

# References

- Aarsland, A., D. Chinkes, and R.R. Wolfe. 1997. Hepatic and whole-body fat synthesis in humans during carbohydrate overfeeding. *Am J Clin Nutr* 65 (6): 1774-1782.
- Abbott, W.G., B.V. Howard, L. Christin, et al. 1988. Short-term energy balance: Relationship with protein, carbohydrate, and fat balances. *Am J Physiol* 255 (3 pt 1): E332-337.
- Achten, J., and A.E. Jeukendrup. 2003. The effect of pre-exercise carbohydrate feedings on the intensity that elicits maximal fat oxidation. *J Sports Sci* 21:1017-1024.
- Achten, J., M.C. Venables, and A.E. Jeukendrup. 2003. Fat oxidation rates are higher during running compared to cycling over a wide range of intensities. *Metabolism* 52 (6): 747-752.
- Achten, J., M. Gleeson, and A.E. Jeukendrup. 2002. Determination of the exercise intensity that elicits maximal fat oxidation. *Med Sci Sports Exerc* 34 (1): 92-97.
- Achten, J., S.L. Halson, L. Moseley, M.P. Rayson, A. Casey, and A.E. Jeukendrup. 2004. Higher dietary carbohydrate content during intensified running training results in better maintenance of performance and mood state. *J Appl Physiol* 96 (4):1331-1340.
- Acker, S.A.B.E., M.N.J.L. Tromp, G.R.M.M. Haenen, J.F. Wim, V. Vijgh, and A. Bast. 1995. Flavonoids as scavengers of nitric oxide radical. *Bio Chem Res Rev* 3:755-757.
- Akerstrom, T.C., J.B. Birk, D.K. Klein, C. Erikstrup, P. Plomgaard, B.K. Pedersen, and J. Wojtaszewski. 2006. Oral glucose ingestion attenuates exercise-induced activation of 5'-AMP-activated protein kinase in human skeletal muscle. *Biochem Biophys Res Commun* 342:949-955.
- Akerstrom TCA, Fischer CP, Plomgaard P, Thomsen C, van Hall G, Klarlund Pedersen B. Glucose ingestion during endurance training does not alter adaptation. *J Appl Physiol* 106:1771-1779, 2009.\*Allen, J.D., J. McLung, A.G. Nelson, and M. Welsch. 1998. Ginseng supplementation does not enhance healthy young adults' peak aerobic exercise performance. *J Am Coll Nutr* 17 (5): 462-466.
- American College of Sports Medicine. 1996. Exercise and fluid replacement. *Med Sci Sports Exerc* 16:i-vii.
- American Dietetic Association. 1997. Health Implications of Dietary Fiber. *Am Diet Assoc* 97:1157-1160.
- American Psychiatric Association Task Force on DSM-IV. 2000. *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*, 4th text revision. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. 1994. *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. 1987. *Diagnostic and statistical manual of mental disorders*, 3rd ed. Washington, DC: American Psychiatric Association.
- Andersen, A.E. 1995. Eating disorders in males. In *Eating disorders and obesity: A comprehensive handbook*, ed. K.D. Brownell and C.G. Fairburn, 177-192. London: Guildford Press.
- Andersen, A.E. 1990. Diagnosis and treatment of males with eating disorders. In *Males with eating disorders*, ed. A.E. Andersen, 133-162. New York: Brunner/Mazel.
- Anderson, M.J., J.D. Cotter, A.P. Garnham, D.J. Casley, and M.A. Febbraio. 2001. Effect of glycerol-induced hyperhydration on thermoregulation and metabolism during exercise in the heat. *Int J Sport Nutr Exerc Metab* 11 (3): 315-333.
- Anderson, R.A., and A.S. Kozlovsky. 1985. Chromium intake, absorption and excretion of subjects consuming self-selected diets. *Am J Clin Nutr* 41 (6): 1177-1183.
- Andrews, S., L.A. Balart, M.C. Bethea, et al. 1998. *Sugarbusters*. London: Vermillion.
- Angus, D.J., M. Hargreaves, J. Dancey, and M.A. Febbraio. 2000. Effect of carbohydrate or carbohydrate plus medium-chain triglyceride ingestion on cycling time trial performance. *J Appl Physiol* 88 (1): 113-119.
- Anonymous. 1998. Hyperthermia and dehydration-related deaths associated with intentional rapid weight loss in three collegiate wrestlers—North Carolina, Wisconsin, and Michigan, November–December 1997. *MMWR Morb Mortal Wkly Rep* 47 (6): 105-108.
- Applegate, E. 1999. Effective nutritional ergogenic aids. *Int J Sport Nutr* 9 (2): 229-239.
- Applegate, E.A., and L.E. Grivetti. 1997. Search for the competitive edge: A history of dietary fads and supplements. *J Nutr* 127 (5 Suppl): S869S-S873.
- Ardawi, M.S.M., and E.A. Newsholme. 1994. *Glutamine metabolism in lymphoid tissues*, ed. D. Haussinger and H. Sies, 235-246. Berlin: Springer-Verlag.
- Arkinstall, M.J., C.R. Bruce, V. Niklopoulos, et al. 2001. Effect of carbohydrate ingestion on metabolism during running and cycling. *J Appl Physiol* 91 (5): 2125-2134.
- Armstrong, L.E., D.L. Costill, and W.J. Fink. 1985. Influence of diuretic-induced dehydration on competitive running performance. *Med Sci Sports Exerc* 17:456-461.
- Armstrong, L.E. 2002. Caffeine, body fluid-electrolyte balance, and exercise performance. *Int J Sport Nutr Exerc Metab* 12 (2): 189-206.
- Armstrong, L., A. Pumerantz, M. Roti, D. Judelson, G. Watson, J. Dias, B. Sokmen, D. Casa, C. Maresh, H. Lieberman, M. Kellogg. 2005. Fluid, electrolyte, and renal indices of hydration during 11 days of controlled caffeine consumption. *Int J Sport Nutr Exerc Metab* 15 (3): 252-265.
- Atherton, P.J., J. Babraj, K. Smith, J. Singh, M.J. Rennie, and H. Wackerhage. 2005. Selective activation of AMPK-PGC-1alpha or PKB-TSC2-mTOR signaling can explain specific adaptive responses to endurance or resistance training-like electrical muscle stimulation. *FASEB J* 19:786-788.
- Atkins, R.C. 1992. Doctor Atkins' new diet revolution. New York: Avon Books.
- Aulin, K.P. 2000. Minerals: Calcium. In *Nutrition in sport*, ed. R.J. Maughan, 318-325. Oxford: Blackwell Science.
- Baar, K., A.R. Wende, T.E. Jones, M. Marison, L.A. Nolte, M. Chen, D.P. Kelly, J.O. Holloszy. 2002. Adaptations of skeletal muscle to exercise: Rapid increase in the transcriptional coactivator PGC-1. *FASEB J* 16:1879-1886.
- Bach, A.C., and V.K. Babayan. 1982. Medium-chain triglycerides: An update. *Am J Clin Nutr* 36:950-962.
- Bagby, G.J., H.J. Green, S.Katsuta, and P.D. Gollnick. 1978. Glycogen depletion in exercising rats infused with glucose, lactate or pyruvate. *J Appl Physiol* 45 (3): 425-429.
- Ballantyne, C.S., S.M. Phillips, J.R. MacDonald, M.A. Tarnopolsky, and J.D. MacDougall. 2000. The acute effects of androstenedione supplementation in healthy young males. *Can J Appl Physiol* 25 (1): 68-78.
- Ballor, D.L., and R.E. Keesey. 1991. A meta-analysis of the factors affecting exercise-induced changes in body mass,

- fat mass and fat-free mass in males and females. *Int J Obes* 15 (11): 717-726.
- Balsom, P.D., B. Ekblom, K. Soderlund, B. Sjodin, and E. Hultman. 1993. Creatine supplementation and dynamic high-intensity intermittent exercise. *Scand J Med Sci Sports* 3:143-149.
- Balsom, P.D., K. Wood, P. Olsson, and B. Ekblom. 1999. Carbohydrate intake and multiple sprint sports: With special reference to football (soccer). *Int J Sports Med* 20 (1): 48-52.
- Balsom, P.D., S.D.R. Harridge, K. Soderlund, B. Sjodin, and B. Ekblom. 1993. Creatine supplementation per se does not enhance endurance exercise performance. *Acta Physiol Scand* 149:521-523.
- Banderet, L.E., and H.R. Lieberman. 1989. Treatment with tyrosine, a neurotransmitter precursor, reduces environmental stress in humans. *Brain Res Bull* 22 (4): 759-762.
- Barnett, C., D.L. Costill, M.D. Vukovich, K.J. Cole, B.H. Goodpaster, S.W. Trappe, and W.J. Fink. 1994. Effect of L-carnitine supplementation on muscle and blood carnitine content and lactate accumulation during high-intensity sprint cycling. *Int J Sports Nutr* 4 (3): 280-288.
- Barron, J.L., T.D. Noakes, W. Levy, C. Smith, and R.P. Millar. 1985. Hypothalamic dysfunction in overtrained athletes. *J Clin Endocrinol Metab*, 60 (4):803-806.
- Barrett, B. 2003. Medicinal properties of Echinacea: Critical review. *Phytomedicine* 10:66-86.
- Barrett, B.P., R.L. Brown, K. Locken, R. Maberry, J.A. Bobula, and D. D'Alessio. 2002. Treatment of the common cold with unrefined Echinacea. A randomized, double-blind, placebo-controlled trial. *Ann Intern Med* 137:939-946.
- Barry, A., T. Cantwell, F. Doherty, J.C. Folan, M. Ingoldsby, J.P. Kevany, J.D. O'Brien, H. O'Connor, B. O'Shea, B.A. Ryan, and J. Vaughan. 1981. A nutritional study of Irish athletes. *Br J Sports Med* 5:99.
- Bassit, R.A., L.A. Sawada, R.F.P. Bacurau, F. Navarro, E. Martins, R.V.T. Santos, E.C. Caperuto, P. Rogeri, and L.F.B.P. Costa-Rosa. 2002. Branched-chain amino acid supplementation and the immune response of long-distance athletes. *Nutrition* 18:376-379.
- Baumgartner, R.N., W.C. Chumlea, and A.F. Roche. 1990. Bioelectric impedance for body composition. *Exerc Sport Sci Rev* 18:193-224.
- Beckers, E.J., A.E. Jeukendrup, F. Brouns, A.J.M. Wagenmakers, and W.H.M. Saris. 1992. Gastric emptying of carbohydrate-medium chain triglyceride suspensions at rest. *Int J Sports Med* 13 (8): 581-584.
- Beidleman, B.A., J.L. Puhl, and M.J. De Souza. 1995. Energy balance in female distance runners. *Am J Clin Nutr* 61 (2): 303-311.
- Below, P., R. Mora-Rodriguez, J. Gonzalez-Alonso, and E.F. Coyle. 1995. Fluid and carbohydrate ingestion independently improve performance during 1 h of intense cycling. *Med Sci Sports Exerc* 27:200-210.
- Bennell, K., G. Matheson, and W. Heewisse. 1999. Risk factors for stress fractures. *Sports Med* 28:91-122.
- Bennet, W.M., A.A. Connacher, C.M. Scrimgeour, and M.J. Rennie. 1990. The effect of amino acid infusion on leg protein turnover assessed by L-[15N]phenylalanine and L-[1-13C]leucine exchange [published erratum appears in Eur J Clin Invest 20 (4): 479]. *Eur J Clin Invest* 20 (1): 41-50.
- Bennet, W.M., and M.J. Rennie. 1991. Protein anabolic actions of insulin in the human body. *Diabetic Med* 8:199-207.
- Bergstrom, J., and E. Hultman. 1966. Muscle glycogen synthesis after exercise: An enhancing factor localized in muscle cells in man. *Nature* 210:309-310.
- Bergstrom, J., and E. Hultman. 1967a. A study of glycogen metabolism during exercise in man. *Scand J Clin Invest* 19:218-228.
- Bergstrom, J., and E. Hultman. 1967b. Synthesis of muscle glycogen in man after glucose and fructose infusion. *Acta Med Scand* 182 (1): 93-107.
- Beumont, P.J.V. 1995. The clinical presentation of anorexia and bulimia nervosa. In *Eating disorders and obesity: A comprehensive handbook*, ed. K.D. Brownell and C.G. Fairburn, 151-158. London: Guildford Press.
- Beumont, P.J.V., B. Arthur, J.D. Russell, and S.W. Touyz. 1994. Excessive physical activity in dieting disorder patients: Proposals for a supervised exercise program. *Int J Eating Disorders* 15:21-36.
- Bierkamer, G.G., and A.M. Goldberg. 1980. Release of acetylcholine from the vascular perfused rat phrenic nerve-hemidiaphragm. *Brain Res* 202 (1): 234-237.
- Biolo, G., B.D. Williams, R.Y. Fleming, and R.R. Wolfe. 1999. Insulin action on muscle protein kinetics and amino acid transport during recovery after resistance exercise. *Diabetes* 48 (5): 949-957.
- Biolo, G., S.P. Maggi, B.D. Williams, K.D. Tipton, and R.R. Wolfe. 1995. Increased rates of muscle protein turnover and amino acid transport after resistance exercise in humans. *Am J Physiol* 268 (3 pt 1): E514-E520.
- Biolo, G., K. Tipton, S. Klein, and R. Wolfe. 1997. An abundant supply of amino acids enhances the metabolic effect of exercise on muscle protein. *Am J Physiol* 273 (1 Pt 1): E122-129.
- Birch, R., D. Noble, and P.L. Greenhaff. 1994. The influence of dietary creatine supplementation on work output and metabolism during repeated bouts of maximal isokinetic cycling in man. *Eur J Appl Physiol* 69 (3): 268-276.
- Bishop, N.C., A.K. Blannin, and M. Gleeson. 2000. Effect of carbohydrate and fluid intake during prolonged exercise on saliva flow and IgA secretion. *Med Sci Sports Exerc* 32:2046-2051.
- Bishop, N.C., A.K. Blannin, N.P. Walsh, and M. Gleeson. 2001. Effect of dietary carbohydrate status on bacterial lipopolysaccharide-stimulated neutrophil degranulation response following cycling to fatigue. *Int J Sports Med* 22:226-231.
- Bishop, N.C., A.K. Blannin, N.P. Walsh, P.J. Robson, and M. Gleeson. 1999a. Nutritional aspects of immunosuppression in athletes. *Sports Med* 28:151-176.
- Bishop, N.C., A.K. Blannin, P.J. Robson, N.P. Walsh, and M. Gleeson. 1999c. The effects of carbohydrate supplementation on neutrophil degranulation responses to a soccer-specific exercise protocol. *J Sports Sci* 17:787-779.
- Bishop, N.C., A.K. Blannin, L. Rand, R. Johnson, and M. Gleeson. 1999b. Effects of carbohydrate and fluid intake on the blood leucocyte response to prolonged exercise. *J Sports Sci* 17:26-27.
- Bishop, N.C., C. Fitzgerald, P.J. Porter, G.A. Scanlon, and A.C. Smith. 2005. Effect of caffeine ingestion on lymphocyte counts and subset activation in vivo following strenuous cycling. *Eur J Appl Physiol* 93 (5-6): 606-613.
- Bishop, N.C., G.J. Walker, L.A. Bowley, et al. 2005. Lymphocyte responses to influenza and tetanus toxoid in vitro following intensive exercise and carbohydrate ingestion on consecutive days. *J Appl Physiol* 99 (4): 1327-1335.
- Blaak, E. 2001. Gender differences in fat metabolism. *Curr Opin Clin Nutr Metab Care* 4 (6): 499-502.
- Blom, P.C.S., A.T. Høstmark, O. Vaage, K.R. Kardel, and S. Maehlum. 1987. Effect of different post-exercise sugar diets on the rate of muscle glycogen resynthesis. *Med Sci Sports Exerc* 19:491-496.

- Blomstrand, E., S. Andersson, P. Hassmen, B. Ekblom, and E.A. Newsholme. 1995. Effect of branched-chain amino acid and carbohydrate supplementation on the exercise-induced change in plasma and muscle concentration of amino acids in human subjects. *Acta Physiol Scand* 153 (2): 87–96.
- Blomstrand, E., P. Hassmen, B. Ekblom, and E.A. Newsholme. 1991. Administration of branched-chain amino acids during sustained exercise—effects on performance and on plasma concentration of some amino acids. *Eur J Appl Physiol* 63 (2): 83–88.
- Blomstrand, E., P. Hassmen, S. Ek, B. Ekblom, and E.A. Newsholme. 1997. Influence of ingesting a solution of branched-chain amino acids on perceived exertion during exercise. *Acta Physiol Scand* 159 (1): 41–49.
- Bloomfield, S.A. 2001. *Optimizing bone health: Impact of nutrition, exercise and hormones*. Gatorade Sport Science Institute, SSE#82, www.gssiweb.com.
- Blot, W. 1997. Vitamin/mineral supplementation and cancer risk: International chemoprevention trials. *Proc Soc Exp Biol Med* 261:291–296.
- Blundell, J.E., J.R. Cotton, H. Delargy, S. Green, A. Greenough, N.A. King, and C.L. Lawton. 1995. The fat paradox: Fat-induced satiety signals versus high fat overconsumption. *Int J Obes Relat Metab Disord* 19 (11): 832–835.
- Blundell, J.E., C.L. Lawton, J.R. Cotton, and J.I. MacDiarmid. 1996. Control of human appetite: Implications for the intake of dietary fat. *Annu Rev Nutr* 16:285–319.
- Blundell, J.E., R.J. Stubbs, D.A. Hughes, S. Whybrow, and N.A. King. 2003. Cross talk between physical activity and appetite control: Does physical activity stimulate appetite? *Proc Nutr Soc*, 62 (3): 651–661.
- Boden, G., X. Chen, J. Ruiz, G.D. van Rossum, and S. Turco. 1996. Effects of vanadyl sulfate on carbohydrate and lipid metabolism in patients with non-insulin-dependent diabetes mellitus. *Metabolism* 45 (9): 1130–1135.
- Bohe, J., A. Low, R.R. Wolfe, and M.J. Rennie. 2003. Human muscle protein synthesis is modulated by extracellular, not intramuscular amino acid availability: A dose-response study. *J Physiol* 552 (Pt 1): 315–324.
- Boirie, Y., M. Dangin, P. Gachon, M.-P. Vasson, J.-L. Maubois, and B. Beaufrere. 1997. Slow and fast dietary proteins differently modulate postprandial protein accretion. *Proc Natl Acad Sci USA* 94 (26): 14930–14935.
- Bond, V., R. Adams, B. Balkissoon, J. McRae, E. Knight, S. Robbins, and M. Banks. 1987. Effects of caffeine on cardiorespiratory function and glucose metabolism during rest and graded exercise. *J Sports Med* 27:47–52.
- Bonen, A., J.J. Luiken, Y. Arumugam, J.F. Glatz, and N.N. Tandon. 2000. Acute regulation of fatty acid uptake involves the cellular redistribution of fatty acid translocase. *J Biol Chem* 275 (19): 14501–14508.
- Bonen, A., D.J. Dyck, A. Ibrahim, and N.A. Abumrad. 1999. Muscle contractile activity increases fatty acid metabolism and transport and FAT/CD36. *Am J Physiol* 276 (4 Pt 1): E642–649.
- Borsheim, E., and R. Bahr. 2003. Effect of exercise intensity, duration and mode on post-exercise oxygen consumption. *Sports Med* 33 (14): 1037–1060.
- Borsheim, E., K. Tipton, S. Wolf, and R. Wolfe. 2002. Essential amino acids and muscle protein recovery from resistance exercise. *Am J Physiol Endocrinol Metab* 283 (4): E648–657.
- Bosch, A.N., S.C. Dennis, and T.D. Noakes. 1994. Influence of carbohydrate ingestion on fuel substrate turnover and oxidation during prolonged exercise. *J Appl Physiol* 76 (6): 2364–2372.
- Bouchard, C. 1994. Genetics of obesity: Overview and research directions. In *The genetics of obesity*, ed. C. Bouchard, 223–233. Boca Raton, FL: CRC Press.
- Bouchard, C., A. Tremblay, J.P. Despres, A. Nadeau, P.J. Lupien, G. Theriault, J. Dullault, S. Mojarani, S. Pinault, and G. Fournier. 1990. The response to long-term overfeeding in identical twins. *N Engl J Med* 322 (21): 1477–1482.
- Bowtell, J.L., K. Gelly, M.L. Jackman, A. Patel, M. Simeoni, and M.J. Rennie. 1999. Effect of oral glutamine on whole body carbohydrate storage during recovery from exhaustive exercise. *J Appl Physiol* 86:1770–1777.
- Bray, G.A., and B.M. Popkin. 1998. Dietary fat intake does affect obesity! [see comments]. *Am J Clin Nutr* 68 (6): 1157–1173.
- Bredle, D.L., J.M. Stager, W.F. Brechue, and M.O. Farber. 1988. Phosphate supplementation, cardiovascular function, and exercise performance in humans. *J Appl Physiol* 65 (4): 1821–1826.
- Bremer, J. 1983. Carnitine-metabolism and functions. *Phys Rev* 63 (4): 1420–1479.
- Brewerton, T.D., E.J. Stellefson, N. Hibbs, E.L. Hodges, and C.E. Cochrane. 1995. Comparison of eating disorder patients with and without compulsive exercising. *Int J Eating Disorders* 17:413–416.
- Brilla, L.R., and T.E. Landerholm. 1990. Effect of fish oil supplementation on serum lipids and aerobic fitness. *J Sports Med Phys Fitness* 30:173–180.
- Broeder, C.E., K.A. Burrhus, L.S. Svanevik, et al. 1997. Assessing body composition before and after resistance or endurance training. *Med Sci Sports Exerc* 29 (5): 705–712.
- Brooks, G.A. 1986. The lactate shuttle during exercise and recovery. *Med Sci Sports Exerc* 18 (3): 360–368.
- Brouns, F. 1991. Etiology of gastrointestinal disturbances during endurance events. *Scand J Med Sci Sports* 1:66–77.
- Brouns, F., and E. Beckers. 1993. Is the gut an athletic organ? Digestion, absorption and exercise. *Sports Med* 15 (4): 242–257.
- Brouns, F., J. Senden, E.J. Beckers, and W.H.M. Saris. 1995. Osmolarity does not affect the gastric emptying rate of oral rehydration solutions. *JPEN* 19: 403–406.
- Brouns, F., W.H.M. Saris, and N.J. Rehrer. 1987. Abdominal complaints and gastrointestinal function during long-lasting exercise. *Int J Sports Med* 8:175–189.
- Brouns, F., W.H.M. Saris, J. Stroecken, E. Beckers, R. Thijssen, N.J. Rehrer, and F. ten Hoor. 1989a. Eating, drinking, and cycling. A controlled Tour de France simulation study, part I. *Int J Sports Med* 10 (suppl 1): S32–S40.
- Brouns, F., W.H.M. Saris, J. Stroecken, E. Beckers, R. Thijssen, N.J. Rehrer, and F. ten Hoor. 1989b. Eating, drinking, and cycling. A controlled Tour de France simulation study, part II: Effect of diet manipulation. *Int J Sports Med* 10 (suppl 1): S41–S48.
- Brouns, F., W.H. Saris, E. Beckers, H. Adlertcreutz, G.J. van der Vusse, H.A. Keizer, H. Kuipers, P. Menheere, A.J. Wagenaarmakers, and F. ten Hoor. 1989. Metabolic changes induced by sustained exhaustive cycling and diet manipulation. *Int J Sports Med* 10 (suppl 1): S49–S62.
- Brown, G.D., and S. Gordon. 2003. Fungal beta-glucans and mammalian immunity. *Immunity* 19:311–315.
- Brownell, K.D., S.N. Steen, and J.H. Wilmore. 1987. Weight regulation practices in athletes: Analysis of metabolic and health effects. *Med Sci Sports Exerc* 6:546–560.
- Brownlie, T., V. Utermohlen, P.S. Hinton, C. Giordano, and J.D. Haas. 2002. Marginal iron deficiency without anemia impairs aerobic adaptation among previously untrained women. *Am J Clin Nutr* 75:734–742.

- Brune, M., B. Magnusson, H. Persson, and L. Hallberg. 1986. Iron losses in sweat. *Am J Clin Nutr* 43:438-443.
- Brutsaert, T.D., S. Hernandez-Cordero, J. Rivera, T. Viola, G. Hughes, and J.D. Haas. 2003. Iron supplementation improves progressive fatigue resistance during dynamic knee extensor exercise in iron-depleted, nonanemic women. *Am J Clin Nutr* 77:441-448.
- Bucci, L.R., J.F. Hickson, Jr., I. Wolinsky, and J.M. Pivarnik. 1992. Ornithine supplementation and insulin release in bodybuilders. *Int J Sport Nutr* 2 (3): 287-291.
- Burckes-Miller, M.E., and D.R. Black. 1988. Male and female college athletes: Prevalence of anorexia nervosa and bulimia nervosa. *Athletic Training* 2:137-140.
- Burke, L.M., B. Kiens, and J.L. Ivy. 2004. Carbohydrates and fat for training and recovery. *J Sports Sci* 22:15-30.
- Burke, L.M. 2001. Nutritional practices of male and female endurance cyclists. *Sports Med* 31 (7): 521-532.
- Burke, L.M., A. Claassen, J.A. Hawley, and T.D. Noakes. 1998. Carbohydrate intake during prolonged cycling minimizes effect of glycemic index of preexercise meal. *J Appl Physiol* 85:2220-2226.
- Burke, L.M., and V. Deakin. 2000. *Clinical sports nutrition*, 2nd ed. McGraw-Hill: New York.
- Burke, L.M., and R.S.D. Read. 1993. Dietary supplements in sport. *Sports Med* 15 (1): 43-65.
- Burke, L.M., D.B. Pyne, and R.D. Telford. 1996. Effect of oral creatine supplementation on single-effort sprint performance in elite swimmers. *Int J Sport Nutr* 6 (3): 222-233.
- Burke, L.M., D.J. Angus, G.R. Cox, K.M. Gawthorn, J.A. Hawley, M.A. Febbraio, and M. Hargreaves. 1999. Fat adaptation with carbohydrate recovery promotes metabolic adaptation during prolonged cycling. *Med Sci Sports Exerc* 31 (5): 297.
- Burke, L.M., G.R. Collier, and M. Hargreaves. 1993. Muscle glycogen storage after prolonged exercise: Effect of glycemic index of carbohydrate feedings. *J Appl Physiol* 75 (2): 1019-1023.
- Burns, J.M., D.L. Costill, W.J. Fink, J.B. Mitchell, and J.A. Hol. 1988. Effects of choline on endurance performance. *Med Sci Sports Exerc* 20 (2): S25.
- Bussau, V.A., T.J. Fairchild, A. Rao, P. Steele, and P.A. Fournier. 2002. Carbohydrate loading in human muscle: An improved 1 day protocol. *Eur J Appl Physiol* 87 (3): 290-295.
- Butterfield, G.E., and D.H. Calloway. 1984. Physical activity improves protein utilization in young men. *Br J Nutr* 51 (2): 171-184.
- Byrne, A., and D.G. Byrne. 1993. The effect of exercise on depression, anxiety, and other mood states: A review. *J Psychosomatic Res* 37:565-574.
- Byrne, S., and N. McLean. 2002. Elite athletes: Effects of pressure to be thin. *J Sci Med Sport* 5:80-94.
- Cade, R., M. Conte, C. Zauner, D. Mars, J. Peterson, D. Lunne, N. Hommen, and D. Packer. 1984. Effects of phosphate loading on 2,3-diphosphoglycerate and maximal oxygen uptake. *Med Sci Sports Exerc* 16 (3): 263-268.
- Calle, E.E., M.J. Thun, J.M. Petrelli, et al. 1999. Body-mass index and mortality in a prospective cohort of U.S. adults. *N Engl J Med* 341 (15): 1097-1105.
- Cannon, J.G., S.F. Orencole, R.A. Fielding, M. Meydani, S.N. Meydani, M.A. Fiatarone, et al. 1990. Acute phase response in exercise: Interaction of age and vitamin E on neutrophils and muscle enzyme release. *Am J Physiol* 259:R1214-R1219.
- Carter, J.M., A.E. Jeukendrup, and D.A. Jones. 2004. The effect of carbohydrate mouth rinse on 1-h cycle time trial performance. *Med Sci Sports Exerc* 36 (12): 2107-2111.
- Carvalho, J.J., R.G. Baruzzi, P.F. Howard, N. Poulter, M.P. Alpers, L.J. Franco, L.F. Marcopito, V.J. Spooner, A.R. Dyer, P. Elliott, et al. 1989. Blood pressure in four remote populations in the intersalt study. *Hypertension* 14 (3): 238-246.
- Casey, A., and P.L. Greenhaff. 2000. Does dietary creatine supplementation play a role in skeletal muscle metabolism and performance? *Am J Clin Nutr* 72 (2 suppl): 607S-617S.
- Casey, A., D. Constantin-Teodosiu, S. Howell, E. Hultman, and P.L. Greenhaff. 1996. Creatine ingestion favorably affects performance and muscle metabolism during maximal exercise in humans. *Am J Physiol* 271 (1 pt 1): E31-E37.
- Casey, Mann, Banister, Fox, Morris, Macdonald, and Greenhaff. 2000. Effect of carbohydrate ingestion on glycogen resynthesis in human liver and skeletal muscle, measured by <sup>13</sup>C MRS. *Am J Physiol Endocrinol Metab* 278 (1): E65-75.
- Castell, L.M., and E.A. Newsholme. 1996. Does glutamine have a role in reducing infections in athletes? *Eur J Appl Physiol* 73:488-490.
- Castell, L.M., J.R. Poortmans, and E.A. Newsholme. 1996. Does glutamine have a role in reducing infections in athletes? *Eur J Appl Physiol* 73:488-490.
- Castell, L.M., J.R. Poortmans, R. Leclercq, M. Brasseur, J. Duchateau, and E.A. Newsholme. 1997. Some aspects of the acute phase response after a marathon race, and effect of glutamine supplementation. *Eur J Appl Physiol* 75:47-53.
- Ceesay, S.M., A.M. Prentice, K.C. Day, P.R. Murgatroyd, G.R. Goldberg, W. Scott, and G.B. Spurr. 1989. The use of heart rate monitoring in the estimation of energy expenditure: A validation study using indirect whole-body calorimetry. *Br J Nutr* 61:175-186.
- Chan, J.L., and C.S. Mantzoros. 2005. Role of leptin in energy-deprivation states: Normal human physiology and clinical implications for hypothalamic amenorrhea and anorexia nervosa. *Lancet* 366 (9479): 74-85.
- Chandler, J., and J. Hawkins. 1984. The effect of bee pollen on physiological performance. *Int J Biosci Res* 6:107.
- Chaouloff, F., G.A. Kennett, B. Serrurier, D. Merino, and G. Curzon. 1986. Amino acid analysis demonstrates that increased plasma free tryptophan causes the increase of brain tryptophan during exercise in the rat. *J Neurochem* 46 (5): 1647-1650.
- Chasiotis, D. 1983. The regulation of glycogen phosphorylase and glycogen breakdown in human skeletal muscle. *Acta Physiol Scand Suppl* 518:1-68.
- Chilibeck, P.D., C. Magnus, and M. Anderson. 2007. Effect of in-season creatine supplementation on body composition and performance in rugby union football players. *Appl Physiol Nutr Metab* 32 (6): 1052-1057.
- Christensen, E.H. 1932. Der Stoffwechsel und die Respiratorischen Funktionen bei schwerer körperlicher Arbeit. *Skand Arch Physiol* 81:160-171.
- Christensen, E.H., and O. Hansen. 1939. Arbeitsfähigkeit Und Ernährung. *Skand Arch Physiol* 81:160-171.
- Civitarese, A.E., M.K. Hesselink, A.P. Russell, E. Ravussin, P. Schrauwen. 2005. Glucose ingestion during exercise blunts exercise-induced gene expression of skeletal muscle fat oxidative genes. *Am J Physiol Endocrinol Metab* 289:E1023-1029.
- Clancy, R.L., M. Gleeson, A. Cox, et al. 2006. Reversal in fatigued athletes of a defect in interferon gamma secretion after administration of *Lactobacillus acidophilus*. *Br J Sports Med* 40:351-354.
- Clancy, S.P., P.M. Clarkson, M.E. DeCheke, K. Nosaka, P.S. Freedson, J.J. Cunningham, and B. Valentine. 1994. Effects of chromium picolinate supplementation on body composition, strength, and urinary chromium loss in football players. *Int J Sport Nutr* 4 (2): 142-153.
- Close, G.L., T. Ashton, T. Cable, D. Doran, C. Holloway, E. McArdle, and D.P. MacLaren. 2006. Ascorbic acid supple-

- mentation does not attenuate post-exercise muscle soreness following muscle-damaging exercise but may delay the recovery process. *Brit J Nutr* 95:976–981.
- Cluberton, L.J., S.L. McGee, R.M. Murphy, and M. Hargreaves. 2005. Effect of carbohydrate ingestion on exercise-induced alterations in metabolic gene expression. *J Appl Physiol* 99:1359–1363.
- Coffey, V.G., Z. Zhong, A. Shield, B.J. Canny, A.V. Chibalin, J.R. Zierath, J.A. Hawley. 2006. Early signaling responses to divergent exercise stimuli in skeletal muscle from well-trained humans. *FASEB J* 20:190–192.
- Cohen, N., M. Halberstam, P. Shlimovich, C.J. Chang, H. Shamoon, and L. Rossetti. 1995. Oral vanadyl sulfate improves hepatic and peripheral insulin sensitivity in patients with non-insulin-dependent-diabetes-mellitus. *J Clin Invest* 95:2501–2509.
- Collins, M.A., M.L. Millard-Stafford, P.B. Sparling, et al. 1999. Evaluation of the BOD POD for assessing body fat in collegiate football players. *Med Sci Sports Exerc* 31 (9): 1350–1356.
- Collomp, K., S. Ahmadi, M. Audran, et al. 1991. Effects of caffeine ingestion on performance and anaerobic metabolism during the wingate test. *Int J Sports Med* 12 (5): 439–443.
- Conlay, L.A., R.J. Wurtman, K. Blusztajn, I.L. Coviella, T.J. Maher, and G.E. Evoniuk. 1986. Decreased plasma choline concentrations in marathon runners [letter]. *N Engl J Med* 315 (14): 892.
- Conlee, R.K., R.L. Hammer, W.W. Winder, M.L. Bracken, A.G. Nelson, and D.W. Barnett. 1990. Glycogen repletion and exercise endurance in rats adapted to a high fat diet. *Metabolism* 39 (3): 289–294.
- Constantin-Teodosiu, D., J.I. Carlin, G. Cederblad, R.C. Harris, and E. Hultman. 1991. Acetyl group accumulation and pyruvate dehydrogenase activity in human muscle during incremental exercise. *Acta Physiol Scand* 143 (4): 367–372.
- Coris, E.E., A.M. Ramirez, and D.J. Van Durme. 2004. Heat illness in athletes: The dangerous combination of heat, humidity and exercise. *Sports Medicine* 34 (1): 9–16.
- Costill, D.L., R. Bowers, G. Branam, and K. Sparks. 1971. Muscle glycogen utilization during prolonged exercise on successive days. *J Appl Physiol* 31:834–838.
- Costill, D.L., and W.J. Fink. 1974. Plasma volume changes following exercise and thermal dehydration. *J Appl Physiol* 37:521–525.
- Costill, D.L., M.G. Flynn, J.P. Kirwan, J.A. Houmard, J.B. Mitchell, R. Thomas, and S.H. Park. 1988. Effects of repeated days of intensified training on muscle glycogen and swimming performance. *Med Sci Sports Exerc* 20:249–254.
- Costill, D.L., and J.M. Miller. 1980. Nutrition for endurance sport: Carbohydrate and fluid balance. *Int J Sports Med* 1:2–14.
- Costill, D.L., A. Bennett, G. Branam, and D. Eddy. 1973. Glucose ingestion at rest and during prolonged exercise. *J Appl Physiol* 34 (6): 764–769.
- Costill, D.L., and B. Saltin. 1974. Factors limiting gastric emptying during rest and exercise. *J Appl Physiol* 37 (5): 679–683.
- Costill, D.L., E. Coyle, G. Dalsky, W. Evans, W. Fink, and D. Hoopes. 1977. Effects of elevated plasma FFA and insulin on muscle glycogen usage during exercise. *J Appl Physiol* 43 (4): 695–699.
- Costill, D.L., G.P. Dalsky, and W.J. Fink. 1978. Effects of caffeine ingestion on metabolism and exercise performance. *Med Sci Sports Exerc* 10 (3): 155–158.
- Costill, D.L., R. Bowers, G. Branam, and K. Sparks. 1971. Muscle glycogen utilization during prolonged exercise on successive days. *J Appl Physiol* 31:834–838.
- Costill, D.L., W.M. Sherman, W.J. Fink, C. Maresh, M. Witten, and J.M. Miller. 1981. The role of dietary carbohydrates in muscle glycogen resynthesis after strenuous running. *Am J Clin Nutr* 34:1831–1836.
- Cox, A.J., D.B. Pyne, P.U. Saunders, and P.A. Fricker. 2008. Oral administration of the probiotic *Lactobacillus fermentum* VRI-003 and mucosal immunity in endurance athletes. *Br J Sports Med* doi: 10.1136/bjsm.2007.044628.
- Cox, G.R., B. Desbrow, P.G. Montgomery, M.E. Anderson, C.R. Bruce, T.A. Macrides, D.T. Martin, A. Moquin, A. Roberts, J.A. Hawley, and L.M. Burke. 2002. Effect of different protocols of caffeine intake on metabolism and endurance performance. *J Appl Physiol* 93 (3): 990–999.
- Coyle, E.F., A.E. Jeukendrup, A.J.M. Wagenmakers, and W.H.M. Saris. 1997. Fatty acid oxidation is directly regulated by carbohydrate metabolism during exercise. *Am J Physiol* 273:E268–E275.
- Coyle, E.F., A.E. Jeukendrup, M.C. Oseto, B.J. Hodgkinson, and T.W. Zderic. 2001. Low-fat diet alters intramuscular substrates and reduces lipolysis and fat oxidation during exercise. *Am J Physiol Endocrinol Metab* 280 (3): E391–E398.
- Coyle, E.F., A.R. Coggan, M.K. Hemmert, and J.L. Ivy. 1986. Muscle glycogen utilization during prolonged strenuous exercise when fed carbohydrate. *J Appl Physiol* 61 (1): 165–172.
- Coyle, E.F., A.R. Coggan, M.K. Hemmert, R.C. Lowe, and T.J. Walters. 1985. Substrate usage during prolonged exercise following a preexercise meal. *J Appl Physiol* 59 (2): 429–433.
- Coyle, E.F., and A.R. Coggan. 1984. Effectiveness of carbohydrate feeding in delaying fatigue during prolonged exercise. *Sports Med* 1:446–458.
- Coyle, E.F., J.M. Hagberg, B.F. Hurley, W.H. Martin, A.A. Ehsani, and J.O. Holloszy. 1983. Carbohydrate feeding during prolonged strenuous exercise. *J Appl Physiol* 55 (1): 230–235.
- Craig, E.N., and E.G. Cummings. 1966. Dehydration and muscular work. *J Appl Physiol* 21:670–674.
- Crook, T.H., J. Tinklenberg, J. Yesavage, W. Petrie, M.G. Nunzi, and D.C. Massari. 1991. Effects of phosphatidylserine in age-associated memory impairment. *Neurology* 41 (5): 644–649.
- Crooks, C.V., C.R. Wall, M.L. Cross, et al. 2006. The effect of bovine colstrum supplementation on salivary IgA in distance runners. *Int J Sport Nutr Exerc Metabol* 16: 47–64.
- Cumming, D. 1996. Exercise-associated amenorrhoea, low bone density and oestradiol replacement therapy. *Arch Intern Med* 156:2193–2195.
- Curatolo, P.W., and D. Robertson. 1983. The health consequences of caffeine. *Ann Intern Med* 98 (5 pt 1): 641–653.
- Currell, K., and A.E. Jeukendrup. 2008. Superior endurance performance with ingestion of multiple transportable carbohydrates. *Med Sci Sports Exerc* 40 (2): 275–281.
- Currell, K., and A.E. Jeukendrup. 2008. Validity, reliability and sensitivity of measures of sporting performance. *Sports Med* 38 (4): 297–316.
- DaCosta, M., and K.A. Halmi. 1992. Classification of anorexia nervosa: Question of subtypes. *Int J Eating Disorders* 11:305–314.
- Dahlstrom, M., E. Jansson, E. Nordevang, and L. Kaijser. 1990. Discrepancy between estimated energy intake and requirement in female dancers. *Clin Physiol* 10 (1): 11–25.
- Davies, K.J.A., A.T. Quintanilha, G.A. Brooks, and L. Packer. 1982. Free radicals and tissue damage produced by exercise. *Biochem Physiol Res Communications* 107:1198–1205.
- Davis, C. 1992. Body image, dieting behaviours and personality factors: A study of high performance female athletes. *Int J Sport Psychol* 23:179–192.

- Davis, C., S.H. Kennedy, E. Ralevski, and M. Dionne. 1994. The role of physical activity in the development and maintenance of eating disorders. *Psycholog Med* 24:957-967.
- Davis, J.M., E.A. Murphy, A.S. Brown, M.D. Carmichael, A. Ghaffar, and E.P. Mayer. 2004. Effects of oat beta-glucan on innate immunity and infection after exercise stress. *Med Sci Sports Exerc* 36:1321-1327.
- Davis, S.E., G.B. Dwyer, K. Reed, et al. 2002. Preliminary investigation: The impact of the NCAA Wrestling Weight Certification Program on weight cutting. *J Strength Cond Res* 16 (2): 305-307.
- Davison, G., M. Gleeson, and S. Phillips. 2007. Antioxidant supplementation and immunoendocrine responses to prolonged exercise. *Med Sci Sports Exerc* 39 (4): 645-652.
- Deakin, V. 2000. Iron depletion in athletes. In *Clinical sports nutrition*, ed. V. Deakin, 273-311. New York: McGraw-Hill.
- De Bock, K., W. Derave, B.O. Eijnde, M.K. Hesselink, E. Koninckx, A.J. Rose, P. Schrauwen, A. Bonen, E.A. Richter, and P. Hespel. 2008. Effect of training in the fasted state on metabolic responses during exercise with carbohydrate intake. *J Appl Physiol* 104:1045-1055.
- de Castro, J.M., and D.K. Elmore. 1988. Subjective hunger relationships with meal patterns in the spontaneous feeding behavior of humans: Evidence for a causal connection. *Physiol Behav* 43 (2): 159-165.
- de Castro, J.M. 1987. Macronutrient relationships with meal patterns and mood in the spontaneous feeding behavior of humans. *Physiol Behav* 39 (5): 561-569.
- De Luca, L., and S. Ross. 1996. Beta-carotene increases lung cancer incidence in cigarette smokers. *Nutr Rev* 54:178-180.
- DeFronzo, R.A., D. Thorin, J.P. Felber, D.C. Simonson, D. Thiebaud, E. Jequier, and A. Golay. 1984. Effect of beta and alpha adrenergic blockade on glucose-induced thermogenesis in man. *J Clin Invest* 73 (3): 633-639.
- Depaola, D.P., M.P. Faine, and C.A. Pamer. 1999. Nutrition in relation to dental medicine. In *Modern nutrition in health and disease*, ed. M.E. Shils, J.A. Olson, M. Shike, and A.C. Ross, 1099-1124. Baltimore: Williams & Wilkins.
- Derave, W., M.S. Ozdemir, R. Harris, A. Pottier, H. Reyngoudt, K. Koppo, J.A. Wise, and E. Achten. 2007. beta-Alanine supplementation augments muscle carnosine content and attenuates fatigue during repeated isokinetic contraction bouts in trained sprinters. *J Appl Physiol* 103 (5): 1736-1743.
- DeSilva, P., and S.B.G. Eysenck. 1987. Personality and addictiveness in anorexic and bulimic patients. *Pers Indiv Differ* 8:749-751.
- Devries, M.C., S.A. Lowther, A.W. Glover, M.J. Hamadeh, and M.A. Tarnopolsky. 2007. IMCL area density, but not IMCL utilization, is higher in women during moderate-intensity endurance exercise, compared with men. *Am J Physiol Regul Integr Comp Physiol* 293 (6): R2336-2342.
- Dietary guidelines for Americans*. 2005. U.S. Department of Health and Human Services. [www.health.gov/dietary-guidelines/](http://www.health.gov/dietary-guidelines/).
- Dietary Supplement Health and Education Act of 1994. 1994. Public law. 103-417, 103rd Congress. Available at [www.fda.gov/opacom/laws/dshea.html](http://www.fda.gov/opacom/laws/dshea.html).
- Dill, D.B., H.T. Edwards, and J.H. Talbott. 1932. Factors limiting the capacity for work. *J Physiol* 1932:49-62.
- Dodd, S.L., E. Brooks, S.K. Powers, and R. Tulley. 1991. The effects of caffeine on graded exercise performance in caffeine naive versus habituated subjects. *Eur J Appl Physiol* 62:424-429.
- Doherty, M., and P.M. Smith. 2004. Effects of caffeine ingestion on exercise testing: A meta-analysis. *Int J Sport Nutr Exerc Metab* 14 (6): 626-646.
- Doherty, M., and P.M. Smith. 2005. Effects of caffeine ingestion on rating of perceived exertion during and after exercise: A meta-analysis. *Scand J Med Sci Sports* 15 (2): 69-78.
- Dohm, G.L., E.B. Tapscott, H.A. Barakat, and G.J. Kasperek. 1983. Influence of fasting on glycogen depletion in rats during exercise. *J Appl Physiol* 55 (3): 830-833.
- Dohm, G.L., R.T. Beeker, R.G. Israel, and E.B. Tapscott. 1986. Metabolic responses after fasting. *J Appl Physiol* 61 (4): 1363-1368.
- Douglas R.M., H. Hemila, E. Chalker, and B. Treacy. 2007. Vitamin C for preventing and treating the common cold. *Cochrane DB Syst Rev*, Issue 3: CD000980.
- Drinkwater, B.L., K. Nilson, C.H. Chesnut, 3rd, et al. 1984. Bone mineral content of amenorrheic and eumenorrheic athletes. *N Engl J Med* 311 (5): 277-281.
- Duchman, S.M., A.J. Ryan, H.P. Schedl, R.W. Summers, T.L. Bleiler, and C.V. Gisolfi. 1997. Upper limit for intestinal absorption of a dilute glucose solution in men at rest. *Med Sci Sports Exerc* 29 (4): 482-488.
- Duffy, D.J., and R.K. Conlee. 1986. Effects of phosphate loading on leg power and high intensity treadmill exercise. *Med Sci Sports Exerc* 18 (6): 674-677.
- Dulloo, A.G., and J. Jacquet. 1998. Adaptive reduction in basal metabolic rate in response to food deprivation in humans: A role for feedback signals from fat stores. *Am J Clin Nutr* 68 (3): 599-606.
- Dummer, G.M., L.W. Rosen, and W.W. Heusner. 1987. Pathogenic weight-control behaviors of young competitive swimmers. *Physician Sports Med* 5:75-86.
- Dupre, J., J.D. Curtis, R.W. Waddell, and J.C. Beck. 1968. Alimentary factors in the endocrine response to administration of arginine in man. *Lancet* 2 (7558): 28-29.
- Durnin, J.V., and J. Womersley. 1974. Body fat assessed from total body density and its estimation from skin fold thickness: Measurements on 481 men and women aged from 16 to 72 years. *Br J Nutr* 32 (1): 77-97.
- Duthie, G.G. 1999. Determination of activity of antioxidants in human subjects. *Pro Nutr Soc* 58:1015-1024.
- Dyck, D.J., C.T. Putman, G.J.F. Heigenhauser, E. Hultman, and L.L. Spriet. 1993. Regulation of fat-carbohydrate interaction in skeletal muscle during intense aerobic cycling. *Am J Physiol* 265:E852-859.
- Dyck, D.J., S.A. Peters, P.S. Wendling, A. Chesley, E. Hultman, and L.L. Spriet. 1996. Regulation of muscle glycogen phosphorylase activity during intense aerobic cycling with elevated FFA. *Am J Physiol* 265:E116-E125.
- Edwards, H.T., R. Margaria, and D.B. Dill. 1934. Metabolic rate, blood sugar and the utilization of carbohydrate. *Am J Physiol* 108:203-209.
- Eichner, E.R. 2000. Minerals: Iron. In *Nutrition in sport*, ed. R.J. Maughan, 326-338. Oxford: Blackwell Science.
- Elliot, T.A., M.G. Cree, A.P. Sanford, R.R. Wolfe, and K.D. Tipton. 2006. Milk ingestion stimulates net muscle protein synthesis following resistance exercise. *Med Sci Sports Exerc* 38 (4): 667-674.
- Elowsson, P., A.H. Forslund, H. Mallmin, et al. 1998. An evaluation of dual-energy X-ray absorptiometry and underwater weighing to estimate body composition by means of carcass analysis in piglets. *J Nutr* 128 (9): 1543-1549.
- Engels, H.J., and J.C. Wirth. 1997. No ergogenic effects of ginseng (*Panax ginseng* C.A. Meyer) during graded maximal aerobic exercise. *J Am Diet Assoc* 97 (10): 1110-1115.
- Epling, W.F., and W.D. Pierce. 1988. Activity based anorexia: A biobehavioural perspective. *Int J Eating Disorders* 7:475-485.
- Erickson, M.A., R.J. Schwarzkopf, and R.D. McKenzie. 1987. Effects of caffeine, fructose, and glucose ingestion on muscle

- glycogen utilization during exercise. *Med Sci Sports Exerc* 19 (6): 579–583.
- Espinosa, A., A. Leiva, M. Pena, M. Muller, A. Debandi, C. Hidalgo, M.A. Carrasco, and E. Jaimovich. 2006. Myotube depolarization generates reactive oxygen species through NAD(P)H oxidase: ROS-elicited  $\text{Ca}^{2+}$  stimulates ERK, CREB, early genes. *J Cell Physiol* 209:379–388.
- Essig, D., D.L. Costill, and P.J. Van Handel. 1980. Effects of caffeine ingestion on utilization of muscle glycogen and lipid during leg ergometer cycling. *Int J Sports Med* 1:86–90.
- Evain-Brion, D., M. Donnadieu, M. Roger, and J.C. Job. 1982. Simultaneous study of somatotropic and corticotrophic pituitary secretions during ornithine infusion test. *Clin Endocrinol* 77 (2): 119–122.
- Evans, G.W. 1989. The effect of chromium picolinate on insulin controlled parameters in humans. *Int J Biosoc Med Res* 11:163–180.
- Fahey, T.D., J.D. Larsen, G.A. Brooks, W. Colvin, S. Henderson, and D. Lary. 1991. The effects of ingesting polylactate or glucose polymer drinks during prolonged exercise. *Int J Sport Nutr* 1 (3): 249–256.
- Fairchild, T.J., S. Fletcher, P. Steele, C. Goodman, B. Dawson, and P. Fournier. 2002. Rapid carbohydrate loading after a short bout of near maximal-intensity exercise. *Med Sci Sports Exerc* 34 (6): 980–986.
- Falk, B., R. Burstein, I. Ashkenazi, et al. 1989. The effect of caffeine ingestion on physical performance after prolonged exercise. *Eur J Appl Physiol* 59:168–173.
- Fallowfield, J.L., C. Williams, J. Booth, B.H. Choo, and S. Growns. 1996. Effect of water ingestion on endurance capacity during prolonged running. *J Sports Sci* 14:497–502.
- Fery, F., and E.O. Balasse. 1983. Ketone body turnover during and after exercise in overnight-fasted and starved humans. *Am J Physiol* 245:E18–E25.
- Field, A.E., T. Byers, D.J. Hunter, et al. 1999. Weight cycling, weight gain, and risk of hypertension in women. *Am J Epidemiol* 150 (6): 573–579.
- Fielding, R.A., T.J. Manfredi, W. Ding, M.A. Fiatarone, W.J. Evans, and J.G. Cannon. 1993. Acute phase response in exercise III. Neutrophil and IL-1 $\beta$  accumulation in skeletal muscle. *Am J Physiol* 265:R166–R172.
- Fischer, C.P., N.J. Hiscock, M. Penkowa, et al. 2004. Supplementation with vitamins C and E inhibits the release of interleukin-6 from contracting human skeletal muscle. *J Physiol* 558:633–645.
- Flatt, J.-P. 1995. Use and storage of carbohydrate and fat. *Am J Clin Nutr* 61:952S–959S.
- Floyd, J.C., Jr., S.S. Fajans, J.W. Conn, R.F. Knopf, and J. Rull. 1966. Stimulation of insulin secretion by amino acids. *J Clin Invest* 45 (9): 1487–1502.
- Fogelholm, G.M., H.K. Naveri, K.T. Kiilavuori, and M.H. Harkonen. 1993a. Low dose amino acid supplementation: No effects on serum growth hormone and insulin in male weightlifters. *Int J Sports Nutr* 3:290–297.
- Fogelholm, M. 1994a. Vitamins, minerals and supplementation in soccer. *J Sports Sci* 12:S23–S27.
- Fogelholm, M. 1994b. Effects of body weight reduction on sports performance. *Sports Med* 4:249–267.
- Fogelholm, M., R. Koskinen, and J. Laasko. 1993b. Gradual and rapid weight loss: Effects on nutrition and performance in male athletes. *Med Sci Sports Exerc* 25:371–377.
- Food and Nutrition Board. 2005. *Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids (macronutrients)*. Washington, DC: National Academies Press.
- Food and Nutrition Board. 1989. *Recommended daily allowances*, 52–77. Washington, DC: National Research Council.
- Foster, C., D.L. Costill, and W.J. Fink. 1979. Effects of preexercise feedings on endurance performance. *Med Sci Sports* 11 (1): 1–5.
- Frexes-Steed, M., D.B. Lacy, J. Collins, and N.N. Abumrad. 1992. Role of leucine and other amino acids in regulating protein metabolism in vivo. *Am J Physiol* 262 (6 pt 1): E925–E935.
- Fujii, N., T. Hayashi, M.F. Hirshman, J.T. Smith, S.A. Habibowski, L. Kaijser, J. Mu, O. Ljungqvist, M.J. Birnbaum, L.A. Witters, A. Thorell, L.J. Goodyear. 2000. Exercise induces isoform-specific increase in 5'AMP-activated protein kinase activity in human skeletal muscle. *Biochem Biophys Res Commun* 273:1150–1155.
- Gadpal, W.J., C.F. Sandborn, and W.W. Wagner. 1987. Athletic amenorrhea, major affective disorders and eating disorders. *Am J Psychiatry* 144:939–943.
- Galbo, H., J.J. Holst, and H.J. Christensen. 1979. The effect of different diets and of insulin on the hormonal response to prolonged exercise. *Acta Physiologica Scandanavica* 107:19–32.
- Galbo, H. 1983. *Hormonal and metabolic adaptation to exercise*. New York: Verlag.
- Galbo, H. 1992. Exercise physiology: Humoral function. *Sport Sci Rev* 1:65–93.
- Galloway, S.D., M.S. Tremblay, J.R. Sexsmith, and C.J. Roberts. 1996. The effects of acute phosphate supplementation in subjects of different aerobic fitness levels. *Eur J Appl Physiol* 72 (3): 224–230.
- Galloway, S.D.R., and R.J. Maughan. 2000. The effects of fluid and substrate provision on thermoregulatory and metabolic responses to prolonged exercise in a hot environment. *J Sports Sci* 18:339–351.
- Gardiner, J.E., and M.C. Gwee. 1974. The distribution in the rabbit of choline administered by injection or infusion. *J Physiol (Lond)* 239 (3): 459–476.
- Garner, M.D., P.E. Garfinkel, W. Rockert, and M.P. Olmsted. 1987. A prospective study of eating disturbances in the ballet. *Psychother Psychosomat* 48:170–175.
- Gibson, S.A. 1996. Are high-fat, high-sugar foods and diets conducive to obesity? *Int J Food Sci Nutr* 47 (5): 405–415.
- Gill, H.S., and M.L. Cross. 2002. Probiotics and immune function. In *Nutrition and immune function*, ed P.C. Calder, C.J. Field, and H.S. Gill, 251–272. Oxford: CABI.
- Girandola, R.N., R.A. Wiswell, and R. Bulbulian. 1980. Effects of pangamic acid (B-15) ingestion on metabolic response to exercise. *Biochem Med* 24 (2): 218–222.
- Gleeson, M. 1998. Temperature regulation during exercise. *Int J Sports Med* 19 (suppl 2): S96–S99.
- Gleeson, M. 2000. Minerals and exercise immunology. In *Nutrition and exercise immunology*, ed. D.C. Nieman and B.K. Pedersen, 137–154. Boca Raton, FL: CRC Press.
- Gleeson, M., A.K. Blannin, N.P. Walsh, N.C. Bishop, and A.M. Clark. 1998. Effect of low and high carbohydrate diets on the plasma glutamine and circulating leukocyte responses to exercise. *Int J Sport Nutr* 8:49–59.
- Gleeson, M., and N.C. Bishop. 1999. Immunology. In *Basic and applied sciences for sports medicine*, ed. R.J. Maughan, 199–236. Oxford: Butterworth Heinemann.
- Gleeson, M., and N.C. Bishop. 2000a. Elite athlete immunology: Importance of nutrition. *Int J Sports Med* 21 (suppl 1): S44–S50.
- Gleeson, M., and N.C. Bishop. 2000b. Modification of immune responses to exercise by carbohydrate, glutamine and antioxidant supplements. *Immunol Cell Biol* 78:554–561.

- Gleeson, M., J.D. Robertson, and R.J. Maughan. 1987. Influence of exercise on ascorbic acid status in man. *Clin Sci* 73:501-505.
- Gleeson, M., R.J. Maughan, and P.L. Greenhaff. 1986. Comparison of the effects of pre-exercise feeding of glucose, glycerol and placebo on endurance and fuel homeostasis in man. *Eur J Appl Physiol* 55 (6): 645-653.
- Gleeson, M. 2008. Dosing and efficacy of glutamine supplementation in human exercise and sport training. *J Nutr* 138 (10): 204S-2049S.
- Godek, S.F., A.R. Bartolozzi, and J.J. Godek. 2005. Sweat rate and fluid turnover in American football players compared with runners in a hot and humid environment. *Br J Sports Med* 39:205-211.
- Goedecke, J.H., R. Elmer-English, S.C. Dennis, I. Schloss, T.D. Noakes, and E.V. Lambert. 1999. Effects of medium chain triacylglycerol ingested with carbohydrate on metabolism and exercise performance. *Int J Sports Nutr* 9 (1): 35-47.
- Going, S.B., M.P. Massett, M.C. Hall, et al. 1993. Detection of small changes in body composition by dual-energy x-ray absorptiometry. *Am J Clin Nutr* 57 (6): 845-850.
- Golay, A., and E. Bobbioni. 1997. The role of dietary fat in obesity. *Int J Obes Relat Metab Disord* 21 (suppl 3): S2-S11.
- Goldberg, A.L., and T.W. Chang. 1978. Regulation and significance of amino acid metabolism in skeletal muscle. *Fed Proc* 37:2301-2307.
- Golden, N.H. 2002. A review of the female athlete triad (amenorrhea, osteoporosis and disordered eating). *Int J Adolesc Med Health* 14:9-17.
- Gomez-Cabrera, M.C., C. Borras, F.V. Pallardo, J. Sastre, L.L. Ji, and J. Vina. 2005. Decreasing xanthine oxidase-mediated oxidative stress prevents useful cellular adaptations to exercise in rats. *J Physiol* 567:113-120.
- Gomez-Cabrera, M.C., E. Domenech, M. Romagnoli, A. Arduini, C. Borras, F.V. Pallardo, J. Sastre, and J. Vina. 2008. Oral administration of vitamin C decreases muscle mitochondrial biogenesis and hampers training-induced adaptations in endurance performance. *Am J Clin Nutr* 87 (1): 142-149.
- Gontzea, I., R. Sutzeescu, and S. Dumitracă. 1975. The influence of adaptation to physical effort on nitrogen balance in man. *Nutr Rep Internat* 11 (3): 231-236.
- Gonzalez-Alonso, J., J.A.L. Calbet, and B. Nielsen. 1998. Muscle blood flow is reduced with dehydration during prolonged exercise in humans. *J Physiol* 513:895-905.
- Goodpaster, B.H., D.E. Kelley, F.L. Thaete, et al. 2000. Skeletal muscle attenuation determined by computed tomography is associated with skeletal muscle lipid content. *J Appl Physiol* 89 (1): 104-110.
- Gordon, D.J. 1995a. Cholesterol and mortality: What can meta-analysis tell us? In *Cardiovascular disease 2*, ed. L.L. Gallo, 333-340. New York: Plenum Press.
- Gordon, D.J. 1995b. Cholesterol lowering and mortality. In *Lowering cholesterol in high risk individuals and populations*, ed. B.M. Rifkind, 33-48. New York: Marcel Dekker.
- Gould, A.L., J.E. Rossouw, N.C. Santanello, J.F. Heyse, and C.D. Furberg. 1998. Cholesterol reduction yields clinical benefit: Impact of statin trials. *Circulation* 97 (10): 946-952.
- Graham, T.E., E. Hibbert, and P. Sathasivam. 1998. Metabolic and exercise endurance effects of coffee and caffeine ingestion. *J Appl Physiol* 85 (3): 883-889.
- Graham, T.E., and L.L. Spriet. 1991. Performance and metabolic responses to a high caffeine dose during prolonged exercise. *J Appl Physiol* 71 (6): 2292-2298.
- Graham, T.E., and L.L. Spriet. 1995. Metabolic, catecholamine, and exercise performance responses to various doses of caffeine. *J Appl Physiol* 78 (3): 867-874.
- Graham, T.E., J.W. Rush, and M.H. van Soeren. 1994. Caffeine and exercise: Metabolism and performance. *Can J Appl Physiol* 19 (2): 111-138.
- Graham, T.E., P.K. Pedersen, and B. Saltin. 1987. Muscle and blood ammonia and lactate responses to prolonged exercise with hyperoxia. *J Appl Physiol* 63 (4): 1457-1462.
- Graudal, N.A., A.M. Gallo, and P. Garred. 1998. Effects of sodium restriction on blood pressure, renin, aldosterone, catecholamines, cholesterol, and triglyceride: A meta-analysis. *JAMA* 279 (17): 1383-1391.
- Gray, M.E., and L.W. Titlow. 1982. The effect of pangamic acid on maximal treadmill performance. *Med Sci Sports Exerc* 14 (6): 424-427.
- Green, A.L., D.A. Sewell, L. Simpson, E. Hultman, and P.L. Greenhaff. 1995. Carbohydrate ingestion stimulates creatine uptake in human skeletal muscle. *J Physiol* 489:27P.
- Green, A.L., E.J. Simpson, J.J. Littlewood, I.A. MacDonald, and P.L. Greenhaff. 1996. Carbohydrate ingestion augments creatine retention during creatine feeding in humans. *Acta Physiol Scand* 158:195-202.
- Green, H.J. 1995. Metabolic determinants of activity induced muscular fatigue. In *Exercise metabolism*, ed. M. Hargreaves, 211-256. Champaign, IL: Human Kinetics.
- Green, N.R., and A.A. Ferrando. 1994. Plasma boron and the effects of boron supplementation in males. *Environ Health Perspect* 102 (suppl 7): 73-77.
- Greenhaff, P.L., and J.A. Timmons. 1998. Interaction between aerobic and anaerobic metabolism during intense muscle contraction. *Exerc Sport Sci Rev* 26:1-30.
- Greenhaff, P.L., K. Bodin, R.C. Harris, D.A. Jones, D.B. McIntyre, K. Soderlund, and D.L. Turner. 1993. The influence of oral creatine supplementation on muscle phosphocreatine resynthesis following intense contraction in man. *J Physiol* 467:75P.
- Greenhaff, P.L. 1998. The nutritional biochemistry of creatine. *Nutr Biochem* 11:1610-1618.
- Greenhaff, P.L., A. Casey, A.H. Short, R. Harris, K. Soderlund, and E. Hultman. 1993. Influence of oral creatine supplementation of muscle torque during repeated bouts of maximal voluntary exercise in man. *Clin Sci* 84:565-571.
- Greenhaff, P.L., and J.A. Timmons. 1998. Pyruvate dehydrogenase complex activation status and acetyl group availability as a site of interchange between anaerobic and oxidative metabolism during intense exercise. *Adv Exp Med Biol* 441:287-298.
- Greenhaff, P.L., K. Bodin, K. Soderlund, and E. Hultman. 1994. Effect of oral creatine supplementation on skeletal muscle phosphocreatine resynthesis. *Am J Physiol* 266:E725-E730.
- Greenleaf, J.E. 1979. Hyperthermia in exercise. In *International review of physiology: Environmental physiology III*, Vol. 20, ed. D. Robertshaw, 1-50. Baltimore: University Park Press.
- Greer, F., C. McLean, and T.E. Graham. 1998. Caffeine, performance, and metabolism during repeated wingate exercise tests. *J Appl Physiol* 85 (4): 1502-1508.
- Guezennec, C.Y., J.F. Nadaud, P. Satabin, F. Léger, and P. Lafarge. 1989. Influence of polyunsaturated fatty acid diet on the hemorheological response to physical exercise in hypoxia. *Int J Sports Med* 10 (4): 286-291.
- Guthrie, J.F., and Morton, J.F. 2000. Food sources of added sweeteners in the diets of Americans. *J Am Diet Assoc* 100 (1): 43-51.
- Halberstam, M., N. Cohen, P. Shlimovich, L. Rossetti, and H. Shamoon. 1996. Oral vanadyl sulfate improves insulin sensitivity in NIDDM but not in obese nondiabetic subjects. *Diabetes* 45:659-666.

- Hall, J.N., S. Moore, S.B. Harper, and J.W. Lynch. 2009. Global variability in fruit and vegetable consumption. *Am J Prev Med* 36 (5): 402–409, e405.
- Hallmark, M.A., T.H. Reynolds, C.A. DeSouza, C.O. Dotson, R.A. Anderson, and M.A. Rogers. 1996. Effects of chromium and resistive training on muscle strength and body composition. *Med Sci Sports Exerc* 28 (1): 139–144.
- Halson, S.L., G.I. Lancaster, J. Achten, M. Gleeson, and A.E. Jeukendrup. 2004. Effects of carbohydrate supplementation on performance and carbohydrate oxidation after intensified cycling training. *J Appl Physiol*, 97 (4):1245–1253.
- Hambraeus, L., A. Sjödin, P. Webb, A. Forslund, K. Hambraeus, and T. Hambraeus. 1994. A suit calorimeter for energy balance studies on humans during heavy exercise. *Eur J Appl Physiol* 68 (1): 68–73.
- Hansen, A.K., C.P. Fischer, P. Plomgaard, J.L. Andersen, B. Saltin, B.K. Pedersen. 2005. Skeletal muscle adaptation: Training twice every second day vs. training once daily. *J Appl Physiol* 98:93–99.
- Hargreaves, K.M., J.A. Hawley, and A.E. Jeukendrup. 2004. Pre-exercise carbohydrate and fat ingestion: Effects on metabolism and performance. *J Sports Sci* 22:31–38.
- Hargreaves, K.M., and W.M. Pardridge. 1988. Neutral amino acid transport at the human blood-brain barrier. *J Biol Chem* 263 (36): 19392–19397.
- Hargreaves, M. 1995. *Exercise metabolism*. Champaign, IL: Human Kinetics.
- Hargreaves, M., and L. Spriet. 2006. *Exercise metabolism*, 2nd ed. Champaign, IL: Human Kinetics.
- Harper, A.E. 1999. Nutritional essentiality: Evolution of the concept. *Nutr Today* 36:216–222.
- Harris, R.C., K. Soderlund, and E. Hultman. 1992. Elevation of creatine in resting and exercised muscle of normal subjects by creatine supplementation. *Clin Sci* 83:367–374.
- Harris, R.C., M.J. Tallon, M. Dunnett, L. Boobis, J. Coakley, H.J. Kim, J.L. Fallowfield, C.A. Hill, C. Sale, and J.A. Wise. 2006. The absorption of orally supplied beta-alanine and its effect on muscle carnosine synthesis in human vastus lateralis. *Amino Acids* 30 (3): 279–289.
- Hartman, J.W., J.E. Tang, S.B. Wilkinson, M.A. Tarnopolsky, R.L. Lawrence, A.V. Fullerton, and S.M. Phillips. 2007. Consumption of fat-free fluid milk after resistance exercise promotes greater lean mass accretion than does consumption of soy or carbohydrate in young, novice, male weight lifters. *Am J Clin Nutr* 86 (2): 373–381.
- Haskell, W.L., I.M. Lee, R.R. Pate, et al. 2007. Physical activity and public health: Updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Med Sci Sports Exerc* 39:1423–34.
- Hasten, D.L., E.P. Rome, B.D. Franks, and M. Hegsted. 1992. Effects of chromium picolinate on beginning weight training students. *Int J Sport Nutr* 2 (4): 343–350.
- Haubrich, D.R., P.F. Wang, D.E. Clody, and P.W. Wedeking. 1975. Increase in rat brain acetylcholine induced by choline or deanol. *Life Sci* 17 (6): 975–980.
- Havel, R.J., B. Pernow, and N.L. Jones. 1967. Uptake and release of free fatty acids and other metabolites in the legs of exercising men. *J Appl Physiol* 23 (1): 90–99.
- Hawley, J.A., A.N. Bosch, S.M. Weltan, S.C. Dennis, and T.D. Noakes. 1994. Glucose kinetics during prolonged exercise in euglycemic and hyperglycemic subjects. *Pflügers Arch* 426:378–386.
- Hawley, J.A., E.J. Schabert, T.D. Noakes, and S.C. Dennis. 1997. Carbohydrate loading and exercise performance. *Sports Med* 24 (1): 1–10.
- Heinonen, O.J. 1996. Carnitine and physical exercise. *Sports Med* 22 (2): 109–132.
- Helge, J.W., B. Wulff, and B. Kiens. 1998. Impact of a fat-rich diet on endurance in man role of the dietary period. *Med Sci Sports Exerc* 30:456–461.
- Henson, D.A., D.C. Nieman, J.C.D. Parker, M.K. Rainwater, D.E. Butterworth, B.J. Warren, A. Utter, J.M. Davis, O.R. Fagoaga, and S.L. Nehls-Cannarella. 1998. Carbohydrate supplementation and the lymphocyte proliferative response to long endurance running. *Int J Sports Med* 19:574–580.
- Herbert, V. 1979. Pangamic acid ("vitamin B<sub>15</sub>"). *Am J Clin Nutr* 32 (7): 1534–1540.
- Hertog, M.C.L., E.M. Feskens, P.C.H. Hollman, and M.B. Katan. 1993. Dietary antioxidant flavonoids and risk of coronary heart disease: The Zutphen elderly study. *Lancet* 342:1007–1011.
- Heymsfield, S.B., R. Smith, M. Aulet, et al. 1990. Appendicular skeletal muscle mass: Measurement by dual-photon absorptiometry. *Am J Clin Nutr* 52 (2): 214–218.
- Hill, C.A., R.C. Harris, H.J. Kim, B.D. Harris, C. Sale, L.H. Boobis, C.K. Kim, and J.A. Wise. 2007. Influence of beta-alanine supplementation on skeletal muscle carnosine concentrations and high intensity cycling capacity. *Amino Acids* 32 (2): 225–233.
- Hinton, P.S., C. Giordano, T. Brownlie, and J.D. Haas. 2000. Iron supplementation improves endurance after training in iron-depleted, nonanemic women. *J Appl Physiol* 88:1103–1111.
- Hiscock, N., and B.K. Pedersen. 2002. Exercise-induced immunosuppression—plasma glutamine is not the link. *J Appl Physiol* 93:813–822.
- Hogervorst, E., S. Bandelow, J. Schmitt, R. Jentjens, M. Oliveira, J. Allgrove, T. Carter, and M. Gleeson. 2008. Caffeine improves physical and cognitive performance during exhaustive exercise. *Med Sci Sports Exerc* 40 (10): 1841–1851.
- Hogervorst, E., W.J. Riedel, E. Kovacs, F. Brouns, and J. Jolles. 1999. Caffeine improves cognitive performance after strenuous physical exercise. *Int J Sports Med* 20 (6): 354–361.
- Holloszy, J.O., and E.F. Coyle. 1984. Adaptations of skeletal muscle to endurance exercise and their metabolic consequences. *J Appl Physiol* 56 (4): 831–838.
- Holloszy, J.O., and W. Booth. 1976. Biochemical adaptations to endurance exercise in muscle. *Ann Rev Physiol* 38:273–291.
- Holt, P.R. 1968. Medium chain triglycerides: Their absorption, metabolism and clinical applications. In *Progress in gastroenterology*, ed. B. George and J. Glass, 277–298. New York: Grune & Stratton, Inc.
- Hopkins, W.G., J.A. Hawley, and L.M. Burke. 1999. Design and analysis of research on sport performance enhancement. *Med Sci Sports Exerc* 31 (3): 472–485.
- Hopkins, W.G. 2000. Measures of reliability in sports medicine and science. *Sports Med* 30 (1): 1–15.
- Hoppeler, H., and M. Fluck. 2003. Plasticity of skeletal muscle mitochondria: Structure and function. *Med Sci Sports Exerc* 35:95–104.
- Horowitz, J.F., R. Mora-Rodriguez, L.O. Byerley, and E.F. Coyle. 2000. Preexercise medium-chain triglyceride ingestion does not alter muscle glycogen use during exercise. *J Appl Physiol* 88 (1): 219–225.
- Horowitz, J.F., R. Mora-Rodriguez, L.O. Byerley, and E.F. Coyle. 1997. Lipolytic suppression following carbohydrate ingestion limits fat oxidation during exercise. *Am J Physiol* 273:E768–E775.
- Horswill, C.A. 1995. Effects of bicarbonate, citrate, and phosphate loading on performance. *Int J Sports Nutr* 5:S111–S119.

- Houmard, J.A., D.L. Costill, J.A. Davis, J.B. Mitchell, D.D. Pascoe, and R.A. Robergs. 1990. The influence of exercise intensity on heat acclimation in trained subjects. *Med Sci Sports Exerc* 22 (5): 615–620.
- Houmard, J.A., P.C. Egan, R.A. Johns, et al. 1991. Gastric emptying during 1 h of cycling and running at 75%  $V_{\text{O}_{\text{max}}}$ . *Med Sci Sports Exerc* 23 (3): 320–325.
- Hu, F.B., M.J. Stampfer, J.E. Manson, E. Rimm, G.A. Colditz, B.A. Rosner, C.H. Hennekens, and W.C. Willett. 1997. Dietary fat intake and the risk of coronary heart disease in women [see comments]. *N Engl J Med* 337 (21): 1491–1499.
- Hubert, P., N.A. King, and J.E. Blundell. 1998. Uncoupling the effects of energy expenditure and energy intake: Appetite response to short-term energy deficit induced by meal omission and physical activity. *Appetite* 31:9–19.
- Hulston, C.J., and A.E. Jeukendrup. 2008. Substrate metabolism and exercise performance with caffeine and carbohydrate intake. *Med Sci Sports Exerc* 40 (12): 2096–2104.
- Hultman, E. 1967. Physiological role of muscle glycogen in man, with special reference to exercise. *Circ Res* 10:199–1114.
- Hultman, E., and L.H. Nilsson. 1971. Liver glycogen in man: Effects of different diets and muscular exercise. In *Muscle metabolism during exercise, II*, ed. B. Pernow and B. Saltin, 143–151. New York: Plenum.
- Hultman, E., K. Soderlund, J.A. Timmons, G. Cederblad, and P.L. Greenhaff. 1996. Muscle creatine loading in men. *J Appl Physiol* 81 (1): 232–237.
- Hultman, E., P.L. Greenhaff, J.M. Ren, and K. Soderlund. 1991. Energy metabolism and fatigue during intense muscle contraction. *Biochem Soc Trans* 19 (2): 347–353.
- Hunt, C., N.K. Chakaravorty, G. Annan, N. Habibzadeh, and C.J. Schorah. 1994. The clinical effects of vitamin C supplementation in elderly hospitalized with acute respiratory infections. *Int J Vit Nutr Res* 64:202–207.
- Hunt, J.N., and I. Donald. 1954. The influence of volume on gastric emptying. *J Physiol* 126:459–474.
- Inder, W.J., M.P. Swanney, R.A. Donald, T.C.R. Prickett, and J. Hellemans. 1998. The effect of glycerol and desmopressin on exercise performance and hydration in triathletes. *Med Sci Sports Exerc* 30:1263–1269.
- Issekutz, B., H.I. Miller, P. Paul, and K. Rodahl. 1964. Source of fat in exercising dogs. *Am J Physiol* 207 (3): 583–589.
- Isselbacher, K.J. 1968. Mechanisms of absorption of long and medium chain triglycerides. In *Medium chain triglycerides*, ed. J.R. Senior, 21–37. Philadelphia: University of Pennsylvania Press.
- Ivy, J.L. 1998. Glycogen resynthesis after exercise: Effect of carbohydrate intake. *Int J Sports Med* 19:S142–S145.
- Ivy, J.L., A.L. Katz, C.L. Cutler, W.M. Sherman, and E.F. Coyle. 1988b. Muscle glycogen synthesis after exercise: Effect of time of carbohydrate ingestion. *J Appl Physiol* 64:1480–1485.
- Ivy, J.L., and C.-H. Kuo. 1998. Regulation of GLUT4 protein and glycogen synthase during muscle glycogen synthesis after exercise. *Acta Physiol Scand* 162:295–304.
- Ivy, J.L., D.L. Costill, W.J. Fink, and R.W. Lower. 1979. Influence of caffeine and carbohydrate feedings on endurance performance. *Med Sci Sports* 11:6–11.
- Ivy, J.L., M.C. Lee, J.T. Brozinick, and M.J. Reed. 1988a. Muscle glycogen storage after different amounts of carbohydrate ingestion. *J Appl Physiol* 65:2018–2023.
- Ivy, J.L., P.T. Res, R.C. Sprague, and M.O. Widzer. 2003. Effect of a carbohydrate-protein supplement on endurance performance during exercise of varying intensity. *Int J Sport Nutr Exerc Metab* 13 (3): 382–395.
- Jackman, M., P. Wendling, D. Friars, and T.E. Graham. 1996. Metabolic catecholamine, and endurance responses to caffeine during intense exercise. *J Appl Physiol* 81 (4): 1658–1663.
- Jackson, A.S., and M.L. Pollock. 1978. Generalized equations for predicting body density of men. *Br J Nutr* 40 (3): 497–504.
- Jackson, M.J. 2000. Exercise and oxygen radical production by muscle. In *Handbook of oxidants and antioxidants in exercise*, ed. C.K. Sen, L. Packer, and O.P. Hanninen Osmo, 297–321. Amsterdam: Elsevier.
- Jackson, M.J. 2007. Free radicals generated by contracting muscle: By-products of metabolism or key regulators of muscle function? *Free Radical Bio Med* 44 (2): 132–141.
- Jagetia, G.C., and B.B. Aggarwal. 2007. "Spicing up" of the immune system by curcumin. *J Clin Immunol* 27 (1): 19–35.
- Jakubowicz, D., N. Beer, and R. Rengifo. 1995. Effect of dehydroepiandrosterone on cyclic-guanosine monophosphate in men of advancing age. *Ann N Y Acad Sci* 774:312–315.
- Jansson, E., and L. Kaijser. 1982. Effect of diet on the utilization of blood-borne and intramuscular substrates during exercise in man. *Acta Physiol Scand* 115:19–30.
- Jeffery, R.W., W.L. Hellerstedt, S.A. French, et al. 1995. A randomized trial of counseling for fat restriction versus calorie restriction in the treatment of obesity. *Int J Obes Relat Metab Disord* 19 (2): 132–137.
- Jentjens, R.L., and A.E. Jeukendrup. 2002. Effect of acute and short-term administration of vanadyl sulphate on insulin sensitivity in healthy active humans. *Int J Sport Nutr Exerc Metab* 12 (4): 470–479.
- Jentjens, R.L., and A.E. Jeukendrup. 2005a. High rates of exogenous carbohydrate oxidation from a mixture of glucose and fructose ingested during prolonged cycling exercise. *Br J Nutr* 93 (4): 485–492.
- Jentjens, R.L., L. Moseley, R.H. Waring, L.K. Harding, and A.E. Jeukendrup. 2004a. Oxidation of combined ingestion of glucose and fructose during exercise. *J Appl Physiol* 96 (4): 1277–1284.
- Jentjens, R.L., and A.E. Jeukendrup. 2003b. Determinants of post-exercise glycogen synthesis during short-term recovery. *Sports Med* 33 (2): 117–144.
- Jentjens, R.L., L. Moseley, R.H. Waring, L.K. Harding, and A.E. Jeukendrup. 2003. Oxidation of combined ingestion of glucose and fructose during exercise. *J Appl Physiol* [online]. Available at DOI, 10.1152/japplphysiol.00974.
- Jentjens, R.L., and A.E. Jeukendrup. 2002. Effect of acute and short-term administration of vanadyl sulphate on insulin sensitivity in healthy active humans. *Int J Sports Nutr Exerc Metab* 12:434–443.
- Jentjens, R.L., and A.E. Jeukendrup. 2003a. Effects of pre-exercise ingestion of trehalose, galactose and glucose on subsequent metabolism and cycling performance. *Eur J Appl Physiol* 88 (4–5): 459–465.
- Jentjens, R.L., C. Cale, C. Gutch, and A.E. Jeukendrup. 2003. Effects of pre-exercise ingestion of differing amounts of carbohydrate on subsequent metabolism and cycling performance. *Eur J Appl Physiol* 88 (4–5): 444–452.
- Jentjens, R.L., L.J. van Loon, C.H. Mann, A.J. Wagenmakers, and A.E. Jeukendrup. 2001. Addition of protein and amino acids to carbohydrates does not enhance postexercise muscle glycogen synthesis. *J Appl Physiol* 91 (2): 839–846.
- Jentjens, R.L., C. Shaw, T. Birtles, R.H. Waring, L.K. Harding, and A.E. Jeukendrup. 2005b. Oxidation of combined ingestion of glucose and sucrose during exercise. *Metabolism* 54 (5): 610–618.

- Jentjens, R.L., K. Underwood, J. Achten, K. Currell, C.H. Mann, and A.E. Jeukendrup. 2006. Exogenous carbohydrate oxidation rates are elevated after combined ingestion of glucose and fructose during exercise in the heat. *J Appl Physiol* 100 (3): 807-816.
- Jentjens, R.L., M.C. Venables, and A.E. Jeukendrup. 2004b. Oxidation of exogenous glucose, sucrose, and maltose during prolonged cycling exercise. *J Appl Physiol* 96 (4): 1285-1291.
- Jeukendrup, A.E., and G.A. Wallis. 2005. Measurement of substrate oxidation during exercise by means of gas exchange measurements. *Int J Sports Med* 26 (Suppl 1): S28-37.
- Jeukendrup, A.E., A.J. Wagenmakers, J.H. Stegen, A.P. Gijsen, F. Brouns, and W.H. Saris. 1999. Carbohydrate ingestion can completely suppress endogenous glucose production during exercise. *Am J Physiol* 276 (4 pt 1): E672-E683.
- Jeukendrup, A.E., A.J.M. Wagenmakers, L.M.L.A. Van Etten, R.L.P. Jentjens, G.J. Oomen, J.H.C.H. Stegen, P.F. Schofelen, and W.H.M. Saris. 2000c. Negative fat balance in weight stable physically active humans on a low-fat diet. *J Physiol* 523:223P.
- Jeukendrup, A.E., and R.L. Jentjens. 2000. Oxidation of carbohydrate feedings during prolonged exercise: Current thoughts, guidelines and directions for future research. *Sports Med* 29 (6): 407-424.
- Jeukendrup, A.E., F. Brouns, A.J.M. Wagenmakers, and W.H.M. Saris. 1997. Carbohydrate-electrolyte feedings improve 1 h time trial cycling performance. *Int J Sports Med* 18 (2): 125-129.
- Jeukendrup, A.E., J.J.H.C. Thielen, A.J.M. Wagenmakers, F. Brouns, and W.H.M. Saris. 1998. Effect of MCT and carbohydrate ingestion on substrate utilization and cycling performance. *Am J Clin Nutr* 67:397-404.
- Jeukendrup, A.E., K. Vet-Joop, A. Sturk, J.H. Stegen, J. Senden, W.H. Saris, and A.J. Wagenmakers. 2000a. Relationship between gastro-intestinal complaints and endotoxaemia, cytokine release and the acute-phase reaction during and after a long-distance triathlon in highly trained men. *Clin Sci (Colch)* 98 (1): 47-55.
- Jeukendrup, A.E., N.P. Craig, and J.A. Hawley. 2000b. The bioenergetics of world class cycling. *J Sci Med Sport* 3 (4): 414-433.
- Jeukendrup, A.E., N.P. Craig, and J.A. Hawley. 2000. The bioenergetics of world class cycling. *J Sci Med Sport* 3 (4): 414-433.
- Jeukendrup, A.E., M.K.C. Hesselink, A.C. Snyder, H. Kuipers, and H.A. Keizer. 1992. Physiological changes in male competitive cyclists after two weeks of intensified training. *Int J Sports Med*, 13:534-541.
- Jeukendrup, A.E., L. Moseley, G.I. Mainwaring, S. Samuels, S. Perry, and C.H. Mann. 2006. Exogenous carbohydrate oxidation during ultraendurance exercise. *J Appl Physiol* 100 (4): 1134-1141.
- Jeukendrup, A.E., W.H.M. Saris, F. Brouns, and A.D.M. Kester. 1996. A new validated endurance performance test. *Med Sci Sport Exerc* 28 (2): 266-270.
- Jeukendrup, A.E., W.H.M. Saris, P. Schrauwen, F. Brouns, and A.J.M. Wagenmakers. 1995. Metabolic availability of medium chain triglycerides co-ingested with carbohydrates during prolonged exercise. *J Appl Physiol* 79 (3): 756-762.
- Jeukendrup, A.E. 2004. Carbohydrate intake during exercise and performance. *Nutrition* 20 (7-8): 669-677.
- Jeukendrup, A.E. 2008. Carbohydrate feeding during exercise. *Eur J Sport Sci* 8 (2): 77-86.
- Ji, L.L. 2007. Antioxidant signaling in skeletal muscle: A brief review. *Experimental Gerontology* 42 (7): 582-593.
- Johannes, C.B., R.K. Stellato, H.A. Feldman, C. Longcope, and J.B. McKinlay. 1999. Relation of dehydroepiandrosterone and dehydroepiandrosterone sulfate with cardiovascular disease risk factors in women: Longitudinal results from the Massachusetts Women's Health Study. *J Clin Epidemiol* 52 (2): 95-103.
- Johansson, L., K. Solvoll, G.E. Bjorneboe, and C.A. Drevon. 1998. Under- and overreporting of energy intake related to weight status and lifestyle in a nationwide sample. *Am J Clin Nutr* 68 (2): 266-274.
- Jones, D.A., and O.M. Rutherford. 1987. Human muscle strength training: The effects of three different regimens and the nature of the resultant changes. *J Physiol (Lond)* 391:1-11.
- Jowko, E., P. Ostaszewski, M. Jank, J. Sacharuk, A. Zieniewicz, J. Wilczak, and S. Nissen. 2001. Creatine and beta-hydroxy-beta-methylbutyrate (HMB) additively increase lean body mass and muscle strength during a weight-training program. *Nutrition* 17 (7-8): 558-566.
- Jozsi, A.C., T.A. Trappe, R.D. Starling, B. Goodpaster, S.W. Trappe, W.J. Fink, D.L. Costill. 1996. The influence of starch structure on glycogen resynthesis and subsequent cycling performance. *Int J Sports Med* 17 (5): 373-378.
- Judelson, D.A., C.M. Maresh, J.M. Anderson, et al. 2007. Hydration and muscular performance: Does fluid balance affect strength, power and high-intensity endurance? *Sports Medicine* 37 (10): 907-921.
- Kagan, A., B.R. Harris, W. Winkelstein, Jr., K.G. Johnson, H. Kato, S.L. Syme, G.G. Rhoads, M.L. Gay, M.Z. Nichaman, H.B. Hamilton, and J. Tillotson. 1974. Epidemiologic studies of coronary heart disease and stroke in Japanese men living in Japan, Hawaii and California: Demographic, physical, dietary and biochemical characteristics. *J Chronic Dis* 27 (7-8): 345-364.
- Kamada, T., S. Tokuda, S.-I. Aozaki, and S. Otsuji. 1993. Higher levels of erythrocyte membrane fluidity in sprinters and long-distance runners. *J Appl Physiol* 74 (1): 354-358.
- Kaminski, M., and R. Boal. 1992. An effect of ascorbic acid on delayed-onset muscle soreness. *Pain* 50:317-321.
- Kandelman, D. 1997. Sugar, alternative sweeteners and meal frequency in relation to caries prevention: New perspectives. *Br J Nutr* 77 (suppl 1): S121-S128.
- Kantamala, D., M. Vongsakul, and J. Satayavivad. 1990. The in vivo and in vitro effects of caffeine on rat immune cell activities: B, T and NK cells. *Asian Pac J Allergy Immunol* 8:77-82.
- Karlsson, J., and B. Saltin. 1970. Lactate, ATP, and CP in working muscles during exhaustive exercise in man. *J Appl Physiol* 29 (5): 596-602.
- Kasperek, G.J., and R.D. Snider. 1989. Total and myofibrillar protein degradation in isolated soleus muscles after exercise. *Am J Physiol* 257 (1 pt 1): E1-E5.
- Kazis, K., and E. Iglesias. 2003. The female athlete triad. *Adolesc Med* 14:87-95.
- Keffee, E.B., D.K. Lowe, J.R. Goss, and R. Wayne. 1984. Gastrointestinal symptoms of marathon runners. *West J Med* 141:481-484.
- Keesey, R.E., and M.D. Hirvonen. 1997. Body weight set-points: Determination and adjustment. *J Nutr* 127 (9): 1875S-1883S.
- Keizer, H., H. Kuipers, and G. van Kranenburg. 1987. Influence of liquid and solid meals on muscle glycogen resynthesis, plasma fuel hormone response, and maximal physical working capacity. *Int J Sports Med* 8:99-104.
- Keizer, H., H. Kuipers, G. van Kranenburg, and P. Geurten. 1987b. Influence of liquid and solid meals on glycogen

- resynthesis, plasma fuel hormone response, and maximal physical working capacity. *Int J Sports Med* 8 (2): 99–104.
- Kekkonen, R.A., T.J. Vasankari, T. Vuorimaa, et al. 2007. The effects of probiotics on respiratory infections and gastrointestinal symptoms during training in marathon runners. *Int J Sport Nutr Exerc Metabol* 17:352–363.
- Kelly, J.M., B.A. Gorney, and K.K. Kalm. 1978. The effects of a collegiate wrestling season on body composition, cardiovascular fitness and muscular strength and endurance. *Med Sci Sports* 10 (2): 119–124.
- Khatta, M., B.S. Alexander, C.M. Krichten, M.L. Fisher, R. Freudemberger, S.W. Robinson, and S.S. Gottlieb. 2000. The effect of coenzyme Q10 in patients with congestive heart failure. *Ann Intern Med* 132 (8): 636–640.
- King, N.A., V.J. Burley, and J.E. Blundell. 1994. Exercise-induced suppression of appetite: Effects on food intake and implications for energy balance. *Eur J Clin Nutr* 48 (10): 715–724.
- King, D.S., R.L. Sharp, M.D. Vukovich, G.A. Brown, T.A. Reiffenrath, N.L. Uhl, and K.A. Parsons. 1999. Effect of oral androstanedione on serum testosterone and adaptations to resistance training in young men: A randomized controlled trial [see comments]. *JAMA* 281 (21): 2020–2028.
- Kjaer, M. et al. 1988. Hormonal response to exercise in humans: Influence of hypoxia and physical training. *American Journal of Physiology* 254:R197–203.
- Kleessen, B., W. Schroedl, M. Stueck, et al. 2005. Microbial and immunological responses relative to high altitude exposure in mountaineers. *Med Sci Sports Exerc* 37:1313–1318.
- Klein, S., E.F. Coyle, and R.R. Wolfe. 1994. Fat metabolism during low-intensity exercise in endurance trained and untrained men. *Am J Physiol* 267:E934–E940.
- Klein, S., J.-M. Weber, E.F. Coyle, and R.R. Wolfe. 1996. Effect of endurance training on glycerol kinetics during strenuous exercise in humans. *Metabolism* 45 (3): 357–361.
- Knapik, J., C. Meredith, B. Jones, R. Fielding, V. Young, and W. Evans. 1991. Leucine metabolism during fasting and exercise. *J Appl Physiol* 70 (1): 43–47.
- Knapik, J.J., B.H. Jones, M.M. Toner, W.L. Daniels, and W.J. Evans. 1983. Influence of caffeine on serum substrate changes during running in trained and untrained individuals. *Bioch Exerc* 13:514–519.
- Knapik, J.J., C.N. Meredith, B.H. Jones, L. Suek, V.R. Young, and W.J. Evans. 1988. Influence of fasting on carbohydrate and fat metabolism during rest and exercise in men. *J Appl Physiol* 64 (5): 1923–1929.
- Knopf, R.F., J.W. Conn, J.C. Floyd, Jr., S.S. Fajans, J.A. Rull, E.M. Guntsche, and C.A. Thiffault. 1966. The normal endocrine response to ingestion of protein and infusions of amino acids: Sequential secretion of insulin and growth hormone. *Trans Assoc Am Physicians* 79:312–321.
- Kochan, R.G., D.R. Lamb, S.A. Lutz, C.V. Perrill, E.M. Reimann, and K.K. Schlender. 1979. Glycogen synthase activation in human skeletal muscle: Effects of diet and exercise. *Am J Physiol* 5 (6): E660–E666.
- Koenigsberg, P.S., K.K. Martin, H.R. Hlava, and M.L. Riedesel. 1995. Sustained hyperhydration with glycerol ingestion. *Life Sci* 57 (7): 645–653.
- Kohrt, W.M. 1995. Body composition by DXA: Tried and true? *Med Sci Sports Exerc* 27 (10): 1349–1353.
- Konig, D., A. Berg, C. Weinstock, J. Keul, and H. Northoff. 1997. Essential fatty acids, immune function and exercise. *Exercise and Immunology Review* 3:1–31.
- Koopman, R., D.L. Pannemans, A.E. Jeukendrup, A. Gijsen, J.M.G. Senden, D. Halliday, W.H.M. Saris, L.J.C. van Loon, and A.J.M. Wagenmakers. 2004. Combined ingestion of protein and carbohydrate improves protein balance during ultra-endurance exercise. *Am J Physiol Endocrinol Metab* 287 (4): E712–720.
- Koopman, R., A.J.M. Wagenmakers, R.J.F. Manders, A.H.G. Zorenc, J.M.G. Senden, M. Gorselink, H.A. Keizer, and L.J.C. van Loon. 2005. Combined ingestion of protein and free leucine with carbohydrate increases postexercise muscle protein synthesis *in vivo* in male subjects. *Am J Physiol Endocrinol Metab* 288 (4): E645–653.
- Kopp-Hoolihan, L. 2001. Prophylactic and therapeutic uses of probiotics: A review. *J Am Diet Assoc* 101:229–238.
- Koubi, H.E., D. Desplanches, C. Gabrielle, J.M. Cottet-Emard, B. Sempore, and R.J. Favier. 1991. Exercise endurance and fuel utilization: A reevaluation of the effects of fasting. *J Appl Physiol* 70 (3): 1337–1343.
- Koulmann, N., C. Jimenez, D. Regal, et al. 2000. Use of bioelectrical impedance analysis to estimate body fluid compartments after acute variations of the body hydration level. *Med Sci Sports Exerc* 32 (4): 857–864.
- Kovacs, E.M.R., J.H.C.H. Stegen, and F. Brouns. 1998. Effect of caffeinated drinks on substrate metabolism, caffeine excretion, and performance. *J Appl Physiol* 85:709–715.
- Kraemer, W.J., J.F. Patton, S.E. Gordon, et al. 1995. Compatibility of high-intensity strength and endurance training on hormonal and skeletal muscle adaptations. *J Appl Physiol* 78 (3): 976–989.
- Kreider, R.B., M. Ferreira, M. Wilson, P. Grindstaff, S. Plisk, J. Reinardy, E. Cantler, and A.L. Almada. 1998. Effects of creatine supplementation on body composition, strength, and sprint performance. *Med Sci Sports Exerc* 30 (1): 73–82.
- Kreider, R.B., G.W. Miller, D. Schenck, C.W. Cortes, V. Miriel, C.T. Somma, P. Rowland, C. Turner, and D. Hill. 1992. Effects of phosphate loading on metabolic and myocardial responses to maximal and endurance exercise. *Int J Sport Nutr* 2 (1): 20–47.
- Kreider, R.B., G.W. Miller, M.H. Williams, C.T. Somma, and T.A. Nasser. 1990. Effects of phosphate loading on oxygen uptake, ventilatory anaerobic threshold, and run performance. *Med Sci Sports Exerc* 22 (2): 250–256.
- Krogh, A., and J. Lindhard. 1920. The relative value of fat and carbohydrate as sources of muscular energy. *Biochem J* 14:290–363.
- Kromhout, D., A. Menotti, B. Bloomberg, C. Aravanis, H. Blackburn, R. Buzina, A.S. Dontas, F. Fidanza, S. Giampaoli, A. Jansen, et al. 1995. Dietary saturated and trans fatty acids and cholesterol and 25-year mortality from coronary heart disease: The Seven Countries study. *Prev Med* 24 (3): 308–315.
- Kromhout, D., and C. de Lezenne Coulander. 1984. Diet, prevalence and 10-year mortality from coronary heart disease in 871 middle-aged men: The Zutphen study. *Am J Epidemiol* 119 (5): 733–741.
- Kron, L., J.L. Katz, G. Gorzynski, and H. Weiner. 1978. Hyperactivity in anorexia nervosa: A fundamental clinical feature. *Comp Psych* 19:433–440.
- Kuipers, H., D.L. Costill, D.A. Porter, W.J. Fink, and W.M. Morse. 1986. Glucose feeding and exercise in trained rats: Mechanisms for glycogen sparing. *J Appl Physiol* 61 (3): 859–863.
- Kuipers, H., W.H.M. Saris, F. Brouns, H.A. Keizer, and C. ten Bosch. 1989. Glycogen synthesis during exercise and rest with carbohydrate feeding in males and females. *Int J Sports Med* 10 (suppl 1): S63–S67.

- Kumanyika, S.K., and J.A. Cutler. 1997. Dietary sodium reduction: Is there cause for concern? *J Am Coll Nutr* 16 (3): 192-203.
- Lambert, C.P., D. Ball, J.B. Leiper, and R.J. Maughan. 1999. The use of a deuterium tracer technique to follow the fate of fluids ingested by human subjects: Effects of drink volume and tracer concentration and content. *Exp Physiol* 84 (2): 391-399.
- Lambert, M.I., J.A. Hefer, R.P. Millar, and P.W. Macfarlane. 1993. Failure of commercial oral amino acid supplements to increase serum growth hormone concentrations in male body-builders. *Int J Sport Nutr* 3 (3): 298-305.
- Lamont, L.S., A.J. McCullough, and S.C. Kalhan. 1999. Comparison of leucine kinetics in endurance-trained and sedentary humans. *J Appl Physiol* 86 (1): 320-325.
- Lancaster, G.I., Q. Khan, P.T. Drysdale, et al. 2005. Effect of prolonged exercise and carbohydrate ingestion on type 1 and type 2 lymphocyte distribution and intracellular cytokine production in humans. *J Appl Physiol* 98:565-571.
- Lang, F., G.L. Busch, M. Ritter, H. Volkl, S. Waldegg, E. Gulbins, and D. Haussinger. 1998. Functional significance of cell volume regulatory mechanisms. *Physiol Rev* 78 (1): 247-306.
- Lanou, A.J., and N.D. Barnard. 2008. Dairy and weight loss hypothesis: An evaluation of the clinical trials. *Nutr Rev* 66 (5): 272-279.
- Latzka, W.A., M.N. Sawka, S.J. Montain, G.S. Skrinar, R.A. Fielding, R.P. Matott, and K.B. Pandolf. 1997. Hyperhydration: Thermoregulatory effects during compensable exercise-heat stress. *J Appl Physiol* 83 (3): 860-866.
- Latzka, W.A., M.N. Sawka, S.J. Montain, G.S. Skrinar, R.A. Fielding, R.P. Matott, and K.B. Pandolf. 1998. Hyperhydration: Tolerance and cardiovascular effects during uncompensable exercise-heat stress. *J Appl Physiol* 84:1858-1864.
- Layman, D., and D. Walker. 2006. Potential importance of leucine in treatment of obesity and the metabolic syndrome. *J Nutr* 136 (1 Suppl): 319S-323S.
- Lebenstedt, M., P. Platte, and K.M. Pirke. 1999. Reduced resting metabolic rate in athletes with menstrual disorders. *Med Sci Sports Exerc* 31 (9): 1250-1256.
- Leenders, N.M., D.R. Lamb, and T.E. Nelson. 1999. Creatine supplementation and swimming performance. *Int J Sport Nutr* 9 (3): 251-262.
- Lee-Young, R.S., M.J. Palmer, K.C. Linden, K. LePlastrier, B.J. Canny, M. Hargreaves, G.D. Wadley, B.E. Kemp, and G.K. McConell. 2006. Carbohydrate ingestion does not alter skeletal muscle AMPK signaling during exercise in humans. *Am J Physiol Endocrinol Metab* 291:E566-573.
- Leibel, R.L., M. Rosenbaum, and J. Hirsch. 1995. Changes in energy expenditure resulting from altered body weight. *N Engl J Med* 332 (10): 621-628.
- Leiper, J.B., A.S. Prentice, C. Wrightson, and R.J. Maughan. 2001a. Gastric emptying of a carbohydrate-electrolyte drink during a soccer match. *Med Sci Sports Exerc* 33 (11): 1932-1938.
- Leiper, J.B., N.P. Broad, and R.J. Maughan. 2001b. Effect of intermittent high-intensity exercise on gastric emptying in man. *Med Sci Sports Exerc* 33 (8): 1270-1278.
- Levine, S.A., B. Gordon, and C.L. Derick. 1924. Some changes in chemical constituents of blood following a marathon race. *JAMA* 82:1778-1779.
- Lichtenstein, A.H., L.M. Ausman, S.M. Jalbert, and E.J. Schaefer. 1999. Effects of different forms of dietary hydrogenated fats on serum lipoprotein cholesterol levels [see comments] [published erratum appears in *N Engl J Med* 341 (11): 856]. *N Engl J Med* 340 (25): 1933-1940.
- Lieberman, H.R. 2003. Nutrition, brain function and cognitive performance. *Appetite* 40 (3): 245-254.
- Linde, K., B. Barrett, K. Wolkart, R. Bauer, and D. Melcahrt. 2006. Echinacea for preventing and treating the common cold. *Cochrane Database Syst Rev*. Issue 1: CD000530.
- Linderman, J.K., and K.L. Gosselink. 1994. The effects of sodium bicarbonate ingestion on exercise performance. *Sports Med* 18 (2): 75-80.
- Lohman, T.G., and S.B. Going. 1993. Multicomponent models in body composition research: Opportunities and pitfalls. *Basic Life Sci* 60:53-58.
- Louard, R.J., E.J. Barrett, and R.A. Gelfand. 1990. Effect of infused branched-chain amino acids on muscle and whole-body amino acid metabolism in man. *Clin Sci (Colch)* 79 (5): 457-466.
- Loucks, A. 2006. The evolution of the female athlete triad. In *Clinical sports nutrition*, 3<sup>rd</sup> ed. ed. L. Burke and V. Deakin, 227-235. New York: McGraw-Hill.
- Loucks, A.B., and J.R. Thuma. 2003. Luteinizing hormone pulsatility is disrupted at a threshold of energy availability in regularly menstruating women. *J Clin Endocr Metab* 88:297-311.
- Loy, S.F., R.K. Conlee, W.W. Winder, A.G. Nelson, D.A. Arnall, and A.G. Fisher. 1986. Effect of 24-hour fast on cycling endurance time at two different intensities. *J Appl Physiol* 61 (2): 654-659.
- Lukaski, H.C., W.W. Bolonchuk, W.A. Siders, and D.B. Milne. 1996. Chromium supplementation and resistance training: Effects on body composition, strength, and trace element status of men. *Am J Clin Nutr* 63 (6): 954-965.
- Luke, A., K.C. Maki, N. Barkey, R. Cooper, and D. McGee. 1997. Simultaneous monitoring of heart rate and motion to assess energy expenditure. *Med Sci Sports Exerc* 29 (1): 144-148.
- Lyons, T.P., M.L. Riedesel, L.E. Meuli, and T.W. Chick. 1990. Effects of glycerol-induced hyperhydration prior to exercise in the heat on sweating and core temperature. *Med Sci Sports Exerc* 22 (4): 477-483.
- Mackinnon, L.T. 1999. *Advances in exercise and immunology*. Champaign, IL: Human Kinetics.
- Macknin, M.L. 1999. Zinc lozenges for the common cold. *Cleveland Clin J Med* 66:27-32.
- MacLean, D.A., T.E. Graham, and B. Saltin. 1994. Branched-chain amino acids augment ammonia metabolism while attenuating protein breakdown during exercise. *Am J Physiol* 267 (6 Pt 1): E1010-1022.
- Madsen, K., D.A. MacLean, B. Kiens, and D. Christensen. 1996. Effects of glucose, glucose plus branched-chain amino acids, or placebo on bike performance over 100 km. *J Appl Physiol* 81 (6): 2644-2650.
- Malm, C., M. Svensson, B. Ekblom, and B. Sjodin. 1997. Effects of ubiquinone-10 supplementation and high intensity training on physical performance in humans. *Acta Physiol Scand* 161 (3): 379-384.
- Mannix, E.T., J.M. Stager, A. Harris, and M.O. Farber. 1990. Oxygen delivery and cardiac output during exercise following oral phosphate-glucose. *Med Sci Sports Exerc* 22 (3): 341-347.
- Manore, M.M. 2002. Dietary recommendations and athletic menstrual dysfunction. *Sports Med* 32:887-901.
- Marmy-Conus, N., S. Fabris, J. Proietto, and M. Hargreaves. 1996. Preexercise glucose ingestion and glucose kinetics during exercise. *J Appl Physiol* 81 (2): 853-857.
- Marshall, I. 2000. Zinc for the common cold. *Cochrane Database Syst Rev*, CD001364.

- Martin, W.H., III, G.P. Dalsky, B.F. Hurley, D.E. Matthews, D.M. Bier, J.M. Hagberg, M.A. Rogers, D.S. King, and J.O. Holloszy. 1993. Effect of endurance training on plasma free fatty acid turnover and oxidation during exercise. *Am J Physiol* 265:E708-E714.
- Martin, B., S. Robinson, and D. Robertshaw. 1978. Influence of diet on leg uptake of glucose during heavy exercise. *Am J Clin Nutr* 31:62-67.
- Martin, C.K., L.K. Heilbronn, L. de Jonge, J.P. DeLany, J. Volaufova, S.D. Anton, L.M. Redman, S.R. Smith, and E. Ravussin. 2007. Effect of calorie restriction on resting metabolic rate and spontaneous physical activity. *Obesity (Silver Spring)* 15 (12): 2964-2973.
- Matson, L.G., and Z. Vu Tran. 1993. Effects of sodium bicarbonate ingestion on anaerobic performance: A meta-analytic review. *Int J Sport Nutrition* 3:2-28.
- Matthews, C.E., I.S. Ockene, P.S. Freedson, M.C. Rosal, P.A. Merriam, and J.R. Hebert. 2002. Moderate to vigorous physical activity and the risk of upper-respiratory tract infection. *Med Sci Sports Exerc* 34:1242-1248.
- Matthews, D.E. 1999. Proteins and amino acids. In *Modern nutrition in health and disease*, ed. M.E. Shils, J.A. Olson, M. Shike, and A.C. Ross, 11-30. Baltimore: Williams & Wilkins.
- Maughan, R.J. 1985. Thermoregulation and fluid balance in marathon competition at low ambient temperature. *Int J Sports Med* 6:15-19.
- Maughan, R.J. 1991. Fluid and electrolyte loss and replacement in exercise. *J Sports Sci* 9:117-142.
- Maughan, R.J., A.E. Donnelly, M. Gleeson, P.H. Whiting, K.A. Walker, and P.J. Clough. 1989. Delayed-onset muscle damage and lipid peroxidation in man after a downhill run. *Muscle Nerve* 12:332-336.
- Maughan, R.J., and R. Murray, eds. 2000. *Sports drinks: Basic science and practical aspects*. Boca Raton, FL: CRC Press.
- Maughan, R.J., C.E. Fenn, M. Gleeson, and J.B. Leiper. 1987. Metabolic and circulatory responses to the ingestion of glucose polymer and glucose/electrolyte solutions during exercise in man. *Eur J Appl Physiol* 56:356-362.
- Maughan, R.J., J.B. Leiper, and S.M. Shirreffs. 1996. Restoration of fluid balance after exercise-induced dehydration: Effects of food and fluid intake. *Eur J Appl Physiol* 73:317-325.
- Maughan, R.J., L. Bethell, and J.B. Leiper. 1996. Effects of ingested fluids on homeostasis and exercise performance in man. *Exper Physiol* 81:847-859.
- Maughan, R.J., M. Gleeson, P.L. Greenhaff. 1997a. *Biochemistry of exercise and training*. Oxford: Oxford University Press.
- Maughan, R.J., and D.J. Sadler. 1983. The effects of oral administration of salts of aspartic acid on the metabolic response to prolonged exhausting exercise in man. *Int J Sports Med* 4 (2): 119-123.
- Maughan, R.J., and M. Gleeson. 1988. Influence of a 36 h fast followed by refeeding with glucose, glycerol or placebo on metabolism and performance during prolonged exercise in man. *Eur J Appl Physiol* 57 (5): 570-576.
- Maughan, R.J., and M. Gleeson. 2004. *The biochemical basis of sports performance*. Oxford: Oxford University Press.
- Maughan, R.J., C. Williams, D.M. Campbell, and D. Hepburn. 1978. Fat and carbohydrate metabolism during low intensity exercise: Effects of the availability of muscle glycogen. *Eur J Appl Physiol* 39:7-16.
- Maughan, R.J., P.L. Greenhaff, J.B. Leiper, D. Ball, C.P. Lambert, and M. Gleeson. 1997b. Diet composition and the performance of high-intensity exercise. *J Sports Sci* 15 (3): 265-275.
- McCarty, M.F. 1996. Chromium (III) picolinate (letter). *FASEB J* 10 (2): 365-369.
- McCrory, M.A., P.A. Mole, L.A. Nommsen-Rivers, and K.G. Dewey. 1997. Between-day and within-day variation in the relation between heart rate and oxygen consumption: Effect on the estimation of energy expenditure by heart-rate monitoring. *Am J Clin Nutr* 66:18-25.
- McElroy, B.H., and S.P. Miller. 2002. Effectiveness of zinc gluconate glycine lozenges (Cold-Eeze) against the common cold in school-aged subjects: A retrospective chart review. *Am J Ther* 9:472-475.
- McGee, S.L., K.F. Howlett, R.L. Starkie, D. Cameron-Smith, B.E. Kemp, and M. Hargreaves. 2003. Exercise increases nuclear AMPK alpha2 in human skeletal muscle. *Diabetes* 52:926-928.
- McGinnis, J.M., and W.H. Foege. 1993. Actual causes of death in the United States. *JAMA* 270 (18): 2207-2212.
- McClay, R.T., C.D. Thomson, S.M. Williams, and N.J. Rehrer. 2007. Carbohydrate loading and female endurance athletes: Effect of menstrual-cycle phase. *Int J Sport Nutr Exerc Metab* 17 (2): 189-205.
- McLellan, T.M., and D.G. Bell. 2004. The impact of prior coffee consumption on the subsequent ergogenic effect of anhydrous caffeine. *Int J Sport Nutr Exerc Metab* 14 (6): 698-708.
- McMurray, R.G., V. Ben-Ezra, W.A. Forsythe, et al. 1985. Responses of endurance-trained subjects to caloric deficits induced by diet or exercise. *Med Sci Sports Exerc* 17 (5): 574-579.
- McNaughton, L., and R. Cedaro. 1992. Sodium citrate ingestion and its effects on maximal anaerobic exercise of different durations. *Eur J Appl Physiol* 64 (1): 36-41.
- McNaughton, L., B. Dalton, and G. Palmer. 1999a. Sodium bicarbonate can be used as an ergogenic aid in high-intensity, competitive cycle ergometry of 1 h duration. *Eur J Appl Physiol* 80 (1): 64-69.
- McNaughton, L., B. Dalton, and J. Tarr. 1999b. Inosine supplementation has no effect on aerobic or anaerobic cycling performance. *Int J Sport Nutr* 9:333-344.
- McNaughton, L.R. 1990. Sodium citrate and anaerobic performance: Implications of dosage. *Eur J Appl Physiol* 61 (5-6): 392-397.
- Mensink, R.P., and M.B. Katan. 1990. Effect of dietary *trans* fatty acids on high-density and low-density lipoprotein cholesterol levels in healthy subjects. *N Engl J Med* 323 (7): 439-445.
- Merimee, T.J., D.A. Lillicrap, and D. Rabinowitz. 1965. Effect of arginine on serum-levels of human growth-hormone. *Lancet* 2 (7414): 668-670.
- Meydani, M., W.J. Evans, A. Handleman, R.A. Biddle, R.A. Fielding, S.N. Meydani, et al. 1993. Protective effect of vitamin E on exercise-induced oxidative damage in young and older adults. *Am J Physiol* 264:R992-R998.
- Mikkelsen, P.B., S. Toustrup, and A. Astrup. 2000. Effect of fat-reduced diets on 24-h energy expenditure: Comparisons between animal protein, vegetable protein, and carbohydrate. *Am J Clin Nutr* 72 (5): 1135-1141.
- Miller, S.L., K.D. Tipton, D.L. Chinkes, S.E. Wolf, and R.R. Wolfe. 2003. Independent and combined effects of amino acids and glucose after resistance exercise. *Med Sci Sports Exerc* 35 (3): 449-455.
- Miller, W.C., R. Bryce, and R.K. Conlee. 1984. Adaptation to a high-fat diet that increase exercise endurance in male rats. *J Appl Physiol* 56 (1): 78-83.
- Mishell, D.R. 1993. Non-contraceptive benefits of oral contraceptives. *J Reprod Med* 38:1021-1029.

- Mitchell, J.B., F.X. Pizza, A. Paquet, J.B. Davis, M.B. Forrest, and W.A. Braun. 1998. Influence of carbohydrate status on immune responses before and after endurance exercise. *J Appl Physiol* 84:1917–1925.
- Mitsiopoulos, N., R.N. Baumgartner, S.B. Heymsfield, et al. 1998. Cadaver validation of skeletal muscle measurement by magnetic resonance imaging and computerized tomography. *J Appl Physiol* 85 (1): 115–122.
- Modlesky, C.M., K.J. Cureton, R.D. Lewis, et al. 1996. Density of the fat-free mass and estimates of body composition in male weight trainers. *J Appl Physiol* 80 (6): 2085–2096.
- Montagnani, G.F., B. Arena, and N. Maffulli. 1992. Oestradiol and progesterone during exercise in healthy untrained women. *Med Sci Sports Exerc* 24:764–768.
- Mountain, S.J., M.K. Hopper, A.R. Coggan, and E.F. Coyle. 1991. Exercise metabolism at different time intervals after a meal. *J Appl Physiol* 70 (2): 882–888.
- Monteleone, P., L. Beinat, C. Tanzillo, M. Maj, and D. Kemali. 1990. Effects of phosphatidylserine on the neuroendocrine response to physical stress in humans. *Neuroendocrinology* 52 (3): 243–248.
- Monteleone, P., M. Maj, L. Beinat, M. Natale, and D. Kemali. 1992. Blunting by chronic phosphatidylserine administration of the stress-induced activation of the hypothalamo-pituitary-adrenal axis in healthy men. *Eur J Clin Pharmacol* 42 (4): 385–388.
- Moore, D.R., M.J. Robinson, J.L. Fry, J.E. Tang, E.I. Glover, S.B. Wilkinson, T. Prior, M.A. Tarnopolsky, and S.M. Phillips. 2009. Ingested protein dose response of muscle and albumin protein synthesis after resistance exercise in young men. *Am J Clin Nutr*, in press.
- Morrison, M.A., L.L. Spriet, and D.J. Dyck. 2000. Pyruvate ingestion for 7 days does not improve aerobic performance in well-trained individuals. *J Appl Physiol* 89:549–556.
- Mortola, J.F., and S.S. Yen. 1990. The effects of oral dehydroepiandrosterone on endocrine-metabolic parameters in postmenopausal women. *J Clin Endocrinol Metab* 71 (3): 696–704.
- Morton, J.F., and J.F. Guthrie. 1998. Changes in children's total fat intakes and their group sources of fat, 1989–91 versus 1994–95: Implications for diet quality. *Fam Econ Nutr Rev* 11:44–57.
- Moseley, L., and A.E. Jeukendrup. 2001. The reliability of cycling efficiency. *Med Sci Sports Exerc* 33 (4): 621–627.
- Moseley, L., G.I. Lancaster, R.L.P.G. Jentjens, J. Achten, and A.E. Jeukendrup. 2001. The effect of timing of pre-exercise carbohydrate feedings on metabolism and cycling performance. *Med Sci Sports Exerc* 34 (5): S203.
- Moseley, L., G.I. Lancaster, and A.E. Jeukendrup. 2003. Effects of timing of pre-exercise ingestion of carbohydrate on subsequent metabolism and cycling performance. *Eur J Appl Physiol* 88 (4–5): 453–458.
- Mourier, A., A.X. Bigard, E. de Kerviler, B. Roger, H. Legrand, and C.Y. Guezennec. 1997. Combined effects of caloric restriction and branched-chain amino acid supplementation on body composition and exercise performance in elite wrestlers. *Int J Sports Med* 18 (1): 47–55.
- Mujika, I., J.C. Chatard, L. Lacoste, F. Barale, and A. Geyssant. 1996. Creatine supplementation does not improve sprint performance in competitive swimmers. *Med Sci Sports Exerc* 28 (11): 1435–1441.
- Murray, R., D.E. Eddy, G.L. Paul, J.G. Seifert, and G.A. Halaby. 1991. Physiological responses to glycerol ingestion during exercise. *J Appl Physiol* 71 (1): 144–149.
- Myburgh, K.H., L.K. Bachrach, and B. Lewis. 1993. Low bone mineral density at axial and appendicular sites in amenorrhoeic athletes. *Med Sci Sports Exerc* 25:1197–1202.
- Myerson, M., B. Gutin, M.P. Warren, et al. 1991. Resting metabolic rate and energy balance in amenorrhoeic and eumenorrhoeic runners. *Med Sci Sports Exerc* 23 (1): 15–22.
- Nachtigall, D., P. Nielsen, R. Fischer, R. Engelhardt, and E.E. Gabbe. 1996. Iron deficiency in distance runners: A reinvestigation using 59Fe-labelling and non-invasive liver iron quantification. *Int J Sports Med* 17:473–479.
- Nadel, E.R., E. Cafarelli, M.F. Roberts, and C.B. Wenger. 1979. Circulatory regulation during exercise in different ambient temperatures. *J Appl Physiol* 46:430–437.
- Nadel, E.R., S.M. Fortney, and C.B. Wenger. 1980. Effect of hydration state on circulatory and thermal regulations. *J Appl Physiol* 49:715–721.
- Nair, K.S., D.E. Matthews, S.L. Welle, and T. Braiman. 1992. Effect of leucine on amino acid and glucose metabolism in humans. *Metabolism* 41 (6): 643–648.
- Narkar, V.A., M. Downes, R.T. Yu, E. Embler, Y.X. Wang, E. Banayo, M.M. Mihaylova, M.C. Nelson, Y. Zou, H. Juguilon, H. Kang, R.J. Shaw, and R.M. Evans. 2008. AMPK and PPARdelta agonists are exercise mimetics. *Cell* 134:405–415.
- National Research Council. 2001. *Recommended daily allowances*, 10th ed. Washington, DC: National Academy Press.
- Nehlsen-Cannarella, S.L., O.R. Fagoaga, D.C. Nieman, D.A. Henson, D.E. Butterworth, R.L. Schmitt, E.M. Bailey, B.J. Warren, A. Utter, and J.M. Davis. 1997. Carbohydrate and the cytokine response to 2.5 h of running. *J Appl Physiol* 82:1662–1667.
- Nelson, J.L., and R.A. Rogberg. 2007. Exploring the potential ergogenic effects of glycerol hyperhydration. *Sports Medicine* 37 (11): 981–1000.
- Nestler, J.E., C.O. Barlascini, J.N. Clore, and W.G. Blackard. 1988. Dehydroepiandrosterone reduces serum low density lipoprotein levels and body fat but does not alter insulin sensitivity in normal men. *J Clin Endocrinol Metab* 66 (1): 57–61.
- Newsholme, E.A., M. Parry-Billings, N. McAndrew, and R. Budgett. 1991. A biochemical mechanism to explain some mechanisms of overtraining. In *Advances in nutrition and topsport*, Vol. 32, ed. F. Brouns, 79–93. Basel: Karger.
- Neufer, P.D., D.L. Costill, M.G. Flynn, J.P. Kirwan, J.B. Mitchell, and J. Houmard. 1987. Improvements in exercise performance: Effects of carbohydrate feedings and diet. *J Appl Physiol* 62 (3): 983–988.
- Neufer, P.D., A.J. Young, and M.N. Sawka. 1989. Gastric emptying during exercise: Effects of heat stress and hypohydration. *Eur J Appl Physiol* 58:433–439.
- Neville, V., M. Gleeson, and J.P. Folland. 2008. Salivary IgA as a risk factor for upper respiratory infection: A longitudinal prospective study in athletes. *Med Sci Sports Exerc* (in press).
- Newsholme, E.A., E. Blomstrand, and B. Ekblom. 1992. Physical and mental fatigue: Metabolic mechanisms and importance of plasma amino acids. *Brit Med Bull* 48 (3): 477–495.
- Newsholme, E.A., I.N. Acworth, and E. Blomstrand. 1987. Amino acids, brain neurotransmitters and a functional link between muscle and brain that is important in sustained exercise. In *Advances in myochemistry*, ed. G. Benzi, 127–147. London: John Libby Eurotext.
- NHANES 2003–2004. [www.cdc.gov/nchs/about/major/nhanes/nhanes2003-2004/nhanes03\\_04.htm](http://www.cdc.gov/nchs/about/major/nhanes/nhanes2003-2004/nhanes03_04.htm).
- Nielsen, F.H. 1996. Other trace elements. In *Present knowledge of nutrition*, ed. E.E. Ziegler and L.J. Filer, 355–358. Washington, DC: ILSI Press.

- Nielsen, F.H., C.D. Hunt, L.M. Mullen, and J.R. Hunt. 1987. Effect of dietary boron on mineral, estrogen, and testosterone metabolism in postmenopausal women. *FASEB J* 1 (5): 394-397.
- Nieman, D.C. 1994. Exercise, infection, and immunity. *Int J Sports Med* 15 (suppl 3): S131-S141.
- Nieman, D.C., S.L. Nehlsen-Cannarella, O.R. Fagoaga, D.A. Henson, M. Shannon, J.M. Davis, M.D. Austin, C.L. Hisey, J.C. Holbeck, J.M. Hjertman, M.R. Bolton, and B.K. Schilling. 1999. Immune response to two hours of rowing in elite female rowers. *Int J Sports Med* 20:476-481.
- Nieman, D.C., A.R. Miller, D.A. Henson, B.J. Warren, G. Gusewitch, R.L. Johnson, J.M. Davis, D.E. Butterworth, and S.L. Nehlsen-Cannarella. 1993. Effects of high- versus moderate-intensity exercise on natural killer activity. *Med Sci Sports Exerc* 25:1126-1134.
- Nieman, D.C., and B.K. Pedersen, eds. 2000. *Nutrition and exercise immunology*. Boca Raton, FL: CRC Press.
- Nieman, D.C., D.A. Henson, O.R. Fagoaga, et al. 2002. Change in salivary IgA following a competitive marathon race. *Int J Sports Med* 23:69-75.
- Nieman, D.C., D.A. Henson, S.J. Gross, et al. 2007. Quercetin reduces illness but not immune perturbations after intensive exercise. *Med Sci Sports Exerc* 39:1561-1569.
- Nieman, D.C., D.A. Henson, S.R. McAnulty, et al. 2002. Influence of vitamin C supplementation on oxidative and immune changes after an ultramarathon. *J Appl Physiol* 92:1970-1977.
- Nieman, D.C., L.M. Johansen, J.W. Lee, and K. Arabatzis. 1990. Infectious episodes in runners before and after the Los Angeles Marathon. *J Sports Med Phys Fitness* 30:316-328.
- Nieman, D.C., S.L. Nehlsen-Cannarella, O.R. Fagoaga, et al. 1998a. Effects of mode and carbohydrate on the granulocyte and monocyte response to intensive, prolonged exercise. *J Appl Physiol* 84 (4): 1252-1259.
- Nieman, D.C., S.L. Nehlsen-Cannarella, O.R. Fagoaga, et al. 1998b. Influence of mode and carbohydrate on the cytokine response to heavy exertion. *Med Sci Sports Exerc* 30 (5): 671-678.
- Nilsson, L.H., and E Hultman. 1973. Liver glycogen in man; the effects of total starvation or a carbohydrate-poor diet followed by carbohydrate feeding. *Scand J Clin Lab Invest* 32:325-330.
- Nissen, S.L., R. Sharp, M. Ray, J.A. Rathmacher, D. Rice, J.C. Fuller, Jr., A.S. Connelly, and N. Abumrad. 1996. Effect of leucine metabolite beta-hydroxy-beta-methylbutyrate on muscle metabolism during resistance-exercise training. *J Appl Physiol* 81 (5): 2095-2104.
- Nissen, S.L., R.L. Sharp, L. Panton, M. Vukovich, S. Trappe, and J.C. Fuller, Jr. 2000. Beta-hydroxy-beta-methylbutyrate (HMB) supplementation in humans is safe and may decrease cardiovascular risk factors. *J Nutr* 130 (8): 1937-1945.
- Nissen, S.L., and R.L. Sharp. 2003. [Online in 2002]. Effect of dietary supplements on lean mass and strength gains with resistance exercise: A meta-analysis. *J Appl Physiol* 94 (2): 651-659.
- Nitzke et al. 2007. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Dietetic Assoc* 107 (7): 1224-32.
- Noakes, T.D. 1986. *Lore of running*. Cape Town: Oxford University Press.
- Noakes, T.D., N. Goodwin, B.L. Rayner, T. Branken, and R.K.N. Taylor. 1985. Water intoxication: A possible complication during endurance exercise. *Med Sci Sports Exerc* 17:370-375.
- Noakes, T.D. 2007. The limits of human endurance: What is the greatest endurance performance of all time? Which factors regulate performance at extreme altitude? *Adv Exp Med Biol* 618:255-276.
- Nose, H., G.W. Mack, X. Shi, and E.R. Nadel. 1988. Role of osmolality and plasma volume during rehydration in humans. *J Appl Physiol* 65:325-331.
- Notivol, R., I. Carrio, L. Cano, M. Estorch, and F. Vilardell. 1984. Gastric emptying of solid and liquid meals in healthy young subjects. *Scand J Gastroenterol* 19 (8): 1107-1113.
- Odland, L.M., G.J.F. Heigenhauser, G.D. Lopaschuk, and L.L. Spriet. 1996. Human skeletal muscle malonyl-COA at rest and during prolonged submaximal exercise. *Am J Physiol* 270:E541-E544.
- Odland, L.M., R.A. Howlett, G.J. Heigenhauser, E. Hultman, and L.L. Spriet. 1998. Skeletal muscle malonyl-COA content at the onset of exercise at varying power outputs in humans. *Am J Physiol* 274 (6 pt 1): E1080-E1085.
- Oostenbrug, G.S., R.P. Mensink, T. De Vries, M.R. Hardeman, F. Brouns, and G. Hornstra. 1997. Exercise performance, red blood cell characteristics and lipid peroxidation: Effect of fish oil and vitamin E. *J Appl Physiol* 83 (3): 746-752.
- Oppliger, R.A., D.H. Nielsen, C.G. Vance. 1991. Wrestlers' minimal weight: Anthropometry, bioimpedance, and hydrostatic weighing compared. *Med Sci Sports Exerc* 23 (2): 247-253.
- Oppliger, R.A., H.S. Case, C.A. Horswill, et al. 1996. American College of Sports Medicine position stand. Weight loss in wrestlers. *Med Sci Sports Exerc* 28 (6): ix-xii.
- Oscaï, L.B., D.A. Essig, and W.K. Palmer. 1990. Lipase regulation of muscle triglyceride hydrolysis. *J Appl Physiol* 69 (5): 1571-1577.
- Packer, L. 1997. Oxidants, antioxidant nutrients and the athlete. *J Sports Sci* 15:353-363.
- Paddon-Jones, D., A. Keech, and D. Jenkins. 2001. Short-term beta-hydroxy-beta-methylbutyrate supplementation does not reduce symptoms of eccentric muscle damage. *Int J Sport Nutr Exerc Metab* 11 (4): 442-450.
- Paddon-Jones, D., E. Westman, R.D. Mattes, R.R. Wolfe, A. Astrup, and M. Westerterp-Plantenga. 2008. Protein, weight management, and satiety. *Am J Clin Nutr* 87 (5): 1558S-1561S.
- Pagala, M.K., T. Namba, and D. Grob. 1984. Failure of neuromuscular transmission and contractility during muscle fatigue. *Muscle Nerve* 7 (6): 454-464.
- Pan, D.A., S. Lillioja, A.D. Kriketos, M.R. Milner, L.A. Baur, C. Bogardus, A.B. Jenkins, and L.H. Storlien. 1997. Skeletal muscle triglyceride levels are inversely related to insulin action. *Diabetes* 46:983-988.
- Pannemans, D.L.E., A.J.M. Wagenmakers, K.R. Westerterp, G. Schaafsma, and D. Halliday. 1998. Effect of protein source and quantity on protein metabolism in elderly women. *Am J Clin Nutr* 68 (6): 1228-1235.
- Panton, L.B., J.A. Rathmacher, S. Baier, and S. Nissen. 2000. Nutritional supplementation of the leucine metabolite beta-hydroxy-beta-methylbutyrate (Hmb) during resistance training. *Nutrition* 16 (9): 734-739.
- Papet, I., P. Ostaszewski, F. Glomot, C. Obled, M. Faure, G. Bayle, S. Nissen, M. Arnal, and J. Grizard. 1997. The effect of a high dose of 3-hydroxy-3-methylbutyrate on protein metabolism in growing lambs. *Br J Nutr* 77 (6): 885-896.
- Parry-Billings, M., R. Budgett, Y. Koutedakis, E. Blomstrand, S. Brooks, C. Williams, P.C. Calder, S. Pilling, R. Baigrie, and E.A. Newsholme. 1992. Plasma amino acid concentrations in

- the overtraining syndrome: Possible effects on the immune system. *Med Sci Sports Exerc* 24 (12): 1353-1358.
- Pasman, W.J., M.A. van Baak, A.E. Jeukendrup, and A. deHaan. 1995. The effect of varied dosages of caffeine on endurance performance time. *Int J Sports Med* 16 (4): 225-230.
- Patton, G.C., R. Selzer, C. Coffey, J.B. Carlin, and R. Wolfe. 1999. Onset of adolescent eating disorders: population based cohort study over 3 years. *Br Med J* 318 (7186):765-768.
- Pedersen, B.K., and H. Bruunsgaard. 1995. How physical exercise influences the establishment of infections. *Sports Med* 19:393-400.
- Pedersen, B.K., J. Helge, E. Richter, T. Rhode, K. Ostrowski, and B. Kiens. 2000. Training and natural immunity: Effects of diets rich in fat or carbohydrate. *Eur J Appl Physiol* 82:98-102.
- Pedersen, D.J., S.J. Lessard, V.G. Coffey, E.G. Churchley, A.M. Woottton, T. Ng, M.J. Watt, and J.A. Hawley. 2008. High rates of muscle glycogen resynthesis after exhaustive exercise when carbohydrate is coingested with caffeine. *J Appl Physiol* 105 (1): 7-13.
- Pendergast, D.R., P.J. Horvath, J.J. Leddy, and J.T. Venkatraman. 1996. The role of dietary fat on performance, metabolism and health. *Am J Sports Med* 24 (6): S53-S58.
- Perusse, L., and C. Bouchard. 2000. Gene-diet interactions in obesity. *Am J Clin Nutr* 72 (5 suppl): 1285S-1290S.
- Peters, E.M., J.M. Goetzsche, B. Grobbelaar, and T.D. Noakes. 1993. Vitamin C supplementation reduces the incidence of post-race symptoms of upper respiratory tract in ultramarathon runners. *Am J Clin Nutr* 57:170-174.
- Peters, E.M., and E.D. Bateman. 1983. Ultramarathon running and URTI: An epidemiological survey. *S Afr Med J* 64:582-584.
- Peters, E.M., and J.M. Goetzsche. 1997. Dietary practices of South African ultradistance athletes. *Int J Sport Nutr* 7:80-103.
- Peters, E.M., J.M. Goetzsche, L.E. Joseph, and T.D. Noakes. 1996. Vitamin C as effective as combinations of anti-oxidant nutrients in reducing symptoms of upper respiratory tract infections in ultramarathon runners. *S Afr J Sports Med* 11:23-27.
- Peyrebrune, M.C., M.E. Nevill, F.J. Donaldson, and D.J. Cosford. 1998. The effects of oral creatine supplementation on performance in single and repeated sprint swimming. *J Sports Sci* 16 (3): 271-279.
- Phillips, S.M., K.D. Tipton, A. Aarsland, S.E. Wolf, and R.R. Wolfe. 1997. Mixed muscle protein synthesis and breakdown after resistance exercise in humans. *Am J Physiol* 273 (1 pt 1): E99-E107.
- Phillips, S.M., K.D. Tipton, A.A. Ferrando, and R.R. Wolfe. 1999. Resistance training reduces the acute exercise-induced increase in muscle protein turnover. *Am J Physiol* 276 (1 pt 1): E118-E124.
- Phinney, S.D., B.R. Bistrian, R.R. Wolfe, and G.L. Blackburn. 1983a. The human metabolic response to chronic ketosis without caloric restriction: Physical and biochemical adaptation. *Metabolism* 32 (8): 757-768.
- Phinney, S.D., B.R. Bistrian, W.J. Evans, E. Gervino, and G.L. Blackburn. 1983b. The human metabolic response to chronic ketosis without caloric restriction: Preservation of submaximal exercise capability with reduced carbohydrate oxidation. *Metabolism* 32 (9): 769-776.
- Phinney, S.D., E.S. Horton, E.A.H. Sims, J.S. Hanson, E. Danforth, and B.M. LaGrange. 1980. Capacity for moderate exercise in obese subjects after adaptation to a hypocaloric, ketogenic diet. *J Clin Invest* 66:1152-1161.
- Phoenix, J., R.H. Edwards, and M.J. Jackson. 1991. The effect of vitamin E analogues and long hydrocarbon chain compounds on calcium-induced muscle damage: A novel role for alpha-tocopherol? *Biochimica Biophysica Acta* 1097:212-218.
- Pilegaard, H., C. Keller, A. Steensberg, J.W. Helge, B.K. Pedersen, B. Saltin, and P.D. Neufer. 2002. Influence of pre-exercise muscle glycogen content on exercise-induced transcriptional regulation of metabolic genes. *J Physiol* 541:261-271.
- Pilegaard, H., B. Saltin, and P.D. Neufer. 2003. Exercise induces transient transcriptional activation of the PGC-1alpha gene in human skeletal muscle. *J Physiol* 546:851-858.
- Pinchan, G., R.K. Gauttam, O.S. Tomar, and A.C. Babaj. 1988. Effects of primary hypohydration on physical work capacity. *Int J Biometeorol* 32:176-180.
- Pirnay, F., A.J. Scheen, J.F. Gautier, M. Lacroix, and P.J. Lefebvre. 1995. Exogenous glucose oxidation during exercise in relation to the power output. *Int J Sports Med* 16 (7): 456-460.
- Pirnay, F., J.M. Crielaard, N. Pallikarakis, M. Lacroix, F. Mosora, G. Krzentowski, A.S. Luyckx, and P.J. Lefebvre. 1982. Fate of exogenous glucose during exercise of different intensities in humans. *J Appl Physiol* 53:1620-1624.
- Pizza, F.X., J.M. Peterson, J.H. Baas, and T.J. Koh. 2005. Neutrophils contribute to muscle injury and impair its resolution after lengthening contractions in mice. *J Physiol* 562(3):899-913.
- Polivy, J., and C.P. Herman. 1995. Dieting and its relation to eating disorders. In *Eating disorders and obesity: A comprehensive handbook*, ed. K.D. Brownell and C.G. Fairburn, 83-86. London: Guildford Press.
- Pomeroy, C., and S.F. Mitchell. 1992. Medical issues in the eating disorders. In *Eating, body weight and performance in athletes: Disorders of modern society*, ed. K.D. Brownell, J. Rodin, and J.H. Wilmore, 202-221. Philadelphia: Lea & Febiger.
- Poppitt, S.D., and A.M. Prentice. 1996. Energy density and its role in the control of food intake: Evidence from metabolic and community studies. *Appetite* 26 (2), 153-174.
- Posner, B.M., L.A. Cupples, M.M. Franz, and D.R. Gagnon. 1993. Diet and heart disease risk factors in adult American men and women: The Framingham offspring-spouse nutrition studies. *Int J Epidemiol* 22 (6): 1014-1025.
- Potteiger, J.A., G.L. Nickel, M.J. Webster, M.D. Haub, and R.J. Palmer. 1996. Sodium citrate ingestion enhances 30 km cycling performance. *Int J Sports Med* 17 (1): 7-11.
- Pottier, A., J. Bouckaert, W. Gilis, T. Roels, and W. Derave. 2008. Mouth rinse but not ingestion of a carbohydrate solution improves 1-h cycle time trial performance. *Scand J Med Sci Sports*, Nov. 3.
- Powers, S.K., and M.J. Jackson. 2008. Exercise-induced oxidative stress: Cellular mechanisms and impact on muscle force production. *Physiol Rev* 88:1243-1276.
- Powers, S.K., A.N. Kavazis, and J.M. McClung. 2007. Oxidative stress and muscle disuse atrophy. *Journal of Applied Physiology* 102:2389-2397.
- Powers, S.K., R.J. Byrd, R. Tulley, and T. Callender. 1983. Effects of caffeine ingestion on metabolism and performance during graded exercise. *Eur J Appl Physiol* 50:301-307.
- Pujol, P., J. Huguet, F. Drobnic, et al. 2000. The effect of fermented milk containing *Lactobacillus casei* on the immune response to exercise. *Sports Med Train Rehab* 9:209-223.
- Quadrilatero, J., and L. Hoffman-Goetz. 2004. N-acetyl-L-cysteine prevents exercise-induced intestinal lymphocyte apoptosis by maintaining intracellular glutathione levels and

- reducing mitochondrial membrane depolarization. *Biochem Biophys Res Comm* 319:894–901.
- Randle, P.J., P.B. Garland, C.N. Hales, and E.A. Newsholme. 1963. The glucose fatty acid cycle: Its role in insulin sensitivity and the metabolic disturbances of diabetes mellitus. *Lancet* 1:786–789.
- Rankinen, T., L. Perusse, S.J. Weisnagel, et al. 2002. The human obesity gene map: The 2001 update. *Obes Res* 10 (3): 196–243.
- Rasmussen, B.B., E. Volpi, D.C. Gore, and R.R. Wolfe. 2000a. Androstenedione does not stimulate muscle protein anabolism in young healthy men. *J Clin Endocrinol Metab* 85 (1): 55–59.
- Rasmussen, B.B., K.D. Tipton, S.L. Miller, S.E. Wolf, and R.R. Wolfe. 2000b. An oral essential amino acid-carbohydrate supplement enhances muscle protein anabolism after resistance exercise. *J Appl Physiol* 88 (2): 386–392.
- Rehrer, N.J., A.J.M. Wagenmakers, E.J. Beckers, D. Halliday, J.B. Leiper, F. Brouns, R.J. Maughan, K. Westerterp, and W.H.M. Saris. 1992. Gastric emptying, absorption and carbohydrate oxidation during prolonged exercise. *J Appl Physiol* 72 (2): 468–475.
- Rehrer, N.J., E.J. Beckers, F. Brouns, F. ten Hoor, and W.H. Saris. 1990. Effects of dehydration on gastric emptying and gastrointestinal distress while running. *Med Sci Sports Exerc* 22 (6): 790–795.
- Rehrer, N.J., M. van Kemenade, W. Meester, F. Brouns, and W.H.M. Saris. 1992. Gastrointestinal complaints in relation to dietary intake in triathletes. *Int J Sport Nutr* 2:48–59.
- Ren, J.M., C.F. Semenkovich, E.A. Gulve, J. Gao, and J.O. Holloszy. 1994. Exercise induces rapid increases in GLUT4 expression, glucose transport capacity, and insulin-stimulated glycogen storage in muscle. *J Biol Chem* 269 (20): 14396–14401.
- Rennie, M.J., and K.D. Tipton. 2000. Protein and amino acid metabolism during and after exercise and the effects of nutrition. *Annu Rev Nutr* 20:457–483.
- Rennie, M.J., P.A. MacLellan, H.S. Hundal, B. Weryl, K. Smith, P.M. Taylor, C. Egan, and P.W. Watt. 1989. Skeletal muscle glutamine concentration and muscle protein turnover. *Clin Exp* 38:47–51.
- Riley, M.L., R.G. Israel, D. Holbert, E.B. Tapscott, and G.L. Dohm. 1988. Effect of carbohydrate ingestion on exercise endurance and metabolism after 1-day fast. *Int J Sports Med* 9:320–324.
- Robson, P.J., A.K. Blannin, N.P. Walsh, L.M. Castell, and M. Gleeson. 1999. Effects of exercise intensity, duration and recovery on in vitro neutrophil function in male athletes. *Int J Sports Med* 20:128–135.
- Rohde, T., S. Asp, D. Maclean, and B.K. Pedersen. 1998. Competitive sustained exercise in humans, and lymphokine activated killer cell activity—an intervention study. *Eur J Appl Physiol* 78:448–453.
- Rolls, B.J., and E.A. Bell. 1999. Intake of fat and carbohydrate: Role of energy density. *Eur J Clin Nutr* 53 (suppl 1): S166–S173.
- Rolls, B.J., E.A. Bell, V.H. Castellanos, M. Chow, C.L. Pelkman, and M.L. Thorwart. 1999. Energy density but not fat content of foods affected energy intake in lean and obese women. *Am J Clin Nutr* 69 (5): 863–871.
- Romeo, J., J. Warnberg, J. E. Nova, et al. 2007. Moderate alcohol consumption and the immune system. A review. *Br J Nutr* 98 (1): S111–S116.
- Romer, L.M., J.P. Barrington, and A.E. Jeukendrup. 2001. Effects of oral creatine supplementation on high intensity, intermittent exercise performance in competitive squash players. *Int J Sports Med* 22 (8): 546–552.
- Romijn, J.A., E.F. Coyle, L.S. Sidossis, X.-J. Zhang, and R.R. Wolfe. 1995. Relationship between fatty acid delivery and fatty acid oxidation during strenuous exercise. *J Appl Physiol* 79 (6): 1939–1945.
- Romijn, J.A., E.F. Coyle, L.S. Sidossis, A. Gastaldelli, J.F. Horowitz, E. Endert, and R.R. Wolfe. 1993. Regulation of endogenous fat and carbohydrate metabolism in relation to exercise intensity. *Am J Physiol* 265:E380–E391.
- Rontoyannis, G.P., T. Skoulis, and K.N. Pavlou. 1989. Energy balance in ultramarathon running. *Am J Clin Nutr* 49 (5 suppl): 976–979.
- Rosen, L.W., and D.O. Hough. 1988. Pathogenic weight control behaviors of female college gymnasts. *Physician Sports Med* 9:141–144.
- Rosenthal, L.A., D.D. Taub, M.A. Moors, and K.J. Blank. 1992. Methylxanthine-induced inhibition of the antigen- and superantigen-specific activation of T and B lymphocytes. *Immunopharmacol* 24:302–217.
- Ross, S. 2000. Functional foods: The Food and Drug Administration perspective. *Am J Clin Nutr* 71 (6 suppl): 1735S–1738S; discussion 1739S–1742S.
- Rossiter, H.B., E.R. Cannell, and P.M. Jakeman. 1996. The effect of oral creatine supplementation on the 1000-m performance of competitive rowers. *J Sports Sci* 14 (2): 175–179.
- Roth, A., and G. Fonagy. 1998. *What works for whom?* New York: Guildford Press.
- Rucinski, A. 1989. Relationship of body image and dietary intake of competitive ice skaters. *J Am Dietetic Assoc* 89:98–100.
- Rueda, R. 2007. The role of dietary gangliosides on immunity and the prevention of infection. *Br J Nutr* 98:S68–S73.
- Sabatini, S. 2001. The female athlete triad. *Am J Med Sci* 322:193–195.
- Saltin, B. 1973. Metabolic fundamentals in exercise. *Med Sci Sports Exerc* 5:137–146.
- Saltin, B., A.P. Gagge, and J.A.J. Stolwijk. 1968. Muscle temperature during submaximal exercise in man. *J Appl Physiol* 25:679–688.
- Sandage, B.W., R.N. Sabounjian, R. White, and R.J. Wurtman. 1992. Choline citrate may enhance athletic performance. *Physiologist* 35:236A.
- Saris, W.H.M., B.H. Goodpaster, A.E. Jeukendrup, F. Brouns, D. Halliday, and A.J.M. Wagenmakers. 1993. Exogenous carbohydrate oxidation from different carbohydrate sources during exercise. *J Appl Physiol* 75:2168–2172.
- Saris, W.H.M., M.A. van Erp-Baart, F. Brouns, K.R. Westerterp, and F. ten Hoor. 1989. Study on food intake and energy expenditure during extreme sustained exercise: The Tour de France. *Int J Sports Med* 10 (1 suppl): S26–S31.
- Sarna, S., and J. Kaprio. 1994. Life expectancy of former elite athletes. *Sports Med* 17 (3): 49–51.
- Sasaki, H., J. Maeda, S. Usui, and T. Ishiko. 1987. Effect of sucrose and caffeine ingestion on performance of prolonged strenuous running. *Int J Sports Med* 8:261–265.
- Saunders, M.J., M.D. Kane, and M.K. Todd. 2004. Effects of a carbohydrate-protein beverage on cycling endurance and muscle damage. *Med Sci Sports Exerc* 36 (7): 1233–1238.
- Saunders, M.J., N.D. Luden, and J.E. Herrick. 2007. Consumption of an oral carbohydrate-protein gel improves cycling endurance and prevents postexercise muscle damage. *J Strength Cond Res* 21 (3): 678–684.
- Saunders, M.J., J.E. Blevins, and C.E. Broeder. 1998. Effects of hydration changes on bioelectrical impedance in endurance trained individuals. *Med Sci Sports Exerc* 30 (6): 885–892.

- Sawka, M.N., A.J. Young, B.S. Cadarette, L. Levine, and K.B. Pandolf. 1985a. Influence of heat stress and acclimation on maximal aerobic power. *Eur J Appl Physiol* 53:294–298.
- Sawka, M.N., A.J. Young, R.P. Francesconi, S.R. Muza, and K.B. Pandolf. 1985b. Thermoregulatory and blood responses during exercise at graded hypohydration levels. *J Appl Physiol* 59:1394–1401.
- Sawka, M.N., A.J. Young, W.A. Latzka, P.D. Neufer, M.D. Quigley, and K.B. Pandolf. 1992. Human tolerance to heat strain during exercise: Influence of hydration. *J Appl Physiol* 73:368–375.
- Sawka, M.N., and C.B. Wenger. 1988. Physiological responses to acute-exercise heat stress. In *Human performance physiology and environmental medicine at terrestrial extremes*, ed. K. Pandolf. 1–38. Indianapolis, IN: Benchmark Press.
- Sawka, M.N., and K.B. Pandolf. 1990. Effects of body water loss on physiological function and exercise performance. In *Perspectives in exercise science and sports medicine*, Vol. 3, ed. C.V. Gisolfi and D.R. Lamb, 1–38. Benchmark Press: Carmel, IN.
- Sawka, M.N., and S.J. Montain. 2000. Fluid and electrolyte supplementation for exercise heat stress. *Am J Clin Nutr* 72 (2): 564S–572S.
- Schlundt, D.G., J.O. Hill, J. Pope-Cordle, et al. 1993. Randomized evaluation of a low fat ad libitum carbohydrate diet for weight reduction. *Int J Obes Relat Metab Disord* 17 (11): 623–629.
- Schoeller, D.A., E. Ravussin, Y. Schutz, K.J. Acheson, P. Baertschi, and E. Jequier. 1986. Energy expenditure by doubly labeled water: Validation in humans and proposed calculation. *Am J Physiol* 250 (5 pt 2): R823–R830.
- Schoffelen, P.F., K.R. Westerterp, W.H.M. Saris, and F. ten Hoor. 1997. A dual respiration chamber system with automated calibration. *J Appl Physiol* 83:2064–2072.
- Scott, J.W., F.A. Ross, J.K. Liu, and D.G. Hardie. 2007. Regulation of AMP-activated protein kinase by a pseudosubstrate sequence on the gamma subunit. *EMBO J* 26:806–815.
- Sears, B. 1995. *The zone: A dietary road map*. New York: Harper Collins.
- Segura, R., and J.L. Ventura. 1988. Effect of L-tryptophan supplementation on exercise performance. *Int J Sports Med* 9:301–305.
- Seidell, J.C. 1997. Time trends in obesity: An epidemiological perspective. *Horm Metab Res* 29 (4): 155–158.
- Seidell, J.C. 1998. Dietary fat and obesity: An epidemiologic perspective. *Am J Clin Nutr* 67 (3 suppl): 546S–550S.
- Senate Select Committee on Nutrition and Human Needs. 1977. *Dietary goals for the United States*. Washington: U.S. Government Printing Office.
- Shephard, R.J. 1997. *Physical activity, training and the immune response*. Carmel, IN: Cooper.
- Sheppard, L., A.R. Kristal, and L.H. Kushi. 1991. Weight loss in women participating in a randomized trial of low-fat diets. *Am J Clin Nutr* 54 (5): 821–828.
- Sherman, W.M., and D.L. Costill. 1984. The marathon: Dietary manipulation to optimize performance. *Am J Sports Med* 12 (1): 44–51.
- Sherman, W.M., D.L. Costill, W.J. Fink, and J.M. Miller. 1981. The effect of exercise and diet manipulation on muscle glycogen and its subsequent utilization during performance. *Int J Sports Med* 2:114–118.
- Sherman, W.M., J.A. Doyle, D.R. Lamb, and R.H. Strauss. 1993. Dietary carbohydrate, muscle glycogen, and exercise performance during 7 d of training. *Am J Clin Nutr* 57:27–31.
- Shi, X., R.W. Summers, H.P. Schedl, S.W. Flanagan, R. Chang, and C.V. Gisolfi. 1995. Effects of carbohydrate type and concentration and solution osmolality on water absorption. *Med Sci Sports Exerc* 27 (12): 1607–1615.
- Shils, M.E., J.A. Olson, M. Shike, and A.C. Ross. 1999. *Modern nutrition in health and disease*, 9th ed. Baltimore: Williams & Wilkins.
- Shirreffs, S.M., A.J. Taylor, J.B. Leiper, and R.J. Maughan. 1996. Post-exercise rehydration in man: Effects of volume consumed and drink sodium content. *Med Sci Sports Exerc* 28:1260–1271.
- Shirreffs, S.M., and R.J. Maughan. 1998. Volume repletion following exercise-induced volume depletion in man: Replacement of water and sodium losses. *Am J Physiol* 274:F868–F875.
- Shirreffs, S.M., and R.J. Maughan. 2000. Rehydration and recovery of fluid balance after exercise. *Exer Sports Sci Rev* 28:27–32.
- Shirreffs, S.M., and R.J. Maughan. 1997. Restoration of fluid balance after exercise-induced dehydration: Effects of alcohol consumption. *J Appl Physiol* 83:1152–1157.
- Sidossis, L.S., A. Gastaldelli, S. Klein, and R.R. Wolfe. 1997. Regulation of plasma fatty acid oxidation during low- and high-intensity exercise. *Am J Physiol* 272:E1065–1070.
- Silva, A.C., M.S. Santos-Neto, A.M. Soares, M.C. Fonteles, R.L. Guerrant, and A.A. Lima. 1998. Efficacy of a glutamine-based oral rehydration solution on the electrolyte and water absorption in a rabbit model of secretory diarrhea induced by cholera toxin [see comments]. *J Pediatr Gastroenterol Nutr* 26 (5): 513–519.
- Simi, B., B. Sempore, M.-H. Mayet, and R.J. Favier. 1991. Additive effects of training and high-fat diet on energy metabolism during exercise. *J Appl Physiol* 71 (1): 197–203.
- Simonsen, J.C., W.M. Sherman, D.R. Lamb, A.R. Dernbach, J.A. Doyle, and R. Strauss. 1991. Dietary carbohydrate, muscle glycogen, and power output during rowing training. *J Appl Physiol* 70:1500–1505.
- Singh, A., M.L. Failla, and P.A. Deuster. 1994. Exercise-induced changes in immune function: Effects of zinc supplementation. *J Appl Physiol* 76:2298–2301.
- Singh, R.B., M.A. Niaz, S. Ghosh, R. Beegom, P. Agarwal, S. Nangia, M. Moshiri, and E.D. Janus. 1998. Low fat intake and coronary artery disease in a population with higher prevalence of coronary artery disease: The Indian paradox. *J Am Coll Nutr* 17 (4): 342–350.
- Siri, W.E. 1956. The gross composition of the body. *Adv Biol Med Physiol* 4:239–280.
- Sirrs, S.M., and R.A. Bebb. 1999. DHEA: Panacea or snake oil? *Can Fam Physician* 45:1723–1728.
- Sjodin, A.M., A.B. Andersson, J.M. Hogberg, and K.R. Westerterp. 1994. Energy balance in cross-country skiers: A study using doubly labeled water. *Med Sci Sports Exerc* 26 (6): 720–724.
- Slater, G., D. Jenkins, P. Logan, H. Lee, M. Vukovich, J.A. Rathmacher, and A.G. Hahn. 2001. Beta-hydroxy-beta-methylbutyrate (hmb) supplementation does not affect changes in strength or body composition during resistance training in trained men. *Int J Sport Nutr Exerc Metab* 11 (3): 384–396.
- Snow-Harter, C.M. 1994. Bone health and prevention of osteoporosis in active and athletic women. *Clin Sport Med* 13:389–404.
- Snyder, A.C., H. Kuipers, B. Cheng, R. Servais, and E. Fransen. 1995. Overtraining following intensified training with normal muscle glycogen. *Med Sci Sports Exerc* 27:1063–1070.
- Snyder, A.C., K.P. O'Hagan, P.S. Clifford, et al. 1993. Exercise responses to in-line skating: Comparisons to running and cycling. *Int J Sports Med* 14 (1): 38–42.

- Sole, C.C., and T.D. Noakes. 1989. Faster gastric emptying for glucose-polymer and fructose solutions than for glucose in humans. *Eur J Appl Physiol* 58:605–612.
- Spector, S.A., M.R. Jackman, L.A. Sabounjian, C. Sakkas, D.M. Landers, and W.T. Willis. 1995. Effect of choline supplementation on fatigue in trained cyclists. *Med Sci Sports Exerc* 27 (5): 668–673.
- Spriet, L.L. 1991. Phosphofructokinase activity and acidosis during short-term tetanic contractions. *Can J Physiol Pharmacol* 69:298–304.
- Spriet, L.L. 1995. Anaerobic metabolism during high-intensity exercise. In *Exercise metabolism*, ed. M. Hargreaves, 1–39. Champaign, IL: Human Kinetics.
- Spriet, L.L. 1995. Caffeine and performance. *Int J Sports Nutr* 5:S84–S99.
- Spriet, L.L., D.A. MacLean, D.J. Dyck, E. Hultman, G. Cedernblad, and T.E. Graham. 1992. Caffeine ingestion and muscle metabolism during prolonged exercise in humans. *Am J Physiol* 262, E891–E898.
- Spurr, G.B., A.M. Prentice, P.R. Murgatroyd, G.R. Goldberg, J.C. Reina, and N.T. Christman. 1988. Energy expenditure from minute-by-minute heart-rate recording: Comparison with indirect calorimetry. *Am J Clin Nutr* 48:552–559.
- St-Pierre, J., J.A. Buckingham, S.J. Roebuck, and M.D. Brand. 2002. Topology of superoxide production from different sites in the mitochondrial electron transport chain. *J Biol Chem* 277: 44784–44790.
- Stanko, R.T., R.J. Robertson, R.J. Spina, J.J. Reilly, Jr., K.D. Greenawalt, and F.L. Goss. 1990a. Enhancement of arm exercise endurance capacity with dihydroxyacetone and pyruvate. *J Appl Physiol* 68 (1): 119–124.
- Stanko, R.T., R.J. Robertson, R.W. Galbreath, J.J. Reilly, K.D. Greenawalt, and F.L. Goss. 1990b. Enhanced leg exercise endurance with a high-carbohydrate diet and dihydroxyacetone and pyruvate. *J Appl Physiol* 69 (5): 1651–1656.
- Starling, R.D., T.A. Trappe, K.R. Short, M. Sheffield-Moore, A.C. Jozsi, W.J. Fink, and D.L. Costill. 1996. Effect of inosine supplementation on aerobic and anaerobic cycling performance. *Med Sci Sports Exerc* 28 (9): 1193–1198.
- Starratt, E.C., R.A. Howlett, G.J. Heigenhauser, and L.L. Spriet. 2000. Sensitivity of CPT I tomalonyl-COA in trained and untrained human skeletal muscle. *Am J Physiol Endocrinol Metab* 278 (3): E462–E468.
- Stearns, D.M., J.J. Belbruno, and K.E. Wetterhahn. 1995. A prediction of chromium (III) accumulation in humans from chromium dietary supplements. *FASEB J* 9 (15): 1650–1657.
- Stearns, D.M., Sr., J.P. Wise, S.R. Patierno, and K.E. Wetterhahn. 1995. Chromium (III) picolinate produces chromosome damage in Chinese hamster ovary cells. *FASEB J* 9 (15): 1643–1648.
- Steensberg, A., C. Keller, T. Hillig, C. Fresig, J.F. Wojtaszewski, B.K. Pedersen, H. Pilegaard, and M. Sander. 2007. Nitric oxide production is a proximal signalling event controlling exercise-induced mRNA expression in human skeletal muscle. *FASEB J* 21 (11): 2683–2694.
- Stellingwerff, T., L.L. Spriet, M.J. Watt, N.E. Kimber, M. Hargreaves, J.A. Hawley, and L.M. Burke. 2006. Decreased PDH activation and glycogenolysis during exercise following fat adaptation with carbohydrate restoration. *Am J Physiol Endocrinol Metab* 290 (2): E380–388.
- Stensrud, T., F. Ingier, H. Holm, and S.B. Strømme. 1992. L-tryptophan supplementation does not improve running performance. *Int J Sports Med* 13 (6): 481–485.
- Stephens, F.B., D. Constantin-Teodosiu, and P.L. Greenhaff. 2007a. New insights concerning the role of carnitine in the regulation of fuel metabolism in skeletal muscle. *J Physiol* 581 (Pt 2): 431–444.
- Stephens, F.B., D. Constantin-Teodosiu, D. Laithwaite, E.J. Simpson, and P.L. Greenhaff. 2006. Insulin stimulates L-carnitine accumulation in human skeletal muscle. *FASEB J* 20 (2): 377–379.
- Stephens, F.B., D. Constantin-Teodosiu, D. Laithwaite, E.J. Simpson, and P.L. Greenhaff. 2007b. A threshold exists for the stimulatory effect of insulin on plasma L-carnitine clearance in humans. *Am J Physiol Endocrinol Metab* 292 (2): E637–641.
- Stephens, F.B., C.E. Evans, D. Constantin-Teodosiu, and P.L. Greenhaff. 2007c. Carbohydrate ingestion augments L-carnitine retention in humans. *J Appl Physiol* 102 (3): 1065–1070.
- Stewart, I., L. McNaughton, P. Davies, and S. Tristram. 1990. Phosphate loading and the effects on  $\dot{V}\text{O}_{2\text{max}}$  in trained cyclists. *Res Q Exerc Sport* 61 (1): 80–84.
- Stoecker, B.J. 1996. Chromium. In *Present knowledge in nutrition*, ed. E.E. Ziegler and L.J. Filer, 344–353. Washington, DC: ILSI Press.
- Stolarszyk, L.M., V.H. Heyward, M.D. Van Loan, et al. 1997. The fatness-specific bioelectrical impedance analysis equations of Segal et al.: Are they generalizable and practical? *Am J Clin Nutr* 66 (1): 8–17.
- Stubbs, R.J., C.J. Habron, P.R. Murgatroyd, and A.M. Prentice. 1995a. Covert manipulation of dietary fat and energy density: Effect on substrate flux and food intake in men eating ad libitum. *Am J Clin Nutr* 62:316–329.
- Stubbs, R.J., C.J. Harbron, and A.M. Prentice. 1996. Covert manipulation of the dietary fat to carbohydrate ratio of isoenergetically dense diets: Effect on food intake in feeding men ad libitum. *Int J Obes Relat Metab Disord* 20 (7): 651–660.
- Stubbs, R.J., P. Ritz, W.A. Coward, and A.M. Prentice. 1995b. Covert manipulation of the ratio of dietary fat to carbohydrate and energy density: Effect on food intake and energy balance in free-living men eating ad libitum. *Am J Clin Nutr* 62 (2): 330–337.
- Sundgot-Borgen, J. 2000. Eating disorders in athletes. In *Nutrition in sport*, ed. R.J. Maughan, 510–522. Oxford: Blackwell Science.
- Sundgot-Borgen, J. 1994a. Eating disorders in female athletes. *Sports Med* 3:176–188.
- Sundgot-Borgen, J. 1994b. Risk and trigger factors for the development of eating disorders in female elite athletes. *Med Sci Sports Exerc* 4:414–419.
- Sundgot-Borgen, J., and S. Larsen. 1993. Pathogenic weight-control methods and self-reported eating disorders in female elite athletes and controls. *Scand J Med Sci Sports* 3:150–155.
- Sutton, J.R., and O. Bar-Or. 1980. Thermal illness in fun running. *Am Heart J* 100:778–781.
- Svensson, M., C. Malm, M. Tonkonogi, B. Ekblom, B. Sjödin, and K. Sahlin. 1999. Effect of Q10 supplementation on tissue Q10 levels and adenine nucleotide catabolism during high-intensity exercise. *Int J Sport Nutr* 9 (2): 166–180.
- Swensen, T., G. Crater, D.R. Bassett, Jr., and E.T. Howley. 1994. Adding polylactate to a glucose polymer solution does not improve endurance. *Int J Sports Med* 15 (7): 430–434.
- Tang, J.E., J.W. Hartman, and S.M. Phillips. 2006. Increased muscle oxidative potential following resistance training induced fibre hypertrophy in young men. *Appl Physiol Nutr Metab* 31 (5): 495–501.
- Tappy, L. 1996. Thermic effect of food and sympathetic nervous system activity in humans. *Reprod Nutr Dev* 36 (4): 391–397.
- Tarnopolsky, M.A., S.A. Atkinson, S.M. Phillips, and J.D. MacDougall. 1995. Carbohydrate loading and metabolism during

- exercise in men and women. *J Appl Physiol* 78 (4): 1360-1368.
- Tarnopolsky, M.A., M. Bosman, J.R. MacDonald, D. Vandepitte, J. Martin, and B.D. Roy. 1997. Post-exercise protein-carbohydrate and carbohydrate supplements increase muscle glycogen in men and women. *J Appl Physiol* 83 (6): 1877-1883.
- Tarnopolsky, M.A., S.A. Atkinson, J.D. McDougall, D.G. Sale, and J.R. Sutton. 1989. Physiological responses to caffeine during endurance running in habitual caffeine users. *Med Sci Sports Exerc* 21 (4): 418-424.
- Terada, S., M. Goto, M. Kato, K. Kawanaka, T. Shimokawa, and I. Tabata. 2002. Effects of low-intensity prolonged exercise on PGC-1 mRNA expression in rat epitrochlearis muscle. *Biochem Biophys Res Commun* 296:350-354.
- Terada, S., K. Kawanaka, M. Goto, T. Shimokawa, and I. Tabata. 2005. Effects of high-intensity intermittent swimming on PGC-1alpha protein expression in rat skeletal muscle. *Acta Physiol Scand* 184:59-65.
- Terjung, R.L., P. Clarkson, E.R. Eichner, P.L. Greenhaff, P.J. Hespel, R.G. Israel, W.J. Kraemer, R.A. Meyer, L.L. Spriet, M.A. Tarnopolsky, A.J. Wagenmakers, and M.H. Williams. 2000. American College of Sports Medicine roundtable. The physiological and health effects of oral creatine supplementation. *Med Sci Sports Exerc* 32 (3): 706-717.
- Thompson, R.A., and R. Trattner-Sherman. 1993. *Helping athletes with eating disorders*. Champaign, IL: Human Kinetics.
- Timmons, J.A., S.M. Poucher, D. Constantin-Teodosiu, V. Worrall, I.A. Macdonald, and P.L. Greenhaff. 1996. Increased acetyl group availability enhances contractile function of canine skeletal muscle during ischemia. *J Clin Invest* 97:879-883.
- Tiollier, E., C.D.T.M. Chennaoui, D. Gomez-Merino, et al. 2007. Effect of a probiotics supplementation on respiratory infections and immune and hormonal parameters during intense military training. *Military Med* 172:1006-1011.
- Tippett, K.S., and L.E. Cleveland, eds. 1999. How current diets stack up: Comparison with dietary guidelines. Agriculture Information Bulletin no. 750, 51-70. Washington, DC: United States Department of Agriculture, Economic Research Service.
- Tipton, C.M., and R.A. Oppiger. 1993. Nutritional and fitness considerations for competitive wrestlers. *World Rev Nutr Diet* 71:84-96.
- Tipton, K.D., T.A. Elliott, M.G. Cree, A.A. Aarsland, A.P. Sanford, and R.R. Wolfe. 2007. Stimulation of net muscle protein synthesis by whey protein ingestion before and after exercise. *Am J Physiol Endocrinol Metab* 292 (1): E71-76.
- Tipton, K.D., A.A. Ferrando, S.M. Phillips, D. Doyle, Jr., and R.R. Wolfe. 1999. Postexercise net protein synthesis in human muscle from orally administered amino acids. *Am J Physiol* 276 (4 pt 1): E628-634.
- Tipton, K.D., B.B. Rasmussen, S.L. Miller, S.E. Wolf, S.K. Owens-Stovall, B.E. Petri, and R.R. Wolfe. 2001. Timing of amino acid-carbohydrate ingestion alters anabolic response of muscle to resistance exercise. *Am J Physiol Endocrinol Metab* 281 (2): E197-206.
- Toner, M.M., D.T. Kirkendall, D.J. Delio, J.M. Chase, P.A. Cleary, and E.L. Fox. 1982. Metabolic and cardiovascular responses to exercise with caffeine. *Ergonomics* 25:1175-1183.
- Touyz, S.W., P.J.V. Beumont, and S. Hook. 1987. Exercise anorexia: A new dimension in anorexia nervosa? *Handbook of Eating Disorders* 1:143-157.
- Trappe, T.A., F. White, C.P. Lambert, D. Cesar, M. Hellerstein, and W.J. Evans. 2002. Effect of ibuprofen and acetaminophen on postexercise muscle protein synthesis. *Am J Physiol Endocrinol Metab* 282:E551-556.
- Tremblay, M.S., S.D. Galloway, and J.R. Sexsmith. 1994. Ergogenic effects of phosphate loading: Physiological fact or methodological fiction? *Can J Appl Physiol* 19 (1): 1-11.
- Tsintzas, K., and C. Williams. 1998. Human muscle glycogen metabolism during exercise: Effect of carbohydrate supplementation. *Sports Med* 25 (1): 7-23.
- Tsintzas, O.K., C. Williams, L. Boobis, and P. Greenhaff. 1995. Carbohydrate ingestion and glycogen utilisation in different muscle fibre types in man. *J Physiol* 489 (1): 243-250.
- Turcotte, L.P., E.A. Richter, and B. Kiens. 1995. Lipid metabolism during exercise. In *Exercise metabolism*, ed. M. Hargreaves, 99-130. Champaign, IL: Human Kinetics.
- U.S. Department of Agriculture, Agricultural Research Service. 2007. *Nutrient intakes from food: Mean amounts and percentages of calories from protein, carbohydrate, fat, and alcohol, one day, 2003-2004*. Available: [www.ars.usda.gov/ba/bhnrc/fsrg](http://www.ars.usda.gov/ba/bhnrc/fsrg).
- U.S. Department of Agriculture. 1991. United States Nutrition Labeling and Education Act of 1990. *Nutr Rev* 49:273-276.
- U.S. Department of Agriculture. 2000. *Dietary guidelines for Americans*, 2000. Available: [www.usda.gov/cnpp/Pubs/DG2000/Index.htm](http://www.usda.gov/cnpp/Pubs/DG2000/Index.htm).
- U.S. Department of Agriculture. 2003. *USDA national nutrient database for standard reference (release 16)*. Available: [www.nal.usda.gov/fnic/foodcomp/Data/index.html](http://www.nal.usda.gov/fnic/foodcomp/Data/index.html).
- Van der Meulen, J.H., A. McArdle, M.J. Jackson, and J.A. Faulkner. 1997. Contraction-induced injury to the extensor digitorum longus muscles of rats: The role of vitamin E. *J Appl Physiol* 83:817-823.
- van Erp-Baart, A.M.J., W.H.M. Saris, R.A. Binkhorst, J.A. Vos, and J.W.H. Elvers. 1989a. Nationwide survey on nutritional habits in elite athletes. Part I: Energy carbohydrate, protein. *Int J Sports Med* 10 (suppl 1): S3-S10.
- van Erp-Baart, A.M.J., W.H.M. Saris, R.A. Binkhorst, J.A. Vos, and J.W.H. Elvers. 1989b. Nationwide survey on nutritional habits in elite athletes. Part II: Mineral and vitamin intake. *Int J Sports Med* 10 (1): S11-S16.
- van Essen, M.J., and M.J. Gibala. 2006. Failure of protein to improve time trial performance when added to a sports drink. *Med Sci Sports Exerc* 38 (8): 1476-1483.
- Van Etten, L.M., F.T. Verstappen, and K.R. Westerterp. 1994. Effect of body build on weight-training-induced adaptations in body composition and muscular strength. *Med Sci Sports Exerc* 26 (4): 515-521.
- Van Hall, G., J.S.H. Raaymakers, W.H.M. Saris, and A.J.M. Wagenmakers. 1995. Ingestion of branched-chain amino acids and tryptophan during sustained exercise in man: Failure to affect performance. *J Physiol* 486 (3): 789-794.
- Van Loon, M.D., N.L. Keim, K. Berg, et al. 1995. Evaluation of body composition by dual energy X-ray absorptiometry and two different software packages. *Med Sci Sports Exerc* 27 (4): 587-591.
- van Loon, L.J., P. Greenhaff, D. Constantin-Teodosiu, W.H. Saris, and A.J. Wagenmakers. 2001. The effects of increasing exercise intensity on muscle fuel utilisation in humans. *J Physiol* 536 (Pt 1): 295-304.
- van Loon, L.J., W.H. Saris, M. Kruijshoop, and A.J. Wagenmakers. 2000. Maximizing postexercise muscle glycogen synthesis: Carbohydrate supplementation and the application of amino acid or protein hydrolysate mixtures. *Am J Clin Nutr* 72 (1): 106-111.
- Van Nieuwenhoven, M.A., R.-J.M. Brummer, and F. Brouns. 2000. Gastrointestinal function during exercise: Comparison of water, sports drink, and sports drink with caffeine. *J Appl Physiol* 89 (3): 1079-1085.

- van Oort, M.M., J.M. van Doorn, A. Bonen, J.F.C. Glatz, D.J. van der Horst, K.W. Rodenburg, and J.J.F.P. Luiken. 2008. Insulin-induced translocation of CD36 to the plasma membrane is reversible and shows similarity to that of GLUT4. *Biochim Biophys Acta* 1781 (1-2): 61-71.
- Van Soeren, M.H., and T.E. Graham. 1998. Effect of caffeine on metabolism, exercise endurance, and catecholamine responses after withdrawal. *J Appl Physiol* 85 (4): 1493-501.
- Van Soeren, M.H., P. Sathasivam, L.L. Spriet, and T.E. Graham. 1993. Caffeine metabolism and epinephrine responses during exercise in users and nonusers. *J Appl Physiol* 75 (2): 805-812.
- Van Thienen, R., K. Van Proeyen, B. Vanden Eynde, J. Puype, T. Lefere, and P. Hespel. 2009. Beta-alanine improves sprint performance in endurance cycling. *Med Sci Sports Exerc* 41 (4): 898-903.
- Van Zeyl, C.G., E.V. Lambert, J.A. Hawley, T.D. Noakes, and S.C. Dennis. 1996. Effects of medium-chain triglyceride ingestion on carbohydrate metabolism and cycling performance. *J Appl Physiol* 80:2217-2225.
- Vandenberghe, K., M. Goris, P. Van Hecke, M. Van Leemputte, L. Vangerven, and P. Hespel. 1997. Long-term creatine intake is beneficial to muscle performance during resistance training. *J Appl Physiol* 83 (6): 2055-2063.
- Varnier, M., P. Sarto, D. Martines, L. Lora, F. Carmignoto, G.P. Leese, and R. Naccarato. 1994. Effect of infusing branched-chain amino acid during incremental exercise with reduced muscle glycogen content. *Eur J Appl Physiol* 69 (1): 26-31.
- Venables, M.C., L. Shaw, A.E. Jeukendrup, A. Roedig-Penman, M. Finke, R.G. Newcombe, J. Parry, and A.J. Smith. 2005. Erosive effect of a new sports drink on dental enamel during exercise. *Med Sci Sports Exerc* 37 (1): 39-44.
- Vergauwen, L., F. Brouns, and P. Hespel. 1998. Carbohydrate supplementation improves stroke performance in tennis. *Med Sci Sports Exerc* 30 (8): 1289-1295.
- Verma, S., M.C. Cam, and J.H. McNeill. 1998. Nutritional factors that can favorably influence the glucose/insulin system: Vanadium. *J Am Coll Nutr* 17:11-18.
- Vist, G.E., and R.J. Maughan. 1994. Gastric emptying of ingested solutions in man: Effect of beverage glucose concentration. *Med Sci Sports Exerc* 26 (10): 1269-1273.
- Vist, G.E., and R.J. Maughan. 1995. The effect of osmolality and carbohydrate content on the rate of gastric emptying of liquids in man. *J Physiol* 486 (pt 2): 523-531.
- Volek, J.S., W.J. Kraemer, J.A. Bush, M. Boetes, T. Incledon, K.L. Clark, and J.M. Lynch. 1997. Creatine supplementation enhances muscular performance during high-intensity resistance exercise. *J Am Diet Assoc* 97 (7): 765-770.
- Volek, J.S., R. Silvestre, J.P. Kirwan, M.J. Sharman, D.A. Judelson, B.A. Spiering, J.L. Vingren, C.M. Maresh, J.L. Vanheest, and W.J. Kraemer. 2006. Effects of chromium supplementation on glycogen synthesis after high-intensity exercise. *Med Sci Sports Exerc* 38 (12): 2102-2109.
- Volman, J.J., J.D. Ramakers, and J. Plat. 2008. Dietary modulation of immune function by  $\beta$ -glucans. *Physiol Behav* 94 (2): 276-284.
- Volpe, S.L., L.J. Taper, and S. Meacham. 1993. The relationship between boron and magnesium status and bone mineral density in the human: A review. *Magnes Res* 6 (3): 291-296.
- von Allworden, H.N., S. Horn, J. Kahl, and W. Feldheim. 1993. The influence of lecithin on plasma choline concentrations in triathletes and adolescent runners during exercise. *Eur J Appl Physiol* 67 (1): 87-91.
- Vukovich, M.D., D.L. Costill, M.S. Hickey, S.W. Trappe, K.J. Cole, and W.J. Fink. 1993. Effect of fat emulsion infusion and fat feeding on muscle glycogen utilization during cycle exercise. *J Appl Physiol* 75 (4): 1513-1518.
- Vukovich, M.D., D.L. Costill, and W.J. Fink. 1994. Carnitine supplementation: Effect on muscle carnitine and glycogen content during exercise. *J Appl Physiol* 26 (9): 1122-1129.
- Wachter, S., M. Vogt, R. Kreis, C. Boesch, P. Bigler, H. Hoppele, and S. Krahenbuhl. 2002. Long-term administration of L-carnitine to humans: Effect on skeletal muscle carnitine content and physical performance. *Clin Chim Acta* 318 (1-2): 51-61.
- Wagenmakers, A.J. 1999. Amino acid supplements to improve athletic performance. *Curr Opin Clin Nutr Metab Care* 2 (6): 539-544.
- Wagenmakers, A.J.M. 1999. Nutritional supplements: Effects on exercise performance and metabolism. In *The metabolic basis of performance in exercise and sport*, ed. D.R. Lamb and R. Murray, 209-220. Carmel, IN: Cooper.
- Wagenmakers, A.J.M., E.J. Beckers, F. Brouns, H. Kuipers, P.B. Soeters, G.J. van der Vusse, and W.H.M. Saris. 1991. Carbohydrate supplementation, glycogen depletion, and amino acid metabolism during exercise. *Am J Physiol* 260 (6): E883-E890.
- Wagenmakers, A.J.M., J.H. Brookes, J.H. Coakley, T. Reilly, and R.H.T. Edwards. 1989. Exercise-induced activation of branched-chain 2-oxo acid dehydrogenase in human muscle. *Eur J Appl Physiol* 59:159-167.
- Wagenmakers, A.J.M. 1991. L-carnitine supplementation and performance in man. In *Advances in nutrition and top sport*, ed. F. Brouns, Vol. 32, 110-127. Basel: Karger.
- Wagner, D.R., V.H. Heyward, A.L. Gibson. 2000. Validation of air displacement plethysmography for assessing body composition. *Med Sci Sports Exerc* 32 (7): 1339-1344.
- Wahrenberg, H., J. Bolinder, P. Arner. 1991. Adrenergic regulation of lipolysis in human fat cells during exercise. *Eur J Clin Invest* 21:534-541.
- Walberg, J.L., M.K. Leidy, D.J. Sturgill, D.E. Hinkle, S.J. Ritchey, and D.R. Sebolt. 1988. Macronutrient content of a hypoenergetic diet affects nitrogen retention and muscle function in weight lifters. *Int J Sports Med* 9 (4): 261-266.
- Walker, G.J., P. Caudwell, N. Dixon, and N.C. Bishop. 2006. The effect of caffeine ingestion on neutrophil oxidative burst responses following prolonged exercise. *Int J Sport Nutr Exerc Metab* 16 (1): 24-35.
- Wallace, M.B., J. Lim, A. Cutler, and L. Bucci. 1999. Effects of dehydroepiandrosterone vs androstenedione supplementation in men. *Med Sci Sports Exerc* 31 (12): 1788-1792.
- Waller, M.F., and E.M. Haymes. 1996. The effects of heat and exercise on sweat iron loss. *Med Sci Sports Exer* 28:197-203.
- Wallis, G.A., D.S. Rowlands, C. Shaw, R.L.P.G. Jentjens, and A.E. Jeukendrup. 2005. Oxidation of combined ingestion of maltodextrins and fructose during exercise. *Med Sci Sports Exerc* 37 (3): 426-432.
- Walsh, N.P., A.K. Blannin, N.C. Bishop, P.J. Robson, and M. Gleeson. 2000. Oral glutamine supplementation does not attenuate the fall in human neutrophil lipopolysaccharide-stimulated degranulation following prolonged exercise. *Int J Sport Nutr* 10:39-50.
- Walsh, N.P., A.K. Blannin, P.J. Robson, and M. Gleeson. 1998. Glutamine, exercise and immune function: Links and possible mechanisms. *Sports Med* 26:177-191.
- Wannamethee, S.G., A.G. Shaper, and M. Walker. 2002. Weight change, weight fluctuation, and mortality. *Arch Intern Med* 162 (22): 2575-2580.
- Wapnir, R.A., M.C. Sia, and S.E. Fisher. 1996. Enhancement of intestinal water absorption and sodium transport by glycerol in rats. *J Appl Physiol* 81 (6): 2523-2527.

- Warren, B.J., A.L. Stanton, and D.L. Blessing. 1990. Disordered eating patterns in competitive female athletes. *Int J Eating Disorders* 5:565-569.
- Warren, J.A., R.R. Jenkins, L. Packer, E.H. Witt, and R.B. Armstrong. 1992. Elevated muscle vitamin E does not attenuate eccentric exercise-induced muscle injury. *J Appl Physiol* 72:2168-2175.
- Weaver, C., and S. Rajaram. 1992. Exercise and iron status. *J Nutrition* 122:782-787.
- Webb, P., W.H.M. Saris, P.F.M. Schoffelen, G.J. van Ingen Schenau, and F. ten Hoor. 1988. The work of walking: A calorimetric study. *Med Sci Sports Exerc* 20:331-337.
- Wee, S.L., C. Williams, S. Gray, and J. Horabin. 1999. Influence of high and low glycemic index meals on endurance running capacity. *Med Sci Sports Exerc* 31 (3): 393-399.
- Weigle, D.S., P.A. Breen, C.C. Matthys, H.S. Callahan, K.E. Meeuws, V.R. Burden, and J.Q. Purnell. 2005. A high-protein diet induces sustained reductions in appetite, ad libitum caloric intake, and body weight despite compensatory changes in diurnal plasma leptin and ghrelin concentrations. *Am J Clin Nutr* 82 (1): 41-48.
- Welle, S., R. Jozefowicz, and M. Statt. 1990. Failure of dehydroepiandrosterone to influence energy and protein metabolism in humans. *J Clin Endocrinol Metab* 71 (5): 1259-1264.
- Wemple, R.D., D.R. Lamb, and K.H. McKeever. 1997. Caffeine vs caffeine-free sports drinks: Effects on urine production at rest and during prolonged exercise. *Int J Sports Med* 18 (1): 40-46.
- Westerterp, K.R. 1993. Food quotient, respiratory quotient, and energy balance. *Am J Clin Nutr* 57 (5 suppl): 759S-764S; discussion 764S-765S.
- Westerterp, K.R., J.H.H.L.M. Donkers, E.E.H.M. Fredrix, et al. 1995. Energy intake, physical activity and body weight: A simulation model. *Br J Nutr* 73:337-347.
- Westerterp, K.R., W.H. Saris, M. van Es, and F. ten Hoor. 1986. Use of the doubly labeled water technique in humans during heavy sustained exercise. *J Appl Physiol* 61 (6): 2162-2167.
- Weyers, A.M., S.A. Mazzetti, D.M. Love, et al. 2002. Comparison of methods for assessing body composition changes during weight loss. *Med Sci Sports Exerc* 34 (3): 497-502.
- WHO. 1996. *Trace elements in human nutrition and health*. WHO Press: Geneva.
- Wiles, J.D., S.R. Bird, J. Hopkins, and M. Riley. 1992. Effect of caffeinated coffee on running speed, respiratory factors, blood lactate and perceived exertion during 1500-m treadmill running. *Br J Sports Med* 26 (2): 116-119.
- Wilkinson, S.B., S.M. Phillips, P.J. Atherton, R. Patel, K.E. Yarasheski, M.A. Tarnopolsky, M.J. Rennie. 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.
- Wilkinson, S.B., P.L. Kim, D. Armstrong, and S.M. Phillips. 2006. Addition of glutamine to essential amino acids and carbohydrate does not enhance anabolism in young human males following exercise. *Appl Physiol Nutr Metab* 31 (5): 518-529.
- Wilkinson, S.B., M.A. Tarnopolsky, M.J. Macdonald, J.R. Macdonald, D. Armstrong, and S.M. Phillips. 2007. Consumption of fluid skim milk promotes greater muscle protein accretion after resistance exercise than does consumption of an isonitrogenous and isoenergetic soy-protein beverage. *Am J Clin Nutr* 85 (4): 1031-1040.
- Willett, W.C. 2000. Diet and cancer. *Oncologist* 5:393-404.
- Williams, J.H., J.F. Signorile, W.F. Barnes, and T.W. Henrich. 1988. Caffeine, maximal power output and fatigue. *Br J Sports Med* 22 (4): 132-134.
- Williams, M.H. 1993. Nutritional supplements for strength trained athletes. *Sports Sci Exch* 6 (6): 1-4.
- Williams, M.H., R.B. Kreider, and J.D. Branch. 1999. *Creatine the power supplement*. Champaign, IL: Human Kinetics.
- Williams, M.H., R.B. Kreider, D.W. Hunter, et al. 1990. Effect of inosine supplementation on 3-mile treadmill run performance and  $\dot{V}\text{O}_{2\text{ peak}}$ . *Med Sci Sports Exerc* 22 (4): 517-522.
- Wilmore, J.H., K.C. Wambsgans, M. Brenner, et al. 1992. Is there energy conservation in amenorrheic compared with eumenorrheic distance runners? *J Appl Physiol* 72 (1): 15-22.
- Wilson, J.G., J.M. Wilson, and A.H. Manninen. 2008. Effects of beta-hydroxy-beta-methylbutyrate (HMB) on exercise performance and body composition across varying levels of age, sex, and training experience: A review. *Nutr Metab (Lond)* 5:1.
- Winder, W.W., and D.G. Hardie. 1996. Inactivation of acetyl-CoA carboxylase and activation of AMP-activated protein kinase in muscle during exercise. *Am J Physiol* 270:E299-304.
- Winder, W.W. 1986. Effect of intravenous caffeine on liver glycogenolysis during prolonged exercise. *Med Sci Sports Exerc* 18 (2): 192-196.
- Wojtaszewski, J.F., C. MacDonald, J.N. Nielsen, Y. Hellsten, D.G. Hardie, B.E. Kemp, B. Kiens, and E.A. Richter. 2003. Regulation of 5'AMP-activated protein kinase activity and substrate utilization in exercising human skeletal muscle. *Am J Physiol Endocrinol Metab* 284:E813-822.
- Wolfe, R.R. 1992. *Radioactive and stable isotope tracers in biomedicine*. New York: Wiley-Liss.
- Wolfe, R.R., R.D. Goodenough, M.H. Wolfe, G.T. Royle, and E.R. Nadel. 1982. Isotopic analysis of leucine and urea metabolism in exercising humans. *J Appl Physiol* 52 (2): 458-466.
- Wolfe, R.R., S. Klein, F. Carraro, and J.-M. Weber. 1990. Role of triglyceride-fatty acid cycle in controlling fat metabolism in humans during and after exercise. *Am J Physiol* 258:E382-E389.
- Wright, D.C., D.H. Han, P.M. Garcia-Roves, P.C. Geiger, T.E. Jones, J.O. Holloszy. 2007. Exercise-induced mitochondrial biogenesis begins before the increase in muscle PGC-1alpha expression. *J Biol Chem* 282:194-199.
- Wurtman, R.J., and M.C. Lewis. 1991. Exercise, plasma composition and neurotransmission. *Med Sport Sci* 32:94-109.
- Wyss, M., and R. Kaddurah-Daouk. 2000. Creatine and creatinine metabolism. *Physiol Rev* 80 (3): 1107-1213.
- Xia, R., J.A. Webb, L.L. Gnall, K. Cutler, and J.J. Abramson. 2003. Skeletal muscle sarcoplasmic reticulum contains a NADH-dependent oxidase that generates superoxide. *American Journal of Physiology* 285:C215-C221.
- Yang, Y., A. Creer, B. Jemiolo, S. Trappe. 2005. Time course of myogenic and metabolic gene expression in response to acute exercise in human skeletal muscle. *J Appl Physiol* 98:1745-1752.
- Yaspelkis, B.B., J.G. Patterson, P.A. Anderla, Z. Ding, and J.L. Ivy. 1993. Carbohydrate supplementation spares muscle glycogen during variable-intensity exercise. *J Appl Physiol* 75 (4): 1477-1485.
- Yeo, W.K., C.D. Paton, A.P. Garnham, L.M. Burke, A.L. Carey, J.A. Hawley. 2008. Skeletal muscle adaptation and performance responses to once a day versus twice every second day endurance training regimens. *J Appl Physiol* 105:1462-1470.
- Yeo, S.E., R.L.P.G. Jentjens, G.A. Wallis, and A.E. Jeukendrup. 2005. Caffeine increases exogenous carbohydrate oxidation during exercise. *J Appl Physiol* 99:844-850.

- Zawadzki, K.M., B.B. Yaspelkis III, and J.L. Ivy. 1992. Carbohydrate-protein complex increases the rate of muscle glycogen storage after exercise. *J Appl Physiol* 72 (5): 1854-1859.
- Zeisel, S.H. 1998. *Choline and phosphatidylcholine*. Washington, DC: ILSI Press.
- Zeisel, S.H., K.A. Da Costa, P.D. Franklin, E.A. Alexander, J.T. Lamont, N.F. Sheard, and A. Beiser. 1991. Choline, an essential nutrient for humans [see comments]. *FASEB J* 5 (7): 2093-2098.
- Zemel, M.B., J. Richards, S. Mathis, A. Milstead, L. Gebhardt, and E. Silva. 2005. Dairy augmentation of total and central fat loss in obese subjects. *Int J Obes (Lond)* 29 (4): 391-397.
- Zemel, M.B., H. Shi, B. Greer, D. Dirienzo, and P.C. Zemel. 2000. Regulation of adiposity by dietary calcium. *FASEB J* 14 (9): 1132-1138.
- Zemel, M.B. 2004. Role of calcium and dairy products in energy partitioning and weight management. *Am J Clin Nutr* 79 (5): 907S-912S.
- Zerba, E., T.E. Komorowski, and J.A. Faulkner. 1990. Free radical injury to skeletal muscles of young, adult, and old mice. *Am J Physiol* 258:C429-C435.
- Zinker, B.A., K. Britz, and G.A. Brooks. 1990. Effects of a 36-hour fast on human endurance and substrate utilization. *J Appl Physiol* 69 (5): 1849-1855.