

Table 1. Reasons for the exclusion of full-text trials

Trial (year, author)	Reasons for exclusion
Korkmaz et al.[1] 2023	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Patil et al.[2] 2023	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Selhorst et al.[3] 2023	Inappropriate intervention (education)
Sheiki et al.[4] 2023	Inappropriate intervention (education)
Talbot et al.[5] 2023	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Zafarian et al.[6] 2023	Inappropriate intervention (exercise-therapy program was not performed)
Erickson et al.[7] 2022	Abstract
Hasan et al.[8] 2022	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Karamiani et al.[9] 2022	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Vaidya et al.[10] 2022	Inappropriate intervention (there is no adjunct treatment used in this study)
Albornoz-Cabello et al.[11] 2021	Inappropriate study design (pre- post-treatment design)
Gavish et al.[12] 2021	Inappropriate intervention (there is no adjunct treatment used in this study)
James et al.[13] 2021	Inappropriate intervention (education)
Partovi et al.[14] 2021	Inappropriate population (participants with a knee osteoarthritis diagnosis)
Pocai et al.[15] 2021	Inappropriate intervention (exercise-therapy program was not performed)

Scafoglieri et al.[16] 2021	Inappropriate intervention (different exercises were performed in both groups)
Selhorst et al.[17] 2021	Inappropriate intervention (education)
Shadloo et al.[18] 2021	Inappropriate intervention (different exercises were performed in both groups)
Begum et al.[19] 2020	Short-report
Gavish et al.[20] 2020	Abstract
Glaviano et al.[21] 2020	Duplicate results. We already include the results of Glaviano et al. 2019.[22]
Haghighat et al.[23] 2020	Inappropriate intervention (different exercises were performed in both groups)
Kedroff et al.[24] 2020	Abstract
Mistry et al.[25] 2020	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Örsçelik et al.[26] 2020	Inappropriate population (participants with a knee osteoarthritis diagnosis)
Priori et al.[27] 2020	Inappropriate intervention (exercise-therapy program was not performed)
Astur et al.[28] 2019	Inappropriate population (participants with a knee osteoarthritis diagnosis)
Emamvirdi et al.[29] 2019	Inappropriate comparison (control group did not perform any exercise)
Walsh et al.[30] 2019	Inappropriate population (participants without patellofemoral pain were included)
Korakakis et al.[31] 2018	Abstract
Korakakis et al.[32] 2018	Inappropriate population (participants with other clinical diagnosis than patellofemoral pain)
Mølgaard et al.[33] 2018	Inappropriate intervention (there are more than one adjunct treatment used in this study)

Rathleff et al.[34] 2018	Inappropriate intervention (there are more than one adjunct treatment used in this study) and inappropriate study design (cohort)
Riel et al.[35] 2018	Inappropriate comparison (control group received adjunct treatment)
Argut et al.[36] 2017	Abstract
Balci et al.[37] 2017	Abstract
Espí-López et al.[38] 2017	Inappropriate comparison (control group received adjunct treatment)
Korakakis et al.[39] 2017	Abstract
Ferreira et al.[40] 2016	Abstract
Kurt et al.[41] 2016	Inappropriate intervention (exercise-therapy program was not performed)
Yildiz et al.[42] 2016	Inappropriate intervention (injection) and inappropriate study design (retrospective)
Halabchi et al.[43] 2015	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Patle et al.[44] 2015	Short-report
Singer et al.[45] 2015	Inappropriate study design (review)
Taghipourdarzinaghibi et al.[46] 2015	Abstract
Zemadani et al.[47] 2015	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Petersen et al.[48] 2014	Inappropriate study design (protocol)
Kaya et al.[49] 2013	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Kettunen et al.[50] 2011	Inappropriate population (participants with patellar subluxation)
Singer et al.[51] 2011	Inappropriate study design (crossover)

Evciik et al.[52] 2010	Inappropriate population (participants with patellar subluxation)
Sherrard et al.[53] 2010	Abstract
Collins et al.[54] 2008	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Ng et al.[55] 2008	Inappropriate outcomes (pain and/or function outcomes were not assessed)
Vicenzino et al.[56] 2008	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Kettunen et al.[57] 2007	Inappropriate population (participants with patellar subluxation)
Wiener-Ogilvie et al.[58] 2004	Inappropriate population (participants with anterior knee pain without specifying if they had patellofemoral pain)
Crossley et al.[59] 2003	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Crossley et al.[60] 2002	Inappropriate intervention (there are more than one adjunct treatment used in this study)
Naslund et al.[61] 2002	Inappropriate intervention (exercise-therapy program was not performed)
Kannus et al.[62] 1999	Inappropriate population (participants had undergone knee arthroscopy before the study)
Garth et al.[63] 1998	Inappropriate study design (review of the literature)
Froehling et al.[64] 1996	Thesis
Kowall et al.[65] 1996	Inappropriate population (participants with patellofemoral tilt or subluxation)

Kannus et al.[66] 1992	Inappropriate population (participants had undergone knee arthroscopy before the study)
Jacobson et al.[67] 1984	Dissertation

References

1 Korkmaz MÇ, Ağırman M, Tolu S, *et al.* Evaluation of the effectiveness of electromyographic biofeedback training in patients with patellofemoral pain syndrome. *Haydarpasa Numune Med J.* Published Online First: 2023. doi: 10.14744/hnhj.2021.90912.

2 Patil K, Patil, P. Effect of patellar realignment training in patellofemoral pain syndrome. *Indian J Public Health Res Dev.* 2023;14:136–141.

3 Selhorst M, Hoehn J, Schmitt L, *et al.* The effect of a psychologically informed video series to treat adolescents with patellofemoral pain: a randomized controlled trial. *J Orthop Sports Phys Ther.* 2023;0:1–9.

4 Sheikhi B, Rabiei P, Letafatkar A, *et al.* Is Adding education to trunk and hip exercises beneficial for patellofemoral pain? a randomized controlled trial. *Arch Phys Med Rehabil.* 2023;S0003-9993(23)00525-7.

5 Talbot LA, Webb L, Morrell C, *et al.* Electromyostimulation with blood flow restriction for patellofemoral pain syndrome in active duty military personnel: a randomized controlled trial. *Mil Med.* 2023;usad029.

6 Zafarian T, Taghipour M, Khafri S, *et al.* The effect of lumbopelvic manipulation on electromyography parameters of gluteus medius and vastus medialis in patients with patellofemoral pain syndrome: a double-blind, placebo-controlled trial. *Int J Osteopath Med.* 2023;50:100667.

- 7 Erickson LN, Jacobs CA, Noehren B. Effect of blood flow restriction training on patient-reported outcomes in female runners with patellofemoral pain: 2023. *MSSE*. 2022;54:603–603.
- 8 Hasan S, Alonazi A, Anwer S, *et al*. Efficacy of patellar taping and electromyographic biofeedback training at various knee angles on quadriceps strength and functional performance in young adult male athletes with patellofemoral pain syndrome: a randomized controlled trial. *Pain Res Manag*. 2022;2022:8717932.
- 9 Karamiani F, Mostamand J, Rahimi A, *et al*. The effect of gluteus medius dry needling on pain and physical function of non-athlete women with unilateral patellofemoral pain syndrome: a double-blind randomized clinical trial. *J Bodyw Mov Ther*. 2022;30:23–9.
- 10 Vaidya SM. Effect of foam rolling of quadriceps, hamstring, and IT band on knee passive range of motion and physical function in patients with patellofemoral pain syndrome - randomized controlled trial. *Arch Med Health Sci*. 2022;10:37.
- 11 Alborno-Cabello M, Barrios-Quinta CJ, Escobio-Prieto I, *et al*. Treatment of patellofemoral pain syndrome with dielectric radiofrequency diathermy: a preliminary single-group study with six-month follow-up. *Medicina (Kaunas)*. 2021;57:429.
- 12 Gavish L, Spitzer E, Friedman I, *et al*. Photobiomodulation as an adjunctive treatment to physiotherapy for reduction of anterior knee pain in combat soldiers: a prospective, double-blind, randomized, pragmatic, sham-controlled trial. *Lasers Surg Med*. 2021;53:1376–85.
- 13 James J, Selfe J, Goodwin P. Does a bespoke education session change levels of catastrophizing, kinesiophobia and pain beliefs in patients with patellofemoral pain? A feasibility study. *Physiother Pract Res*. 2021;42:153–63.

- 14 Partovi G, Ghaffari S, Mohammadpoor R ali, *et al.* Effect of taping and quadriceps strengthening and hamstring stretching on patello-femoral pain syndrome: a randomized clinical trial. *J Maz Univ Med.* 2021;31:55–64.
- 15 Pocai BL, Provensi É, Serighelli F, *et al.* Effect of photobiomodulation in the patellofemoral pain syndrome; randomized clinical trial in young women. *J Bodyw Mov Ther.* 2021;26:263–7.
- 16 Scafoglieri A, Van den Broeck J, Willems S, *et al.* Effectiveness of local exercise therapy versus spinal manual therapy in patients with patellofemoral pain syndrome: medium term follow-up results of a randomized controlled trial. *BMC Musculoskelet Disord.* 2021;22:446.
- 17 Selhorst M, Fernandez-Fernandez A, Schmitt L, *et al.* Effect of a psychologically informed intervention to treat adolescents with patellofemoral pain: a randomized controlled trial. *Arch Phys Med Rehabil.* 2021;102:1267–73.
- 18 Shadloo N, Kamali F, Salehi Dehno N. A comparison between whole-body vibration and conventional training on pain and performance in athletes with patellofemoral pain. *J Bodyw Mov Ther.* 2021;27:661–6.
- 19 Begum R, Tassadaq N, Ahmad S, *et al.* Effects of McConnell taping combined with strengthening exercises of vastus medialis oblique in females with patellofemoral pain syndrome. *J Pak Med Assoc.* 2020;70:728–30.
- 20 Gavish L, Spizer E, Friedman I, *et al.* Photobio modulation in addition to physiotherapy for overuse anterior knee pain in combat soldiers: a double-blind, randomized, sham, controlled trial. *Lasers Med Sci.* 2020;35:284.
- 21 Glaviano NR, Marshall AN, Mangum LC, *et al.* Improvements in lower-extremity function following a rehabilitation program with patterned electrical neuromuscular

- stimulation in females with patellofemoral pain: a randomized controlled trial. *J Sport Rehabil.* 2020;29:1075–85.
- 22 Glaviano NR, Marshall AN, Mangum LC, *et al.* Impairment-based rehabilitation with patterned electrical neuromuscular stimulation and lower extremity function in individuals with patellofemoral pain: a preliminary study. *J Athl Train.* 2019;54:255–69.
- 23 Haghighat S, Taheri P, Jafari H, *et al.* Comparative steed of the effects of electro-acupuncture and sham electro-acupuncture on pain and function in patients with patellofemoral pain syndrome: a randomized clinical trial study. *J Isfahan Med Sch.* 2020;38:721–7.
- 24 Kedroff L, Shimoni D, Lun AKL. The effect of a psychologically informed physiotherapy intervention for patellofemoral pain syndrome. a proof of concept feasibility study. *Physiotherapy.* 2020;107:e3–4.
- 25 Mistry PR, Shukla YU. Effect of VMO strengthening versus patellar taping in patellofemoral pain syndrome- a comparative study. *Indian J Physiother Occup Print.* 2020;14:152–8.
- 26 Örsçelik A, Akpancar S, Seven MM, *et al.* The efficacy of platelet rich plasma and prolotherapy in chondromalacia patella treatment. *Spor Hekimliği Dergisi.* 2020;55:028–37.
- 27 Priore LB, Lack S, Garcia C, *et al.* Two Weeks of wearing a knee brace compared with minimal intervention on kinesiophobia at 2 and 6 weeks in people with patellofemoral pain: a randomized controlled trial. *Arch Phys Med Rehabil.* 2020;101:613–23.

- 28 Astur DC, Angelini FB, Santos MA, *et al.* Use of exogenous hyaluronic acid for the treatment of patellar chondropathy- a six-month randomized controlled trial. *Rev Bras Ortop (Sao Paulo)*. 2019;54:549–55.
- 29 Emamvirdi M, Letafatkar A, Khaleghi Tazji M. The effect of valgus control instruction exercises on pain, strength, and functionality in active females with patellofemoral pain syndrome. *Sports Health*. 2019;11:223–37.
- 30 Walsh R, Kinsella S, McEvoy J. The effects of dry needling and radial extracorporeal shockwave therapy on latent trigger point sensitivity in the quadriceps: a randomised control pilot study. *J Bodyw Mov Ther*. 2019;23:82–8.
- 31 Korakakis V, Whiteley R, Giakas G. Low load resistance training with blood flow restriction decreases anterior knee pain more than resistance training alone. A pilot randomised controlled trial. *Phys Ther Sport*. 2018;34:121–8.
- 32 Korakakis V, Whiteley R, Cole A, *et al.* Low-load resistance exercise, blood flow restriction, or sham blood flow restriction for anterior knee pain. A three-arm pilot RCT. *J Sci Med Sport*. 2018;21:S53.
- 33 Mølgaard CM, Rathleff MS, Andreassen J, *et al.* Foot exercises and foot orthoses are more effective than knee focused exercises in individuals with patellofemoral pain. *J Sci Med Sport*. 2018;21:10–5.
- 34 Rathleff MS, Rathleff CR, Holden S, *et al.* Exercise therapy, patient education, and patellar taping in the treatment of adolescents with patellofemoral pain: a prospective pilot study with 6 months follow-up. *Pilot Feasibility Stud*. 2018;4:73.
- 35 Riel H, Matthews M, Vicenzino B, *et al.* Feedback leads to better exercise quality in adolescents with patellofemoral pain. *Med Sci Sports Exerc*. 2018;50:28–35.

- 36 Argut SK, Türker N, Çelik D, *et al.* The effectiveness of quadriceps strengthening exercises combined with neuromuscular electrical stimulation on patellofemoral pain syndrome. *Orthop J Sports Med.* 2017;5:2325967117S00107.
- 37 Balci P, Tunay VB. Effects of progressive neuromuscular exercise programme and plantar taping on muscle strength in patients with patellofemoral pain syndrome. *J Exerc Ther Rehabil.* 2017;4:S6–S6.
- 38 Espí-López GV, Serra-Añó P, Vicent-Ferrando J, *et al.* Effectiveness of inclusion of dry needling in a multimodal therapy program for patellofemoral pain: a randomized parallel-group trial. *J Orthop Sports Phys Ther.* 2017;47:392–401.
- 39 Korakakis V, Whiteley R. Blood flow restriction-induced pain reduction in patients with anterior knee pain. A pilot RCT. *J Sci Med Sport.* 2017;20:80.
- 40 Ferreira DC, Mantovani PR, Mazzer LP, *et al.* Electromyographic analysis of the effects of elastic taping in the activation of hip muscles in runners with patellofemoral pain syndrome: double-blind randomized clinical trial. *Phys Ther Sport.* 2016;18:e6–7.
- 41 Kurt EE, Büyükturan Ö, Erdem HR, *et al.* Short-term effects of kinesio tape on joint position sense, isokinetic measurements, and clinical parameters in patellofemoral pain syndrome. *J Phys Ther Sci.* 2016;28:2034–40.
- 42 Yildiz Y, Apaydin A, Seven M, *et al.* The effects of prolotherapy (hypertonic dextrose) in recreational athletes with patellofemoral pain syndrome. *J Exp Integr Med.* 2016;6:53.
- 43 Halabchi F, Mazaheri R, Mansournia MA, *et al.* Additional effects of an individualized risk factor-based approach on pain and the function of patients with patellofemoral pain syndrome: a randomized controlled trial. *Clin J Sport Med.* 2015;25:478–86.

- 44 Patle S, Bhavé S. A study on the efficacy of manual therapy as an intervention to supervised exercise therapy in patients with anterior knee pain: a randomised controlled trial. *Ind Jour of Physioth and Occupat Therapy - An Inter Jour*. 2015;9:92.
- 45 Singer BJ, Silbert BI, Silbert PL, *et al*. The role of botulinum toxin type A in the clinical management of refractory anterior knee pain. *Toxins (Basel)*. 2015;7:3388–404.
- 46 Taghipourdarzinaghibi M, Ghourbanpour A, Hosseinzadeh S, *et al*. Effects of patellar taping on patellar alignment in patella-femoral pain syndrome: a randomized clinical trial. *Physiotherapy*. 2015;101:e1467.
- 47 Zemadanis K, Sykaras E, Athanasopoulos S, *et al*. Mobilization-with-movement prior to exercise provides early pain and functionality improvements in patients with patellofemoral pain syndrome. *Int Musculoskelet Med*. 2015;37:101–7.
- 48 Petersen W, Ellermann A, Rembitzki IV, *et al*. The Patella Pro study — effect of a knee brace on patellofemoral pain syndrome: design of a randomized clinical trial (DRKS-ID:DRKS00003291). *BMC Musculoskelet Disord* 2014;15:200.
- 49 Kaya D, Yüksel İ, Callaghan MJ, *et al*. High voltage pulsed galvanic stimulation adjunct to rehabilitation program for patellofemoral pain syndrome: a prospective randomized controlled trial. *Fiz Rehabil*. 2013;24:1-8.
- 50 Kettunen JA, Harilainen A, Sandelin J, *et al*. Knee arthroscopy and exercise versus exercise only for chronic patellofemoral pain syndrome: 5-year follow-up. *Br J Sports Med*. 2012;46:243–6.
- 51 Singer BJ, Silbert PL, Song S, *et al*. Treatment of refractory anterior knee pain using botulinum toxin type A (Dysport) injection to the distal vastus lateralis muscle: a randomised placebo controlled crossover trial. *Br J Sports Med*. 2011;45:640–5.

- 52 Evcik D, Kuru İ, Ay S. Home-Based Exercise and Patellar Bracing in the Treatment of Patellofemoral Pain Syndrome. *Turk J Phys Med Rehabil.* 2010;56:100-4.
- 53 Sherrard C, Parker D, Negus J, *et al.* The effects of a wii fit-based balance program on knee pain and function in patellofemoral pain sufferers. *J Sci Med Sport.* 2010;13:e6-7.
- 54 Collins N, Crossley K, Beller E, *et al.* Foot orthoses and physiotherapy in the treatment of patellofemoral pain syndrome: randomised clinical trial. *BMJ.* 2008;337:a1735.
- 55 Ng GYF, Zhang AQ, Li CK. Biofeedback exercise improved the EMG activity ratio of the medial and lateral vasti muscles in subjects with patellofemoral pain syndrome. *J Electromyogr Kinesiol.* 2008;18:128-33.
- 56 Vicenzino B, Collins N, Crossley K, *et al.* Foot orthoses and physiotherapy in the treatment of patellofemoral pain syndrome: a randomised clinical trial. *BMC Musculoskelet Disord.* 2008;9:27.
- 57 Kettunen JA, Harilainen A, Sandelin J, *et al.* Knee arthroscopy and exercise versus exercise only for chronic patellofemoral pain syndrome: a randomized controlled trial. *BMC Med.* 2007;5:38.
- 58 Wiener-Ogilvie S, Jones RB. A randomised trial of exercise therapy and foot orthoses as treatment for knee pain in primary care. *British Journal of Podiatry.* 2004;7:43-49.
- 59 Crossley K, Bennell K, Green S, *et al.* Physical therapy was effective for patellofemoral pain. *J Bone Jt Surg.* 2003;85:1625.
- 60 Crossley K, Bennell K, Green S, *et al.* Physical therapy for patellofemoral pain: a randomized, double-blinded, placebo-controlled trial. *Am J Sports Med.* 2002;30:857-65.

- 61 Näslund J, Näslund U-B, Odenbring S, *et al.* Sensory stimulation (acupuncture) for the treatment of idiopathic anterior knee pain. *J Rehabil Med.* 2002;34:231–8.
- 62 Kannus P, Natri A, Paakkala T, *et al.* An outcome study of chronic patellofemoral pain syndrome. Seven-year follow-up of patients in a randomized, controlled trial. *J Bone Joint Surg Am.* 1999;81:355–63.
- 63 Garth WP, Flowers K. Efficacy of knee sleeves in the management of patellofemoral dysfunction. *IJATT.* 1998;3:23–7.
- 64 Froehling LA. Effectiveness of exercise versus exercise plus tape in the management of females with patellofemoral pain [thesis on the internet]. University of Wisconsin La Crosse; 1996 [cited 2024 Jan 22]. Available from: <https://minds.wisconsin.edu/handle/1793/48741>.
- 65 Kowall MG, Kolk G, Nuber GW, *et al.* Patellar taping in the treatment of patellofemoral pain. A prospective randomized study. *Am J Sports Med.* 1996;24:61–6.
- 66 Kannus P, Natri A, Niittymäki S, *et al.* Effect of intraarticular glycosaminoglycan polysulfate treatment on patellofemoral pain syndrome. A prospective, randomized double-blind trial comparing glycosaminoglycan polysulfate with placebo and quadriceps muscle exercises. *Arthritis Rheum.* 1992;35:1053–61.
- 67 Jacobson BR. Comparison of knee extension strength gains in patients with patellofemoral pain: using short-arc exercises, short-arc exercises supplemented with electrical muscular contraction, and short-arc exercises supplemented with electrical stimulation at a non-contractile sensory level [dissertation on the internet]. Penn State University; 1984 [cited 2024 Jan 22]. Available from: <https://catalog.libraries.psu.edu/catalog/319163>.