Effects of exercise training on patients with CKD 2019

1. Cardoso RK, Araujo AM, Orcy RB, Bohlke M, Oses JP, Del Vecchio FB, Barcellos FC, Gonzalez MC, Rombaldi AJ. Effects of continuous moderate exercise with partial blood flow restriction during hemodialysis: A protocol for a randomized clinical trial. MethodsX. 2019 Jan 23;6:190-198. doi: 10.1016/j.mex.2019.01.005. eCollection 2019. PubMed PMID: 30740314; PubMed Central PMCID: PMC6357543.

2. Ferrari F, Helal L, Dipp T, Soares D, Soldatelli Â, Mills AL, Paz C, Tenório MCC, Motta MT, Barcellos FC, Stein R. Intradialytic training in patients with end-stage renal disease: a systematic review and meta-analysis of randomized clinical trials assessing the effects of five different training interventions. J Nephrol. 2019 Dec 21. doi: 10.1007/s40620-019-00687-y. [Epub ahead of print] Review. PubMed PMID: 31865607.

3. Hellberg M, Höglund P, Svensson P, Clyne N. Randomized Controlled Trial of Exercise in CKD-The RENEXC Study. Kidney Int Rep. 2019 Apr 9;4(7):963-976. doi: 10.1016/j.ekir.2019.04.001. eCollection 2019 Jul. PubMed PMID: 31312771; PubMed Central PMCID: PMC6609793.

4. Khan SF, Ronco C, Rosner MH. Counteracting the Metabolic Effects of Glucose Load in Peritoneal Dialysis Patients; an Exercise-Based Approach. Blood Purif. 2019;48(1):25-31. doi: 10.1159/000499406. Epub 2019 Apr 4. Review. PubMed PMID: 30947217.

5. Kirkman DL, Ramick MG, Muth BJ, Stock JM, Pohlig RT, Townsend RR, Edwards DG. Effects of aerobic exercise on vascular function in nondialysis chronic kidney disease: a randomized controlled trial. Am J Physiol Renal Physiol. 2019 May 1;316(5):F898-F905. doi: 10.1152/ajprenal.00539.2018. Epub 2019 Feb 27. PubMed PMID: 30810061; PubMed Central PMCID: PMC6580257.

6. Masajtis-Zagajewska A, Muras-Szwedziak K, Nowicki M. Simultaneous Improvement of Habitual Physical Activity and Life Quality in Kidney Transplant Recipients Involved in Structured Physical Activity Program. Transplant Proc. 2019 Jul -Aug;51(6):1822-1830. doi: 10.1016/j.transproceed.2019.02.037. PubMed PMID: 31399167.

7. Morais MJD, de Abreu LC, Santana de Oliveira F, Pinheiro Bezerra IM, Raimundo RD, Paulo Martins Silva R, Valenti VE, Pérez-Riera AR. Is aerobic exercise training during hemodialysis a reliable intervention for autonomic dysfunction in individuals with chronic kidney disease? A prospective longitudinal clinical trial. J Multidiscip Healthc. 2019 Aug 27;12:711-718. doi: 10.2147/JMDH.S202889. eCollection 2019. PubMed PMID: 31695401; PubMed Central PMCID: PMC6717710.

8. Muras-Szwedziak K, Masajtis-Zagajewska A, Pawłowicz E, Nowicki M. Effects of a Structured Physical Activity Program on Serum Adipokines and Markers of Inflammation and Volume Overload in Kidney Transplant Recipients. Ann Transplant. 2019 Oct 8;24:569-575. doi: 10.12659/AOT.917047. PubMed PMID: 31591375; PubMed Central PMCID: PMC6795104.

9. Oliveira E Silva VR, Stringuetta Belik F, Hueb JC, de Souza Gonçalves R, Costa Teixeira Caramori J, Perez Vogt B, Barretti P, Zanati Bazan SG, De Stefano GMMF, Martin LC, da Silva Franco RJ. Aerobic Exercise Training and Nontraditional Cardiovascular Risk Factors in Hemodialysis Patients: Results from a Prospective Randomized Trial. Cardiorenal Med. 2019;9(6):391-399. doi: 10.1159/000501589. Epub 2019 Oct 9. PubMed PMID: 31597151.

10. Pei G, Tang Y, Tan L, Tan J, Ge L, Qin W. Aerobic exercise in adults with chronic kidney disease (CKD): a meta-analysis. Int Urol Nephrol. 2019 Oct;51(10):1787-1795. doi: 10.1007/s11255-019-02234-x. Epub 2019 Jul 22. PubMed PMID: 31332699.

11. Rahimimoghadam Z, Rahemi Z, Sadat Z, Mirbagher Ajorpaz N. Pilates exercises and quality of life of patients with chronic kidney disease. Complement Ther Clin Pract. 2019 Feb; 34:35-40. doi: 10.1016/j.ctcp.2018.10.017. Epub 2018 Nov 1. PubMed PMID: 30712743.

12. St-Jules DE, Marinaro M, Goldfarb DS, Byham-Gray LD, Wilund KR. Managing Hyperkalemia: Another Benefit of Exercise in People With Chronic Kidney Disease? J Ren Nutr. 2019 Nov 22. pii: S1051-2276(19)30355-3. doi: 10.1053/j.jrn.2019.10.001. [Epub ahead of print] Review. PubMed PMID: 31767517.

13. Torres E, Aragoncillo I, Moreno J, Vega A, Abad S, García-Prieto A, Macias N, Hernandez A, Godino MT, Luño J. Exercise training during hemodialysis sessions: Physical and biochemical benefits. Ther Apher Dial. 2019 Dec 30. doi: 10.1111/1744-9987.13469. [Epub ahead of print] PubMed PMID: 31886624.

14. Uchiyama K, Washida N, Morimoto K, Muraoka K, Kasai T, Yamaki K, Miyashita K, Wakino S, Itoh H. Home-based Aerobic Exercise and Resistance Training in Peritoneal Dialysis Patients: A Randomized Controlled Trial. Sci Rep. 2019 Feb 22;9(1):2632. doi: 10.1038/s41598-019-39074-9. PubMed PMID: 30796338; PubMedCentral PMCID: PMC6385506.
15. Wilkinson TJ, Watson EL, Gould DW, Xenophontos S, Clarke AL, Vogt BP, Viana JL, Smith AC. Twelve weeks of supervised exercise improves self-reported symptom burden and fatigue in chronic kidney disease: a secondary analysis of the 'ExTra CKD' trial. Clin Kidney J. 2019 Feb;12(1):113-121. doi: 10.1093/ckj/sfy071. Epub 2018 Aug 13. PubMed PMID: 30746138; PubMed Central PMCID: PMC6366144.

16. Zhang L, Wang Y, Xiong L, Luo Y, Huang Z, Yi B. Exercise therapy improves eGFR, and reduces blood pressure and BMI in non-dialysis CKD patients: evidence from a meta-analysis. BMC Nephrol. 2019 Oct 29;20(1):398. doi: 10.1186/s12882-019-1586-5. PubMed PMID: 31664943; PubMed Central PMCID: PMC6821004.

17. Zhou Y, Hellberg M, Hellmark T, Höglund P, Clyne N. Muscle mass and plasma myostatin after exercise training: a substudy of Renal Exercise (RENEXC)-a randomized controlled trial. Nephrol Dial Transplant. 2019 Dec 17. pii: gfz210. doi: 10.1093/ndt/gfz210. [Epub ahead of print] PubMed PMID: 31848626.

18. Zhou Y, Hellberg M, Hellmark T, Höglund P, Clyne N. Muscle mass and plasma myostatin after exercise training: a substudy of Renal Exercise (RENEXC)-a randomized controlled trial. Nephrol Dial Transplant. 2019 Dec 17. pii: gfz210. doi: 10.1093/ndt/gfz210. [Epub ahead of print] PubMed PMID: 31848626.

Effects of exercise training on hemodialysis patients 2019

1. Abdelaal AAM, Abdulaziz EM. Effect of exercise therapy on physical performance and functional balance in patients on maintenance renal hemodialysis: randomized controlled study. J Exerc Rehabil. 2019 Jun 30;15(3):472-480. doi:10.12965/jer.1938176.088. eCollection 2019 Jun. PubMed PMID: 31316944; PubMed Central PMCID: PMC6614770.

2. Ashby D, Borman N, Burton J, Corbett R, Davenport A, Farrington K, Flowers K, Fotheringham J, Andrea Fox RN, Franklin G, Gardiner C, Martin Gerrish RN, Greenwood S, Hothi D, Khares A, Koufaki P, Levy J, Lindley E, Macdonald J, Mafrici B, Mooney A, Tattersall J, Tyerman K, Villar E, Wilkie M. Renal Association Clinical Practice Guideline on Haemodialysis. BMC Nephrol. 2019 Oct 17;20(1):379. doi: 10.1186/s12882-019-1527-3. PubMed PMID: 31623578; PubMed Central PMCID: PMC6798406.

3. Bogataj Š, Pajek M, Pajek J, Buturović Ponikvar J, Paravlic A. Exercise-Based Interventions in Hemodialysis Patients: A Systematic Review with a Meta-Analysis of Randomized Controlled Trials. J Clin Med. 2019 Dec 24;9(1). pii: E43. doi: 10.3390/jcm9010043. Review. PubMed PMID: 31878176.

4. Bohm C, Schick-Makaroff K, MacRae JM, Tan M, Thompson S. The role of exercisein improving patient-reported outcomes in individuals on dialysis: A scoping review. Semin Dial. 2019 Jul;32(4):336-350. doi: 10.1111/sdi.12806. Epub 2019 Apr 21. PubMed PMID: 31006928.

5. Cardoso RK, Araujo AM, Del Vechio FB, Bohlke M, Barcellos FC, Oses JP, de Freitas MP, Rombaldi AJ. Intradialytic exercise with blood flow restriction is more effective than conventional exercise in improving walking endurance in hemodialysis patients: a randomized controlled trial. Clin Rehabil. 2020 Jan;34(1):91-98. doi: 10.1177/0269215519880235. Epub 2019 Oct 11. PubMed PMID: 31603002.

6. Cardoso RK, Araujo AM, Orcy RB, Bohlke M, Oses JP, Del Vecchio FB, Barcellos FC, Gonzalez MC, Rombaldi AJ. Effects of continuous moderate exercise with partial blood flow restriction during hemodialysis: A protocol for a randomized clinical trial. MethodsX. 2019 Jan 23;6:190-198. doi: 10.1016/j.mex.2019.01.005. eCollection 2019. PubMed PMID: 30740314; PubMed Central PMCID: PMC6357543.

7. Chan KN, Chen Y, Lit Y, Massaband P, Kiratli J, Rabkin R, Myers JN. A randomized controlled trial of exercise to prevent muscle mass and functional loss in elderly hemodialysis patients: Rationale, study design, and baseline sample. Contemp Clin Trials Commun. 2019 Apr 19;15:100365. doi: 10.1016/j.conctc.2019.100365. eCollection 2019 Sep. PubMed PMID: 31193611; PubMed Central PMCID: PMC6536673.

8. Cheng YJ, Zhao XJ, Zeng W, Xu MC, Ma YC, Wang M. Effect of Intradialytic Exercise on Physical Performance and Cardiovascular Risk Factors in Patients Receiving Maintenance Hemodialysis: A Pilot and Feasibility Study. Blood Purif. 2019 Dec 19:1-10. doi: 10.1159/000504955. [Epub ahead of print] PubMed PMID: 31865333.

9. Clarkson MJ, Bennett PN, Fraser SF, Warmington SA. Exercise interventions for improving objective physical function in patients with end-stage kidney disease on dialysis: a systematic review and meta-analysis. Am J Physiol Renal Physiol. 2019 May 1;316(5):F856-F872. doi: 10.1152/ajprenal.00317.2018. Epub 2019 Feb 13. PubMed PMID: 30759022.

10. Dam M, Weijs PJM, van Ittersum FJ, van Jaarsveld BC. Physical performance in patients treated with nocturnal hemodialysis - a systematic review of the evidence. BMC Nephrol. 2019 Aug 14;20(1):317. doi: 10.1186/s12882-019-1518-4.PubMed PMID: 31412793; PubMed Central PMCID: PMC6694635.

11. Dashtidehkordi A, Shahgholian N, Attari F. "Exercise during hemodialysis and health promoting behaviors: a clinical trial". BMC Nephrol. 2019 Mar 19;20(1):96. doi: 10.1186/s12882-019-1276-3. PubMed PMID: 30890122; PubMed Central PMCID: PMC6425622.

12. Desai M, Mohamed A, Davenport A. A pilot study investigating the effect of pedalling exercise during dialysis on 6-min walking test and hand grip and pinch strength. Int J Artif Organs. 2019 Apr;42(4):161-166. doi: 10.1177/0391398818823761. Epub 2019 Jan 14. PubMed PMID: 30638133.

13. Dias EC, Orcy R, Antunes MF, Kohn R, Rombaldi AJ, Ribeiro L, Oses JP, Ferreira GD, Araújo AM, Boff IF, Böhlke M. Intradialytic exercise with blood flow restriction: Something to add to hemodialysis adequacy? Findings from a crossover study. Hemodial Int. 2020 Jan;24(1):71-78. doi: 10.1111/hdi.12793. Epub 2019 Oct 14. PubMed PMID: 31612630.

14. Dipp T, Macagnan FE, Schardong J, Fernandes RO, Lemos LC, Plentz RDM. Short period of high-intensity inspiratory muscle training improves inspiratory muscle strength in patients with chronic kidney disease on hemodialysis: a randomized controlled trial. Braz J Phys Ther. 2019 May 6. pii: S1413-3555(18)30376-9. doi: 10.1016/j.bjpt.2019.04.003. [Epub ahead of print] PubMed PMID: 31122717.

15. Dong ZJ, Zhang HL, Yin LX. Effects of intradialytic resistance exercise on systemic inflammation in maintenance hemodialysis patients with sarcopenia: a randomized controlled trial. Int Urol Nephrol. 2019 Aug;51(8):1415-1424. doi: 10.1007/s11255-019-02200-7. Epub 2019 Jul 3. PubMed PMID: 31270740; PubMed Central PMCID: PMC6660503.

16. Fang HY, Burrows BT, King AC, Wilund KR. A Comparison of Intradialytic versus Out-of-Clinic Exercise Training Programs for Hemodialysis Patients. Blood Purif. 2020;49(1-2):151-157. doi: 10.1159/000503772. Epub 2019 Dec 18. Review. PubMed PMID: 31851985.

17. Fernandes AO, Sens YADS, Xavier VB, Miorin LA, Alves VLDS. Functional and Respiratory Capacity of Patients with Chronic Kidney Disease Undergoing Cycle Ergometer Training during Hemodialysis Sessions: A Randomized Clinical Trial. IntJ Nephrol. 2019 Jan 21;2019:7857824. doi: 10.1155/2019/7857824. eCollection 2019. PubMed PMID: 30805216; PubMed Central PMCID: PMC6360580.

18. Ferreira GD, Bohlke M, Correa CM, Dias EC, Orcy RB. Does Intradialytic Exercise Improve Removal of Solutes by Hemodialysis? A Systematic Review and Meta-analysis. Arch Phys Med Rehabil. 2019 Dec;100(12):2371-2380. doi: 10.1016/j.apmr.2019.02.009. Epub 2019 Mar 26. Review. PubMed PMID: 30922880.

19. Fukushima RLM, Micali PN, do Carmo EG, Orlandi FS, Costa JLR. Cognitive abilities and physical activity in chronic kidney disease patients undergoing hemodialysis. Dement

Neuropsychol. 2019 Jul-Sep;13(3):329-334. doi: 10.1590/1980-57642018dn13-030010. PubMed PMID: 31555406; PubMed Central PMCID:PMC6753914.

20. Garcia RSA, Pinheiro BV, Lucinda LMF, Pimentel AL, Júnior JMP, Paula RB, Reboredo MM. Association between exercise training in haemodialysis patients and burden of their family caregivers: A cross-sectional study. Nephrology (Carlton). 2020 Apr;25(4):332-338. doi: 10.1111/nep.13620. Epub 2019 Jun 18. PubMed PMID: 31124254.

21. García Testal A, García Maset R, Hervás Marín D, Pérez-Domínguez B, Royo Maicas P, Rico Salvador IS, Meléndez-Oliva E, Molina Aracil J, Murgui Chiva M, Del Pozo Blanco O, Olagüe Díaz P, Fernández Najera JE, Torregrosa De Juan E, Benedito Carrera C, Segura-Ortí E. Influence of Physical Exercise on the Dialytic Adequacy Parameters of Patients on Hemodialysis. Ther Apher Dial. 2019 Apr;23(2):160-166. doi: 10.1111/1744-9987.12762. Epub 2018 Oct 19. PubMed PMID: 30226299.

22. Graham-Brown MPM, Jardine MJ, Burton JO. Cardiovascular adaptations associated with exercise in patients on hemodialysis. Semin Dial. 2019 Jul;32(4):361-367. doi: 10.1111/sdi.12789. Epub 2019 Mar 24. PubMed PMID: 30907030.

23. Gravina EPL, Pinheiro BV, da Silva Jesus LA, da Silva LP, da Silva RN, Silva K, de Paula RB, Reboredo MM. Effects of long-term aerobic training and detraining on functional capacity and quality of life in hemodialysis patients: A pilot study. Int J Artif Organs. 2019 Nov 27:391398819890622. doi:10.1177/0391398819890622. [Epub ahead of print] PubMed PMID: 31774015.

24. Greenwood SA, Castle E, Lindup H, Mayes J, Waite I, Grant D, Mangahis E, Crabb O, Shevket K, Macdougall IC, MacLaughlin HL. Mortality and morbidity following exercise-based renal rehabilitation in patients with chronic kidney disease: the effect of programme completion and change in exercise capacity. Nephrol Dial Transplant. 2019 Apr 1;34(4):618-625. doi: 10.1093/ndt/gfy351. PubMed PMID: 30500926; PubMed Central PMCID: PMC6452180.

25. Hendriks FK, Smeets JSJ, van der Sande FM, Kooman JP, van Loon LJC. Dietary Protein and Physical Activity Interventions to Support Muscle Maintenance in End-Stage Renal Disease Patients on Hemodialysis. Nutrients. 2019 Dec 5;11(12). pii: E2972. doi: 10.3390/nu11122972. PubMed PMID: 31817402; PubMed Central PMCID: PMC6950262.

26. Hornik B, Duława J, Marcisz C, Korchut W, Durmała J. The Effect of Mechanically-Generated Vibrations on the Efficacy of Hemodialysis; Assessment of Patients' Safety: Preliminary Reports. Int J Environ Res Public Health. 2019 Feb 18;16(4). pii: E594. doi: 10.3390/ijerph16040594. PubMed PMID: 30781708; PubMed Central PMCID: PMC6406417.

27. Hornik B, Duława J. Frailty, Quality of Life, Anxiety, and Other Factors Affecting Adherence to Physical Activity Recommendations by Hemodialysis Patients. Int J Environ Res Public Health. 2019 May 23;16(10). pii: E1827. doi: 10.3390/ijerph16101827. PubMed PMID: 31126041; PubMed Central PMCID: PMC6571908.

28. Huang M, Lv A, Wang J, Xu N, Ma G, Zhai Z, Zhang B, Gao J, Ni C. Exercise Training and Outcomes in Hemodialysis Patients: Systematic Review and Meta-Analysis. Am J Nephrol. 2019;50(4):240-254. doi: 10.1159/000502447. Epub 2019 Aug 27. Review. PubMed PMID: 31454822.

29. Ikizler TA. Intradialytic nutrition and exercise: convenience versus efficacy. Kidney Int. 2019 Sep;96(3):549-552. doi: 10.1016/j.kint.2019.04.037. PubMed PMID: 31445582.

30. Jeong JH, Biruete A, Tomayko EJ, Wu PT, Fitschen P, Chung HR, Ali M, McAuley E, Fernhall B, Phillips SA, Wilund KR. Results from the randomized controlled IHOPE trial suggest no effects of oral protein supplementation and exercise training on physical function in hemodialysis patients. Kidney Int. 2019 Sep;96(3):777-786. doi: 10.1016/j.kint.2019.03.018. Epub 2019 Apr 2. PubMed PMID: 31200945; PubMed Central PMCID: PMC6708720.

31. Kaltsatou A, Hadjigeorgiou GM, Grigoriou SS, Karatzaferi C, Giannaki CD, Lavdas E, Fotiou D, Kouidi E, Patramani G, Vogiatzi C, Pappas A, Stefanidis I, Sakkas GK. Cardiac autonomic function during intradialytic exercise training. Postgrad Med. 2019 Sep;131(7):539-545. doi: 10.1080/00325481.2019.1663707. Epub 2019 Sep 15. PubMed PMID: 31482757.

32. Kim JS, Yi JH, Shin J, Kim YS, Han SW. Effect of acute intradialytic aerobic and resistance exercise on one-day blood pressure in patients undergoing hemodialysis: a pilot study. J Sports Med Phys Fitness. 2019 Aug;59(8):1413-1419. doi: 10.23736/S0022-4707.18.07921-5. Epub 2018 Feb 26. PubMed PMID: 29479995.

33. Kim JS, Yi JH, Shin J, Kim YS, Han SW. Effect of acute intradialytic aerobic and resistance exercise on one-day blood pressure in patients undergoing hemodialysis: a pilot study. J Sports Med Phys Fitness. 2019 Aug;59(8):1413-1419. doi: 10.23736/S0022-4707.18.07921-5. Epub 2018 Feb 26. PubMed PMID: 29479995.

34. Kirkman DL, Scott M, Kidd J, Macdonald JH. The effects of intradialytic exercise on hemodialysis adequacy: A systematic review. Semin Dial. 2019 Jul;32(4):368-378. doi: 10.1111/sdi.12785. Epub 2019 Apr 9. PubMed PMID: 30968465.

35. Lou X, Li Y, Shen H, Juan J, He Q. Physical activity and somatic symptoms among hemodialysis patients: a multi-center study in Zhejiang, China. BMC Nephrol. 2019 Dec 26;20(1):477. doi: 10.1186/s12882-019-1652-z. PubMed PMID: 31878896; PubMed Central PMCID: PMC6933661.

36. Lu Y, Wang Y, Lu Q. Effects of Exercise on Muscle Fitness in Dialysis Patients: A Systematic Review and Meta-Analysis. Am J Nephrol. 2019;50(4):291-302. doi: 10.1159/000502635. Epub 2019 Sep 3. PubMed PMID: 31480056.

37. Martin-Alemañy G, Espinosa-Cuevas MLÁ, Pérez-Navarro M, Wilund KR, Miranda-Alatriste P, Cortés-Pérez M, García-Villalobos G, Gómez-Guerrero I, Cantú-Quintanilla G, Ramírez-Mendoza M, Valdez-Ortiz R. Effect of Oral Nutritional Supplementation With and Without Exercise on Nutritional Status and Physical Function of Adult Hemodialysis Patients: A Parallel Controlled Clinical Trial (AVANTE-HEMO Study). J Ren Nutr. 2020 Mar;30(2):126-136. doi: 10.1053/j.jrn.2019.06.010. Epub 2019 Oct 10. PubMed PMID: 31607547.

38. Martins do Valle F, Valle Pinheiro B, Almeida Barros AA, Ferreira Mendonça W, de Oliveira AC, de Oliveira Werneck G, de Paula RB, Moura Reboredo M. Effects of intradialytic resistance training on physical activity in daily life, muscle strength, physical capacity and quality of life in hemodialysis patients: a randomized clinical trial. Disabil Rehabil. 2019 Apr 29:1-7. doi: 10.1080/09638288.2019.1606857. [Epub ahead of print] PubMed PMID: 31034264.

39. Maynard LG, de Menezes DL, Lião NS, de Jesus EM, Andrade NLS, Santos JCD, da Silva Júnior WM, Bastos KA, Barreto Filho JAS. Effects of Exercise Training Combined with Virtual Reality in Functionality and Health-Related Quality of Life of Patients on Hemodialysis. Games

Health J. 2019 Oct;8(5):339-348. doi: 10.1089/g4h.2018.0066. PubMed PMID: 31539293.

40. McKenna CF, Salvador AF, Hendriks FK, Harris APY, van Loon LJC, Burd NA. Exercising to offset muscle mass loss in hemodialysis patients: The disconnect between intention and intervention. Semin Dial. 2019 Jul;32(4):379-385. doi: 10.1111/sdi.12805. Epub 2019 Mar 22. PubMed PMID: 30903629.

41. Medeiros AIC, Brandão DC, Souza RJP, Fuzari HKB, Barros CESR, Barbosa JBN, Leite JC, Cavalcanti FCB, Dornelas de Andrade A, de Melo Marinho PÉ. Effects of daily inspiratory muscle training on respiratory muscle strength and chest wall regional volumes in haemodialysis patients: a randomised clinical trial. Disabil Rehabil. 2019 Dec;41(26):3173-3180. doi: 10.1080/09638288.2018.1485181. Epub 2018 Jul 27. PubMed PMID: 30052475.

42. Michou V, Kouidi E, Liakopoulos V, Dounousi E, Deligiannis A. Attitudes of hemodialysis patients, medical and nursing staff towards patients' physical activity. Int Urol Nephrol. 2019 Jul;51(7):1249-1260. doi: 10.1007/s11255-019-02179-1. Epub 2019 Jun 3. PubMed PMID: 31161521.
43. Mo Y, Song L, Sun C, Huang J, Zhou L, Zheng S, Zhuang T, Chen Y, Liu S, Liang X, Fu X. Effect of Dumbbell Exercise on Arteriovenous Fistula in Patients Undergoing Maintenance Haemodialysis: A Prospective Randomized Controlled Trial. Blood Purif. 2020;49(1-2):16-24. doi: 10.1159/000502332. Epub 2019 Sep 19. PubMed PMID: 31536984.

44. Mo YW, Song L, Huang JY, Sun CY, Zhou LF, Zheng SQ, Zhuang TT, Chen YG, Chen YH, Liu SX, Liang XL, Fu X. Can the fistula arm be used to lift heavy items? Six-pound dumbbells versus handgrip exercise in a 6-month follow-up secondary analysis of a randomized controlled trial. J Vasc Access. 2019 Dec12:1129729819894090. doi: 10.1177/1129729819894090. [Epub ahead of print] PubMed PMID: 31829085.

45. Molsted S, Bjørkman ASD, Lundstrøm LH. Effects of strength training to patients undergoing dialysis: a systematic review. Dan Med J. 2019 Jan;66(1). pii: A5526. PubMed PMID: 30573007.

46. Morais MJD, de Abreu LC, Santana de Oliveira F, Pinheiro Bezerra IM, Raimundo RD, Paulo Martins Silva R, Valenti VE, Pérez-Riera AR. Is aerobic exercise training during hemodialysis a reliable intervention for autonomic dysfunction in individuals with chronic kidney disease? A prospective longitudinal clinical trial. J Multidiscip Healthc. 2019 Aug 27;12:711-718. doi: 10.2147/JMDH.S202889. eCollection 2019. PubMed PMID: 31695401; PubMed Central PMCID: PMC6717710.

47. Morais MJD, Raimundo RD, Oliveira FS, Abreu LC, Bezerra IMP, Silva RPM, Rodrigues AS, Valenti VE, Pérez-Riera AR. Evaluation of the effects of aerobic training during hemodialysis on autonomic heart rate modulation in patients with chronic renal disease. Medicine (Baltimore). 2019 Jun;98(23):e15976. doi: 10.1097/MD.0000000000015976. PubMed PMID: 31169731; PubMed Central PMCID: PMC6571407.

48. More KM, Blanchard C, Theou O, Cranston A, Vinson AJ, Dipchand C, Kiberd B, Tennankore KK. A Location-Based Objective Assessment of Physical Activity and Sedentary Behavior in Ambulatory Hemodialysis Patients. Can J Kidney Health Dis. 2019 Aug 28;6:2054358119872967. doi: 10.1177/2054358119872967. eCollection 2019. PubMed PMID: 31497306; PubMed Central PMCID: PMC6716178.

49. Morgan K, de Jersey S, Mason B, Young A. Guidelines for review of patients on haemodialysis: Are we meeting patient needs? Nutr Diet. 2019 Apr;76(2):166-173. doi:

10.1111/1747-0080.12538. PubMed PMID: 30957366.

50. Moriyama Y, Hara M, Aratani S, Ishikawa H, Kono K, Tamaki M. The association between six month intra-dialytic resistance training and muscle strength or physical performance in patients with maintenance hemodialysis: a multicenter retrospective observational study. BMC Nephrol. 2019 May 16;20(1):172. doi: 10.1186/s12882-019-1375-1. PubMed PMID: 31096932; PubMed Central PMCID: PMC6524282.

51. motivators and barriers towards physical activity in haemodialysis patients to inform intervention development. Disabil Rehabil. 2019 Oct 24:1-7. doi: 10.1080/09638288.2019.1672214. [Epub ahead of print] PubMed PMID: 31646910.

52. Nilsson BB, Bunæs-Næss H, Edvardsen E, Stenehjem AE. High-intensity interval training in haemodialysis patients: a pilot randomised controlled trial. BMJ Open Sport Exerc Med. 2019 Nov 10;5(1):e000617. doi: 10.1136/bmjsem-2019-000617. eCollection 2019. PubMed PMID: 31798950; PubMed Central PMCID: PMC6863672.

53. Oliveira E Silva VR, Stringuetta Belik F, Hueb JC, de Souza Gonçalves R, Costa Teixeira Caramori J, Perez Vogt B, Barretti P, Zanati Bazan SG, De Stefano GMMF, Martin LC, da Silva Franco RJ. Aerobic Exercise Training and Nontraditional Cardiovascular Risk Factors in Hemodialysis Patients: Results from a Prospective Randomized Trial. Cardiorenal Med. 2019;9(6):391-399. doi: 10.1159/000501589.Epub 2019 Oct 9. PubMed PMID: 31597151.

54. Pu J, Jiang Z, Wu W, Li L, Zhang L, Li Y, Liu Q, Ou S. Efficacy and safety of intradialytic exercise in haemodialysis patients: a systematic review and meta-analysis. BMJ Open. 2019 Jan 21;9(1):e020633. doi: 10.1136/bmjopen-2017-020633. PubMed PMID: 30670499; PubMed Central PMCID: PMC6347951.

55. Rhee SY, Song JK, Hong SC, Choi JW, Jeon HJ, Shin DH, Ji EH, Choi EH, Lee J, Kim A, Choi SW, Oh J. Intradialytic exercise improves physical function and reduces intradialytic hypotension and depression in hemodialysis patients. Korean J Intern Med. 2019 May;34(3):588-598. doi: 10.3904/kjim.2017.020. Epub 2017 Aug 25. PubMed PMID: 28838226; PubMed Central PMCID: PMC6506736.

56. Salhab N, Alrukhaimi M, Kooman J, Fiaccadori E, Aljubori H, Rizk R, Karavetian M. Effect of Intradialytic Exercise on Hyperphosphatemia and Malnutrition. Nutrients. 2019 Oct 15;11(10). pii: E2464. doi: 10.3390/nu11102464. PubMed PMID: 31618888; PubMed Central PMCID: PMC6836201.

57. Salhab N, Karavetian M, Kooman J, Fiaccadori E, El Khoury CF. Effects of intradialytic aerobic exercise on hemodialysis patients: a systematic review and meta-analysis. J Nephrol. 2019 Aug;32(4):549-566. doi: 10.1007/s40620-018-00565-z. Epub 2019 Jan 18. Review. PubMed PMID: 30659520; PubMed Central PMCID: PMC6588711.

58. Segura-Ortí E, García-Testal A. Intradialytic virtual reality exercise: Increasing physical activity through technology. Semin Dial. 2019 Jul;32(4):331-335. doi: 10.1111/sdi.12788. Epub 2019 Mar 27. PubMed PMID: 30916415.

59. Sheshadri A, Kittiskulnam P, Lazar AA, Johansen KL. A Walking Intervention to Increase Weekly Steps in Dialysis Patients: A Pilot Randomized Controlled Trial. Am J Kidney Dis. 2019 Oct 31. pii: S0272-6386(19)31006-6. doi: 10.1053/j.ajkd.2019.07.026. [Epub ahead of print] PubMed PMID: 31679747.

60. Shie JR, Chen TY, Kao CW. [The Effect of Exercise Training on Heart Rate Variability in Patients With Hemodialysis: A Systematic Review]. Hu Li Za Zhi. 2019 Feb;66(1):70-83. doi: 10.6224/JN.201902_66(1).09. Chinese. PubMed PMID: 30648247.

61. Silva-Filho A, Azoubel LA, Barroso RF, Carneiro E, Dias-Filho CAA, Ribeiro RM, Garcia AMC, Dias CJ, Rodrigues B, Mostarda CT. A Case-control Study ofExercise and Kidney Disease: Hemodialysis and Transplantation. Int J Sports Med. 2019 Mar;40(3):209-217. doi: 10.1055/a-0810-8583. Epub 2019 Jan 31. PubMed PMID: 30703844.

62. Suhardjono, Umami V, Tedjasukmana D, Setiati S. The effect of intradialytic exercise twice a week on the physical capacity, inflammation, and nutritional status of dialysis patients: A randomized controlled trial. Hemodial Int. 2019 Oct;23(4):486-493. doi: 10.1111/hdi.12764. Epub 2019 May 17. PubMed PMID: 31100199.

63. Sutherland S, Penfold R, Doherty A, Milne Z, Dawes H, Pugh C, Boulton M, Newton JL. A cross-sectional study exploring levels of physical activity and motivators and barriers towards physical activity in haemodialysis patients to inform intervention development. Disabil Rehabil. 2019 Oct 24:1-7. doi: 10.1080/09638288.2019.1672214. [Epub ahead of print] PubMed PMID: 31646910.

64. Torino C, Raso FM, van Saase JLCM, Panuccio V, Tripepi R, Vilasi A, Postorino M, Tripepi G, Mallamaci F, Zoccali C. Physical functioning and mortality in very old patients on dialysis. Arch Gerontol Geriatr. 2019 Nov - Dec;85:103918. doi: 10.1016/j.archger.2019.103918. Epub 2019 Jul 27. PubMed PMID: 31376743.

65. Torres E, Aragoncillo I, Moreno J, Vega A, Abad S, García-Prieto A, Macias N, Hernandez A, Godino MT, Luño J. Exercise training during hemodialysis sessions: Physical and biochemical benefits. Ther Apher Dial. 2019 Dec 30. doi: 10.1111/1744-9987.13469. [Epub ahead of print] PubMed PMID: 31886624.

66. Viana JL, Martins P, Parker K, Madero M, Pérez Grovas H, Anding K, Degenhardt S, Gabrys I, Raugust S, West C, Cowan TE, Wilund KR. Sustained exercise programs for hemodialysis patients: The characteristics of successful approaches in Portugal, Canada, Mexico, and Germany. Semin Dial. 2019 Jul;32(4):320-330. doi: 10.1111/sdi.12814. Epub 2019 May 13. PubMed PMID: 31087375.

67. Wang XX, Lin ZH, Wang Y, Xu MC, Kang ZM, Zeng W, Ma YC. Motivators for and barriers to exercise rehabilitation in hemodialysis centers: A multicenter cross-sectional survey. Am J Phys Med Rehabil. 2019 Dec 6. doi: 10.1097/PHM.0000000000001360. [Epub ahead of print] PubMed PMID: 31851009.

68. Wilschut ED, Rotmans JI, Bos EJ, van Zoest D, Eefting D, Hamming JF, van der Bogt KEA. Supervised preoperative forearm exercise to increase blood vessel diameter in patients requiring an arteriovenous access for hemodialysis: rationale and design of the PINCH trial. J Vasc Access. 2018 Jan;19(1):84-88. doi: 10.5301/jva.5000826. PubMed PMID: 29148008.

69. Wilund KR, Jeong JH, Greenwood SA. Addressing myths about exercise in hemodialysis patients. Semin Dial. 2019 Jul;32(4):297-302. doi: 10.1111/sdi.12815. Epub 2019 Apr 25. PubMed PMID: 31025450.

70. Young HML, Orme MW, Song Y, Dungey M, Burton JO, Smith AC, Singh SJ. Standardising the measurement of physical activity in people receiving haemodialysis: considerations for research and practice. BMC Nephrol. 2019 Dec 4;20(1):450. doi: 10.1186/s12882-019-1634-

1. PubMed PMID: 31801480; PubMed Central PMCID: PMC6894215.

71. Zelko A, Skoumalova I, Kolarcik P, Rosenberger J, Rabajdova M, Marekova M, Geckova AM, van Dijk JP, Reijneveld SA; NEPHRO-team. The effects of intradialytic resistance training on muscle strength, psychological well-being, clinical outcomes and circulatory micro-ribonucleic acid profiles in haemodialysis patients: Protocol for a quasi-experimental study. Medicine (Baltimore). 2019 May;98(19):e15570. doi: 10.1097/MD.0000000000015570. PubMed PMID:31083229; PubMed Central PMCID: PMC6531031.