

THE SCIENTIFIC EVIDENCE BEHIND “11 for Health in Denmark” and “FIT FIRST 10”
50 peer-reviewed scientific articles on school children published from 2013-2026

Prof Peter Krstrup and research group

2013: **2**; 2014: **4**, 2016: **6**, 2017: **4**, 2018: **7**, 2019: **2** 2020: **3**,
2021: **2**, 2022: **3**, 2023: **1**, 2024: **4**, 2025: **10**, 2026: **1**

1. Hansen PR, Andersen LJ, Rebelo AN, Brito J, Hornstrup T, Schmidt JF, Jackman SR, Mota J, Rêgo C, Oliveira J, Seabra A, Krstrup P (2013). Cardiovascular effects of 3 months of football training in overweight children examined by comprehensive echocardiography: a pilot study. *J Sports Sci.* 31(13):1432-40. <https://www.ncbi.nlm.nih.gov/pubmed/23829576>
2. Bendiksen M, Ahler T, Clausen H, Wedderkopp N, Krstrup P (2013). The use of Yo-Yo intermittent recovery level 1 and Andersen testing for fitness and maximal heart rate assessments of 6- to 10-year-old school children. *J Strength Cond Res.* 27(6): 1583-1590. <https://www.ncbi.nlm.nih.gov/pubmed/22964860>
3. Bendiksen M, Williams CA, Hornstrup T, Clausen H, Kloppenborg J, Shumikhin D, Brito J, Horton J, Barene S, Jackman SR, Krstrup P (2014). Heart rate response and fitness effects of various types of physical education for 8- to 9-year-old school children. *Eur J Sport Sci.* 14(8):861-869. <https://www.tandfonline.com/doi/full/10.1080/17461391.2014.884168>
4. Krstrup P, Hansen PR, Nielsen CM, Larsen MN, Randers MB, Manniche V, Hansen L, Dvorak J, Bangsbo J (2014). Structural and functional cardiac adaptations to a 10-week school-based football intervention for 9-10-year-old children. *Scand J Med Sci Sports* 24(S1):4-9. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/sms.12277>
5. Seabra A, Seabra AF, Brito J, Krstrup P, Hansen PR, Mota J, Rebelo A, Rego C, Malina RM (2014). Effects of a 5-month football program on perceived psychological status and body composition of overweight boys. *Scand J Med Sci Sports* 24(S1): 10-16. <https://onlinelibrary.wiley.com/doi/pdf/10.1111/sms.12268>
6. Randers MB, Andersen TB, Rasmussen LS, Larsen MN, Krstrup P (2014). Effect of game format on heart rate, activity profile, and player involvement in elite and recreational youth players. *Scand J Med Sci Sports* 24(S1): 17-26. <https://onlinelibrary.wiley.com/doi/pdf/10.1111/sms.12255>
7. Fernandes L, Krstrup P, Silva G, Rebelo A, Oliveira J, Brito J (2016). Yo-Yo Intermittent Endurance Test-Level 1 to monitor changes in aerobic fitness in pre-pubertal boys. *Eur J Sport Sci.* 16(2): 159-164. <https://www.ncbi.nlm.nih.gov/pubmed/25611184>
8. Póvoas SCA, Castagna C, Soares JMC, Silva P, Coelho-E-Silva MJ, Matos F, Krstrup P (2016). Reliability and construct validity of Yo-Yo tests in untrained and soccer-trained school-girls aged 9-16. *Pediatric Exercise Science*, 28(2), 321-330. <https://www.ncbi.nlm.nih.gov/pubmed/26694833>
9. Ørntoft C, Larsen MN, Andersen TB, Rasmussen LS, Póvoas SC, Randers MB, Krstrup P (2016). Technical actions, heart rate and locomotor activity in 7v7 and 8v8 games for female youth soccer players. *J Strength and Conditioning Research* 30(12):3298-3303. <https://insights.ovid.com/crossref?an=00124278-201612000-00004>
10. Ørntoft C, Fuller C, Larsen MN, Bangsbo J, Dvorak J, Krstrup P (2016). "FIFA 11 for Health" in Europe. II: Effect on health markers and physical fitness in Danish school children aged 10-12 years. *Br J Sports Med* 50(22):

1394-1399. <https://bjsm.bmj.com/content/bjsports/50/22/1394.full.pdf>

11. Krstrup P, Dvorak J, Bangsbo J (2016). Small-sided football in schools and leisure-time sport clubs improves physical fitness, health profile, wellbeing and learning of children. *Br J Sports Med* 50(19): 1166-1167. <https://bjsm.bmj.com/content/50/19/1166.long>
12. Geertsen SS, Thomas R, Larsen MN, Dahn IM, Andersen JN, Krause-Jensen M, Korup V, Nielsen CM, Wienicke J, Ritz C, Krstrup P, Lundbye-Jensen J (2016). Motor skills and exercise capacity are associated with objective measures of cognitive functions and academic performance in preadolescent children. *European PLoS One* 11(8):e0161960. <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0161960&type=printable>
13. Fuller C, Ørntoft C, Larsen MN, Elbe AM, Ottesen L, Junge A, Dvorak J, Krstrup, P (2017). "FIFA 11 for Health" for Europe. I: Effect on health knowledge and wellbeing of 10- to 12-year-old Danish schoolchildren. *Br J Sports Med* 51(20):1483-1488. <https://bjsm.bmj.com/content/bjsports/51/20/1483.full.pdf>
14. Elbe AM, Wikman J, Zheng M, Larsen MN, Nielsen G, Krstrup P (2017). The importance of cohesion and enjoyment for the fitness improvement of 8-10-year-old children participating in a team and individual sport school-based physical activity intervention. *Eur J Sport Sci* 17(3):343-350. <https://www.tandfonline.com/doi/full/10.1080/17461391.2016.1260641>
15. Larsen MN, Nielsen CM, Ørntoft C, Randers MB, Manniche V, Hansen L, Hansen PR, Bangsbo J, Krstrup P (2017). Physical Fitness and Body Composition in 8-10-Year-Old Danish Children Are Associated With Sports Club Participation. *J Strength Cond Res.* 31(12):3425-3434. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5704664/pdf/jscr-31-3425.pdf>
16. Larsen MN, Nielsen CM, Ørntoft C, Randers MB, Helge EW, Madsen M, Manniche V, Hansen L, Hansen PR, Bangsbo J, Krstrup P (2017). Fitness Effects of 10-Month Frequent Low-Volume Ball Game Training or Interval Running for 8-10-Year-Old School Children. *Biomed Res Int* 2017:2719752. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5704664/pdf/jscr-31-3425.pdf>
17. Larsen MN, Nielsen CM, Helge EW, Madsen M, Manniche V, Hansen L, Hansen PR, Bangsbo J, Krstrup P (2018). Positive effects on bone mineralisation and muscular fitness after 10 months of intense school-based physical training for children aged 8-10 years: the FIT FIRST randomised controlled trial. *Br J Sports Med.* 52(4):254-260. <https://bjsm.bmj.com/content/bjsports/52/4/254.full.pdf>

18. Ørntoft C, Larsen MN, Madsen M, Sandager L, Lundager I, Møller A, Hansen L, Madsen EE, Elbe AM, Ottesen L, Krstrup P (2018). Physical Fitness and Body Composition in 10-12-Year-Old Danish Children in Relation to Leisure-Time Club-Based Sporting Activities. *Biomed Res Int.* 2018;9807569. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6327252/pdf/BMRI2018-9807569.pdf>
19. Vlachopoulos D, Barker AR, Ubago-Guisado E, Ortega FB, Krstrup P, Metcalf B, Castro Pinero J, Ruiz JR, Knapp KM, Williams CA, Moreno LA, Gracia-Marco L. The effect of 12-month participation in osteogenic and non-osteogenic sports on bone development in adolescent male athletes (2018). *The PRO- BONE study. J Sci Med Sport.* Apr;21(4):404-409. [https://www.jsams.org/article/S1440-2440\(17\)31023-X/pdf](https://www.jsams.org/article/S1440-2440(17)31023-X/pdf)
20. Larsen MN, Nielsen CM, Madsen M, Manniche V, Hansen L, Bangsbo J, Krstrup P, Hansen PR (2018). Cardiovascular adaptations after 10 months of intense school-based physical training for 8- to 10-year-old children. *Scand J Med Sci Sports* 28(S1):33-41. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/sms.13253>
21. Lind RR, Geertsen SS, Ørntoft C, Madsen M, Larsen MN, Dvorak J, Ritz C, Krstrup P (2018). Improved cognitive performance in preadolescent Danish children after the school-based physical activity programme "FIFA 11 for Health" for Europe - A cluster-randomised controlled trial. *Eur J Sport Sci.* 18(1):130-139. <https://www.tandfonline.com/doi/pdf/10.1080/17461391.2017.1394369>
22. Skoradal MB, Purkhús E, Steinholt H, Olsen MH, Ørntoft C, Larsen MN, Dvorak J, Mohr M, and Krstrup P (2018). 'FIFA 11 for Health' for Europe in the Faroe Islands: Effects on health markers and physical fitness in 10- to 12-year-old schoolchildren. *Scand J Med Sci Sports* 28(S1): 8-17. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/sms.13209>
23. Póvoas, S, Randers, M, Krstrup P, Larsen MN, Pereira R, Castagna C (2018). Heart rate and perceived experience differ markedly for children in same- versus mixed-gender soccer played as small- and large-sided games. *BioMed Research International* 2018:7804642. <http://downloads.hindawi.com/journals/bmri/2018/7804642.pdf>
24. Lind RR, Beck MM, Wikman J, Malarski K, Krstrup P, Lundbye-Jensen J, Geertsen SS (2019). Acute high-intensity football games can improve children's inhibitory control and neurophysiological measures of attention. *Scand J Med Sci Sports* (10):1546-1562. <https://onlinelibrary.wiley.com/doi/pdf/10.1111/sms.13485>
25. Ring-Dimitriou S, Krstrup P, Coelho-E-Silva MJ, Mota J, Seabra A, Rego C, Mazur A, Vlachopapa-dopoulou E, Caroli M, Frelut ML, Erhardt E, Forslund A, Boyland E, Weghuber D, Thivel D (2019). Could sport be part of pediatric obesity prevention and treatment? Expert conclusions from the 28th European Childhood Obesity Group Congress. *J Sport Health Sci* 8(4):350-352. <https://www.sciencedirect.com/science/article/pii/S2095254619300079?via%3Dihub>
26. Larsen M, Madsen M, Nilesen C, Manniche V, Hansen L, Bangsbo J, Krstrup P, Hansen P (2020). *Cardiovascular adaptations after 10 months of daily 12-min bouts of intense school-based physical training for 8–10-year-old children.* *Progress in Cardiovascular Diseases:* 10.1016/j.pcad.2020.05.011 <https://www.sciencedirect.com/science/article/pii/S0033062020301195?casa>
27. Madsen M, Elbe A, Madsen E, Ermidis G, Ryom K, Wikman J, Lind R, Larsen M, Krstrup P (2020). *The "11 for Health in Denmark" intervention in 10- to 12-year-old Danish girls and boys and its effects on well-being—A large-scale cluster RCT.* *Scandinavian Journal of Medicine and Science in Sports.* 10.1111/sms.13704 https://onlinelibrary.wiley.com/doi/full/10.1111/sms.13704?casa_token=1RVdIUUV649AAAAAA%3Avfy1Fef6X9zKGuTUK-QdY21pDEvLlqdpBR7I9t5IC2CaWTLikSn6c_seuXqxcuPEc9yNowqKrJ-mRifew

28. Madsen M, Larsen M, Cyril R, Møller T, Madsen E, Ørntoft C, Lind R, Ryom K, Christiansen S, Wikman J, Elbe A, Krstrup, P (2020). *Well-Being, Physical Fitness, and Health Profile of 2,203 Danish Girls Aged 10-12 in Relation to Leisure-time Sports Club Activity-With Special Emphasis on the Five Most Popular Sports*. Journal of Strength and Conditioning Research. https://findresearcher.sdu.dk:8443/ws/files/173379836/Mads_Madsen_PhD_thesis_Revision_FINAL_version_4_27072020_uden_artikler_1_.pdf
29. Larsen M, Elbe A, Madsen M, Madsen E, Ørntoft C, Ryom K, Dvorak J, Krstrup P (2021). An 11-week school-based 'health education through football programme' improves health knowledge related to hygiene, nutrition, physical activity and well-being—and it's fun! A scaled-up, cluster-RCT with over 3000 Danish school children aged 10–12 years old. *British Journal of Sports Medicine* 55:906-911. <https://bjsm.bmj.com/content/early/2021/01/27/bjsports-2020-103097.abstract>
30. Madsen EE, Elbe A, Krstrup P, Larsen C, Larsen M, Madsen M, Hansen T (2021). Translation and content validation of the trans-contextual model questionnaire battery and development of a web-based version for 10-to-12-year-old Danish schoolchildren Cogent Education. Accepted Sep 05, 2021. <https://doi.org/10.1080/2331186X.2021.1978623>
31. Madsen EE, Krstrup P, Møller TK, Hansen T, Larsen MN, Madsen M, Hansen, Elbe AM, Larsen CH (2022). Implementation facilitation of the "11 for Health in Denmark": A case study in a Danish 5th grade class. *SJMSS* 32(1): 152-164. <https://onlinelibrary.wiley.com/doi/10.1111/sms.14069>
32. Madsen EE, Krstrup, Hansen T, Aggestrup CS, Ntoumanis N, Larsen MN, Pfeffer K, Ivarsson A, Ryom K, Larsen CH, Madsen JE, Madsen M, Elbe AM (2022). Motivational predictors of children's involvement in out-of-school activities: An application of a football program. *SJMSS*, online, <https://onlinelibrary.wiley.com/doi/full/10.1111/sms.14236>
33. Ryom K, Christiansen SR, Elbe AM, Aggestrup CS, Madsen EE., Madsen M, Krstrup (2022). The Danish "11 for Health" program raises health knowledge, well-being, and fitness in ethnic minority 10-to 12-year-olds. *Scandinavian Journal of Medicine & Science in Sports*, 32(1), 138-151. <https://pubmed.ncbi.nlm.nih.gov/34555200/>
34. Larsen MN, Terracciano A, Møller TK, Aggestrup CS, Buono P, Krstrup P, Castagna C. An 11-week school-based "health education through football" programme improves musculoskeletal variables in 10-12-yr-old Danish school children. *Bone Rep.* 2023 Apr 29;18:101681. doi: 10.1016/j.bonr.2023.101681. PMID: 37187574; PMCID: PMC10176027.
35. Møller TK, Larsen MN, Pfeffer K, Frydenlund SE, Ntoumanis N, Krstrup P. The effects of a combined physical activity and health education program on health knowledge and well-being of socially vulnerable children. *Scand J Med Sci Sports.* 2024 Apr;34(4):e14606. doi: 10.1111/sms.14606. PMID: 38545956.
36. Olsen HW, Sjúrdarson T, Danielsen BB, Krstrup P, Larsen MN, Skoradal MB, Mohr M. A 10-week implementation of the FIT FIRST FOR ALL school-based physical activity concept effectively improves cardiorespiratory fitness and body composition in 7-16-year-old schoolchildren. *Front Public Health.* 2024 Jul 17;12:1419824. doi: 10.3389/fpubh.2024.1419824. PMID: 39086810; PMCID: PMC11288947.
37. Møller TK, Krstrup P, Brønd JC, Geiker NRW, Larsen MN. Essential Improvements in Fat Percentage and Cardiometabolic Fitness After a Residential Stay for Socially Vulnerable Children-With and Without the "11 for Health" Concept. *Pediatr Exerc Sci.* 2024 Sep 18;37(3):239-251. doi: 10.1123/pes.2023-0137. PMID: 39293790.
38. Thomsen LT, Schmidt-Persson J, Damsgaard CT, Krstrup P, Grøntved A, Krølnér RF, Nielsen G, Lundbye-Jensen J, Skovgaard T, Mølgaard C, Hansen ABG, Hoeg D, Larsen MN, Lund L, Melby PS, Pedersen NH, Troelsen J,

- Nordsborg NB, Toft U. Generation Healthy Kids: Protocol for a cluster-randomized controlled trial of a multi-component and multi-setting intervention to promote healthy weight and wellbeing in 6-11-year-old children in Denmark. *PLoS One*. 2024 Dec 5;19(12):e0308142. doi: 10.1371/journal.pone.0308142.
39. Koch S, Eckert C, Ntoumanis N, Thøgersen-Ntoumani C, Cimenti C, Larsen MN, Krstrup P, Skov Christiansen LB. The FIT FIRST 10 dose-response study: evaluation of implementation outcomes. *Front Sports Act Living*. 2025 Feb 3;7:1504494. doi: 10.3389/fspor.2025.1504494.
 40. Olsen HW, Danielsen BB, Sjúrdarson T, Antoft S, Krstrup P, Larsen MN, Mohr M, Davidsen AH, Skoradal MB. Health-related quality of life findings from the Faroe Islands FIT FIRST FOR ALL school-based physical activity study. *Front Sports Act Living*. 2025 Jun 25;7:1533723. doi: 10.3389/fspor.2025.1533723. PMID: 40636892; PMCID: PMC12239095.
 41. Meiner CB, Eckert C, Aggestrup CS, Pfeffer K, Koch S, Thøgersen-Ntoumani C, Ntoumanis N, Krstrup P, Larsen MN. FIT FIRST teen - a cluster RCT evaluating the effects of a 10-week high-intensity exercise intervention for 12-15-yr-old school children. *J Sports Sci*. 2025 Aug;43(15):1480-1489. doi: 10.1080/02640414.2025.2505380.
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 43. Meiner CB, Eckert C, Aggestrup CS, Pfeffer K, Tarantino G, Prsak C, Cimenti C, Thøgersen-Ntoumani C, Ntoumanis N, Krstrup P, Larsen MN. Superior health-related physical fitness and well-being in 12-15-year-old Danish adolescents who are active in organized leisure-time sports - a cross-sectional study. *PLoS One*. 2025 Sep 8;20(9):e0330950. doi: 10.1371/journal.pone.0330950.
 44. Lind RR, Andersen TR, Beck MM, Madsen M, Madsen EE, Lundbye-Jensen J, Geertsen SS, Krstrup P, Larsen MN. The influence of physical, psychological and sociocultural factors on cognitive performance: A nationwide cross-sectional analysis in 10-12-year-old Danish children. *Early Hum Dev*. 2025 Oct;209:106339. doi: 10.1016/j.earlhumdev.2025.106339. Epub 2025 Jul 11. PMID: 40669100.
 45. Pfeffer K, Larsen MN, Laursen MG, Hamborg TG, Heidler J, Ryom K, Krstrup P, Ntoumanis N. Developing a checklist to assess fidelity of training and treatment delivery of 11 for Health, a football-based health education intervention for youth. *Br J Health Psychol*. 2025 Nov;30(4):e70032. doi: 10.1111/bjhp.70032. PMID: 41157906.
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50. Pfeffer K, Nejst Larsen M, Cimenti C, Krstrup P, Ntoumanis N. Using the behaviour change intervention ontology to examine the inclusion, delivery and experience of behaviour change techniques in a youth health promotion programme. *J Health Psychol*. 2026 Jan 30:13591053251408386. doi: 10.1177/13591053251408386.