

**Hatze, H.**

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**MSC:**

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### References:

- [1] Bahler, A.S., Fales, J.T., Zierler, K.L.: The active state of mammalian skeletal muscle. *J. gen. Physiol.* 50, 2239-2253 (1967) · [doi:10.1085/jgp.50.9.2239](#)
- [2] Briggs, F.N., Poland, J.L., Solaro, R.J.: Relative capabilities of sarcoplasmic reticulum in fast and slow mammalian skeletal muscles. *J. Physiol.* 266, 587-594 (1977)
- [3] Calvert, T.W., Chapman, A.E.: The relationship between the surface EMG and force transients in muscle: simulation and experimental studies. *Proc. IEEE* 65, 682-689 (1977) · [doi:10.1109/PROC.1977.10547](#)
- [4] Chow, C.K., Jacobson, D.H.: Studies of human locomotion via optimal programming. *Math. Biosci.* 10, 239-306 (1971) · [Zbl 0215.59305](#) · [doi:10.1016/0025-5564\(71\)90062-9](#)
- [5] Coddington, E.A., Levinson, N.: *Theory of ordinary differential equations* (pp. 13-61). New York: McGraw-Hill 1955 · [Zbl 0064.33002](#)
- [6] Desmedt, J.E., Godaux, E.: Ballistic contractions in man: characteristic recruitment pattern of single motor units of the tibialis anterior muscle. *J. Physiol.* 264, 673-693 (1977)
- [7] Ebashi, S., Endo, M.: Calcium and muscle contraction. *Progr. Biophys.* 18, 123-183 (1968) · [doi:10.1016/0079-6107\(68\)90023-0](#)
- [8] Edman, K.A.P., Mulieri, L.A., Scubon-Mulieri, B.: Non-hyperbolic force-velocity relationship in single muscle fibres. *Acta physiol. scand* 98, 143-156 (1976) · [doi:10.1111/j.1748-1716.1976.tb00234.x](#)
- [9] FitzHugh, R.: A model of optimal voluntary muscular control. *J. Math. Biol.* 4, 203-236 (1977) · [Zbl 0355.92010](#) · [doi:10.1007/BF00280973](#)
- [10] Gibbs, C.L., Gibson, W.R.: Energy production of rat soleus muscle. *Amer. J. Physiol.* 223, 864-871 (1972)
- [11] Grimby, L., Hannerz, J.: Firing rate and recruitment order of toe extensor motor units in different modes of voluntary contraction. *J. Physiol.* 264, 865-879 (1977)
- [12] Hatze, H.: The complete optimization of a human motion. *Math. Biosci.* 28, 99-135 (1976) · [Zbl 0331.92003](#) · [doi:10.1016/0025-5564\(76\)90098-5](#)
- [13] Hatze, H.: A myocybernetic control model of skeletal muscle. *Biol. Cybernetics* 25, 103-119 (1977a) · [Zbl 0346.92011](#) · [doi:10.1007/BF00337268](#)
- [14] Hatze, H.: The relative contribution of motor unit recruitment and rate coding to the production of static isometric muscle force. *Biol. Cybernetics* 27, 21-25 (1977b) · [doi:10.1007/BF00357706](#)
- [15] Hatze, H.: A teleological explanation of Weber's law and the motor unit size law. CSIR Special Report WISK 248 (1977c) · [Zbl 0409.92001](#)
- [16] Hatze, H., Buys, J.D.: Energy-optimal controls in the mammalian neuromuscular system. *Biol. Cybernetics* 27, 9-20 (1977) · [Zbl 0396.92009](#) · [doi:10.1007/BF00357705](#)
- [17] Henneman, E.: Peripheral mechanisms involved in the control of muscle. In: *Medical Physiology*, pp. 1697-1716. Mountcastle, V.B., ed. St. Louis: Mosby 1968
- [18] Henneman, E., Somjen, G., Carpenter, D.O.: Excitability and inhibitability of motoneurons of different sizes. *J. Neurophysiol.* 28, 597-620 (1965)
- [19] Jewell, B.R., Wilkie, D.R.: The mechanical properties of relaxing muscle. *J. Physiol.* 152, 30-47 (1960)
- [20] Jøbsis, F. F., O'Connor, M.J.: Calcium release and reabsorption in the sartorius muscle of the toad. *Biochem. Biophys. Res. Commun.* 25, 246-252 (1966) · [doi:10.1016/0006-291X\(66\)90588-2](#)
- [21] Julian, F.J.: The effect of calcium on the force-velocity relation of briefly glycerinated frog muscle fibres. *J. Physiol.* 218, 117-145 (1971)
- [22] Kernell, D.: The limits of firing frequency in cat lumbosacral motoneurons possessing different time course of afterhyperpolarization. *Acta physiol. scand.* 65, 87-100 (1965) · [doi:10.1111/j.1748-1716.1965.tb04252.x](#)
- [23] Milner-Brown, H.S., Stein, R.B., Yemm, R.: The orderly recruitment of human motor units during voluntary isometric contractions. *J. Physiol.* 230, 359-370 (1973)

- [24] Person, R.S., Kudina, L.P.: Discharge frequency and discharge pattern of human motor units during voluntary contraction of muscle. *Electroenceph clin. Neurophysiol.* 32, 471-483 (1972)
- [25] Smith, G.L.: Biomechanical analysis of knee flexion and extension. *J. Biomechanics* 6, 79-92 (1973). doi:10.1016/0021-9290(73)90040-7
- [26] Stark, L.: *Neurological control systems*, p. 311. New York: Plenum Press 1968
- [27] Thorstensson, A., Grimby, G. Karlsson, J.: Force-velocity relations and fiber composition in human knee extensor muscles. *J. Appl. Physiol.* 40, 12-16 (1976)
- [28] Wendt, I.R., Gibbs, C.L.: Energy production of rat extensor digitorum longus muscle. *Amer. J. Physiol.* 224, 1081-1086 (1973)

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