primary studies - published RCT

The effect of a 12-week tele-exercise using immersive virtual reality on functional capacity in adolescents with cystic fibrosis: A randomized controlled, single (assessor) - blind study.

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Study design (if review, criteria of inclusion for studies)

Randomized controlled study

Participants

Adolescents with cystic fibrosis (CF), clinically stable participants aged between 12 and 18 years

Interventions

Tele-exercise (TE), immersive virtual reality (VR). Patients were included and randomized to a VR-based tele-exercise (VR-TE) or a TE group. Exercises were conducted in groups of 6 participants for 30 min, 3 days/week for 12 weeks in both groups.

Outcome measures

6MWD, FEV(1), hand grip, shoulder flexor and knee extensor muscle strength, Cystic Fibrosis Questionnaire Revised (CFQ-R), physical activity enjoyment scale and system usability scale.

Main results

21 participants completed the study. Baseline pulmonary function tests, 6MWD, muscle strength, and CFQ-R scores were similar between groups. In the VR-TE group, post-training 6MWD was significantly higher than pre-training 6MWD ($z = -2.93$, $p = 0.003$). However, no statistical improvement was observed in pulmonary function, muscle strength, or quality of life. Feasibility, enjoyment, adherence, and adverse effects were similar between groups.

Authors' conclusions

Virtual reality and tele-exercise are feasible and motivating methods to facilitate the participation in exercise and improve functional capacity in adolescents with CF. Longer duration of VR-based exercise might be needed to improve muscle strength and quality of life.

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See also

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Keywords

Exercise; non pharmacological intervention - devices OR physiotherapy; Counseling; Psychoeducation; non pharmacological intervention - psyco-soc-edu-org; telemedicine; training;