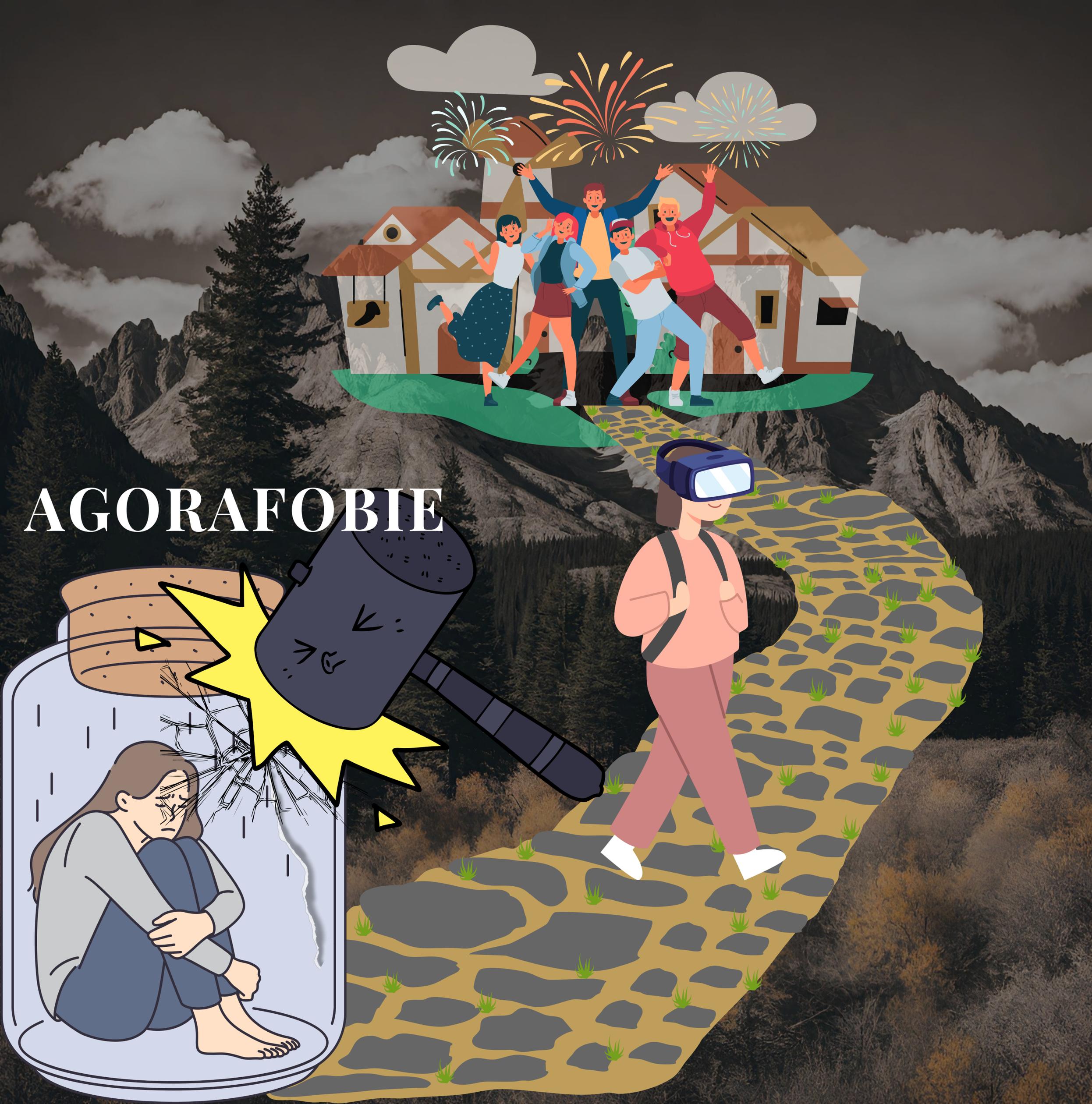
VYSOKÁ







# AGORAFOBIE



**INCLUSION**

18 LET

DSM = PDA

**NÁBOR PARTICIPANTŮ**

N = 92 → N = 81

**VRET**

N = 29



N = 19

**WAITING LIST**  
N = 28

**CBT**

N = 24



N = 20

**VRET**



N = 33

**CBT**



N = 34

**ŠEST MĚSÍCŮ FOLLOW-UP**

N = 27

**ŠEST MĚSÍCŮ FOLLOW-UP**

N = 30

**DVANÁCT MĚSÍCŮ FOLLOW-UP**

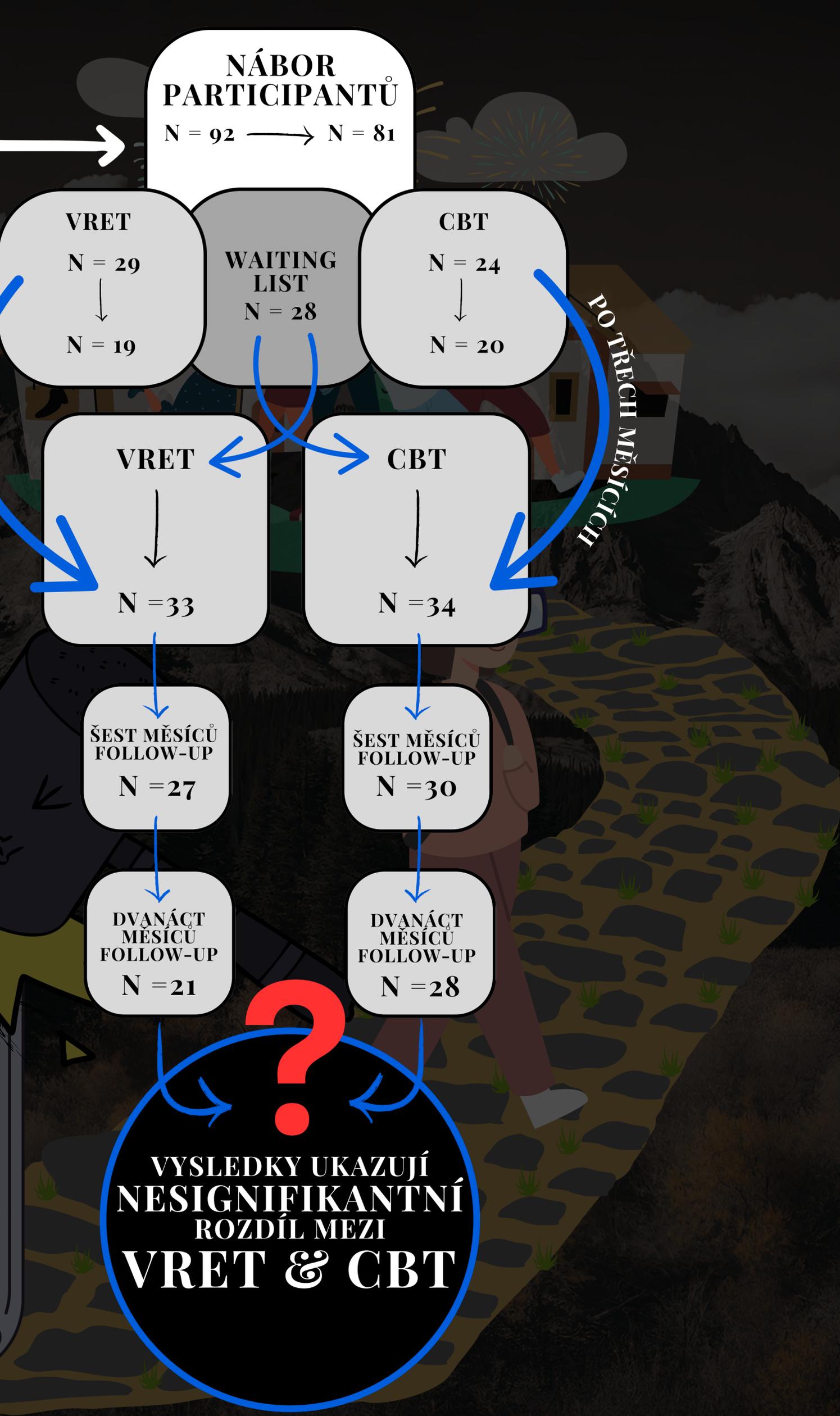
N = 21

**DVANÁCT MĚSÍCŮ FOLLOW-UP**

N = 28

**VYSLEDKY UKAZUJÍ NESIGNIFIKANTNÍ ROZDÍL MEZI VRET & CBT**

PO TŘECH MĚSÍCÍCH

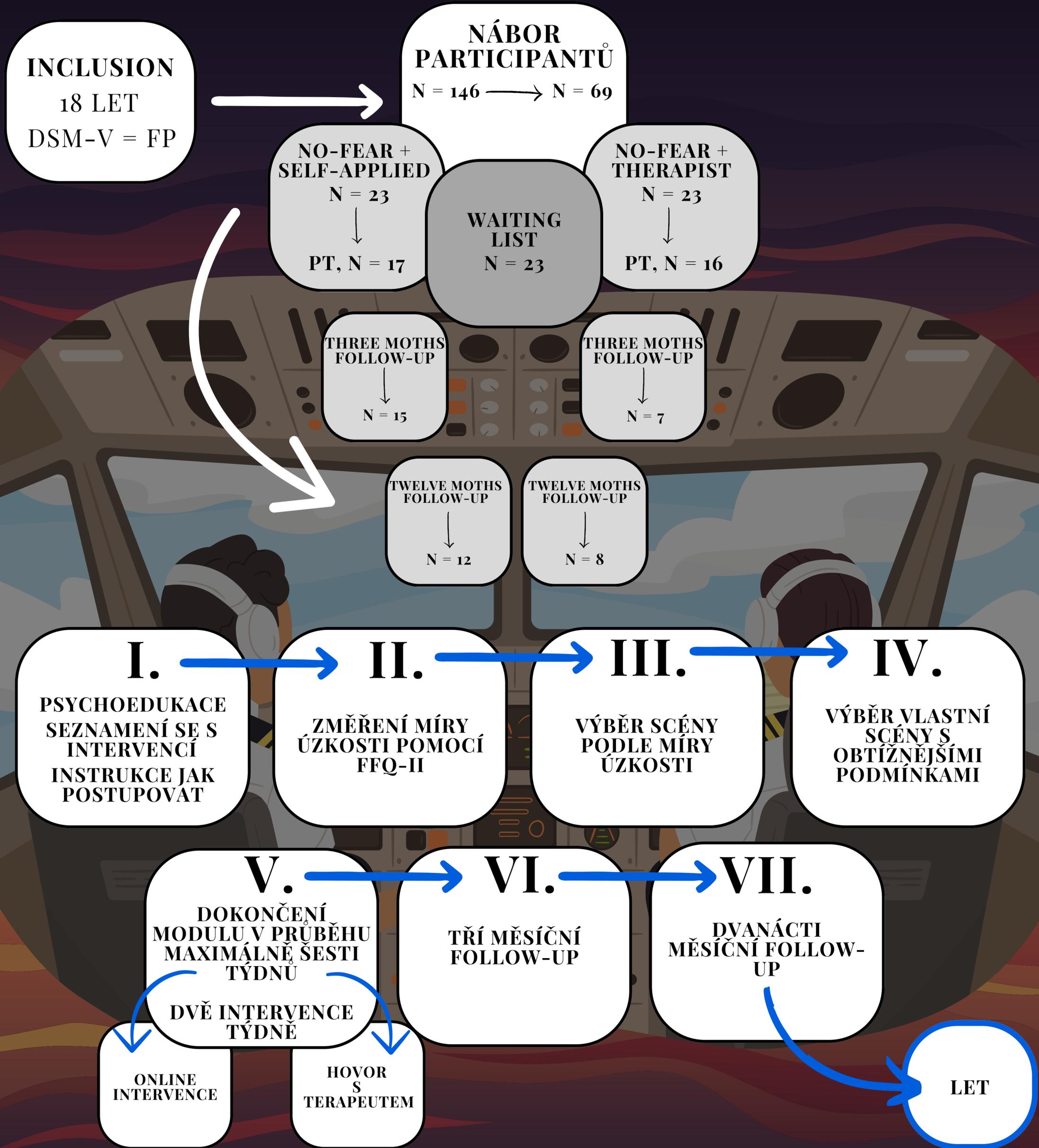


# ARACHNOFOBIE



# AVIOFOBIE





**INCLUSION**  
18 LET  
DSM-V = FP

**NÁBOR  
PARTICIPANTŮ**  
N = 146 → N = 69

**NO-FEAR +  
SELF-APPLIED**  
N = 23  
↓  
PT, N = 17

**NO-FEAR +  
THERAPIST**  
N = 23  
↓  
PT, N = 16

**WAITING LIST**  
N = 23

**THREE MONTHS  
FOLLOW-UP**  
↓  
N = 15

**THREE MONTHS  
FOLLOW-UP**  
↓  
N = 7

**TWELVE MONTHS  
FOLLOW-UP**  
↓  
N = 12

**TWELVE MONTHS  
FOLLOW-UP**  
↓  
N = 8

**I.**  
**PSYCHOEDUKACE  
SEZNAMENÍ SE S  
INTERVENCÍ  
INSTRUKCE JAK  
POSTUPOVAT**

**II.**  
**ZMĚŘENÍ MÍRY  
ÚZKOSTI POMOCÍ  
FFQ-II**

**III.**  
**VÝBĚR SCÉNY  
PODLE MÍRY  
ÚZKOSTI**

**IV.**  
**VÝBĚR VLASTNÍ  
SCÉNY S  
OBTÍŽNĚJŠÍMI  
PODMÍNKAMI**

**V.**  
**DOKONČENÍ  
MODULU V PRŮBĚHU  
MAXIMÁLNĚ ŠESTI  
TÝDNŮ  
DVĚ INTERVENCE  
TÝDNĚ**

**VI.**  
**TŘÍ MĚSÍČNÍ  
FOLLOW-UP**

**VII.**  
**DVANÁCTI  
MĚSÍČNÍ FOLLOW-  
UP**

**ONLINE  
INTERVENCE**

**HOVOR  
S  
TERAPEUTEM**

**LET**

# AKROFOBIE





**NÁBOR  
PARTICIPANTŮ**

**SINGLE CASE  
EXPERIMENTAL  
DESIGNE**

→ **N = 6**

**BESELINE**

**1-3/5 TÝDEN**

**2 = 3**

**2 = 4**

**2 = 5**

**INTERVENENCE**

**4/6-6/10 TÝDEN**

**POROVNÁNÍ STAVU  
PARTICIPANTA**

**PO BASELINE  
&  
PO INTERVENCI**



# GoNoGo

PETR KVĚTON & MARTIN JELÍNEK

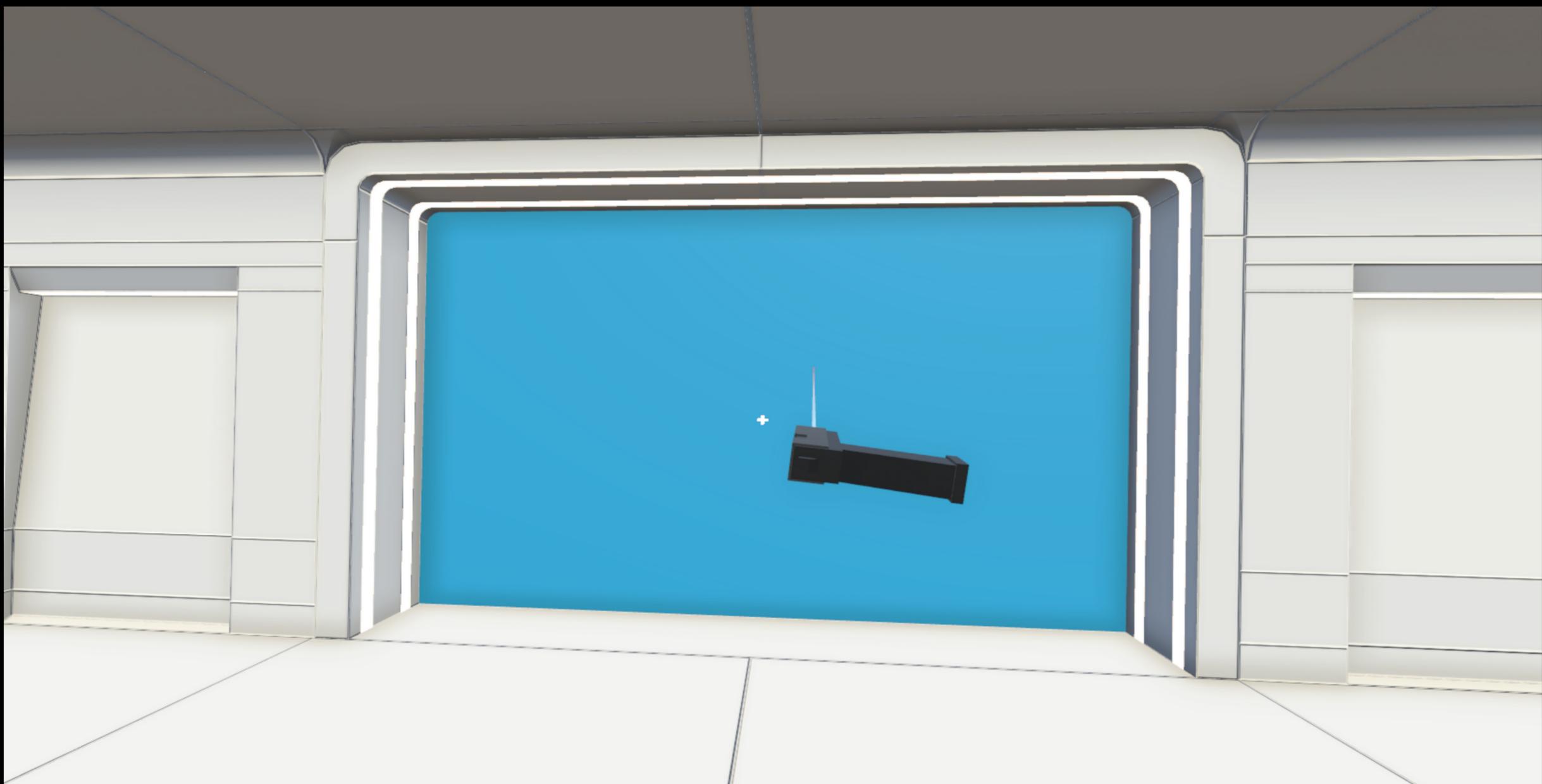
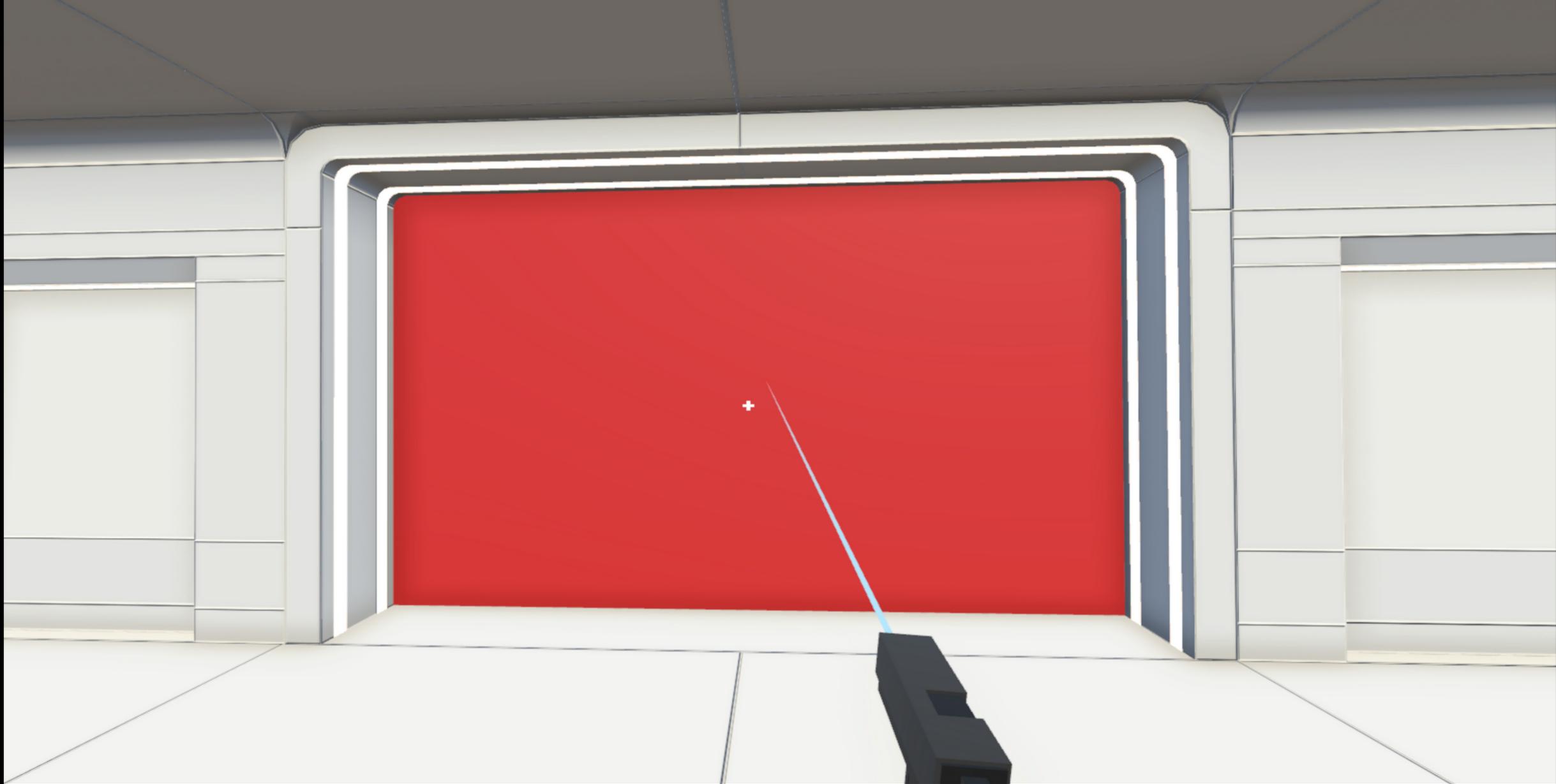


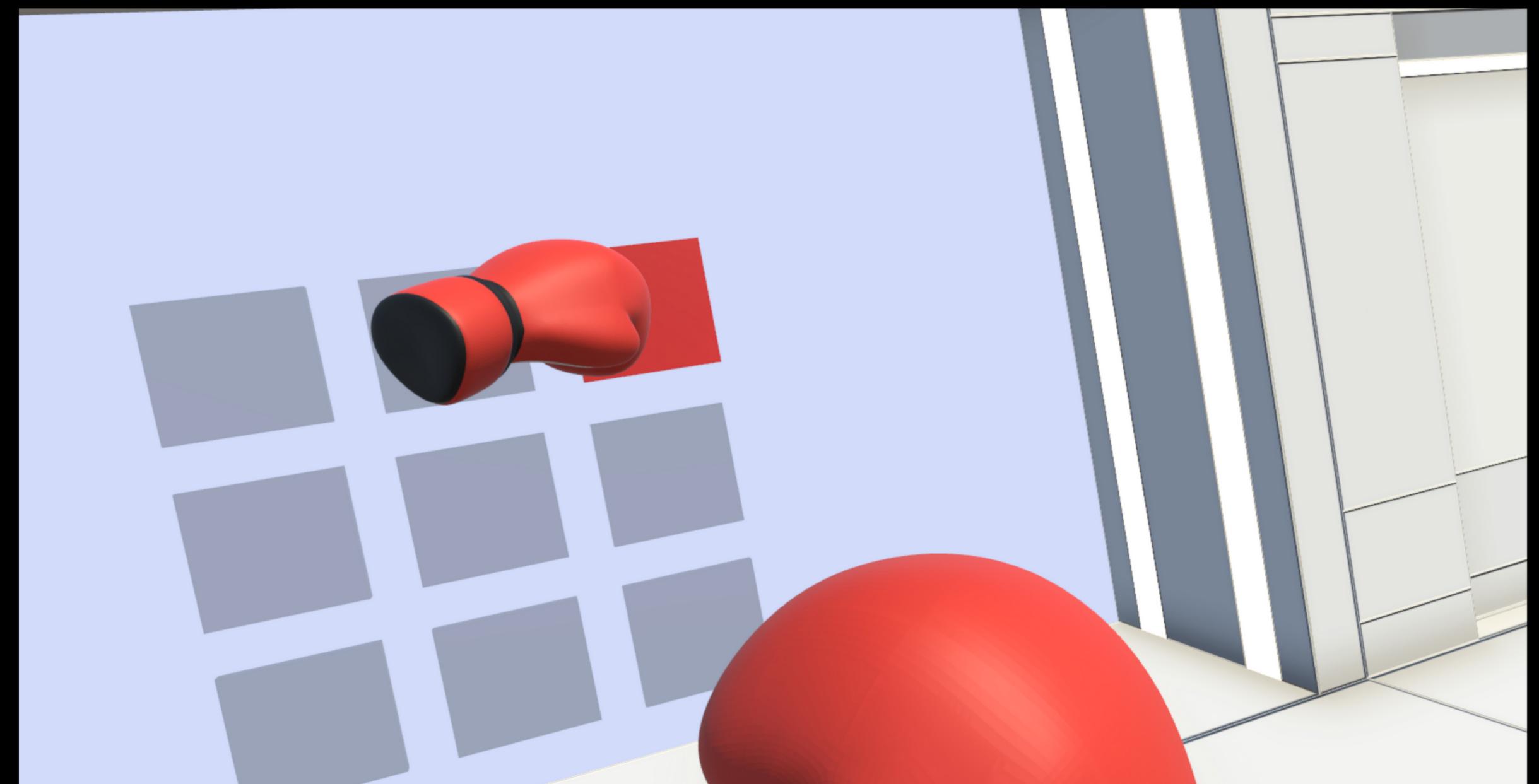
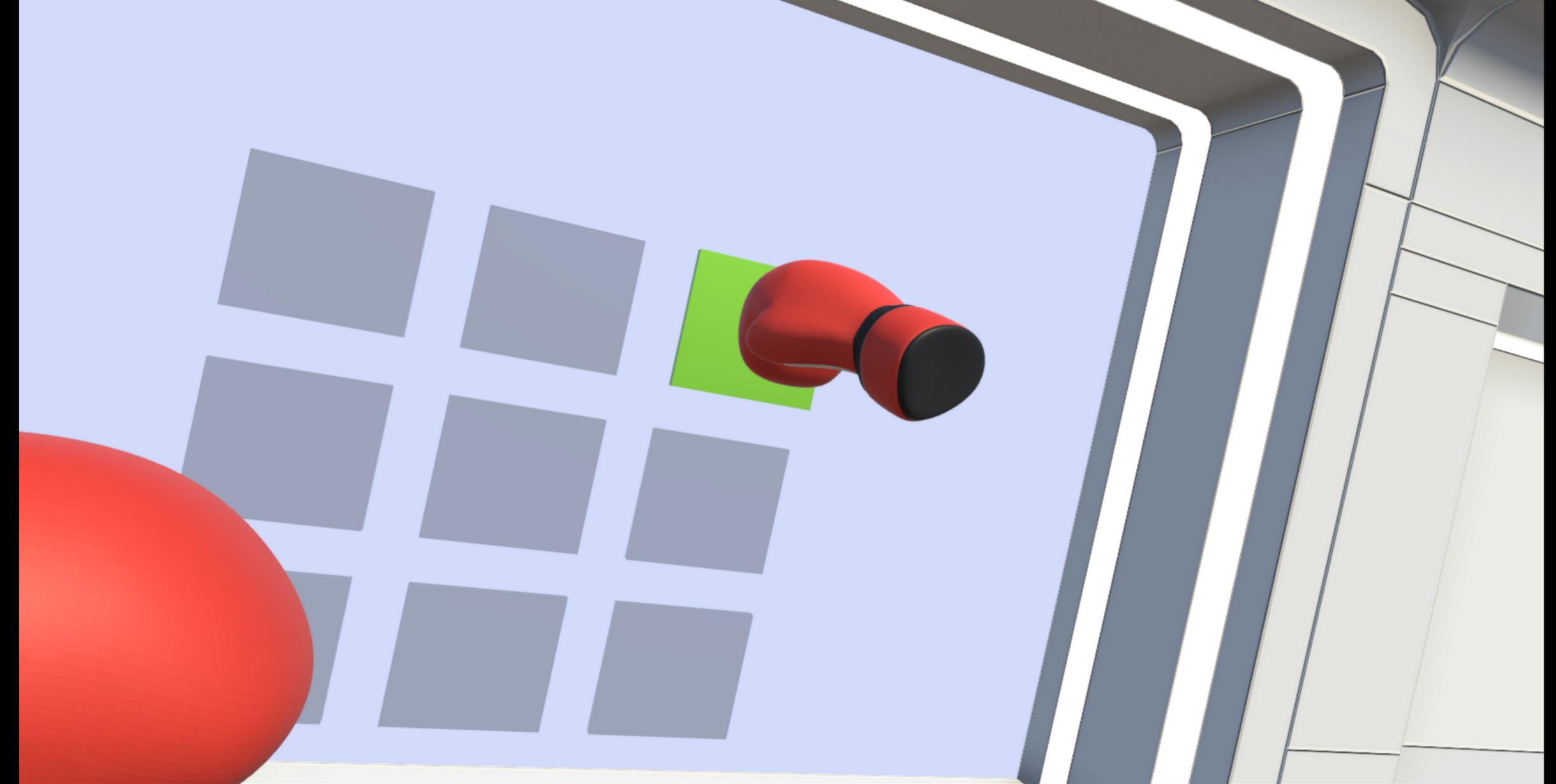
DOBY ODEZVY ODRÁŽEJÍ DOBU  
POTŘEBNOU K INTERPRETACI  
PODNĚTU, ZÍSKÁNÍ INFORMACÍ Z  
PAMĚTI ATD.

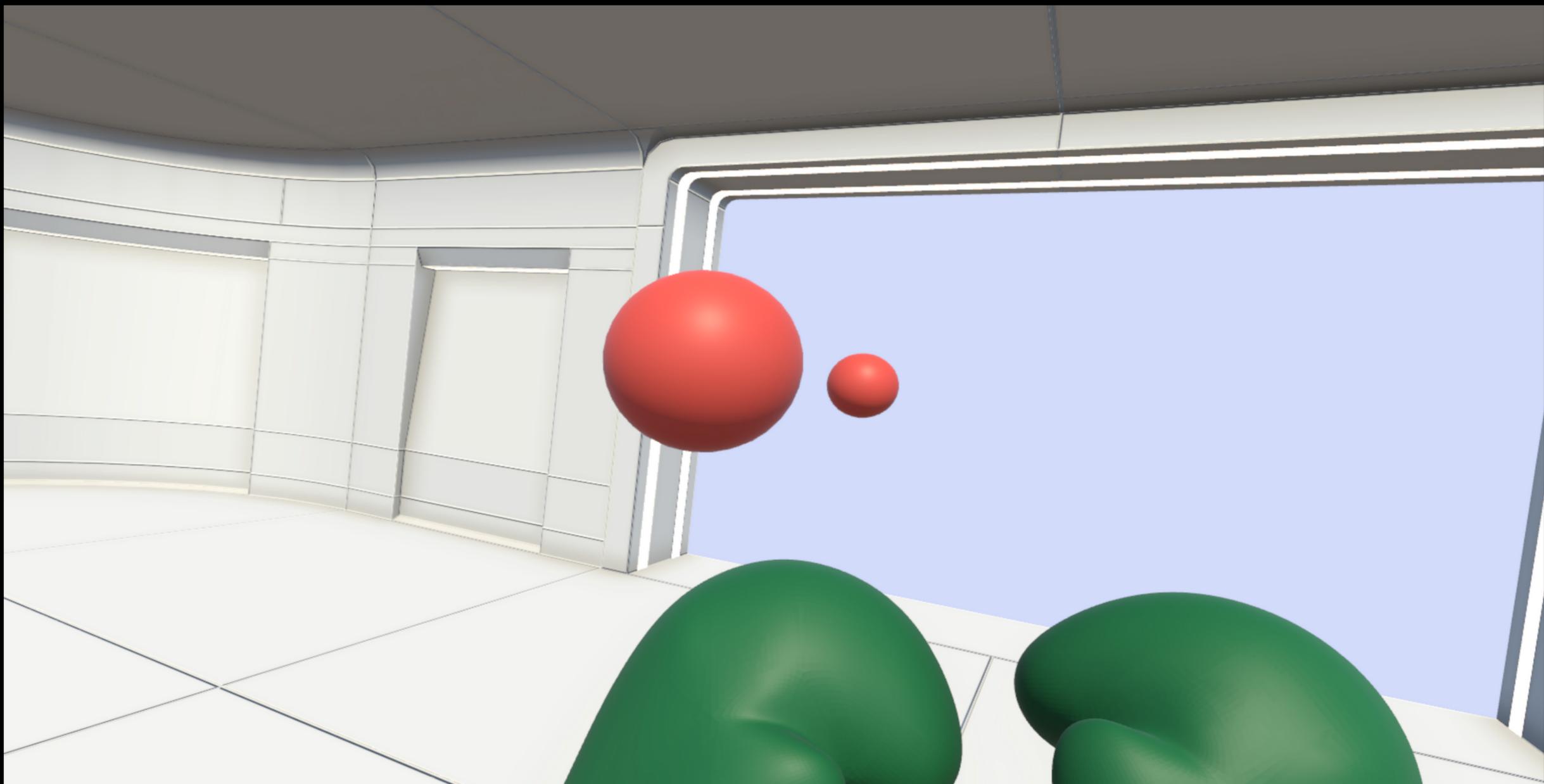
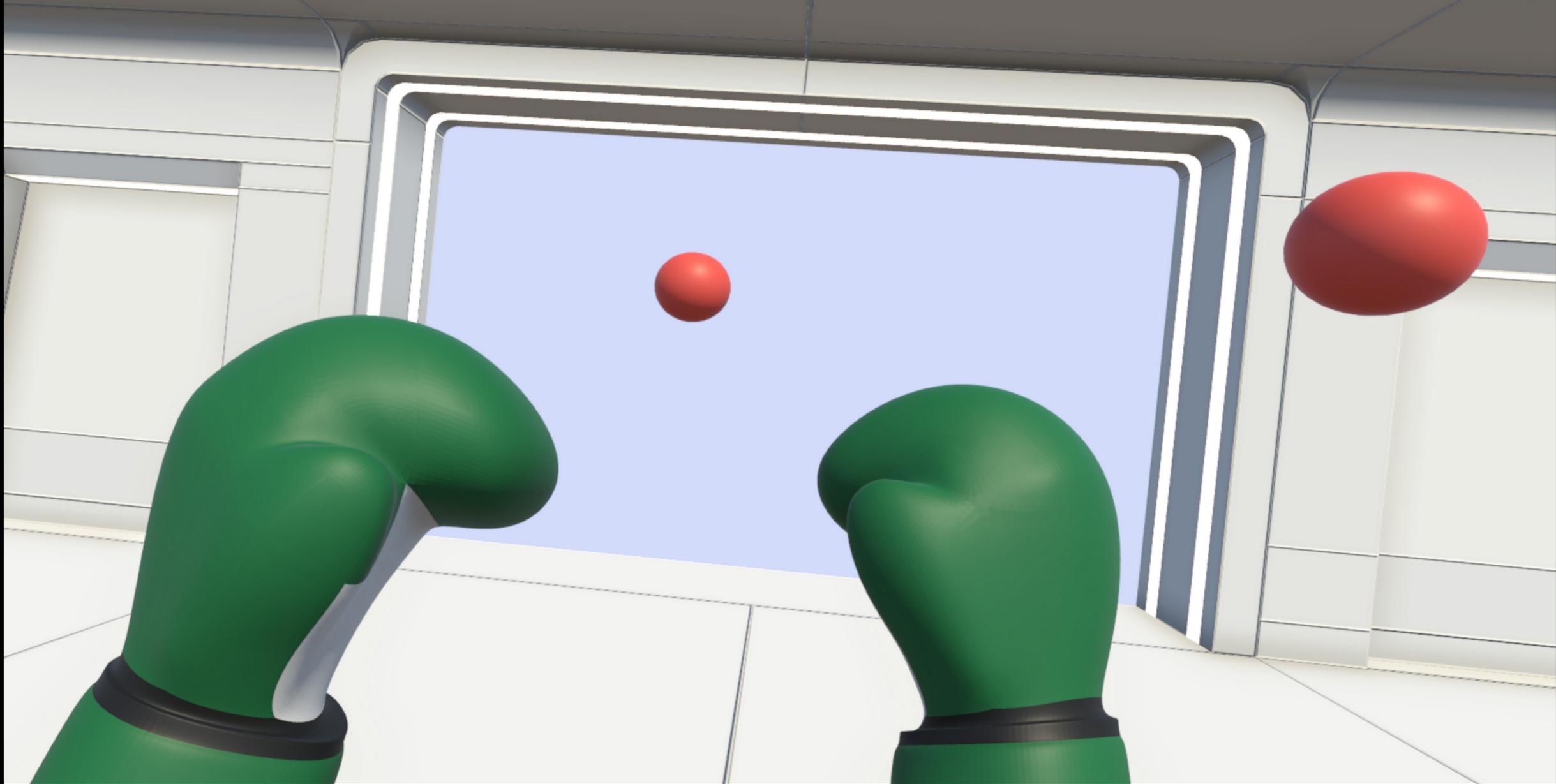
DOBU ODEZVY LZE TEDY  
VYUŽÍT KE ZJIŠTĚNÍ, JAK  
DLOUHO TRVAJÍ ZÁKLADNÍ  
MYŠLENKOVÉ PROCESY



- GONOGO dynamic
- GONOGO simple
- BOXING simple
- DUCK & SLIP
- BOXING choice





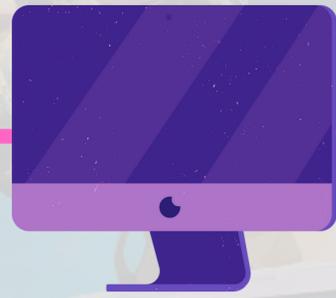




# METODA LOCI A VYUŽITÍ VIRTUÁLNÍ REALTY

# PROCEDURE

**I**



THE SECOND STEP WAS REPEATED TWICE

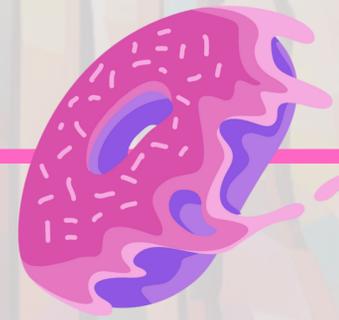


**II**

**III**



ALL THREE LISTS OF WORDS WERE LEARNED IN THE SAME LOCATIONS



**IV**





DĚKUJI ZA  
POZORNOST

# ZDROJE

YouTube videa přes ikonky na slidech

Emmelkamp, P. M., & Meyerbröker, K. (2021). Virtual reality therapy in mental health. *Annual Review of Clinical Psychology*, 17, 495–519. <https://doi.org/10.1146/annurev-clinpsy-081219-115923>

Emmelkamp, P. M., Bruynzeel, M., Drost, L., & van der Mast, C. A. G. (2001). Virtual reality treatment in acrophobia: a comparison with exposure in vivo. *CyberPsychology & Behavior*, 4(3), 335–339. <https://doi.org/10.1089/109493101300210222>

Emmelkamp, P. M., Krijn, M., Hulbosch, A. M., De Vries, S., Schuemie, M. J., & van der Mast, C. A. (2002). Virtual reality treatment versus exposure in vivo: a comparative evaluation in acrophobia. *Behaviour Research and Therapy*, 40(5), 509–516. [https://doi.org/10.1016/S0005-7967\(01\)00023-7](https://doi.org/10.1016/S0005-7967(01)00023-7)

Meyerbröker, K., Morina, N., & Emmelkamp, P. M. G. (2018). Enhancement of exposure therapy in participants with specific phobia: a randomized controlled trial comparing yohimbine, propranolol and placebo. *Journal of Anxiety Disorders*, 57, 48–56. <https://doi.org/10.1016/j.janxdis.2018.05.001>

Donker T, Cornelisz I, van Klaveren C, van Straten A, Carlbring P et al. 2019. Effectiveness of self-guided app-based virtual reality cognitive behavior therapy for acrophobia: a randomized clinical trial. *JAMA Psychiatry* 76:682–90. <https://doi.org/10.1001/jamapsychiatry.2019.0219>

Morina, N., Ijntema, H., Meyerbröker, K., & Emmelkamp, P. M. (2015). Can virtual reality exposure therapy gains be generalized to real-life? A meta-analysis of studies applying behavioral assessments. *Behaviour Research and Therapy*, 74, 18–24. <https://doi.org/10.1016/j.brat.2015.08.010>

Wiederhold, B. K., & Wiederhold, M. D. (2003). Three-year follow-up for virtual reality exposure for fear of flying. *CyberPsychology & Behavior*, 6(4), 441–445. <https://doi.org/10.1089/109493103322278844>

Mühlberger, A., Weik, A., Pauli, P., & Wiedemann, G. (2006). One-session virtual reality exposure treatment for fear of flying: 1-year follow-up and graduation flight accompaniment effects. *Psychotherapy Research*, 16(1), 26–40. <https://doi.org/10.1080/10503300500090944>

Campos, D., Bretón-López, J., Botella, C., Mira, A., Castilla, D., Mor, S., ... & Quero, S. (2019). Efficacy of an internet-based exposure treatment for flying phobia (NO- FEAR Airlines) with and without therapist guidance: a randomized controlled trial. *BMC Psychiatry*, 19, 1–16. <https://doi.org/10.1186/s12888-019-2060-4>

Botella, C., García-Palacios, A., Villa, H., Baños, R. M., Quero, S., Alcañiz, M., & Riva, G. (2007). Virtual reality exposure in the treatment of panic disorder and agoraphobia: A controlled study. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, 14(3), 164–175. <https://doi.org/10.1002/cpp.524>

Peñate, W., Pittí, C. T., Bethencourt, J. M., de la Fuente, J., & Gracia, R. (2008). The effects of a treatment based on the use of virtual reality exposure and cognitive-behavioral therapy applied to patients with agoraphobia. *International Journal of Clinical and Health Psychology*, 8(1), 5–22. <https://www.redalyc.org/articulo.oa?id=33780101>

Meyerbroeker, K., Morina, N., Kerkhof, G. A., & Emmelkamp, P. M. G. (2013). Virtual reality exposure therapy does not provide any additional value in agoraphobic patients: a randomized controlled trial. *Psychotherapy and Psychosomatics*, 82(3), 170–176. <https://doi.org/10.1159/000342715>

Pelissolo, A., Zaoui, M., Aguayo, G., Yao, S. N., Roche, S., Ecohard, R., ... & Cottraux, J. (2012). Virtual reality exposure therapy versus cognitive behavior therapy for panic disorder with agoraphobia: a randomized comparison study. *J. Cyber Ther Rehabil*, 5(1), 35–43. <https://research.ou.nl/en/publications/cyberbullying-and-traditional-bullying-in-relation-with-adolescen>

Carl, E., Stein, A. T., Levihn-Coon, A., Pogue, J. R., Rothbaum, B., Emmelkamp, P., ... & Powers, M. B. (2019). Virtual reality exposure therapy for anxiety and related disorders: A meta-analysis of randomized controlled trials. *Journal of Anxiety Disorders*, 61, 27–36. <https://doi.org/10.1016/j.janxdis.2018.08.003>

Wechsler, T. F., Kümpers, F., & Mühlberger, A. (2019). Inferiority or even superiority of virtual reality exposure therapy in phobias?—A systematic review and quantitative meta-analysis on randomized controlled trials specifically comparing the efficacy of virtual reality exposure to gold standard in vivo exposure in agoraphobia, specific phobia, and social phobia. *Frontiers in Psychology*, 10, 445129. <https://doi.org/10.3389/fpsyg.2019.01758>

*Virtual Reality Society* (2017, n. d.). History of Virtual Reality. VRS. (<https://www.vrs.org.uk/virtual-reality/history.html>)

Barnard, D. (2023, February 20). *History of VR – Timeline of Events and Tech Development*. Virtual Speech. <https://virtualspeech.com/blog/history-of-vr>

Minetos, J. P. (2023, June 15). *A Brief History Of VR Headsets*. LinkedIn. <https://www.linkedin.com/pulse/brief-history-vr-headsets-jp-minetos>

Ondřej J. (2022). *Návrh teoretického modelu kognitivních mechanismů metody loci a empirický výzkum sebe-referenčního efektu jako jednoho z konstruktů ozvlášňující její efektivitu* [Master's thesis, Masaryk University]. <https://is.muni.cz/th/tz1tg/>