

文献

Amon, M., Menger, M. D., and Vollmar, B. Heme oxygenase and nitric oxide synthase mediate cooling-associated protection against TNF-alpha-induced microcirculatory dysfunction and apoptotic cell death. *FASEB J.* 17: 175-185, 2003.

Auvo, K, and Pekka, M. A performance test protocol and scoring scale for the evaluation of ankle injuries. *Am. J. Sports Med.* 22: 463-469, 1994.

Baez, S. An open cremaster muscle preparation for the study of blood vessels by in vivo microscopy. *Microvasc. Res.* 5: 384-394, 1973.

Baldwin, F. C., Vegso, J. J., and Torg, E. Management and rehabilitation of ligamentous injuries to the ankle. *Sports Med.* 4: 364-380, 1987.

Bancroft, H, and Edholm, O. G. The effect of temperature on blood flow and deep temperature in the human forearm. *J. Physiol.* 102: 5-20, 1943.

Bertuglia, S., and Colantuoni, A. Protective effects of leucopenia and tissue plasminogen activator in microvascular ischemia-reperfusion injury. *Am. J. Physiol. Heart Circ. Physiol.* 278: H755-H761, 2000.

Bleakley, C., McDonough, S., and MacAuley, D. The use of ice in the treatment of acute soft-tissue injury. *Am. J. Sports Med.* 32: 251-261, 2004.

Boland, A. L. Rehabilitation of the injured athlete. *Am. J. Sports Med.* 5: 226-234, 1979.

Bonney, G. L. W., Hughes, R. A., and Janus, O. Blood flow through the normal human knee segment. *Clin. Sci.* 11: 167-181, 1952.

Brakenhoff, G, and Visscher, K. Confocal imaging with bilateral scanning and array detectors. *J.*

Microsc. 165: 139-146, 1992.

Brunt, M, and Thomas, H. Ankle orthoses effect on single-limb standing balance in athletes with functional ankle instability. *Arch. Physician.Med. Rehabil.* 79: 939-944, 1998.

Bugaj, R. The cooling, analgesic, and rewarming effects of ice massage on localized skin. *Phys. Ther.* 55: 11-19, 1975.

Chihara, H., Blood, A. B., Hunter, C. J., and Power, G. G. Effect of mild hypothermia and hypoxia on blood flow and oxygen consumption of the fetal sheep brain. *Pediatr. Res.* 54: 665-671, 2003.

Claude, H, and Laurent, M. (井原秀俊, 中山彰一訳). 膝・足関節・足部の新しい神経-運動器協調訓練. *Proprioceptive exercise の実際*. 医歯薬出版, 東京, 1985.

Clough, G. Relationship between microvascular permeability and ultrastructure. *Prog Biophys. Mol. Biol.* 55: 47-69, 1991.

Cordova, G. L., Armstrong, C. W., Rankin, J. M., and Yeasting R, A. Ground reaction forces and EMG activity with ankle bracing during inversion stress. *Med. Sci. Sports Exerc.* 30: 1363-1370, 1998.

Curl, W. W., Smith, B. P., Rosencrance, E., Holden, M., and Smith, T. L. The effect of contusion and cryotherapy on skeletal muscle microcirculation. *J. Sports Med. Phys. Fitness.* 37: 279-286, 1997.

Deal, D. N., John, T., Eileen, R., Curl, W. W., and Smith, T. L. Ice Reduces Edema. -A study of microvascular permeability in rats-. *J. Bone Joint Surgery.* 84: 1573-1578, 2002.

Domhnall, C, and Mac, Auley, D. C. Ice therapy: How good is the evidence?. *Int. J. Sports Med.* 22: 379-384, 2001.

Duff, F., Greenfield A. D. M., Shepherd, J. T., Thompson, I. D., and Whelan, R. E. The response to

vasodilator substances of the blood vessels in fingers immersed in cold water. *J. Physiol.* 121: 46-54. 1953.

Eldred, E., Lindsley, D. F., and Buchwald, J. S. The effect of cooling on mammalian muscle spindles. *Exp. Neurol.* 2: 144-157, 1960.

Faber, J. E. Effect of local tissue cooling on microvascular smooth muscle and postjunctional α_2 -adrenoceptors. *Am. J. Physiol. Heart Circ. Physiol.* 255: H121-H130, 1988.

Flavahan, N. A. The role of alpha2-adrenoceptors as cutaneous thermosensors. *NIPS.* 6: 251-255, 1991.

Flavahan, N. A., Lindblad, L. E., Verbeuren, T. J., Shepherd, J. T., and Vanhoutte, P. M. Cooling and alpha 1- and alpha 2-adrenergic responses in cutaneous veins: role of receptor reserve. *Am J Physiol.* 249: H950-955, 1985.

Foldes, C. E., Kuze, S., and Deery, A. The influence of temperature on neuromuscular performance. *J. Neural. Transmission.* 43: 27-45, 1978.

Folkow, B., Fox, R. H., Kro, B. J., Odelran, H., and Thoren, O. Studies on the reaction of the cutaneous vessels to cold exposure. *Acta. Physiol. Scand.* 58: 342-354. 1963.

Gerig, B. K. The effects of cryotherapy upon ankle proprioception. *J. Athletic Training.* 25: 119, 1990.

Giesbrecht, G. G., and Bristow, G. K. Decrement in manual arm performance during whole body cooling. *Aviation Space Environ. Med.* 63: 1077-1081, 1992.

Glan, A. G. Therapeutic heat and cold for athletic injuries. *Physician Sportsmed.* 18: 87-94, 1990.

Granger, D. N., Benoit, J. N., Suzuki, M., and Grisham, M. B. Leukocyte adherence to venular endothelium during ischemia-reperfusion. *Am. J. Physiol.* 257: G683-688, 1989.

Haddix, T. L., Pohlman, T. H., Noel, R. F., Sato, T. T., Boyle, E. M., and Verrier, E. D. Hypothermia inhibits human e-selectin transcription. *J. Surg. Res.* 64: 176-183, 1996.

Halar, E. M., DeLisa, J. A., and Brozovich, F. V. Nerve conduction velocity relationship of skin subcutaneous intramuscular temperatures. *Arch. Physician Med. Rehabil.* 61: 199-203, 1980.

Harper, D. R., Deshmukh, V. D., Rowan, J. O., and Jennett, W. B. The influence of sympathetic nervous activity on cerebral blood flow. *Arch. Neurol.* 27: 1-6, 1972.

He, P., J. Wang, and Zeng, M. Leukocyte adhesion and microvessel permeability. *Am. J. Physiol. Heart Circ. Physiol.* 278: H1686-H1694, 2000.

Heinz, L., Wilfried, A., and Albert, G. Neuromuscular properties and functional aspects of taped ankles. *Am. J. Sports Med.* 27: 69-75, 1999.

Hester, R. L., and L. W. Hammer. Venular-arteriolar communication in the regulation of blood flow. *Am. J. Physiol. Regulatory Integrative Comp. Physiol.* 282: R1280-R1285, 2002.

Ho, S. S., Coel, M. N., Kagawa, R., and Richardson, A. B. The effect of ice on blood flow and bone metabolism in knees. *Am. J. Sports Med.* 22: 534-540, 1994.

Ingersoll, C. D., Knight, K. L., and Merrick, M. A. Sensory perception of the foot and ankle following therapeutic application of heat and cold. *J. Athletic Training.* 27: 231-234, 1992.

Inman, V. T. The joint of the ankle. Application to orthopaedics and areas for further clinical study. *Baltimore, Williams & Wilkins.* 69-80, 1976.

Ishikawa, M., Sekizuka, E., Sato, S., Yamaguchi, N., Inamasu, J., Bertalanffy, H., Kawase, T., and Ladecola, C. Effects of moderate hypothermia on leukocyte-endothelium interaction in the rat pial microvasculature after transient middle cerebral artery occlusion. *Stroke.* 30: 1679-1686, 1999.

Janssens, W. J, and Vanhoutte, P. M. Instantaneous changes of alpha-adrenoceptor affinity caused by moderate cooling in canine cutaneous veins. *Am. J. Physiol.* 234: H330-337, 1978.

John, W. F. Effect of an ankle orthosis and ankle ligament anesthesia on ankle joint proprioception. *Am. J. Sports Med.* 22: 648-653, 1994.

Johns, R. J, and Wright, V. Relative importance of various tissues in joint stiffness. *J. Appl. Physiol.* 17: 824-828, 1962.

Johnson, M., Haddix, T., Pohlman, T., and Verrier, E. D. Hypothermia reversibly inhibits endothelial cell expression of E-selectin and tissue factor. *J. Card. Surg.* 10: 428-435, 1995.

Julie, M. A. Comparison of thermotherapy and cryotherapy in enhancing supine extended leg hip flexion. *J. Athl. Train.* 28: 172-176, 1993.

Karlsson, J., Bergsten, T., Lansinger, O., and Peterson, L. Surgical treatment of chronic lateral instability of the ankle joint - A new procedure-. *Am. J. Sports Med.* 17: 268-274, 1989.

Karlsson, J, and Andreasson, G.O. The effect of external ankle support in chronic lateral ankle joint instability. *Am. J. Sports Med.* 20: 257-261, 1992.

Kevin, M. C, and Rick, W. Functional performance following an ice immersion to the lower extremity. *J. Athletic Training.* 31: 113-116, 1996.

Khin, M. H., Ishii, T., Sakane, M., and Hayashi, K. Effect of anesthesia of the sinus tarsi on peroneal reaction time in patients with functional instability of the ankle. *Am. Orth. Foot Ankle Society.* 20: 554-559, 1999.

Knight, K. L., (田淵健一). Cryotherapy in sport injury management. *Sportsmedicine Quarterly*, ブックハウス・エイチディ, 東京, 1997.

城所宏次, 藤谷博人, 南郷明徳. ブレースおよびテーピングの運動前後における足関節制動効果. 臨床スポーツ医学. 16: 152-156, 1996.

Knight, K. L., Ingersoll, C. D., Trowbridge, C. A., Cordovia, M. L., Hyink, K. L., and Welch, S. M.
The effects of cooling the ankle, the triceps surae, or both on functional agility. *J. Athletic Training*. 29: 165, 1994.

Knight, K. L., Kluge, J., Varpolittti, M., and Hayes, K. Knee skin temperature responses to application of two types of cold packs over thick and thin surgical dressings. *Med. Sci. Sports Exerc.* 22: S100. Abstract. 1990.

Knight, K. L., and Londree, B. R. Comparison of blood flow in normal subjects during therapeutic applications of heat, cold, and exercise. *Med. Sci. Sports Exerc.* 12: 76-80, 1980.

Konradsen, L., and Bohsen, R. J. Prolonged peroneal reaction time in ankle instability. *Int. J. Sports Med.* 12: 290-292, 1993.

Kubes, P., Suzuki, M., and Granger, D. N. Nitric oxide: an endogenous modulator of leukocyte adhesion. *Proc. Natl. Acad. Sci. U. S. A.* 88: 4651-4655, 1991.

Kubes, P., Suzuki, M., and Granger, D. N. Modulation of PAF-induced leukocyte adherence and increased microvascular permeability. *Am. J. Physiol.* 259: G859-G864, 1990.

Kuwada, G. T. Long-term retrospective analysis of the treatment of sinus tarsi syndrome. *J. Foot Ankle Surge.* 33: 28-29, 1994.

Lacombe, P., Reynier-Rebuffel, A. M., Mamo, H., and Seylaz, J. Quantitative multiregional blood flow measurements during cervical sympathetic stimulation. *Brain Res.* 24: 129-140, 1977.

Lareviere, J., and Osternig, L. R. The effect of ice on joint position sense. *J. Sports Rehabil.* 3: 58-67.

1994.

Lievens, P, and Leduc, A. Cryotherapy and sports. *Int. J. Sports Med.* 5 (Suppl): 37-39, 1984.

Lindbom, L., Xie, X., Raud, J., and Hedqvist, P. Chemoattractant-induced firm adhesion of leukocytes to vascular endothelium in vivo is critically dependent on initial leukocyte rolling. *Acta Physiol. Scand.* 146: 415-421, 1992.

Li, zhijun., Yang, L., Summers, R., Jackson, M., Deslauriers, R., and Ye, J. Is maintenance of cerebral hypothermia the principal mechanism by which retrograde cerebral perfusion provides better brain protection than hypothermic circulatory arrest? *J. Card. Surg.* 19: 28-35, 2004.

Lofvenberg, R., Karrholm, J., Sundelin, G., and Ahlgren, O. Prolonged reaction time in patients with chronic lateral instability of the ankle. *Am. J. Sports Med.* 23: 414-417, 1995.

Mary, B. C, and Lowell, B. S. Electromyographic response of peroneal muscles in surgical and nonsurgical injured ankles during sudden inversion. *J. Athletic Training.* 18: 497-501, 1993.

Martin, B, and Thomas, H. Ankle orthoses effect on single-limb standing balance in athletes with functional ankle instability. *Arch. Physician Med. Rehabil.* 79: 939-944, 1998.

Matsen, F. A., Questad, K., and Matsen, A. L. The effect of local cooling on postfracture swelling. *Clin. Orthop.* 109: 201-206, 1975.

Meeusen, R, and DeMeirlier, K. Cryotherapy and microcirculation. *Hung. Rev. Sports Med.* 32: 203-210, 1991.

Mense, S. Effects of temperature on the discharges of muscle spindles and tendon organs. *Pfugers. Arch.* 374: 159-166, 1978.

- Michel, C. C., and Curry, F. E.** Microvascular permeability. *Physiol. Rev.* 79: 703-761, 1999.
- Michelson, A. D., Macgregor, H., Barnard, M. R., Kestin, A. S., Rohrer, M. J., and Valeri, C. R.** Reversible inhibition of human platelet activation by hypothermia *in vivo* and *in vitro*. *Thromb. Haemost.* 71: 633-640, 1994.
- Moberg, E.** The role of cutaneous afferents in position sense, kinesthesia, and motor function of the hand. *Brain.* 106: 1-19, 1983.
- Morita, T. Y., Hardebo, J. E., and Bouskela, E.** Interaction between cerebrovascular sympathetic, parasympathetic and sensory nerves in blood flow regulation. *J. Vasc. Res.* 30: 263-271; 1993.
- Nash, G. B., Katherine, B.A., Karen, T., Karim, A., and Stuart, E.** Changes in the mechanical and adhesive behaviour of human neutrophils on cooling *in vitro*. *Pflugers. Arch - Eur. J. Physiol.* 442: 762-770, 2001.
- Olson, J. E., and Stravino, V. D.** A review of cryotherapy. *Phys. Ther.* 52: 840-853, 1972.
- Palmer, J. C., and Knight, K. L.** Ankle and thigh skin surface temperature changes with repeated ice pack application. *J. Athletic Training.* 27: 138, 1992.
- Proulx, C. I., Ducharme, M. B., and Kenny, G. P.** Effect of water temperature on cooling efficiency during hyperthermia in humans. *J. Appl. Physiol.* 94: 1317-1323, 2003.
- Rantanen, J., Hurme, T., and Kallio, J. H.** Effects of early cryotherapy in experimental skeletal muscle injury. *Scand. J. Med. Sci. Sports.* 3: 46-51, 1993.
- Rivenburgh, D. W.** Physical modalities in the treatment of tendon injuries. *Clin. Sports Med.* 11: 645-659, 1992.

Roland, P. E, and Ladegard, P. H. A quantitative analysis of sensations of tension and kinesthesia in man. *Brain*. 56: 671-692, 1977.

Rubanyi, G. M, and Polokoff, M. A. Endothelins: molecular biology, biochemistry, pharmacology, physiology, and pathophysiology. *Pharmacol. Rev.* 46: 325-415, 1994.

坂根正孝. 足関節不安定性を有する運動選手の腓骨筋反応時間. *日本足の外科学会誌*. 16: 283-284, 1995.

Sherwin, S. W., Marc, N. C., Robert, K., and Allen, B. R. The effects of ice blood flow and bone metabolism in knees. *Am. J. Sports Med.* 22: 537-540, 1994.

下條仁士, 向井直樹, 白木仁, 宮永豊. バスケットボール選手における足関節捻挫の定量的ストレスX線計測とテーピングの効果について. *臨床スポーツ医学*. 9: 277-281, 1990.

Slocum, D. B. Treatment of football injuries. *Athl. Train.* 7: 77-89. 1972.

Smith, C. W. endothelial adhesion molecules and their role in inflammation. *Can. J. Physiol. Pharmacol.* 71: 76-87, 1993.

Smith, T. L., Curl, W. W., George, C., and Rosencrance, E. Effects of contusion and cryotherapy on microvascular perfusion in rat dorsal skeletal muscle. *Pathophysiology* . 1: 229-233. 1994.

Smith, T. L., Curl, W. W., Smith, B. P., Holden, M. B., Wise, T., Marr, A., and Koman, L. A. New skeletal muscle model for the longitudinal study of alterations in microcirculation following contusion and cryotherapy. *Microsurgery*. 14: 487~493, 1993.

Suematsu, M., Tamatani, T., Delano, F. A., Miyasaka, M., Forrest, M., Suzuki, H., and Schmid-Schonbein, G. W. Microvascular oxidative stress preceding leukocyte activation elicited by in vivo nitric oxide suppression. *Am. J. Physiol.* 266: H 2410-2415, 1994.

Suzuki, T., Yanagi, K., Ookawa, K., Hatakeyama, K., and Ohshima, N. Flow visualization of the microcirculation in solid tumor tissues: intravital microscopic observation of blood circulation by use of a confocal laser scanning microscope. *Front. Med. Biol. Eng.* 7: 253-263, 1996.

Swenson, C., L. Sward., and Karlson, J. Cryotherapy in sports medicine. *Scand. J. Med. Sci. Sports.* 6: 193-200, 1996.

Taber, C., Contryman, K., Fahrenbruch, J., LaCount, K., and Cornwall, M. W. Measurement of reactive vasodilation during cold gel pack applications to nontraumatized ankles. *Phys. Ther.* 72: 294-299, 1992.

田淵健一. Ⅲ度の内反捻挫－手術から保存的療法へ. *Coaching Clinic.* 1: 10-13, 1997.

高倉義典. 部位別スポーツ外傷・障害-足・下腿. 南江堂. 28-45, 1995.

Thorlacius, H., Vollmar, B., Westermann, S., Torkvist, L., and Menger, M. D. Effects of local cooling on microvascular hemodynamics and leukocyte adhesion in the striated muscle of hamsters. *J. Trauma* 45: 715-719, 1998.

Thornton, R. J., Blakeney, C., and Feldman, S. A. The effects of hypothermia on neuromuscular conduction. *British J. Aesthetics.* 48: 264, 1976.

Todd, A. E., Kenneth, L. K., and Cross, K. M. Agility following the application of cold therapy. *J. Athletic Training.* 30: 231-234, 1995.

Totaro, R., Matteis, G. D., Marini, C., Baldassarre, M., and Carolei, A. Sumatriptan and cerebral blood flow velocity changes during migraine attacks. *Headache.* 37: 635-639, 1997.

Tropp, H., Odenrick, P., and Gillquist, J. Stabilometry recordings in functional and mechanical instability of the ankle joint. *Int. J. Sports Med.* 6: 180-182, 1985.

Vaes, P., DeBoeck, H., Handelberg, F, et al. Comparative radiologic study of the influence of ankle joint bandages on ankle atability. *Am. J. Sports Med.* 13: 46-50, 1985.

Valeski, J. E, and Baldwin, A. L. Effect of early transient adherent leukocytes on venular permeability and endothelial actin cytoskeleton. *Am. J. Physiol. Heart Circ. Physiol.* 277: H569-H575, 1999.

vanEeden, S. F., Miyagashima, R., Haley, L., and Hong, J. C. A possible role for L-selectin in the release of polymorphonuclear leukocytes from bone marrow. *Am. J. Physiol. Heart Circ. Physiol.* 272: H1717-H1724, 1997.

Vanhoutte, P. M, and Miller, V. M. Alpha2-adrenoreceptor and endothelium derived relaxing factor. *Am. J. Med.* 45: 715-719, 1998.

Vanhoutte, P. M, and Shepherd, J. T. Effect of temperature on reactivity of isolated cutaneous veins of the dog. *Am. J. Physiol.* 218: 187-190, 1970.

Vincet, M. J, and Tipton, M. J., The effects of cold immersion and hand protection on grip strength. *Aviation Space Environ. Med.* 59: 738-741, 1988.

Wel, E. P., Raper, A. J., Kontos, H. A., and Patterson, J. L. Jr. Determinants of response of pial arteries to norepinephrine and sympathetic nerve stimulation. *Stroke.* 6: 654-658, 1975.

Westermann, S., Vollmar, B., Thorlacius H., and Menger, M. D. Surface cooling inhibits tumor necrosis factor-alpha-induced microvascular perfusion failure, leukocyte adhesion, and apoptosis in the striated muscle. *Surgery.* 126: 881-889, 1999.

山本 利春. 運動後のアイシンの効果を測る～クーリングダウンとしてのアイシングがパフォーマンスに及ぼす影響. *Training Journal.* 19: 76-79, 1998.

Yanagisawa, M., Kurihara, H., Kimura, S., Gote, K., and Mesaki, T. A novel potent vasoconstrictor

peptide produced by vascular endothelial cells. *Nature*. 332: 411-415, 1988.

Yanagisawa, O., Niitsu, M., Yoshioka, H., Goto, K., Kudo, H., and Itai, Y. The use of magnetic resonance imaging to evaluate the effects of cooling on skeletal muscle after strenuous exercise. *Eur. J. Appl. Physiol.* 89: 53-62, 2003.

吉松俊紀, 齊藤明義, 佐藤賢治, 阿部健男, 相原利男, 秋元良美, 上原マリ子, 小林由香, 龍順之助. 寒冷療法が神經-筋バフォーマンスに与える影響. 日本整形外科スポーツ医学雑誌. 19: 180, 1999.

Zeng, M., Zhang, H., Lowell, C., and He, Pinglian. Tumor necrosis factor-Alpha-induced leukocyte adhesion and microvessel permeability. *Am. J. Physiol. Heart Circ. Physiol.* 283: H2420- H2430, 2002.

Zimmerman, B. J., and Grander, D. N. Role of leukotriene B₄ in ischemia/reperfusion-induced granulocyte infiltration (Abstract). *Gastroenterology*. 96: A697, 1989.