

BIOGRAPHICAL SKETCH

NAME: Ravussin, Eric

eRA COMMONS USER NAME (agency login): RAVUSSE

POSITION TITLE: Professor (Adjunct) Biochemistry and Molecular Biology Division

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Lycée, Lausanne	OTHER	1967	(Math - Sciences)
High School at the 'Gymnase Cantonal Scientifique', Lausanne	BACHELOR OF SCIENCE	1969	Bacchalaureat es Sciences and Federal Maturity type 'C'
University of Lausanne, Lausanne, Switze	MS	1974	Biochemistry, Microbiology, Human Physiology and Plant Physiology
University of Lausanne, Lausanne, Switze	PHD	1980	"Doctorat es Sciences" in Human Physiology

A. Personal Statement

Dr. Ravussin is a world expert in the conduct of translational research in obesity and type 2 diabetes. Over his more than 30 year career, he has conducted numerous clinical investigations on measures of energy expenditure, body composition, carbohydrate metabolism and biomarkers of aging in health and disease states. More specifically over the past 15 years he has established a wet lab studying skeletal muscle and adipose tissue cross talks and the relationship of these two tissues on inflammation, nutrient partitioning and insulin sensitivity. He has published more than 450 peer reviewed manuscripts in the field of obesity, type 2 diabetes and aging. He has mentored more than 60 postdoctoral fellows. Over the past 10 years he has conducted translational research on the impact of caloric restriction on biomarkers of aging, looked at the impact of weight loss and weight gain (overfeeding) in the cross talk between adipose and skeletal muscle and has conducted randomized clinical trial on the impact of dietary, activity, surgical and pharmacological interventions on insulin sensitivity.

B. Positions and Honors

Positions and Employment

1973 - 1974	Teacher of Natural Sciences in High School, Lausanne, Switzerland, Director M. Leroy, Postgraduate Formation
1974 - 1975	Lecturer in Physiology for laboratory technicians in the Professional , School of Lausanne, Teaching Experience
1974 - 1980	Assistant at the Institute of Physiology, University of Lausanne, to Professor M. Dolivo, Postgraduate Formation
1977 - 1980	Lecturer in Physiology and Sports Biology for physical, University of Lausanne, Teaching Experience
1980 - 1982	Visiting Assistant Professor, University of Vermont, Department of Medicine, Directed by Prof. Dr. E. Horton, Burlington, VT
1982 - 1982	Five months as Visiting Scientist, Phoenix Clinical Reserach Section, National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases, National Institutes of Health, Phoenix, AR
1982 - 1984	Lecturer, Physiology & Sports Biology for physical educ., University of Lausanne, Teaching Experience
1984	Lecturer in Exercise Physiology , Arizona State University
1984 - 1998	Adjunct Professor, Dept. of Health & Physical Education, Arizona State University, Temple, AZ

- 1984 - 1998 Visiting Scientist, Clinical Diabetes & Nutrition Section, National Institute of Diabetes & Digestive and Kidney Diseases, National Institutes of Health, Leader of Obesity Research, Phoenix, AZ
- 1998 - 1999 Director, Obesity Research & Clinical Investigation, Lilly Research Laboratories, Indianapolis, IN
- 1999 - 2000 Director, Endocrine Research & Clinical Investigation, Lilly Research Laboratories, Indianapolis, IN
- 2001 - Professor, LSU PENNINGTON BIOMEDICAL RESEARCH CTR
- 2004 - Adjunct Professor, Louisiana State University, Baton Rouge, LA
- 2004 - Director, Nutrition Obesity Research Center (NORC), formerly Clinical Nutrition Research Center (CNRU), Pennington Biomedical Research Center, Baton Rouge, LA
- 2009 - Professor (Adjunct), Joint Program on Diabetes, Endocrinology, and Metabolism, Louisiana State University Health Science Center School of Medicine, Pennington Biomedical Research Center, New Orleans & Baton Rouge, LA
- 2011 - Professeur Associe de Recherche (Associate Professor of Research), Université de Paris Pierre et Marie Curie (UPMC), Paris
- 2012 - Professor (Adjunct) Biochemistry and Molecular Biology Division, Louisiana State University Biology Department, Pennington Biomedical Research Center, Baton Rouge, LA
- 2012 - Associate Executive Director for Obesity-Diabetes, Pennington Biomedical Research Center, Baton Rouge, LA

Other Experience and Professional Memberships

- Invited Speaker or Keynote Speaker , at more than 50 international scientific meetings
- member, International Group for the Study of Diabetes
- member, Weight Risk Investigation Study Council
- member, Metabolism Study Section
- Honorary Member, Argentina Nutrition Society
- Executive Member, Nutrition, Physical Activity and Metabolism Council of the American Heart Association
- Vice-Chair, Obesity Committee of the American Heart Association
- 1979 - 1987 member, Swiss Physiological Society
- 1982 - 1992 member, American Federation for Clinical Research
- 1986 - 1998 member, International Diabetic Athletes Association
- 1989 - member, North American Association for the Study of Obesity now called The Obesity Society
- 1990 - member, American Institute of Nutrition
- 1990 - 2000 member, Editorial Board of the International Journal of Obesity
- 1992 - member, American Diabetes Association
- 1994 - 1998 member, Editorial Board of American Journal of Physiology, Endocrinology and Metabolism Section
- 1997 - member, Internal Advisory Board for the 1997 IDF Meeting
- 2005 - member, Editorial Board of Cell Metabolism
- 2011 - 2012 Associate Editor, Diabetes Care
- 2012 - Editor in Chief, Obesity
- 2013 - member, Molecular Metabolism Editorial Board

Honors

- 1990 A. Mayer award for outstanding contributions to research in the field of obesity, International Association for the Study of Obesity. Awarded in Kobe, Japan
- 2001 E.V. McCollum Award for actively generating new concepts in nutrition and personally seeing to the execution of studies testing the validity of these concepts, American Society for Clinical Nutrition. Awarded in Orlando, FL.
- 2002 Douglas L. Gordon Endowed Chair in Diabetes & Metabolism, LSU

2004	President, NAASO
2005	President-Elect, NAASO
2006	Vice-President, NAASO
2006	TOPS Award - for outstanding contributions to the understanding and treatment of obesity, NAASO
2010	IASO Willendorf Award, International Association for the Study of Obesity. XI International Congress on Obesity – Stockholm, Sweden
2011	George Bray Founders Award” recognizing “significant contributions that advanced the scientific or clinical basis for understanding or treating obesity”, The Obesity Society
2011	Lecture Award “Caloric Restriction and longevity: Do we live longer or does it just seem longer?”, The NUTRIUM Lecture 2011 was endowed by NUTRIM School for Nutrition, Toxicology and Metabolism; Maastricht University
2012	Boyd Professor (highest professional rank awarded for his national and international distinction for outstanding teaching, research, or other creative achievements), Louisiana State University

C. Contribution to Science

1. Ravussin was the first one to put together the methods of the hyperinsulinemic euglycemic clamp and indirect calorimetry to quantify the fate of glucose disposal into glucose oxidation vs. non-oxidative glucose disposal rates.
 - a. Ravussin E, Bogardus C. Thermogenic response to insulin and glucose infusions in man: a model to evaluate the different components of the thermic effect of carbohydrate. *Life Sci.* 1982 Nov 1;31(18):2011-8. PubMed PMID: [6757619](#).
 - b. Ravussin E, Bogardus C, Schwartz RS, Robbins DC, Wolfe RR, Horton ES, Danforth E Jr, Sims EA. Thermic effect of infused glucose and insulin in man. Decreased response with increased insulin resistance in obesity and noninsulin-dependent diabetes mellitus. *J Clin Invest.* 1983 Sep;72(3):893-902. PubMed PMID: [6350368](#); PubMed Central PMCID: [PMC1129254](#).
2. Early in his career, Ravussin was involved in the building of the first human respiratory chamber in Lausanne, Switzerland. After building the first North America such chamber at NIDDK in Phoenix, he established for the first time the percentages of total daily energy expenditure accounted for by sleeping metabolic rate, the energy cost of arousal, the thermic effect of food and the energy spent in spontaneous physical activity. Then in combination with the doubly labeled water, he was able to quantify the energy cost (and level) of voluntary physical activity. More importantly, he identified the major physiological and genetic determinants of energy metabolism in humans.
 - a. Bogardus C, Lillioja S, Ravussin E, Abbott W, Zawadzki JK, Young A, Knowler WC, Jacobowitz R, Moll PP. Familial dependence of the resting metabolic rate. *N Engl J Med.* 1986 Jul 10;315(2):96-100. PubMed PMID: [3724804](#).
 - b. Ravussin E, Lillioja S, Anderson TE, Christin L, Bogardus C. Determinants of 24-hour energy expenditure in man. Methods and results using a respiratory chamber. *J Clin Invest.* 1986 Dec;78(6):1568-78. PubMed PMID: [3782471](#); PubMed Central PMCID: [PMC423919](#).
 - c. Ravussin E, Lillioja S, Knowler WC, Christin L, Freymond D, Abbott WG, Boyce V, Howard BV, Bogardus C. Reduced rate of energy expenditure as a risk factor for body-weight gain. *N Engl J Med.* 1988 Feb 25;318(8):467-72. PubMed PMID: [3340128](#).
3. In the early 2000s, Ravussin undertook a series of experiments to investigate the cross-talk between adipose tissue and skeletal muscle as determinants of insulin sensitivity in response to caloric restriction, overfeeding and physical activity on these factors.
 - a. Ravussin E, Smith SR. Increased fat intake, impaired fat oxidation, and failure of fat cell proliferation result in ectopic fat storage, insulin resistance, and type 2 diabetes mellitus. *Ann N Y Acad Sci.* 2002 Jun;967:363-78. PubMed PMID: [12079864](#).
 - b. Albu JB, Heilbronn LK, Kelley DE, Smith SR, Azuma K, Berk ES, Pi-Sunyer FX, Ravussin E. Metabolic changes following a 1-year diet and exercise intervention in patients with type 2 diabetes. *Diabetes.* 2010 Mar;59(3):627-33. PubMed PMID: [20028945](#); PubMed Central PMCID: [PMC2828653](#).
 - c. Johannsen DL, Tchoukalova Y, Tam CS, Covington JD, Xie W, Schwarz JM, Bajpeyi S, Ravussin E. Effect of 8 weeks of overfeeding on ectopic fat deposition and insulin sensitivity: testing the "adipose

tissue expandability" hypothesis. Diabetes Care. 2014 Oct;37(10):2789-97. PubMed PMID: [25011943](#); PubMed Central PMCID: [PMC4170127](#).

4. Over the past 10 years, Ravussin became involved in a series of studies on the role of energy metabolism on aging and the impact of caloric restriction on metabolism and oxidative stress on biomarkers of aging
 - a. Heilbronn LK, de Jonge L, Frisard MI, DeLany JP, Larson-Meyer DE, Rood J, Nguyen T, Martin CK, Volaufova J, Most MM, Greenway FL, Smith SR, Deutsch WA, Williamson DA, Ravussin E. Effect of 6-month calorie restriction on biomarkers of longevity, metabolic adaptation, and oxidative stress in overweight individuals: a randomized controlled trial. JAMA. 2006 Apr 5;295(13):1539-48. PubMed PMID: [16595757](#); PubMed Central PMCID: [PMC2692623](#).

Complete List of Published Work in My Bibliography:

<http://www.ncbi.nlm.nih.gov/myncbi/eric.ravussin.1/bibliography/40754139/public/?sort=date&direction=ascending>

D. Research Support

Ongoing Research Support

R01 DK092575-04 Ravussin, Eric (PI)
07/01/12 - 04/30/17
Role of slowly digestible starch in diabetes risk factors in pre-diabetic people

R01 DK090607-05 Ravussin, Eric (PI)
04/01/11-01/31/16
Cellular Dynamics of Subcutaneous Fat Distribution in Obese Women

P30 DK072476 Ravussin, Eric (PI)
05/01/2016 - 03/31/2021
Pennington/Louisiana NORC

Completed Research Support

P30 DK072476-10 Ravussin, Eric (PI)
09/15/05-04/30/16
Nutritional Programming: Environmental and Molecular Interactions

R01 AG029914-05 Ravussin, Eric (PI)
08/15/08-06/30/15
Metabolic Adaptation After 2 Years of Caloric Restriction in Non-Obese Humans

R01 DK060412-10 Ravussin, Eric (PI)
09/30/01-08/31/14
Fat Cell Size, Overfeeding & Ectopic Fat

U01 AG020478-07 Ravussin, Eric (PI)
03/15/02-08/31/09
Metabolic Adaptations to Two Year Caloric Restriction

P01 AG022064-01A1 Ravussin, Eric (PI)
04/01/04-03/31/09
ENERGY METABOLISM AND OXIDATIVE STRESS IN AGING