

文献

Aboudrar S, Sempore B, Koubi H, Dechaud H, Desplanches D (1993) Effects of adrenalectomy or RU-486 on rat muscle fibers during hindlimb suspension. *J. Appl. Physiol.* 75: 2767-2773.

Andersen J, Mohr LT, Biering-Sørensen F, Galbo H, Kjær M (1996) Myosin heavy chain isoform transformation in single fibers from m. vastus lateralis in spinal cord injured individuals: effects of long term functional electrical stimulation (FES). *Pflügers Arch.* 431: 513-518.

Andersen JM, Schiaffino S (1997) Mismatch between myosin heavy chain mRNA and protein distribution in human skeletal muscle fibers. *Am. J. Physiol.* 272(Cell Physiol. 41): C1881-C1889.

Anzil AP, Wernig A (1989) Muscle fibre loss and reinnervation after long-term denervation. *J. Neurocytol.* 18: 833-845.

Armstrong RB, Phelps RO (1984) Muscle fiber type composition of the rat hindlimb. *Am. J. Anat.* 171: 259-272.

Aroniadou-Anderjaska V, Lemon PWR, Gilloteaux J (1996) Effects of exogenous growth hormone on skeletal muscle of young female rats. *Tissue Cell* 28: 716-724.

Ayling CM, Moreland BH, Zanelli JM, Schulster D (1989) Human growth hormone treatment of hypophysectomized rats increases the proportion of type-1 fibres in skeletal muscle. *J. Endocrinol.* 123: 429-435.

Bereskin B, Shelby CE, Rowe KE, Urban Jr. WE, Blum CB, Chapman AB, Garwood VA, Hazel LN, Lasley JF, Magee WT, McCarty JW, Whatley Jr. JA (1968) Inbreeding and swine productivity traits. *J. Animal Sci.* 27: 339-350.

Bergh U, Thorstensson A, Sjödin B, Hulten B, Piehl K, Karlsson J (1978) Maximal oxygen uptake and muscle fiber types in trained and untrained humans. *Med. Sci. Sports* 10: 151-154.

Bouchard C, Simoneau JA, Lortie G, Boulay MR, Marcotte M, Thibault MC (1986) Genetic effects in human skeletal muscle fiber type distribution and enzyme activities. *Can. J. Physiol. Pharmacol.* 64: 1245-1251.

Brooke MH, Kaiser K (1970) Muscle fiber types: how many and what kind? *Arch. Neurol.* 23 369-379.

Butler-Browne GS, Whalen RG (1984) Myosin isozyme transitions occurring during the postnatal development of the rat soleus muscle. *Dev. Biol.* 102: 324-334.

Butler-Browne GS, Herlicoviez D, Whalen RG (1984) Effect of hypothyroidism on myosin isozyme transitions in developing rat muscle. *FEBS Lett.* 166: 71-75.

Cadefau J, Casademont J, Grau JM, Fernández J, Balaguer A, Vernet M, Cussó R, Urbano-Márquez A (1990) Biochemical and histochemical adaptation to sprint training in young athletes. *Acta Physiol. Scand.* 140: 341-351.

Caiozzo VJ, Haddad F (1996) Thyroid hormone: Modulation of muscle structure, function, and adaptive responses to mechanical loading. *Exercise and Sport Sciences Reviews.* 24: 321-361.

Criswell DS, Powers SK, Herb RA (1996) Clenbuterol-induced fiber type transition in the soleus of adult rats. *Eur. J. Appl. Physiol.* 74: 391-396.

Cohan FM, Hoffmann AA (1989) Uniform selection as a diversifying force in evolution: evidence from *Drosophila*. *Am. Nat.* 134: 613-637.

Davis HL, Bressler BH, Jasch LG (1988) Myotrophic effects on denervated fast-twitch muscles of mice: correlation of physiologic, biochemical, and morphologic findings. *Exp. Neurol.* 99: 474-489.

Delp MD, Duan C (1996) Composition and size of type I, IIA, IID/X, and IIB fibers and citrate synthase activity of rat muscle. *J. Appl. Physiol.* 80: 261-270.

Dhoot GK, Perry SV (1983) Effect of denervation at birth on the development of skeletal muscle cell types in the rat. *Exp. Neurol.* 82: 131-142.

Dijken FR, Scharloo W (1979) Divergent selection on locomotor activity in *Drosophila melanogaster*. 1. Selection response. *Behav. Genet.* 9: 543-553.

Duchateau J, Boyec SL, Hainaut K (1986) Contribution of fast muscles of triceps surae to a cyclic movement. *Eur. J. Appl. Physiol.* 55: 476-481.

Eales JG, Shostak S (1985) Free T4 and T3 in relation to total hormone, free hormone indices, and protein in plasma of rainbow trout and arctic charr. *Gen. Comp. Endocrinol.* 58: 291-302.

Edgerton VR, Zhou MY, Ohira Y, Klitgaard H, Jiang B, Bell G, Harris B, Saltin B, Gollnick PD, Roy RR, Day MK, Greenisen M (1995) Human fiber size and enzymatic properties after 5 and 11 days of spaceflight. *J. Appl. Physiol.* 78, 1733-1739.

Elder GCB, Kakulas BA (1993) Histochemical and contractile property changes during human muscle development. *Muscle Nerve* 16: 1246-1253.

Esbjörnsson M, Hellsten-Westing Y, Balsom PD, Sjödin B, Jansson E (1993) Muscle fibre type changes with sprint training: effect of training pattern. *Acta Physiol. Scand.* 149, 245-246.

Ettimadi AA, Hosseini F (1968) Frequency and size of muscle fibers in athletic body build. *Anat. Rec.* 162: 269-274.

Everitt AV, Terry V, Phillips MJ, Kerry HM, Shorey CD (1996) Morphometric analysis of gastrocnemius muscle fiber size and fiber proportions in the hypophysectomized rat after prolonged administration of growth hormone or thyroxine. *Growth Dev. Aging* 60: 85-93.

Falconer DS (1993) 量的遺伝学入門. 田中嘉成, 野村哲郎 (共訳). 蒼樹書房. pp. 165-190, 237-288, 393-418.

Farrell PA, Wilmore JH, Coyle EF, Billing JE, Costill DL (1979) Plasmalactate

accumulation and distance running performance. *Med. Sci. Sports* 11: 338-344.

Fitts RH, Windeer WW, Brooke MH, Kaiser KK (1980) Contractile biochemical, and histochemical properties of thyrotoxic rat soleus muscle. *Am. J. Physiol.* 238 (Cell Physiol. 7): C15-C20.

Fitzsimons DP, Herrick RE, Baldwin KM (1990) Isomyosin distributions in rodent muscles: effect of altered thyroid state. *J. Appl. Physiol.* 69: 321-327.

Gambke B, Lyons GE, Haselgrove J, Kelly AM, Rubinstein NA (1983) Thyroidal and neural control of myosin transitions during development of rat fast and slow muscles. *FEBS Lett.* 156: 335-339.

Girlanda P, Dattola R, Vita G, Oteri G, Presti FL, Messina C (1982) Effect of electrotherapy on denervated muscles in rabbits: an electrophysiological and morphological study. *Exp. Neurol.* 77: 483-491.

Gollnick PD, Armstrong RB, Saubert IV CW, Piehl K, Saltin B (1972) Enzyme activity and fiber composition in skeletal muscle of untrained and trained men. *J. Appl. Physiol.* 33: 312-319.

Gollnick PD, Parsons D, Orkley CR (1983) Differentiation of fiber types in skeletal muscle from the sequential in activation of myofibrillar actomyosin ATPase during acid preincubation. *Histochemistry* 77: 543-555.

Green HJ, Klug GA, Reichmann H, Seedorf U, Wiehrer W, Pette D (1984) Exercise-induced fibre type transitions with regard to myosin, parvalbumin, and sarcoplasmic reticulum in muscles of the rat. *Pflügers Arch.* 400: 432-438.

Green HJ, Plyley MJ, Smith DM, Kile JG (1989) Extreme endurance training and fiber type adaptation in rat diaphragm. *J. Appl. Physiol.* 66: 1914-1920.

Hägmark T, Eriksson E, Jansson E (1986) Muscle fiber type changes in human skeletal muscle after injuries and immobilization. *Orthopedics* 9: 181-185.

Hamel P, Simoneau JA, Lortie G, Boulay MR, Bouchard C (1986) Heredity and muscle adaptation to endurance training. *Med. Sci. Sports Exerc.* 18: 690-696.

Hartl DL (1987) 集団遺伝学入門. 向井輝美, 石和貞男 (共訳). 培風館. pp. 128-178.

Hennig R, Lømo T (1987) Effect of chronic stimulation on the size and speed of long-term denervated and innervated rat fast and slow skeletal muscles. *Acta Physiol. Scand.* 130: 115-131.

Howald H, Hoppeler H, Claassen H, Mathieu O, Straub R (1985) Influences of endurance training on the ultrastructural composition of the different muscle fiber in humans. *Pflügers Arch.* 403: 369-376.

Hudlicka O, Tyler KR (1984) The effect of long term high-frequency stimulation on capillary density and fibre types in rabbit fast muscles. *J. Physiol.* 353: 435-445.

Ianuzzo CD, Gollnick PD, Armstrong RB (1976) Compensatory adaptations of skeletal muscle fiber types to a long-term functional overload. *Life Sci.* 19: 1517-1524.

Ianuzzo CD, Patel P, Chen V, O'Brien P, Williams C (1977) Thyroidal trophic influence on skeletal muscle myosin. *Nature* 270: 74-76.

石原昭彦, 勝田 茂, 藤田紀盛 (1984) 発育にともなうラット神経, 筋線維の組織化学的特性の変化について. *体育学研究* 29, 125-133.

Ishihara A, Inoue N, Katsuta S (1991) The relationship of voluntary running to fibre composition, fibre area and capillary supply in rat soleus and plantaris muscles. *Eur. J. Appl. Physiol.* 62: 211-215.

Izumo S, Nadal-Ginard B, Mahdavi V (1986) All members of the MHC multigene family respond to thyroid hormone in a highly tissue-specific manner. *Science* 231: 597-600.

Jansson E, Esbjörnsson M, Holm I, Jacobs I (1990) Increase in the proportion

of fast-twitch muscle fibres by sprint training in males. *Acta Physiol. Scand.* 140: 359-363.

Jansson E, Kaijser L (1977) Muscle adaptation to extreme endurance training in man. *Acta Physiol. Scand.* 100: 315-324.

Jeweerd MM, Herbinson GJ, Ditunno JF (1975) denervation and reinnervation of fast and slow muscles. A histochemical study in rats. *J. Histochem. Cytochem.* 23: 808-827.

Johnson, MA, Polgar J, Weightman D, Appleton D (1973) Data on the distribution of fibre types in thirty-six human muscles. *J. Neurol. Sci.* 18: 111-129.

Joseph J, Nightingale A (1952) Electromyography of muscles of posture: Leg muscles in males. *J. Physiol.* 117: 484-491.

勝田 茂, 麻場一徳, 田淵健一, 高松 薫, 田中 守 (1985) ニードルバイオプシー法による日本人健康青年男子の筋線維組成. 筑波大学体育科学系紀要 8: 173-179.

勝田 茂, 増井都乃, 中村友浩 (1991) 選択交配法による筋線維組成・筋酵素活性の遺伝学的検討. 筑波大学体育科学系紀要 14: 155-165.

Komi PV, Viitasalo JT, Havu M, Thorstensson A, Sjödin B, Karlsson J (1977) Skeletal muscle enzyme activities in monozygous and dizygous twins of both sexes. *Acta Physiol. Scand.* 100: 385-392.

Krotkiewski M, Kral JG, Karlsson J (1980) Effects of castration and testosterone substitution on body composition and muscle metabolism in rats. *Acta Physiol. Scand.* 109: 233-237.

Kugelberg E (1976) Adaptive transformation of rat soleus motor units during growth. *J. Neurol. Sci.* 27: 269-289.

Leshner AI (1971) The adrenals and regulatory nature of running wheel activity. *Physiol. Behav.* 6: 551-558.

Linossier MT, Denis C, Dormois D, Geysant A, Lacour JR (1993) Ergometric and metabolic adaptation to a 5-s sprint training programme. *Eur. J. Appl. Physiol.* 67: 408-414.

Lortie G, Simoneau JA, Boulay MR, Bouchard C (1986) Muscle fiber type composition and enzyme activities in brothers and monozygotic twins. Marina RM and Bouchard C (Eds), *Sport and human genetics Champaign, Human Kinetics* 147-154.

Loughna PT, Bates PC (1994) Interactions between growth hormone and nutrition in hypophysectomised rats: skeletal muscle myosin heavy chain mRNA levels. *Biochem. Biophys. Res. Commun.* 198: 97-102.

Lynch GS, Hayes A, Campbell SP, Williams DA (1996) Effects of β_2 -agonist administration and exercise on contractile activation of skeletal muscle fibers. *J. Appl. Physiol.* 81: 1610-1618.

MacDougall JD, Sale DG, Alway SE, Sutton JR (1984) Muscle fiber number in biceps brachii in bodybuilders and control subjects. *J. Appl. Physiol.* 57: 1399-1403.

Maier A, Gorza L, Schiaffino S, Pette D (1988) A combined histochemical and immunohistochemical study on the dynamics of fast-to-slow fiber transformation in chronically stimulated rabbit muscle. *Cell Tissue Res.* 254: 59-68.

Midrio M, Betto DD, Betto R, Noventa D, Antico F (1988) Cordotomy-denervation interactions on contractile and myofibrillar properties of fast and slow muscles in the rat. *Exp. Neurol.* 100: 216-236.

Nakamura T, Masui S, Wada M, Katoh H, Mikami H, Katsuta S (1993) Heredity of muscle fibre composition estimated from a selection experiment in rats. *Eur. J. Appl. Physiol.* 66: 85-89.

Nimmo MA, Wilson RH, Snow DH (1985) The inheritance of skeletal muscle fibre composition in mice. *Comp. Biochem. Physiol.* 81: 109-115.

Nwoye L, Mommaerts WFHM (1981) The effect of thyroid status on some properties of rat fast-twitch muscle. *J. Muscle Res. Cell Motil.* 2: 307-320.

Oakley CR, Gollnick PD (1985) Conversion of rat muscle fiber types. *Histochemistry* 83: 555-560.

Oishi Y (1993) Relationship between myosin heavy chain IId isoform and fibre types in soleus muscle of the rat after hindlimb suspension. *Eur. J. Appl. Physiol.* 66: 451-454.

Okada S, Nonaka I, Chou SM (1984) Muscle fiber type differentiation and satellite cell populations in normally grown and neonatally denervated muscles in the rat. *Acta Neuropathol.* 65: 990-998.

Okumoto T, Imoto T, Katsuta S, Wada M (1996) Severe endurance training fails to change myosin heavy-chain distribution of diaphragm. *Respir. Physiol.* 104:39-43.

Padykula HA, Herman E (1955) The specificity of histochemical method for adenosine triphosphatase. *J. Histochem. Cytochem.* 3: 170-195.

Pette D, Müller W, Leisner E, Vrbová G (1976) Time dependent effects on contractile properties, fibre population, myosin light chains and enzymes of energy metabolism in intermittently and continuously stimulated fast twitch muscles of the rabbit. *Pflügers Arch.* 364: 103-112.

Redenbach DM, Ovalle WK, Bressler BH (1988) Effect of neonatal denervation on the distribution of fiber types in a mouse fast-twitch skeletal muscle. *Histochemistry* 89: 333-342.

Roy RR, Acosta L Jr. (1986) Fiber type and fiber size changes in selected thigh muscles six months after low thoracic spinal cord transection in adult cats: exercise effects. *Exp. Neurol.* 92: 675-685.

Roy RR, Bello MA, Bouissou P, Edgerton VR (1987) Size and metabolic properties of fibers in rat fast-twitch muscles after hindlimb suspension. *J. Appl. Physiol.*

Physiol. 62: 2348-2357.

Rubinstein N, Kelly A (1981) Development of muscle fiber specialization in the rat hindlimb. *J. Cell Biol.* 90: 128-144.

Rusko H, Havu M, Karvinen (1978) Aerobic performance capacity in athletes. *Eur. J. Appl. Physiol.* 38: 151-159.

Sale DG, MacDougall JD, Jacobs I, Garner S (1990) Interaction between concurrent strength and endurance training. *J. Appl. Physiol.* 68: 260-270.

Shorey CD, Everitt AV, Armstrong RA, Manning LA (1993) Morphometric analysis of the muscle fibres of the soleus muscle of the ageing rat: long-term effect of hypophysectomy and food restriction. *Gerontology* 39: 80-92.

Simoneau JA, Bouchard C (1995) Genetic determinism of fiber type proportion in human skeletal muscle. *FASEB J.* 9: 1091-1095.

Singh BN, Pandey M (1993) Selection for high and low pupation height in *Drosophila ananassae*. *Behav. Genet.* 23: 239-243.

Smith D, Green H, Thomason J, Sharratt M (1988) Oxidative potential in developing rat diaphragm, EDL, and soleus muscle fibers. *Am. J. Physiol.* 254 (Cell Physiol. 23): C661-C668.

Spector SA (1985) Trophic effects on the contractile and histochemical properties of rat soleus muscle. *J. Neurosci.* 5: 2189-2196.

Staron RS, Gohlsch B, Pette D (1987) Myosin polymorphism in single fibers of chronically stimulated rabbit fast-twitch muscle. *Pflügers Arch.* 408: 444-450.

Staron RS, Leonardi MJ, Karapond DL, Malicky ES, Falkel JE, Hagerman FC, Hikida RS (1991) Strength and skeletal muscle adaptations in heavy-resistance-trained women after detraining and retraining. *J. Appl. Physiol.* 70: 631-640.

Staron RS, Karapond DL, Kraemer WJ, Fry AC, Gordon SE, Falkel JE,

Hagerman FC, Hikida RS (1994) Skeletal muscle adaptations during early phase of heavy resistance training in men and women. *J. Appl. Physiol.* 76: 1247-1255.

Sugie H, Verity MA (1985) Postnatal histochemical fiber type differentiation in normal and hypothyroid rat soleus muscle. *Muscle Nerve* 8: 654-660.

Swoap SJ, Haddad F, Bodell P, Baldwin KM (1994) Effect of chronic energy deprivation on cardiac thyroid hormone receptor and myosin isoform expression. *Am. J. Physiol.* 266: E254-E260.

Templeton GH, Sweeney HL, Timson BF, Padalino M, Dudenhoefter GA (1988) Changes in fiber composition of soleus muscle during rat hindlimb suspension. *J. Appl. Physiol.* 65: 1191-1195.

Tews DS, Goebel HH, Schneider I, Gunkel A, Stennert E, Neiss WF (1994) Morphology of experimentally denervated and reinnervated rat facial muscle. I. Histochemical and histological findings. *Eur. Arch. Otorhinolaryngol.* 251: 36-40.

Thorstensson A, Grimby G, Karlsson J (1976) Force-velocity relations and fiber composition in human knee extensor muscles. *J. Appl. Physiol.* 40: 12-16.

Thorstensson A, Karlsson J (1976) Fatiguability and fibre composition of human skeletal muscle. *Acta Physiol. Scand.* 98: 318-322.

Walmsley B, Hodgson JA, Burke RE (1978) Forces produced by medial gastrocnemius and soleus muscles during locomotion in freely moving cats. *J. Neurophysiol.* 41: 1203-1216.

Weber KE (1990) Selection on wing allometry in *Drosophila melanogaster*. *Genetics* 126: 975-989.

Wernig A, Irintchev A, Weisshaupt P (1990) Muscle injury, cross-sectional area and fibre type distribution in mouse soleus after intermittent wheel-running. *J. Physiol.* 428: 639-652.

White JM (1972) Inbreeding effects upon growth and maternal ability in laboratory mice. *Genetics* 70: 307-317.

Wilson SJ, Harris AJ (1993) Formation of myotubes in aneural rat muscles. *Dev. Biol.* 156: 509-518.

Yamaguchi A, Horio Y, Sakuma K, Katsuta S (1993) The effect of nutrition on size and proportion of muscle fibre types during growth. *J. Anat.* 182: 29-36.

Yoong YL, Wong PTH (1988) Selective breeding of mice for differential sensitivity to diazepam. *Behav. Genet.* 18: 185-191.

Zhang M, McLennan (1998) Primary myotubes preferentially mature into either the fastest or slowest muscle fibers. *Dev. Dyn.* 213: 147-157.

Zeman RJ, Ludemann R, Easton TG, Etlinger JD (1988) Slow to fast alternations in skeletal muscle fibers caused by clenbuterol, a β_2 -receptor agonist. *Am. J. Physiol.* 254 (Endocrinol. Metab. 17): E726-E732.