

Cell Physiology of Exercise

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1.
Lundby, C., Montero, D., Joyner, M.: Biology of VO₂ max: looking under the physiology lamp. *Acta Physiologica*. 220, 218–228 (2017). <https://doi.org/10.1111/apha.12827>.
2.
Ramey, D.W.: How to Read a Scientific Paper. *AAEP PROCEEDINGS* (1999).
3.
BAAR, K.: Training for Endurance and Strength. *Medicine & Science in Sports & Exercise*. 38, 1939–1944 (2006). <https://doi.org/10.1249/01.mss.0000233799.62153.19>.
4.
Baar, K., Hardie, D.G.: Small molecules can have big effects on endurance. *Nature Chemical Biology*. 4, 583–584 (2008). <https://doi.org/10.1038/nchembio1008-583>.
5.
Barrès, R., Yan, J., Egan, B., Treebak, J.T., Rasmussen, M., Fritz, T., Caidahl, K., Krook, A., O’Gorman, D.J., Zierath, J.R.: Acute Exercise Remodels Promoter Methylation in Human Skeletal Muscle. *Cell Metabolism*. 15, 405–411 (2012). <https://doi.org/10.1016/j.cmet.2012.01.001>.
- 6.

Carè, A., Catalucci, D., Felicetti, F., Bonci, D., Addario, A., Gallo, P., Bang, M.-L., Segnalini, P., Gu, Y., Dalton, N.D., Elia, L., Latronico, M.V.G., Høydal, M., Autore, C., Russo, M.A., Dorn, G.W., Ellingsen, Ø., Ruiz-Lozano, P., Peterson, K.L., Croce, C.M., Peschle, C., Condorelli, G.: MicroRNA-133 controls cardiac hypertrophy. *Nature Medicine*. 13, 613–618 (2007). <https://doi.org/10.1038/nm1582>.

7.

Chien, K.R.: Molecular medicine: MicroRNAs and the tell-tale heart. *Nature*. 447, 389–390 (2007). <https://doi.org/10.1038/447389a>.

8.

Eto, Y., Yonekura, K., Sonoda, M., Arai, N., Sata, M., Sugiura, S., Takenaka, K., Gualberto, A., Hixon, M.L., Wagner, M.W., Aoyagi, T.: Calcineurin Is Activated in Rat Hearts With Physiological Left Ventricular Hypertrophy Induced by Voluntary Exercise Training. *Circulation*. 101, 2134–2137 (2000). <https://doi.org/10.1161/01.CIR.101.18.2134>.

9.

Fernandes, T., Baraúna, V.G., Negrão, C.E., Phillips, M.I., Oliveira, E.M.: Aerobic exercise training promotes physiological cardiac remodeling involving a set of microRNAs. *American Journal of Physiology-Heart and Circulatory Physiology*. 309, H543–H552 (2015). <https://doi.org/10.1152/ajpheart.00899.2014>.

10.

Iemitsu, M., Maeda, S., Jesmin, S., Otsuki, T., Kasuya, Y., Miyauchi, T.: Activation pattern of MAPK signaling in the hearts of trained and untrained rats following a single bout of exercise. *Journal of Applied Physiology*. 101, 151–163 (2006). <https://doi.org/10.1152/jappphysiol.00392.2005>.

11.

Maillet, M., van Berlo, J.H., Molkenkin, J.D.: Molecular basis of physiological heart growth: fundamental concepts and new players. *Nature Reviews Molecular Cell Biology*. 14, 38–48 (2013). <https://doi.org/10.1038/nrm3495>.

12.

Wilkins, B.J., Dai, Y.-S., Bueno, O.F., Parsons, S.A., Xu, J., Plank, D.M., Jones, F., Kimball, T.R., Molkenin, J.D.: Calcineurin/NFAT Coupling Participates in Pathological, but not Physiological, Cardiac Hypertrophy. *Circulation Research*. 94, 110–118 (2004). <https://doi.org/10.1161/01.RES.0000109415.17511.18>.

13.

Boluyt, M.O., Brevick, J.L., Rogers, D.S., Randall, M.J., Scalia, A.F., Li, Z.B.: Changes in the rat heart proteome induced by exercise training: Increased abundance of heat shock protein hsp20. *PROTEOMICS*. 6, 3154–3169 (2006). <https://doi.org/10.1002/pmic.200401356>.

14.

Burniston, J.G.: Changes in the rat skeletal muscle proteome induced by moderate-intensity endurance exercise. *Biochimica et Biophysica Acta (BBA) - Proteins and Proteomics*. 1784, 1077–1086 (2008). <https://doi.org/10.1016/j.bbapap.2008.04.007>.

15.

Burniston, J.G.: Adaptation of the rat cardiac proteome in response to intensity-controlled endurance exercise. *PROTEOMICS*. 9, 106–115 (2009). <https://doi.org/10.1002/pmic.200800268>.

16.

Bye, A., Langaas, M., Høydal, M.A., Kemi, O.J., Heinrich, G., Koch, L.G., Britton, S.L., Najjar, S.M., Ellingsen, Ø., Wisløff, U.: Aerobic capacity-dependent differences in cardiac gene expression. *Physiological Genomics*. 33, 100–109 (2008). <https://doi.org/10.1152/physiolgenomics.00269.2007>.

17.

Bye, A., Høydal, M.A., Catalucci, D., Langaas, M., Kemi, O.J., Beisvag, V., Koch, L.G., Britton, S.L., Ellingsen, Ø., Wisløff, U.: Gene expression profiling of skeletal muscle in exercise-trained and sedentary rats with inborn high and low VO. *Physiological Genomics*. 35, 213–221 (2008). <https://doi.org/10.1152/physiolgenomics.90282.2008>.

18.

Iemitsu, M., Maeda, S., Miyauchi, T., Matsuda, M., Tanaka, H.: Gene expression profiling of exercise-induced cardiac hypertrophy in rats. *Acta Physiologica Scandinavica*. 185, 259–270 (2005). <https://doi.org/10.1111/j.1365-201X.2005.01494.x>.

19.

Kong, S.W., Bodyak, N., Yue, P., Liu, Z., Brown, J., Izumo, S., Kang, P.M.: Genetic expression profiles during physiological and pathological cardiac hypertrophy and heart failure in rats. *Physiological Genomics*. 21, 34–42 (2005). <https://doi.org/10.1152/physiolgenomics.00226.2004>.

20.

Diffie, G.M.: Adaptation of Cardiac Myocyte Contractile Properties to Exercise Training. *Exercise and Sport Sciences Reviews*. 32, 112–119 (2004). <https://doi.org/10.1097/00003677-200407000-00007>.

21.

Kemi, O.J., Haram, P.M., Wisløff, U., Ellingsen, Ø.: Aerobic Fitness Is Associated With Cardiomyocyte Contractile Capacity and Endothelial Function in Exercise Training and Detraining. *Circulation*. 109, 2897–2904 (2004). <https://doi.org/10.1161/01.CIR.0000129308.04757.72>.

22.

KEMI, O., HARAM, P., LOENNECHEN, J., OSNES, J., SKOMEDAL, T., WISLOFF, U., ELLINGSEN, O.: Moderate vs. high exercise intensity: Differential effects on aerobic fitness, cardiomyocyte contractility, and endothelial function. *Cardiovascular Research*. 67, 161–172 (2005). <https://doi.org/10.1016/j.cardiores.2005.03.010>.

23.

Kemi, O.J., Ellingsen, Ø., Ceci, M., Grimaldi, S., Smith, G.L., Condorelli, G., Wisløff, U.: Aerobic interval training enhances cardiomyocyte contractility and Ca²⁺ cycling by phosphorylation of CaMKII and Thr-17 of phospholamban. *Journal of Molecular and Cellular Cardiology*. 43, 354–361 (2007). <https://doi.org/10.1016/j.yjmcc.2007.06.013>.

24.

Kemi, O.J., Ceci, M., Wisloff, U., Grimaldi, S., Gallo, P., Smith, G.L., Condorelli, G., Ellingsen, O.: Activation or inactivation of cardiac Akt/mTOR signaling diverges physiological from pathological hypertrophy. *Journal of Cellular Physiology*. 214, 316–321 (2008). <https://doi.org/10.1002/jcp.21197>.

25.

Kemi, O.J., Wisløff, U.: Mechanisms of exercise-induced improvements in the contractile apparatus of the mammalian myocardium. *Acta Physiologica*. 199, 425–439 (2010). <https://doi.org/10.1111/j.1748-1716.2010.02132.x>.

26.

Hsu, C.-P., Huang, C.-Y., Wang, J.-S., Sun, P.-C., Shih, C.-C.: Extracellular Matrix Remodeling Attenuated After Experimental Postinfarct Left Ventricular Aneurysm Repair. *The Annals of Thoracic Surgery*. 86, 1243–1249 (2008). <https://doi.org/10.1016/j.athoracsur.2008.06.043>.

27.

Burstein, B., Nattel, S.: Atrial Fibrosis: Mechanisms and Clinical Relevance in Atrial Fibrillation. *Journal of the American College of Cardiology*. 51, 802–809 (2008). <https://doi.org/10.1016/j.jacc.2007.09.064>.

28.

KOVANEN, V., SUOMINEN, H., HEIKKINEN, E.: Connective tissue of "fast" and "slow" skeletal muscle in rats...effects of endurance training. *Acta Physiologica Scandinavica*. 108, 173–180 (1980). <https://doi.org/10.1111/j.1748-1716.1980.tb06515.x>.

29.

Daniels, A., van Bilsen, M., Goldschmeding, R., van der Vusse, G.J., van Nieuwenhoven, F.A.: Connective tissue growth factor and cardiac fibrosis. *Acta Physiologica*. 195, 321–338 (2009). <https://doi.org/10.1111/j.1748-1716.2008.01936.x>.

30.

Creemers, E.E.J.M., Davis, J.N., Parkhurst, A.M., Leenders, P., Dowdy, K.B., Hapke, E., Hauet, A.M., Escobar, P.G., Cleutjens, J.P.M., Smits, J.F.M., Daemen, M.J.A.P., Zile, M.R.,

Spinale, F.G.: Deficiency of TIMP-1 exacerbates LV remodeling after myocardial infarction in mice. *American Journal of Physiology-Heart and Circulatory Physiology*. 284, H364–H371 (2003). <https://doi.org/10.1152/ajpheart.00511.2002>.

31.

Williams, P.E., Goldspink, G.: Connective tissue changes in immobilised muscle. 138, 343–350.

32.

MURPHY, G., NAGASE, H.: Progress in matrix metalloproteinase research. *Molecular Aspects of Medicine*. 29, 290–308 (2008). <https://doi.org/10.1016/j.mam.2008.05.002>.

33.

Di Biase, V., Franzini-Armstrong, C.: Evolution of skeletal type e-c coupling. *The Journal of Cell Biology*. 171, 695–704 (2005). <https://doi.org/10.1083/jcb.200503077>.

34.

Meeusen, R., Piacentini, M.F., Busschaert, B., Buyse, L., De Schutter, G., Stray-Gundersen, J.: Hormonal responses in athletes: the use of a two bout exercise protocol to detect subtle differences in (over)training status. *European Journal of Applied Physiology*. 91, 140–146 (2004). <https://doi.org/10.1007/s00421-003-0940-1>.

35.

BOOTH, F.W., TSENG, B.S., FLUCK, M., CARSON, J.A.: Molecular and cellular adaptation of muscle in response to physical training. *Acta Physiologica Scandinavica*. 162, 343–350 (1998). <https://doi.org/10.1046/j.1365-201X.1998.0326e.x>.

36.

Hill, M., Wernig, A., Goldspink, G.: Muscle satellite (stem) cell activation during local tissue injury and repair. *Journal of Anatomy*. 203, 89–99 (2003). <https://doi.org/10.1046/j.1469-7580.2003.00195.x>.

37.

Reid, M.B.: Response of the ubiquitin-proteasome pathway to changes in muscle activity. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*. 288, R1423–R1431 (2005). <https://doi.org/10.1152/ajpregu.00545.2004>.

38.

Hambrecht, R., Adams, V., Erbs, S., Linke, A., Kra

inkel, N., Shu, Y., Baither, Y., Gielen, S., Thiele, H., Gummert, J.F., Mohr, F.W., Schuler, G.: Regular Physical Activity Improves Endothelial Function in Patients With Coronary Artery Disease by Increasing Phosphorylation of Endothelial Nitric Oxide Synthase. *Circulation*. 107, 3152–3158 (2003). <https://doi.org/10.1161/01.CIR.0000074229.93804.5C>.

39.

Haram, P.M., Adams, V., Kemi, O.J., Brubakk, A.O., Hambrecht, R., Ellingsen, Ø., Wisløff, U.: Time-course of endothelial adaptation following acute and regular exercise. *European Journal of Cardiovascular Prevention & Rehabilitation*. 13, 585–591 (2006). <https://doi.org/10.1097/01.hjr.0000198920.57685.76>.

40.

Haram, P.M., Kemi, O.J., Wisloff, U.: Adaptation of endothelium to exercise training: Insights from experimental studies. 13, 336–346 (1)AD.

41.

Linke, A., Erbs, S., Hambrecht, R.: Effects of exercise training upon endothelial function in patients with cardiovascular disease. 13, 424–432 (1)AD.

42.

Miyachi, M., Iemitsu, M., Okutsu, M., Onodera, S.: Effects of endurance training on the size and blood flow of the arterial conductance vessels in humans. *Acta Physiologica Scandinavica*. 163, 13–16 (1998). <https://doi.org/10.1046/j.1365-201x.1998.0337f.x>.

43.

Spence, A.L., Carter, H.H., Naylor, L.H., Green, D.J.: A prospective randomized longitudinal study involving 6 months of endurance or resistance exercise. Conduit artery adaptation in humans. *The Journal of Physiology*. 591, 1265–1275 (2013). <https://doi.org/10.1113/jphysiol.2012.247387>.

44.

Bogdanis, G.C., Nevill, M.E., Boobis, L.H., Lakomy, H.K., Nevill, A.M.: Recovery of power output and muscle metabolites following 30 s of maximal sprint cycling in man. *The Journal of Physiology*. 482, 467–480 (1995). <https://doi.org/10.1113/jphysiol.1995.sp020533>.

45.

Casey, A., Constantin-Teodosiu, D., Howell, S., Hultman, E., Greenhaff, P.L.: Creatine ingestion favorably affects performance and muscle metabolism during maximal exercise in humans. *American Journal of Physiology-Endocrinology and Metabolism*. 271, E31–E37 (1996). <https://doi.org/10.1152/ajpendo.1996.271.1.E31>.

46.

Jørgensen, S.B., Richter, E.A., Wojtaszewski, J.F.P.: Role of AMPK in skeletal muscle metabolic regulation and adaptation in relation to exercise. *The Journal of Physiology*. 574, 17–31 (2006). <https://doi.org/10.1113/jphysiol.2006.109942>.

47.

Kiens, B., Richter, E.A.: Utilization of skeletal muscle triacylglycerol during postexercise recovery in humans. *American Journal of Physiology-Endocrinology and Metabolism*. 275, E332–E337 (1998). <https://doi.org/10.1152/ajpendo.1998.275.2.E332>.

48.

Tsintzas, O.K., Williams, C., Boobis, L., Greenhaff, P.: Carbohydrate ingestion and single muscle fiber glycogen metabolism during prolonged running in men. *Journal of Applied Physiology*. 81, 801–809 (1996). <https://doi.org/10.1152/jappl.1996.81.2.801>.

49.

Walter, G., Vandenborne, K., McCully, K.K., Leigh, J.S.: Noninvasive measurement of phosphocreatine recovery kinetics in single human muscles. *American Journal of*

Physiology-Cell Physiology. 272, C525–C534 (1997).
<https://doi.org/10.1152/ajpcell.1997.272.2.C525>.

50.

KEMI, O., HOYDAL, M., HARAM, P., GARNIER, A., FORTIN, D., VENTURACLAPIER, R., ELLINGSEN, O.: Exercise training restores aerobic capacity and energy transfer systems in heart failure treated with losartan. *Cardiovascular Research*. 76, 91–99 (2007).
<https://doi.org/10.1016/j.cardiores.2007.06.008>.

51.

Wisløff, U.: Aerobic exercise reduces cardiomyocyte hypertrophy and increases contractility, Ca²⁺ sensitivity and SERCA-2 in rat after myocardial infarction. *Cardiovascular Research*. 54, 162–174 (2002).
[https://doi.org/10.1016/S0008-6363\(01\)00565-X](https://doi.org/10.1016/S0008-6363(01)00565-X).

52.

Wisløff, U., Støylen, A., Loennechen, J.P., Bruvold, M., Rognmo, Ø., Haram, P.M., Tjønnå, A.E., Helgerud, J., Slørdahl, S.A., Lee, S.J., Videm, V., Bye, A., Smith, G.L., Najjar, S.M., Ellingsen, Ø., Skjærpe, T.: Superior Cardiovascular Effect of Aerobic Interval Training Versus Moderate Continuous Training in Heart Failure Patients. *Circulation*. 115, 3086–3094 (2007). <https://doi.org/10.1161/CIRCULATIONAHA.106.675041>.

53.

Hawley, J.A., Hargreaves, M., Joyner, M.J., Zierath, J.R.: Integrative Biology of Exercise. *Cell*. 159, 738–749 (2014). <https://doi.org/10.1016/j.cell.2014.10.029>.

54.

Rowe, G.C., Safdar, A., Arany, Z.: Running Forward. *Circulation*. 129, 798–810 (2014).
<https://doi.org/10.1161/CIRCULATIONAHA.113.001590>.