

## CMRC PUBLICATIONS 1999

### I. Skeletal muscle – fibre type and metabolic differentiation, including diseases

#### I. Original Articles

**Andersen JL, Gruschy-Knudsen T, Sandri C, Larsson L, Schiaffino S.** Bed rest increases the amount of mismatched fibers in human skeletal muscle. *J Appl Physiol* 86, 455-460, 1999.

**Andersen JL, Terzis G, Kryger A.** Increase in the degree of coexpression of myosin heavy chain isoforms in skeletal muscle fibers of the very old. *Muscle Nerve* 22, 449-454, 1999.

**Daugaard JR, Brammert M, Manhem P, Endre T, Groop L, Löfman M, Richter E.A.** Effect of 6 month of GH treatment on myosin heavy chain composition in GH-deficient patients. *Eur J Endocrin* 141, 342-349, 1999.

**Hartkopp A, Andersen JL, Harridge SD, Crone C, Gruschy-Knudsen T, Kjær M, Mizuno M, Ratkevicius A, Quistorff B, Zhou S, Biering-Sørensen F.** High expression of MHC1 in the tibialis anterior muscle of a paraplegic patient. *Muscle & Nerve* 22, 1731-1737, 1999.

**Harridge DRS, Kryger A, Stensgaard A.** Knee extensor strength, activation, and size in very elderly people following strength training. *Muscle & Nerve* 22, 831-839, 1999

**Larsson H., Daugaard JR, Kiens B, Richter EA, Ahren B.** Muscle fiber characteristics in postmenopausal women with normal or impaired glucose tolerance. *Diabetes Care* 22 (8),1330-1338, 1999.

**Ralston E, Lu Z, Ploug T.** The organization of the Golgi complex and microtubules in skeletal muscle is fiber type-dependent. *J Neurosci* 19, 10694-10705, 1999.

**Vissing J, Schmalbruch H, Haller RG, Clausen T.** Muscle phosphoglycerate mutase deficiency with tubular aggregates: effect of dantrolene. *Ann Neurol* 46, 274-277, 1999.

#### II a. Metabolism

##### II a. Original Articles

**Asp S, Daugaard JR, Rohde T, Adamo K, Graham T.** Muscle glycogen accumulation after a marathon: roles of fiber type and pro- and macroglycogen. *J Appl Physiol* 86 (2), 474-478, 1999.

**Bergeron R, Kjær M, Simonsen L, Bülow J, Galbo H.** Glucose production during exercise in humans: a-hv balance and isotopic-tracer measurements compared. *J Appl Physiol* 87, 111-115, 1999.

**Blomstrand B, Saltin B.** Effect of muscle glycogen on glucose, lactate and amino acid metabolism during exercise and recovery in human subjects. *J Physiol* 514, 293-302, 1999.

**Bonen A, Miskovic D, Kiens B.** Fatty acid transporters (FABPpm, FAT, FATP) in human muscle. *Can J Appl Physiol* 24, 515-523, 1999.

**Daugaard JR, Laustsen JL, Hansen BS, Richter EA.** Insulin action in growth hormone-deficient and age-matched control rats: effect of growth hormone treatment. *J Endocrin* 160, 127-135, 1999.

**Dela F, Mikines KJ, Larsen JJ, Galbo H.** Glucose clearance in aged trained skeletal muscle during maximal insulin with superimposed exercise *J Appl Physiol* 87, 2059-2067, 1999.

**Derave W, Lund S, Holman GD, Wojtaszewski J, Pedersen O, Richter EA.** Contraction-stimulated muscle glucose transport and GLUT-4 surface content are dependent upon glycogen content. *Am J Physiol* 277, E1103-E1110, 1999.

**Fluckey JD, Ploug T, Galbo H.** Attenuated insulin action on glucose uptake and transport in muscle following resistance exercise in rats. *Acta Physiol Scand* 167, 77-82, 1999.

**Fluckey JD, Ploug T, Galbo H.** Mechanisms associated with hypoxia and contraction mediated glucose transport in muscle are fiber-dependent. *Acta Physiol Scand* 167, 83-87, 1999.

**Hansen BF, Asp S, Kiens B, Richter EA.** Glycogen concentration in human skeletal muscle: effect of prolonged insulin and glucose infusion. *Scand J Med Sci Sports* 9, 209-213, 1999.

**Helge JW, Ayre KJ, Hulbert AJ, Kiens B, Storlien LH.** Regular exercise modulates muscle membrane phospholipid profile in rats. *J Nutr* 129, 1636-1642, 1999.

**Helge JW, Fraser AM, Kriketos AD, Jenkins AB, Calvert GD, Ayre KJ, Storlien LH.** Interrelationships between muscle fibre type, substrate oxidation and body fat. *Int J Obes* 23, 986-991, 1999.

**Howlett K, Galbo H, Lorentsen J, Bergeron R, Zimmerman-Belsing T, Bülow J, Feldt-Rasmussen U, Kjær M.** Effect of adrenaline on glucose kinetics during exercise in adrenalectomised humans. *J Physiol* 519, 911-921, 1999.

**Ihlemann J, Galbo H, Ploug T.** Calphostin C is an inhibitor of contraction, but not insulin-stimulated glucose transport, in skeletal muscle. *Acta Physiol Scand* 167, 69-75, 1999.

**Ihlemann J, Ploug T, Hellsten Y, Galbo H.** Effect of tension on contraction-induced glucose transport in rat skeletal muscle. *Am J Physiol* 277, E-208-E214, 1999.

**Kiens B, Roemen THM, Vusse JVD.** Muscular long-chain fatty acid content during graded exercise in humans. *Am J Physiol* 276, E352-E357, 1999.

**Langfort J, Ploug T, Ihlemann J, Saldo M, Holm C, Galbo H.** Expression of hormone-sensitive lipase and its regulation by adrenaline in skeletal muscle. *Biochem J* 340, 459-465, 1999.

**Larsen JJS, Dela F, Madsbad S, Vibe-Petersen J, Galbo H.** Interaction and sulfonyl-urea and exercise on glucose homeostasis in type II diabetic patients. *Diabetes Care*, 1647-1654, 1999

**Larsen JJS, Dela F, Madsbad S, Galbo H.** The effect of intense exercise on postprandial glucose homeostasis in type II diabetic patients. *Diabetologia* 42, 1282-1292, 1999.

**MacLean DA, Bangsbo J, Saltin B.** Muscle interstitial glucose and lactate levels during dynamic exercise in humans determined by microdialysis. *J Appl Physiol* 87, 1483-1490, 1999.

**Ralston E, Ploug T.** Caveolin-3 is associated with the T-tubules of mature skeletal muscle fibers. *Exp Cell Res* 246, 510-515, 1999.

**Shono N, Mizuno M, Nishida H, Higaki Y, Urata H, Tanaka H, Quistorff B, Saltin B, Shindo M, Nishizumi M.** Decreased skeletal muscle capillary density is related to higher serum levels of low-density lipoprotein cholesterol and apolipoprotein B in men. *Metabolism* 48, 1267-1271, 1999.

**Stallknecht B, Madsen J, Galbo H, Bülow J.** Evaluation of the microdialysis technique in the dog fat pad. *Am J Physiol* 276, E588-E595, 1999.

**Wojtaszewski JFP, Lynge J, Jakobsen AB, Goodyear LJ, Richter EA.** Differential regulation of MAP kinase by contraction and insulin in skeletal muscle: metabolic implications. *Am J Physiol* 277, E724-E732, 1999

## **II a. Reviews, Book Chapters, Symposia Contributions, etc.**

**Dela F, Mikines K, Galbo H.** Physical activity and insulin resistance in man. In: *Contemporary Endocrinology: Insulin Resistance*. Reaven G, Laws A (eds.). Humana Press Inc., Totowa, NJ, USA, pp 97-120, 1999.

**Hall Gv.** Correction factors for <sup>13</sup>C-labelled substrate oxidation at whole body and muscle level. *Proc Nutr Soc* 58, 979-986, 1999.

**Hall Gv, González-Alonso J, Sacchetti M, Saltin B.** Skeletal muscle substrate metabolism during exercise: methodological considerations. *Proc Nutr Soc* 58, 899-912, 1999.

## **II a. Knowledge dissemination**

## **II b. Nucleotides, electrolytes, and pH regulation**

### **II b. Original Articles**

**Gibala MJ, Saltin B.** PDH activation by dichloroacetate reduces TCA cycle intermediates at rest but not during exercise in humans. *Am J Physiol* 277, E33-E38, 1999.

**Green S, Bülow J, Saltin B.** Microdialysis and the measurements of muscle interstitial K<sup>+</sup> during rest and exercise in humans. *J Appl Physiol* 87, 460-464, 1999.

**Grumbckow Lv, Elsner P, Hellsten Y, Quistorff B, Juel C.** Kinetics of lactate and pyruvate transport in cultured rat myotubes. *Biochim Biophys Acta* 1417, 267-275, 1999.

**Hellsten Y, Richter EA, Kiens B, Bangsbo J.** AMP deamination and purine exchange in human skeletal muscle during and after intense exercise. *J Physiol* 520, 909-920, 1999.

**Juel C, Hellsten Y, Saltin B, Bangsbo J.** Potassium fluxes in contracting human skeletal muscle and red blood cells. *Am J Physiol* 276, R184-R188, 1999.

**Nielsen HB.** pH after competitive rowing: the lower physiological range? *Acta Physiol Scand* 165, 113-114, 1999.

**Pilegaard H, Domino K, Noland T, Juel C, Hellsten Y, Halestrap AP, Bangsbo J.** Effect of high-intensity exercise training on lactate/H<sup>+</sup> transport capacity in human skeletal muscle. *Am J Physiol* 276, E255-E261, 1999.

**Pilegaard H, Terzis G, Halestrap A, Juel C.** Distribution of the lactate/H<sup>+</sup> transporter isoforms MCT1 and MCT4 in human skeletal muscle. *Am J Physiol* 276, E843-E848, 1999.

**Vandenberghe K, Richter EA, Hespel P.** Regulation of glycogen breakdown by glycogen level in contracting rat muscle. *Acta Physiol Scand* 165, 307-314, 1999.

## **II b. Reviews, Book Chapters, Symposia Contributions, etc.**

**Juel C, Halestrap AP.** Lactate transport in skeletal muscle – role and regulation of the monocarboxylate transporter. Topical Review. *J Physiol* 517, 633-642, 1999.

## **II b. Knowledge dissemination**

## **II c. Immune response (cytokines)**

## **II c. Original Articles**

**Hall Gv, Saltin B, Wagenmakers AJM.** Muscle protein degradation and amino acid metabolism during prolonged knee-extensor exercise in humans. *Clin Sci* 97, 557-567, 1999.

**Ostrowski, K, Rohde T, Asp S, Schjerling P, Pedersen BK.** Pro-and anti-inflammatory cytokine balance in strenuous exercise in humans. *J Physiol* 515, 287-291, 1999.

## **II c. Reviews, Book Chapters, Symposia Contributions, etc.**

## **II c. Knowledge dissemination**

### III. Cardiovascular regulation, oxygen uptake, and mitochondrial respiration

#### III. Original Articles

**Dela F, Stallknecht B.** No role of interstitial adenosine in insulin-mediated vasodilation. *Acta Physiol Scand* 167, 37-42, 1999.

**Hansen J, Sayad D, Thomas GD, Clarke GD, Peshock RM, Victor RG.** Exercise-induced attenuation of alpha-adrenoceptor mediated vasoconstriction in humans: evidence from phase-contrast MRI. *Cardiovasc Res* 41, 220-228, 1999.

**Hellsten Y.** The effect of muscle contraction on the regulation of adenosine formation in rat skeletal muscle cells. *J Physiol* 518, 761-768, 1999.

**Ide K, Gulløv AL, Pott F, Lieshout JJV, Koefoed BG, Petersen P, Secher NH.** Middle cerebral artery blood velocity during exercise in patients with atrial fibrillation. *Clin Physiol* 19, 284-289, 1999.

**Ide K, Horn A, Secher NH.** Cerebral metabolic response to submaximal exercise. *J Appl Physiol* 87, 1604-1608, 1999.

**Kjær M, Hanel B, Worm L, Perko G, Lewis SF, Sahlin K, Galbo H, Secher NH.** Cardiovascular and neuroendocrine responses to exercise in hypoxia during impaired neural feedback from muscle. *Am J Physiol* 277, R76-R85, 1999.

**Kjær M, Pott F, Linkis P, Tornøe P, Secher NH.** Heart rate during exercise with leg vascular occlusion in spinal cord-injured humans. *J Appl Physiol* 86, 806-811, 1999.

**Nielsen HB, Boushel R, Madsen P, Secher NH.** Cerebral desaturation during exercise reversed by C<sub>2</sub> supplementation. *Am J Physiol* 277, H1045-H1052, 1999.

**Norton KH, Boushel R, Strange S, Saltin B, Raven PB.** Resetting of the carotid arterial baroreflex during dynamic exercise in humans. *J Appl Physiol* 87, 332-338, 1999.

**Nowak M, Olsen KS, Law I, Holm S, Paulson OB, Secher NH.** Command-related distribution of regional cerebral blood flow during attempted handgrip. *J Appl Physiol* 86, 819-824, 1999.

**Pedersen PK, Kiens B, Saltin B.** Hyperoxia does not increase peak muscle oxygen uptake in small muscle group exercise. *Acta Physiol Scand* 166, 309-318, 1999.

**Roach RC, Koskolou MD, Calbet JAL, Saltin B.** Arterial O<sub>2</sub> content and tension in regulation of cardiac output and leg blood flow during exercise in humans. *Am J Physiol* 276, H438-H445, 1999.

**Rådegran G, Blomstrand E, Saltin B.** Peak muscle perfusion and oxygen uptake in humans: importance of precise estimates of muscle mass. *J Appl Physiol* 87, 2375-2380, 1999.

**Rådegran G, Saltin B.** Nitric oxide in the regulation of vasomotor tone in human skeletal muscle. *Am J Physiol* 276, H1951-H1960, 1999.

**Stallknecht B, Donsmark M, Enevoldsen LH, Fluckey JD, Galbo H.** Estimation of rat muscle blood flow by microdialysis probes perfused with ethanol, [<sup>14</sup>C]ethanol, and <sup>3</sup>H<sub>2</sub>O. *J Appl Physiol* 86, 1054-1061, 1999.

**Strange S.** Cardiovascular control during concomitant dynamic leg exercise and static arm exercise in humans. *J Physiol* 514, 283-291, 1999.

### III. Reviews, Book Chapters, Symposia Contributions, etc.

**Bangsbo J.** Vasoactive substances in the interstitium of contracting skeletal muscle examined by microdialysis. *Proc Nutr Soc* 58, 925-933, 1999.

**Bay-Nielsen H, Secher N, Saltin B.** Cardiovascular and pulmonary function in exercise. In: *Exercise-induced asthma and sports in asthma*. Carlsen K-H, Ibsen TB (eds.), Munksgaard, Copenhagen, DK, Chapt. 4, pp 30-41.

**Beyer N.** Prevention of osteoporosis. Muscle strength and balance training. In: *Musculoskeletal interactions. Basic and clinical aspects*. Lyritis GP (ed). Volume 2. Hylohome editions, Athens, 129-136, 1999.

**Boushel R, Snell P, Saltin B.** Cardiovascular regulation with endurance training. In: *Exercise and circulation in health and disease*. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 225-243, 1999.

**Haller, R. G., J. Vissing.** Circulatory regulation in muscle disease. In: *Exercise and circulation in health and disease*. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 271-282, 1999.

**Hellsten Y.** Xanthine oxidase in exercise. In: *Handbook of oxidants and antioxidants in exercise*. Sen CK, Packer L, Hänninen O (eds.). Elsevier Science Publ., Amsterdam, pp ??, 1999.

**Jørgensen LG, Nowak M, Ide K, Secher NH.** Cerebral blood flow and metabolism. In: *Exercise and circulation in health and disease*. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 113-123, 1999.

**Lever A, Boushel R.** Hypertension. In: *Exercise and circulation in health and disease*. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 291-311, 1999.

**Lieshout JJv, Secher NH.** Orthostatic stress and autonomic dysfunction. In: *Exercise and circulation in health and disease*. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 313-332, 1999.

**Roach RC.** Cardiovascular regulation during hypoxia. In: *Exercise and circulation in health and disease*. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 177-194, 1999.

**Rådegran G.** Limb and skeletal muscle blood flow measurements at rest and during exercise in human subjects. *Proc Nutr Soc* 58, 887-898, 1999.

**Saltin B, Boushel R, Secher NH, Mitchell JH (eds.)**. *Exercise and circulation in health and disease*. Human Kinetic Publishers, Champaign, Illinois, 1-345, 1999.

**Saltin B, Rådegran G, Koskolou M, Roach RC, Marshall JM.** Muscle blood flow and its regulation. In: Exercise and circulation in health and disease. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 125-139, 1999.

**Sander M, Victor RG.** Neural mechanisms in nitric-oxide-deficient hypertension. *Current Opinion in Nephrology and Hypertension* 8, 61-73, 1999.

**Secher NH.** Cardiovascular function and oxygen delivery during high intensity exercise. In: the Physiological Determinants of Human Exercise Tolerance. Sargeant TA, Whipp BJ (eds). Portland Press, London, 93-113, 1999.

**Secher NH, Kagaya A, Saltin B.** Integration of muscle blood flow and cardiac output. In: Exercise and circulation in health and disease. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 155-167, 1999.

**Secher NH, Ludbrook J.** Introduction. In: Exercise and circulation in health and disease. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, VII-XIV, 1999.

**Shono N, Mizuno M, Nishida H, Higaki Y, Tanaka H, Shindo M, Quistorff B, Saltin B.** Possible relations between skeletal muscle morphology and the lipid profile in healthy Japanese men. In: Exercise for preventing common diseases. Tanaka H, Shindo M (eds.). Springer Verlag, Tokyo, 174-179, 1999.

**Vissing SF.** Neural control of skin circulation. In: Exercise and circulation in health and disease. Saltin B, Boushel R, Secher NH, Mitchell JH (eds.). Human Kinetic Publishers, Champaign, Illinois, 103-111, 1999.