
Title

Dropout From Exercise Interventions in Adults With Fibromyalgia: A Systematic Review and Meta-analysis

Abstract

Objective: To meta-analyze the prevalence and predictors of dropout rates among adults with fibromyalgia participating in exercise randomized controlled trials (RCTs). Data Sources: Two authors searched Embase, CINAHL, PsycARTICLES, and Medline up to 01/21/2023. Study Selection: We included RCTs of exercise interventions in people with fibromyalgia that reported dropout rates. Data Extraction: Dropout rates from exercise and control conditions and exerciser/participant, provider, and design/implementation related predictors. Data Synthesis: A random effects meta-analysis and meta-regression were conducted. In total, 89 RCTs involving 122 exercise arms in 3.702 people with fibromyalgia were included. The trim-and-fill-adjusted prevalence of dropout across all RCTs was 19.2% (95% CI=16.9%-21.8%), which is comparable with the dropout observed in control conditions with the trim-and-fill-adjusted odds ratio being 0.31 (95% CI=0.92-1.86, P=.44). Body mass index ($R^2=0.16$, $P=.03$) and higher effect of illness ($R^2=0.20$, $P=.02$) predicted higher dropout. The lowest dropout was observed in exergaming, compared with other exercise types ($P=.014$), and in lower-intensity exercises, compared with high intensity exercise ($P=.03$). No differences in dropout were observed for the frequency or duration of the exercise intervention. Continuous supervision by an exercise expert (eg, physiotherapist) resulted in the lowest dropout rates ($P<.001$). Conclusions: Exercise dropout in RCTs is comparable with control conditions, suggesting that exercise is a feasible and accepted treatment modality; however, interventions are ideally supervised by an expert (eg, physiotherapist) to minimize the risk of dropout. Experts should consider a high BMI and the effect of the illness as risk factors for dropout. © 2023 American

Congress of Rehabilitation Medicine

Authors

Vancampfort D.; Van Damme T.; Brunner E.; McGrath R.L.; Hemmings L.; Guimaraes M.E.; Schuch F.

Author full names

Vancampfort, Davy (26326634000); Van Damme, Tine (56520172900); Brunner, Emanuel (55516092800); McGrath, Ryan L. (57218932603); Hemmings, Laura (56195224000); Guimaraes, Maria Eduarda (58350091400); Schuch, Felipe (14016488400)

Author(s) ID

26326634000; 56520172900; 55516092800; 57218932603; 56195224000; 58350091400; 14016488400

Year

2024

Source title

Archives of Physical Medicine and Rehabilitation

Volume

105.0

Issue

3

Page start

571

Page end

579

Page count

8.0

Cited by

1

DOI

10.1016/j.apmr.2023.06.002

Link

<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85166987612&doi=10.1016%2fj.apmr.2023.06.002&partnerID=40&md5=c32c07365aaecf9abf26e7b5b6cf735d>

Affiliations

Department of Rehabilitation Sciences, KU Leuven, Leuven, Belgium; University Psychiatric Centre KU Leuven, Leuven, Belgium; Department Gesundheit, Ostschweizer Fachhochschule, St. Gallen, Switzerland; Institut für Therapie und Rehabilitation, Kantonsspital Winterthur, Winterthur, Switzerland; School of Allied Health, Exercise and Sports Sciences, Charles Sturt University, Albury, Australia; Department of Rural Health, The University of Melbourne, Shepparton, Australia; Allied Health Education and Research Unit, Goulburn Valley Health, Shepparton, Australia; University of Birmingham, School of Sport and Exercise Sciences, Birmingham, United Kingdom; Department of Sports Methods and Techniques, Federal University of Santa Maria, Santa Maria, Brazil; Institute of Psychiatry, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil; Faculty of Health Sciences, Universidad Autónoma de Chile, Providencia, Chile

Authors with affiliations

Vancampfort D., Department of Rehabilitation Sciences, KU Leuven, Leuven, Belgium, University Psychiatric Centre KU Leuven, Leuven, Belgium; Van Damme T., Department of Rehabilitation Sciences, KU Leuven, Leuven, Belgium, University Psychiatric Centre KU Leuven, Leuven, Belgium; Brunner E., Department of Rehabilitation Sciences, KU Leuven, Leuven, Belgium, Department Gesundheit, Ostschweizer Fachhochschule, St. Gallen, Switzerland, Institut für Therapie und

Rehabilitation, Kantonsspital Winterthur, Winterthur, Switzerland; McGrath R.L., School of Allied Health, Exercise and Sports Sciences, Charles Sturt University, Albury, Australia, Department of Rural Health, The University of Melbourne, Shepparton, Australia, Allied Health Education and Research Unit, Goulburn Valley Health, Shepparton, Australia; Hemmings L., University of Birmingham, School of Sport and Exercise Sciences, Birmingham, United Kingdom; Guimaraes M.E., Department of Sports Methods and Techniques, Federal University of Santa Maria, Santa Maria, Brazil; Schuch F., Department of Sports Methods and Techniques, Federal University of Santa Maria, Santa Maria, Brazil, Institute of Psychiatry, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil, Faculty of Health Sciences, Universidad Autónoma de Chile, Providencia, Chile

Author Keywords

Dropout; Exercise; Fibromyalgia; Physical activity; Rehabilitation

Index Keywords

Adult; Body Mass Index; Exercise; Exercise Therapy; Fibromyalgia; Humans; Odds Ratio; adult; aerobic exercise; aquatic exercise; body mass; exercise; exergaming; fibromyalgia; high intensity exercise; human; intrinsic motivation; low intensity exercise; meta analysis; patient dropout; pilates; prevalence; qigong; randomized controlled trial (topic); resistance training; Review; stretching exercise; systematic review; Tai Chi; Tampa scale for kinesiophobia; treatment duration; visual analog scale; yoga; exercise; kinesiotherapy; odds ratio

References

Adawi M., Chen W., Bragazzi N.L., Et al., Suicidal behavior in fibromyalgia patients: rates and determinants of suicide ideation, risk, suicide, and suicidal attempts—a systematic review of the literature and meta-analysis of over 390,000 fibromyalgia patients, *Front Psychiatry*, 12, (2021); Asgarabad M.H., Yegaei P.S., Jafari F., Azami-Aghdash S., Lumley M., The relationship of alexithymia to pain and other symptoms in fibromyalgia: a systematic review and meta-analysis, *Eur J Pain*, 27, pp. 321-337, (2023); Fayaz A., Ayis S., Panesar S.S., Langford R.M., Donaldson L.J., Assessing the relationship between chronic pain and cardiovascular disease: a systematic review and meta-analysis, *Scand J Pain*, 13, pp. 76-90, (2016); Ortiz-Rubio A., Torres-Sanchez I., Cabrera-Martos I., Et al., Respiratory disturbances in fibromyalgia: a systematic review and meta-analysis of case control studies, *Expert Rev Respir Med*, 15, pp. 1217-1227, (2021); Pang H.Y., Farrer C., Wu W., Gakhal N.K., Quality of rheumatology care for patients with fibromyalgia and chronic pain syndromes, *BMJ Open Qual*, 10, (2021); Schaefer C.P., Adams E.H., Udall M., Et al., Fibromyalgia outcomes over time: results from a prospective observational study in the United States, *Open Rheumatol J*, 10, (2016); Swift J.K., Greenberg R.P., Premature discontinuation in adult psychotherapy: a meta-analysis, *J Consult Clin Psychol*, 80, (2012); Glombiewski J.A., Sawyer A.T., Gutermann J., Koenig K., Rief W., Hofmann S.G., Psychological treatments for fibromyalgia: a meta-analysis, *Pain*, 151, pp. 280-295, (2010); Hauser W., Wolfe F., Tolle T., Uceyler N., Sommer C., The role of antidepressants in the management of fibromyalgia syndrome: a systematic review and meta-analysis, *CNS Drugs*, 26, pp. 297-307, (2012); Zieve G.G., Persons J.B., Yu L.A.D., The relationship between dropout and outcome in naturalistic cognitive behavior therapy, *Behav Ther*, 50, pp. 189-199, (2019); Barrett M.S., Chua W.-J., Crits-Christoph P., Gibbons M.B., Thompson D., Early withdrawal from mental health treatment: implications for psychotherapy practice, *Psychotherapy (Chic)*, 45,

(2008); Kelley G.A., Kelley K.S., Jones D.L., Efficacy and effectiveness of exercise on tender points in adults with fibromyalgia: a meta-analysis of randomized controlled trials, *Arthritis*, 1, (2011); Vancampfort D., McGrath R.L., Hemmings L., Gillis V., Bernar K., Van Damme T., Physical activity correlates in people with fibromyalgia: a systematic review, *Disabil Rehabil*, pp. 1-10, (2022); Larsson A., Feldthusen C., Mannerkorpi K., Factors promoting physical activity in women with fibromyalgia: a qualitative interview study. Article, *BMJ Open*, 10, (2020); Sanz-Banos Y., Pastor M.-A., Velasco L., Et al., To walk or not to walk: insights from a qualitative description study with women suffering from fibromyalgia, *Rheumatol Int*, 36, pp. 1135-1143, (2016); Russell D., Alvarez Gallardo I.C., Wilson I., Et al., 'Exercise to me is a scary word': perceptions of fatigue, sleep dysfunction, and exercise in people with fibromyalgia syndrome-a focus group study, *Rheumatol Int*, 38, pp. 507-515, (2018); Craft J.M., Ridgeway J.L., Vickers K.S., Hathaway J.C., Vincent A., Oh T.H., Unique barriers and needs in weight management for obese women with fibromyalgia, *Explore (NY)*, 11, pp. 51-58, (2015); Estevez-Lopez F., Cascales C.M., Russell D., Et al., Effectiveness of exercise in the management of fatigue and sleep quality in fibromyalgia: a systematic review and meta-analysis, *Ann Rheum Dis*, 78, (2019); McDowell C.P., Cook D.B., Herring M.P., The effects of exercise training on anxiety in fibromyalgia patients: a meta-analysis. Article, *Med Sci Sports Exer*, 49, pp. 1868-1876, (2017); Sosa-Reina M.D., Nunez-Nagy S., Gallego-Izquierdo T., Pecos-Martin D., Monserrat J., Alvarez-Mon M., Effectiveness of therapeutic exercise in fibromyalgia syndrome: a systematic review and meta-analysis of randomized clinical trials, *BioMed Res Int*, 2017, (2017); Kelley G.A., Kelley K.S., Effects of exercise on depressive symptoms in adults with arthritis and other rheumatic disease: a systematic review of meta-analyses, *BMC Musculoskelet Disord*, 15, pp. 1-9, (2014); Bidonde J., Busch A.J., Bath B., Milosavljevic S., Exercise for adults with fibromyalgia: an umbrella systematic review with synthesis of best evidence. Article, *Curr Rheumatol Rev*, 10, pp. 45-79, (2014); Ma J., Zhang T., Li X., Chen X., Zhao Q.,

Effects of aquatic physical therapy on clinical symptoms, physical function, and quality of life in patients with fibromyalgia: a systematic review and meta-analysis, *Physiother Theory Pract*, pp. 1-19, (2022); Stubbs B., Vancampfort D., Rosenbaum S., Et al., Dropout from exercise randomized controlled trials among people with depression: a meta-analysis and meta regression, *J Affect Disord*, 190, pp. 457-466, (2016); Vancampfort D., Rosenbaum S., Schuch F.B., Ward P.B., Probst M., Stubbs B., Prevalence and predictors of treatment dropout from physical activity interventions in schizophrenia: a meta-analysis, *Gen Hosp Psychiatry*, 39, pp. 15-23, (2016); Stroup D.F., Berlin J.A., Morton S.C., Et al., Meta-analysis of observational studies in epidemiology: a proposal for reporting, *JAMA*, 283, pp. 2008-2012, (2000); Moher D., Shamseer L., Clarke M., Et al., Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement, *Syst Rev*, 4, (2015); Wolfe F., Smythe H.A., Yunus M.B., Et al., The American College of Rheumatology 1990 criteria for the classification of fibromyalgia, *Arthritis Rheum*, 33, pp. 160-172, (1990); Caspersen C.J., Powell K.E., Christenson G.M., Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research, *Public Health Rep*, 100, pp. 126-131, (1985); Vancampfort D., Sanchez C.P.R., Hallgren M., Et al., Dropout from exercise randomized controlled trials among people with anxiety and stress-related disorders: a meta-analysis and meta-regression, *J Affect Disord*, 282, pp. 996-1004, (2021); Albuquerque M.L.L., Monteiro D., Marinho D.A., Vilarino G.T., Andrade A., Neiva H.P., Effects of different protocols of physical exercise on fibromyalgia syndrome treatment: systematic review and meta-analysis of randomized controlled trials, *Rheumatol Int*, pp. 1-16, (2022); Wu J., Chen Z., Zheng K., Et al., Benefits of exergame training for female patients with fibromyalgia: a systematic review and meta-analysis of randomized controlled trials, *Arch Phys Med Rehabil*, 103, pp. 1192-1200, (2022); American College of Sports Medicine guidelines for exercise testing and prescription, (2017); Phuphanich M.E., Droessler J., Altman L., Eapen B.C., Movement-based therapies in rehabilitation, *Phys Med*

Rehabil Clin N Am, 31, pp. 577-591, (2020); Deci E.L., Ryan R.M., Self-determination theory: a macrotheory of human motivation, development, and health, Can Psychol, 49, (2008); Maher C.G., Sherrington C., Herbert R.D., Moseley A.M., Elkins M., Reliability of the PEDro scale for rating quality of randomized controlled trials, Phys Ther, 83, pp. 713-721, (2003); Higgins J.P., Thompson S.G., Deeks J.J., Altman D.G., Measuring inconsistency in meta-analyses, BMJ, 327, pp. 557-560, (2003); Begg C.B., Mazumdar M., Operating characteristics of a rank correlation test for publication bias, Biometrics, pp. 1088-1101, (1994); Egger M., Smith G.D., Schneider M., Minder C., Bias in meta-analysis detected by a simple, graphical test, Br Med J, 315, pp. 629-634, (1997); Ashdown-Franks G., Firth J., Carney R., Et al., Exercise as medicine for mental and substance use disorders: a meta-review of the benefits for neuropsychiatric and cognitive outcomes, Sports Med, pp. 1-20, (2020); Vancampfort D., Stubbs B., Ward P.B., Teasdale S., Rosenbaum S., Integrating physical activity as medicine in the care of people with severe mental illness, Aust N Z J Psychiatry, 49, pp. 681-682, (2015); Atzeni F., Alciati A., Salaffi F., Et al., The association between body mass index and fibromyalgia severity: data from a cross-sectional survey of 2339 patients, Rheumatol Adv Pract, 5, (2021); Deenik J., Czosnek L., Teasdale S.B., Et al., From impact factors to real impact: translating evidence on lifestyle interventions into routine mental health care, Transl Behav Med, 10, pp. 1070-1073, (2019); Rosenbaum S., Stubbs B., Ward P.B., Steel Z., Lederman O., Vancampfort D., The prevalence and risk of metabolic syndrome and its components among people with posttraumatic stress disorder: a systematic review and meta-analysis, Metabolism, 64, pp. 926-933, (2015); Vancampfort D., Rosenbaum S., Ward P.B., Et al., Type 2 diabetes among people with posttraumatic stress disorder: systematic review and meta-analysis, Psychosom Med, 78, pp. 465-473, (2016); Andrade A., Steffens R.A.K., Vilarino G.T., Miranda R., Benetti M., Coimbra D.R., Preferred exercise and mental health of the patients with fibromyalgia syndrome, Complement Ther Clin Pract, 40, (2020); Alfieri F.M., da

Silva Dias C., de Oliveira N.C., Battistella L.R., Gamification in musculoskeletal rehabilitation, *Curr Rev Musculoskelet Med*, pp. 1-8, (2022); Atan T., Karavelioglu Y., Effectiveness of high-intensity interval training vs moderate-intensity continuous training in patients with fibromyalgia: a pilot randomized controlled trial, *Arch Phys Med Rehabil*, 101, pp. 1865-1876, (2020)

Correspondence Address

D. Vancampfort; KU Leuven Department of Rehabilitation Sciences, Leuven, Herestraat 49, 3000, Belgium; email: Davy.Vancampfort@kuleuven.be

Publisher

W.B. Saunders

ISSN

00039993

CODEN

APMHA

PubMed ID

37331421.0

Language of Original Document

English

Abbreviated Source Title

Arch. Phys. Med. Rehabil.

Document Type

Review

Publication Stage

Final

Source

Scopus

EID

2-s2.0-85166987612