Alternative Special Topics:

Innovations in Practice

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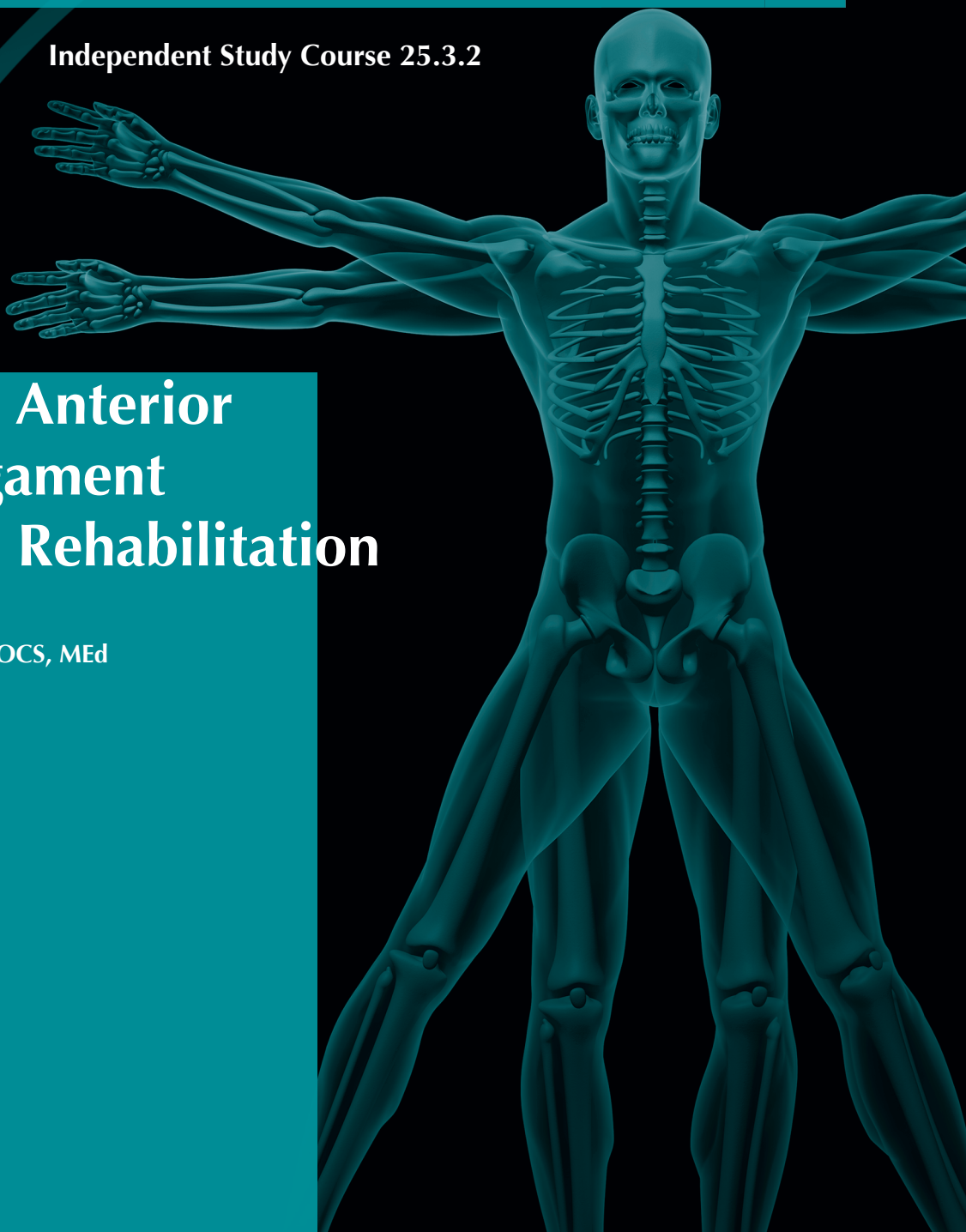

Advances in Anterior Cruciate Ligament Surgery and Rehabilitation

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CONTINUING PHYSICAL THERAPY EDUCATION
ORTHOPAEDIC SECTION
AMERICAN PHYSICAL THERAPY ASSOCIATION
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REFERENCES

1. Wilk KE, Macrina LC, Cain EL, Dugas JR, Andrews JR. Recent advances in the rehabilitation of anterior cruciate ligament injuries. *J Orthop Sports Phys Ther*. 2012;42(3):153-163. doi: 10.2519/jospt.2012.3741.
2. Mather III RC, Koenig L, Kocher MS, et al. Societal and economic impact of anterior cruciate ligament tears. *J Bone Joint Surg Am*. 2013;95:1751-1759. doi: 10.2106/JBJS.L.01705.
3. Hewett TE, Ford KR, Hoogenboom BJ, Myer GD. Understanding and preventing ACL injuries: current biomechanical and epidemiological considerations-update 2010. *N Am J Sports Phys Ther.* 2010;5(4):234-251.
4. Alentorn-Geli E1, Mendiguchía J, Samuelsson K, et al. Prevention of non-contact anterior cruciate ligament injuries in sports. Part II: systematic review of the effectiveness of prevention programmes in male athletes. *Knee Surg Sports Traumatol Arthrosc*. 2014;22(1):16-25. doi: 10.1007/s00167-013-2739-x.
5. Shultz SJ, Schmitz RJ, Benjaminse A, Chaudhari AM, Collins M, Padua DA. ACL research retreat VI: an update on ACL injury risk and prevention. *J Athl Train*. 2012;47(5):591-603. doi: 10.4085/1062-6050-47.5.13.
6. Kobayashi H, Kanamura T, Koshida S, et al. Mechanisms of the anterior cruciate ligament injury in sports activities: a twenty year clinical research of 1700 athletes. *J Sports Sci Med*. 2010;(9):669-675.
7. Nandra R, Najran P, Matharu GS, Porter K, Ashraf T, Greaves I. A review of anterior cruciate ligament injuries and reconstructive techniques. Part I: basic science. *Trauma*. 2013;15(2):107–115.
8. Wild CY, Steele JR, Munro BJ. Why do girls sustain more anterior cruciate ligament injuries than boys? A review of the changes in estrogen and musculoskeletal structure and function during puberty. *Sports Med*. 2012;42(9):734-746. doi: 10.2165/11632800-000000000-00000.
9. Arliani GG, Astur DC, Moraes ER. Three dimensional anatomy of the anterior cruciate ligament: a new approach in anatomical orthopedic studies and a literature review. *Open Access J Sports Med*. 2012;(3):183–188. doi: 10.2147/OAJSM.S37203.
10. Duthon VB, Barea C, Abrassart S, Fasel JH, Fritschy D, Menetrey J. Anatomy of the anterior cruciate ligament. *Knee Surg Sports Traumatol Arthrosc*. 2006;14:204-213.
11. Davidson J. Time NewsFeed. Your Knee Bone's Connected to Your…What? Scientists Discover New Body Part. You'd think we'd know basic

anatomy by 2013. Available at: http://newsfeed.time.com/2013/11/06/your-knee-bones-connected-to-your-what-scientists-discover-new-body-part. November 2013.
12. Medical Press. Orthopaedic surgeon says anterolateral ligament not "new" but promising for ACL injuries. Available at: http://medicalxpress.com/news/2013-11-orthopaedic-surgeon-anterolateral-ligament-ACL.html. Accessed January 2014.
13. Liu-Ambrose T. The anterior cruciate ligament and functional stability of the knee joint. *BCMJ*. 2003;45(10):495-499.
14. Patel SA, Hageman J, Quatman CE, Wordeman SC, Hewett TE. Prevalence and location of bone bruises associated with anterior cruciate ligament injury and implications for mechanism of injury: a systematic review. *Sports Med*. 2014;44(2):281-293. doi: 10.1007/s40279-013-0116-z.
15. Boden BP, Sheehan FT, Torg JS, Hewett TE. Non-contact ACL injuries: Mechanisms and risk factors. *J Am Acad Orthop Surg*. 2010;18(9):520–527.
16. Wall SJ, Rose DM, Sutter EG, Belkoff SM, Boden BP. The role of axial compressive and quadriceps forces in noncontact anterior cruciate ligament injury: a cadaveric study. *Am J Sports Med.* 2012;40(3):568-573. doi: 10.1177/0363546511430204.
17. Gulcan Harput, A, Soylu R, Ertan H, Ergun N, Mattacola, CG. Effect of gender on quadriceps-to-hamstrings coactivation ratio during different exercises. *J Sport Rehabil.* 2014;(23):36-43. doi: 10.1123/jsr.2012-0120.
18. Ali N, Rouhi G, Robertson G. Gender, Vertical Height and Horizontal Distance Effects on Single-Leg Landing Kinematics: Implications for Risk of non-contact ACL injury. *J Hum Kinet.* 2013;(37):27-38. doi: 10.2478/hukin-2013-0022.
19. Lipps DB, Wojtys EM, Ashton-Miller JA. Anterior cruciate ligament fatigue failures in knees subjected to repeated simulated pivot landings. *Am J Sports Med*. 2013;41(5):1058-1066. doi: 10.1177/0363546513477836.
20. Iguchi J, Tateuchi H, Taniguchi M, Ichihashi N. The effect of sex and fatigue on lower limb kinematics, kinetics, and muscle activity during unanticipated side-step cutting. *Knee Surg Sports Traumatol Arthrosc*. 2014;22(1):41-48. doi: 10.1007/s00167-013-2526-8.
21. Koga H, Nakamae A, Shima Y, et al. Mechanisms for noncontact anterior cruciate ligament injuries knee joint kinematics in 10 injury situations from female team handball and basketball. *Am J Sports Med*. 2010;38(11):2218-2225. doi: 10.1177/0363546510373570.
22. Quatman CE, Kiapour AM, Demetropoulos CK, et al. Preferential loading of the ACL compared with the MCL during landing. *Am J Sports Med.* 2014;42(1):177-186. doi: 10.1177/0363546513506558.
23. Beynnon BD, Vacek PM, Sturnick DR, et al. Geometric profile of the tibial plateau cartilage surface is associated with the risk of non-contact anterior cruciate ligament injury. *J Orthop Res*. 2014;32(1):61-68. doi: 10.1002/jor.22434.
24. Medina McKeon JM, Hertel J. Sex differences and representative values for 6 lower extremity alignment measures. *J Athl Train*. 2009;44(3):249–255. doi: 10.4085/1062-6050-44.3.249.
25. Bell RD, Shultz SJ, Wideman L, Henrich VC. Collagen gene variants previously associated with anterior cruciate ligament injury risk are also associated with joint laxity. *Sports Health*. 2012;4(4):312–318.
26. Stepien-Słodkowska M, Ficek K, Eider J, et al. The +1245G/T polymorphisms in the collagen type i alpha 1 (col1a1) gene in polish skiers with anterior cruciate ligament injury. *Biol Sport*. Mar 2013;30(1):57-60. doi: 10.5604/20831862.1029823.
27. Ficek K, Cieszcyk P, Kaczmarczyk M, et al. Gene variants within the COL1A1 gene are associated with reduced anterior cruciate ligament injury in professional soccer players. *J Sci Med Sport*. 2013;16(5):396-400. doi: 10.1016/j.jsams.2012.10.004.
28. Lee H, Petrofsky JS, Daher N, Berk L, Laymon M, Khowailed IA. Anterior cruciate ligament elasticity and force for flexion during the menstrual cycle. *Med Sci Monit*. 2013;19:1080-1088. doi: 10.12659/MSM.889393.
29. Bell DR, Blackburn JT, Hackney AC, Marshall SW, Beutler AI, Padua DA. Jump-landing biomechanics and knee-laxity change across the menstrual cycle in women with anterior cruciate ligament reconstruction. *J Athl Train.* 2014;49(2):154-162. doi: 10.4085/1062-6050-49.2.01.
30. Hewett TE, Di Stasi SL, Myer GD. Current concepts for injury prevention in athletes after anterior cruciate ligament reconstruction. *Am J Sports Med*. 2013;41:216-224. doi: 10.1177/0363546512459638.
31. Padua DA, Boling MC, DiStefano LJ, et al. Reliability of the landing error scoring system-real time, a clinical assessment tool of jump-landing biomechanics. *Journal of Sport Rehabilitation*. 2011;20:145-156.
32. Myer GD, Ford KR, Hewett TE. Tuck jump assessment for reducing anterior cruciate ligament injury risk. *Athl Ther Today*. 2008;13(5):39–44.

33. Dallinga JM, Benjaminse A, Lemmin K. Which screening tools can predict injury to the lower extremities in team sports? A systematic review. *Sports Med.* 2012;42 (9):791-815. doi: 10.2165/11632730-000000000-00000.
34. Elliot DL, Goldberg L, Kuehl KS. Young women's anterior cruciate ligament injuries an expanded model and prevention paradigm. *Sports Med*. 2010;40 (5):367-376. doi: 10.2165/11531340-000000000-00000.
35. Vescovi JD. The menstrual cycle and anterior cruciate ligament injury risk implications of menstrual cycle variability. *Sports Med* 2011;41(2):91-101. doi: 10.2165/11538570-000000000-00000.
36. Andrews JR, Harrelson GL, Wilk KE. *Rehabilitation of the Injured Athlete*. 4th edition. Philadelphia, PA:Elsevier Health Sciences;2012.
37. Voskanian N. ACL Injury prevention in female athletes: review of the literature and practical considerations in implementing an ACL prevention program. *Curr Rev Musculoskelet Med.* 2013;6:158–163. doi: 10.1007/s12178-013-9158-y.
38. Mulligan EP, Harwell JL, Robertson WJ. Reliability and diagnostic accuracy of the lachman test performed in a prone position. *J Orthop Sports Phys Ther*. 2011; 41(10):749-756. doi: 10.2519/jospt.2011.3761.
39. Wheeless CR. Pivot shift test. Available at: http://www.wheelessonline.com/ortho/pivot_shift_test. Last updated April 30, 2014.
40. Salvi M, Caputo F, Piu G, et al. The loss of extension test (LOE test): a new clinical sign for the anterior cruciate ligament insufficient knee. *J Orthop Traumatol.* 2013;14(3):185-191. doi: 10.1007/s10195-013-0238-y.
41. van Eck C, van den Bekerom MP, Fu FH, Poolman RW, Kerkhoffs GM. Methods to diagnose acute anterior cruciate ligament rupture: a meta-analysis of physical examinations with and without anaesthesia. *Knee Surg Sports Traumatol Arthrosc*. 2013;21(8):1895-1903. doi: 10.1007/s00167-012-2250-9.
42. Borbon CA, Mouzopoulos G, Siebold R. Why perform an ACL augmentation? *Knee Surg Sports Traumatol Arthrosc.* 2012;20:245–251. doi: 10.1007/s00167-011-1565-2.
43. Pittsburgh Decision Rules and Ottawa Knee Rules. Available at: http://www.emra.org/students/advising/_to_sort/pittsburgh-decision-rules-and-ottawa-knee-rules. Accessed February 22, 2014.
44. Singla S, Kansal N. Sensitivity and specificity of MRI versus arthroscopy in internal derangement of knee. *Int J Scientific and Research Publications*. 2013;3(4).
45. Kam CK, Chee DWY, Peh WCG. Magnetic resonance imaging of the cruciate ligaments of the knee. *Canadian Association of Radiologists Journal.* 2010;61:80-89. doi:10.1016/j.carj.2009.11.003
46. Nenezic D, Kocijancic I. The value of the sagittal-oblique MRI technique for injuries of the anterior cruciate ligament in the knee. *Radiol Oncol*. 2013;47(1):19-25. doi: 10.2478/raon-2013-0006.
47. Logerstedtl DS, Snyder-Mackler L, Ritter RC, Axe MJ, Godges JJ. Knee stability and movement coordination impairments: knee ligament sprain clinical practice guidelines linked to the international classification of functioning, disability, and health from the Orthopaedic Section of the American Physical Therapy Association. *J Orthop Sports Phys Ther.* 2010;40(4):1-37.
48. Shindler OS. Surgery for anterior cruciate ligament deficiency: a historical perspective. *Knee Surg Sports Traumatol Arthrosc.* 2012;20(1):5-47. doi: 10.1007/s00167-011-1756-x.
49. Bone patellar bone ACL reconstruction. Wheeless, III, CR. http://www.wheelessonline.com/ortho/bone_patellar_bone_ACL_reconstruction. Accessed May 4, 2012.
50. Logan JS, Elliot RR, Wilson AJ. TransLateral ACL reconstruction: a technique for anatomic anterior cruciate ligament reconstruction. *Knee Surg Sports Traumatol Arthrosc*. 2012;20:1289–1292. doi: 10.1007/s00167-011-1745-0.
51. Mall NA, Van Thiel GS, Bedi A, Cole BJ. Graft selection in anterior cruciate ligament reconstruction. Rush University Medical Center, Department of Orthopaedics, Division of Sports Medicine; University of Michigan, Department of Orthopaedics, MedSport; Rockford Orthopedic Associates, Rockford, IL.
52. Purushothaman R. Graft fixation options in ACL reconstruction. Government Medical College, Kozhikode.
53. Arnold MP, Biedert RM, van Loon C, Hirschmann MT. Isoanatomical bone-patellar tendon-bone single-bundle ACL reconstruction: the wedge that gives the edge! *Eur J Orthop Surg Traumatol*. (2012) 22:77–80. doi:10.1007/s00590-011-0793-y.
54. The Bone School. Hamstring Graft. http://www.boneschool.com/lower-limb/knee/ACL/surgical-techniques/4-strand-hamstring-reconstruction. Accessed September 13, 2014.
55. Prado RK, Ntagiopoulos PG, Fucs PM, Severino NR, Dejour D. A new technique in double-bundle anterior cruciate ligament reconstruction using implant-free femoral fixation. *Int Orthop.* 2012;36:1479–1485. doi: 10.1007/s00264-012-1488-7.

56. Tiamklang T, Sumanont S, Foocharoen T, Laopaiboon M. Double-bundle versus single-bundle reconstruction for anterior cruciate ligament rupture in adults. *Cochrane Database Syst Rev.* 2012;14(11):CD009513.
57. CoLs Classic System (Tape Locking Screw) For a new concept of ACL and pcl knee ligament surgery. 2014 FH Orthopedics. http://www.fhorthopedics.com/knee-ligament-surgery-TLS.html. Accessed September 13, 2014.
58. Ye JX, Shen GS, Zhou HB, et al. Arthroscopic reconstruction of the anterior cruciate ligament with the LARS artificial ligament: thirty-six to fifty-two months follow-up study. *Eur Rev Med Pharmacol Sci*. 2013;17:1438-1446.
59. Borbon CA, Mouzopoulos G, Siebold R. Why perform an ACL augmentation? *Knee Surg Sports Traumatol Arthrosc*. 2012;20:245–251. doi: 10.1007/s00167-011-1565-2.
60. Wagner LR, Thillemann TM, Pedersen AB, Lind M. Comparison of hamstring tendon and patellar tendon grafts in anterior cruciate ligament reconstruction in a nationwide population-based cohort study: results from the Danish registry of knee ligament reconstruction. *Am J Sports Med*. 2014;42:278. doi: 10.1177/0363546513509220.
61. Paterno MV, Weed AM, Hewett TE. A between sex comparison of anterior-posterior knee laxity after anterior cruciate ligament reconstruction with patellar tendon or hamstrings autograft a systematic review. *Sports Med*. 2012;42(2):135-152. doi: 10.2165/11596940-000000000-00000.
62. Mascarenhas R, Tranovich M, Kropf EJ, Fu FH, Harner CD. Bone-patellar tendon-bone autograft versus hamstring autograft anterior cruciate ligament reconstruction in the young athlete: a retrospective matched analysis with 2–10 year follow-up. *Knee Surg Sports Traumatol Arthrosc*. 2012;20:1520–1527. doi: 10.1007/s00167-011-1735-2.
63. van Eck CF, Kopf S, Irrgang JJ, et al. Single-bundle versus double-bundle reconstruction for anterior cruciate ligament rupture: a meta-analysis--does anatomy matter? *Arthroscopy*. 2012;28(3):405-424. doi: 10.1016/j.arthro.2011.11.021.
64. Struijk-Mulder MC, Ettema HB, Verheyen CC, Büller HR. Deep vein thrombosis after arthroscopic anterior cruciate ligament reconstruction: a prospective cohort study of 100 patients. *Arthroscopy*. 2013;29(7):1211-1216. doi: 10.1016/j.arthro.2013.04.015.
65. Maletis GB, Inacio MCS, Reynolds S, et al. Incidence of postoperative anterior cruciate ligament reconstruction infections, graft choice makes a difference. *Am J Sports Med*. 2013;41(8): 1780-1785. doi: 10.1177/0363546513490665.
66. Yong MA,Ying-fang AO, Jia-kuo YU, Ling-hui DAI, Zhen-xing SHAO. Failed anterior cruciate ligament reconstruction: analysis of factors leading to instability after primary surgery. *Chin Med J*. 2013;126(2):280-285.
67. Pereira H, Correlo VM, Silva-Correia J, Oliveira JM, Reis RL, Espregueira-Mendes J. Migration of "bioabsorbable" screws in ACL repair. How much do we know? A systematic review. *Knee Surg Sports Traumatol Arthrosc*. 2013;21(4):986-994. doi: 10.1007/s00167-013-2414-2.
68. Argintar E, Scherer B, Jordan T, Klimkiewicz J. Case reports, transverse femoral implant prominence: four cases demonstrating a preventable complication for ACL reconstruction. *Orthopedics*. 2010;33(12):923. doi: 10.3928/01477447-20101021-29.
69. Piva SR, Childs JD, Klucinec BM, et al. Patella fracture during rehabilitation after bone-patellar tendon-bone anterior cruciate ligament reconstruction: 2 case reports. *J Orthop Sports Phys Ther*. 2009;39(4):278-284. doi: 10.2519/jospt.2009.2864.
70. Dhanda S, Sanghvi D, Pardiwala D. Case Series: Cyclops lesion - extension loss after ACL reconstruction. *Indian J Radiol Imaging*. 2010;20(3):208-210. doi: 10.4103/0971-3026.69361.
71. Ardern CL, Webster KE, Taylor NF, Feller JA. Return to sport following anterior cruciate ligament reconstruction surgery: a systematic review and meta-analysis of the state of play. *Br J Sports Med*. 2011;45:596–606. doi: 10.1136/bjsm.2010.076364.
72. Camillieri G, Di Sanzo V, Ferretti M, Calderaro C, Calvisi V. Patellar tendon ossification after anterior cruciate ligament reconstruction using bone – patellar tendon – bone autograft. *BMC Musculoskeletal Disorders*. 2013;14:164. doi: 10.1186/1471-2474-14-164.
73. Struewer J, Efe T, Frangen TM, et al. Prevalence and influence of tibial tunnel widening after isolated anterior cruciate ligament reconstruction using patella-bone-tendon bone-graft: long-term follow-up. *Orthop Rev* (Pavia). 2012;4(2):e21. doi: 10.4081/or.2012.e21.
74. Culvenor AG, Cook JL, Collins NJ, Crossley KM. Is patellofemoral joint osteoarthritis an under-recognized outcome of anterior cruciate ligament reconstruction? A narrative literature review. *Br J Sports Med*. 2013;47:66-70.
75. Barenius B, Ponzer S, Shalabi A, et al. Increased risk of osteoarthritis after anterior cru-

ciate ligament reconstruction: a 14-year follow-up study of a randomized controlled trial. *Am J Sports Med*. 2014;42(5):1049-1057. doi: 10.1177/0363546514526139.
76. Rahr-Wagner L, Thillemann TM, Pedersen AB, Lind MC. Increased risk of revision after anteromedial compared with transtibial drilling of the femoral tunnel during primary anterior cruciate ligament reconstruction: results from the Danish Knee Ligament Reconstruction Register. *Arthroscopy*. 2013;29(1):98-105. doi: 10.1016/j.arthro.2012.09.009.
77. Vyas D, Rabuck SJ, Harner CD. Allograft anterior cruciate ligament reconstruction: indications, techniques, and outcomes. *J Orthop Sports Phys Ther*. 2012;42(3):194-204. doi: 10.2519/jospt.2012.4083.
78. Meuffels DE, Poldervaart MT, Diercks RL, et al. Guideline on anterior cruciate ligament injury a multidisciplinary review by the Dutch Orthopaedic Association. *Acta Orthop*. 2012;83(4):379–386. doi: 10.3109/17453674.2012.704563.
79. Rizzello G, Longo UG, Petrillo S, et al. Growth factors and stem cells for the management of anterior cruciate ligament tears. *Open Orthop J*. 2012;6:525-530. doi: 10.2174/1874325001206010525.
80. New Treatment for ACL Injuries Using Patient's Own Stem Cells May Be Sports Game Changer. March 6, 2014. www.sporttechie.com. Accessed October 25, 2014.
81. Claes S, Vereecke E, Maes M, et al. Anatomy of the anterolateral ligament of the knee. *J Anat*. 2013;223(4):321-328. doi: 10.1111/joa.12087.
82. Moksnes H, Engebretsen L, Risberg MA. Management of anterior cruciate ligament injuries in skeletally immature individuals. *J Orthop Sports Phys Ther*. 2012;42 (3):172-180. doi: 10.2519/jospt.2012.3608.
83. Al-Hadithy N, Dodds AL, Akhtar KSN, Gupte CM. Current concepts of the management of anterior cruciate ligament injuries in children. *Bone Joint J*. 2013;95-B:1562–1569. doi: 10.1302/0301-620X.95B11.31778.
84. Courvoisier A, Grimaldi M, Plaweski S. Good surgical outcome of transphyseal ACL reconstruction in skeletally immature patients using four-strand hamstring graft. *Knee Surg Sports Traumatol Arthrosc*. 2011;19:588–591. doi: 10.1007/s00167-010-1282-2.
85. Adams D, Logerstedt D, Hunter-Giordano A, Axe MJ, Snyder-Mackle L. Current concepts for anterior cruciate ligament reconstruction: a criterion-based rehabilitation progression. *J Orthop Sports Phys Ther*. 2012;42(7):601-614. doi: 10.2519/jospt.2012.3871.
86. Desai N, Björnsson H, Samuelsson K, Karlsson J, Forssblad M. Outcomes after ACL reconstruction with focus on older patients: results from The Swedish National Anterior Cruciate Ligament Register. *Knee Surg Sports Traumatol Arthrosc*. 2014;22(2):379-386. doi: 10.1007/s00167-013-2803-6.
87. Bizzini M, Hancock D, Impellizzeri F. Suggestions from the field for return to sports participation following anterior cruciate ligament reconstruction: soccer. *J Orthop Sports Phys Ther*. 2012;42(4):304-310. doi: 10.2519/jospt.2012.4005.
88. Janssen R, Scheffler SU. Intra-articular remodeling of hamstring tendon grafts after anterior cruciate ligament reconstruction. *Knee Surg Sports Traumatol Arthrosc*. 2014;22 (9):2102-2108.
89. Saka T. Principles of postoperative anterior cruciate ligament rehabilitation. *World J Orthop*. 2014;5(4):450-459. doi: 10.5312/wjo.v5.i4.450.
90. MacLeod TD, Snyder-Mackler L, Buchanan TS. Differences in neuromuscular control and quadriceps morphology between potential copers and noncopers following anterior cruciate ligament injury. *J Orthop Sports Phys Ther*. 2014;44(2):76-83. doi: 10.2519/jospt.2014.4876.
91. Ladenhauf HN, Graziano J, Marx RG. Anterior cruciate ligament prevention strategies: are they effective in young athletes – current concepts and review of literature. *Curr Opin Pediatr*. 2013;25:64–71. doi: 10.1097/MOP.0b013e32835ad208.
92. Abrams GD, Harris JD, Gupta AK, et al. Functional performance testing after anterior cruciate ligament reconstruction, a systematic review. *Orthop J Sports Med*. 2014;2 (1):1-7.
93. Devgan A, Singh A, Gogna P, Singla R, Magu NK, Mukhopadhyay R. Arthroscopic anatomical double bundle anterior cruciate ligament reconstruction: A prospective longitudinal study. *Indian J Orthop*. 2015;49(2):136-142. doi: 10.4103/0019-5413.152406.
94. Sugimoto D, Myer GD, Micheli LJ, Hewett TE. ABCs of evidence-based anterior cruciate ligament injury prevention strategies in female athletes. *Curr Phys Med Rehabil Rep*. 2015;3(1):43-49.
95. Hägglund M, Waldén M, Thomeé R. Should patients reach certain knee function benchmarks before anterior cruciate ligament reconstruction? Does intense 'prehabilitation' before anterior cruciate ligament reconstruction influence outcome and return to sports? *Br J Sports Med*. 2015

Jun 5. pii: bjsports-2015-094791. doi: 10.1136/bjsports-2015-094791. [Epub ahead of print]
96. Thomeé R, Waldén M, Hägglund M. Return to sports after anterior cruciate ligament injury: neither surgery nor rehabilitation alone guarantees success-it is much more complicated. *Br J Sports Med*. 2015 Jun 5. pii: bjsports-2015-094793. doi: 10.1136/bjsports-2015-094793. [Epub ahead of print]
97. Luo TD, Ashraf A, Dahm DL, Stuart MJ, McIntosh AL. Femoral nerve block is associated with persistent strength deficits at 6 months after anterior cruciate ligament reconstruction in pediatric and adolescent patients. *Am J Sports Med*. 2015;43(2):331-336. doi: 10.1177/0363546514559823. Epub 2014 Dec 2.
98. Månsson O, Sernert N, Rostgard-Christensen L, Kartus J. Long-term clinical and radiographic results after delayed anterior cruciate ligament reconstruction in adolescents. *Am J Sports Med*. 2015;43(1):138-145. doi: 10.1177/0363546514555673. Epub 2014 Nov 10.
99. Gadikota HR, Hosseini A, Asnis P, Li G. Kinematic analysis of five different anterior cruciate ligament reconstruction techniques. *Knee Surg Relat Res*. 2015;27(2):69-75. doi: 10.5792/ksrr.2015.27.2.69. Epub 2015 Jun 1. Review.

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