

BIOGRAPHICAL SKETCH

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NAME Katarina Borer		POSITION TITLE Professor, Dept. of Movement Science, Division of Kinesiology	
eRA COMMONS USER NAME ktborer			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Pennsylvania, Philadelphia, PA	B.A.	1962	Biology
University of Pennsylvania, Philadelphia, PA	Ph.D.	1966	Zoology
University of Miami, Miami, FL	Post-Doc	1969	Marine Biology
University of Michigan, Ann Arbor, MI	Post-Doc	1971-1977	Neuroscience

A. Positions and Employment

1971-1977	Postdoctoral scholar, Neuroscience Laboratory, University of Michigan
1977-1981	Assistant Professor, Department of Physical Education, University of Michigan
1981-1988	Associate Professor, Department of Kinesiology, University of Michigan
1988–pres	Professor, Dept. Movement Science, Div. Kinesiol., University of Michigan
1990-1991	Acting Chair, Depart. Movement Science, Div. Kinesiol., University of Michigan
1994-1996	Associate Director, Research Dept. Movement Science, Div. Kinesiology, University of Michigan
2002–pres	Visiting Professor and Faculty of Kinesiology, University of Zagreb, Croatia, Europe
2003	Interim Research Associate Dean, Division of Kinesiology, University of Michigan

Other Experience and Professional Memberships

1990-1997	Editorial Board, Physiology and Behavior
1993-1995	Member, Council for Internet. Exchange of Scholars (Fulbright awards for Western Europe: Scandinavia)
2003–pres	Editorial Board, Kinesiology

Honors

1990-1991	Faculty Achievement Award, University of Michigan
1991	Fulbright Hayes Research Scholar to Sweden, University of Gothenburg, Sweden

B. Selected peer-reviewed publications (in chronological order).

- BORER, K.T. Absence of weight regulation in exercising hamsters. *Physiol. Behav.*, 1974; 12:589-597.
- BORER, K.T., POWERS, J.B., WINANS, S.S., and VALENSTEIN, E. S. The influence of olfactory bulb removal on ingestive behaviors, activity levels, and self-stimulation in hamsters. *J. comp. physiol. Psychol.* 1974, 86:396-403.
- BORER, K.T., and KOOL, A.A. Regulatory defense of the exercise-induced weight elevation in hamsters. *Behav. Biol.*, 1975, 13:301-310.
- BORER, K.T. and KAPLAN, L.R. Exercise-induced growth in golden hamsters: Effects of age, weight, and activity level. *Physiol. Behav.*, 1977, 18:29-34.
- BORER, K.T. and KUHNS, L.R. Radiographic evidence for acceleration of skeletal growth in adult hamsters by exercise. *Growth*, 1977, 41:1-13.

6. BORER, K.T., KELCH, R.P., White, M.P., Dolson, L., and Kuhns, L.R. The role of septal area in the neuroendocrine control of growth in golden hamsters. *Neuroendocrinology*, 1977, 23:133-150.
7. BORER, K.T., and KELCH, R.P. A heterologous radioimmunoassay method for measurement of hamster growth hormone. *Neuroendocrinology*, 1978, 25:65-76.
8. BORER, K.T., and KELCH, R.P. Increased serum growth hormone and somatic growth in exercising adult hamsters. *Amer.J. Physiol.*, 1978, 234:E611-E616.
9. BORER, K.T. The nonhomeostatic motivation to run in the golden hamster. In: A.R.Morrison and P.L.Strick (Eds.) *Changing concepts of the nervous system*, New York: Academic Press, 1982, pp 539-567.
10. BORER, K.T., KELCH, R.P., and HAYASHIDA, T. Hamster growth hormone: Species specificity and physiological changes in blood and pituitary concentrations as measured by a homologous radioimmunoassay. *Neuroendocrinology*, 1982: 35: 349-358.
11. BORER, K.T., KELCH, R.P., and CORLEY, K. Hamster prolactin: Physiological changes in blood and pituitary concentrations as measured by a homologous radioimmunoassay. *Neuroendocrinology*, 1982, 35:13-21.
12. TSAI, A.C., ROSENBERG, R., and BORER, K.T. Metabolic alterations induced by voluntary exercise and discontinuation of exercise in hamsters. *American Journal of Clinical Nutrition*, 1982, 35:943-949.
13. BORER, K.T., CAMPBELL, C.S., TABOR, J., JORGENSON, K., KANDARIAN, S., and GORDON, L. Exercise reverses photoperiodic anestrus in golden hamsters. *Biology of Reproduction*, 1983, 29:38-47.
14. POTTER, C.D., BORER, K.T., and KATZ, R.V. Opiate-receptor blockade reduces voluntary running but not self-stimulation in hamsters. *Pharmacology, Physiology & Behavior*, 1983, 18:217-223.
15. BORER, K.T., The reciprocal relationship between endurance physical activity and body fatness. In: B.W. Hansen (Ed.) *Controversies in obesity*, New York: Praeger Scientific, 1983, pp 255-273.
16. BORER, K.T., POTTER, C.D., and FILECCIA, N. Basis for the hypoactivity that accompanies rapid weight gain in hamsters. *Physiology & Behavior.*, 1983, 30:389-397.
17. BORER, K.T., SHAPIRO, B., and VINIK, A.I. A role for somatostatin in the control of hamster growth. *Brain Research Bulletin*, 1983, 11:663-669.
18. KLEMCKE, H.G., BARTKE, A., and BORER, K.T. Testicular prolactin receptors and serum growth hormone in golden hamsters: Effects of photoperiod and time of day. *Biology of Reproduction*, 1983, 29:605-614.
19. KLEMCKE, H.G., BARTKE, A., and BORER, K.T. Regulation of testicular prolactin and luteinizing hormone receptors in golden hamsters. *Endocrinology*, 1984, 114:594-603.
20. BORER, K.T., ALLEN, E.R., SMALLEY, R.E., LUNDELL, L., and STOCKTON, J. Recovery from energy deficit in golden hamsters. *American Journal of Physiology*, 1985, 48:R439-R446.
21. BORER, K.T. Feeding and energy regulation in the golden hamster. In: H.I. Siegel (Ed.) *Golden hamster: Reproduction and behavior*, New York: Plenum, 1985, pp 363-408.
22. BORER, K.T., NICOSKI, D., and OWENS, V. Alteration of the pulsatile growth hormone secretion by growth-inducing exercise: Involvement of endogenous opiates and somatostatin. *Endocrinology*, 1986, 118:844-850.
23. CAMPBELL, G.T., WAGONER, J., BORER, K.T., KELCH, R.P., and CORLEY, K. Ontogenesis of corticotropes and lactotropes in situ in the pituitary gland of the hamster. *Tissue Research*, 1986, 245:673-679.
24. VRIEND, J., BORER, K.T., and THLIVERIS, J.A. Melatonin: Its antagonism of thyroxin's antisomatotropic activity in male Syrian hamsters. *Growth*, 1987, 51:35-43.
25. Borer, K.T. How running accelerates growth. In: A.N. Epstein and A.R. Morrison (Eds.) *Progress in psychobiology and physiological psychology*, New York: Academic Press, 1987, pp 47-115.

26. BORER, K.T. Rostromedial septal area controls pulsatile growth hormone release in the golden hamster. *Brain Research Bulletin*, 1987, 18:485-490.
27. BORER, K.T. Hormonal and nutritional determinants of catch-up growth in hamsters. *Growth*, 1987, 51:103-117.
28. SHAPIRO, B., BORER, K.T., FIG, L.M., and VINIK, A.I. Exercise-induced hyperphagia in the hamster is associated with elevated plasma somatostatin-like immunoreactivity. *Regulat. Peptides*, 1987, 18:85-92.
29. NICHOLS, J.F. and BORER, K.T. Physiological, metabolic, and running characteristics of senescent female hamsters. *Gerontology*, 1987, 33:349-356.
30. NICHOLS, J.F. AND BORER, K.T. The effects of age on substrate depletion and hormonal responses during submaximal exercise in hamsters. *Physiology & Behavior*, 1987, 4:1-6.
31. BORER, K.T., PRYOR, A., CONN, C., BONNA, R., AND KIELB, M. Group housing accelerates growth and induces obesity in adult hamsters. *American Journal of Physiology*, 1988, 255:R128-R133.
32. PIEPER, D.R., BORER, K.T., LOBOCKI, C.A., AND SAMUEL, D. Exercise inhibits reproductive quiescence induced by exogenous melatonin in hamsters. *Amer J Physiol*, 1988, 255:R718-R723.
33. BORER, K.T., BONNA, R., and KIELB, M. Hippocampal serotonin mediates hypoactivity in dietarily obese hamsters : A possible manifestation of aging? *Pharmacology, Biochem Behavior*, 1989, 31:885-892.
34. BORER, K.T. Exercise-induced facilitation of pulsatile growth hormone (GH) secretion and somatic growth. In: Z. Laron and A. Rogol (Eds.) *Hormones and sport*, Serono Symposia Publications from Raven Press, vol. 55, New York: Raven Press, 1989, pp 21-40.
35. CONN, C.A., BORER, K.T., and KLUGER, M.J. Body temperature rhythm and response to pyrogen in exercising and sedentary hamsters. *Medicine & Science in Sports & Exercise*. 1990, 22:636-642.
36. VRIEND, J., SHEPPARD, M.S. and BORER, K.T. Melatonin increases serum growth hormone and insulin like growth factor I (IGF I) levels in male Syrian hamsters via hypothalamic neurotransmitters. *Growth, Development, and Aging* 1990, 54:165-171.
37. BORER, K.T., and DENNIS, R. Activity disc and cage for continuous measurements of temperature in hamster. *Physiology & Behavior*, 1991, 50:1057-1061.
38. BORER, K.T., BESTERVELT, L.L., MANNHEIM, M., BROSAMER, M.B., THOMPSON, M., SWAMY, U. and PIPER, W.W. Stimulation by voluntary exercise of adrenal glucocorticoid secretion in mature female hamsters. *Physiology & Behavior*, 1992, 51:713-718.
39. CONN, C.A., MIAL, S., and BORER, K.T. Food restriction postpones not prevents exercise induced growth in hamsters. *Growth, Development, and Aging*, 1993, 57:193-204.
40. ROWSEY, P.J., BORER, K.T., and KLUGER, M.J. Role of prostaglandins in exercise induced core temperature elevation in female Sprague Dawley rats. *Amer J Physiol*, 1993, 265:R1121-R1125.
41. ROWSEY, P.J., BORER, K.T., and KLUGER, M.J. Tumor necrosis factor is not involved in exercise induced elevation in core temperature. *American Journal of Physiology*, 1993, 265:R1351-R1354.
42. BORER, K.T. Neurohumoral mediation of exercise induced growth. *Med Sci Sports Exer*, 1994, 26:741-754.
43. BORER, K.T. and CLOVER, K. Control by light of the temperature rhythm in food restricted hamsters. *Physiology & Behavior*, 1994, 56:385-391.
44. CONN, C.A., KOZAK, W., TOOTEN, P.C.J., NIEWOLD, T.A., BORER, K.T. and KLUGER, M.J. Effect of exercise and food restriction on selected markers of the acute phase response in hamsters. *Amer J Physiol*, 1995, 78:458-465.
45. CONN, C.A., KOZAK, W.E., TOOTEN, P.C.J., GRUYS, E., BORER, K.T. and KLUGER, M.J. Effect of voluntary exercise and food restriction on response to lipopolysaccharide in hamsters. *Amer J Physiol*, 1995, 78:466-477.

46. BORER, K.T. The effects of exercise on growth. *Sports Medicine*, 1995, 20:375-397.
47. BORER, K.T. and PIEPER, D. Does exercise affect female hamster gonadotropins by reducing estradiol negative feedback? *Physiology & Behavior*, 1999, 65:855-861.
48. BORER, K.T., Fay, W.P., Parker, A. Increased plasma fibrinogen and decreased plasminogen activator inhibitor-1 (PAI-1) after fifteen weeks of training in postmenopausal women, *Med Sci Sports Exer*, 2001, 33: 290.
49. BORER, K.T., CORNELISSEN, G., HALBERG, F., BROOK, R., RAJAGOPALAN, S., & FAY, W. Circadian blood pressure overswinging in a physically-fit normotensive Afro-American woman. *American Journal of Hypertension*, 2002, 15: 827-830.
50. BORER, K.T. Exercise endocrinology. Champaign: Ill: Human Kinetics Publishers, 2003.
51. BORER, K.T., CORNELISSEN, G., HALBERG, F., Hughes, C. Health implications of training intensity in older individuals. *Kinesiology*, 2003, 35: 210-218.
52. BORER, K.T. Physical activity in prevention and amelioration of osteoporosis in women: Interaction of mechanical, hormonal, and dietary factors. *Sports Medicine* 2005, 35: 779-830.
53. BORER, K.T., WUORINEN, E, AND BURANT, C. Exercise energy expenditure is not consciously detected due to oro-gastric, not metabolic, basis of hunger sensation. *Appetite* 2005, 45: 177-181.
54. KASA-VUBU, J.Z., YE, W., BORER, K.T., ROSENTHAL, A., MECMONGKOL, T. Twenty-four hour ghrowth hormone and leptin secretion in active post-pubertal adolsecent girls. Impact of fitness, fatness and age at menarche. *J Clin Endocr Metab* 2006, 91: 3935 – 3940.
55. CORNÉLISSEN G., HALBERG F., KATINAS G., SCHWARTZKOPFF O., HOLLEY D., BORER K., HOMOLKA P., SIEGELOVÁ J., FIŠER B., DUŠEK J., OTSUKA K., YANO A., DELCOURT A., TOUSSAINT G., SANCHEZ DE LA PENNA S., GONZALEZ C., ZHAO Z., ASLANIAN N., SINGH R. B., KUMAR A., TARQUINI R., PERFETTO F. Stroke and other vascular disease prevention by chronomics. *Scripta Medica* 2006, 79: 147-154.
56. BORER KT. FOGLEMAN K. GROSS M. LA NEW JM. DENGEL D. Walking intensity for postmenopausal bone mineral preservation and accrual. *Bone* 2007, 41:713-721.
57. BORER KT. How effective is exercise in producing weight loss? ***Kinesiology*** 2008,2: 126-137.
58. BORER KT, KU K, DAOUD A, LASH RW, GROSS MM, KERNOZEK T. Mechanical, hormonal, and temporal parameters of exercise that increase markers of bone formation relative to resorption in postmenopausal women. ***Osteoporosis International*** 2008, 19 (Supplement 2): S255 (Abstract P112TH).
59. BORER KT, WUORINEN E, LUKOS J, DENVER J, PORGES S, BURANT, C. Two bouts of exercise before meals, but not after meals, lower fasting blood glucose. ***Medicine and Science in Sports and Exercise*** 2009 (in press).
60. BORER KT, WUORINEN E, KU K, BURANT C. Appetite responds to changes in meal content while ghrelin, leptin, and insulin track changes in energy availability. ***The Journal of Clinical Endocrinology and Metabolism***, 2009 (in press).

C. Research Support

Ongoing Research Support

BORER, K.T. (PI)

10/1/08-9/30/09

MICHAEL

Timing of exercise and meals for prevention of type 2 diabetes

Examines the sustained glucose lowering effect of two bouts of exercise in fasted state

Pending Research Support

BORER, K.T. (PI) 9/01/09 – 8/31/11 25%
 NIH 1 R15 DK082800-01A1 \$150,000 (DC)
 Liver glycogen in control of plasma glucose and appetite
 Examines the role of liver glycogen in exercise-induced lowering of blood glucose in healthy subjects

BORER, K.T. (Co-PI) RICHARDSON (Co-PI) 12/01/09 – 11/30/11 10%
 NIH 1 R24 DK084951-01 \$149,314 (DC)
 Timing of exercise and meals to prevent type 2 diabetes
 Examines the feasibility of translating clinical study to the community setting with the use of internet

BORER K.T. (PI) 9/01/2010-8/31/2013 28%
 Department of Defense
 Congressionally Directed Medical Research Programs \$743,139 (DC)
 Mechanical, temporal, and hormonal parameters of exercise to prevent osteoporosis

Completed Research Support

BORER, K.T. (PI) 9/01/05 – 8/31/08 25%
 NIH 1 R15 DK066286-01A2 \$150,000 (DC)
 Role of exercise in the endocrine control of feeding
 Examines the role of hormones in putative post-exercise suppression of hunger, satiety, and eating.

BORER, K.T. (PI)
 Tanita Healthy Weight Community Grant-in Aid 11/1/2004-8/31/2005 10%
 No detection of exercise energy expenditure \$6,934
 Examines routes of nutrient entry and expenditure in eliciting hormonal mediation of hunger and satiety.

F008322-045534 BORER, K.T. (PI) 4/1/03 – 6/1/04 25%
 NSF/ ADVANCE Program \$20,000
 Using exercise and diet for appetite suppression (Same general aim as above)