

# HUIPPU-URHEILUVALMENNUS

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## 2 Suomalainen huippu-urheilu

### 2.2 Suomalainen huippu-urheilu nyt ja tulevaisuudessa

Hämäläinen K, Blomqvist M, Laitinen-Väänänen S, Parviainen A, Potinkara P (2012) Valmennusosaamisen käsikirja 2012. Suomen Olympiakomitea, Planeetta 10, ISBN: 978-952-5794-19-9 .

Hämäläinen K (2013) Valmennusosaamisen käsikirja 2013. Suomen Olympiakomitea, Edita Prima Oy, ISBN: 978-952-5794-27-4.

Suomalaisen huippu-urheilun muutos. Huippu-urheilun muutosryhmän loppuraportti (2012) Sport.fi – sivuston kirjasto. < <http://www.sport.fi/kirjasto/teos/huippu-urheilun-muutosryhman-loppuraportti-2012> >. 13.10.2015.

Suomen Olympiakomitean toiminta- ja taloussuunnitelma 2016. Suomen Olympiakomitea.

Urheilijan polku, Huippu-urheilun muutostyö 2011–2015. Kilpa- ja huippu-urheilun tutkimuskeskuksen sivusto. < <http://kihu.fi/urapolku/> >. 13.10.2015.

## 3 Suomalaisen urheilijan polku

### 3.1 Urheilijanpolku

Finni Jarkko, Aarresola Outi, Jaakkola Timo, Kalaja Sami, Konttinen Niilo, Kokko Sami ja Sipari Tommi (2014) Urheilijan polun lapsuusvaiheen asiantuntijatyö. ISBN: 978-952-5676-70-9 (pdf). Kihun julkaisusarja nro 45, Helsinki.

Güllich Arne ja Emrich Elke (2012) Individualistic and Collectivistic Approach in Athlete Support Programmes in the German High-Performance Sport System. *European Journal for Sport and Society*. 9(4). 243–268.

Hämäläinen Kirsi (toim) (2013) Valmennusosaamisen käsikirja 2013. ISBN: 978-952-5794-27-4 (pdf). Suomen Olympiakomitea, Helsinki 2013.

Mononen Kaisu, Aarresola Outi, Sarkkinen Pasi, Finni Jarkko, Kalaja Sami, Härkönen Asko ja Pirttimäki Mikko (toim) (2014) Tavoitteena nuoren urheilijan hyvä päivä. ISBN: 978-952-5676-72-3 (pdf), Kihun julkaisusarja nro 46, Helsinki 2014.

Nummela Ari, Aarresola Outi, Mononen Kaisu ja Paavolainen Leena (2015) Urheilijan polun huippuvaiheen menestykseen vaikuttavat tekijät ja tutkimus-, kehittämis- ja asiantuntijatoiminnan painopisteet. Painossa.

Paavolainen Leena, Mononen Kaisu, Aarresola Outi, Nummela Ari ja Viitasalo Jukka (toim) (2013) Tutkimuksesta käytäntöön ja päinvastoin: Tutkimus- ja kehittämistoiminta suomalaisen huippu-urheilumenestyksen vahvistajana 2013–2016, ISBN 978-952-5794-20-5, Suomen Olympiakomitea, Helsinki 2013.

Piispa Mikko ja Huhta Huhta (toim) (2013) Epätavallisia elämänkulkuja – Huippu-urheilijat ja -taiteilijat 2000-luvun Suomessa. ISBN: 978-952-5994-30-8, Nuorisotutkimusverkoston julkaisuja. Helsinki.

Salasuo Mikko, Piispa Mikko ja Huhta Helena (2015) Huippu-urheilijan elämänkulku. Tutkimus urheilijoista 2000-luvun Suomessa, ISBN: 978-952-5994-83-4, Nuorisotutkimusseura/ Nuorisotutkimusverkosto, julkaisuja 166. Sarja: Tiede. Kl 79.1, 30.1, 30.12, Helsinki.

Suomalaisen huippu-urheilun muutos. Huippu-urheilun muutosryhmän loppuraportti (2012) Sport.fi – sivuston kirjasto. < <http://www.sport.fi/kirjasto/teos/huippu-urheilun-muutosryhman-loppuraportti-2012> >. 13.10.2015.

Urheilijan polku, Huippu-urheilun muutostyö 2011–2015. Kilpa- ja huippu-urheilun tutkimuskeskuksen sivusto. < <http://kihu.fi/urapolku/> >. 13.10.2015.

Valon toiminta- ja taloussuunnitelma 2015. Sport.fi –sivuston kirjasto. <<http://www.sport.fi/kirjasto/teos/valovuosi-valon-vuosikertomus-2014>>. 12.10.2015.

Visek Amanda J., Achrati Sara M., Manning Heather, McDonnell Karen, Harris Brandonn S. ja DiPietro Loretta (2015) The Fun Integration Theory: Towards Sustaining Children and Adolescents Sport Participation. *Journal of Physical Activity and Health*. March;12(3): 424–433.

## Omistautumisen kehittyminen urheilussa

- Côté J, Baker J, Abernethy B (2007) Practice and Play in the Development of Sport Expertise. Teoksessa G. Tenenbaum & R. Eklund (Toim.) *Handbook of Sport Psychology* (ss. 184–202). Hoboken: Wiley.
- Jaakkola T (2015) Motivaatio – ilo, innostus ja intohimon synnyttäminen. Teoksessa K. Hämäläinen, K. Danskanen, H. Hakkarainen, T. Lintunen, K. Forsblom, S. Pulkkinen, T. Jaakkola, K. Pasanen, S. Kalaja, P. Arajärvi, T. Lehtoviita & J. Riski (Toim.) *Lasten ja nuorten hyvä harjoittelu* (ss.109–123). Keuruu: VK-Kustannus.

## Monipuolisista liikuntataidoista vahvoihin lajitaitoihin

- Côté J, Baker J, Abernethy B (2007) Practice and play in the development of sport expertise. Teoksessa Tenenbaum, G. & Eklund, R.C. (toim.) *Handbook of sport psychology*. New Jersey: John Wiley & Sons.
- Ericsson K A (2003) Development of elite performance and deliberate practice: An update from the perspective of the expert performance approach. Teoksessa J.L. Starkes & K.A. Ericsson (toim.), *Expert performance in sports: Advances in research on sport expertise*. Champaign, Ill: Human Kinetics, 49–83.
- Fahlström PG, Gerreval P, Glemne M, Linnér S (2015) Vägarna till landslaget. Om svenska elitidrottares idrottsval och specialisering. FoU-rapport 2015:1. Riksidrottsförbundet. Stockholm.
- Fransen J, Pion J, Vandendriessche J, Vandorpe B, Vaeyens R, Lenoir , Philippaerts R (2012) Differences in physical fitness and gross motor coordination in boys aged 6–12 years specializing in one versus sampling more than one sport. *Journal of Sport Sciences* 2012;30(4): 379–86.
- Gajdos A (1983) *Lehrbuch des Kunstturnens*. Verlag Hofmann. Schorndorf.
- Gallahue DL, Donnelly FC (2003) *Developmental physical education for all children*. Champaign, Ill: Human Kinetics.
- Hornig M, Aust F, Güllich A (2014) Practice and play in the development of German top-level professional football players. *European Journal of Sport Sciences*. 2014 Dec 2:1–10.
- Jaakkola T (2010) Liikuntataitojen oppiminen ja taitoharjoittelu. PS -Kustannus. Jyväskylä.
- Jaakkola T, Kalaja S (2014) Monipuolisista liikuntataidoista vahvoihin lajitaitoihin. Teoksessa Mononen, K., Aarresola, O., Sarkkinen, P., Finni, J., Kalaja, S., Härkönen, A. & Pirttimäki, M. (toim.) *Tavoitteena nuoren urheilijan hyvä päivä*. KIHUn julkaisusarja 46.
- Memmert D, Baker J, Bertsch C (2010) Play and practice in the development of sport-specific creativity in team ball sports. *High Ability Studies*, vol 1, issue 1.
- Schmidt R, Lee TD (2005) *Motor Learning and Performance: A behavioral emphasis*. Champaign, IL: Human Kinetics.

## Urheilullisesta elämäntavasta terveeksi ja suorituskykyiseksi urheilijaksi

- Blomqvist M, Mononen K, Konttinen N, Koski P ja Kokko S (2015) Urheilu ja seuraharrastaminen. Teoksessa Kokko, S. ja Hämylä, R. (toim.) *Lasten ja nuorten liikuntakäyttäytyminen Suomessa*. LIITU-tutkimuksen tuloksia 2014. Valtion liikuntaneuvoston julkaisuja 2015:2, 73–82.
- Kokko S (2010) Health Promoting Sports Club – Youth Sports Clubs’ Health Promotion Profiles, Guidance, and Associated Coaching Practice, in Finland. University of Jyväskylä, *Studies in Sport, Physical Activity and Health* 144, 147 pages.
- Kokko S (2014) Sports clubs as settings for health promotion: Fundamentals and an overview to research. *Scandinavian Journal of Public Health*, 42(Suppl 15): 60–65.
- Kokko S, Villberg J ja Kannas L (2011) Nuori urheilijan polulla: 13–15-vuotiaiden urheilijoiden arvioita harjoitusmäärästään, harjoittelun monipuolisuudesta sekä elämäntavoista. ISBN 978-952-5846-27-0 (PDF). Nuori Suomi: Helsinki. Internet-julkaisu, 83 sivua.
- Palomäki S, Huotari P ja Kokko S (2015) Vanhemmat ja kaverit liikuntaharrastuksen tukena. Teoksessa Kokko, S. ja Hämylä, R. (toim.) *Lasten ja nuorten liikuntakäyttäytyminen Suomessa*. LIITU-tutkimuksen tuloksia 2014. Valtion liikuntaneuvoston julkaisuja 2015:2, 65–72.

### 3.3 Urheilijapolun menestyksen mahdollistajat

#### 3.3.1 Urheilijan toimintaympäristö

- Aarresola Outi, Konttinen Niilo (2012) Vanhemmat moni-ilmeinen vaikuttaja kilpaurheiluun sosiaalistumisessa. Liikunta & Tiede 49 (6), 29–35.
- Andersen Svein S, Bjørndal Christian T, Ronglan Lars Tore (2015) The ecology of talent development in the Nordic elite sport model. In Andersen Svein S, Houlihan Barrie, Ronglan, Lars Tore (Eds.) *Managing Elite Sport Systems*. London & New York: Routledge, 49–66.
- De Bosscher Veerle, Shibli Simon, Westerbeek Hans, Van Bottenburg Maarten (2015) Successful Elite Sport Policies. An international comparison of the Sport Policy factors leading to International Sporting Success (SPLISS 2.0) in 15 nations. Meyer & Meyer Sports.
- Finni Jarkko, Aarresola Outi, Jaakkola Timo, Kalaja Sami, Konttinen Niilo, Kokko Sami, Sipari Tommi (toim.) (2014) *Asiantuntijatyö urheilijapolun lapsuusvaiheen määrittelemiseksi tutkimustiedon pohjalta 2012*. Jyväskylä: Kihun julkaisusarja, nro 45.
- Côté Jean, Baker Joseph, Abernethy Bruce (2007) Practice and play in the development of sport expertise. Teoksessa Tenenbaum Gershon, Eklund Robert C (toim.) *Handbook of Sport Psychology*. 3. painos. Hoboken NJ: John Wiley & Sons, 184–202.
- Koski Pasi (2013) Liikunnan kansalaistoiminnan tietopohja: Liikunta ja urheiluseuroja koskeva tietopohja ja sen kehittäminen. Valtion liikuntaneuvoston julkaisuja 2013:6.
- Lämsä Jari, Korhonen Anu, Nenonen Juho, Manninen Timo, Puhakka Antero, Kainulainen Jari, Hokkanen Tuulia (2014) Kuinka hitaita urheilijat ovat? Selvitys urheilijoiden korkea-asteen opintojen etenemisestä. Jyväskylä: KIHUn julkaisusarja, nro 47.
- Lämsä Jari (2009) Lasten ja nuorten urheilu yhteiskunnassa. Teoksessa Hakkarainen Harri (toim.) *Lasten ja nuorten urheiluvalmennuksen perusteet*. Lahti: VK-kustannus, 15–42.
- Mononen Kaisu, Aarresola Outi, Sarkkinen Pasi, Finni Jarkko, Kalaja Sami, Härkönen Asko, Pirttimäki Mikko (toim.) (2014) *Tavoitteena nuoren urheilijan hyvä päivä 2014*. Jyväskylä: KIHUn julkaisusarja, nro 46.
- Myllyniemi Sami, Berg Päivi (2013) *Nuoria liikkeellä! Nuorten vapaa-aikatutkimus 2013*. Helsinki: Nuorisotutkimusverkosto & Nuorisotutkimusseura, julkaisuja 140.
- Wylleman Paul, Reints Anke, De Knop Paul (2013) A developmental and holistic perspective on athletic career development. In Popi Sotiriadou & Veerle De Bosscher (eds.) *Managing High Performance Sport*. Routledge, 159–182.

#### 3.3.2 Valmennusosaaminen urheilijapolun eri vaiheessa

- Allen J, Bell A, Lynn A, Taylor J, Lavalley D (2012) Identifying excellent coaching Practice along the Sporting Pathway. Spots Coach UK.
- Côté J, Gilbert W (2009) An integrative definition of coaching effectiveness and expertise. *International Journal of Sport Science & Coaching*, 4(3), 307–323.
- DeWeese BH (2012) Defining the Expert Coach Within the Olympic Movement: A Study Performed to Enhance the Outcomes of Coaching Education Programming in the United States. *Olympic Coach Magazine*, 23(2), 13–20.
- Hämäläinen K, Blomqvist M, Laitinen-Väänänen S, Parviainen A, Potinkara P (2012) *Valmennusosaamisen käsikirja 2012*. Suomen Olympiakomitea, Planeetta 10, ISBN: 978-952-5794-19-9 .
- Hämäläinen K (2012) *Valmennusosaamisen käsikirja 2013*. Suomen Olympiakomitea, Edita Prima Oy, ISBN: 978-952-5794-27-4.

### 3.4 Suomalainen ammattivalmentaja työelämässä

- Hämäläinen Kirsi (2013) *Valmennusosaamisen käsikirja 2013*. Suomen Olympiakomitea, Edita Prima Oy 2014.
- Kantola Heikki (2007) *Valmennuksen jalanjäljet*. Suomen Urheilumuseosäätiön julkaisuja n:o 35, Gummerus Kirjapaino Oy.
- KIHU (2012) *Valmentaminen ammattina Suomessa*. KIHUn julkaisusarja, nro 34.
- Nuorten Olympiavalmentajat. Luettu 30.12.2015  
<http://www.sport.fi/huippu-urheilu/valmentajat/nuorten-olympiavalmentajat>.
- Suomen Liikunta ja Urheilu SLU ry (2010) *Liikuntatutkimus 2009–2010, vapaaehtoistyö*. SLU:n julkaisusarja 8/2010.

- Suomen Valmentajat ry (2015) Suomen Valmentajien strategiset valinnat vuoteen 2020 saakka. Valmentaja 5/2015, 44.
- Suomen Valmentajat ry (2002) Valmentaminen ammattina Suomessa 2002. Raportti.
- Tuunainen Sari, Potinkara Pekka (2015) Kaksi järjestöä valmentajien tukena. Valmentaja 5/2015, 38.

## 4 Harjoittelun fysiologiset ja biomekaaniset perusteet

### 4.1 Lasten ja nuorten kasvu ja kehitys sekä niiden yhteys fyysiseen suorituskykyyn

- American Optometric Association. Important vision skills for sports. [www.aoa.org](http://www.aoa.org). Saatavilla 4.1.2016
- Baquet, G., Van Praagh, E. & Berthoin, S. 2003. Endurance Training and Aerobic Fitness in Young People. *Sports Medicine* 33 (15): 1127–1143.
- Barnsley, R., H, Thompson, A. H. & Barnsley, P. E. 1985. Hockey success and birthdate: The relative age effect. *Canadian Association of Health, Physical Education and recreation (CHPER) Journal* 51, 23–28..
- Blimkie, C. J. R. & Sale, D. G. 1998. Strength Development and Trainability During Childhood. Teoksessa Van Praagh, E. (toim.) *Pediatric Anaerobic Performance*. Human Kinetics, Champaign.
- Crussemeyer, J. A. & Dufek, J. S. 2000. Biomechanics. Teoksessa Drinkwater, B. L. (toim.) *Women in Sport*. Blackwell Science, Oxford.
- Eskelinen, S. 2012. Hemoglobiini (B-Hb), Duodecim. [Www.terveyskirjasto.fi/terveyskirjasto/tk.koti?p\\_artikkeli=dlk00110](http://www.terveyskirjasto.fi/terveyskirjasto/tk.koti?p_artikkeli=dlk00110). 1.5.2015.
- Eriksson, B. O., Gollnick, P. D. & Saltin, B. 1972. Muscle metabolism and Enzyme Activities after Training in Boys 11–13 Years Old. *Acta physiologica Scandinavica* 87: 485–497.
- Falk, B. & Dotan, R. 2006. Child-Adult Differences in the Recovery From High-Intensity Exercise. *Exercise and sport Sciences Reviews* 34(3): 107–112.
- Gallahue, D. & Cleland-Donnelly, F. (2003). *Developmental Physical Education For All Children*. Champaign, IL Human Kinetics.
- Georgopoulos, N. A., Markou, K. B., Theodoropoulou, A., Vagenakis, G. A., Mylonas, P. & Vagenakis, A. G. 2004. Growth, pubertal development, skeletal maturation and bone mass acquisition in athletes. *Hormones* 3(4): 233–243.
- Gibbs, B., G., Jarvis, J. A. & Dufur, M. J. 2012. The rise of the underdog? The relative age effect reversal among Canadian-born NHL hockey players: A reply to Nolan and Howell. *International Review for the Sociology of Sport* 47, 644–649.
- Gibson, J. 2000. Osteoporosis. Teoksessa Drinkwater, B. L. (toim.) *Women in Sport*. Blackwell Science, Oxford.
- Hakkarainen, H. 2010. Nuoren urheilijan kokonaisvaltainen valmennus. <http://koti.arms.fi/~T-klubi/hakkarainen.pdf>
- Hakkarainen, H. 2009 a. Syntymän jälkeinen fyysinen kasvu, kehitys ja kypsyminen. Teoksessa: Hakkarainen, H., Jaakkola, T., Kalaja, S., Lämsä, J., Nikander, A. & Riski, J. *Lasten ja nuorten urheiluvalmennuksen perusteet*. VK-Kustannus Oy, Jyväskylä.
- Hakkarainen, H. 2009 b. Nopeuden harjoittaminen lapsuudessa ja nuoruudessa. Teoksessa: Hakkarainen, H., Jaakkola, T., Kalaja, S., Lämsä, J., Nikander, A. & Riski, J. *Lasten ja nuorten urheiluvalmennuksen perusteet*. VK-Kustannus Oy, Jyväskylä.
- Haywood, K. & Getchell, N. (2005). *Life Span Motor Development*. Champaign, IL Human Kinetics.
- Jalanko, H. 2004. Sydämen rytmihäiriöt lapsella. [http://www.terveyskirjasto.fi/terveyskirjasto/tk.koti?p\\_artikkeli=dlk00503](http://www.terveyskirjasto.fi/terveyskirjasto/tk.koti?p_artikkeli=dlk00503). 1.6.2015
- Janssen, I., Heymsfield, S. B., Wang, Z. & Ross, R. 2000. Skeletal muscle mass and distribution in 468 men and women aged 18–88 yr. *Journal of Applied Physiology* 89 (1): 81–88.
- Kauranen, K. (2011). *Motoriikan säätely ja motoriikan oppiminen*. Liikuntatieteellinen seura. Tammerprint.
- Kiess, W., Reich, A., Meyer, K., Glasow, A., Deutscher, J., Klammt, J., Yang, Y., Müller, G. & Kratzsch, J. 1999. A Role for Leptin in Sexual Maturation and Puberty? *Hormone Research* 51 (3), 55–63.
- Komulainen, T. 2011. Nuoren kasvu ja kehitys. [Www.tervekoululainen.fi](http://www.tervekoululainen.fi). 1.5.2015
- Lasten ja nuorten liikunnan asiantuntijaryhmä. 2008. *Fyysisen aktiivisuuden suositus kouluikäisille 7 – 18 -vuotiaille*. Opetusministeriö ja Nuori Suomi Ry.

- Malina, R. M., Bouchard, C. & Bar-Or Oded. 2004. Growth, Maturation, and Physical Activity. Human Kinetics, Champaign.
- Mann, D., Williams, M., Ward, P. & Janelle, C. (2007). Perceptual-Cognitive Expertise in Sport: A Meta-Analysis. *Journal of Sport & Exercise Psychology*, 2007, 29, 457-4.
- Marshall, W. A. & Tanner, J. M. 1970. Variations in pattern of pubertal changes in boys. *Archives of Disease in Childhood* 45 (239): 13-23.
- Marshall, W. A. & Tanner, J. M. 1969. Variations in pattern of pubertal changes in girls. *Archives of Disease in Childhood* 44 (235): 291-303.
- Matos, N. & Winsley, R. J. 2007. Trainability of young athletes and overtraining. *Journal of Sports Science and Medicine* 6: 353-367.
- Mero, A. 1998. Power and Speed Training During Childhood. Teoksessa Van Praagh, E. (toim.) *Pediatric Anaerobic Performance*. Human Kinetics, Champaign.
- Mero, A. 1988. Blood lactate production and recovery from anaerobic exercise in trained and untrained boys. *European Journal of Applied Physiology* 57 (6): 660-666.
- Mero, A., Vuorimaa, T. & Häkkinen, K. 1990. Lasten ja nuorten harjoittelu. Gummerrus kirjapaino, Jyväskylä.
- Mero, A., Jaakkola, L. & Komi, P. V. 1991. Relationship between muscle fibre characteristics and physical performance capacity in trained athletic boys. *Journal of Sports Sciences* 9 (2), 161-171.
- Mero, A., Nummela, A., Keskinen, K. & Häkkinen, K. 2004, 2007. Urheiluvalmennus. Painokset 1 ja 2. VK-Kustannus Oy, Jyväskylä.
- Mero, A.M.J. 2012. Kahden kuukauden tehostetun hyppelyharjoittelun vaikutuksia luustoon, hormoni- pitoisuuksiin ja suorituskykyyn nuorilla yleisurheilijoilla. Liikuntafysiologian kandidaatintutkielma. Liikuntabiologian laitos, Jyväskylän yliopisto.
- Mero, A.M.J. 2014. Effects of power versus endurance training on bone metabolism markers, serum hormone concentrations and physical performance in young athletes. Valmennus- ja testausopin Pro Gradu -tutkielma, Liikuntabiologian laitos, Jyväskylän yliopisto.
- Metaxas, T. I., Mandroukas, A., Vamvakoudis, E., Kotoglou, K., Ekblom, B. & Mandroukas, K. 2014. Muscle Fiber Characteristics, Satellite Cells and Soccer Performance in Young Athletes. *Journal of Sports Science and Medicine* 13, 493-501.
- McArdle, W. D., Katch, F. I. & Katch, V. L. 2015. *Exercise Physiology: Nutrition, Energy, and Human Performance*. Wolters Kluwer Health, Baltimore.
- Nagy, P., Kovacs, E., Moreno, L. A., Veidebaum, T., Tornaritis, M., Kourides, Y., Siani, A., Lauria, F., Sioen, I., Claessens, M., Mårild, S., Lissner, L., Bamann, K., Intemann, T., Buck, C., Pigeot, I., Ahrens, W. & Molnár, D. 2014. Percentile reference values for anthropometric body composition indices in European children from the IDEFICS study. *International Journal of Obesity* 38, S15-S25.
- Perheentupa, J. 1992. Lapsuuden ja nuoruuden endokrinologia. Teoksessa Lamberg, B.-A., Nikkilä, E. & Pelkonen, R. (toim.) *Kliininen endokrinologia*. Duodecim, Helsinki.
- Poortmans, J. R., Boisseau, N., Moraine, J.-J., Moreno-Reyes, R. & Goldman, S. 2005. Estimation of Total-Body Skeletal Muscle Mass in Children and adolescents. *Medicine and Science in Sports and Exercise* 37 (2): 316-322.
- Riddell, M. C., 2008. The endocrine response and substrate utilization during exercise in children and adolescents. *Journal of Applied Physiology* 105: 725-733.
- Riski, J. 2009. Syntymän jälkeinen fyysinen kasvu, kehitys ja kypsyminen. Teoksessa: Hakkarainen, H., Jaakkola, T., Kalaja, S., Lämsä, J., Nikander, A. & Riski, J. Lasten ja nuorten urheiluvalmennuksen perusteet. VK-Kustannus Oy, Jyväskylä.
- Rogol, A. D. & Roemmich, J. 2003. Pubertal Alterations in Growth and Body Composition and Neuroendocrine Mechanisms. Teoksessa Malina, R. M. & Clark, M. A. (toim.) *Youth Sports: Perspectives for a New Century*. Coaches Choice, Monterey, CA.
- Rogol, A. D., Clark, P. A. & Roemmich, J. N. 2000. Growth and pubertal development in children and adolescents: effects of diet and physical activity. *The American Journal of Clinical Nutrition* 72: 521S-528S.
- Saari, A., Sankilampi, U., Hännilä, M.-L., Kiviniemi, V., Kesseli, K. Ja Dunkel, L. 2011. New Finnish growth references for children and adolescent aged 0 to 20 years: Length/height-for-age, weight-for-length/height, and body mass index-for-age. *Annals of Medicine* 43 (3): 235-248.
- Sankilampi, U., Hyvönen, N., Karvonen, M., Saari, A. & Heikkilä, E. 2010-2011. Tietoa terveydenhuollon henkilökunnalle. [www.kasvukayrat.fi/info\\_tehe.html](http://www.kasvukayrat.fi/info_tehe.html). 1.5.2015.
- Shumway-Cook, A. & Woollacott, M. (2012). *Motor Control. Translating Research into Clinical Practice*. Lippincott Williams & Wilkins.
- Silventoinen, K., Kaprio, J., Lahelma, E. & Koskenvuo, M. 2000. Relative Effect of Genetic and Environmental Factors on Body Height: Differences Across Birth Cohorts Among Finnish Men and Women. *American Journal of Public Health* 90: 627-630.
- THL-Raportti 49/2011. Lasten kasvuseurannan uudistaminen. Asiantuntijaryhmän raportti.

- Wells, C. L. 1985. *Women, Sport & Performance: A Physiological Perspective*. Human Kinetics Publisher, Champaign.
- Wells, J. C. K., Williams, J. E., Chomtho, S., Darch, T., Grijalva-Eternod, C., Kennedy, K., Haroun, D., Wilson, C., Cole, T. J. & Fewtrell, M. S. 2012. Body-composition reference data for simple and reference techniques and a 4-component model: a new UK reference child. *American Journal of Clinical Nutrition* 96: 1316–1326.
- Wilmore, J. H. & Costill, D. L. 2004. *Physiology of Sport and Exercise*. Human Kinetics, Champaign.
- Vickers, J. (2007). *Perception, Cognition and Decision Training. The Quiet Eye in Action*. Champaign, IL Human Kinetics.
- Vänttinen, T. 2015. Biologisen kehityksasteen merkitys nuorten valmennuksessa. Lasten ja nuorten valmennusseminaari -Kuntotestauspäivät 2015.  
www.kasvukayrat.fi
- Zwiren, L. D. 1989. Anaerobic and Aerobic Capacities of Children. *Pediatric Exercise Science* 1: 31–44.

## 4.2 Hermolihasjärjestelmän rakenne ja toiminta

- Allen, G.M., Gandevia, S.C., McKenzie, D.K. Reliability of measurements of muscle strength and voluntary activation using twitch interpolation. *Muscle Nerve*. 1995 Jun;18(6):593–600.
- Avela, J., Finni, T., Liikavainio, T., Niemelä, E., Komi, P.V. Neural and mechanical responses of the triceps surae muscle group after 1 h of repeated fast passive stretches. *J Appl Physiol* (1985). 2004 Jun;96(6):2325–32.
- Avela, J., Kyröläinen, H., Komi, P.V. Altered reflex sensitivity after repeated and prolonged passive muscle stretching. *J Appl Physiol* (1985). 1999 Apr;86(4):1283–91.
- Avela, J., Santos, P.M., Komi, P.V. Effects of differently induced stretch loads on neuromuscular control in drop jump exercise. *Eur J Appl Physiol Occup Physiol*. 1996;72(5–6):553–62.
- Arampatzis, A., Peper, A., Bierbaum, S., Albracht, K. Plasticity of human Achilles tendon mechanical and morphological properties in response to cyclic strain. *J Biomech*. 2010 Dec 1;43(16):3073–9.
- Bergström, J. (1962) Muscle electrolytes in man. *Scand. J. Clin. Lab. Invest. Suppl.* 68.
- Bigland-Ritchie, B. EMG/force relations and fatigue of human voluntary contractions. *Exerc Sport Sci Rev*. 1981;9:75–117. Review.
- Bigland-Ritchie, B., Woods, J.J. Changes in muscle contractile properties and neural control during human muscular fatigue. *Muscle Nerve*. 1984 Nov-Dec;7(9):691–9.
- Butler, R. J., H. Crowell, I.M. Davis (2003) Lower extremity stiffness: implications for performance and injury. *Clinical Biomechanics* 18, 511–517.
- Christie, A., Kamen, G. Doublet discharges in motoneurons of young and older adults. *J Neurophysiol*. 2006 May;95(5):2787–95.
- Costill, D.L. (1978) Adaptations in skeletal muscle during training for sprint and endurance swimming. In: B.O. Eriksson & B. Furberg (eds.) *Swimming Medicine IV*. Baltimore: University Park Press, pp. 233–248.
- Costill, D.L., J. Daniels, W. Evans, W. Fink, G. Krahenbuhl and B. Saltin (1976) Skeletal muscle enzymes and fiber composition in male and female track athletes. *J. Appl. Physiol.* 40 (2), 149–154.
- Costill, D.L., W.J. Fink, M. Hargreaves, D.S. King, R. Thomas and R. Fielding (1985) Metabolic characteristics of skeletal muscle during detraining from competitive swimming. *Med. Sci. Sports Exerc.* 17:339–343.
- Cramer, J.T., Housh, T.J., Johnson, G.O., Miller, J.M., Coburn, J.W., Beck, T.W. Acute effects of static stretching on peak torque in women. *J Strength Cond Res*. 2004 May;18(2):236–41.
- De Luca, C.J., LeFever, R.S., McCue, M.P., Xenakis, A.P. Behaviour of human motor units in different muscles during linearly varying contractions. *J Physiol*. 1982 Aug;329:113–28.
- Duchateau, J., de Montigny, L., Hainaut, K. Electro-mechanical failures and lactate production during fatigue. *Eur J Appl Physiol Occup Physiol*. 1987;56(3):287–91.
- Coyle, E.F., S. Bell, D.L. Costill and W.J. Fink (1978) Skeletal muscle fiber Neuronal mechanisms of human locomotion. *J. Neurophysiology*, 42, characteristics of world class shot-putters. *Res. Quart.* 49, 3, 278–284.
- Dietz, V., D. Schmidtbleicher and J. Noth (1979) Neuronal mechanisms of human locomotion. *J. Neurophysiology*, 42, 1212–1222.
- Elder, G.C.B., K. Bradbury and R. Roberts (1982) Variability of fiber type distribution within human muscles. *J. Appl. Physiol* 53, 6, 1473–1480.
- Enoka, R. (2008) *Neuromechanical basis of kinesiology*. Human Kinetics.
- Feinstein, B., B. Lindegård, E. Nyman and G. Wohlfart (1955) Morphologic studies of motor units in normal human muscles. *Acta Anatomica*, 23, 127–142.
- Fielding (1985) Metabolic characteristics of skeletal muscle during detraining from competitive swimming. *Med. Sci. Sports Exerc.* 17:339–343.
- Fukashiro, S. and Komi P.V. (1987) Joint moment and mechanical power flow of the lower limb during vertical jump. *Int. J. Sports Med.* 8: 15–21.

- Gandevia, S.C., Allen, G.M., Middleton, J. Post-polio syndrome: assessments, pathophysiology and progression. *Disabil Rehabil.* 2000 Jan 10–20;22(1–2):38–42. Review.
- Gollhofer, A., Schmidtbleicher, D., Dietz, V. Regulation of muscle stiffness in human locomotion. *Int J Sports Med.* 1984 Feb;5(1):19–22.
- Gollnick, P.D., R.B. Armstrong, C.W. Saubert IV, K. Piehl and B. Saltin (1972) Enzyme activity and fiber composition in skeletal muscle of untrained and trained men. *J. Appl. Physiol.* 33, 312–319.
- Gordon, T. and M.C. Pattullo (1993) Plasticity of muscle fiber and motor unit types. *Exerc Sport Sci. Rev.* 21:331.
- Green, H., J. Thompson, E. Daub, M. Houston and D. Ranvey (1979) Fiber composition, fiber size and enzyme activities in vastus lateralis of elite athletes involved in high intensity exercise. *Eur. J. Appl. Physiol.* 41, 109–117.
- Henneman, E., G. Somjen and D.O. Carpenter (1965) Functional significance of cell size in spinal motoneurons. *J. Neurophysiology*, 28, 560–580.
- Hoffer, J.A., Andreassen, S. Regulation of soleus muscle stiffness in premammillary cats: intrinsic and reflex components. *J Neurophysiol.* 1981 Feb;45(2):267–85.
- Häkkinen, K., Keskinen, K. (1989) Muscle cross-sectional area and voluntary force production characteristics in elite strength- and endurance-trained athletes and sprinters. *European Journal of Applied Physiology* 59, 215–220.
- Häkkinen, K., M. Alen and P. Komi (1984) Neuromuscular, anaerobic and aerobic performance characteristics of elite power athletes. *Eur. J. Appl. Physiol* 53, 2. 97–105.
- Häkkinen, K., P. Komi, M. Alen and H. Kauhanen (1987) EMG, muscle fibre and force production characteristics during a one year training period in elite weightlifters. *Eur. J. Appl. Physiol.* 56, 419–427.
- Johnson, M.A., J. Polgar, D. Weightman and D. Appleton (1973) Data on the distribution of fibre types in thirty-six human muscles. An autopsy study. *J. Neurol. Sci.* 18, 111–119.
- Kent-Braun, J.A., Ng, A.V., Young, K. Skeletal muscle contractile and noncontractile components in young and older women and men. *J Appl Physiol* (1985). 2000 Feb;88(2):662–8
- Kleim, J.A., Cooper, N.R., VandenBerg, P.M. Exercise induces angiogenesis but does not alter movement representations within rat motor cortex. *Brain Res.* 2002 Apr 26;934(1):1–6.
- Komi, P.V. and Bosco, C. (1978) Utilization of stored elastic energy in men and women. *Med Sci. Sports* 10, 261–265.
- Komi, P.V., J.H.T. Viitasalo, M. Havu, A. Thorstensson, B. Sjodin and J. Karlsson (1977) Skeletal muscle fibres and muscle enzyme activities in monozygous and dizygous twins of both sexes. *Acta Physiol. Scandinavica* 100, 385–392.
- Komi, P.V. (1988) The musculoskeletal system. In: *The Olympic Book of Sports Medicine* edited by A. Dirix, H.G. Knuttgen and K. Tittel. Oxford. Blackwell Scientific Publications.
- Kraus, W.E. et al. (1994) Skeletal muscle adaptation to chronic low-frequency motor nerve stimulation. *Exerc. Sport Sci. Rev.*, 22:313.
- Kubo, K., Morimoto, M., Komuro, T., Yata, H., Tsunoda, N., Kanehisa, H., Fukunaga, T. Effects of plyometric and weight training on muscle-tendon complex and jump performance. *Med Sci Sports Exerc.* 2007 Oct;39(10):1801–10.
- Kuitunen, S., Komi, P.V., Kyröläinen, H. (2002) Knee and ankle stiffness during sprint running. *Med. Sci. Sports* 34, 166–173.
- Kumpulainen, S., Avela, J., Gruber, M., Bergmann, J., Voigt, M., Linnamo, V., Mrachacz-Kersting, N. Differential modulation of motor cortex plasticity in skill- and endurance-trained athletes. *Eur J Appl Physiol.* 2015 May;115(5):1107–15.
- Kunimasa, Y., Sano, K., Oda, T., Nicol, C., Komi, P.V., Locatelli, E., Ito, A., Ishikawa, M. Specific muscle-tendon architecture in elite Kenyan distance runners. *Scand J Med Sci Sports.* 2014 Aug;24(4):e269–74
- Kyröläinen, H., Komi, P.V. Differences in mechanical efficiency between power- and endurance-trained athletes while jumping. *Eur J Appl Physiol Occup Physiol.* 1995;70(1):36–44. Erratum in: *Eur J Appl Physiol* 1995;70(4):373.
- Kyröläinen H., Komi P.V. and Belli A. (1999) Changes in muscle activity patterns and kinetics with increasing running speed. *J Strength Cond Res* 13: 400–406.
- Kyröläinen H., Belli A. and Komi P.V. (2001) Biomechanical factors affecting running economy. *Med Sci Sports Exerc* 33: 1330–1337.
- Lieber, R.L. (1992) *Skeletal muscle Structure and Function.* Baltimore, Williams & Wilkins.
- Luhtanen P. & Komi P.V. (1980) Force-, power-, and elasticity-velocity relationships in walking, running and jumping. *Eur. J. Appl. Physiol.* 44:279–289.
- Maughan, R.J., Gleeson, M. *The Biochemical Basis of Sports Performance (Second Edition)*, Oxford University Press, Oxford, UK.
- McArdle, W.D., F.I. Katch and V.L. Katch (2015) *Exercise physiology.* Eighth edition. Lippincott Williams and Wilkins.

- McComas, A.J. Oro-facial muscles: internal structure, function and ageing. *Gerodontology*. 1998;15(1):3–14. Review.
- Melville-Jones, G., D.G.D. Watt (1971) Observations on the control of stepping and hopping movements in man. *J. Physiology*, London, 219, 709–727.
- Mero A., P. Luhtanen, J.T. Viitasalo, P.V. Komi (1981) Relationships between the maximal running velocity, muscle fiber characteristics, force production and force relaxation of sprinters. *Scand. J. Sports Sci.* 3, 1, 16–22.
- Mero A. & Komi P.V. (1986) Force-, EMG-, and elasticity-velocity relationships at submaximal, maximal and supramaximal running speeds in sprinters. *Eur. J. Appl. Physiol.* 55:553–561.
- Mero, A. (1987) Electromyographic activity, force and anaerobic energy production in sprint running with special reference to different constant speeds ranging from submaximal to supramaximal. *Studies in Sport, Physical Education and Health* 24. University of Jyväskylä, Jyväskylä. Väitöskirja.
- Mero Antti, Kuitunen Sami, Komi Paavo V. (2001) Stretch-reflex potentiation during sprint running in sprinters and endurance athletes. *Medicine and Science in Sports and Exercise*, 33, 5, S282.
- Merton, P.A. Interaction between muscle fibres in a twitch. *J Physiol.* 1954 May 28;124(2):311–24.
- Millet, G.P., Jaouen, B., Borrani, F., Candau, R. Effects of concurrent endurance and strength training on running economy and  $\dot{V}O_2$  kinetics. *Med Sci Sports Exerc.* 2002 Aug;34(8):1351–9.
- Nardone, A., Romanò, C., Schieppati, M. Selective recruitment of high-threshold human motor units during voluntary isotonic lengthening of active muscles. *J Physiol.* 1989 Feb;409:451–71.
- Nichols, T.R. and J.C. Houk (1976) Improvement in linearity and regulation of siffness that results from actions of stretch reflex. *J. Neurophysiology*, 39, 119–142.
- Norman, R.W., Komi, P.V. Electromechanical delay in skeletal muscle under normal movement conditions. *Acta Physiol Scand.* 1979 Jul;106(3):241–8.
- Nygaard, E. and E. Nielsen (1978) Skeletal muscle fibre capillarisation with extreme endurance training in man. In: B. Eriksson and B. Furberg (eds.) *Swimming Medicine IV*. Baltimore: University Park Press, pp. 282–293.
- Pascual-Leone, A., Nguyet, D., Cohen, L.G., Brasil-Neto, J.P., Cammarota, A., Hallett, M. Modulation of muscle responses evoked by transcranial magnetic stimulation during the acquisition of new fine motor skills. *J Neurophysiol.* 1995 Sep;74(3):1037–45.
- Polgar, J., M.A. Johnson, D. Weightman and D. Appleton (1973) Data on fibre size in thirty-six human muscles. An autopsy study. *J. Neurol. Sci.* 19, 307–318.
- Rusko, H. (1976) Physical performance characteristics in Finnish athletes. *Studies in Sport, Physical Education and Health* 8, University of Jyväskylä. Väitöskirja.
- Sano, K., Ishikawa, M., Nobue, A., Danno, Y., Akiyama, M., Oda, T., Ito, A., Hoffrén, M., Nicol, C., Locatelli, E., Komi, P.V. Muscle-tendon interaction and EMG profiles of world class endurance runners during hopping. *Eur J Appl Physiol.* 2013 Jun;113(6):1395–403.
- Saunders, P.U., Pyne, D.B., Telford, R.D., Hawley, J.A. Factors affecting running economy in trained distance runners. *Sports Med.* 2004;34(7):465–85. Review
- Simonsen, E.B., Thomsen, L., Klausen, K. Activity of mono- and biarticular leg muscles during sprint running. *Eur J Appl Physiol Occup Physiol.* 1985;54(5):524–32.
- Simpson, J.A. (1969). Terminology of electromyogram. *Electroencephalogr. Clin. Neurophysiol.* 26, 224–226.
- Støren, O., Helgerud, J., Støa, E.M., Hoff, J. Maximal strength training improves running economy in distance runners. *Med Sci Sports Exerc.* 2008 Jun;40(6):1087–92.
- Thomas, C.K., Johansson, R.S., Bigland-Ritchie, B. Attempts to physiologically classify human thenar motor units. *J Neurophysiol.* 1991 Jun;65(6):1501–8.
- Turner, D.L., Sumners, D.P. Associative conditioning of the exercise ventilatory response in humans. *Respir Physiol Neurobiol.* 2002 Aug 30;132(2):159–68
- Van Cutsem, M., Feiereisen, P., Duchateau, J., Hainaut, K. Mechanical properties and behaviour of motor units in the tibialis anterior during voluntary contractions. *Can J Appl Physiol.* 1997 Dec;22(6):585–97.
- Viitasalo, J. and O. Aura (1984) Seasonal fluctuations of force production in high jumpers. *Can J. Appl. Spt. Sci.* 9, 4, 209–213.
- Willmore, J.H. and D.L. Costill (1994) *Physiology of Sport and Exercise*. Human Kinetics.
- Williams, K.R. and Cavanagh, P.R (1987) Relationship between distance running mechanics, running economy, and performance. In: *J. Appl. Physiol.* 63(3): 1236–1245.
- Yao, W., Fuglevand, R.J., Enoka, R.M. Motor-unit synchronization increases EMG amplitude and decreases force steadiness of simulated contractions. *J Neurophysiol.* 2000 Jan;83(1):441–52

### 4.3 Proteiinisynteesi ja proteiinien hajoaminen

- Adams GR, Bamman MM (2012) Characterization and regulation of mechanical loading-induced compensatory muscle hypertrophy. *Compr Physiol*. Oct;2(4):2829–70. doi: 10.1002/cphy.c110066.
- Bergmann O, Ratan D, Bhardwaj SB, Zdunek S, Barnabé-Heider F, Walsh S, Zupicich J, Kanar A, Bruce A, Buchholz HD, Jovinge S, Frisén J (2009) Evidence for Cardiomyocyte Renewal in Humans. DOI: 10.1126/science.1164680, *Science* 324, 98.
- Breen L, Phillips SM, Watford M, Burke LM, Stear LM, Castell LM (2012) *BJSM reviews: A-Z of nutritional supplements: dietary supplements, sports nutrition, foods and ergogenic aids for health and performance*, Part 32: Protein and Proline. *Br J Sports Med* 46, 454–456.
- Burd NA, Tang JE, Moore DR, Phillips SM (2009) Exercise training and protein metabolism: influences of contraction, protein intake, and sex-based differences. *J Appl Physiol* (1985). May,106, 5,1692–701.
- Folland JP and Williams AG (2007) The adaptations to strength training: morphological and neurological contributions to increased strength. *Sports Med.*, 37, 2, pp. 145–168. H. Wackerhage, *Molecular exercise physiology. An introduction*.
- McArdle WD, Katch FI, Katch VL (2015) *Exercise Physiology. Nutrition, Energy, and Human Performance*. Eight edition, Wolters Kluwer Health. Baltimore USA.
- Levenhagen DK, Carr C, Carlson MG, Maron DJ, Borel MJ, Flakoll PJ (2002) Postexercise protein intake enhances whole-body and leg protein accretion in humans. *Med Sci Sports Exerc* 34, 828–837.
- Lunn WR, Pasiakos SM, Colletto MR, ym. (2012) Chocolate milk and endurance exercise recovery: protein balance, glycogen and performance. *Med Sci Sports Exerc*, 44, 682–691.
- Phillips SM, Tipton KD, Aarsland A, Wolf SE and Wolfe RR (1997) Mixed muscle protein synthesis and breakdown after resistance exercise in humans. *Am. J. Phys: Endoc. & Met.* 36, E99-E107.
- Rowlands D, Nelson AR, Phillips SM, Falkner JA, Clarke J, Burd NA, Moore D, Stellingwerff T (2015) Protein-leucine fed dose effects on muscle protein synthesis after endurance exercise. *Med Sci Sports Exerc*, 47, 3 547–555.
- van Vliet S, Burd NA (2015) Protein. In: *Nutritional Supplements in sport, exercise and health. An A-Z Guide*. Edited by Linda Castell, Samantha J. Stear and Louise M. Burke, 2015, Routledge Taylor and Francis Group. London and New York.

### 4.4 Hengitys- ja verenkiertoelimistö

- Faude O, Kindermann W, Meyer T (2009). Lactate threshold concepts: How valid are they? *Sports Medicine*, 39(6), 469–490.
- Guyton AC, Hall JE (1991) *Textbook of Medical Physiology*. 9<sup>th</sup> edition. Philadelphia, Saunders.
- Keskinen KL, Rodríguez FA, Keskinen OP, Merikari J (2003) Human cardiorespiratory responses to resting water immersion to the neck with changing body positions. In: Chatard JC. (ed.) *Biomechanics and Medicine in Swimming IX*, p. 337–342, University Press, St. Etienne, France.
- Keskinen KL (2007) Hengitys- ja verenkiertoelimistö. Teoksessa: Mero A, Häkkinen K, Keskinen K, Nummela A. *Urheiluvalmennus. VK-kustannus*.
- Lemaitre F, Coquart JB, Chavallard F, Castres I, Mucci P, Costalat G, Chollet D (2013) Effect of Additional Respiratory Muscle Endurance Training in Young Well-Trained Swimmers, *Journal of Sports Science and Medicine*, 12, 630–638.
- McArdle WD, Katch FI, Katch VL (2015) *Exercise Physiology. Nutrition, Energy, and Human Performance*. Eight edition, Wolters Kluwer Health. Baltimore USA.
- Parkkari J (2012) Astmaatikon alkulämmittely. <http://www.terveurheilija.fi/kymppiympyra/terveydenhuolto/urheilijanastma>
- Rowland T (2009) Endurance Athletes' Stroke Volume Response to Progressive Exercise. *Sports Medicine*, 39 (8): 687–695.
- Rusko H (1989) *Fysiologian ja energianmuodostuksen perusteet*. Teoksessa: Kantola, H. (toim.) *Suomalainen Valmennusoppi, Osa 2, Harjoittelu*. Gummerus, Jyväskylä.
- Rusko H (2003) *Physiology of cross country skiing*. In: Rusko H. (ed) *Cross Country Skiing*, Malden, MA, USA: Blackwell Science.
- Westhoff M, Rühle KH, Greiwing A, Schomaker R, Eschenbacher H, Siepmann M, Lehnigk B (2013) *Deutsche medizinische Wochenschrift*. Feb;138(6):275–80. doi: 10.1055/s-0032-1332843. Epub 2013 Jan 29. Review.
- Wilmore JH, Costill DL, Kenney WL (2008) *Physiology of Sport and Exercise*. 5<sup>th</sup> edition. Human Kinetics. Champaign, Illinois.
- Åstrand PO, Rodahl K (1986) *Textbook of work physiology*. McCra

## 4.5 Energia-aineenvaihdunta

- Eriksson, B.O. (1980) Muscle metabolism in children – a review. *Acta Paediatr Scand Suppl* 283: 20–27.
- Eriksson, B.O., Saltin, B. (1974) Muscle metabolites during exercise in pubertal boys. *Acta Paediatr Belg Suppl*: 257–265.
- Hermansen, L., Grandmontagne, M., Maehlum, S., Ingnes, I. (1984) Post-exercise elevation of resting oxygen uptake – possible mechanisms and physiological significance. In: Marconnet, P., Poortmans, J., Hermansen, L. (eds.) *Medicine and Sport Sciences: Physiological Chemistry of Training and Detraining* vol. 17. Karger, Basel, Switzerland. pp. 56–67.
- Hirvonen, J., Nummela, A., Rusko H., Rehunen S., Härkönen, M. (1992) Fatigue and changes of ATP, creatine phosphate, and lactate during the 400-m sprint. *Can J Spt Sci* 17: 1441–144.
- Hirvonen, J., Rehunen, S., Rusko, H., Härkönen, M. (1987) Breakdown of high-energy phosphate compounds and lactate accumulation during short supramaximal exercise. *Eur J Appl Physiol* 56: 253–259.
- Karllsson, J. (1971) Muscle ATP, CP and lactate in submaximal and maximal exercise. In: Pernow, B. and Saltin, B. *Muscle Metabolism During Exercise*. Plenum Press, New York, U.S.A. pp 383–393.
- Kenney, W.L., Wilmore, J.H., Costill, D.L. (2015) *Physiology of Sport and Exercise*, 6<sup>th</sup> Edition. Human Kinetics, Champaign, Illinois, U.S.A.
- McArdle, W.D., Katch F.I. and V.L. Katch (2014) *Exercise physiology, Nutrition, Energy and Human Performance*, Eighth edition. Wolters Kluwer. USA.
- Mero, A., T. Vuorimaa, K.Häkkinen (1990) *Lasten ja nuorten harjoittelu*. Gummerus Oy. Mero Oy. 400 s.
- Newsholme, E.A., Blomstrand, E., Ekblom, B. (1992). Physical and mental fatigue: metabolic mechanisms and importance of plasma amino acids. *British Medical Bulletin*, 48 (3), 477–495.
- Noakes, T. (1986) *Lore of Running*. Human Kinetics, 944 s.
- Rehunen, S. (1990) High-energy phosphate compounds in human skeletal muscle with special references to methodological aspects, physical exercise and neuromuscular diseases. Doctoral thesis. University of Helsinki, Helsinki, Finland.
- Saltin, B. (1990) Anaerobic capacity: past, presence and prospective. In: Taylor, A.W., Gollnick, P.D., Green, H.J., Ianuzzo, D., Noble, E.G., Métivier, G. and Sutton, J.R. (eds.) *International Series of Sport Sciences*, vol. 21, *Biochemistry of Exercise*. Human Kinetics Books, Champaign, Illinois, U.S.A. pp. 387–412.
- Saltin, B., Essén, B. (1971) Muscle glycogen, lactate, ATP, and CP in intermittent exercise. In: Pernow, B. and Saltin, B. (eds.) *Muscle Metabolism During Exercise*, *Advances in Experimental Medicine and Biology*, vol. 11. Plenum Press, New York, U.S.A. pp. 419–424.
- Shephard, R.J., Åstrand P.-O. (1992) *Endurance in Sport*, Blackwell Scientific Publications, Oxford, Great Britain.
- Åstrand, P.-O., Rodahl, K., Dahl, H.A., Strømme, S.B. (2003) *Textbook of Work Physiology, Physiological Bases of Exercise*, 4<sup>th</sup> Edition. Human Kinetics, U.S.A.

## 4.6 Hormonaalinen järjelmä ja kuormitus

- Ahtiainen JP, Pakarinen A, Kraemer WJ, Häkkinen K (2003) Acute hormonal and neuromuscular responses and recovery to forced vs maximum repetitions multiple resistance exercises. *Int J Sports Med*. 24, 6, 410–418.
- Daly W, Seegers C, Rubin D, Dobridge J, Hackney AC (2005) Relationship between stress hormones and testosterone with prolonged endurance exercise. *European Journal of Applied Physiology* 93, 4, 375–380.
- Fleck SJ, Kraemer WJ (2014) *Designing resistance training programs*. Champaign, IL : Human Kinetics.
- Hackney AC (2012) Endurance training and hormonal responses (s. 171–179). *Teoksessa: Endurance Training – Science and Practice* (toim. Mujika, I.), Vitoria-Gasteiz, Basque Country, Spain: Iñigo Mujika.
- Häkkinen K, Pakarinen A (1993) Acute hormonal responses to two different fatiguing heavy resistance protocols in male athletes. *J Appl Physiol*. 74, 2, 882–887.
- Häkkinen K, Pakarinen A (1995) Acute hormonal responses to heavy resistance loading in men and women at different ages. *Int J Sports Med*. 16, 8, 507–513.
- Kraemer WJ, Gordon SE, Fleck SJ, Marchitelli LJ, Mello R, Dziados JE, Friedl K, Harman E, Maresh C, Fry AC (1991) Endogenous anabolic hormonal and growth factor responses to heavy resistance exercise in, males and females. *Int J Sports Med*. 12, 2, 228–235.
- Linnamo V, Pakarinen A, Komi PV, Kraemer WJ, Häkkinen K (2005) Acute hormonal responses to submaximal and maximal heavy resistance and explosive exercises in men and women. *J Strength Cond Res*. 19, 3, 566–71.
- McArdle WD, Katch FI, Katch VL (2015) *Exercise Physiology. Nutrition, Energy, and Human Performance*. Eight edition, Wolters Kluwer Health. Baltimore USA.

## 4.7 Liikunnan ja harjoittelun vaikutukset immuunijärjestelmän toimintaan

- Bishop, N., & Gleeson, M. (2009). Acute and chronic effects of exercise on markers of mucosal immunity. *Frontiers in Bioscience*, 14, pp. 4444–4456.
- Cox, A. J., Pyne, D. B., Saunders, P. U., Callister, R., & Gleeson, M. (2007). Cytokine responses to treadmill running in healthy and illness-prone athletes. *Medicine and science in sports and exercise*, 39(11), 1918.
- Eklblom, B., Eklblom, Ö., & Malm, C. (2006). Infectious episodes before and after a marathon race. *Scandinavian journal of medicine & science in sports*, 16(4), 287–293.
- Engelbrechtsen L., Steffen, K., Alonso, J.M. Aubry, M., Dvorak, J., Junge, A., Meeuwisse, W., Mounyjoy, M., Renström, P. & Wilkinson, M. (2010). Sports Injuries and Illnesses During the Winter Olympic Games 2010. *British Journal of Sports Medicine* 44, 772–781.
- Friman G, Ilbäck N.G. (1998). Acute infection. Metabolic responses, effects on performance, interaction with exercise, and myocarditis. *International Journal of Sports Medicine* 19 (3): 172–82.
- Friman G., Wesslen L., Ronsen O. (2011). Infections and sports. <http://fyss.se/wp-content/uploads/2011/06/9.-Infections-and-sports.pdf>. Viitattu 12.12.2015.
- Gleeson M. (2007). Immune function in sport and exercise. *Journal of Applied Physiology*, 103 (2), 693–699.
- Gleeson, M. (2006). Can nutrition limit exercise-induced immunodepression?. *Nutrition reviews*, 64(3), 119–131.
- Gleeson, M., & Walsh, N. P. (2012). The BASES expert statement on exercise, immunity, and infection. *Journal of sports sciences*, 30(3), 321–324.
- Gleeson, M., Bishop, N. C., Stensel, D. J., Lindley, M. R., Mastana, S. S., & Nimmo, M. A. (2011). The anti-inflammatory effects of exercise: mechanisms and implications for the prevention and treatment of disease. *Nature Reviews Immunology*, 11(9), 607–615.
- Gleeson, M., Nieman, D. C., & Pedersen, B. K. (2004). Exercise, nutrition and immune function. *Journal of sports sciences*, 22(1), 115–125.
- Gleeson, M., Bishop, N., and Walsh, N., (2013). *Exercise Immunology*. Florence, KY, USA: Routledge.
- Ihalainen, J. K., Schumann, M., Häkkinen, K., & Mero, A. A. (2015). Mucosal immunity and upper respiratory tract symptoms in recreational endurance runners. *Applied Physiology, Nutrition, and Metabolism*.
- Malm, C. (2006). Susceptibility to infections in elite athletes: the S-curve. *Scandinavian journal of medicine & science in sports*, 16(1), 4–6.
- Martin S.A., Pence B.D & Woods J.A. (2009). Exercise and respiratory tract viral infections. *Exercise and sport sciences reviews*, 37(4):155–164.
- Meeusen, R., Dudos, M., Foster, C., Fry, A., Gleeson, M., Nieman, D., Raglin, J., Rietjens, G., Steinacker and Urhausen, A. (2013) Prevention, diagnosis and treatment of the Overtraining Syndrome. Joint consensus statement of the European College of Sport Science (ECSS) and the American College of Sports Medicine (ACSM). *European Journal of Sport Science* 13: 1–24.
- Neville, V., Gleeson, M., & Folland, J. P. (2008). Salivary IgA as a risk factor for upper respiratory infections in elite professional athletes. *Medicine and Science in Sports and Exercise*, 40 (7), 1228–1236.
- Nielsen H.G. (2013). Exercise and Immunity. Teoksessa: *Current issues in Sports and Exercise Medicine*. Toimittanut Michael Hamlin, Nick Draper and Yaso Kathiravel.
- Nieman, D. C. (1997). Risk of upper respiratory tract infection in athletes: an epidemiologic and immunologic perspective. *Journal of athletic training*, 32(4), 344.
- Nieman, D. C. (2003). Current perspective on exercise immunology. *Current sports medicine reports*, 2(5), 239–242.
- Nieman, D.C., B.K. Pedersen (1999). Exercise and Immune Function: recent developments. A Review. *Sports Medicine*, 27, 73–80.
- Novas, A. M., Rowbottom, D. G., & Jenkins, D. G. (2003). Tennis, incidence of URTI and salivary IgA. *International journal of sports medicine*, 24(3), 223–229.
- Prather, A. A., Janicki-Deverts, D., Hall, M. H., & Cohen, S. (2015). Behaviorally assessed sleep and susceptibility to the common cold. *Sleep*, 38(09).
- Putlur, P., Foster, C., Miskowski, J. A., Kane, M. K., Burton, S. E., Scheett, T. P., & McGuigan, M. R. (2004). Alteration of immune function in women collegiate soccer players and college students. *Journal of sports science & medicine*, 3(4), 234.
- Roitt, I., and Delves P.D. (2001) *Essential Immunology*. Tenth Edition. Blackwell Scientific Publications. London.
- Shephard, R.J. (1997) *Physical Activity, Training, and the Immune Response*. Cooper Publishing Group. USA.
- Silverthorn, D.U. (2007). *Human Physiology, an integrated approach*, fourth edition. Pearson Education, San Francisco.
- Smith, L.L. (2003). Overtraining, excessive exercise, and altered immunity. *Sports Medicine*, 33(5), 347–364.

- Spence, L., Brown, W. J., Pyne, D. B., Nissen, M. D., Sloots, T. P., McCormack, J. G., ... & Fricker, P. A. (2007). Incidence, etiology, and symptomatology of upper respiratory illness in elite athletes. *Medicine and science in sports and exercise*, 39(4), 577.
- Walsh, N. P., Gleeson, M., Pyne, D. B., Nieman, D. C., Dhabhar, F. S., Shephard, R. J., ... & Kajeniene, A. (2011). Position statement part two: maintaining immune health. *Exercise Immunology Review*, 17, 64–103.

## 5 Ravitsemus osana tehokasta valmentautumista

- Alaranta A, Hulmi J, Mikkonen J, Rossi J, Mero A (2007) Lääkkeet ja lisäravinteet urheilussa – suorituskykyyn ja kehon koostumukseen vaikuttavat aineet. Gummerus Kirjapaino Oy, Nutrimed Oy.
- Allen DG, Lamb D, Westerblad H. Skeletal Muscle Fatigue: Cellular Mechanisms (2008) *Physiological Reviews* 88, 287–332.
- Anselme F, Collomp K, Mercier B, Ahmaidi S, Prefaut C (1992) Caffeine increases maximal anaerobic power and blood lactate concentration. *Eur. J. Appl. Physiol.* 65, 188–191.
- Antonio J, Sanders M, Gammeren D van (2001) The effects of bovine colostrum supplementation on body composition and exercise performance in active men and women. *Nutrition* 17, 243–247.
- Areta JL, Burke LM, Ross ML, Camera DM, West DW, Broad EM, Jeacocke NA, Moore DR, Stellingwerff T, Phillips SM, Hawley JA, Coffey VG. Timing and distribution of protein ingestion during prolonged recovery from resistance exercise alters myofibrillar protein synthesis. *J Physiol.* 2013 May 1; 591(Pt 9): 2319–2331.
- Baguet A, Koppo K, Pottier A, Derave W (2010) Beta-alanine supplementation reduces acidosis but not oxygen uptake response during high-intensity cycling exercise. *Eur J Appl Physiol* 108, 495–503.
- Baguet A, Reyngoudt H, Pottier A, Everaert I, Callens S, Achten E, Derave W (2009) Carnosine loading and washout in human skeletal muscles. *J Appl Physiol* 106, 837–842.
- Bailey SJ, Winyard P, Vanhatalo A, Blackwell JR, Dimenna FJ, Wilkerson DP, Tarr J, Benjamin N, Jones AM (2009) Dietary nitrate supplementation reduces the O<sub>2</sub> cost of low-intensity exercise and enhances tolerance to high-intensity exercise in humans. *J Appl Physiol* 107, 1144–1155.
- Ballard SL, Wellborn-Kim JJ, Clauson KA (2010) Effects of commercial energy drink consumption on athletic performance and body composition. *Phys Sportsmed* 38, 107–117.
- Bergeron MF (2015) Electrolytes. Teoksessa: Castell LM, Stear SJ, Burke LM: *Nutritional supplements in sport, exercise and health*, 110–112.
- Bérubé-Parent S, Pelletier C, Dore J, Tremblay A (2005) Effects of encapsulated green tea and guarana extracts containing a mixture of epigallocatechin-3-gallate and caffeine on 24h energy expenditure and fat oxidation in men. *Br J Nutr* 94, 432–436.
- Bex T, Chung W, Baguet A, Stegen S, Stautemas J, Achten E, Derave W (2014) Muscle carnosine loading by beta-alanine supplementation is more pronounced in trained vs. untrained muscles. *J Appl Physiol* 116, 204–209.
- Biolo G, Maggi SP, Williams BD, Tipton KD, and Wolfe RR (1995) *Am. J. Phys: Endoc. & Met.* 31, E541-E520.
- Black CD, Waddell DE, Gonglach AR (2015) Caffeine's ergogenic effects on cycling: neuromuscular and perceptual factors. *Med Sci Sports Exerc*, 47, 6, 1145–1158.
- Blomstrand E (2015) Branched chain amino acids. Teoksessa: Castell LM, Stear SJ, Burke LM: *Nutritional supplements in sport, exercise and health*, 62–63.
- Blomstrand E, Hasssmén P, Ek S, Ekblom B, Newsholme EA (1997) Influence of ingesting a solution of branched-chain amino acids on perceived exertion during exercise. *Acta physiol Scand* 159, 41–49.
- Boirie YM, Dangin P, Gachon MP, Vasson JL, Maubois J, Beaufrère A (1997) Slow and fast dietary proteins differently modulate postprandial protein accretion. *Proceedings of the National Academy of Sciences of the United States of America* 23, 94, 26, 14930–14935.
- Borsheim E, Tipton KD, Wolf SE, Wolfe RR (2002) Essential amino acids and muscle protein recovery from resistance exercise. *Am. J. Phys: Endoc. & Met.* 283, E648-E657.
- Branch JD (2003) Effect of creatine supplementation on body composition and performance: a meta-analysis. *Int J Sport Nutr Exerc Metab* 13, 198–226.
- Breen L, Philp A, Witard OC et al (2011) The influence of carbohydrate-protein co-ingestion following endurance exercise on myofibrillar and mitochondrial protein synthesis. *J Physiol* 589, 4011–4025.
- Brinkworth GD, Buckley JD, Slavotinek JP, Kurmis AP (2004) Effect of bovine colostrum supplementation on the composition of resistance trained and untrained limbs in healthy young men. *Eur J Appl Physiol* 91, 53–60.
- Burd NA, West DW, Moore DR et al (2011b) Enhanced amino acid sensitivity of myofibrillar protein synthesis persists for up to 24 h after resistance exercise in young men *J Nutr* 141: 568–573.

- Burke LM (2007) *Practical Sports Nutrition*. Champaign, IL: Human Kinetics Publishers.
- Burke LM, Spriet LL (2015) Caffeine. Teoksessa: Castell LM, Stear SJ, Burke LM: Nutritional supplements in sport, exercise and health, 64–67.
- Carr AJ, Gore CJ, Dawson B (2011) Induced alkalosis and caffeine supplementation: effects on 2,000-m rowing performance. *Int J Sport Nutr Exerc Metab* 21, 357–364.
- Castell LM, Stear SJ, Burke LM (2015) *Nutritional supplements in sport, exercise and health. An A-Z Guide*. 425 pages. Routledge, Taylor-Francis Group, London and New York.
- Cermak NM, Gibala MJ, van Loon LJ (2012a) Nitrate supplementation's improvement of 10-km time-trial performance in trained cyclist *Int J Sport Nutr Exerc Metab* 22, 64–71.
- Cermak NM, Res PT, de Groot LC, Saris WH, van Loon LJ (2012) Protein supplementation augments the adaptive response of skeletal muscle to resistance-type exercise training: a meta-analysis. *Am J Clin Nutr*. 96, 1454–1464.
- Clements WT, Sang-Rok L, Bloomer RJ (2014). Nitrate Ingestion: A review of the health and physical performance effects. *Nutrients* 6, 5224–5264.
- Colgan M (1998) Best bodybuilding supplements, Part 1. *Muscular Development*, 2, 132–202.
- Collier RJ, Miller MA, Hildebrandt JR, Torkelson AR, White TC, Madsen KS, Vicini JL, Eppad PJ, Lanza GM (1991) Factors affecting insulin-like-growth-factor-1 concentration in bovine colostrum. *J Dairy Sci* 74, 2905–2911.
- Di Donato DM, West DW, Churchward-Venne TA, Breen L, Baker SK, Phillips SM (2014) Influence of aerobic exercise intensity on myofibrillar and mitochondrial protein synthesis in young men during early and late postexercise recovery. *Am J Physiol Endocrinol Metab* 306, E1025–1032.
- Duff WR, Chillibeck PD, Rooke JJ, Kaviani m, Krentz JR, Haines DM (2014) The effect of bovine colostrum supplementation in older adults during resistance training. *Int J Sport Nutr exerc Metabl* 24, 276–285.
- Economos CD, Bortz SS and Nelson ME (1993) Nutritional practices of elite athletes. Practical recommendations. *Sports Medicine*, 16, 6, 381–399.
- Edge J, Bishop D, Goodman C (2006) Effects of chronic NaHCO<sub>3</sub> ingestion during interval training on changes to muscle buffer capacity, metabolism and short-term endurance performance. *J Appl Physiol* 101, 918–925.
- Engelhardt M, Neumann G, Berbalk A, and Reuter I (1998) Creatine supplementation in endurance sports. *Medicine and Science in Sports and Exercise*, vol. 30, No. 7, pp. 1123–1129.
- Ferreira LF, Behnke BJ (2011) A toast to health and performance! Beetroot juice lowers blood pressure and the O<sub>2</sub> cost of exercise. *J Appl Physiol* 110, 585–586.
- Gangurde HH, Chordiya MA, Patil PS, Baste NS (2011) Whey protein. *Scholar's research journal*, 1: 2 : 69–77.
- Harris RC, Jones G, Hill CH, Kendrick IP, Boobis L, Kim CK, Kim HJ, Dang VH, Edge J, Wise JA (2007) The carnosine content of V Lateralis in vegetarians and omnivores *FASEB J* 21, 769.20.
- Harris RC, Jones GA, Kim HJ, Kim CK, Price KA, Wise JA (2009) Changes in muscle carnosine of subjects with 4 weeks supplementation with a controlled release formulation of beta-alanine (Carnosyn™), and for 6 weeks post. *FASEB J* 23, 599.4.
- Harris RC, Soderlund K and Hultman E (1992) Elevation of creatine in resting and exercised muscle of normal subjects by creatine supplementation. *Clin. Sci.* 83:367–374.
- Harris RC, Tallon MJ, Dunnet M, Boobis LH, Coackley J, Kim HJ, Fallowfield JL, Chester CA, Sale C, Wise JA (2006) The absorption of orally supplied β-alanine and its effect on muscle carnosine synthesis in human vastus lateralis *Amino Acids* 30, 279–289.
- Harris RC, Viru M, Greenhaff PL, Hultman E (1993) The effect of oral creatine supplementation on running performance during maximal short term exercise in man. *Journal of Physiology*, 467, 74.
- Hietavala E, Stout JR, Hulmi J, Suominen H, Pitkänen H, Puurtinen R, Selänne H, Kainulainen H, Mero A (2015) Effect of diet composition on acid–base balance in adolescents, young adults and elderly at rest and during exercise. *European Journal of Clinical Nutrition*, 69, 3, 399–404.
- Higgins JP, Tuttle TD, Higgins CL (2010) Energy beverages: content and safety. *Mayo Clin Proc* 85, 1033–1041.
- Hill CA, Harris RC, Kim HJ, Harris BD, Sale C, Boobis LH, Kim, CK, WiseJA (2007) Influence of β-alanine supplementation on skeletal muscle carnosine concentrations and high intensity cycling capacity. *Amino Acids* 32, 225–233.
- Hobson RM, Saunders B, Ball G, Harris RC, Sale C (2012) Effects of beta-alanine supplementation on exercise performance: a meta-analysis. *Amino Acids* 43, 25–37.
- Houston ME (1999) Gaining weight: the scientific basis of increasing skeletal muscle mass. *Can. J. of App. Phys.* 24, 4, 305–316.
- Howarth KR, Phillips SM, MacDonald MJ, Richards D, Moreau NA, Gibala MJ (2010) Effect of glycogen availability on human skeletal muscle protein turnover during exercise and recovery. *J Appl Physiol* 109, 431–438.

- Hulmi JJ, Lockwood CM, Stout JR (2010) Effect of protein/essential amino acids and resistance training on skeletal muscle hypertrophy: A case for whey protein. *Nutr Metab (Lond)* 17;7:51.
- Hultman E, Bergström J, and Roch-Nordlund AE (1971) Glycogen storage in human skeletal muscle. In: Pernow, B. and Saltin, B. (eds) *Muscle metabolism during exercise, II* (New York: Plenum), pp. 273–287.
- Hultman E, Soderlund K, Timmons J, Cederblad G and Greenhaff PL (1996) Muscle creatine loading in man. *J. Appl. Physiol.* 81:232–237.
- Huovinen H, Hulmi J, Isolehto J, Kyröläinen H, Puurtinen R, Karila T, Krzysztof Mackala K, Mero A (2015) Body composition and power performance improved after weight reduction in male athletes without hampering hormonal balance. *Journal of Strength and Conditioning Research*, 29, 1, 29–36.
- Ibanez J, Pullinen T, Gorostiaga E, Postigo A, Mero A (1995) Blood lactate and ammonia in short-term anaerobic work following induced alkalosis. *Journal of Sports Medicine and Physical Fitness*, 35,3, 187–193.
- Ilander O, Laaksonen M, Lindblad P, Mursu J (2014) *Liikuntaravitsemus–tehoa, tuloksia ja terveyttä*. 408 s. Saarijärven Offset Oy. Oy. VK-Kustannus Oy.
- Jeukendrup A, Brouns M and Brouns F (1997) *Advances in training and nutrition for endurance sports. From theory to practice*. Papendahl Arnhem, The Netherlands January 30, Proceedings.
- Jeukendrup AE (2011) Nutrition for endurance sports: marathon, triathlon, and road cycling. *J Sports Sci* 29, S91–99.
- Jones AM (2014) Dietary nitrate supplementation and exercise performance. *Sports Medicine* 44, 35–45.
- Jones AM (2015) Nitrate. Teoksessa: Castell LM, Stear SJ, Burke LM: *Nutritional supplements in sport, exercise and health*, 191–192.
- Karila T, Sarkkinen P, Marttinen M, Seppälä T, Mero A, Tallroth K (2008) Rapid weight loss decreases serum testosterone. *International Journal of Sports Medicine*, 29, 872–877.
- Kuipers H, van Breda E, Verlaan G, Smeets R (2002) Effects of Oral Bovine Colostrum Supplementation on Serum Insulin-like Growth Factor-I Levels. *Nutrition* 18:566–567.
- Lansley KE, Winyard PG, Bailey SJ, Vanhatalo A, Wilkerson DP, Blackwell JR, Gilchrist M, Benjamin N, Jones AM (2011b) Acute dietary nitrate supplementation improves cycling time trial performance. *Med Sci Exerc* 43, 1125–1131.
- Lansley KE, Winyard PG, Fulford J, Vanhatalo A, Bailey SJ, Blackwell JR, DiMenna FJ, Gilchrist M, Benjamin N, Jones AM (2011a) Dietary nitrate supplementation reduces the O<sub>2</sub> cost of walking and running: a placebo-controlled study. *J Appl Physiol* 110, 591–600.
- Larsen FJ, Schiffer TA, Borniquel S, Sahalin K, Ekblom B, Lundberg JO, Weitzberg E (2011) Dietary inorganic nitrate improves mitochondrial efficiency in humans *Cell Metab* 13, 149–159.
- Levenhagen DK, Carr C, Carlson MG, Maron DJ, Borel MJ, Flakoll PJ (2002) Postexercise protein intake enhances whole-body and leg protein accretion in humans. *Med Sci Sports Exerc* 34, 828–837.
- Louis M, Portmans JR, Francaux M et al (2003) No effect of creatine supplementation on human myofibrillar and sarcoplasmic protein synthesis after resistance exercise. *Am J Physiol Endocrinol Metab* 285, E1089–1094.
- Lundberg J, Weitzberg E, Lundberg JM, Alving K (1994). Intra-gastric nitric oxide production in humans: measurements in expelled air. *Journal of Gastroenterology and Hepatology* 35, 1543–1546.
- Lunn WR, Pasiakos SM, Colletto MR et al (2012) Chocolate milk and endurance exercise recovery: protein balance, glycogen and performance. *Med Sci Sports Exerc* 44, 682–691.
- Mamerow MM, Mettler JA, English KL, Casperson SL, Arentson-Lantz E, Sheffield-Moore M, Layman DK, Paddon-Jones D (2014) Dietary protein distribution positively influences 24-h muscle protein synthesis in healthy adults. *J Nutrition*, Jun;144(6):876–880.
- Mannion AF, Jakeman PM, Dunnet M, Harris RC, Willan PLT (1992) Carnosine and anserine concentrations in the quadriceps femoris muscle of healthy humans. *Eur J Clin Nutr* 72, 598S–606S.
- Maughan R, Gleeson M (2010) *The biomechanical basis of sports performance*. Second edition. 316 pages. Oxford University Press.
- Maughan RJ, Burke LM (2015) Carbohydrates. Teoksessa: Castell LM, Stear SJ, Burke LM: *Nutritional supplements in sport, exercise and health*, 72–77.
- McArdle WD, Katch FI, Katch VL (2015) *Exercise Physiology. Nutrition, Energy, and Human Performance*. Eight edition, Wolters Kluwer Health. Baltimore USA.
- McLellan T, Lieberman HR (2012) Do energy drinks contain active components other than caffeine? *Nutr Rev* 70, 730–744.
- McNaughton LR, Midgley AW (2015) Sodium bicarbonate and sodium citrate. Teoksessa: Castell LM, Stear SJ, Burke LM: *Nutritional supplements in sport, exercise and health*, 237–239.
- Mero A, Kähkönen J, Nykänen T, Parviainen T, Jokinen I, Takala T, Rasi S, Leppäluoto J (2002) IGF-1, IgA and IgG responses to bovine colostrum supplementation during training. *Journal of Applied Physiology*, 93, 2, 732–739.

- Mero A, Keskinen KL, Malvela MT, Sallinen JM (2004) Combined creatine and sodium bicarbonate supplementation enhances interval swimming. *Journal of Strength and Conditioning Research*, 18, 2, 306–310.
- Mero A, Hirvonen P, Saarela J, Hulmi JJ, Hoffman JR, Stout JR (2013) Effect of sodium bicarbonate and beta-alanine supplementation on maximal sprint swimming. *Journal of the International Society of Sports Nutrition*, 10, 52, 1–9.
- Mero A, Leikas A, Knuutinen J, Hulmi J, Kovanen V (2009) Effect of strength training session on plasma amino acid concentration following oral ingestion of leucine, BCAAs or glutamine in men. *European Journal of Applied Physiology*, 105, 215–223.
- Mero A, Leikas A, Rinkinen N, Huhta P, Hulmi J, Pitkänen H, Knuutinen J (2008) Effect of strength training session on plasma amino acid concentration following oral ingestion of arginine or taurine in men. *Amino Acids*, 35, 99–106.
- Mero A, Miiikkulainen H, Riski J, Pakkanen R, Aalto J, and Takala T (1997b) Effects of bovine colostrum on serum IGF-1, IgG, hormone, and saliva IgA during training. *Journal of Applied Physiology*, 83, 1144–1151.
- Mero A, Nummela A, Keskinen K (1997a) *Nykyaikainen urheiluvalmennus*. 559 s. Gummerus Oy, Mero Oy, Jyväskylä.
- Mero A, Nykänen T, Keinänen O, Knuutinen J, Lahti K, Alen M, Rasi S, Leppäluoto J (2005) Protein metabolism and strength performance after bovine colostrum supplementation. *Amino Acids*, 28, 327–335.
- Mero A, Uusitalo A, Hiilloskorpi H, Nummela A, Häkkinen K (2012) *Naisten ja tyttöjen urheiluvalmennus*. 383 s. Saarijärven Offset Oy, VK-Kustannus Oy.
- Mero, A, Miiikkulainen, H., Riski, J., Pakkanen, R., Aalto, J., and Takala, T. (1997b) Effects of bovine colostrum on serum IGF-1, IgG, hormone, and saliva IgA during training. *Journal of Applied Physiology*, 83, 1144–1151.
- Mero, A. (1999) Leucine supplementation and intensive training. A leading article. *Sports Medicine*, 27,6; 347–358.
- Mero, A., Kähkönen, J., Nykänen, T., Parviainen, T., Jokinen, I., Takala, T., Rasi, S., Leppäluoto, J. (2002) IGF-1, IgA and IgG responses to bovine colostrum supplementation during training. *Journal of Applied Physiology*, 93, 2, 732–739.
- Mero, A., Nummela, A., Keskinen, K., Häkkinen, K. (2004, 2007) *Urheiluvalmennus*. 1. ja 2. painos. 503 s. Gummerus Oy, VK-Kustannus Oy.
- Mero AA., Huovinen H, Matintupa O, Hulmi JJ, Puurtinen R, Hohtari H, Karila TAM. (2010) Moderate energy restriction with high protein diet results in healthier outcome in women. *Journal of the International Society in Sports Nutrition*, 7, 4, 1–8.
- Moore DR, Camera DM, Areta JL, Hawley JA (2014) Beyond muscle hypertrophy: why dietary protein is important for endurance athletes. *Appl Physiol Nutr Metab* 39, 987–997.
- Moore DR, Robinson MJ, Fry JL et al (2009) Ingested protein dose response of muscle and albumin protein synthesis after resistance exercise in young men. *Am J Clin Nutr* 89, 161–168.
- Outlaw J, Wilborn C, Smith A, Urbina S, Hayward S, Foster C, Well S, Wildman R, Taylor L (2013) Effects of ingestion of a commercially available termogenic dietary supplement on resting energy expenditure, mood state and cardiovascular measures. *J Int Soc Sports Nutr* 10, 25.
- Parise G, Mihic S, MacLennan D et al (2001) Effects of acute creatine monohydrate supplementation on leucine kinetics and mixed-muscle protein synthesis. *J Appl Physiol* 91, 1041–1047.
- Phillips SM (2012a) Dietary protein requirements and advantages in athletes. *BR J Nutr* 108s, S158–167.
- Phillips SM, Tipton KD, Aarsland A, Wolf SE and Wolfe RR (1997) Mixed muscle protein synthesis and breakdown after resistance exercise in humans. *Am. J. Phys. Endoc. & Met.* 36, E99-E107.
- Pitkänen H (2002) *Amino acid metabolism in athletes and non-athletes*. Väitöskirja. Liikuntabiologian laitos, Jyväskylän yliopisto.
- Poormans JR, Rawson ES (2015) Creatine. Teoksessa: Castell LM, Stear SJ, Burke LM: *Nutritional supplements in sport, exercise and health*, 99–101.
- Porcelli S, Ramaglia M, Bellistri G, Pavei G, Pugliese L, Montorsi M, Rasica L, Marzorati M (2015) Aerobic fitness affects the exercise performance responses to nitrate supplementation. *Med Sci Sports Exerc.* 47, 8, 1643–1651.
- Portier H, Chatard JC, Filaire E, Jaunet-Devienne MF, Robert A, Guezennec CY (2008) Effects of branched-chain amino acids supplementation on physiological and psychological performance during an offshore sailing race. *Eur J Appl Physiol* 104, 787–794.
- Ratamess NA, Kraemer WJ, Volek JS, Rubin MR, Gómez AL, French DN, Sharman MJ, McGuigan MM, Scheett T, Häkkinen K, Newton RU, Dioguardi F (2003) The effects of amino acid supplementation on muscular performance during resistance training overreaching. *J Strength Cond Res*. May;17(2):250–258.
- Rawson ES, Perky AM (2007) Mechanisms of muscular adaptations to creatine supplementation. *Int SportMed J* 8, 43–53.

- Sale C, Harris RC (2015)  $\beta$ -alanine and carnosine Teoksessa: Castell LM, Stear SJ, Burke LM: Nutritional supplements in sport, exercise and health, 59–60.
- Sale C, Saunders B, Hudson S, Wise JA, Harris RC, Sunderland CD (2011) Effect of  $\beta$ -alanine plus sodium bicarbonate on high-intensity cycling capacity. *Med sci Sports Exerc* 43, 1972–1978.
- Sangwon FK (2011). The role of nitric oxide in prostaglandin biology. *Nitric Oxide. Na-tional Insitute of Health* 25, 255–264.
- Schoenfeld BJ, Aragon AA, Krieger JW (2015) Effects of meal frequency on weight loss and body composition: a meta-analysis. *Nutrition Reviews*, 69–82.
- Schoenfeld BJ, Aragon AA, Wilborn CD, Krieger JW, Sonmez GT (2014) Body composition changes associated with fasted versus non-fasted aerobic exercise. *J Int Soc Sports Nutr.* Nov 18;11(1):54.
- Senchina DS, Stear SJ, Burke LM, Castell LM (2013b) BJSM reviews: A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance Part 44: Weight Loss strategies and Herbal Weight Loss Supplements. *Br J Sports Med* 47, 595–598.
- Shing CM (2015) Colostrum. Teoksessa: Castell LM, Stear SJ, Burke LM: Nutritional supplements in sport, exercise and health, 93–94.
- Shing CM, Hunter DC, Stevenson LM (2009) Bovine colostrum supplementation and exercise performance: potential mechanism. *Sports Med* 39, 1033–1054.
- Shirreffs SM (2015) Sodium. Teoksessa: Castell LM, Stear SJ, Burke LM: Nutritional supplements in sport, exercise and health, 235–236.
- Silverthorn DU, Ober WC, Garrison CW, Silverthorn AC (2007). Human physiology. An integrated approach. 4. painos. Pearson education Inc, San Fransisco: Benjamin Cummings.
- Smith K, Reynolds N, Downie S, Patel A, Rennie MJ (1998) Effects of flooding amino acids on incorporation of labeled amino acids into human muscle protein. *Am J Physiol* 275, E73-E78.
- Smith N, Atroch AL (2007) Guarana's journey from regional tonic to aphrodisiac and global energy drink. *Evid Based Complement Alternat Med* 5, 5.
- Spriet LL, Stear SJ, Burke LM, Castell LM (2010) BJSM reviews: A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance Part 6: Caffeine. *Br J Sports Med* 44, 297–298.
- Stear SJ (2015) Glanbullars. Teoksessa: Castell LM, Stear SJ, Burke LM: Nutritional supplements in sport, exercise and health, 132.
- Stegen S, Bex T, Vervaet C, Vanhee L, Achten E, Derave W (2014)  $\beta$ -alanine dose for maintaining moderately elevated muscle carnosine levels. *Med Sci Sports Exerc* 46, 1426–1432.
- Stellingwerff T, Decombaz J, Harris RC, Boesch C (2012) Optimizing human in vivo dosing and delivery of b-alanine supplements for muscle carnosine synthesis. *Amino Acids*, 43, 57–65. DOI 10.1007/s00726-012-1245-7.
- Stellingwerff T, Cox CR (2014) Systematic review: Carbohydrate supplementation on exercise performance or capacity of varying durations. *Appl Physiol Nutr Metab.* 201 9: 998–1011.
- Stephens FB, Constantin-Teodosiu D, Greenhaff (2007a) New insights concerning the role of carnitine in the regulation of fuel metabolism in skeletal muscle. *J Physiol* 581, 431–444.
- Stephens FB, Greenhaff PL (2015) L-carnitine. Teoksessa: Castell LM, Stear SJ, Burke LM: Nutritional supplements in sport, exercise and health, 78–79.
- Sundgot-Borgen J, Torstveit MK (2004) Prevalence of eating disorders in elite athletes is higher than in the general population. *Clin J Sport Med.* 2004 Jan;14(1):25–32.
- Suomalaiset ravitsemussuositukset 2014, Terveystä ruoasta, Valtion ravitsemusneuvottelukunta 2014.
- Tarnopolsky M (2004) Protein requirements for endurance athletes. *Nutr* 20, 662–668.
- Tipton KD, and Wolfe RR (2001). Exercise, protein metabolism, and muscle growth. *Int. J. of Sport Nutrition*, 11, 109–132.
- Wall BT, Stephens FB, Constantin-Teodosiu D, Marimuthu K, MacDonald IA, Greenhaff PL (2011) Chronicoral ingestion of L-carnitine and carbohydrate increase muscle carnitine content and alters muscle fuel metabolism during exercise in humans. *J Physiol* 589, 963–973.
- Vanhatalo A, Bailey SJ, Blackwell JR, DiMenna FJ, Pavey TG, Wilkerson DP, Benjamin N, Winyard PG, Jones AM (2010) Acute and chronic effects of dietary nitrate supplementation on blood pressure and the physiological responses to moderate-intensity and incremental exercise. *Am J Physiol Regul Integr Comp Physio* 299, R1121–1131.
- Wilkinson DJ, Hossain T, Hill DS et al (2013) Effects of leucine and its metabolite beta-hydroxy-beta-methylbutyrate on human skeletal muscle protein metabolism. *J Physiol* 591, 2911–2923.

- Wilkinson SB, Phillips SM, Atherton PJ et al (2008) Differential effects of resistance and endurance exercise in the fed state on signaling molecule phosphorylation and protein synthesis in human muscle *J Physiol* 586, 3701–3717.
- Witard OC, Turner JE, Jackman SR et al (2014a) High dietary protein restores overreaching induced impairments in leucocyte trafficking and reduces the incidence of upper respiratory tract infection in elite cyclists. *Brain Behav Immun* 39, 211–219.
- Vliet, S, Burd NA (2015) Protein. Teoksessa: Castell LM, Stear SJ, Burke LM: Nutritional supplements in sport, exercise and health, 220–224.
- Wolfe RR, Wolfe MH, Nadel ER, and Shaw JHF (1984) Isotopic determination of amino acid-urea interactions in exercise in humans. *J. Appl. Physiol.* 56:221–229.
- Wylie LJ, Kelly J, Bailey SJ, Blackwell JR, Skiba PF, Winyard PG, Jeukendrup AE, Vanhatalo A, Jones AM (2013a). Beetroot juice and exercise: pharmacodynamics and dose-response relationships. *J Appl Physiol* 115, 325–336.
- Yang Y, Breen L, Burd NA, Hector AJ, Churchward-Venne TA, Josse AR, Tarnopolsky MA, Waterlow JC, Garlick PJ, and Millward DJ (1978) Protein Turnover in Mammalian Tissues and in the Whole Body. Amsterdam, North-Holland.

#### MASSAN KASVUUN

- Bosse JD & Dixon BM. Dietary protein to maximize resistance training: a review and examination of protein spread and change theories. *Journal of the International Society of Sports Nutrition* (2012).
- Castell L ym. *Nutritional Supplements in Sports, Exercise and Health*. Routledge (2015).
- Cermak NM ym. Protein supplementation augments the adaptive response of skeletal muscle to resistance-type exercise training: a meta-analysis. *The American journal of clinical nutrition* (2012).
- Forbes GB. Body fat content influences the body composition response to nutrition and exercise. *Annals of the New York Academy of Sciences* (2000).
- Pennings B ym. Amino acid absorption and subsequent muscle protein accretion following graded intakes of whey protein in elderly men. *American journal of physiology: Endocrinology and metabolism* (2012).
- Thalacker-Mercer AE ym. Does habitual dietary intake influence myofiber hypertrophy in response to resistance training? A cluster analysis. *Applied physiology, nutrition, and metabolism* (2009).

#### RASVAN LÄHTÖÖN

- Casazza K ym. Myths, Presumptions, and Facts about Obesity. *New England Journal of Medicine* (2013).
- Castell L ym. *Nutritional Supplements in Sports, Exercise and Health*. Routledge (2015).
- Helms ER ym. Recommendations for natural bodybuilding contest preparation: resistance and cardiovascular training. *The Journal of sports medicine and physical fitness* (2015).
- Helms ER ym. Evidence-based recommendations for natural bodybuilding contest preparation: nutrition and supplementation. *Journal of the International Society of Sports Nutrition* (2014).
- Karhunen L ym. Psychobehavioural factors are more strongly associated with successful weight management than predetermined satiety effect or other characteristics of diet. *Journal of obesity* (2012).
- Lucan SC & DiNicolantonio JJ. How calorie-focused thinking about obesity and related diseases may mislead and harm public health. An alternative. *Public health nutrition* (2015).
- McClave SA & Snider HL. Dissecting the energy needs of the body. *Current opinion in clinical nutrition and metabolic care* (2001).
- Mozaffarian D ym. Changes in Diet and Lifestyle and Long-Term Weight Gain in Women and Men. *New England Journal of Medicine* (2011).
- Schoenfeld BJ ym. Body composition changes associated with fasted versus non-fasted aerobic exercise. *Journal of the International Society of Sports Nutrition* (2014).
- Sonestedt E ym. Does high sugar consumption exacerbate cardiometabolic risk factors and increase the risk of type 2 diabetes and cardiovascular disease? *Nutrition Research* (2012).

## 6 Urheilupsykologia

### 6.1 Psykkiset tekijät urheilussa ja niiden analysointi

- Carlson, R. (1993). The path to the national level in sports in Sweden. *Scandinavian Journal of Medicine and Science in Sports* 3, 170–177.
- Chess, S. & Thomas, A. (1996). *Temperament: Theory and practice*. New York: Brunner/Mazel.
- Côté, J., Erickson, K. & Abernethy, B. (2013). Play and practice during childhood. Teoksessa J. Côté & R. Lidor (toim.), *Conditions of children's talent development in sport*. Morgantown, WV: Fitness Information Technology, 9–20.
- Dosil, J., Cremades, J. & Rivera, S. (2014). Psychological skills training and programs. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 327–342.
- Hanin, J. & Ekkekakis, P. (2014). Emotions in sport and exercise settings. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 83–104.
- Keltikangas-Järvinen, L. (2009). Temperamentti – persoonallisuuden biologinen selkäranka. Teoksessa R-L. Metsäpelto & T. Feldt (toim.), *Meitä on moneksi. Persoonallisuuden psykologiset perusteet*. Jyväskylä: PS-kustannus, 49–69.
- Liukkonen, J. & Jaakkola, T. (2003). *Psyykinen valmennus hiihtourheilussa*. Helsinki: Suomen hiihtoliitto.
- Liukkonen, J. & Jaakkola, T. (2013). Liikuntamotivaatio elinikäisen liikuntaharrastuksen edellytyksenä. Teoksessa T. Jaakkola, J. Liukkonen & A. Sääkslahti (toim.), *Liikuntapedagogiikka*. Jyväskylä: PS-Kustannus, 144–161.
- Liukkonen, J., Jaakkola, T. & Kataja, J. (2006). *Psyykinen valmennus lentopallossa*. Helsinki: Suomen lentopalloliitto.
- McCrae, R. & Costa, P. (2003). *Personality in adulthood: A five-factor theory perspective*. New York: Guilford Press.
- Metsäpelto, R-L. & Feldt, T. (2009). Persoonallisuuden käsite psykologiassa. Teoksessa R-L. Metsäpelto & T. Feldt (toim.), *Meitä on moneksi. Persoonallisuuden psykologiset perusteet*. Jyväskylä: PS-kustannus, 13–29.
- Schack, T., Bertollo, M., Koester, D., Maycock, J. & Essig, K. (2014). Technological advancements in sport psychology. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 953–966.
- Strack, B., Linden, M. & Wilson, V. (2011). *Biofeedback & Neurofeedback Applications in Sport Psychology*. Wheat Ridge, CO: Association for Applied Psychophysiology and Biofeedback.
- Tenenbaum, G., Eklund, R. & Kamata, A. (2012). *Measurement in Sport and Exercise Psychology*. Champaign, IL: Human Kinetics.
- Weinberg, R. & Butt, J. (2014). Goal setting and sport performance: Research findings and practical implications. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 343–354.
- Weinberg, R. & Gould, D. (2015) *Foundations of Sport and Exercise Psychology*. Champaign, IL: Human Kinetics

### 6.2 Psyykkisten ominaisuuksien harjoittelu

- Côté, J., Hancock, D. & Abernethy, B. (2014). Nurturing talent in youth sport. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 22–33.
- Bhasavanija, T. & Morris, T. (2014). Imagery. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 356–371.
- Deci, E. L. & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York, NY: Plenum Press.
- Deci, E. L. & Ryan, R. M. 2000. The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry* 11, 227–268.

- Dosil, J., Cremades, J. & Rivera, S. (2014). Psychological skills training and programs. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 327–342.
- Duda, J. & Balaguer, I. (2007). Coach-created motivational climate. Teoksessa S. Jowett & D. Lavallee (toim.), *Social psychology in sport*. Champaign, IL: Human Kinetics, 117–130.
- Fox, K. & Lindwall, M. (2014). Self-esteem and self-perceptions in sport and exercise. Teoksessa A. Papaioannou & D. Hackfort (toim.), *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and fundamental concepts*. London: Routledge, 34–48.
- Hagger, M. & Chatzisarantis, N. (2007). Self-determination theory in exercise and sport. Champaign, IL: Human Kinetics.
- Hagger, M., Chatzisarantis, N., Hein, V., Soos, I., Karsai, I., Lintunen, T. & Leemans, S. (2009). Teacher, peer and parent autonomy support in physical education and leisure-time physical activity: A trans-contextual model of motivation in four nations. *Psychology and Health* 24, 689–711.
- Jaakkola, T. (2015). Motivaatio: ilo, innostus ja intohimon synnyttäminen. Teoksessa K. Hämäläinen ym. (toim.), *Lasten ja nuorten hyvä harjoittelu*. Lahti: VK-kustannus, 109–124.
- Jaakkola, T., Wang, J., Soini, M. & Liukkonen, J. (2015). Students' perceptions of motivational climate and enjoyment in Finnish physical education: A latent profile analysis. *Journal of Sports Science and Medicine* 14, 477–483.
- Liu, W., Wang, J. & Ryan, R. (toim.)(2016). *Building autonomous learners. Perspectives from research and practice using self-determination theory*. New York, NY: Springer.
- Liukkonen, J., Barkoukis, V., Watt, A. & Jaakkola, T. (2010). Motivational Climate and Students' Emotional Experiences and Effort in Physical Education. *The Journal of Educational Research* 103, 295–308.
- Liukkonen, J. & Jaakkola, T. (2003). *Psyykinen valmennus hiihtourheilussa*. Helsinki: Suomen hiihtoliitto.
- Liukkonen, J., Jaakkola, T. & Kataja, J. (2006). *Psyykinen valmennus lentopallossa*. Helsinki: Suomen lentopalloliitto.
- Liukkonen, J. & Jaakkola, T. (2013a). Oppimista tukevan motivaatioilmaston luominen. Teoksessa T. Jaakkola, J. Liukkonen & A. Sääkslahti (toim.), *Liikuntapedagogiikka*. Jyväskylä: PS-Kustannus, 298–312.
- Liukkonen, J. & Jaakkola, T. (2013b). Liikuntamotivaatio elinikäisen liikuntaharrastuksen edellytyksenä. Teoksessa T. Jaakkola, J. Liukkonen & A. Sääkslahti (toim.), *Liikuntapedagogiikka*. Jyväskylä: PS-Kustannus, 144–161.
- Morris, T., Spittle, M. & Watt, A. (2005). *Imagery in Sport*. Champaign, IL: Human Kinetics.
- Ntoumanis, N. (2005). A prospective study of participation in optional school physical education based on self-determination theory. *Journal of Educational Psychology* 97, 444–453.
- Ntoumanis, N. (2012). A self-determination theory perspective on motivation in sport and physical education: current trends and possible future research directions. Teoksessa G. C. Roberts & D. C. Treasure (toim.), *Advances in motivation in sport and exercise* (s. 91–128). 3. painos. Champaign, IL: Human Kinetics.
- Orlick, T. (2008). *In pursuit of Excellence*. Champaign, IL: Human Kinetics.
- Perlman, D. & Karp, G. (2010). A self-determined perspective of the Sport Education Model. *Physical Education and Sport Pedagogy* 15, 401–418.
- Porter, K. (2003). *The Mental Athlete*. Champaign, IL: Human Kinetics.
- Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J. & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin* 26, 419–435.
- Roberts, G. & Treasure, D. (toim.)(2012). *Advances in motivation in sport and exercise*. Champaign, IL: Human Kinetics.
- Ryan, R.M. & Deci, E.L. (2007). Active human nature: Self-determination theory and the promotion and maintenance of sport, exercise, and health. Teoksessa M.S. Hagger & N. Chatzisarantis (toim.), *Intrinsic motivation and self-determination in exercise and sport*. Champaign, IL: Human Kinetics, 1–19.
- Shields, D. L. & Bredemeier, B.L. (2009). *True Competition. A Guide to Pursuing Excellence in Sport and Society*. Champaign, IL: Human Kinetics.
- Soini, M. (2006). Motivaatioilmaston yhteys yhdeksäsluokkalaisten fyysiseen aktiivisuuteen ja viihtymiseen koulun liikuntatunneilla. *Studies in sport, physical education and health* 120. Jyväskylän yliopisto.
- Standage, M., Duda, J.L. & Ntoumanis, N. (2005). A test of self-determination theory in school physical education. *British Journal of Educational Psychology* 75, 411–433.
- Standage, M., Gillison, F.B. & Treasure, D. (2007). Self-determination and motivation in physical education. Teoksessa M.S. Hagger & N. Chatzisarantis (toim.), *Intrinsic motivation and self-determination in exercise and sport*. Champaign, IL: Human Kinetics, 71–85.
- Standage, M., Gillison, F., Ntoumanis, N. & Treasure, D. (2012). Predicting students' physical activity and health-related well-being: a prospective cross-domain investigation of motivation across school physical education and exercise settings. *Journal of Sport & Exercise Psychology* 34, 37–60.

- Weinberg, R. & Gould, D. (2015) *Foundations of Sport and Exercise Psychology*. Champaign, IL: Human Kinetics.
- Zhang, T., Solmon, M., Kosma, M., Carson, R. & Gu, X. (2011). Need support, need satisfaction, intrinsic motivation, and physical activity participation among middle school students. *Journal of Teaching in Physical Education* 30, 51–68.

## 7 Taidon, fyysisten ominaisuuksien ja taktiikan harjoittelu

### 7.1 Taitoharjoittelu

- Abernethy, B. (2001). Acquisition of skill. Teoksessa F. S. Pyke (toim.), *Better coaching: Advanced coach's manual*. Lower Mitcham, Australia: Human Kinetics, 161–170.
- Atencio, M., Chow, J., Tan, W. & Lee, C. (2014). Using a complex and nonlinear pedagogical approach to design practical primary physical education lessons. *European Physical Education Review* 20 (2),
- Birklbauer, J. (2006). *Modelle der Motorik*. Meyer & Meyer Verlag. Aachen.
- Bosch244–263., F. (2012). Generic Mechanisms of Motor control – Variability in Throwing. Luento 2. World conference in javelin throwing. Kuortane. 9.11.2012
- Coker, C. A. (2009). *Motor learning and control for practitioners*. Scottsdale, AZ: Holcomb Hathaway Publishers.
- Daivids, K., Button, C. & Bennett, S. (2008). *Dynamics of skill acquisition. A constraints-led approach*. Champaign, IL: Human Kinetics.
- Draganski, B., Gaser, C., Busch, V., Schuierer, T., Bogdahn, U. & May, A. (2004). Neuroplasticity: Changes in grey matter induced by training. *Nature* 427, 311–312.
- Duffy, E. (1957). The psychological significance of the concept of "arousal" and "activation". *Psychological Review* 64, 265–275.
- Eloranta, V. (2007). Ydinkeskeinen motorinen oppiminen. Teoksessa P. Heikinaro-Johansson, T. & Huovinen (toim.), *Näkökulmia liikuntapedagogiikkaan*. Helsinki: WSOY, 216–231.
- Eloranta, V. (2007). Perusliikunta – hyvinvoinnin liikuntamuoto. Teoksessa P. Heikinaro-Johansson & T. Huovinen (toim.), *Näkökulmia liikuntapedagogiikkaan*. Helsinki: WSOY, 374–386.
- Eloranta, V. & Jaakkola, T. (2003). Ydinkeskeisen motorinen opettaminen. *Liikunta ja Tiede tutkimusartikkelijulkaisu* 4, 4–9.
- Eloranta, V. & Jaakkola, T. (2007). Core-based motor teaching. *Psychology for Physical Educators – Practical Toolbox*. Champaign, Illinois: Human Kinetics.
- Ericsson, K. A. (2003). Development of elite performance and deliberate practice: An update from the perspective of the expert performance approach. Teoksessa J.L. Starkes & K.A. Ericsson (toim.), *Expert performance in sports: Advances in research on sport expertise*. Champaign, Ill: Human Kinetics, 49–83.
- Ericsson, A. A. (1996). *The road to excellence: The acquisition of expert performance in the arts and sciences, sports, and games*. Mahwah, NJ: Erlbaum.
- Fairbrother, J. (2010). *Fundamentals of Motor Behavior*. Champaign, Ill: Human Kinetics
- Fitts, P. M. & Posner, M. I. (1967). *Human performance*. Belmont, CA: Brooks/Cole.
- Gajdos, A. (1983). *Lehrbuch des Kunstturnens*. Verlag Hofmann. Schorndorf.
- Gallahue, D. L., & Donnelly, F. C. (2003). *Developmental physical education for all children*. Champaign, Ill: Human Kinetics.
- Gallahue, D. L., & Ozmun, F. C. (2006). *Understanding motor development: infants, children, adolescents, adults*. Madison, WI: Brown & Benchmark.
- Gill, D. L. & Williams, L. (2008). *Psychological Dynamics of Sport and Exercise*. Champaign, Ill: Human Kinetics.
- Gould, D. & Weinberg, R. S. (2007). *Foundations of Sport and Exercise Psychology*. Champaign, Ill: Human Kinetics.
- Guadagnoli, M.A. & Lee, T.D. (2004). Challenge point: A framework for conceptualizing the effects of various practice conditions in motor learning. *Journal of Motor Behavior*, 36, 2, 212–224.
- Herzfeld, D., Vaswani, P., Marko, M. & Shadmehr, R. 2014. A memory of errors in sensorimotor learning. *Science* 345, 1349–1353.
- Horn, T. S. (2008). *Advances in Sport Psychology*. Champaign, Ill: Human Kinetics.

- Jaakkola, T. (2010). Liikuntataitojen oppiminen ja taitoharjoittelu. PS kustannus.
- Junaid, K. A., & Fellowes, S. F. (2006). Gender differences in the attainment of motor skills on the Movement Assessment Battery for Children. *Physical & Occupational Therapy in Pediatrics* 26, 5–11.
- Kalaja, S., Jaakkola, T. & Liukkonen, J. (2008). Motoriset perustaidot peruskoulun seitsemäsluokkalaisilla oppilailla. *Liikunta & Tiede*, 46, 36–44.
- Kalaja, S., Jaakkola, T., Liukkonen, J. & Digelidis, N. (2012). Development of junior high school students' fundamental movement skills and physical activity in a naturalistic physical education setting. *Physical Education & Sport Pedagogy* 17, 411–428.
- Kuhn, G. Exercise, cognitive functions and neuroplasticity. luento LIITO ry:n opintopäivillä
- Magill, R.A. (2006). *Motor learning concepts and applications*. Dubuque, IA: McGraw-Hill.
- Magill, R.A. (2004). *Motor learning and control*. Dubuque, IA: McGraw-Hill.
- McKenzie, I., Ohayon, D., Huiliang, L., Faria, J., Emery, B., Tohyama, K. & Richardson, W. (2015) Motor skill learning requires active central myelination. Saatavilla [www.sciencemag.org](http://www.sciencemag.org). 12.10.2015
- Nideffer, R. M. & Sagal, M.-S. (2001). Concentration and attention control training. Teoksessa J. M. Williams (toim.), *Applied sport psychology. Personal growth to peak performance*. Mountain View, CA: Mayfield, 312–332.
- O'Keeffe, S. L., Harrison, A. J. & Smyth, P. J. (2007). Transfer or specificity? An applied investigation into the relationship between fundamental overarm throwing and related sport skills. *Physical Education and Sport Pedagogy* 12, 89–102.
- Penttonen, M. Virikkeitä laadukkaaseen aivotutkimukseen varhaiskasvatuksessa. luento Educa-messuilla 28.1.2012
- Schmidt, R.A., Lange, C.A. & Young, D.E. (1990). Optimizing summary knowledge of results for skill learning. *Human Movement Science*, 9, 325–348.
- Schmidt, R.A. & Lee, T.D. (2005). *Motor learning and performance: A behavioral emphasis*. Champaign, IL: Human Kinetics.
- Schmidt, R.A. & Lee, T.D. (2014). *Motor learning and performance: From Principles to Application*. Champaign, IL: Human Kinetics.
- Schmidt, R. A. & Wrisberg, C. A. (2008). *Motor Learning and Performance. A Situation-Based Learning Approach*. Champaign, IL: Human Kinetics.
- Schmidt, R.A. & Lee, T.D. (2005) *Motor Control and Learning*. Champaign, IL: Human Kinetics.
- Schöllhorn, W., Beckmann, H., Janssen, D. & Drepper, J. 2010a. Stochastic perturbations in athletics field events enhance skill acquisition. Teoksessa I. Renshaw, K. Davids & G. Savelsbergh (toim.) *Motor learning in practice. A constraints-led approach*. Lontoo: Routledge, 69–82.
- Shumway-Cook, A. & Woollacott, M. (2012). *Motor Control. Translating Research into Clinical Practice*. Lippincott Williams & Wilkins. USA.
- Syväoja, H., Kantomaa, M., Laine, K., Jaakkola, T., Pyhältö, K. & Tammelin, T. (2013) Liikunta ja oppiminen. Tilannekatsaus lokakuu 2012. Muistiot 2012:5 Helsinki. OPH.
- Underwood, J. CNS –a new challenge and possibility in high performance sports. Luento Kuortaneen voimaseminaarissa 14.11.2014.
- Vickers, J. (2007). Perception, cognition and decision training. The quiet eye in action. Champaign IL: Human Kinetics.
- Wulf, G. (2007). *Attention and Motor Skill Learning*. Champaign, IL: Human Kinetics.
- Zatorre, R., Fields, D. & Johansen-Berg, H. Plasticity in gray and white: neuroimaging changes in brain structure during learning. *Nature Neuroscience*, vol 15, 4, april 2012.

## 7.2 Nopeusharjoittelu

- Doherty TJ, Vandervoort AA, Brown WF (1993). Effects of ageing on the motor unit: a brief review. *Can J Appl Physiol* 18 (4): 331–58.
- Helander, E. V. Lahtinen (1987) Nopeuden ja nopeusvoiman kehittyminen ikävuosina 7–16. KVT -harjoitustyö. Valmentajainstituutti: Vierumäki.
- Jouste, P. (1997) Pika- ja aitaajuksut. Kirjassa: Mero, A., A. Nummela, K. Keskinen (1997) *Nykyaikainen urheiluvallmennus*. Gummerus Oy, Mero Oy, Jyväskylä.
- Korhonen, M., T. (2009) *Effects of Aging and Training on Sprint Performance, Muscle Structure and Contractile Function in Athletes*. University of Jyväskylä, Studies in sport, physical education and health. 137. Väitöskirja.
- Lexell J, Taylor CC, Sjostrom M (1988). What is the cause of the ageing atrophy? Total number, size and proportion of different fiber types studied in whole vastus lateralis muscle from 15- to 83-year-old men. *J Neurol Sci* 84 (2–3): 275–294.

- Maughan ja Gleeson (2010) *The biochemical basis of sports performance*. Toinen painos. Oxford University Press.
- Mero, A. (1987) *Electromyographic activity, force and anaerobic energy production in sprint running*. With special reference to different constant speeds ranging from submaximal to supramaximal. University of Jyväskylä. *Studies in sport, physical education and health*. 24. Väitöskirja.
- Mero, A., E. Peltola, J. Saarela (1987) *Nopeus- ja nopeuskestävyysharjoittelu*. Gummerus Oy. Mero Oy, 295 s.
- Mero, A., T. Vuorimaa, K. Häkkinen (1990) *Lasten ja nuorten harjoittelu*. Gummerus Oy. Mero Oy, 400 s.
- Mero, A., A. Nummela, K. Keskinen (1997) *Nykyaikainen urheiluvalmennus*. Gummerus Oy, Mero Oy, 558 s.
- Mero, A., A. Nummela, K. Keskinen, K. Häkkinen (2007) *Urheiluvalmennus.2. painos*. Gummerus Kirjapaino Oy, VK-Kustannus Oy, 503 s.
- Mero, A., A. Uusitalo, H. Hiilloskorpi, A. Nummela, K. Häkkinen (2012) *Naisten ja tyttöjen urheiluvalmennus*. VK-Kustannus Oy, 383 s.

### 7.3 Maksimivoimaharjoittelu

- Ahtiainen, J.P., Pakarinen, A., Kraemer, W.J., Häkkinen, K. (2003) *Acute hormonal and neuromuscular responses and recovery to forced vs maximum repetitions multiple resistance exercises*. *Int J Sports Med*, 24, 6, 410–418.
- Fleck, S.J., Kraemer W.J. (1997) *Designing resistance training programs*. Second edition. Human Kinetics.
- Häkkinen, K., Komi, P.V. (1983) *Changes in neuromuscular performance in voluntary and reflex contraction during strength training in man*. *International Journal of Sports Medicine* 4, 4, 282–288.
- Häkkinen, K. (1994) *Neuromuscular adaptation during strength training, aging, detraining and immobilization. A review*. *Critical Reviews in Physical and Rehabilitation Medicine*, 6, 2, 161–198.
- Häkkinen, K., Pakarinen, A., Alen, M., Kauhanen, H., Komi, P.V. (1988) *Daily hormonal and neuromuscular responses to intensive strength training in one week*. *International Journal of Sports Medicine*, 6, 9, 422–428.
- Häkkinen, K., Häkkinen, A. (1995) *Neuromuscular adaptations during intensive strength training in middleaged and elderly males and females*. *Electromyography and Clinical Neurophysiology*, 35, 137–147.
- Häkkinen, K., Kallinen, M. (1994) *Distribution of strength training volume into one or two daily sessions and neuromuscular adaptations in female athletes*. *Electromyography and Clinical Neurophysiology*, 34, 2, 117–124.
- Häkkinen, K. (1985) *Factors influencing trainability of muscular strength during short-term and prolonged training*. *National Strength and Conditioning Association Journal*, 7, 33.
- Häkkinen, K. (1990) *Voimaharjoittelun perusteet. Vaikutusmekanismit, harjoitusmenetelmät ja ohjelmointi*. Gummerus Oy. Jyväskylä.
- Häkkinen, K., P.V. Komi (1985) *Changes in electrical and mechanical behaviour of leg extensor muscles during heavy resistance strength training*. *Scandinavian Journal of Sport Science*, 7, 55–64.
- Kraemer, W.J., Häkkinen, K. (editors) (2002) *Strength Training for Sport*, 186 pages. *The Handbook of Sports Medicine and Science*. IOC Medical Commission Publication. Blackwell Science Ltd, Oxford. United Kingdom.
- Mero, A., K. Häkkinen (1990) *Voima ja sen harjoittaminen*. Kirjassa: Mero, A., T. Vuorimaa ja K. Häkkinen (1990) *Lasten ja nuorten harjoittelu*. Gummerus Oy. Mero Oy. Jyväskylä.
- Mero, A., A. Nummela, K. Keskinen (1997) *Nykyaikainen urheiluvalmennus*. Mero Oy. Gummerus Oy. Jyväskylä.
- Narici, M.V., M. Bordini, P. Ceretelli (1991) *Effect of aging on human adductor pollicis muscle function*. *Journal of Applied Physiology*, 71, 1278.
- Walker, S., Blazevich, A., Haff, G., Tufano, J., Newton, R., Häkkinen, K (2015) *Greater strength gain after accentuated eccentric loading in trained men*. Submitted for publication in *Medicine and Science in Sports and Exercise*.
- Zatsiorsky, V. (1995) *Science and practice of strength training*. Human Kinetics.

### 7.4 Nopeusvoimaharjoittelu

- Dick FW (2002) *Sports Training Principles*. London: A & C Black.
- Fleck S, Kraemer WJ (2004) *Designing Resistance Training Programs*, 3th ed. Human Kinetics, Champaign, IL, USA.
- Jonath U, Krempel R, Haag E, Müller H (1995) *Leichtathletik II*. Springen. Hamburg: Rowohlt.

- Killing W (2004) Trainings- und Bewegungslehre des Hochsprungs. Köln: Sport und Buch Strauß.
- Mero A, Nummela A, Keskinen K (1997) Nykyaikainen urheiluvallmennus. Gummerus Oy, Mero Oy, 558 s
- Newton RU, Kraemer WJ (1994) Developing explosive muscular power: Implications for a mixed methods training strategy. *Strength Cond J*16: 20–31.
- Strüder HK, Jonath U, Scholz K (2013) Leichtathletik Trainings- und Bewegungswissenschaft – Theorie und Praxis aller Disziplinen. Köln: Sportverlag Strauß.
- Zatsiorsky V, Kraemer WJ (2006) Science and practice of strength training, 2nd ed. Human Kinetics, Champaign, IL, USA.

## 7.5 Kestävyysharjoittelu ja voimaharjoittelu kestävyyslajeissa

- Aagaard P, Andersen JL, Bennekou M, Larsson B, Olesen JL, Crameri R, Magnusson SP, Kjær M (2011) Effects of resistance training on endurance capacity and muscle fiber composition in young top-level cyclists. *Scand J Med Sci Sports* 21, 298–307.
- Bakken TA (2013) Effects of block periodization training versus traditional periodization training in trained cross country skiers. Graduate essay, The Swedish School of Sport and Health Sciences, Stockholm, Sweden, 62, s 48.
- Bassett DR JR, Howley ET (2000) Limiting factors for maximum oxygen uptake and determinants of endurance performance. *Med Sci Sports Exerc*, 32(1), 70–84.
- Bosquet L, Montpetit J, Arvisais D, Mujika I (2007) Effects of Tapering on Performance: A Meta-Analysis. *Med Sci Sports Exerc*, 39(8), 1358–1365.
- Convertino, V.A. (1991) Blood volume: its adaptation to endurance training. *Med Sci Sports Exerc* 23: 1338.
- Donovan, C.M., Brooks, G.A. (1983) Endurance training effects lactate clearance, not lactate production. *Am J Physiol* 244: 83.
- Eklund, D., Pulverenti, T., Bankers, S., Avela, J., Newton, R.U., Schumann, M., Häkkinen, K. (2015) Neuromuscular adaptations to different modes of combined strength and endurance training. *International Journal of Sports Medicine*, 36, 2, 120–129.
- Garcia-Pallares J, Garcia-Fernandez M, Sanchez-Medina L, Izquierdo M. (2010) Performance changes in world-class kayakers following two different training periodization models. *Eur J Appl Physiol* 110: 99–107.
- Green H, Goreham C, Ouyang J, Ball-Burnett M, Ranney D (1998) Regulation of fiber size, oxidative potential, and capillarization in human muscle by resistance training. *Am J Physiol* 276, R591-R596.
- Helgerud J, Høydal K, Wang E, Karlsen T, Berg P, Bjerkaas M, Simonsen T, Helgesen C, Hjorth N, Bach R, Hoff J. (2007) Aerobic high-intensity intervals improve VO<sub>2</sub>max more than moderate training. *Med Sci Sports Exerc*. 39(4):665–71.
- Hickson RC, Rosenkoetter MA, Brown MM (1980) Strength training effects on aerobic power and short-term endurance. *Med Sci Sports Exerc* 12, 336–339.
- Hoff J, Helgerud J, Wisløff U (1999) Maximal strength training improves work economy in trained female cross-country skiers. *Med Sci Sports Exerc* 31, 870–877.
- Holloszy JO (1988) Metabolic consequences of endurance exercise training. In *Exercise, Nutrition, and Energy Metabolism*. Horton, E.S. and Terjung, R.L. (eds). McMillan, New York.
- Häkkinen, K., Alen, M., Kraemer, W.J., Gorostiaga, E., Izquierdo, M., Rusko, H., Mikkola, J., Häkkinen, A., Valkeinen, H., Kaarakainen, T., Romu, S., Erola, V., Ahtiainen, J., Paavolainen, L. (2003) Neuromuscular adaptations during concurrent strength and endurance training versus strength training. *European Journal of Applied Physiology*, 89, 42–52.
- Ingjer F (1979) Capillary supply and mitochondrial content of different skeletal muscle fiber types in untrained and endurance trained men: A histochemical and ultra structural study. *Eur J Appl Physiol* 40: 197–209.
- Issurin V (2008) Block periodization versus traditional training theory: a review. *J Sports Med Phys Fitness*, 48(1), 65–75.
- Issurin VB (2010) New horizons for the methodology and physiology of training periodization. *Sports Med* 40(3), 189–206.
- Jones AM (1998) A five year physiological case study of an Olympic runner. *Br J Sports Med* 32, 39–43.
- Kantola H, Rusko H (1984) Hiihto sydämen asiaksi. Gummerus Oy, Jyväskylä.
- Keskinen K, Häkkinen K, Kallinen M (2004) Kuntotestauksen käsikirja, Liikuntatieteellinen Seura. Helsinki.
- Kraemer WJ, Patton JF, Gordon SE, Harman EA, Deschenes MR, Reynolds K, Newton RU, Triplett NT, Dziados JE (1995) Compatibility of high-intensity strength and endurance training on hormonal and skeletal muscle adaptations. *J Appl Physiol* 78, 976–989.
- McArdle WD, Katch FI, Katch VL (1996) *Exercise Physiology, Energy, Nutrition, and Human Performance*. Fourth edition. Williams & Wilkins, USA.

- McArdle WD, Katch FI, Katch VL (2001) Exercise physiology, Energy, Nutrition, and Human Performance, Fifth edition. Lippincott Williams and Wilkins. USA.
- Millet GP, Jaouen B, Borrani F, Candau R (2002) Effects of concurrent endurance and strength training on running economy and VO<sub>2</sub> kinetics. *Med Sci Sports Exerc* 28, 1351–1359.
- Mikkola, J., Rusko, H., Nummela, A., Paavolainen, L., Häkkinen, K. (2007) Concurrent endurance and explosive type strength training increases activation and fast force production of leg extensor muscles in endurance athletes. *The Journal of Strength and Conditioning Research*, 21, 2, 613–620.
- Mikkola, J., Rusko, H., Nummela, A., Pollari, T., Häkkinen, K. (2007) Concurrent endurance and explosive type strength training improves neuromuscular and anaerobic characteristics in young distance runners. *International Journal of Sports Medicine*, March, 28, 7, 602–611.
- Mitchell JH, Raven PB (1994) Cardiovascular adaptation to physical activity. In *Physical Activity, Fitness, and Health*. Bouchard, C. et al. (eds). Human Kinetics, Champaign IL.
- Mujika I (1998) The influence of training characteristics and tapering on the adaptation in highly trained individuals: a review. *Int J Sports Med* 19, 439–446.
- Mujika I (2010) Intense training: the key to optimal performance before and during the taper. *Scand J Med Sci Sports* 20 (Suppl.2), 24–31.
- Mujika I, Padilla S, Pyne D, Busso T (2004) Physiological changes associated with the pre-event taper in athletes. *Sports Med* 34, 891–927.
- Mujika I, Padilla S (2003) Scientific bases for pre-competition tapering strategies. *Med Sci Sports Exerc* 35, 1182–1187.
- Paavolainen L, Häkkinen K, Hämmäläinen I, Nummela A, Rusko H (1999) Explosive-strength training improves 5-km running time by improving running economy and muscle power. *J Appl Physiol* 86(5): 1527–1533.
- Rønnestad BR, Hansen EA, Raastad T (2011) Strength training improves 5-min all-out performance following 185 cycling. *Scand J Med Sci Sports* 21, 250–259.
- Rønnestad BR, Hansen J, Ellefsen S (2014) Block periodization of high-intensity aerobic intervals provides superior training effects in trained cyclists. *Scand J Med Sci Sports* 24(1), 34–42.
- Rønnestad BR, Ellefsen S, Nygaard H, Zacharoff EE, Vikmoen O, Hansen J, Hallen J (2014). Effects of 12 weeks of block periodization on performance and performance indices in well-trained cyclists. *Scand J Med Sci Sports* 24(2), 327–335.
- Schumann, M., Mykkänen, O., Doma, K., Mazzolari, R., Nyman, K., Häkkinen, K. (2015) Effects of endurance training only versus same-session combined endurance and strength training on physical performance and serum hormone concentrations in recreational endurance runners. *Applied Physiology, Nutrition, and Metabolism* 40, 1, 28–36.
- Schumann, M., Pelttari, P., Kenji Doma, K., Karavirta, L., Häkkinen, K. (2016) Neuromuscular adaptations to same-session combined endurance and strength training in recreational endurance runners. *International Journal of Sports Medicine*. Submitted for publication.
- Schumann, M., Walker, S., Izquierdo, M., Newton, R., Kraemer, W.J., Häkkinen, K. (2014) The order effect of combined endurance and strength loadings on force and hormone responses: Effects of prolonged training. *European Journal of Applied Physiology*, 114, 4, 867–880.
- Spina RJ, Ogawa T, Coggan AR, Holloszy JO, Ehsani AA (1992) Exercise training improves left ventricular contractile response to b-adrenergic agonist. *J Appl Physiol* 72(1):307–11.
- Spurrs RW, Murphy AJ, Watsford WL (2003) The effects of plyometric training on distance running performance. *Eur J Appl Physiol* 89, 1–7.
- Støren O, Helgerud J, Støa EM, Hoff J (2008) Maximal strength training improves running economy in distance running. *Med Sci Sports Exerc* 40, 1089–1094.
- Støren O, Sanda SB, Haave M, Helgerud J. (2011). Improved VO<sub>2</sub>max and time trial performance with more high aerobic intensity interval training and reduced training volume: a case study on an elite national cyclist. *J Strength Cond Res*. 26(10): 2705–2711.
- Sunde A, Støren O, Bjerkaas M, Larsen MH, Hoff J, Helgerud J (2010) Maximal strength training improves cycling economy in competitive cyclists. *J Strength Cond Res* 24, 2157–2165.
- Taipale, R., Mikkola, J., Nummela, A., Vesterinen, V., Capostagno, B., Walker, S., Gitonga, D., Kraemer, W.J., Häkkinen, K. (2010) Strength training in endurance runners. *International Journal of Sport Medicine*, 31, 7, 468–476.
- Taipale, R., Mikkola, J., Salo, T., Hokka, L., Vesterinen, V., Nummela A., Häkkinen, K. (2014) Mixed maximal and explosive strength training added to endurance training. *Journal of Strength and Conditioning Research*, 28, 3, 689–699.
- Taipale, R., Mikkola, J., Vesterinen, V., Nummela, A., Häkkinen, K (2013) Neuromuscular adaptations during combined strength and endurance training in endurance runners: maximal vs. explosive strength training or a mix of both. *European Journal of Applied Physiology*, 113, 325–335.
- Verkhoshansky Y (2007) The block training system in endurance running. Published in electronic format by Verkhoshansky.com. s 58.

Wilson, J.M. Marin, J.P. Rhea, M.R. Wilson, S.M.C. Loenneke, J.P. & Anderson, J.C. 2012. Concurrent training: a meta-analysis examining interference of aerobic and resistance exercises. *Journal of Strength and Conditioning Research* 26 (8), 2293–2307.

## 7.6 Nopeuskestävyyden harjoittelu

- Ayalon A, Inbar O, Bar-Or O (1974) Relationships among measurements of explosive strength and anaerobic power. In: Nelson RC, Morehouse CA (eds.) *International Series on Sport Sciences*, vol. 1, Biomechanics IV. University Park Press, Baltimore. pp. 527–537.
- Bar-Or O (1983) *Pediatric Sports Medicine for the Practitioner*. Springer Verlag, New York.
- Fox EL (1973) Differences in metabolic alterations with sprint versus endurance interval training programs. In: Howald H, Poortmans JR (eds) *Metabolic Adaptations to Prolonged Physical Exercise*. Birkhäuser, Basel, Switzerland. pp. 119–126.
- Bosco C, Luhtanen P, Komi PV (1983) A simple method for measurements of mechanical power in jumping. *Eur J Appl Physiol* 50: 273–282.
- Jansson E, Esbjörnsson M, Holm I, Jacobs I (1990) Increase in the proportion of fast-twitch muscle fibres by sprint training in males. *Acta Physiol Scand* 140: 359–363.
- MacDougall JD, Wenger HA, Green HJ (1991) *Physiological Testing of High-Performance Athletes*, second edition. Human Kinetics Books, Champaign, Illinois, U.S.A.
- Medbø JI, Burgers S (1990) Effect of training on the anaerobic capacity. *Med Sci Sports Exerc* 22: 501–507.
- Medbø JI, Mohn AC, Tabata I, Bahr R, Vaage O, Sejersted OM (1988) Anaerobic capacity determined by maximal accumulated O<sub>2</sub> deficit. *J Appl Physiol* 64: 50–60.
- Mosher RE, Rhodes EC, Wenger HA, Filsinger B (1985) Interval training: the effects of a 12-week programme on elite pre-pubertal male soccer players. *J Sports Med* 25: 5–9.
- Nummela A (1996) A new laboratory test method for estimating anaerobic performance characteristics with special reference to sprint running. Doctoral thesis, University of Jyväskylä, Jyväskylä, Finland.
- Nummela A, Mero A, Rusko H (1996) Effects of sprint training on the determinants of maximal anaerobic running performance. *Int J Sports Med* 17, Suppl 2: S114-S119.
- Nummela A, Härmäläinen I, Rusko H (2007) Comparison of maximal anaerobic running test on a treadmill and track. *J Sports Sci* 25(1): 87–96.
- Roberts AD, Billeter R, Howald H (1982) Anaerobic muscle enzyme changes after interval training. *Int J Sports Med* 3: 18–21.
- Paavolainen LM, Nummela AT, Rusko HK (1999) Neuromuscular characteristics and muscle power as determinants of 5-km running performance. *Med Sci Sports Exerc* 31(1): 124–130.
- Rotstein A, Dotan R, Bar-Or O, Tenenbaum G (1986) Effect of training on anaerobic threshold, maximal aerobic power and anaerobic performance of preadolescent boys. *Int J Sports Med* 7: 281–285.
- Rusko HK, Nummela AT (1996) Measurement of Maximal and Submaximal Anaerobic Power. *Int J Sports Med* 17, Suppl 2.
- Rusko H, Nummela A, Mero A (1993) A new method for the evaluation of anaerobic power in athletes. *Eur J Appl Physiol* 66: 97–101.
- Sharp RL, Costill DL, Fink WJ, King DS (1986) Effects of eight weeks bicycle ergometer sprint training on human muscle buffer capacity. *Int J Sports Med* 7: 13–17.
- Smith DJ, Stokes SM (1985) Load optimization in anaerobic power testing of elite athletes. *Can J Appl Sport Sci* 10: 30.
- Szögy A, Cerebetiu G (1974) Minutentest auf dem Fahrradergometer zur Bestimmung der anaeroben Kapazität. *Eur J Appl Physiol* 33: 171–176.

## 7.7 Taktiikka ja joukkuepelaaminen

### Yleistä taktiikasta

- Martin D, Carl K, & Lehnertz K (2001) *Handbuch Trainingslehre*. Verlag Hoffmann Schorndorf.
- Schnabel G, Harre D, Krug J & Borde A (2005) *Trainingswissenschaft Leistung Training Wettkampf*. Sport Verlag Berlin.

## Jääkiekkotaktiikka

- Hanin J, Rantanen V, Mantila A (2005) Raimo Summanen meidän päivä, Valmentamisen vaikea taito. Kustannusosakeyhtiö Teos.
- Saarinen E, Lindström C, Raevuori A, Virta M (1995) Poppamies. Werner Söderström Osakeyhtiö.
- Perron C, Chouinard N (1991) Shooting to win; A Coach's Guide to Playing Better Offensive Hockey. McGraw-Hill Ryerson Limited. Alkuperäisteos Le Hockey: D'un but a L'autre. Gaetan Morin Editeur Ltee (1991).

## 7.8 Liikkuvuuden harjoittaminen

- Alter, M. (2004) Science of Flexibility. Human Kinetics.
- Avela, J., Kyröläinen, H. & Komi, P. Altered reflex sensitivity after repeated and prolonged passive muscle stretching. *Journal of Applied Physiology* 1999;86:1283–1291.
- Behm, D. Effective Training Modalities, Olympic Weightlifting, Plyometrics & Traditional Resistance Training in Children. Videoluento Kuntotestauspäivät 2015.
- Behm, DG & Chaouachi, A. (2011) A review of the acute effects of static and dynamic stretching on performance. *European Journal Applied Physiology* 111 (11):2633–2651.
- Cook, G. (2003) Athletic Body in Balance. Human Kinetics.
- Frederick, A. & Frederick, C. (2015) Fascial Stretch Therapy – lihaskalvojen venytysterapia. VK-kustannus.
- Herbert, R., Noronha, M. & Kamper, S. (2011) Stretching to prevent or reduce muscle soreness after exercise. *Cochrane Database Syst. Rev*
- Hirtz, P. (2007) Koordinative Fähigkeiten und Beweglichkeit. Teoksessa Meinel, K. & Schnabel, G. (toim.) *Bewegungslehre Sportmotorik*. Meyer & Meyer Verlag. Aachen.
- Hohmann, A., Lames, M. & Letzelter, M. (2007) Einführung in die Trainingswissenschaft. Limpert Verlag. Wiebelsheim.
- Johns, R. & Wright, V. (1962) Relative importance of various tissues in joint stiffness. *Journal of Applied Physiology* 17(5):824–828.
- Kaksonen, A. (toim.) (2014) TULES-asiakkaan parhaaksi. Lahden ammattikorkeakoulun julkaisu. Sarja B Oppimateriaalia, osa 19.
- Kokkonen, J., Nelson, A. & Corwell, A. Acute muscle stretching inhibits maximal strength performance. *Research Quarterly for Exercise and Sport* 1998;69:411–415.
- Lauersen, J., Bertelsen, D. & Andersen, L. The effectiveness of exercise interventions to prevent sport injuries: a systematic review and meta-analysis of randomised controlled trials. *British Journal of Sport Medicine* 2014;48:871–877.
- Mattes, A. (2012) Aaron Mattes' Active Isolated Stretching. Aaron L. Mattes.
- Martin, D., Carl, K. & Lehnertz, K. (2001) Handbuch Trainingslehre. Verlag Hofmann. Schorndorf.
- Meinel, K. & Schnabel, G. (2007) *Bewegungslehre Sportmotorik*. Meyer & Meyer Verlag. Aachen.
- O'Sullivan, K. & McAuliffe, S. Injury prevention and management among athletic populations. To stretch or not to stretch? *Aspetar Sport Medicine Journal* 3/2014:624–628.
- Pasanen, K. Venyttelyn mekanismit. Luento 5.10.2012. UKK-Instituutti. Tampere.
- Richter, P. & Hebben, E. (2007) Triggerpisteet ja lihastoimintaketjut osteopatiassa ja manuaalisessa terapiassa. VK-kustannus.
- Saari, M., Lumio, M., Asmussen, P. & Montag, H-J. (2013) Käytännön lihashuolto – warm up, cool down, venyttely, hieronta, urheiluhieronta ja teippaus. VK-Kustannus oy.
- Schnabel, G., Harre, D., Krug, J. & Borde, A. (2005) *Trainingswissenschaft*. Sport Verlag. Berlin.
- Stafilidis, S. & Tilp, M. (2015) Effects of short duration static stretching on jump performance, maximum voluntary contraction, and various mechanical and morphological parameters of the muscle-tendon unit of the lower extremities. *European Journal Applied Physiology* (2015) 115:607–617.
- Ylinen, J. (2006) Venytysharjoittelu – ohjeet ja kuvasto. Medirehabook kustannus.

## 8 Lajianalyysi ja valmennuksen ohjelmointi

### 8.1 Urheilulahjakkuuksien tunnistaminen valintavaiheessa

- Arbeit E. (1998) Practical training emphases in the first and second decades of development. *New Studies in Athletics*, 13, 1 13–20.
- Arbeit E. (1998) Principles of the multi-year training process. *New Studies in Athletics*, 13, 4, 21–28.
- Bompa T.O., G. G. Haff (2009) *Periodization. Theory and Methodology of Training*. Fifth Edition. Human Kinetics.
- Ford P., M. De Ste Croix, R. Lloyd, R. Meyers, M. Moosavi, J. Oliver, K. Till, G. Williams (2011) The Long-Term Athlete Development Model: Physiological evidence and application. *Journal of Sports Sciences*, 29(4): 389–402.
- Hakkarainen H., T. Jaakkola, S. Kalaja, J. Lämsä, A. Nikander, J. Riski (2009) Lasten ja nuorten urheiluvallennuksen perusteet. VK-Kustannus Oy.
- Harre D.(1969) *Trainingslehre*. Berlin.
- Helander E., V. Lahtinen (1987) Nopeuden ja nopeusvoiman kehittyminen ikävuosina 7–16. KVT-harjoitustyö. Valmentajainstituutti, Vierumäki.
- Joch W. (1992) *Das Sportliche Talent. Talenterkennung – Talentförderung – Talentperspektiven*. Edition Sport und Wissenschaft. Band 15. Meyer und Meyer Verlag.
- Keskinen K., K. Häkkinen, M. Kallinen (2007) *Kuntotestauksen käsikirja*. Liikuntatieteellinen Seura, Julkaisu nro 161, 2.uudistettu painos.
- Lahjakkuus lasten ja nuorten urheilussa (2009). Suomen Olympiakomitea ja Nuori Suomi.
- Mero A., T. Vuorimaa, K. Häkkinen (1990) *Lasten ja nuorten harjoittelu*. Mero Oy. Jyväskylä, 400 s.
- Mero A., A. Nummela, K. Keskinen (1997) *Nykyaikainen urheiluvallennus*. Mero Oy. Jyväskylä. 558 s.
- Mero A., A. Nummela, K. Keskinen, K. Häkkinen (2004, 2007). *Urheiluvallennus*. 1. ja 2. painos. VK-Kustannus Oy.
- Mero A., A. Uusitalo, H. Hiilloskorpi, A. Nummela, K. Häkkinen (2012) *Naisten ja tyttöjen urheiluvallennus*. VK-Kustannus Oy.
- Siris, P.Z., P.M. Gajdarskaja, K.I. Racev (1983) *Selection and capacities evaluation in track and field*. Moscow.

### 8.2 Taito- ja tekniikkalajit

#### 8.2.1 Taitoluistelun lajianalyysi ja valmennuksen ohjelmointi

- Bartlett, B. (2001). *Planning your skater's development*. ISU Development Project 8.-13.5.2001 Vierumäki, Finland.
- Honkanen, M. (1999). *Jalan alle kohdistuvat paineet ja kaari- ja kärkihyppyjen lihasaktiivisuusmallit taitoluistelun kolmoishypyissä*. Pro Gradu -tutkielma. Jyväskylän yliopisto. Liikuntabiologian laitos.
- King, D. (2000). *Jumping in figure skating*. Teoksessa: V. Zatsiorsky (toim.) *Biomechanics in Sport. Performance enhancement and injury prevention*. Blackwell Science, 312–325.
- King, D., Smith, S., Higginson, B., Muncasy, B., Scheirman, G. (2002). Characteristics of triple and quadruple toe-loops performed during Salt Lake City 2002 Winter Olympics. *Sport Biomechanics* 3 (1), 109–123.
- King, D. (2005). *Performing triple and quadruple figure skating jumps: Implications for training*. *Canadian Journal of Applied Physiology* 30 (6), 743–753.
- Kleemola, J. (2015). *Henkilökohtainen haastattelu 25.5.2015 maajoukkueen ravitsemusasiantuntijana toimimisesta*.
- Kitti, K. (2008). *Taitoluistelun lajivaatimukset ja taitoluistelusuorituksen kuormittavuus*. Opinnäytetyö. Haaga-Helia Ammattikorkeakoulu. Liikunnan ja vapaa-ajan koulutusohjelma.
- Lipetz, J. & Kruse, R. (2000). *Injuries and special concerns of female figure skaters*. *Clinics in Sports Medicine* 19 (2), 369–380.

- Moormann, P. (1994). Figure skating performance: A psychological study. Leiden University. (<http://www.alcazar.com/arthur/moormann.html>)
- Mäntynen, J. (2009). Nuoren taitoluistelijan fyysisen suorituskyvyn vaatimukset. Opinnäytetyö. Haaga-Helia Ammattikorkeakoulu. Liikunnan ja vapaa-ajan koulutusohjelma.
- Nieminen, R. (2001). Taitoluistelun lajiansalyysi. STLL.

### 8.2.3 Mäkihypyn lajiansalyysi ja valmennuksen ohjelmointi

- Bompa TO, Haff G (2009) *Periodization: Theory and Methodology of Training*, 5th edition. Human Kinetics, USA, Champaign.
- Gollhofer A (2003) *Biomechanics of Strength and Strength Training*. Teoksessa *Strength and Power in Sport*. Edited by Paavo Komi. Blackwell Science. 2 nd. Edition.
- Poormans JR, Rawson ES (2015) Creatine. Teoksessa: Castell LM, Stear SJ, Burke LM (2015): *Nutritional supplements in sport, exercise and health*, 99–101.
- Ranta M, von Hetzen R (1999) Landing in ski jumping. An expert report for the FIS Technical Board.
- Schwameder H (2008) Biomechanics research in ski jumping, 1991–2006. *Sport Biomechanics*, 7 (1), 114–136.
- Virmavirta M (2016) Aerodynamics of ski jumping. Teoksessa: Braghin et al. (eds.) *The engineering approach to winter sports*. Springer, 153–181.

## 8.3 Nopeuslajit

### 8.3.1 100 m juoksun lajiansalyysi ja valmennuksen ohjelmointi

- Castell LM, Stear SJ, Burke LM (2015) *Nutritional supplements in sport, exercise and health. An A-Z Guide*, 425 pages. Routledge, Taylor-Francis Group, London and New York.
- Harland MJ, Steele JR (1997) Biomechanics of the sprint start. *Sports Medicine* 23 (1), 11–20.
- Henneman E, Somjen G, Carpenter DO (1965) Functional significance of cell size in spinal motoneurons. *J. Neurophysiology*, 28, 560–580.
- Hirvonen J, Rehunen S, Rusko H, Härkönen M (1987) Breakdown of high-energy phosphate compounds and lactate accumulation during short supramaximal exercise. *Eur J Appl Physiol* 56: 253–259.
- Hirvonen J, Nummela A, Rusko H, Rehunen S, Härkönen M (1992) Fatigue and changes of ATP, creatine phosphate, and lactate during the 400-m sprint. *Can J Spt Sci* 17: 1441–144.
- Ito A, Fukuda K, Kijima K (2008) Mid-phase movements of Tyson Gay and Asafa Powell in the 100 metres at the 2007 World Championships in Athletics. *New Studies in Athletics* 23 (2): 39–43.
- Jouste P (1997) Pika- ja aitajuoksut. Kirjassa: Mero, A., A. Nummela, K. Keskinen (1997) *Nykyaikainen urheiluvallmennus*. Gummerus Oy, Mero Oy, Jyväskylä.
- Keränen T (2002) Askelpituuden ja askeltiheyden vaikutus maksimijuoksunopeuteen. *Huippu-Urheilu -uutiset*, 1, 15–17.
- Korneljuk A (1978) Euroopan yleisurheiluvallmentajien kongressi Venetsiassa.
- Mackala K, Mero A (2013) A Kinematics Analysis Of Three Best 100 M Performances Ever. *Journal of Human Kinetics*, 36, 149–161.
- Mann R (2013) *The mechanics of sprinting and hurdling*. 2013 edition.
- Mero A, Hirvonen J (1983) Laktaattipitoisuus pikajuoksun kilpailutilanteissa. Opetusmateriaali. Liikuntabiologian laitos, Jyväskylän yliopisto.
- Mero A (1987) Electromyographic activity, force and anaerobic energy production in sprint running with special reference to different constant speeds ranging from submaximal to supramaximal. *Studies in Sport, Physical Education and Health* 24. University of Jyväskylä, Jyväskylä (doctoral thesis), 112 pages.
- Mero A, Komi PV (1987) Electromyographic activity in sprinting at speeds ranging from submaximal to supramaximal. *Medicine and Science in Sports and Exercise* 19, 3, 266–274.
- Mero A, Peltola E, Saarela J (1987) Nopeus- ja nopeuskestävyysharjoittelu. Gummerus Oy. Mero Oy, 295 s.
- Mero A (1988) Force-time characteristics and running velocity of male sprinters during the acceleration phase of sprinting. *Research Quarterly for Exercise and Sport*, vol 59, 2, 94–98.
- Mero A, Komi PV, Gregor R (1992) Biomechanics of sprint running. *Sports Medicine*, 13(6); 376–392.
- Mero A, Nummela A, Keskinen K (1997) *Nykyaikainen urheiluvallmennus*. Gummerus Oy, Mero Oy, 558 s.
- Mero A, Kuitunen S, Harland M, Kyröläinen H, Komi PV (2006) Effects of musculotendon length on joint moment and power during sprint starts. *Journal of Sport Sciences*, 24, 2, 165–173.

- Mero A, Nummela A, Keskinen K, Häkkinen K (2004) *Urheiluvalmennus*. 1. painos, Mero Oy, Jyväskylä, Gummerus Oy, ISBN 951-9147-44-6, 503 s.
- Mero A, Nummela A, Keskinen K, Häkkinen K (2007) *Urheiluvalmennus*. 2. painos, Mero Oy, Jyväskylä, Gummerus Oy, ISBN 978-951-9147-44-4, 503 s.
- Nardone A, Romanò C, Schieppati M (1989) Selective recruitment of high-threshold human motor units during voluntary isotonic lengthening of active muscles. *J Physiol*. Feb; 409:451-471.
- Newsholme EA, Blomstrand E, Ekblom B (1992) Physical and mental fatigue: metabolic mechanisms and importance of plasma amino acids. *British Medical Bulletin*, 48 (3), 477-495.
- Rauhala T (2003) Kevään harjoittelu suomalaisilla 100–200 m pikajuoksijoilla ja sen vaikutukset askeltiheyteen ja askelpituuteen. Jyväskylän yliopisto. Liikuntabiologian laitos. Opinnäytetyö.
- Smith JL, Betts B, Edgerton VR, Zernicke RF (1980) Rapid ankle extension during paw shakes: selective recruitment of fast ankle extensors. *J. Neurophysiology*, 43, 612-620.
- Seitz LB, Reyes A, Tran TT, Villarrael ES de, Haff GG (2014) Increases in Lower-Body Strength Transfer Positively to Sprint Performance: A Systematic Review with Meta-Analysis. *Sports Medicine* 44:1693-1702, DOI 10.1007/s40279-014-0227-1.

## 8.4 Maksimivoimalajit

### 8.4.1 Painonnoston lajianalyysi ja valmennuksen ohjelmointi

- Carlsson C (2006) *Muskeln i focus*. SISU Idrottsböcker och redaktören. Elanders Berlings. Malmö.
- Dörr Dominik (2014) *Scientific Pages: Nutritional Supplements in Weightlifting*, s. 46-47. *World Weightlifting Magazine*, No. 131.
- Hakkarainen H, Jaakkola T, Kalaja S, Lämsä J, Nikander A, Riski J (2009) Lasten ja nuorten urheiluvalmennuksen perusteet. 1. painos. VK-kustannus Oy. Jyväskylä.
- Häkkinen K (1990) Voimaharjoittelun perusteet. Vaikutusmekanismit, harjoitusmenetelmät ja ohjelmointi. Gummerus Oy. Jyväskylä.
- Häkkinen, K., Pakarinen, A., Alen, M., Kauhanen, H., Komi, P.V. (1988) Daily hormonal and neuromuscular responses to intensive strength training in one week. *International Journal of Sports Medicine*, 6, 9, 422-428.
- Häkkinen K, Pakarinen A (1993) Acute hormonal responses to two different fatiguing heavy resistance protocols in male athletes. *J Appl Physiol*. 74, 2, 882-887.
- Ilander O (2010) Nuoren urheilijan ravitsemus – eväät energiseen elämään. 1. painos. VK-kustannus Oy. Lahti.
- Ilander O (2011) *Elintarviketieteiden maisteri. Voimavalmennusseminaari luentomateriaali*. 27.5.2011.
- Iron Maven (2008) *Norik & James: Two Distinct Styles of Lifting*. Luettu 29.12.2015, [https://www.youtube.com/watch?v=ioEe\\_rjwSI0](https://www.youtube.com/watch?v=ioEe_rjwSI0).
- Jones L, Pierce K, Keelan M (2010) *International Weightlifting Federation Club Coach Manual, Level 1*. Typonova. Budapest.
- Kailajärvi J (1992-2011) *Päävalmentaja. Suomen Painonnostoliitto. Haastattelut vv. 1992-2011*.
- Lundahl K (2011) *Valmennus- ja koulutuspäällikkö. Suomen Painonnostoliitto. Luentomateriaali*. 12.2.2011.
- Lundahl K (2013) *Valmennus- ja koulutuspäällikkö. Suomen Painonnostoliitto. Voimavalmennusseminaari luentomateriaali*. 26.5.2013.
- Lundahl K (2015) *Valmennus- ja koulutuspäällikkö. Suomen Painonnostoliitto. Painonnoston ohjaajakoulutus II*. 8.11.2015.
- Mero A, Nummela A, Keskinen K, Häkkinen K (2007) *Urheiluvalmennus*. 2. painos. VK-kustannus Oy. Lahti.
- Mero A (2010) *Professori, liikuntatieteiden tohtori. Jyväskylän yliopisto. Luentomateriaali*. 8.10.2010.
- Tason I *valmentajakoulutus 2015a. Koulutusmateriaali. Voiman osa-alueet*.
- Tason I *valmentajakoulutus 2015b. Koulutusmateriaali. Nopeusharjoittelu*.
- Tason I *valmentajakoulutus 2015c. Koulutusmateriaali. Taitavuuden harjoittelu*.
- Urso A (2014a) *The Scientific Basis of Sports Training*. Tipografia Futura. San Giustino.
- Urso A (2014b) *Weightlifting. Sport for all sports*. Tivoli. Rooma.
- Wikipedia. *Painonnosto*. Haettu 29.12.2015. [https://fi.wikipedia.org/wiki/Kes%C3%A4olympialaiset\\_1896](https://fi.wikipedia.org/wiki/Kes%C3%A4olympialaiset_1896).
- Zatsiorsky VM (1992) Intensity of strength training facts and theory: Russian and Eastern European approach. *National Strength and Conditioning Association Journal*, 14 (5). 46-57.

## 8.5 Nopeusvoimalajit

### 8.5.1 Korkeushypyn lajiansalyysi ja valmennuksen ohjelmointi

- Ae, M., Nagahara, R., Ohshima, Y., Koyama, H., Takamoto, M., & Shibayama, K. (2008). Biomechanical Analysis of the Top Three Male High Jumpers at the 2007 World Championships in Athletics. *New Studies in Athletics*, 23, 45–52.
- Dapena, J. (1997). A closer look at the shape of the high jump run-up. *Track Coach*, 138, 4406–4411.
- Dapena, J., Ae, M., and Iiboshi, A. (1997). A closer look at the shape of the high jump run-up. *Track Technique*, 138, 4406–4411.
- Dapena, J. The high jump. *Biomechanics in Sport*, Ed. V. Zatsiorsky. Blackwell Science, Oxford, 284–311, 2000.
- Doherty K. (2007). *Track & Field Omnibook* (5th edition). Tafnews Press, USA;
- Greig, M.P. & Yeadon, M.R. (2000). The influence of touchdown parameters on the performance of a high jumper. *Journal of Applied Biomechanics*, 16(4), 367–378.
- Iiboshi A, Ae M., Yuuki M., Takamatsu J. Nasagawa M., ja Tan HP (1994). Biomechanical analysis of the techniques for the world's best high jumpers. *IAAF World Championships in Athletics, Tokyo 91*. Edit Sasaki H., Kobayashi K. ja Ae M. Baseball magazine Co., Ltd, Tokio.
- Huovinen HT, Hulmi JJ, Isolehto J, Kyröläinen H, Puurtinen R, Karila T, Mackala K ja Mero AA. (2015) Body composition and power performance improved after weight reduction in male athletes without hampering hormonal balance. *J Strength Cond Res*. 2015 Jan;29(1), 29–36.
- Isolehto J., Siukonen S. and Komi P. V. (2003). Muscle activation patterns and efficiency of high jump take-off. 10th Annual Congress European College of Sport Science (ECSS 2003). Book of Abstracts of the 10th Annual Congress of the European College of Sport Science in Belgrade, Serbia from 13–16 July 2005. Page 72.
- Isolehto J., Virmavirta M., Kyrolainen H., Komi P. Biomechanical analysis of the high jump at the 2005 IAAF World Championships in Athletics. *New Studies in Athletics*. 2007, vol.22(2), s. 17–27
- Isolehto (2011). *Hyppyjen koulutusohje*. teoksessa Suomen Urheiluliiton koulutusohjeet 2011–2013, koonnut Rajala T. Waasa Graphics, Vaasa.
- IAAF Statistics Handbook Beijing 2015. Editor Mark Butler. Produced by the IAAF Communications Department 2015, Monaco. <http://iaaf-ebooks.s3.amazonaws.com/2015/Beijing-2015-Statistics-Handbook/index.htm> (ladattu 15.12.2015).
- Jalava Mirko (2015). World Alltime List. Compiled by Mirko Jalava. Tilastopaja Oy.(2015).. <http://www.tilastopaja.org/db/listallt.php> (päivitetty 31.12.2015).
- Killing W. (2004) *Trainings- und Bewegungslehre des Hochsprungs*. Köln : Sportverl. Strauß
- Lees A, Rojas J, Ceperos M, Soto V, Gutierrez M. (2000). How the free limbs are used by elite high jumpers in generating vertical velocity. *Ergonomics*. 43(10): 1622–36
- Linthorne N (2007). *Materials in sports equipment*, volume 2, chapter Design and materials in athletics. Woodhead Publishing, 2007.
- Martin David E. (1987). *The High Jump Book*. Tafnews Press, Los Altos CA USA.
- Rovelto Cliff (2009) *High Jump: Beyond the Basics – Anatomy of Elite Performance and Elite Testing Data*. <http://www.ustfccca.org/assets/09-symposiums/high-jump-beyond-the-basics-cliff-rovelto-kansas-state.pdf>
- Strüder, H., Jonath, U. & Scholz, K. (2013): *Leichtathletik. Trainings- und Bewegungswissenschaft – Theorie und Praxis aller Disziplinen*, Köln: Strauß.
- Weia Reinboud (2015). Absolute age records high jump. Women and men from age 1–97. (päivitetty 21.6.2015). <http://www.at-a-lanta.nl/weia/RecPyrEng.html>
- Zagorulko Y. (2011). *Modern Training of the Elite High Jumpers*. The 1st European Decathlon Conference – Tallinn. European Athletics Coaching Summit Series. Luentomateriaali.

### 8.5.2 Keihäänheiton lajiansalyysi ja valmennuksen ohjelmointi

- Ingberg M (2013) *Naiskeihäänheiton valmennuksen polku – nostoja ja ajatuksia*. Valmentajan ammattitutkinnon lopputyö.
- Liukkonen J Psykkiset tekijät urheilussa. Kirjassa *Urheiluvalmennus*. Toim. Mero M, Nummela A, Keskinen K ja Häkkinen K, VK-Kustannus Oy, Jyväskylä 2004, s. 215–221.
- Mero A, Komi PV, Korjus T, Enrique N and Gregor RJ (1994) Body segment contributions to javelin throwing during final thrust phases. *Journal of Applied Biomechanics*, 10, 166–177.
- Murakami M, Tanabe S, Ishikawa M, Isolehto J, Komi P V and Ito A (2006) Biomechanical analysis of the javelin throwing at 11th IAAF World Championships in Athletics in Helsinki.

- Tauchi K, Murakami M, Endo T, Takesako H & Gomi K (2008) Biomechanical analysis of elite javelin throwing technique at the 2007 IAAF World Championships in Athletics.
- Terauds J (1985) Biomechanics of the Javelin Throw, Academic Publishers, California.
- Utriainen E (1987) Keihäänheitto. Suomen Urheiluliitto.
- Valleala R (2002) Keihäänheitto-urituksen biomekaaniset muuttujat ja niiden yksilöllisyys kahden eri heittäjän suorituksissa. Jyväskylän yliopisto. Liikuntabiologian laitos. Pro gradu -tutkielma.
- Valleala R (2012a) Helsingin EM-kisojen 2012 biomekaaniset raportit: Keihäänheitto, Huippu-Urheilu-Uutiset 3, 28–29.
- Valleala R (2012b) Keihäänheiton suoritustekniikkamittausten koontiraportti 2008–2012, Käyttöraaportti, Jyväskylä.
- Viitasalo J, Mononen H & Norvapalo K (2003) Release parameters at the foul line and the official result in javelin throwing, Sports Biomechanics 2, 15–34

## 8.6 Kestävyysslajit

### 8.6.1 Kestävyyssuoksen lajiansalyysi ja valmennuksen ohjelmointi

- Aagaard P & Raastad T (2012) Strength training for Endurance Performance. In: Mujjika I (ed.) Endurance Training – Science and Practise. Inigo Mujjika S.L.U., pp 51–59.
- Burke L & Cox G (2012) Nutrition for Endurance Training and Competition. In: Mujjika I (ed.) Endurance Training – Science and Practise. Inigo Mujjika S.L.U., pp 211–224.
- Kunimasa Y, Sano K, Oda T, Nicol C, Komi PV, Locatelli E, Ito A, Ishikawa M (2014) Specific muscle-tendon architecture in elite Kenyan distance runners. Scand J Med Sci Sports 24, e269-e274.
- Lucia A, Esteve-Lanao J, Olivan J, Gomez-Gallego F, San Juan AF, Santiago C, Perez M, Chamorro-Vina C, Foster C. (2006) Physiological characteristics of the best Eritrean runners – exceptional running economy. NRC Research Press Web site at <http://apnm.nrc.ca>.
- Lucia A, Olivan J, Bravo J, Gonzalez-Freire M, Foster C (2008) The key to top-level endurance running performance: a unique example. Br J Sports Med 42, 172–174.
- Magness S (2014) The Science of Running. Origin Press.
- Suikki L (2015) Ratajuoksumatkojen keskinopeuksien analysointia fysiologisesta ja matemaattisesta näkökulmasta. Pro-Gradu – tutkielma. Itä-Suomen Yliopisto, Fysiikan ja matematiikan laitos.

### 8.6.2 Maastohiihdon lajiansalyysi ja valmennuksen ohjelmointi

- Andersson E, Supej M, Sandbakk Ø, Sperlich B, Stöggl T, Holmberg HC. 2010. Analysis of sprint cross-country skiing using a differential global navigation satellite system. Eur J Appl Physiol. 110 (3):585–95.
- Holmberg HC, Lindinger S, Stöggl T, Eitzlmair E, Müller E. 2005. Biomechanical analysis of double poling in elite cross-country skiers. Med Sci Sports Exerc. 37(5):807–18.
- Kantola, H. & Rusko, H. 1985. Sykettä ladulle. VK-Kustannus Oy.
- Leppävuori A. 1997. Huippuhihtäjän harjoittelu s.503–510, teoksessa Nykyaikainen Urheiluvalmennus (toim. Mero, Nummela, Keskinen). Mero Oy.
- Lindinger SJ, Holmberg HC, Müller E, Rapp W. 2009. Changes in upper body muscle activity with increasing double poling velocities in elite cross-country skiing. Eur J Appl Physiol.106(3):353–63
- Liukkonen J. & Jaakkola T. 2003. Psykkinen Valmennus hiihtourheilussa. Suomen Hiihtoliitto.
- Losnegard T, Hallén J. 2014. Physiological differences between sprint- and distance-specialized cross-country skiers. Int J Sports Physiol Perform. 9(1):25–31
- Mikkola J. 2007. Maastohiihdon laji- ja urheilija-analyysi. Hiihtoliiton koulutusmateriaali.
- Mikkola J, Laaksonen M, Holmberg HC, Vesterinen V, Nummela A. 2010. Determinants of a simulated cross-country skiing sprint competition using V2 skating technique on roller skis. J Strength Cond Res. 24(4):920–8.
- Nieminen J., Lemmettylä T., Haavisto M. 2015. Huoltokoulutusopas taso I ja II. Suomen Hiihtoliitto.
- Ohtonen O, Linnamo V, Lindinger S. 2016. Speed control of the V2 skating technique in elite cross country skiers. Int J Sport Science and Coaching. March – April, 11(2)
- Paavolainen L. 1999. Neuromuscular characteristics and muscle power as determinants of running performance in endurance athletes – with special reference to explosive-strength training. Doctoral thesis. University of Jyväskylä.
- Rusko, H. (toim.). 2003. Handbook of Sports Medicine and Science – Cross Country Skiing. IOC Medical Commission, Blackwell, Oxford

- Sandbakk Ø, Holmberg HC. 2014. A reappraisal of success factors for Olympic cross-country skiing. *Int J Sports Physiol Perform.* 9(1):117–21.
- Sandbakk Ø, Tønnessen E. (toim.). 2012. Den norske langrennsboka. H. Aschehoug & Co.
- T. Stöggl, E. Muller, M. Ainegren, H.-C. Holmberg. 2011. General strength and kinetics: fundamental to sprinting faster in cross country skiing? *Scand J Med Sci Sports.* 21(6):791–803.
- Stöggl T, Müller E, Lindinger S. 2008. Biomechanical comparison of the double-push technique and the conventional skate skiing technique in cross-country sprint skiing. *J Sports Sci.* 26(11):1225–33.
- Talkkari J. 2007. Taidon ja hiihtotekniikan oppiminen ja valmentaminen. Hiihtoliiton koulutusmateriaali.
- Tønnessen E, Haugen TA, Hem E, Leirstein S, Seiler S. 2015. Maximal Aerobic Capacity in the Winter Olympic Endurance Disciplines: Olympic Medal Benchmarks for the Time Period 1990–2013. *Int J Sports Physiol Perform.* 2015 Jan 22. [Epub ahead of print].
- Vesterinen, Ville. 2007. Väsyminen ja fyysiset kunto-ominaisuudet sprinttihiihdossa. Pro gradu-tutkielma. Jyväskylän yliopisto, Liikuntabiologian laitos.
- Ylikoski T. 2009. Maastohiihto s.416–417, Teoksessa Lasten ja nuorten urheiluvalmennuksen perusteet (toim. Hakkarainen, Jaakkola, Kalaja, Lämsä, Nikander, Riski). VK-kustannus.

## 8.7 Nopeuskestävyyslajit

### 8.7.1 400 m juoksun lajiansalyysi ja valmennuksen ohjelmointi

- Alaranta, A., Hulmi, J., Mikkonen, J., Rossi, J., Mero, A. (2007) Lääkkeet ja lisäravinteet urheilussa. Suorituskykyyn ja kehon koostumukseen vaikuttavat aineet. *NutriMed Oy.* ISBN 978–952–3045–7. s. 360.
- Haavisto, S.(2010) Kakkosnelosta aidattuna – 400 metriä. Kustantaja Jonna Haavisto, ISBN 978–952–92–8047–6, Cosmoprint, Helsinki.
- Hanon C. ym. (2010) Oxygen uptake and blood metabolic responses to a 400 m run. *Eur J Appl Physiology*, 109, 233–240.
- Hirvonen, J., Rehunen, S., Rusko, H., Härkönen, M. (1987) Breakdown of high-energy phosphate compounds and lactate accumulation during short supramaximal exercise. *European Journal of Applied Occupational Physiology*, 56, (3), 253–259.
- Hirvonen, J., Nummela, A., Rusko, H., Rehunen, S. & Härkönen, M. (1992) Fatigue and changes of ATP, creatine phosphate, and lactate during the 400 m sprint. *Canadian Journal of Sport Sciences*, 17 (2), 141–144.
- Mann, R.V. (2013) The mechanics of sprinting and hurdling. Copyright by Dr. Ralph V. Mann.
- Mero, A., Peltola, E., Saarela, J. (1987) Nopeus- ja nopeuskestävyysharjoittelu. Jyväskylä, Mero Oy, Gummerus Oy, ISBN 951–99876–8-1, 295 sivua.
- Mero, A., Luhtanen, P., Komi, P.V., Susanka P. (1988) Kinematics of top sprint (400 m) running in fatigued conditions. *Track and Field Quarterly Review* 1, 42–45.
- Mero, A., Komi, P., Gregor, R. (1992) Biomechanics of sprint running. *Sports Medicine*, 13(6); 376–392.
- Mero, A., Rusko, H., Peltola, E., Pullinen, T., Nummela, A., Hirvonen, J. (1993) Aerobic characteristics, oxygen debt and blood lactate in speed endurance athletes during training. *Journal of Sports Medicine and Physical Fitness*, 33 (2), 130–136.
- Mero, A., Nummela, A., Keskinen, K., Häkkinen, K. (2007) Urheiluvalmennus. *Kuormitusfysiologiset, ravinto-fysiologiset, biomekaaniset ja valmennusopilliset perusteet.* VK-Kustannus Oy. ISBN 978–951–9147–44–4. Toinen painos. 503 sivua.
- Newsholme, E. A., Blomstrand, E. & Ekblom, B. (1992) Physical and mental fatigue: metabolic mechanisms and importance of plasma amino acids. *British Medical Bulletin*, 48 (3), 477–495.
- Nummela, A. (1991) Uusi testimenetelmä 400 m juoksijoille. *Pika- ja aitajuoksulehti*, 3, 40–42.
- Nummela, A., Rusko, H., Mero, A. (1994) EMG activities and ground reaction forces during fatigued and nonfatigued sprinting. *Medicine and Science in Sports and Exercise*, 26, 5, 605–609.
- Nummela, A., Tossavainen M. (1994) 400 m seurantajärjestelmä 1993–1994. *Pika- ja aitajuoksulehti*, 3, 39–44.
- Olsson K. (2008) DVD, Pajulahti. Kansainvälinen nopeuskestävyysseminaari. Seppo Haavisto Memorial Seminar. 28–30.11.2008.
- Schäfer J. (1989) Zu leistungsstrukturellen Elementen der 400 m Wettkampfleistung und ihrer komplexen trainingsmethodischen Realisierung. *Euroopan Yleisurheiluvalmentajien Seminaari Bad Blankenburgissa Itä-Saksassa.*
- Slowinska-Lisowska, M. & Majda, J. (2002) Hormone plasma levels from pituitary-gonadal axis in performance athletes after the 400 m run. *Journal of Sports Medicine and Physical Fitness*, 42 (2), 243–249.
- Vilmi, N., Äyrämö, S., Nummela, A., Pullinen, T., Linnamo, V., Häkkinen, K., Mero, A.A. (2015) Oxygen uptake and acid-base balance in maximal 300–400 m running in three age groups. *Arvioitava tiedelehdessä.*

## 8.8 Kamppailulajit

### 8.8.1 Painin lajiansalyysi ja valmennuksen ohjelmointi

International Journal of Wrestling Science, Issues 2011–2015.

Karila TA, Sarkkinen P, Marttinen M, Seppälä T, Mero A, Tallroth K (2008) Rapid weight loss decreases serum testosterone. *Int J Sports Med.* 29(11):872–877.

Science of Wrestling Annual Research Review, Issues 2005–2010.

Vänttinen T, Sarkkinen P, Lappalainen J, Yli-Hannuksela M (2015) Painiargumentti 2014/2015 – Kilpailu- ja harjoitusseurannan yhteenvetoraportti Suomen painimaajoukkueelle.

## 8.9 Joukkuelajit

### 8.9.1 Lentopallon lajiansalyysi ja valmennuksen ohjelmointi

Afonso, J., Esteves, F., Araújo, R. & Thomas, L. (2012). Tactical determinants of setting zone in elite men's volleyball. *Journal of Sports Science and Medicine*, 11, 64–70.

Afonso, J., Mesquita, I., Marcelino, R. & da Silva, J. (2010). Analysis of the setter's tactical action in high-performance women's volleyball. *Kinesiology*, 42(1): 82–89.

Bergeles, N., Barzouka, K. & Elissavet, N. (2009). Performance of male and female setters and attackers on Olympic-level volleyball teams. *International Journal of Performance Analysis of Sport*, 9: 141–148.

Bergeles, N., & Nikolaidou, M. E. (2011). Setter's performance and attack tempo as determinants of attack efficacy in Olympic-level male volleyball teams. *International Journal of Performance Analysis in Sport*, 11(3), 535–544.

Castro J., Souza A., & Mesquita I. (2011). Attack efficacy in volleyball: elite male teams. *Perceptual and Motor Skills*, 113(2): 395–408.

Drikos, S., Kountouris, P., Laios, A., & Laios, Y. (2009). Correlates of team performance in volleyball. *International Journal of Performance Analysis in Sport*, 9(2), 149–156.

Đurković, T., Marelić, N. ja Rešetar, T. (2008). Influence of the position of players in rotation on differences between winning and losing teams in volleyball. *International Journal of Performance Analysis in Sport*, 8(2): 8–15.

Häyrinen, M., Hoivala, T. & Luhtanen, P. (2000). Vastustaja-analyysin ja siihen perustuvan videokoosteen hyödyntäminen lentopalloissa, Lajiansalyysin päivitys. Kilpa- ja huippu-urheilun tutkimuskeskus, Jyväskylä, Häyrinen, M., Lehto, H., Mikkola, T., Honkanen, P., Paananen A., Lahtinen, P. & Blomqvist, M. (2010). Miesten lentopallon lajiansalyysi kolmella eri tasolla. KIHUn julkaisusarja nro 16. Kilpa- ja huippu-urheilun tutkimuskeskus, Jyväskylä.

Häyrinen M., Mikkola T., Blomqvist M., Lahtinen P., Honkanen P. & Paananen A. (2010). Mies- ja poikalentopalloilijoiden hyppäsyötön biomekaaninen analyysi. KIHUn julkaisusarja nro 14. Kilpa- ja huippu-urheilun tutkimuskeskus, Jyväskylä.

Inkinen, V., Häyrinen, M. & Linnamo, V. (2013). Technical and tactical analysis of women's volleyball. *Biomedical Human Kinetics*. 5 (1): 43–50.

Kountouris, P. (2005). Time characteristics of volleyball matches in two consecutive Olympic competitions after the implementation of the new regulations. *Coaching Volleyball Nov/Dec*: 18–22.

Lobiatti, R. (2009). A review of blocking in volleyball: from the notational analysis to biomechanics. *Journal of Human Sport and Exercise*, 4(2): 93–99.

Marcelino, R., Afonso, J., Moraes, J.C. & Mesquita, I. (2014). Determinants of attack players in high-level men's volleyball. *Kinesiology*, 46(2): 234–241.

Marcelino, R., Mesquita, I., & Afonso, J. (2008). The weight of terminal actions in volleyball. Contributions of the spike, serve and block for the teams' rankings in the World League 2005. *International Journal of Performance Analysis in Sport*, 8(2): 1–7.

Marcelino, R., Mesquita, I. & Sampaio, J. (2011). Effects of quality of opposition and match status on technical and tactical performances in elite volleyball. *Journal of Sports Sciences*, 29(7), 733–741.

Marques, M. C., Van den Tillaar, R., Gabbett, T. J., Reis, V. M. & González-Badillo, J. J. (2009). Physical fitness qualities of professional volleyball players: determinations of positional differences. *Journal of Strength and Conditioning Research*, 23(4): 1106–1111.

- Marques, M.C., Van den Tillaar, R., Vescovi, J.D. & Gonzalez-Badillo, J.J. (2008). Changes in strength and power performance in elite senior female professional volleyball players during the in-season: A case study. *Journal of Strength and Conditioning Research* 22(4): 1147–1155.
- Mesquita, I & César, B. (2007). Characterisation of the opposite player's attack from the opposition block characteristics. An applied study in the Athens Olympic games in female volleyball teams. *International Journal of Performance Analysis in Sport*, 7(2): 13–27.
- Mesquita, I., Manso, F.D. & Palao, J.M. (2007). Defensive participation and efficacy of the libero in volleyball. *Journal of Human Movement Studies*, 52, 95–107.
- Mesquita I., Sampaio J. & Moraes J. (2010). Study on performance indicators in volleyball as function of set result. *Brazilian Journal of Physical Education and Sports*, 24(1): 69–78.
- Millán-Sánchez, A., Morante Rábago, J.C., Hernández, M.A., Marzo, P.F. & Ureña, A. (2015). Participation in terminal actions according to the role of the player and his location on the court in top-level men's volleyball. *International Journal of Performance Analysis in Sport*, 15, 608–619.
- Miskin, M., Fellingham, G. & Florence, L. (2010). Skill importance in women's volleyball. *Journal of Quantitative Analysis in Sports*, 6 (2).
- Monteiro, R., Mesquita, I., & Marcelino, R. (2009). Relationship between the set outcome and the dig and attack efficacy in elite male volleyball game. *International Journal of Performance Analysis in Sport*, 3(9): 294–305.
- Palao, J.M., Manzanares, P., & Ortega, E. (2009). Techniques used and efficacy of volleyball skills in relation to gender. *International Journal of Performance Analysis in Sport*, 9(2): 281–293.
- Palao, J.M., Santos, J.A. & Ureña, A. (2006). Effect of reception and dig efficacy on spike performance and manner of execution in volleyball. *Journal of Human Movement Studies*, 51, 221–238.
- Palao, J., Santos, J. & Ureña, A. (2007). Effect of the manner of spike execution on spike performance in volleyball. *International Journal of Performance Analysis in Sport*, 7(2): 126–138.
- Patsiaouras, A., Charitonidis, K., Moustakidis, A., & Kokaridas, D. (2009). Comparison of technical skills effectiveness of men's national volleyball teams. *International Journal of Performance Analysis in Sport*, 9(1): 1–7.
- Peña J., Rodríguez-Guerra J. & Serra N. (2013). Which skills and factors better predict winning and losing in high-level men's volleyball? *Journal of Strength & Conditioning Research*, 27(9): 2487–2493.
- Quiroga, M., García-Manso, J., Rodríguez- Ruiz, D., Sarmiento, S., De Saa, Y. & Moreno, M. (2010). Relation between in-game role and service characteristics in elite women 's volleyball. *Journal of Strength and Conditioning Research*, 24(9): 2316–2321.
- Rodriguez-Ruiz, D. Quiroga, M., Miralles, J., Sarmiento, S. de Saá, Y. & García-Manso, J. (2011). Study of the technical and tactical variables determining set win or loss in top-level European men's volleyball. *Journal of Quantitative Analysis in Sports*, 7(1).
- Sattler, T., Hadzic, V., Dervisevic, E., & Markovic, G. (2014). Vertical jump performance of professional male and female volleyball players: effects of playing position and competition level. *Journal of Strength and Conditioning Research* 29(6): 1486–1493.
- Sheppard, J.M., Cronin, J.B., Gabbett, T.J., McGuigan, M.R., Etxebarria, N., & Newton, R.U. (2008). Relative importance of strength, power, and anthropometric measures to jump performance of elite volleyball players. *Journal of Strength and Conditioning Research*, 22(3), 758–765.
- Sheppard, J.M., Chapman, D., Gough, C., McGuigan, M. & Newton, R.U. (2009a). Twelve month training induced changes in elite international volleyball players. *Journal of Strength and Conditioning Research*, 23(7): 2096–2101.
- Sheppard, J.M., Gabbett, T. & Stanganelli, L. (2009b). An analysis of playing positions in elite men's volleyball: Considerations for competition demands and physiological characteristics. *Journal of Strength and Conditioning Research* 23(6):1858–1866.
- Silva, M, Lacerda, D & João, P.V. (2013). Match analysis of discrimination skills according to the setter attack zone position in high level volleyball. *International Journal of Performance Analysis in Sport*, 13(2): 452–460.
- Silva, M, Lacerda, D & João, P.V. (2014). Game-related volleyball skills that influence victory. *Journal of Human Kinetics*, 41: 173–179.
- Vilamitjana, J.J., Soler, D., Barrial, J.M. & Rodriguez, F. (2008). Jumping profile of elite volleyball male players by field positions during a competitive season. *Medicine and science in sports and exercise*, 40(5): 383.
- Zetou, E., Moustakidis, A., Tsigilis, N. & Komninakidou A. (2007). Does effectiveness of skill in Complex I predict win in Men's Olympic Volleyball Games? *Journal of Quantitative Analysis in Sports*, 3(4): 1–11.
- Zetou, E., Tsigilis, N., Moustakidis, A. & Komninakidou, A. (2006). Playing characteristics of men's Olympic Volleyball teams in complex II. *International Journal of Performance Analysis in Sport*, 6(1): 172–177.
- Zırhloğlu, G. (2014). Evaluation of volleyball statistics with multidimensional scaling analysis. *International Journal of Sports Science and Engineering*, 7(1): 21–25.

## 8.9.2 Jääkiekon lajiansalyysi ja valmennuksen ohjelmointi

- Barbour, S. & Orlick, T. 1999. Mental Skills of National Hockey League Players. *Journal of Excellence*, issue no. 2
- Burr, J.F., Jamnik, R.K., Baker, J., Macpherson, A., Gledhill, N. & McGuire, E.J. 2008. Relationship of physical fitness test results and ice hockey playing potential in elite-level ice hockey players. *Journal of strength and conditioning research*, 22 (5), 1535–1543.
- Carron, A. Coleman, M. & Wheeler, J. 2002. Cohesion and performance in sport: A meta-analysis. *Journal of Sport and Exercise Psychology*, 168–188.
- Deci, E. L., & Ryan, R. M. 2002. *Handbook of self-determination research*. University of Rochester Press. Rochester, NY.
- Deci, E.L. & Ryan, R.M. 2000. The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, Vol. 11, No. 4, 227–268.
- Duckworth, A.L., & Gross, J.J. 2014. Self-control and grit: Related but separable determinants of success. *Current Directions in Psychological Science*, 23 (5), 319–325.
- Dweck, C. 2007. *Mindset: The New Psychology of Success*. Ballantine Books.
- Gallahue, D.L. & Donnelly, F.C. 2003. *Developmental physical education for all children*. Champaign, IL: Human Kinetics.
- Hodge, K. Henry, G. & Smith, W. 2014. A case study of excellence in elite sport: Motivational climate in a world champion team. *The Sport Psychologist*, 28.
- Holland, M.J.G, Woodcock, C. Cumming, J. & Duda, J.L. 2010. Mental Qualities and Employed Mental Techniques of Young Elite Team Sport Athletes. *Journal of Clinical Sport Psychology*, 4, 19–38.
- Kiely, J. 2012. Periodization Paradigms in the 21st Century: Evidence-Led or Tradition-Driven? *International Journal of Sports Physiology and Performance*, 7, 242–250.
- Laaksonen, A. 2011. Jääkiekon lajiansalyysi ja valmennuksen ohjelmointi. Seminaarityö. Jyväskylän yliopisto, Liikuntabiologian laitos.
- Maclean, E. 2012. A Theoretical Review of the Physiological Demands of Ice-Hockey and a Full Year Periodized Sport Specific Conditioning Program for the Canadian Junior Hockey Player. School of Exercise, Biomedical, and Health Sciences, Edith Cowen University, Perth, Australia.
- Matikka, L. & Roos-Salmi, M. (toim.). 2012. *Urheilupsykologian perusteet*. Helsinki: Liikuntatieteellinen Seura.
- Salasuo, M., Piispa, M. & Huhta, H. 2015. *Huippu-urheilijan elämänkulku*. Tutkimus urheilijoista 2000-luvun Suomessa. Nuorisotutkimusseura/Nuorisotutkimusverkosto.
- Savolainen, K. 2015. Jääkiekon SM-liigan maalianalyysi 2007–2014. Julkaisematon opetusmateriaali, Haaga-Helia ammattikorkeakoulu.
- Tiikkaja, J. 2002a. Aerobinen, anaerobinen ja neuromuskulaarinen suorituskyky sekä sykevaihdtelu pelikauden aikana jääkiekkoilijoilla. Pro Gradu tutkielma. Jyväskylän yliopisto, Liikuntabiologian laitos.
- Tiikkaja, J. 2014. Ihmisen valmentaminen. Auditorium.
- Twist, P. 2007. *Complete conditioning for ice hockey*. Human kinetics. Champaign. Illinois. USA.
- Vincer, D. & Loughhead, T. 2010. The relationship among athlete leadership behaviors and cohesion in team sports. *The Sport Psychologist*, 24, 448–467.
- Weinberg, R.S. & Gould, D. 2011. *Foundations of sport and exercise psychology*. 5<sup>th</sup> edition. Human Kinetics. Champaign, Illinois.
- Westerlund, E. 1997. Jääkiekko. Teoksessa Mero, A., Nummela, A. & Keskinen, K. *Nykyaikainen urheiluvalmennus*. Gummerus Kirjapaino Oy.

## 9 Vuoristoharjoittelu

1. Adams RP and Welch HG. Oxygen uptake, acid-base status, and performance with varied inspired oxygen fractions. *J Appl Physiol* 49: 863–868, 1980.
2. Ainslie PN, Barach A, Murrell C, Hamlin M, Hellemans J, and Ogoh S. Alterations in cerebral autoregulation and cerebral blood flow velocity during acute hypoxia: rest and exercise. *Am J Physiol Heart Circ Physiol* 292: H976–983, 2007.
3. Ainslie PN and Poulin MJ. Ventilatory, cerebrovascular, and cardiovascular interactions in acute hypoxia: regulation by carbon dioxide. *J Appl Physiol* 97: 149–159, 2004.
4. Ainslie PN, Wilson MH, and Imray CHE. Cerebral Circulation and Brain. In: *High Altitude: Human Adaptation to Hypoxia*, edited by Swenson ER and Bärtsch P. New York: Springer, 2014, p. 141–170.
5. Alfrey CP, Rice L, Udden MM, and Driscoll TB. Neocytolysis: physiological down-regulator of red-cell mass. *Lancet* 349: 1389–1390, 1997.
6. Amann M, Goodall S, Twomey R, Subudhi AW, Lovering AT, and Roach RC. AltitudeOmics: on the consequences of high-altitude acclimatization for the development of fatigue during locomotor exercise in humans. *J Appl Physiol (1985)* 115: 634–642, 2013.
7. Andersen P and Saltin B. Maximal perfusion of skeletal muscle in man. *J Physiol* 366: 233–249, 1985.
8. Bahrke MS and Shukitt-Hale B. Effects of altitude on mood, behaviour and cognitive functioning. A review. *Sports Med* 16: 97–125, 1993.
9. Bebout DE, Story D, Roca J, Hogan MC, Poole DC, Gonzalez-Camarena R, Ueno O, Haab P, and Wagner PD. Effects of altitude acclimatization on pulmonary gas exchange during exercise. *J Appl Physiol (1985)* 67: 2286–2295, 1989.
10. Blomqvist G, Johnson RL, Jr., and Saltin B. Pulmonary diffusing capacity limiting human performance at altitude. *Acta Physiol Scand* 76: 284–287, 1969.
11. Blomqvist G and Stenberg J. The electrocardiographic response to submaximal and maximal work during acute hypoxia. *Acta Med Scand* 178: 82–98, 1965.
12. Boushel R, Calbet JA, Radegran G, Sondergaard H, Wagner PD, and Saltin B. Parasympathetic neural activity accounts for the lowering of exercise heart rate at high altitude. *Circulation* 104: 1785–1791, 2001.
13. Boussuges A, Molenat F, Burnet H, Cauchy E, Gardette B, Sainty JM, Jammes Y, and Richalet JP. Operation Everest III (Comex '97): modifications of cardiac function secondary to altitude-induced hypoxia. An echocardiographic and Doppler study. *Am J Respir Crit Care Med* 161: 264–270, 2000.
14. Brimiouille S, Lejeune P, and Naeije R. Effects of hypoxic pulmonary vasoconstriction on pulmonary gas exchange. *J Appl Physiol* 81: 1535–1543, 1996.
15. Brugniaux JV, Hodges AN, Hanly PJ, and Poulin MJ. Cerebrovascular responses to altitude. *Respir Physiol Neurobiol* 158: 212–223, 2007.
16. Brundrett G. Comfort and health in commercial aircraft: a literature review. *The Journal of the Royal Society for the Promotion of Health* 121: 29–37, 2001.
17. Buskirk ER, Kollias J, Akers RF, Prokop EK, and Reategui EP. Maximal performance at altitude and on return from altitude in conditioned runners. *J Appl Physiol* 23: 259–266, 1967.
18. Calbet JA, Boushel R, Radegran G, Sondergaard H, Wagner PD, and Saltin B. Why is  $\dot{V}O_{2\max}$  after altitude acclimatization still reduced despite normalization of arterial  $O_2$  content? *Am J Physiol Regul Integr Comp Physiol* 284: R304–316, 2003.
19. Calbet JA and Lundby C. Air to muscle  $O_2$  delivery during exercise at altitude. *High Alt Med Biol* 10: 123–134, 2009.
20. Casey DP, Shepherd JRA, and Joyner MJ. Sex and vasodilator responses to hypoxia at rest and during exercise. *J Appl Physiol* 116: 927–936, 2014.
21. Chapman RF, Karlsen T, Resaland GK, Ge RL, Harber MP, Witkowski S, Stray-Gundersen J, and Levine BD. Defining the "dose" of altitude training: how high to live for optimal sea level performance enhancement. *J Appl Physiol (1985)* 116: 595–603, 2014.
22. Chapman RF, Laymon Stickford AS, Lundby C, and Levine BD. Timing of return from altitude training for optimal sea level performance. *J Appl Physiol (1985)* 116: 837–843, 2014.

23. Chapman RF, Stray-Gundersen J, and Levine BD. Individual variation in response to altitude training. *J Appl Physiol* 85: 1448–1456, 1998.
24. Cheung SS, Mutanen NE, Karinen HM, Koponen AS, Kyrolainen H, Tikkanen HO, and Peltonen JE. Ventilatory chemosensitivity, cerebral and muscle oxygenation, and total hemoglobin mass before and after a 72-day mt. Everest expedition. *High Alt Med Biol* 15: 331–340, 2014.
25. Cohen PJ, Alexander SC, Smith TC, Reivich M, and Wollman H. Effects of hypoxia and normocarbica on cerebral blood flow and metabolism in conscious man. *J Appl Physiol* 23: 183–189, 1967.
26. Conkin J and Wessel JH, 3rd. Critique of the equivalent air altitude model. *Aviat Space Environ Med* 79: 975–982, 2008.
27. Coppel J, Hennis P, Gilbert-Kawai E, and Grocott MPW. The physiological effects of hypobaric hypoxia versus normobaric hypoxia: a systematic review of crossover trials. *Extreme Physiology & Medicine* 4: 2, 2015.
28. Crow TJ and Kelman GR. Effect of mild acute hypoxia on human short-term memory. *Br J Anaesth* 43: 548–552, 1971.
29. Crow TJ and Kelman GR. Psychological effects of mild acute hypoxia. *Br J Anaesth* 45: 335–337, 1973.
30. Cymerman A, Reeves JT, Sutton JR, Rock PB, Groves BM, Malconian MK, Young PM, Wagner PD, and Houston CS. Operation Everest II: maximal oxygen uptake at extreme altitude. *J Appl Physiol* 66: 2446–2453, 1989.
31. Dehnert C, Grunig E, Mereles D, von Lennep N, and Bartsch P. Identification of individuals susceptible to high-altitude pulmonary oedema at low altitude 10.1183/09031936.05.00070404. *Eur Respir J* 25: 545–551, 2005.
32. Dempsey JA, Hanson P, Pegelow D, Claremont A, and Rankin J. Limitations to exercise capacity and endurance: pulmonary system. *Can J Appl Spt Sci* 7: 4–13, 1982.
33. Dempsey JA, Hanson PG, and Henderson KS. Exercise-induced arterial hypoxemia in healthy human subjects at sea level. *Journal of Physiology* 355: 161–175, 1984.
34. Dempsey JA, McKenzie DC, Haverkamp HC, and Eldridge MW. Update in the understanding of respiratory limitations to exercise performance in fit, active adults. *Chest* 134: 613–622, 2008.
35. Dempsey JA, Powell FL, Bisgard GE, Blain GM, Poulin MJ, and Smith CA. Role of chemoreception in cardiorespiratory acclimatization to, and deacclimatization from, hypoxia. *J Appl Physiol* 116: 858–866, 2014.
36. Dempsey JA and Wagner PD. Exercise-induced arterial hypoxemia. *J Appl Physiol* 87: 1997–2006, 1999.
37. Denison DM, Ledwith F, and Poulton EC. Complex reaction times at simulated cabin altitudes of 5,000 feet and 8,000 feet. *Aerosp Med* 37: 1010–1013, 1966.
38. Eckardt KU, Boutellier U, Kurtz A, Schopen M, Koller EA, and Bauer C. Rate of erythropoietin formation in humans in response to acute hypobaric hypoxia. *J Appl Physiol (1985)* 66: 1785–1788, 1989.
39. Eide RP, 3rd and Asplund CA. Altitude illness: update on prevention and treatment. *Curr Sports Med Rep* 11: 124–130, 2012.
40. Ekblom B, Huot R, Stein EM, and Thorstensson AT. Effect of changes in arterial oxygen content on circulation and physical performance. *J Appl Physiol* 39: 71–75, 1975.
41. Eldridge MW, Braun RK, Yoneda KY, and Walby WF. Effects of altitude and exercise on pulmonary capillary integrity: evidence for subclinical high-altitude pulmonary edema. *J Appl Physiol* 100: 972–980, 2006.
42. Ellingsen I, Hauge A, Nicolaysen G, Thoresen M, and Walloe L. Changes in human cerebral blood flow due to step changes in PAO<sub>2</sub> and PACO<sub>2</sub>. *Acta Physiol Scand* 129: 157–163, 1987.
43. Ernsting J. Prevention of hypoxia--acceptable compromises. *Aviat Space Environ Med* 49: 495–502, 1978.
44. Faiss R, Pialoux V, Sartori C, Faes C, Deriaz O, and Millet GP. Ventilation, oxidative stress, and nitric oxide in hypobaric versus normobaric hypoxia. *Med Sci Sports Exerc* 45: 253–260, 2013.
45. Fu Q, Townsend NE, Shiller SM, Martini ER, Okazaki K, Shibata S, Truijens MJ, Rodriguez FA, Gore CJ, Stray-Gundersen J, and Levine BD. Intermittent hypobaric hypoxia exposure does not cause sustained alterations in autonomic control of blood pressure in young athletes. *Am J Physiol Regul Integr Comp Physiol* 292: R1977–1984, 2007.
46. Gavin TP, Derchak PA, and Stager JM. Ventilation's role in the decline in VO<sub>2max</sub> and SaO<sub>2</sub> in acute hypoxic exercise. *Med Sci Sports Exerc* 30: 195–199, 1998.
47. Gibson GE, Pulsinelli W, Blass JP, and Duffy TE. Brain dysfunction in mild to moderate hypoxia. *Am J Med* 70: 1247–1254, 1981.
48. Gilmartin G, Tamisier R, Anand A, Cunnington D, and Weiss JW. Evidence of impaired hypoxic vasodilation after intermediate-duration hypoxic exposure in humans. *Am J Physiol Heart Circ Physiol* 291: H2173–2180, 2006.

49. Gore CJ, Hahn AG, Aughey RJ, Martin DT, Ashenden MJ, Clark SA, Garnham AP, Roberts AD, Slater GJ, and McKenna MJ. Live high:train low increases muscle buffer capacity and submaximal cycling efficiency. *Acta Physiol Scand* 173: 275–286, 2001.
50. Gore CJ, Hahn AG, Scroop GC, Watson DB, Norton KI, Wood RJ, Campbell DP, and Emonson DL. Increased arterial desaturation in trained cyclists during maximal exercise at 580 m altitude. *J Appl Physiol* 80: 2204–2210, 1996.
51. Gore CJ, Little SC, Hahn AG, Scroop G, C., Norton KI, Bourdon PC, Woolford SM, Buckley JD, Stanef T, Campbell DP, Watson DB, and Emonson DL. Reduced performance of male and female athletes at 580 m altitude. *European Journal of Applied Physiology* 75: 136–143, 1997.
52. Gore CJ, Rodriguez FA, Truijens MJ, Townsend NE, Stray-Gundersen J, and Levine BD. Increased serum erythropoietin but not red cell production after 4 wk of intermittent hypobaric hypoxia (4,000–5,500 m). *J Appl Physiol* (1985) 101: 1386–1393, 2006.
53. Green HJ, Carter S, Grant S, Tupling R, Coates G, and Ali M. Vascular volumes and hematology in male and female runners and cyclists. *Eur J Appl Physiol Occup Physiol* 79: 244–250, 1999.
54. Groves BM, Reeves JT, Sutton JR, Wagner PD, Cymerman A, Malconian MK, Rock PB, Young PM, and Houston CS. Operation Everest II: elevated high-altitude pulmonary resistance unresponsive to oxygen. *J Appl Physiol* 63: 521–530, 1987.
55. Grubbstrom J, Berglund B, and Kaijser L. Myocardial blood flow and lactate metabolism at rest and during exercise with reduced arterial oxygen content. *Acta physiol scand* 142: 467–474, 1991.
56. Hainsworth R, Drinkhill MJ, and Rivera-Chira M. The autonomic nervous system at high altitude. *Clin Auton Res* 17: 13–19, 2007.
57. Hannon JP, Chinn KS, and Shields JL. Effects of acute high-altitude exposure on body fluids. *Fed Proc* 28: 1178–1184, 1969.
58. Hansen J and Sander M. Sympathetic neural overactivity in healthy humans after prolonged exposure to hypobaric hypoxia. *J Physiol* 546: 921–929, 2003.
59. Harms CA, McClaran SR, Nিকেle GA, Pegelow DF, Nelson WB, and Dempsey JA. Exercise-induced arterial hypoxaemia in healthy young women. *J Physiol* 507 ( Pt 2): 619–628, 1998.
60. Hopkins SR, Garg J, Bolar DS, Balouch J, and Levin DL. Pulmonary blood flow heterogeneity during hypoxia and high-altitude pulmonary edema. *Am J Respir Crit Care Med* 171: 83–87, 2005.
61. Hornbein TF. The high-altitude brain. *Journal of Experimental Biology* 204: 3129–3132, 2001.
62. Hornbein TF, Townes BD, Schoene RB, Sutton JR, and Houston CS. The cost to the central nervous system of climbing to extremely high altitude. *N Engl J Med* 321: 1714–1719, 1989.
63. Ide K and Secher NH. Cerebral blood flow and metabolism during exercise. *Prog Neurobiol* 61: 397–414, 2000.
64. Kaijser L, Grubbstrom J, and Berglund B. Coronary circulation in acute hypoxia. *Clin Physiol Oxf* 10: 259–263, 1990.
65. Katayama K, Sato Y, Morotome Y, Shima N, Ishida K, Mori S, and Miyamura M. Intermittent hypoxia increases ventilation and SaO<sub>2</sub> during hypoxic exercise and hypoxic chemosensitivity. *J Appl Physiol* 90: 1431–1440, 2001.
66. Kayser B, Narici M, Binzoni T, Grassi B, and Cerretelli P. Fatigue and exhaustion in chronic hypobaric hypoxia: influence of exercising muscle mass. *J Appl Physiol* 76: 634–640, 1994.
67. Kolb JC, Ainslie PN, Ide K, and Poulin MJ. Effects of five consecutive nocturnal hypoxic exposures on the cerebrovascular responses to acute hypoxia and hypercapnia in humans. *J Appl Physiol* 96: 1745–1754, 2004.
68. Lahiri S and Cherniack NS. Cellular and molecular mechanisms of O<sub>2</sub> sensing with special reference to the carotid body. In: *High Altitude: An Exploration of Human Adaptation*, edited by Hornbein TF and Schoene RB. New York, NY: Marcel Dekker, Inc., 2001, p. 101–130.
69. Lahiri S, Roy A, Baby SM, Hoshi T, Semenza GL, and Prabhakar NR. Oxygen sensing in the body. *Prog Biophys Mol Biol* 91: 249–286, 2006.
70. Lalande S, Yerly P, Faoro V, and Naeije R. Pulmonary vascular distensibility predicts aerobic capacity in healthy individuals. *The Journal of Physiology* 590: 4279–4288, 2012.
71. Levine B. Mountain medicine and the autonomic nervous system. In: *Handbook of Clinical Neurology: The Autonomic Nervous System. Part II. Dysfunctions*. (31 ed.), edited by Appenzeller O, 2000, p. 259–280.
72. Levine BD and Stray-Gundersen J. Dose-response of altitude training: how much altitude is enough? *Adv Exp Med Biol* 588: 233–247, 2006.
73. Levine BD and Stray-Gundersen J. The effects of altitude training are mediated primarily by acclimatization, rather than by hypoxic exercise. *Adv Exp Med Biol* 502: 75–88, 2001.
74. Levine BD and Stray-Gundersen J. "Living high-training low": effect of moderate-altitude acclimatization with low-altitude training on performance. *J Appl Physiol* 83: 102–112, 1997.

75. Levine BD and Stray-Gundersen J. Point: positive effects of intermittent hypoxia (live high:train low) on exercise performance are mediated primarily by augmented red cell volume. *J Appl Physiol* 99: 2053–2055, 2005.
76. Levine BD and Stray-Gundersen J. A practical approach to altitude training: where to live and train for optimal performance enhancement. *Int J Sports Med* 13 Suppl 1: S209–212, 1992.
77. Levine BD, Stray-Gundersen J, Duhaime G, Snell PG, and Friedman DB. "Living high – training low": the effect of altitude acclimatization/normoxic training in trained runners. *Med Sci Sports Exerc* 23: S25, 1991.
78. Luks AM and Hopkins SR. Lung Function and Gas Exchange. In: *High Altitude. Human Adaptation to Hypoxia*, edited by Swenson ER and Bärtsch P. New York: Springer, 2014, p. 57–83.
79. Lundby C. Exercise. In: *High Altitude. Human Adaptation to Hypoxia.*, edited by Swenson ER and Bärtsch P: Springer, 2014, p. 301–323.
80. Lundby C, Calbet JA, Sander M, van Hall G, Mazzeo RS, Stray-Gundersen J, Stager JM, Chapman RF, Saltin B, and Levine BD. Exercise economy does not change after acclimatization to moderate to very high altitude. *Scand J Med Sci Sports* 17: 281–291, 2007.
81. Lundby C, Moller P, Kanstrup IL, and Olsen NV. Heart rate response to hypoxic exercise: role of dopamine D2-receptors and effect of oxygen supplementation. *Clin Sci (Lond)* 101: 377–383, 2001.
82. Maggiorini M. Prevention and treatment of high-altitude pulmonary edema. *Prog Cardiovasc Dis* 52: 500–506, 2010.
83. Milledge J and Bärtsch P. Blood and Haemostasis. In: *High Altitude. Human Adaptation to Hypoxia*. New York: Springer, 2014, p. 203–216.
84. Millet GP, Roels B, Schmitt L, Woorons X, and Richalet JP. Combining hypoxic methods for peak performance. *Sports Med* 40: 1–25, 2010.
85. Mollard P, Woorons X, Letournel M, Lamberto C, Favret F, Pichon A, Beaudry M, and Richalet JP. Determinant factors of the decrease in aerobic performance in moderate acute hypoxia in women endurance athletes. *Respir Physiol Neurobiol* 159: 178–186, 2007.
86. Naeije R, Melot C, Niset G, Delcroix M, and Wagner PD. Mechanisms of improved arterial oxygenation after peripheral chemoreceptor stimulation during hypoxic exercise. *J Appl Physiol (1985)* 74: 1666–1671, 1993.
87. Nordsborg NB, Siebenmann C, Jacobs RA, Rasmussen P, Diaz V, Robach P, and Lundby C. Four weeks of normobaric "live high-train low" do not alter muscular or systemic capacity for maintaining pH and K(+) homeostasis during intense exercise. *J Appl Physiol (1985)* 112: 2027–2036, 2012.
88. Nummela A, Peltonen J, and Tikkanen H. Hyötyä vuoristoharjoittelusta. *Hiihto*: 44–49, 2012.
89. Peltonen J, Nummela A, and Tikkanen H. Vuoristoharjoittelu – reitti tulokseen vai turmioon? *Liikunta & tiede* 49: 30–35, 2012.
90. Peltonen J, Tikkanen H, and Nummela A. Vuoristoharjoittelumalleja maailmalta ja meiltä. *Valmentaja* 17: 18–21, 2011.
91. Peltonen JE, Kowalchuk JM, Paterson DH, DeLorey DS, duManoir GR, Petrella RJ, and Shoemaker JK. Cerebral and muscle tissue oxygenation in acute hypoxic ventilatory response test. *Respir Physiol Neurobiol* 155: 71–81, 2007.
92. Peltonen JE, Leppavuori AP, Kyro KP, Makela P, and Rusko HK. Arterial haemoglobin oxygen saturation is affected by FIO<sub>2</sub> at submaximal running velocities in elite athletes. *Scand J Med Sci Sports* 9: 265–271, 1999.
93. Peltonen JE, Paterson DH, Shoemaker JK, Delorey DS, Dumanoir GR, Petrella RJ, and Kowalchuk JM. Cerebral and muscle deoxygenation, hypoxic ventilatory chemosensitivity and cerebrovascular responsiveness during incremental exercise. *Respir Physiol Neurobiol* 169: 24–35, 2009.
94. Peltonen JE, Rantamaki J, Niittymaki SP, Sweins K, Viitasalo JT, and Rusko HK. Effects of oxygen fraction in inspired air on rowing performance. *Med Sci Sports Exerc* 27: 573–579, 1995.
95. Peltonen JE, Rusko HK, Rantamaki J, Sweins K, Niittymaki S, and Viitasalo JT. Effects of oxygen fraction in inspired air on force production and electromyogram activity during ergometer rowing. *Eur J Appl Physiol* 76: 495–503, 1997.
96. Peltonen JE, Tikkanen HO, Ritola JJ, Ahotupa M, and Rusko HK. Oxygen uptake response during maximal cycling in hyperoxia, normoxia and hypoxia. *Aviat Space Environ Med* 72: 904–911., 2001.
97. Peltonen JE, Tikkanen HO, Ritola JJ, and Rusko HK. VO<sub>2</sub> kinetics during maximal cycling in hyperoxia, normoxia and hypoxia. *Scand J Med Sci Sports* 8: 370, 1998.
98. Peltonen JE, Tikkanen HO, and Rusko HK. Cardiorespiratory responses to exercise in acute hypoxia, hyperoxia and normoxia. *Eur J Appl Physiol* 85: 82–88., 2001.
99. Piehl Aulin K, Svedenhag J, Wide L, Berglund B, and Saltin B. Short-term intermittent normobaric hypoxia – hematological, physiological and mental effects. *Scand J Med Sci Sports* 8: 132–137, 1998.

100. Powers SK, Lawler J, Dempsey JA, Dodd S, and Landry G. Effects of incomplete pulmonary gas exchange on  $\text{VO}_{2\text{max}}$ . *J Appl Physiol* 66: 2491–2495, 1989.
101. Powers SK, Martin D, and Dodd S. Exercise-induced hypoxemia in elite endurance athletes. Incidence, causes and impact on  $\text{VO}_{2\text{max}}$ . *Sports Med* 16: 14–22, 1993.
102. Raichle ME and Hornbein TF. The high-altitude brain. In: *High Altitude: An Exploration of Human Adaptation*, edited by Hornbein TF and Schoene RB. New York: Marcel Dekker, Inc., 2001, Chapt. 10, p. 377–423.
103. Reeves J and Stenmark K. The pulmonary circulation at high altitude. In: *High Altitude. An Exploration of Human Adaptation*, edited by Hornbein TF and Schoene RB. New York: Marcel Dekker, Inc., 2001, p. 293–342.
104. Reeves JT, Groves BM, Sutton JR, Wagner PD, Cymerman A, Malconian MK, Rock PB, Young PM, and Houston CS. Operation Everest II: preservation of cardiac function at extreme altitude. *J Appl Physiol* 63: 531–539, 1987.
105. Richalet J-P, Kacimi R, and Antezana A-M. The Control of Cardiac Chronotropic Function in Hypobaric Hypoxia. *Int J Sports Med* 13: S22-S24, 1992.
106. Richard NA and Koehle MS. Differences in cardio-ventilatory responses to hypobaric and normobaric hypoxia: a review. *Aviat Space Environ Med* 83: 677–684, 2012.
107. Robach P, Dechaux M, Jarrot S, Vaysse J, Schneider JC, Mason NP, Herry JP, Gardette B, and Richalet JP. Operation Everest III: role of plasma volume expansion on  $\text{VO}_{2\text{max}}$  during prolonged high-altitude exposure. *J Appl Physiol* 89: 29–37, 2000.
108. Rodríguez FA, Iglesias X, Feriche B, Calderón-Soto C, Chaverri D, Wachsmuth NB, Schmidt W, and Levine BD. Altitude training in elite swimmers for sea level performance (Altitude Project). *Med Sci Sports Exerc* 47: 1965–1978, 2015.
109. Rolett EL, Azzawi A, Liu KJ, Yongbi MN, Swartz HM, and Dunn JF. Critical oxygen tension in rat brain: a combined (31)P-NMR and EPR oximetry study. *Am J Physiol Regul Integr Comp Physiol* 279: R9-R16, 2000.
110. Rowell LB and Blackmon JR. Human cardiovascular adjustments to acute hypoxaemia. *Clin Physiol* 7: 349–376, 1987.
111. Rusko HK, Tikkanen HO, and Peltonen JE. Altitude and endurance training. *J Sports Sci* 22: 928–944; discussion 945, 2004.
112. Saunders PU, Pyne DB, and Gore CJ. Endurance training at altitude. *High Alt Med Biol* 10: 135–148, 2009.
113. Saunders PU, Telford RD, Pyne DB, Hahn AG, and Gore CJ. Improved running economy and increased hemoglobin mass in elite runners after extended moderate altitude exposure. *J Sci Med Sport* 12: 67–72, 2009.
114. Schmidt W and Prommer N. Impact of alterations in total hemoglobin mass on  $\text{VO}_{2\text{max}}$ . *Exerc Sport Sci Rev* 38: 68–75, 2010.
115. Schmidt W and Prommer N. The optimised CO-rebreathing method: a new tool to determine total haemoglobin mass routinely. *Eur J Appl Physiol* 95: 486–495, 2005.
116. Schoene RB. Control of ventilation in climbers to extreme altitude. *Journal of Applied Physiology: Respiratory, Environmental & Exercise Physiology* 53: 886–890, 1982.
117. Schoene RB, Lahiri S, Hackett PH, Peters RM, Jr., Milledge JS, Pizzo CJ, Sarnquist FH, Boyer SJ, Graber DJ, Maret KH, and et al. Relationship of hypoxic ventilatory response to exercise performance on Mount Everest. *J Appl Physiol* 56: 1478–1483, 1984.
118. Schoene RB, Swenson ER, Pizzo CJ, Hackett PH, Roach RC, Mills WJ, Henderson WR, and Martin TR. The lung at high altitude: bronchoalveolar lavage in acute mountain sickness and pulmonary edema. *J Appl Physiol* 64: 2605–2613, 1988.
119. Schumacker PT. Cellular and molecular mechanisms of  $\text{O}_2$  sensing. In: *High Altitude. Human Adaptation to Hypoxia.*, edited by Swenson ER and Bärtsch P. New York: Springer, 2014, p. 1–22.
120. Scroop GC and Shipp NJ. Exercise-induced hypoxemia: fact or fallacy? *Med Sci Sports Exerc* 42: 120–126, 2010.
121. Seo Y, Burns K, Fennell C, Kim J-H, Gunstad J, Glickman E, and McDaniel J. The Influence of Exercise on Cognitive Performance in Normobaric Hypoxia. *High Altitude Medicine & Biology*, 2015.
122. Siebenmann C, Robach P, Jacobs RA, Rasmussen P, Nordsborg N, Diaz V, Christ A, Olsen NV, Maggiorini M, and Lundby C. "Live high-train low" using normobaric hypoxia: a double-blinded, placebo-controlled study. *J Appl Physiol (1985)* 112: 106–117, 2012.
123. Squires RW and Buskirk ER. Aerobic capacity during acute exposure to simulated altitude, 914 to 2286 meters. *Med Sci Sports Exerc* 14: 36–40, 1982.
124. Steinacker JM, Tobias P, Menold E, Reissnecker S, Hohenhaus E, Liu Y, Lehmann M, Bartsch P, and Swenson ER. Lung diffusing capacity and exercise in subjects with previous high altitude pulmonary oedema. *Eur Respir J* 11: 643–650, 1998.

125. Stenberg J, Ekblom B, and Messin R. Hemodynamic response to work at simulated altitude, 4,000 m. *J Appl Physiol* 21: 1589–1594, 1966.
126. Stickland MK, Miller JD, Smith CA, and Dempsey JA. Carotid chemoreceptor modulation of regional blood flow distribution during exercise in health and chronic heart failure. *Circ Res* 100: 1371–1378, 2007.
127. Stokke KT, Rootwelt K, Wergeland R, and Vale JR. Changes in plasma and red cell volumes during exposure to high altitude. *Scand J Clin Lab Invest Suppl* 184: 113–117, 1986.
128. Stray-Gundersen J and Levine BD. "Living high and training low" can improve sea level performance in endurance athletes. *Br J Sports Med* 33: 150–151, 1999.
129. Subudhi AW, Dimmen AC, and Roach RC. Effects of acute hypoxia on cerebral and muscle oxygenation during incremental exercise. *J Appl Physiol* 103: 177–183, 2007.
130. Subudhi AW, Lorenz MC, Fulco CS, and Roach RC. Cerebrovascular responses to incremental exercise during hypobaric hypoxia: effect of oxygenation on maximal performance. *Am J Physiol Heart Circ Physiol* 294: H164–171, 2008.
131. Subudhi AW, Miramon BR, Granger ME, and Roach RC. Frontal and motor cortex oxygenation during maximal exercise in normoxia and hypoxia. *J Appl Physiol* 106: 1153–1158, 2009. Sutton JR, Reeves JT, Groves BM, Wagner PD, Alexander JK, Hultgren HN, Cymerman A, and Houston CS. Oxygen transport and cardiovascular function at extreme altitude: lessons from Operation Everest II. *Int J Sports Med* 13 Suppl 1: S13–18, 1992.
133. Sutton JR, Reeves JT, Wagner PD, Groves BM, Cymerman A, Malconian MK, Rock PB, Young PM, Walter SD, and Houston CS. Operation Everest II: oxygen transport during exercise at extreme simulated altitude. *J Appl Physiol* 64: 1309–1321, 1988.
134. Teppema LJ and Berendsen RR. Control of Breathing. In: *High Altitude, Human Adaptation to Hypoxia.*, edited by Swenson ER and Bärtisch P. New York: Springer, 2014, p. 37–55.
135. Terrados N, Mizuno M, and Andersen H. Reduction in maximal oxygen uptake at low altitudes; role of training status and lung function. *Clin Physiol Oxf* 5: 75–79, 1985.
136. Torre-Bueno JR, Wagner PD, Saltzman HA, Gale GE, and Moon RE. Diffusion limitation in normal humans during exercise at sea level and simulated altitude. *J Appl Physiol* (1985) 58: 989–995, 1985.
137. Wagner PD. Gas exchange. In: *High Altitude. An Exploration of Human Adaptation*, edited by Hornbein TF and Schoene RB. New York: Marcel Dekker, Inc., 2001, p. 199–234.
138. Wagner PD. Modeling O<sub>2</sub> transport as an integrated system limiting VO<sub>2max</sub>. *Comput Methods Programs Biomed* 101: 109–114, 2011.
139. Wagner PD. New ideas on limitations to VO<sub>2max</sub>. *Exerc Sport Sci Rev* 28: 10–14, 2000.
140. Wagner PD, Gale GE, Moon RE, Torre-Bueno JR, Stolp BW, and Saltzman HA. Pulmonary gas exchange in humans exercising at sea level and simulated altitude. *J Appl Physiol* 61: 260–270, 1986.
141. Wagner PD, Gale GE, Moon RE, Torre-Bueno JR, Stolp BW, and Saltzman HA. Pulmonary gas exchange in humans exercising at sea level and simulated altitude. *J Appl Physiol* (1985) 61: 260–270, 1986.
142. Wagner PD, Sutton JR, Reeves JT, Cymerman A, Groves BM, and Malconian MK. Operation Everest II: pulmonary gas exchange during a simulated ascent of Mt. Everest. *J Appl Physiol* 63: 2348–2359, 1987.
143. Wagner PD, Wagner HE, Groves BM, Cymerman A, and Houston CS. Hemoglobin P(50) during a simulated ascent of Mt. Everest, Operation Everest II. *High Alt Med Biol* 8: 32–42, 2007.
144. Wehrlin JP and Hallen J. Linear decrease in VO<sub>2max</sub> and performance with increasing altitude in endurance athletes. *Eur J Appl Physiol* 96: 404–412, 2006.
145. Wehrlin JP, Zuest P, Hallen J, and Marti B. Live high-train low for 24 days increases hemoglobin mass and red cell volume in elite endurance athletes. *J Appl Physiol* 100: 1938–1945, 2006.
146. West JB. *Respiratory physiology: the essentials*. Baltimore: Lippincott Williams & Wilkins, a Wolter Kluwer business, 2012.
147. Wilber RL, Stray-Gundersen J, and Levine BD. Effect of hypoxic "dose" on physiological responses and sea-level performance. *Med Sci Sports Exerc* 39: 1590–1599, 2007.
148. Wilhite DP, Mickleborough TD, Laymon AS, and Chapman RF. Increases in VO<sub>2max</sub> with "live high-train low" altitude training: role of ventilatory acclimatization. *Eur J Appl Physiol* 113: 419–426, 2013.
149. Williams JH, Powers SK, and Stuart MK. Hemoglobin desaturation in highly trained athletes during heavy exercise. *Med Sci Sports Exerc* 18: 168–173, 1986.
150. Vogel JA, Hartley LH, Cruz JC, and Hogan RP. Cardiac output during exercise in sea-level residents at sea level and high altitude. *J Appl Physiol* 36: 169–172, 1974.
151. Woorons X, Mollard P, Lamberto C, Letournel M, and Richalet JP. Effect of acute hypoxia on maximal exercise in trained and sedentary women. *Med Sci Sports Exerc* 37: 147–154, 2005.

## 10 Teknologian hyödyntäminen urheiluvalmennuksessa

- Big Data -verkkosivusto. <http://www.bigdata.fi/big-data-maaritelma>. Luettu 2.12.2015.
- Delgado-Gonzalo Parak J, Tarniceriu A, Philippe R, Bertschi M, Korhonen I. (2015) Evaluation of Accuracy and Reliability of PulseOn Optical Heart Rate Monitoring Device, IEEE EMBC, Milano.
- Eri laitevalmistajien ja teknologisia palveluita tarjoavien yritysten www-sivut, luettu 1.11.-31.12.2015.
- Firstbeat Technologies (2005) EPOC Based Training Effect Assessment, White paper.
- Firstbeat Technologies (2015) Recovery Analysis for Athletic Training Based on Heart Rate Variability, White paper.
- Keskinen K, Häkkinen K, Kallinen M (2007) Kuntotestauksen käsikirja, 2. painos. Liikuntatieteellinen Seura ry, Tampere.

## 11 Ylikuormitustila ja palautumismenetelmät urheilussa

### 11.1 Urheilijan ylikuormitustila

- Ahtiainen JP, Pakarinen A, Kraemer WJ, Häkkinen K (2003) Acute hormonal and neuromuscular responses and recovery to forced vs maximum repetitions multiple resistance exercises. *Int J Sports Med.* 24, 6, 410–418.
- Aubry A, Hausswirth C, Louis J ym. (2014) Functional overreaching: the key to peak performance during the taper? *Med Sci Sports Exerc.* Sep;46:1769–1777.
- Banister E (1991) Modeling elite athletic performance. In: Green H, McDougall J and Wenger H (eds.) *Physiological Testing of Elite Athletes*, Human Kinetics, Champaign, IL, 403–424.
- Bigland-Ritchie B, Woods JJ (1984) Changes in muscle contractile properties and neural control during human muscular fatigue. *Muscle Nerve*;7:691–699.
- Børsheim E, Bahr R (2003) Effect of exercise intensity, duration and mode on post-exercise oxygen consumption. *Sports Med* 33:1037–60.
- Borresen J, Lambert MI (2009) The quantification of training load, the training response and the effect on performance. *Sports Med* 39:779–95.
- Brooks KA, Carter JG (2013) Overtraining, exercise and adrenal insufficiency. *J Nov Physiother*; 3.
- Costill DL, Thomas R, Robergs RA, Pascoe DD, Lambert CP, Barr SI, Fink WJ (1991) Adaptations to swimming training: influence of training volume. *Med Sci Sports Exerc* 23: 371–377.
- Coutts AJ, Reaburn P (2008) Monitoring changes in rugby league players' perceived stress and recovery during intensified training. *Percept Mot Skills*;106:904–916.
- Coutts AJ, Slattery KM, Wallace LK (2007) Practical tests for monitoring performance, fatigue and recovery in triathletes. *J Sci Med Sport*.;10:372–381.
- Duhig TJ, McKeag D (2009) Thyroid disorders in athletes. *Curr Sports Med Rep*; 8:16–19.
- Foster C (1998) Monitoring training in athletes with reference to overtraining syndrome. *Med Sci Sports Exerc* 30: 1164–1168.
- Fry AC, Kraemer WJ (1997) Resistance exercise overtraining and overreaching. Neuroendocrine responses. *Sports Med*;23:106–29.
- Hackney AC, Kallman A, Hosick KP ym. (2012) Thyroid hormonal responses to intensive interval versus steady-state endurance exercise sessions. *Hormones (Athens)*;11:54–60.
- Hickson RC, Bomze HA, Holloszy JO (1977) Linear increase in aerobic power induced by a strenuous program of endurance exercise. *J Appl Physiol*, 42:3; 372–376.
- Hooper SL, Mackinnon LT, Hanrahan S (1997) Mood states as an indication of staleness and recovery. *Int J Sport Psychol*; 28:1–12.

- Hynynen E, Nummela A (2010) A three-year follow-up study of endurance performance and nocturnal HRV of an international level race-walker. European Athletics Innovation Awards. Winner of Coaching Category.
- Hynynen E, Uusitalo A, Konttinen N ym. (2008) Cardiac autonomic responses to standing up and cognitive task in overtrained athletes. *Int J Sports Med*;29:552–558.
- Häkkinen K, Pakarinen A (1993) Acute hormonal responses to two different fatiguing heavy resistance protocols in male athletes. *J Appl Physiol.* 74, 2, 882–887.
- Häkkinen, K., Pakarinen, A., Alen, M., Kauhanen, H., Komi, P.V. (1988) Daily hormonal and neuromuscular responses to intensive strength training in one week. *International Journal of Sports Medicine*, 6, 9, 422–428.
- Jürimäe J, Mäestu J, Jürimäe T ym. (2011) Pheripheral signals of energy homeostasis as possible markers of training stress in athletes: a review. *Metabolism*; 60:335–350.
- Kenttä G, Hassmén P (1998) Overtraining and recovery. A conceptual model. *Sports Med*; 26:1–16.
- Lamberts RP (2009) The development of an evidenced-based submaximal cycle test designed to monitor and predict cycling performance. The Lamberts and Lambert submaximal cycle test (LSCT). Doctoral thesis, University of Cape Town, South Africa.
- Koch AJ, Pereira R, Machado M (2014) The creatine kinase response to resistance exercise. *J Musculoskeletal Neuronal Interact*;14:68–77.
- LeMeur Y, Pichon A, Schaal K, Schmitt L, Louis J, Gueneron J, Vidal PP, Hausswirth C (2013) Evidence of parasympathetic hyperactivity in functionally overreached athletes. *Med Sci Sports Exerc* 45:2061–2071.
- Lewis NA, Howatson G, Morton K ym. (2015) Alterations in redox homeostasis in the elite endurance athlete. *Sports Med* 45:379–409.
- Margonis K, Fatouros IG, Jamurtas AZ ym. (2007) Oxidative stress biomarkers responses to physical overtraining: implications for diagnosis. *Free Radic Biol Med* 43:901–910.
- Matos NF, Winsley RJ, Williams GA (2011) Prevalence of nonfunctional overreaching/overtraining in young English athletes. *Med Sci Sports Exerc*; 43: 1287–1294.
- McEwen BS (1998) Protective and damaging effects of stress mediators. *N Engl J Med* 15: 171–9.
- Meeusen R, Duclos M, Foster C ym. (2013) European College of Sport Science; American College of Sports Medicine. Prevention, diagnosis, and treatment of the overtraining syndrome: joint consensus statement of the European College of Sport Science and the American College of Sports Medicine. *Med Sci Sports Exerc*;45:186–205.
- Meeusen R, Nederhof E, Buysse L ym. (2010) Diagnosing overtraining in athletes using two-bout exercise protocol. *Br J Sports Med*; 44: 642–648.
- Meeusen R, Watson P, Hasegawa H ym. (2007) Brain neurotransmitters in fatigue and overtraining. *Appl Physiol Nutr Metab*;32:857–864.
- Morgan WP, Brown DR, Raglin JS ym. (1987) Psychological monitoring of overtraining and staleness. *Br J Sports Med* 1987; 21: 107–114.
- Mountjoy M, Sundgot-Borgen J, Burke L ym. (2014) The IOC consensus statement: beyond the Female Athlete Triad--Relative Energy Deficiency in Sport (RED-S). *Br J Sports Med*;48:491–497.
- O'Connor PJ, Morgan WP, Raglin JS ym. (1989) Mood state and salivary cortisol levels following overtraining in female swimmers. *Psychoneuroendocrinology*; 14: 303–310.
- Plews DJ, Laursen PB, Stanley J, ym. (2013) Training adaptation and heart rate variability in elite endurance athletes: opening the door to effective monitoring. *Sports Med.*; 43:773–781.
- Roose J, de Vries WR, Schmikli SL ym. (2009) Evaluation and opportunities in overtraining approaches. *Res Q Exerc Sport.* 2009;80:756–764.
- Rushall B (1990) A tool for measuring stress tolerance in elite athletes. *J Appl Sport Psychol*;2:51–66.
- Selye H (1975) *The stress of life.* McGraw Hill Book Co., New York, NY.
- Szivak TK, Hooper DR, Dunn-Lewis C, Comstock BA, Kupchak BR, Apicella JM, Saenz C, Maresh CM, Denegar CR, Kraemer WJ (2013) Adrenal cortical responses to high-intensity, short rest, resistance exercise in men and women. *J Strength Cond Res.*;27:748–60.
- Urhausen A, Kindermann W (2002) Diagnosis of overtraining: what tools do we have? *Sports Med*; 32: 95–102.
- Uusitalo ALT (2015) Urheilijan ylikuormitustila. *Duodecim joulukuu.*
- Uusitalo ALT (2001) Overtraining. Making a difficult diagnosis and implementing targeted treatment. *The physician and sportsmedicine*; 29: 35–50.
- Uusitalo ALT, Vanninen E, Valkonen-Korhonen M ym. (2006) Brain serotonin reuptake did not change during one year in overtrained athletes. *Int J Sports Med*;27:702–708.

## 11.2 Palautumista nopeuttavat menetelmät

- Barnett A (2006) Using recovery modalities between training sessions in elite athletes: Does it help? *Sports Medicine*, 36, 781–796, Champaign, USA.
- Beever R (2009) Far-infrared saunas for treatment of cardiovascular risk factors. *Can Fam Physician* 55:691–696.
- Belenky G, Wesensten NJ, Thorne DR, et al. (2003) Patterns of performance degradation and restoration during sleep restriction and subsequent recovery: a sleep dose–response study. *J Sleep Res.*12(1):1–12.
- Beliard S, Chauveau M, Moscatiello T, Cros F, Ecartot F, Becker F (2015) Compression Garments and Exercise: No Influence of Pressure Applied. *Journal of Sports Science and Medicine* 14, 75–83.
- Bompa TO ja Haff GG (2009) *Periodization: Theory and Methodology of Training*. Human Kinetics. 5th edn., 409 pages.
- Carskadon MA, Dement WC (2001) Normal human sleep: an overview. In: Kryger MH, Roth T, Dement WC, editors. *Principles and practice of sleep medicine*. 5th ed. St. Louis: Elsevier. p. 16–26.
- Cirelli C, Tononi G (2008) Is sleep essential? *PLoS Biol.* 6(8):e216.
- Crystal N, Townson DH, Summer BC ja LaRocke DP (2013) Effect of cryotherapy on muscle recovery and inflammation following a bout of damaging exercise. *European Journal of Applied Physiology*, 113:2577–2586.
- Dattilo M, Antunes HK, Medeiros A, et al.(2011) Sleep and muscle recovery: endocrinological and molecular basis for a new and promising hypothesis. *Med Hyp.* 77(2):220–2.
- Dijk DJ (2010) Slow-wave sleep deficiency and enhancement: implications for insomnia and its management. *World J Biol Psychiatry.*11(Suppl. 1):22–8.
- Erlacher D, Ehrlenspiel F, Adegbesan OA, et al. (2011) Sleep habits in German athletes before important competitions or games. *J Sports Sci.* 29(8):859–66.
- Halson SL (2014) Sleep in Elite Athletes and Nutritional Interventions to Enhance Sleep. *Sports Med.* 44 (Suppl 1):S13–S23. DOI 10.1007/s40279-014-0147-0.
- Halson SL, Bartram J, West N, Stephens J, Argus CK, Driller MW, Sargent C, Lastella M, Hopkins WG, Martin DT (2014) Does Hydrotherapy Help or Hinder Adaptation to Training in Competitive Cyclists?. *Medicine and Science in Sports and Exercise*, 46, 1631–1639.
- Hauswirth C ja Mujika I (2013) *Recovery for performance in sport*. Human Kinetics. 281 pages.
- Heikura E (2015) *Kylmäaltistuksen akuutit vaikutukset kestävyysarjoituksesta palautumiseen*. Liikuntafysiologian kandidaatintutkielma. Liikuntabiologian laitos, Jyväskylän yliopisto.
- Karila TAM, Sarkkinen P, Marttinen M, Seppälä T, Mero A, Tallroth K (2008) Rapid weight loss decreases serum testosterone. *Int J Sports Med* 29:1–6.
- Karvinen S (2015) *Acute and chronic effects of cold treatment on physiological variables and neuromuscular function during a 7-day training period in men*. Master Thesis (evaluation process in April). Department of Biology of Physical Activity, University of Jyväskylä.
- Krueger JM, Majde JA, Rector DM (2011) Cytokines in immune function and sleep regulation. *Handbook Clin Neurol.* 98: 229–40.
- Kukkonen-Harjula K, Kauppinen K (2006) Health effects and risks of sauna bathing. *Int J Circumbolar Health* 65(3):195–205.
- Leeder J, Glaister M, Pizzoferro K, et al. (2012) Sleep duration and quality in elite athletes measured using wristwatch actigraphy. *J Sports Sci.* 30(6):541–5.
- Mah CD, Mah KE, Kezirian EJ, et al. (2011) The effects of sleep extension on the athletic performance of collegiate basketball players. *Sleep.* 34(7):943–50.
- Mah C (eds) (2008) *Extended sleep and the effects on mood and athletic performance in collegiate swimmers*. Annual Meeting of the Associated Professional Sleep Societies; Baltimore (MD).
- Mero A, Tornberg J, Mäntykoski M, and Puurtinen R (2015) Effects of far infrared sauna bathing on recovery from strength and endurance training sessions. *SpringerPlus*, 4:321. DOI: 10.1186/s40064-015-1093-5. R
- Noponen PVA, Häkkinen K, Mero AA (2015) Effects of far infrared heat on recovery in power athletes. *J Athletic Enhancement*, 4:4. <http://dx.doi.org/10.4172/2324-9080.1000202>.
- Postolache TT, Oren DA (2005) Circadian phase shifting, alerting, and antidepressant effects of bright light treatment. *Clin Sports Med.* 24(2):381–413.
- Reilly T, Edwards B (2007) Altered sleep–wake cycles and physical performance in athletes. *Physiol Behav.* 90(2–3):274–84.
- Reilly T, Deykin T (1983) Effects of partial sleep loss on subjective states, psychomotor and physical performance tests. *J Hum Mov Stud.* 9:157–70.

- Reilly T, Hales A (1988) Effects of partial sleep deprivation on performance measures in females. In: McGraw ED, editor. *Contemporary ergonomics*. London: Taylor and Francis. p. 509–13.
- Reilly T, Piercy M (1994) The effect of partial sleep deprivation on weight-lifting performance. *Ergonomics*. 37(1):107–15.
- Rial RV, Nicolau MC, Gamundi A, et al. (2007) The trivial function of sleep. *Sleep Med Rev*.11(4):311–25.
- Robson-Ansley PJ, Gleeson M, Ansley L (2009) Fatigue management in the preparation of Olympic athletes. *J Sports Sci*. 27(13):1409–20.
- Samuels C (2008) Sleep, recovery, and performance: the new frontier in high-performance athletics. *Neurol Clin*. 26(1):169–80.
- Shapiro CM, Bortz R, Mitchell D, et al. (1981) Slow-wave sleep: a recovery period after exercise. *Science*. 214(4526):1253–4.
- Sinnerton S, Reilly T (1992) Effects of sleep loss and time of day in swimmers. In: Maclaren D, Reilly T, Lees A, editors. *Biomechanics and medicine in swimming: swimming science IV*. London: E and FN Spon. p. 399–405.
- Spiegel K, Leproult R, Van Cauter E (1999) Impact of sleep debt on metabolic and endocrine function. *Lancet*. 354(9188):1435–9.
- Spiegel K, Tasali E, Penev P, et al. (2004) Brief communication: sleep curtailment in healthy young men is associated with decreased leptin levels, elevated ghrelin levels, and increased hunger and appetite. *Ann Intern Med*.141(11):846–50.
- Van Dongen HP, Maislin G, Mullington JM, et al. (2003) The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep*. 26(2): 117–26.
- Waterhouse J, Atkinson G, Edwards B, et al. (2007) The role of a short post-lunch nap in improving cognitive, motor, and sprint performance in participants with partial sleep deprivation. *J Sports Sci*. 25(14):1557–66.
- Wilcock, I. M., Cronin, J. B. & Hing, W. A. (2006) Physiological response to water immersion. *Sports Medicine*, 36, 747–765.
- Yamane, M, Teruya, H., Nakano, M., Ogai, R., Ohnishi, N. & Kosaka, M. (2006) Post exercise leg and forearm flexor muscle cooling in humans attenuates endurance and resistance training effects on muscle performance and on circulatory adaptation. *European Journal of Applied Physiology*, 96, 572–580.

## 12 Urheilijan terveydenhuolto

### 12.1–12.5 Urheilijan terveydenhuolto

- Kujala UM, Sarna S, Kaprio J, Koskenvuo M (1996) Hospital care in later life among former world-class Finnish athletes. *Journal of the American Medical Association*; 276: 216–20.
- Mero A, Uusitalo A, Hiilloskorpi H, Nummela A, Häkkinen K (2012) Naisten ja tyttöjen urheiluvammennus, VK-kustannus.
- Mountjoy M, Sundgot-Borgen J, Burke L, Carter S, Constantini N, Lebrun C, Meyer N, Sherman R, Steffen K, Budgett R, Ljungqvist A (2014) The IOC consensus statement: beyond the Female Athlete Triad—Relative Energy Deficiency in Sport (RED-S). *Br J Sports Med*;48:491–497.
- Mountjoy M, Sundgot-Borgen J, Burke L, Carter S, Constantini N, Lebrun C, Meyer N, Sherman R, Steffen K, Budgett R, Ljungqvist A (2015) Authors' 2015 additions to the IOC consensus statement: beyond the Female Athlete Triad—Relative Energy Deficiency in Sport (RED-S). *Br J Sports Med*;49:417–420.
- Takala T, Uusitalo A, Ehnholm K, Virtala M (2013) *Liikuntalääketiede Suomessa, Liikuntatieteellinen seura*.
- Sarna S, Sahi T, Koskenvuo M, Kaprio J (2000) Increased life expectancy of world class athletes. *Medicine and Science in Sports and Exercise*; 25: 237–44.
- Wingfield K, Matheson GO, Meeuwisse WH (2004) Preparticipation evaluation: an evidence-based review. *Clin J Sport Med*;14:109–22.
- Walsh NP, Gleeson M, Pyne DB, Nieman DC, Dhabhar FS, Shephard RJ, Oliver SJ, Bermon S, Kajeniene A (2011) Position statement. Part two: Maintaining immune health. *Exerc Immunol Rev*;17:64–103.
- Walsh NP, Gleeson M, Shephard RJ, Gleeson M, Woods JA, Bishop NC, Fleshner M, Green C, Pedersen BK, Hoffman-Goetz L, Rogers CJ, Northoff H, Abbasi A, Simon P (2011) Position statement. Part one: Immune function and exercise. *Exerc Immunol Rev*;17:6–63.

- The International Olympic Committee (IOC) Consensus Statement on Periodic Health Evaluation of Elite Athletes, March 2009.
- Schwellnus MP, Derman WE, Jordaan E, Page T, Lambert MI, Readhead C, Roberts C, Kohler R, Collins R, Kara S, Morris MI, Strauss O, Webb S (2012) Elite athletes travelling to international destinations >5 time zone differences from their home country have a 2–3-fold increased risk of illness. *Br J Sports Med.*;46:816–21.
- Kesäniemi ym. (2010) Suomalaisen Lääkäriseuran Duodecimin ja Käypä hoito -johtoryhmän asettama työryhmä. Liikunta.
- Maïmoun L, Georgopoulos NA, Sultan C (2014) Endocrine disorders in adolescent and young female athletes: impact on growth, menstrual cycles, and bone mass acquisition. *J Clin Endocrinol Metab*; 99:4037–50.
- Pyne DB, West NP, Cox AJ, Cripps AW (2015) Probiotics supplementation for athletes - clinical and physiological effects. *Eur J Sport Sci.*;15:63–72.
- Leatherwood WE, Drago J (2013) Effect of airline travel on performance: a review of the literature. *Br J Sports Med.*;47:561–7.
- Simmons E, McGrane O, Wedmore I (2015) Jet lag modification. *Curr Sports Med Rep.*;14:123–128.

## 12.6 Liikuntavammat: ennaltaehkäisy ja hoito

- Bahr R (2009) No injuries, but plenty of pain? On the methodology for recording overuse symptoms in sports. *Br J Sports Med*;43:966–972.
- Bahr R, Krosshaug T (2005) Understanding the injury mechanisms – a key component to prevent injuries in sport. *Br J Sports Med*; 39:324–329.
- Haikonen K, Parkkari J (2010) Liikuntatapaturmat. Raportissa: Haikonen K, Lounamaa A, toim. Suomalaiset tapaturmien uhreina 2009. THL raportti 13/2010. Yliopistopaino. Helsinki.
- Lauersen JB, Bertelsen DM, Andersen LB (2014) The effectiveness of exercise interventions to prevent sports injuries: a systematic review and meta-analysis of randomised controlled trials. *Br J Sports Med*;11:871–877.
- Leppänen M, Aaltonen S, Parkkari J, ym. (2014) Interventions to prevent sports injuries: a systematic review and meta-analysis of randomised controlled trials. *Sports Medicine* 2014;4:473–486.
- Parkkari J, Kannus P, Natri A, ym. (2004) Active Living and Injury Risk. A prospective one-year follow-up of a population cohort comparing the injury risk in various commuting and lifestyle activities, and recreational and competitive sports. *Int J Sports Med*;25:209–216.
- Pasanen K, Parkkari J, Pasanen M, ym. (2008) Neuromuscular training and the risk of leg injuries in female floorball players: cluster randomized controlled trial. *BMJ*;337:96–102.