

CURRICULUM VITAE

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EDUCATION

- University of California-Davis** B.S. Biological Sciences 1977
Senior Project in Environmental Toxicology: Development of a pharmacologic dose-response model using *Rana pipiens* for undergraduate teaching laboratories, under the direction of Dr. Robert Krieger.
- University of Wisconsin-Madison** M.S. Exercise Physiology 1985
Thesis: "The Effect of Lower Body Positive Pressure on the Cardiovascular, and VO₂ Responses to Graded Arm Work", under the direction of Dr. Francis Nagle.
- University of Wisconsin-Madison** Ph.D. Exercise Physiology 1990
Dissertation: "The Effects of Tension Development and Muscle Mass on the Pressor Response to Sustained Isometric Exercise", under the direction of Dr. Francis Nagle.

ACADEMIC, SCHOLARLY AND PROFESSIONAL EXPERIENCE

- Associate Professor** Marquette University 8/24/06 - present
Exercise Science Program, Department of Physical Therapy Research Focus: Fatigue in MS and other chronic diseases.
- Associate Adjunct Professor** Medical College of Wisconsin 10/1/08- present
Clinical Translational Science Institute
- Research Physiologist** Zablocki VA Medical Center 2004- present
Radiation Oncology w/o compensation. Research Focus: Fatigue in cancer survivors
- Assistant Professor** Marquette University 8/00- 8/24/06
Exercise Science Program, Department of Physical Therapy Research Focus: Fatigue in MS and other chronic diseases.
- Adjunct Assistant Professor** University of CA-San Francisco 10/99-8/00
Department of Radiology Research Focus: Neurophysiological, autonomic and metabolic basis of muscle function and fatigue in MS, other chronic diseases and human aging.
- Postgraduate Researcher** University of CA-San Francisco 10/97- 10/99
Department of Radiology Research scientist, under the program directorship of Dr. Jane Kent-Braun, muscle fatigue in multiple sclerosis and muscle function during human aging.
- Postdoctoral Fellow** University of CA-San Francisco 9/94-10/97
Department of Radiology Research fellowship, under the direction of Dr. Jane Kent-Braun, muscle fatigue in multiple sclerosis and muscle function during human aging. Participation in the Jimmie Heuga Center medical programs for persons with multiple sclerosis.
- Research Associate** University of CO-Boulder 9/93-9/94
Department of Kinesiology Human research in aging and neural control of the circulation.
- Postdoctoral Fellow** University of CO-Boulder 9/92-9/93
Department of Kinesiology Continuation. National Research Service Award. (NIH, AG05518-03), under the direction of Dr. Douglas R. Seals.
- University of AZ-Tucson 9/90-9/92

Department of Kinesiology National Research Service Award. (NIH, AG05518-03), under the direction of Dr. D. R. Seals. Autonomic control of the circulation during aging.

Research Assistant	University of Wisconsin Hospital	1989-1990
	<i>Dept of Rehabilitation Medicine. Post-polio and, basic neuro-muscular research.</i>	
Teaching Assistant	University of Wisconsin-Madison	1982-1989
	<i>Dept of Physiology. Physiology (undergrad) and Exercise Physiology (physical therapy). lectures, laboratories, and discussions.</i>	
Exercise Physiologist, Instructor	St. Mary's Hospital	1988-1989
	<i>St. Mary's Health Works , Madison, WI. Fitness testing, exercise prescriptions, healthy cooking, cross-country skiing, and ballroom dancing instructor.</i>	
Ropes Course Facilitator	Pecos River Learning Center	8/88-10/88
	<i>Santa Fe, NM. (Wisconsin off site contract work) Use of "high ropes course" as a challenge to foster personal and corporate growth and development.</i>	
Teaching Assistant	University of Wisconsin-Madison	1984,1989
	<i>Dept of Physical Education and Dance. Developed and taught new courses in rock climbing and cross-country skiing.</i>	
Exercise Physiologist	University of Wisconsin-Madison	1984-1985
	<i>Sports Medicine and Fitness Center, Madison, WI. Exercise testing and exercise prescription.</i>	
Cardiac Rehabilitation Practicum	Meriter Hospital	1983
	<i>Madison, WI. Outpatient cardiac rehabilitation practicum</i>	
Fitness Leader	YMCA	1982
	<i>Madison, WI. Lead adult fitness classes.</i>	
Radiological Control Technician	Westinghouse	1979
	<i>Idaho National Engineering Laboratory Expended core facility</i>	
Asst Manager	Mountain Folk Wilderness Supply	1978-1979
	<i>Pocatello, ID.</i>	
Manager	Sunrise Mountaineering	1979-1980
	<i>Livermore, CA</i>	
Ranger Naturalist	National Park Service	1974-1976
	<i>Yosemite National Park, CA. (Seasonal).Natural history interpreter and information specialist.</i>	

BIBLIOGRAPHY

Refereed Journals:

1. **Ng, A.V.**, Hanson P., Aaron E., Demment R.B., Conviser J.M., and Nagle F.J.. Cardiovascular responses to military antishock trouser inflation during standing arm exercise. *J. Appl. Physiol.* 63: 1224-1229, 1987.
2. Bassett, Jr., D.R., Nagle F.J., Mookerjee S., Darr K.C., **Ng A.V.**, Voss S.G., and Napp J.P.. Thermoregulation responses to skin wetting during prolonged treadmill running. *Med. Sci. Sports and Exerc.* 19: 28-32, 1987.
3. **Ng, A.V.**, Demment R.B., Bassett D.R., Bussan M.J., Clark R.R., Kuta J.M., and Schauer J.E.. Characteristics and Performance of Male Citizen Cross-Country Ski Racers. *Int. J. Sports Med.* 9:205-209, 1988.
4. Hunter, G., Montoye H.J., Webster J. G., Demment R., Ji L.L., and **Ng A.**. The validity of a portable accelerometer for estimating energy expenditure in bicycle riding. *J. Sports Med. Physical Fitness* 29: 218-222, 1989.
5. Rodriquez A.A., Agre J.C., Knudtson E.R., Franke T.M., and **Ng A.V.**. Acoustic myography compared to electromyography during isometric fatigue and recovery. *Muscle and Nerve* 16:188-192, 1993.
6. **Ng, A.V.**, Callister R., Johnson D., and Seals D.R.. Age and gender influence muscle sympathetic nerve activity at rest in healthy humans. *Hypertension* 21: 498-503, 1993.

7. Seals, D.R., Taylor J.A., **Ng, A.V.**, Esler M.D.. Exercise and aging: Autonomic control of the Circulation. *Med. Sci. Sports Exerc.* 26: 568-576, 1994.
8. **Ng, A.V.**, Agre J.C., Hanson P., Harrington M.S., and Nagle F.J.. Effect of muscle length and torque production on the endurance and cardiovascular responses to isometric exercise. *J. Appl. Physiol.* 76: 2561-2569, 1994.
9. **Ng, A.V.**, Callister R., Johnson D.G., and Seals D.R.. Sympathetic neural reactivity to stress does not increase with age in healthy humans. *Am. J. Physiol.* 267(Heart Circ. Physiol.36) : H344-H353, 1994.
10. Callister, R., **Ng A.V.**, and Seals D.R.. Arm muscle sympathetic nerve activity during the preparation for and initiation of leg cycling exercise in humans. *J. Appl Physiol.* 77: 1403-1410, 1994.
11. **Ng, A.V.**, Callister R, Johnson D.G., and Seals D.R.. Endurance exercise training is associated with higher, not lower, basal sympathetic nerve activity in healthy older humans. *J. Appl. Physiol.* 77: 1366-1374, 1994.
12. **Ng, A.V.**, Johnson D.G., Callister R., and Seals D.R.. Muscle sympathetic activity increases normally during orthostatic stress in healthy older adults. *Clin. Auton. Res.* 5: 57-60, 1995.
13. **Ng, A.V.** and Braun J.K.. Quantitation of reduced physical activity in persons with multiple sclerosis. *Med. Sci. Sports Exerc.* 29: 517-523, 1997
14. **Ng, A.V.**, Miller, R.G., and Kent-Braun J.A.. Central motor drive is increased during voluntary muscle contractions in multiple sclerosis. *Muscle Nerve.* 20: 1213-1218, 1997.
15. Kent-Braun, J.A., **Ng, A.V.**, Castro, M., Weiner, M.W., Dudley, G.A. and R.G. Miller. Strength, skeletal muscle composition and enzyme activity in multiple sclerosis. *J. Appl Physiol.* 83: 1998-2004, 1997.
16. Castro, M., Kent-Braun, J.A., **Ng, A.V.**, Miller, R.G., and G.A., Dudley. Fiber-type specific Ca²⁺ actomyosin ATPase activity in multiple sclerosis. *Muscle and Nerve.* 21: 547-549, 1998.
17. Kent-Braun, J.A., and **Ng A.V.**. Specific strength and voluntary muscle activation in young and elderly women and men. *J. Appl. Physiol.* 87:22-29, 1999.
18. **Ng, A.V.**, and Kent-Braun J. Slowed muscle contractile properties are not associated with decreased motor drive in older humans. *J. Gerontology.* 54A: B452-B458, 1999.
19. Kent-Braun, J.A., **Ng, A. V.**, and Young K. Skeletal muscle contractile and non-contractile components in young and older women and men. *J. Appl. Physiol.* 88: 662-668, 2000.
20. **Ng, A.V.**, Dao H.T., Miller R.G., Gelinis D.F., and Kent-Braun J.A. Blunted pressor and intramuscular metabolic responses to voluntary isometric exercise in multiple sclerosis. *J. Appl. Physiol.* 88: 871-880, 2000.
21. Johansen, K.L., Chertow G.M., **Ng A.V.**, Mulligan K., Carey S., Schoenfeld P.Y., Kent-Braun, J.A. Physical activity levels in patients on hemodialysis and healthy sedentary controls. *Kidney Int.* 57:2564-2570, 2000
22. Kent-Braun, J.A. and **Ng A.V.**. Skeletal muscle oxidative capacity in young and older women and men. *J. Appl. Physiol.* 89:1072-8, 2000.
23. Johansen, KL, Painter, P, Kent-Braun, JA, **Ng, A.V.**, Carey, S, da Silva, M, Chertow, GM. Validation of Questionnaires to Estimate Physical Activity and Functioning in End-Stage Renal Disease. *Kidney Internat.* 59: 1121-1127, 2001.
24. Kent-Braun, J.A., **Ng, A.V.**, Doyle, J.W., and Towse T.F.. Human skeletal muscle responses vary with age and gender during fatigue due to incremental isometric exercise. *J. Appl. Physiol.*, 93: 1813-1823, 2002.
25. Ebben, W., Kindler, A.G., Chirdon, K.A., Jenkins, N.C., Uhrich, T.D., Polichnowski, A.J., and **Ng A.V.**, The effect of highload versus high repetition resistance training on endurance performance. *J. Strength Cond. Res.* 18:513-517, 2004
26. **Ng, A.V.**, and Kent-Braun J. A.. Basis of Muscle Fatigue in Multiple Sclerosis. *Multiple Sclerosis Quarterly Report.* 23:13-17, 2004.
27. **Ng, A.V.**, Miller, R.G., Gelinis, D., and Kent-Braun J.A.. Functional Relationships of Central and Peripheral Muscle Alterations in Multiple Sclerosis. *Muscle and Nerve.* 29: 843-852, 2004.
28. Polichnowski, A.J. Heyer E.K., and **Ng A.V.**, Effect of Active Muscle Mass During Ischemic Exercise on Peak Lower Leg Vascular Conductance. *J. Appl. Physiol.* 98: 765-771, 2005.

29. Wyrick S. L., Waltke L. J, and **Ng A. V.** Physical therapy may promote resolution of lymphatic cording in breast cancer survivors”. *Rehabilitation Oncology*. 24:29-34, 2006
30. Hunter, S.K., Sanders, J.M., Polichnowski, A.J., and **A.V. Ng.** Sex differences in the fatigability of forearm muscle during isometric contractions depends on the absolute force and muscle perfusion. *J. Appl. Physiol.* 101:140-150, 2006.
31. Lewis, J.B., **Ng, A.V.**, O’Connor, R.C., and M.L.Guralnick. Are there differences between women with urge predominant and stress predominant mixed urinary incontinence? *Neurourology and Urodynamics*. 2006 (Published ahead of print online Oct 31, 2006)
32. Hunter S.K., Schletty J.M., Schlachter K.M., Griffith E.E., Polichnowski A.J. & **Ng A.V.** Active hyperemia and vascular conductance differ between men and women for an isometric fatiguing contraction. *Journal of Applied Physiology* 101: 140-150, 2006.
33. Garrison M.K., **Ng, A.V.**, and B. D. Schmit. Leg sympathetic response to noxious skin stimuli is similar in high and low level human spinal cord injury. *Clin Neurophysiol* 119(2):466-474, 2008. Epub 2007 Dec 4. doi:10.1016/j.clinph.2007.10.013.
34. Wyrick , S.L., Parker, D., Grabowski, D.J.,Feuling, H., and **A.V. Ng.** Depression, fatigue, physical activity and perceived health in assisted-living residents in relation to the use of a walking aid: A Pilot Study. *J. Appl. Gerontol.* 27: 511-522, 2008. first published on May 19, 2008 as doi:10.1177/0733464808315288.
35. Hunter S.K., Yoon T., Farinella J., Griffith E.E., and **Ng, A.V.** Time to Task Failure and Muscle Activation Varies with Load Type for a Submaximal Fatiguing Contraction with the Lower Leg. *J. Appl. Physiol.* 105: 463-472, 2008 . Ahead of print (June 5, 2008). doi:10.1152/jappphysiol.90398.2008.
36. Morrison, E.H., Cooper, D.M., Larson, J., Zaldivar, F., L.J. White, and **A. V. Ng,** Ratings of Perceived Exertion during Aerobic Exercise in Multiple Sclerosis. *Arch Phys Med Rehab* 89: 1570-4, 2008. First published online July 7, 2008 as doi:10.1016/j.apmr.2007.12.036.
37. **Ng, A.V.** The underrecognized role of impaired muscle function in cancer-related fatigue. *J Support Oncol.* 8(4):177-8, 2010
38. Alt, C, Gore, E., Montagnini, M., and **A.V. Ng.** Muscle Endurance, Cancer-Related Fatigue, and Radiotherapy in Prostate Cancer Survivors. *Muscle and Nerve* (in press)

BOOK CHAPTERS:

Ng, A.V., Alt, C.A., and E.Gore. Mechanisms of Cancer-Related Fatigue. in “The Handbook of Cancer Survivorship” Ed. M. Feuerstein. Pub. Springer. 2007.

PROFESSIONAL PRESENTATIONS/ABSTRACTS/PROCEEDINGS:

1. **Ng, A.V.**, Aaron E.A., Demment R.B., Nagle F.J. and Conviser J.M.. Cardiovascular responses to MAS-trousers during standing arm exercise. *Med. Sci. Sports Exerc.* 17: 227, 1985. American College of Sports Medicine annual meeting, Nashville, TN.
2. **Ng, A.V.**, Agre J.C., Harrington M.S., and Nagle F.J.. The blood pressure and endurance response of isometric knee extension to changes in knee angle. *Med. Sci. Sports Exerc.* 21: S3, 1989. American College of Sports Medicine annual meeting, Baltimore, MD.
3. **Ng, A.V.**, Agre J.C., and Hanson P.. Relationship of the surface EMG to the pressor response of isometric knee extension. *FASEB J.* 4: A1196, 1990. FASEB annual meeting, Washington D.C.
4. **Ng, A.V.**, Agre J.C., and Nagle F.J.. Strength and endurance of one vs. two limb contractions-handgrip and knee extension. *Med. Sci. Sports Exerc.* 22:S75, 1990. American College of Sports Medicine, Salt Lake City, UT.
5. Rodriquez, A.A., Agre J.C., and **Ng A.V.**. Muscle twitch parameters evoked by femoral nerve stimulation as parameters of recovery from isometric fatigue of the quadriceps. *American Academy of Physical Medicine and Rehabilitation* (annual meeting, Phoenix, AZ) pg. 141, 1990.

6. Rodriguez, A.A., Agre J.C., and **Ng A.V.**. Acoustic myography during isometric fatigue and recovery. *American Academy of Physical Medicine and Rehabilitation* (annual meeting, Phoenix AZ) pg. 142, 1990.
7. **Ng, A.V.**, Rodriguez A.A., Knudtson E., and Agre J.C.. Influence of isometric exercise intensity on the recovery of maximal voluntary contraction. *Med. Sci. Sports Exerc.* 23: S56, 1991. American College of Sports Medicine annual meeting, Orlando, FL.
8. **Ng, A.V.**, Callister, R., Reiling, M.J., and Seals D. R.. 1991. Sympathetic nerve activity at rest and during acute stress in young and older humans. *Circulation* 84: II-317. American Heart Association annual meeting, Anaheim, CA.
9. Agre, J.C., Rodriguez A.A., Franke T.M., Knudtson E.R., and **Ng A.V.**. A three-year follow-up study of neuromuscular function in postpolio subjects. *Med. Sci. Sports Exerc.* (suppl) 24: S-73, 1992. American College of Sports Medicine annual meeting, Dallas, TX.
10. Callister, R., **Ng, A.V.**, and Seals D.R.. Sympathetic activity at the onset of leg-cycling exercise. *The Physiologist* 35: 237, 1992. Integrative Biology of Exercise, APS conference, Colorado Springs, CO.
11. **Ng, A.V.**, Callister R., Reiling M.J., and Seals D.R.. Effects of chronic physical activity on sympathetic nerve activity in older adult humans. *The Physiologist* 35: 236, 1992. Integrative Biology of Exercise, APS conference, Colorado Springs, CO.
12. **Ng, A.V.**, Knudtson E., Curt J.T., Agre J.C.. Fatigue and recovery of MVC after isometric exercise of different intensities in humans. *Med. Sci. Sports Exerc.* (suppl) 25: S-174, 1993. American College of Sports Medicine Annual Meeting, Seattle, WA.
13. Seals, D.R. , **Ng, A.V.**, Callister, R., and Esler M.D.. Influence of age on sympathetic nervous system activity (SNA) in humans at rest and during stress. *Abstracts; 32nd Congress of the International Union of Physiological Sciences: 82,1993.*
14. **Ng, A.V.**, Rodriguez A.A., Curt J.T., Swiggum E., and Agre J.C.. Low frequency fatigue and isometric exercise of different intensities in humans. *Med. Sci. Sports Exerc.* (suppl) 27: S-80, 1995. American College of Sports Medicine Annual Meeting, Minneapolis, MN.
15. **Ng, A.V.**, Miller R.G., Weiner M.W., and Kent-Braun J.A.. Altered central motor drive in multiple sclerosis. *Med. Sci. Sports Exerc.* (suppl) 28: S108, 1996. American College of Sports Medicine Annual Meeting, Cincinnati, OH.
16. Kent-Braun, J.A., **Ng, A.V.**, Castro, M., Gelinas, D., Dudley, G., and Miller R.G.. Skeletal muscle features in multiple sclerosis. *Med. Sci. Sports Exerc.* (suppl) 28: S108, 1996. American College of Sports Medicine Annual Meeting, Cincinnati, OH.
17. **Ng, A.V.**, Miller, R.G., and Kent-Braun J.A. Altered exercise pressor response in persons with multiple sclerosis. *Med. Sci. Sports Exerc.* (suppl) 29: S33, 1997. American College of Sports Medicine Annual Meeting, Denver, CO.
18. Kent-Braun, J.A., and **Ng A.V.**. Effects of age on muscle activation during voluntary contractions in humans. *Med. Sci. Sports Exerc.* (suppl) 29: S110, 1997. American College of Sports Medicine Annual Meeting, Denver, CO.
19. Castro, M., Kent-Braun J.A., **Ng AV.**, Miller R.G., and Dudley G.A.. Actinomyosin ATPase activity in multiple sclerosis. *Med. Sci. Sports Exerc.* (suppl) 29: S265, 1998. American College of Sports Medicine Annual Meeting, Denver, CO.
20. Young, K., **Ng A.V.**, and Kent-Braun J.A.. Skeletal muscle cross-sectional area, physical activity and estrogen replacement therapy in post-menopausal women. *FASEB J.* 12: A316, 1998. Experimental Biology annual meeting, San Francisco, CA.
21. Kent-Braun, J.A., **Ng, A.V.** and Young K.. Contractile and non-contractile components of skeletal muscle in young and elderly men and women. *FASEB J.* 12: A316, 1998. Experimental Biology annual meeting, San Francisco, CA.
22. **Ng, A.V.**, Dao H.T., Kent-Braun J.A. Central and peripheral components of fatigue during sustained submaximal exercise in humans. *FASEB J.* 12: A643, 1998. Experimental Biology annual meeting, San Francisco, CA.
23. **Ng, A.V.**, Dao H.T., Lee A.S., Kent-Braun J.A.. Altered EMG/force relationship in older humans. *Med. Sci. Sports Exerc.* (suppl) 30: S255, 1998. American College of Sports Medicine Annual Meeting, Orlando Fl.

24. **Ng, A.V.**, Doyle J.W., Dao H.T., Kent-Braun J.A.. Human skeletal muscle fatigue: Is gender more influential than age? *Med. Sci. Sports Exerc.* (suppl) 31: S167, 1999. American College of Sports Medicine Annual Meeting, Seattle WA.
25. Kent-Braun, J.A., **Ng A.V.**, Dao H.T., Doyle J.W., Johansen K.. Lower VO₂ peak in older adults is not due to lower peripheral oxidative capacity. *Med. Sci. Sports Exerc.* (suppl) 31: S384, 1999. American College of Sports Medicine Annual Meeting, Seattle WA.
26. Doyle, J.W., Ng A.V., Dao H.T., Johansen K., Lee A.S., Kent-Braun J. A.. Physical activity and heart rate-max are associated with VO₂ peak in older but not younger adults. *Med. Sci. Sports Exerc.* (suppl) 31: S384, 1999. American College of Sports Medicine Annual Meeting, Seattle WA.
27. Johansen, K.L., Carey S., **Ng A.V.**, Kent-Braun J. A., and Painter P.L. Measurement of physical functioning in persons on hemodialysis. *Med. Sci. Sports Exerc.* (suppl) 32: S160, 2000. American College of Sports Medicine Annual Meeting, Indianapolis, IN.
28. **Ng, A.V.**, Doyle J., Dao H.T., Miller R.G., and Kent-Braun J. A.. Central fatigue during high intensity contractions in multiple sclerosis. *Med. Sci. Sports Exerc.* (suppl) 32: S182, 2000. American College of Sports Medicine Annual Meeting, Indianapolis, IN.
29. Kent-Braun, J.A., **Ng, A.V.**, Doyle, J., and Beaudoin F. Gender, but not age, affects relative fatigue during sustained maximal voluntary isometric contractions. *Med. Sci. Sports Exerc.* 33: S262, 2001. American College of Sports Medicine Annual Meeting, Baltimore MD.
30. Doyle, J., **Ng, A.V.**, Sharoff, C., Beaudoin, F., and Kent-Braun J.A.. Estrogen replacement therapy does not affect muscle characteristics in healthy post-menopausal women. *Med. Sci. Sports Exerc.* 33: S289, 2001. American College of Sports Medicine Annual Meeting, Baltimore MD.
31. Garrison, M. K., Schmit, B.D., **Ng, A.V.** The pressor response in human spinal cord injury: role of type III/IV muscle afferents. 26th Annual Great Lakes Biomedical Conference. April, 2002
32. Garrison, M. K., Schmit, B.D., **Ng, A.V.** The pressor response in human spinal cord injury: the role of type III/IV muscle afferents. Marquette University Biomedical Engineering Symposium. April, 2002.
33. Garrison, M. K., Schmit, B.D., **Ng, A.V.** The autonomic response to transcutaneous nerve stimulation in spinal cord injury. Marquette University Biomedical Engineering Symposium. November, 2002.
34. **Ng A.V.**, Polichnowski A.J., Lobeck L.J., Heyer E.K., Mohr D.C., Miller R.G., and Kent-Braun J.A.. Fatigue, Depression, Cognition, and Cardiovascular Autonomic Function in Persons with Multiple Sclerosis. Milwaukee Area Neuroscience Research Symposium, March 6, 2003
35. Jenkins, N., Chirdon K.A., Kindler A.G., Urich T.D., Polichnowski A.J., **Ng A.V.** and Ebben W.P.. "The effect of high load versus high repetition resistance training on endurance performance." National Strength and Conditioning Association 26th annual conference, Indianapolis, 2003.
36. **Ng, A.V.**, Polichnowski, A.J., Lobeck, L.J. and Heyer E.K., Altered Vascular Conductance in Multiple Sclerosis, *Med. Sci. Sports Exerc.*, 35:S350, 2003. ACSM annual meeting, San Francisco, CA, 2003.
37. Polichnowski, A.J., Heyer, E.K., Wyrick, S.L. and **Ng A.V.**. Effect of Ischemic Exercise of Varying Muscle Mass and Arterial Occlusion on Maximal Vascular Conductance. *Med. Sci. Sports Exerc.*, 35:S42, 2003. ACSM annual meeting, San Francisco.
38. Wyrick S. L., Klotter D. J., Parker D., Feuling H., **Ng A.V.**, FACSM . Walker Use May Preserve Physical Activity in the Elderly. *Med. Sci. Sports Exerc* 36: S141-S142, 2004. Presented at the ACSM annual meeting, Indianapolis.
39. Polichnowski A.J., Lobeck L.J., Heyer E.K., **Ng A.V.**, FACSM Vascular Sympathetic Reactivity, Muscle Fatigue, and Symptomatic Fatigue in Multiple Sclerosis. *Med. Sci. Sports Exerc.*, 36: S272-S273, 2004. Presented at the ACSM annual meeting, Indianapolis.
40. Austin S., Jenkins N., Polichnowski A. J., Lobeck L., Bobholtz J., and **Ng A.V.**, FACSM. Effects of Aquatic Exercise and Temperature on Physical and Cognitive Function in Multiple Sclerosis. *Med. Sci. Sports Exerc* 36: S273, 2004. Presented at the ACSM annual meeting, Indianapolis.
41. Limberg J., Austin S., Alt C., Lobeck L. J., **Ng A.V.** Task Specificity of Muscle Fatigue in Persons with Multiple Sclerosis. Online 2005, ASEP Annual meeting, Minneapolis.
42. Jenkins N., Austin S., Polichnowski A.J., Lobeck L.J., Bobholz J., Alt C., **Ng A.V.**. The Effects of Aquatic Exercise of Varying Temperature on Neurocognitive and Physical Function in Individuals with Multiple Sclerosis and Controls. Online 2005, ASEP Annual meeting, Minneapolis.

43. Austin S., Polichnowski A. J., Jenkins N., Lobeck L. J., Bobholz J., Alt C., MS, PT, **Ng A. V.**, FACSM. Physiological Effects of Aquatic Exercise and Temperature in Persons with Multiple Sclerosis and Controls. Online 2005, ASEP Annual meeting, Minneapolis.
44. Heyer E. K., Polichnowski A. J., Lobeck L. J., Prost R. W., **Ng A.V.**, FACSM. Exercise Endurance but not Fatigue is Limited in Persons with Multiple Sclerosis by Oxygen Delivery to the Exercising Muscle. Online 2005, ASEP Annual meeting, Minneapolis.
45. **Ng A.V.**, Alt C., Gore E., Montagnini M., Stern J., Dufek S.. Muscle fatigue in cancer survivors undergoing curative radiation therapy. Presented at the National Cancer Institute - Small Grants Grantees conference, Bethesda. 2005.
46. Hunter S. K., Sanders J.M., Polichnowski A. J. & **Ng A.V.** FASCM.. Men have greater active hyperemia than women for a similar intensity isometric fatiguing contraction . *Med. Sci. Sports Exerc.*, 37: S388, 2005. Presented at the 2005 ACSM annual meeting, Nashville.
47. Heyer E.K., Polichnowski A. J., Lobeck L. J., Prost R. W., **Ng A. V.** FASCM. Evidence for a Blood Flow Associated Limitation to Endurance in Persons with Multiple Sclerosis *Med. Sci. Sports Exerc.*, 37: S56, 2005. Presented at the ACSM annual meeting, Nashville.
48. Heyer E.K., Lobeck L.J.; Mohr D.C.; Polichnowski A.J.; Miller R.G.; Kent-Braun J.A.; **Ng A.V.**. Cardiovascular function, symptomatic fatigue and depression in multiple sclerosis. Presented at the Society for Neuroscience annual meeting, Washington D.C. (Nov), 2005.
49. Alt C, Gore E., Montagnini M., **Ng A.V.** FASCM, Muscle endurance is associated with cancer-related fatigue after radiation therapy., Presented at the Combined Sectional Meeting, American Physical Therapy Association, San Diego, CA 2006.
50. **Ng, A.V.**, Alt, C., Gore, E., Jablonski, K., Montagnini, M., Stern, J., Dufek, S. Mechanisms of Fatigue in Cancer Survivors. *Med. Sci. Sports Exerc.*, 38: S83, 2006. Presented at the ACSM annual meeting 2006.
51. Schlachter KM, Griffith EE, **Ng A.V.** & Hunter SK. Active hyperemia and vascular conductance differ in men and women matched for strength for an isometric fatiguing contraction. *Medicine and Science in Sports and Exercise* 38(5); S178, 2006. Presented at the American College of Sports Medicine National Annual Meeting, Denver, CO, 2006.
52. Farinella J.M., Corrado G., Griffith E., Jablonski K., Romanowich D., **Ng A.V.**, Hunter S.K. Task-dependent muscle fatigue in the tibialis anterior. Presented at the *Annual Meeting of the Biomedical Engineering Society*, 11-14th October, 2006. (Chicago,IL).
53. Morrison, E.H., **Ng, A.V.**, Cooper, D.M., Larson, J., and L.J. White. Ratings of Perceived Exertion during Aerobic Exercise in Multiple Sclerosis. *Neurology* 68 (12), Suppl 1: A120, 2007. Presented at the Annual Meeting of the American Academy of Neurology, 2007.
54. Gaughan, A., Cowan, A., Urbiztondo, Z., and **A.V. Ng**. Accelerometer Reactivity in College Students. Slide presentation at the *Annual Meeting of the American Society of Exercise Physiologists*. Milwaukee, WI 2007.
55. Heyer, E., Farinella, J. Corrado, G., Romanowich, D., Frank, M. and **A.V. Ng**, Comparison of Muscle Fatigue in Persons with HIV Infection on Highly Active Anti-retroviral Therapy (HAART) to those not on HAART. Slide presentation at the *Annual Meeting of the American Society of Exercise Physiologists*. Milwaukee, WI 2007.
56. Heyer E.K., Farinella, J., Corrado, G., Romanowich, D., Frank, M. and **A.V. Ng**, Muscle Fatigue in Persons with HIV Infection on Highly Active Anti-Retroviral Therapy. *Med. Sci. Sports Exer.* 39(5): S443, 2007. Presented at the American College of Sports Medicine Annual Meeting, New Orleans, 2007.
57. Griffith EE, Schlachter KM, Kufahl TD, **Ng AV** & Hunter SK. The influence of active hyperemia on the sex difference in time to failure of an intermittent fatiguing contraction. For presentation at the American College of Sports Medicine Conference, New Orleans, *Medicine and Science in Sports and Exercise* 39(5); S471, 2007.
58. Farinella JM, Corrado GM, Griffith EE, Jablonski K, Romanowich D, **Ng AV** & Hunter SK. Task-dependent muscle fatigue in the tibialis anterior. For presentation at the American College of Sports Medicine Conference, New Orleans, *Medicine and Science in Sports and Exercise* 39(5); S263, 2007.

59. Wong, S., Ellingson, A., Hunter, S., and **A. Ng**. Corticospinal Response Differs with Depression: A Pilot Study. Poster presented at the College of Health Sciences Summer Research Program Symposia. August 2007.
60. Ellingson, A, Wong, S. Hunter and **A.V. Ng**, Type of Depression May Influence Corticospinal Responses: A TMS Pilot Study. Slide and poster presented at the College of Health Sciences Summer Research Program Symposia. August 2007.
61. Ellingson, A, Wong, S. Hunter and **A.V. Ng**, Type of Depression May Influence Corticospinal Responses: A TMS Pilot Study. Refereed poster presented at the Annual Meeting of the Biomedical Engineering Society, Sept 2007 (Los Angeles, CA).
62. Type of Feedback and Time to Task Failure in Young and Old Adults. Griffith, E.E., Yoon, T., Farinella, J.M., **Ng, A.V.**, and S.K. Hunter. American College of Sports Medicine Annual Meeting, 2008. *Med Sci Sports Exerc* 40:S448, 2008.
63. Dixon, J., Cowdy, J., and **A. V. Ng**, Accelerometer Reactivity During Physical Activity Monitoring in College Students. American College of Sports Medicine Annual Meeting, 2008. *Med Sci Sports Exerc* 40:S321, 2008.
64. **Ng, A.V.**, Vanden Noven, M., Cowdy, J., Farinella, J., Heyer, E.K., and S.K. Hunter. Increased Muscle Fatigability may Contribute to Cancer-Related Fatigue in a Breast Cancer Survivor Undergoing Chemotherapy. American College of Sports Medicine Annual Meeting, 2008. *Med Sci Sports Exerc* 40:S290, 2008.
65. Ingraham, B.A., Woo, D., Heyer, E., Harkins, A., Dixon, J., and **A.V. Ng**. Cortisol contributes to symptomatic fatigue and heart rate variability in persons with multiple sclerosis. American College of Sports Medicine Annual Meeting, 2009, *Med Sci Sports Exerc* 41: S417, 2009.
66. **Ng, A.V.**, Woo, D., Harkins, A., Csuka, M.E., Ingraham, B.A., Dixon, J., and P.E. Papanek. Determinants of bone mineral density in persons with multiple sclerosis. American College of Sports Medicine Annual Meeting, 2009, *Med Sci Sports Exerc* 41: S592, 2009.
67. B. Ingraham, B.T. Cleland, M C. Pitluck, J. Cowdy, and **A.V. Ng**, FACSM. Reproducibility of Ratings of Perceived Exertion in Persons with Multiple Sclerosis. Presented Midwest Chapter of American College of Sports Medicine annual meeting . St Charles IL, 2009.
68. **Ng, A.V.**, Woo, D., Csuka, M.E., Harkins, A., Cleland, B., Pitluck, M., Ingraham, B. Papanek, P. Moderate Physical Activity is Associated with Bone Density in MS. Presented at Consortium of MS Centers Annual Meeting, San Antonio TX, 2010.

SESSION CHAIR AT PROFESSIONAL MEETINGS

Invited Session Chair – 2001 American College of Sports Medicine Annual Meeting, “Exercise and Skeletal Muscle”

INVITED PRESENTATIONS -EXPERT PANELS

Consortium of MS Centers: Consensus Conference on Exercise as a Prescriptive Therapy in Multiple Sclerosis. Invited lecturer “*Physiology of Exercise in Persons with MS*”. October 2010.

Neuro-Rehabilitation Dept., Froedtert Hospital “*Does Exercise Play a Central or Peripheral Role in Multiple Sclerosis: Research and Applied Considerations.*” April, 2009

University of Chicago Medical Center, Geriatrics and Oncology. “Muscle Fatigue in Cancer Survivors”

YMCA of Metropolitan Milwaukee, Cancer Survivorship Expert Panel, a local panel to provide training and to oversee exercise based wellness programs for cancer survivors. August 2008 - present

YMCA/Lance Armstrong Foundation Collaborative Expert Panel, to develop and oversee research based initiative to promote exercise and wellness in cancer survivors at select YMCAs. August 2007 – present.

Concordia University, Department of Physical Therapy, Mequon, WI *Mechanisms of Fatigue in Multiple Sclerosis: an update.* 2007.

- University of California Irvine Medical School**, Irvine, CA, *Successful Grantsmanship* July 2006
- Concordia University, Department of Physical Therapy**, Mequon, WI *Mechanisms of Fatigue in Multiple Sclerosis*, April, 2006,2007
- Medical College of Wisconsin Dept of Phys. Med. and Rehab.** Milwaukee, WI *Neurophysiologic Assessment of Fatigue in Chronic Disease*. March 2006
- National Multiple Sclerosis Society (WI Chapt.)** Hartland, WI, *MS Research Update for Health Care Professionals*. July 10, 2005.
- University of Wisconsin- Milwaukee**, WI. Seminar in Human Movement Sciences. *Mechanisms of Fatigue in Persons with Multiple Sclerosis*. March 2005
- Biomedical Technology Alliance**, Milwaukee, WI. Opportunities for Partnering in Rehabilitation and imaging. Member of expert panel on Imaging and Rehabilitation. November, 2004.
- Lance Armstrong Foundation**, Austin TX, Invited Speaker. "Muscle Fatigue in Cancer Survivors" November, 2004
- American Society of Exercise Physiologists**, Indianapolis, IN Invited Speaker. "Basis of Muscle Fatigue in Multiple Sclerosis" April 2004
- Marquette University**, Milwaukee WI, Integrated Neuroscience Research Center seminar series. *Fatigue in Multiple Sclerosis-Is it all in the head?* October, 2002.
- Marquette University**, Milwaukee WI, Bioengineering Department, Brotz Seminar Series on Biomedical Engineering *Fatigue in Multiple Sclerosis- Getting to the Heart of the Matter*. Oct. 12, 2001.
- National Multiple Sclerosis Society – Wisconsin Chapter**, Milwaukee, WI, *Cardiovascular Health and Fitness in Multiple Sclerosis* Annual MS Family Day at the Zoo, National MS Society, Wisconsin MS Chapter. Sept. 2001
- Multiple Sclerosis Support Group**, West Allis, WI, *Fatigue in Persons with MS: a Research Update*. March. 2001.
- National Multiple Sclerosis Society – Wisconsin Chapter**, Milwaukee, WI, *Exercise and Fatigue in Persons with MS: Current Research* and "Ask the Doctor" Annual MS Family Day at the Zoo, National MS Society, Wisconsin MS Chapter. Sept. 2000
- American College of Sports Medicine National Annual Meeting**, St. Louis, MO, Tutorial Lecture. "Central and Peripheral Factors Affecting Exercise in Neurologic Diseases: Lessons from Multiple Sclerosis." June, 2000.
- Marquette University**, Milwaukee, WI, Program in Exercise Science. Seminar. *Cardiovascular and Metabolic Regulation in Multiple Sclerosis: an Integrated Approach*. April, 2000.
- University of Utah**, Salt Lake City, UT, Department of Exercise and Sport Science. Seminar. *EMG Analysis of Fatigue and Low Back Pain; Blunted Pressor Response in Multiple Sclerosis*. March, 2000.
- San Francisco State University**, San Francisco, CA, Kinesiology Department Colloquium. November, 1999.
- University of Arizona**, Tucson, AZ. "Doings in Motor Control" seminar series. "Blunted Pressor and Intramuscular Metabolic Responses to Exercise in Multiple Sclerosis: Altered Cardiovascular Regulation or Altered Muscle Function?" Sept. 1999.
- University of California - Berkeley Extension** for Biology of Aging course. "Aging and skeletal muscle function". Spring, 1995.
- Arizona Exercise Science Symposium**, Tucson, AZ. "Influence of isometric intensity on the recovery of maximal voluntary contraction." April, 1991.
- University Hospital Sports Medicine and Fitness Center**. Madison,WI
 "Training for Recreational Cross-Country Skiers", 1988.
 "A Physiological Profile of Citizen Cross-Country Ski Racers", 1987.
 "Conditioning for Cross-Country Skiing", 1985.
- Wisconsin Special Olympics**. Winter sports medicine for the Special Olympics Nordic Ski Training School, 1986.
- League of American Wheelmen**, National Rally, Madison, WI. "Training Year-Round", 1985.
- WHA Radio**, Madison, WI. Winter exercise public radio call in program. 1984, 1985.

University Hospital and Clinics, Clinical Laboratories Education and Development , Madison, WI
"Glycogen Utilization and Exercise". 1983.

RESEARCH GRANTS

Funded:

Integrative Neuroscience Research Center (Schmit B.D., PI). 2001. *Autonomic reflexes triggered by group III/IV muscle afferents in spinal cord injury*. Direct costs: \$1200, Graduate Student Support, \$10,000. Ng A. V., Co-Principal Investigator

National Multiple Sclerosis Society Research Grant (Ng A.V., PI). *Autonomic function and fatigue in multiple sclerosis*. Period: 10/1/00-9/30/04. Direct Costs: \$409,543.
 Ng A.V., Principal Investigator, 50% effort..

Lance Armstrong Foundation Research Grant (Ng A.V., PI, 15% effort). *Mechanisms of Muscle Fatigue in Cancer*. Period: 1/1/04-12/31/06. Direct Costs: \$150,000. A. V. Ng, Principal Investigator, 15% effort

National Institute on Aging, RO3 (S. Hunter, PI) *Task Dependence of Muscle Fatigue in Older Adults*. 7/1/04-6/30/06. Direct Costs: \$100,000. Ng A.V., Co-Principal Investigator, 5% effort

National Science Foundation, Research Experience for Undergraduates (Rapella K., PI)
Imaging, Modeling and Rehabilitation of Neurosystems. 2005-2008. Direct cost: \$275,000
 Ng A.V., Participating faculty mentor (Research Director for undergrad research assistant)

Sigma-Tao Pharmaceuticals (Ng A.V., PI). *Characterization of fatigue in persons with HIV infection*. 7/1/05-12/31/06. Direct Costs: \$26,000. Ng A.V., Principal Investigator

National Multiple Sclerosis Society Pilot Project Grant (Morrison E., MD, UC Irvine, PI).
Ratings of Perceived Exertion During Aerobic Exercise in Multiple Sclerosis. 11/1/05-10/31/06. Direct Costs: \$40,000. Ng A.V., Co-investigator

Dr Judith Stitt Women's Faculty Scholar Wisconsin Women's Health Foundation (Johnson, M PI).
Gender differences in the role of robotic rehabilitation therapy after stroke. Period: 10/2006-09/2008. Direct Costs: \$50,000. Ng A.V., Co-Investigator 5% effort.

Department of Engineering: Dean's pilot research program for Cluster grants.
 (Schmit, B., PI) *The Neurosystems Innovations Cluster: A Pilot Project*. Control of movement in persons with multiple sclerosis. Period 3/1/07 – 2/28/08. Direct Costs: \$40,000 requested. Ng, A.V. Co-I.

National Multiple Sclerosis Society. (Ng, A.V., PI) *Bone Mineral Density in MS: Endogenous and Exogenous Factors*. Period 4/1/08-3/31/09. Direct Costs: \$40,000 requested. Ng, A.V., Principal Investigator

The Heuga Center. *Effect of a Wellness Program on Self-Reported Health, Self Efficacy, and Physical Activity in Persons with MS*. Period 1/1/2009 – 12/31/2009. Direct Costs: \$9,260.00. Ng, A.V. Principal Investigator

PROFESSIONAL ACTIVITIES AND SERVICE

Memberships in Professional Societies

American Physiological Society Member (since 1991)

American College of Sports Medicine Member (since 1982) **Fellow** (FACSM).

Member of Chronic Disease and Disabilities, and Aging interest groups.
 Member of the **Northland Regional Chapter ACSM.**
Society for Neuroscience Member (since 2003)

Other Professional Organizations/Activities/Service

Can Do MS (formerly “The Heuga Center”) since 1994. A non-profit educational and research program for persons with multiple sclerosis. Several times a year I work as a clinical exercise physiologist in an interdisciplinary health care setting with MDs, PTs, OTs, RDs, etc. to promote wellness in persons with MS. Also a research consultant.

Fellow of the American College of Sports Medicine Conferred 2000. Abstract reviewer, Continuing Education program reviewer.

Editorial Services

Manuscript reviewer for:

<i>Journal of Applied Physiology</i>	(3/yr)	1994-present
<i>Muscle and Nerve</i>	(3-4/yr)	1995-present
<i>Medicine Science Sports and Exercise</i>	(1-2/yr)	1993-present
<i>Journal of Gerontology</i>		1995-2000
<i>Sports Medicine</i>		2001
<i>Chest</i>		1997
<i>Neurology</i>	(1/yr)	2004-present
<i>International J. Sports Med.</i>	(1/yr)	2004-present
<i>J. Rehab. Res. Dev.</i>	(1/yr)	2005-present
<i>Clin. Neurophysiology</i>	(2/yr)	2006-present
<i>Multiple Sclerosis</i>	(1/yr)	2006-present
<i>International J. Sports Nutr. Exer. Metab.</i>	(1/yr)	2006-present
<i>Archives of Physical Medicine and Rehabilitation</i>	(2-3/yr)	2007-present
<i>Experimental Aging Research</i>	(1)	2007
<i>Acta Neurol. Scan.</i>	(1)	2009
<i>Disability and Health J.</i>	(1)	2009

Book Chapter review for :

Clinical exercise physiology: Application and physiological principles by LeMura L. and van Duvillard S., Lippincott, Williams & Wilkins 2001.

Grant Reviewer Activities

<i>National Multiple Sclerosis Society</i>	Invited (ad hoc) pilot and regular grant reviewer (1-2/year),	2001- present
<i>Fondazione Italiana Sclerosi Multipla</i>	Invited (ad hoc) grant reviewer (1/yr),	2005,2009

External Reviewer For Promotion and Tenure

University of Massachusetts, Amherst (1 candidate, exer. science)	2001
University of Utah, Salt Lake City (1 candidate, exer. science)	2003
Marquette University, Milwaukee (1 candidate, biomedeng.)	2004

Dissertation and Theses Committees

Dissertation committee member for Kevin Garrison (Biomedical Engineering, Marquette). “*Autonomic reflexes triggered by group III/IV muscle afferents in spinal cord injury*”. Completed Fall 2005.

Dissertation committee member for Christine M. Sauer (Education, Marquette). “*The effects of a visual cue of physical disability on the development of peer relationships*”. Completed Summer 2005.

Dissertation committee member and primary research mentor/director for Carlyn Alt, PT (Interdisciplinary, Marquette). “*Mechanisms of muscle fatigue in cancer survivors*”. Completed May 2006.

Dissertation committee member for Manda Keller (Interdisciplinary, Marquette) “*The Impact of Stress on the Neuromuscular Mechanisms of Muscle Fatigue in Young and Old Men and Women*”. Accepted April 2006.

Dissertation committee member for Marnie Vanden Noven (Interdisciplinary, Marquette) “*Aging and Neuromuscular Mechanisms of Muscle Fatigue*”. Accepted Dec 2006.

Dissertation committee member for Matthew Chua (Biomedical Engineering) “*Balance and Coordination in personse with Multiple Sclerosis*”. 2009-

Dissertation director (proposed) for Sherri Bunyan (Interdisciplinary, Marquette) “*Mechanisms of Strength Gain in Persons with MS*”. in progress.

COMMITTEES AND UNIVERSITY SERVICE**University/College Services**

Academic Senate (restructured), College representative, 2007-2010

Committee on Faculty (COF), College representative, term 2003-2006, 2006-2007, 2009-

Research Focus Groups, for ORSP and Taskforce on Research 2005

Health Sciences Scholarship Competition, Speaker 2001,2002

Integrative Neuroscience Research Center, Executive Governing Board member 2001-present

Manressa Common Reading Program, Faculty discussion leader, Fall 2003, Summer 2006,2008, 2009

Established an all University Employees choir. 2009

Program/Departmental Services

Academic Standards Committee, Department of Physical Therapy 2000 - present

Freshman PREVIEW, volunteer 2002, 2003,2005

Search Committee, Tenured, Non-tenured Faculty, Dept. of Physical Therapy, 2003-2004, 2006

Search Committee, Clinical Faculty, Program in Exercise Science 2001

Search Committee, Biomechanist Faculty, Exercise Science 2001

Search Committee, Exercise Physiologist Faculty, Exercise Science 2001-2002

COMMUNITY SERVICE

Wisconsin Winter Special Olympics

volunteer (1986)

Henry Vilas Zoo, Madison, WI

volunteer (1989)

Marin Museum of the American Indian

volunteer, invited lecturer (1998-2000)

Novato, CA

Wauwatosa School System

volunteer, “Art for Youth” (2003-2004)

Speaker “What is an Exercise Physiologist?” Fifth grade career lunch.

Villa Terrace Art Museum (Milwaukee)

volunteer “guest curator” (2004) for Navajo weaving exhibit

Ruffing Middle School (Cleveland, OH)

Hosted an 8th grade student for a Spring career internship/mentorship in Ex Sci/PT. May 8-10, 2007.

National Multiple Sclerosis Society

Wisconsin Chapter volunteer, guest speaker at support group meetings (2001 and 2005, 2009) invited lecturer (2000 to 2002, 2005), Keynote Speaker – Walk MS, 2009. Nominated for “Volunteer of the Year”, 2009.

Can Do MS (formerly, “The Heuga Center”)

1993-present. See prof. org. above.

AWARDS

Non-resident scholarship, University of WI-Madison, 1982,1983

National Research Service Award (NIH, AG05518-03), 1990-1993