

CURRICULUM VITAE

RONALD J. SIGAL, MD, MPH, FRCPC

CURRENT POSITION

Oct. 1996-	UNIVERSITY OF OTTAWA Department of Medicine, Division of Endocrinology
March 2002-	Associate Professor
Oct. 1996-Mar. 2002	Assistant Professor
Nov. 1999-	Adjunct Professor, Human Kinetics Member, School of Graduate Studies
Oct. 1996-	OTTAWA HEALTH RESEARCH INSTITUTE (formerly known as Loeb Health Research Institute) Clinical Epidemiology Program
July 1998-	Scientist/Principal Investigator
Oct. 1996-July 1998	Associate Investigator
2002	Director, Diabetes Clinic
Oct. 1996-	OTTAWA HOSPITAL Attending Staff Physician, Division of Endocrinology

POSTGRADUATE MEDICAL TRAINING

1994-96	JOSLIN DIABETES CENTER, Boston, MA, USA Research Fellow, Section on Epidemiology and Genetics
1990-93	McGILL UNIVERSITY, Montreal, Quebec, Canada
1990-91	Resident IV, Endocrinology
1991-92	Resident V, Endocrinology
1992-93	Clinical Research Fellow, McGill Nutrition and Food Sciences Centre
1987-90	JEWISH GENERAL HOSPITAL, MCGILL UNIVERSITY Montreal, Quebec, Canada
1987-88	Straight Intern, Internal Medicine

1988-90 Resident II-III, Internal Medicine

EDUCATION

1993-95 HARVARD SCHOOL OF PUBLIC HEALTH, Boston, MA
Master of Public Health (Quantitative Methods) 1995

1984-87 THE UNIVERSITY OF CALGARY, Calgary, Alberta, Canada
MD 1987

1982-84 MCGILL UNIVERSITY, Montreal, Quebec, Canada
Faculty of Music
Department of Performance

1979-82 MCGILL UNIVERSITY, Montreal, Quebec, Canada
B.Sc. in Psychology (First Class Honours)

1976-78 VANIER COLLEGE, Montreal, Quebec, Canada
DEC in Health Sciences

PROFESSIONAL LICENSING AND CERTIFICATION

1988 LMCC no. 66548

1989 Ontario License no 60515

1990 American Board of Internal Medicine Certification
in Internal Medicine

1991 Fellowship of the Royal College of Physicians and
Surgeons of Canada (FRCPC), Internal Medicine

1991 Quebec Certification (CSPQ), Internal Medicine

1992 Royal College of Physicians and Surgeons of Canada
Certificate of Special Competence in Endocrinology

1992 CSPQ, Endocrinology

1996 American Board of Internal Medicine Certification
in Endocrinology and Metabolism

PEER-REVIEWED OPERATING GRANTS (Currently held as of June 2004)

- 2004-2007 The development and Evaluation of Physical Activity (and Nutrition) Behavioural Strategies for Adults with Type 2 Diabetes: A Population-based Approach
- The Canadian Institutes of Health Research
\$554,140 total over 3 years
Co-Investigator (PI Ron Plotnikoff)
- 2004-2005 A Resistance Training (and Aerobic) Home-based Program for Obese Adults with Type 2 Diabetes.
- The Canadian Institutes of Health Research
Nutrition, Metabolism and Diabetes
\$50,000 for one year Pilot Project
- 2004-2007 Fetal Macrosomia and Adolescent obesity
- Canadian Diabetes Association
\$220,000 over 3 years (Grant #1586)
Co-investigator (PI Shi-Wu Wen)
- 2004-2005 The development of a collaborative research project in fetal macrosomia and adult obesity and associated diseases in China.
- Canadian Institutes of Health Research,
International Opportunity Program
\$22,500
Collaborator (PI Shi Wu Wen)
- 2004-2005 Environmental modulation of pancreatic beta-cell injury/repair through adipokines
- University of Ottawa Medical Associates—Translational Research Competition (Top-ranked application in this competition)
- \$25,000 from dept of Medicine (**provided matching funds can be found** from OHRI and/or Division of Endocrinology)
- Co-PI (along with Alexander Sorisky and Fraser Scott)
- 2003-2005 An examination of physical behaviour & its determinants and health care status & health care delivery: A three-time point, eighteen-month, population-based prospective cohort study of adults with diabetes.
- Canadian Diabetes Association
\$98,865
Co-Investigator. (PI Ron Plotnikoff)

Other Co-Investigators: Courneya K, Raine K, Birkett N, Svenson L,
Johnson J.

- 2001-2005 Resistance Exercise as an Intervention in Type 2 Diabetes Mellitus
- Canadian Institutes of Health Research—Clinical Trials
\$217,279 in year 1, \$293,215 in year 2, \$290,440 in year 3 and \$149,128 in year 4 for a total of \$950,062 over 4 years
- Principal Investigator.
Co Investigators: Kenny GP, Reid RD, Coyle DA, Wells GA, Fortier M, Prud'homme D.
- 2000-2009 Action to Control Cardiovascular Risk in Diabetes (ACCORD)
(Ottawa Clinical Centre PI in multi-centre NIH trial)
- National Institutes of Health
Annual funding is approximately \$206,000. Total funding for this site is \$2,352,181 based on 132 participants.
Multi-centre Study - 62 centres in Canada and US.
- 2002-2004 Evaluation of comorbidities and complications in relation to hospital outcomes for diabetes among Canadian inpatients and general Canadian populations
- Canadian Institutes of Health Research/Health Canada
\$102,720/yr
Co-investigator (PI Yue Chen)
- 2001-2004 Glycemic Control and In-Stent Restenosis
- Heart and Stroke Foundation of Ontario
\$193,870 in year 1, \$581,610 total over 3 years
(Total funding for a 3-city trial. I am a member of the Steering Committee and the local co-investigator; PI for the trial is Madhu Natarajan of McMaster University). Other Co-Investigators: Strauss BH, Gerstein HC, Cohen EA, Fort S, Seidelin PH, Goodhart DM, Marquis J-F, Leiter LA, Fettes I, Yusuf S.
- 2002-2005 Exercise in men receiving radiation therapy for prostate cancer: effects on fatigue, toxicity of radiotherapy, body composition, muscular fitness, cardiorespiratory fitness and quality of life.
- National Cancer Institute of Canada
\$128,533/yr 1, \$127,338/yr 2, \$127,181/yr 3
Co-Investigator (PI Roanne Segal).
- 2001-2006 PeriOperative ISchemic Evaluation Study
- Canadian Institutes of Health Research--Clinical Trials
\$1,339,665
Co-Investigator and a member of Steering Committee (PI Homer Yang)

Other Co-Investigators: Devereaux P. and 33 other co-applicants.

2001-2006

DREAM study (Diabetes REduction Approaches with ramipril and rosiglitazone Medications)

Canadian Institutes of Health Research/R&D

Approximately \$164,250 total over 5 years

(Local co-PI with H. Lochnan in multicentre trial. Co-PI Hertzler Gerstein and Salim Yusuf McMaster Univ.)

2002-2005

Folic acid deficiency in second trimester and adverse pregnancy outcomes.

Canadian Institutes of Health Research

\$207,424/yr 1, \$199,320/yr 2, \$45,182/yr 3

Co-Investigator. (PI Shi Wu Wen)

Other Co-Investigators: Rodger M, Walker M, Perkins S.

PEER-REVIEWED OPERATING GRANTS (Applied for)

2004-2008

The Healthy Eating and Aerobic Resistance Training in Youth (HEARTY) Trial (**“Under Continuing Review”—will probably be funded**)

Canadian Institutes of Health Research

Institute of Nutrition & Metabolic Diseases

\$1,793, 330 over 4 years

Principal Investigator

2003-2006

THE PAC PROJECT - Integrating Physical Activity Counselors in the Primary Health Care Team: A Randomized Controlled Trial

Ministry of Health & Long Term Care/Family Health Networks

\$750,000 over 2 years (**Will learn re funding 2nd week of July**)

Co-Investigator (Co-PI Michelle Fortier and William Hogg)

PEER-REVIEWED OPERATING GRANTS (Previously held)

- 2001-2003 Exercise behaviour of community adults with Type 1 and Type 2 diabetes: The determinants of exercise behaviour change.
- Canadian Diabetes Association (Applied Research Grants)
\$40,000/year for 2 years
Co-Investigator (PI Ronald Plotnikoff, University of Alberta)
Other Co-Investigators: Courneya K, Raine K, Birkett N.
- 2001-2003 Exercise behaviour of community adults with Type 1 and Type 2 diabetes: A prospective examination of exercise determinants in a large population-based sample.
- Alberta Heritage Foundation for Medical Research
\$93,346 over two years
Co-Investigator (PI Ronald Plotnikoff, University of Alberta)
Other Co Investigators: Courney, K, Raine K, Birkett N, Svenson L.
- 2002-2003 Human Thermoregulation
- NSERC
\$28,875
Co-Investigator; PI Glen Kenny
- 1999-2001 Modality of Exercise in Type 2 Diabetes: Effects on Metabolic Control, Lipids, Adipose Tissue Distribution and Quality of Life
- Canadian Diabetes Association
\$60,000 per year for 2 years
Principal Investigator. Co-PI: Kenny, GP
- 2001 Equipment Grant
- Kiwanis Medical Foundation
\$8,500
Principal Investigator
- 1998-2000 Exercise as an Intervention for Early Diabetic Kidney Disease: A Randomized, Controlled Trial
- Physician Services Incorporated (PSI) Foundation
\$70,000 per year for 2 years
Principal Investigator

NON-PEER REVIEWED OPERATING GRANTS (Unless otherwise stated for each of these non-peer reviewed studies, my role was simply entering and following patients.)

2002-2007	<p>Ongoing Telmisartan Alone and in combination with Ramapril Global Endpoint Trial (ONTARGET-TRANSCEND) Telmisartan Randomized Assessment Study in ACE intolerant subjects with cardiovascular Disease</p> <p>Boehringer Ingelheim (Canada) Ltd. \$75,600 Principal Investigator (Ottawa) Study PI Salim Yusuf Multi-centre Study - 800 centres globally</p>
2002 -2005	<p>Dose ranging trial to determine the safety and efficacy of BMS-298585 compared to placebo in patients with Type 2 diabetes mellitus.</p> <p>Bristol-Myers Squibb Approximately \$65,634 Principal Investigator (Ottawa)</p>
Apr 2000-Aug 2002	<p>A study to evaluate the efficacy of Rosiglitazone (BRL49653C) on reduction of microalbuminuria in patients with type 2 diabetes mellitus.</p> <p>Glaxo/Smith/Kline \$42,000 Principal Investigator (Ottawa). Multi-centre Study - 46 centres in Canada and US</p>
Aug 2000-Feb 2001	<p>Pioglitazone compared with placebo in non-drug treated patients with type 2 diabetes.</p> <p>Eli Lilly Canada \$33,718 Co-Investigator</p>
1999-2000	<p>Long-term, double-blind, placebo-controlled, parallel group study of Zenarestat (C1-1014) in diabetic patients at risk of foot ulcer.</p> <p>Parke-Davis \$43,200/yr Co-Investigator</p>
May 1999-Nov 1999	<p>Efficacy and safety of inhaled compared with subcutaneous human insulin therapy in subjects with Type 2 diabetes mellitus: A six-month, out-patient, parallel, comparative trial.</p>

	Pfizer \$48,950 Co-Investigator
June 1999-Sep 1999	Efficacy and safety of inhaled human insulin therapy in subjects with Type 2 diabetes mellitus not well controlled with combination oral agents: A three-month, out-patient, parallel comparative trial.
	Pfizer \$36,400 Co-Investigator
1996-2001	STOP-NIDDM (Study to Prevent NIDDM) A joint Canadian-German-Scandinavian controlled randomized, clinical trial on the efficacy of Acarbose to delay or prevent the development of NIDDM in subjects with IGT.
	Bayer \$76,128/yr Co-Investigator
Dec 1999-	Long term safety of inhaled human insulin: Extension of therapy in subjects with type 1 or type 2 diabetes mellitus completing phase III randomized treatment trials.
	Pfizer \$75,268 Co-Investigator

EXTERNAL SALARY AWARDS

1999-2004	CIHR New Investigator Award/MRC Scholarship
1995-96	Juvenile Diabetes Foundation International Post-doctoral Fellowship
1992-95	Canadian Diabetes Association/Diabetes Canada Post-doctoral fellowship
1992-95	Fonds de la Recherche en Santé du Québec Post-doctoral fellowship (Declined)
1984-87	Nat Christie Foundation Medical Entrance Award (For applicants to the University of Calgary Faculty of Medicine with the highest overall admissions ratings)
1984	Graduate entrance scholarships for Ph.D. programs in Clinical Psychology (all declined in favour of medical school) U. of Minnesota, U. of Connecticut, Queen's University.

PROFESSIONAL ASSOCIATIONS

American College of Sports Medicine
 American Diabetes Association
 American College of Physicians - American Society for Internal Medicine
 Canadian Association for Cardiac Rehabilitation
 Canadian Diabetes Association
 Canadian Society of Atherosclerosis, Thrombosis and Vascular Biology
 Canadian Society for Endocrinology and Metabolism
 The Endocrine Society
 Obesity Canada
 Royal College of Physicians and Surgeons of Canada
 College of Physicians and Surgeons of Ontario
 Canadian Medical Association
 Ontario Medical Association

COMMITTEES

2001- Member, Canadian Diabetes Association Expert Committee
 2001- Chair, Canadian Diabetes Association Exercise Guidelines Committee
 2001 Chair, Canadian Diabetes Association Symposium on Exercise
 2001- Member, Canadian Diabetes Association Task Force on Lipid-lowering Agents
 1997- Member, Ottawa Hospital Research Ethics Board

GRANT REVIEWS**INTERNAL (COMMITTEE) REVIEWER**

2001, 2004 Canadian Institutes of Health Research (Clinical Trials) (Guest)
 1998-2000 Canadian Diabetes Association (Operating Grants)

EXTERNAL REVIEWER

2001- Ministry of Health and Long Term Care—Personnel Awards
 2000- Canadian Institutes of Health Research—Clinical Trials and Metabolism cttees.
 2001- Heart and Stroke Foundation of Canada
 2001- Canadian Diabetes Association (Operating Grants and Applied Research Grants)
 2003- Alberta Heritage Foundation for Medical Research

REVIEWS FOR JOURNALS

JAMA
 Diabetes
 Diabetes Care
 Diabetologia
 ACP Journal Club
 Medicine and Science in Sports and Exercise
 American Journal of Physiology
 Journal of the American College of Nutrition
 Journal of General Internal Medicine
 Clinical and Investigative Medicine
 Canadian Journal of Cardiology
 Health Reports (Statistics Canada)
 Canadian Journal of Diabetes

Other Publications

2003 BMJ Learning. An online resource for British general practitioners – Chapter on diabetes mellitus
 2003 American Diabetes Association - Medical Management of Type 1 Diabetes
 2003 American Association on Diabetes Educators-Guidelines on Physical Activity

ABSTRACT REVIEWS

2002- American Diabetes Association Scientific Sessions
 1998- Canadian Diabetes Association Scientific Sessions

SUPERVISORY EXPERIENCE:

Karolina Burghardt 2004 Medical Student
 Karen Holland 2004- Graduate Student
 Helen (Wenxia) Zhao 2003-4 Graduate Student
 Heather Ranson 2002 Medical Student
 Christy Haywood-Farmer 2002 Medical Student
 Terry Evans 2001-2002 Medical Student
 Noreen Lum 2001 Medical Student
 Aram Shahparaki 2002 Endocrinology fellow
 Elizabeth Haddad 1999-2000 Medical student (currently surgical resident)
 *Alison Jennings 2000- Graduate Student
 *Jason Fetch 2000-3 Graduate Student
 *Rikst Attema 2001-2003 Graduate Student
 *Katherine Dittman 2001- 2004 Graduate Student
 *Normand Boulé 1999-2000 Graduate Student (Currently PhD student at U of Laval)
 Marie-Claire Gagne 2001-2002 Undergraduate student
 **Co-supervised with Glen Kenny*

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES, PUBLISHED

1. Taylor DM, Sigal RJ “Defining ‘Québécois’, the Roles of Ethnic Heritage, Language and Political Orientation”. *Canadian Ethnic Studies* 14(2): 59-70, 1982.
Reprinted in: Bienvenue, R. M. & Goldstein, J. E. (Eds.) *Ethnicity and Ethnic Relations in Canada: a Book of Readings* (2nd. ed.). Toronto: Butterworths, 1985, p. 125-137.
2. Sigal RJ, Purdon C, Bilinski D, Halter JB, Vranic M and Marliss EB. Glucoregulation in intense exercise: effects of β -blockade. *J Clin Endocrinol Metab* 78:359-366, 1994.
3. Sigal RJ, Purdon C, Fisher S, Vranic M, Halter JB and Marliss EB. Hyperinsulinemia prevents prolonged hyperglycemia after intense exercise in insulin-dependent diabetic subjects. *J Clin Endocrinol Metab* 79:1049-1057, 1994.
4. Sigal RJ, Freire MB, Krolewski AS. Could differences in body mass index and/or insulin sensitivity explain the association between parental diabetic nephropathy and risk of diabetes in offspring? (letter). *Diabetologia* 38(12):1486-87, 1995.
5. Sigal RJ, Fisher S, Vranic M, Halter JB and Marliss EB. The roles of catecholamines in glucoregulation in intense exercise as defined by the islet cell clamp technique. *Diabetes* 45(2):148-156, 1996.
6. Sigal RJ, Doria A, Warram JH, Krolewski AS. Codon 972 polymorphism in the insulin-receptor substrate-1 (IRS-1) gene, obesity and risk of noninsulin-dependent diabetes mellitus. *J Clin Endocrinol Metab* 81:1657-59, 1996.
7. Warram JH, Sigal RJ, Martin BC, Krolewski AS, Soeldner JS. Natural history of impaired glucose tolerance: follow up at Joslin Clinic. *Diabetic Med* 13 (9 Suppl.6):S40-S45, 1996.
8. Sigal RJ, Warram JH. The interaction between obesity and diabetes. *Current Opinion Endo Diab* 3(1):3-9, 1996.
9. Gougeon R, Pencharz PB, Sigal RJ. Effect of glycemic control on the kinetics of whole body protein metabolism in non-insulin-dependent diabetes mellitus. *Am J Clin Nutr* 65:861-870, 1997.
10. Sigal RJ, El-Hashimy M, Martin BC, Soeldner JS, Krolewski AS, Warram JH. Acute postchallenge hyperinsulinemia predicts weight gain: a prospective study. *Diabetes* 46:1025-1029, 1997.
11. Manzon A, Fisher SJ, Morais JA, Lipscombe L, Guimond MC, Nessim S, Sigal RJ, Halter JB, Vranic M, Marliss EB. Glucose infusion does not prevent the endogenous glucose production response and increases glucose uptake during intense exercise. *J Appl Physiol* 1998;85(2):511-24.
12. Hu FB, Sigal RJ, Rich-Edwards JW, Colditz GA, Solomon CG, Willett WC, Speizer FE, Manson JE. Walking as Compared to Vigorous Exercise and Risk of Type 2 Diabetes in Women: a Prospective Study. *JAMA* 1999; 282:1433-1439.

13. Sigal RJ, Fisher SJ, Halter JB, Vranic M, Marliss EB. Glucoregulation during and after intense exercise: effects of β -adrenergic blockade in subjects with type 1 diabetes mellitus. *J Clin Endocrinol Metab* 84: 3961-3971, 1999.
14. Sigal RJ, Fisher S, Manzon, A, Morais, JA, Halter JB, Vranic M, Marliss EB. Glucoregulation during and after intense exercise: α -adrenergic mechanisms. *Metabolism*. 2000 Mar;49(3):386-94.
15. Boulé, N, Haddad, E., Kenny, G., Wells, G.A., Sigal, R.J. Effects of Exercise on HbA1c and Body Mass in Type 2 Diabetes Mellitus: A Systematic Review. *JAMA* 2001 Sep;286(10):1218-1227.
16. Boulé N, Kenny G, Haddad E, Wells G, Sigal RJ. Systematic review of the effect of structured exercise training on cardiorespiratory fitness in type 2 diabetes mellitus. *Diabetologia* 2003 46:1071-1081.
17. Kenny GP, Périard J, Journeay WS, Sigal RJ, Reardon FD. Cutaneous active vasodilation in humans during passive heating postexercise. *J Appl Physiol* Sep 2003;95:1025-1031.
18. Kenny GP, Périard J, Journeay WS, Sigal RJ, Reardon FD. Effect of exercise intensity on the sweating response in humans during passive heating postexercise. *J Appl Physiol*. 2003 Dec;95(6):2355-2360.
19. Canadian Diabetes Association Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada: Physical Activity and Diabetes (Sigal RJ Chairperson and Principal author). *Canadian Journal of Diabetes* 2003 (Suppl. 2): S24-S26.
20. Canadian Diabetes Association Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada: Macrovascular Complications, Dyslipidemia and Hypertension (Sigal RJ member of writing committee). *Canadian Journal of Diabetes* 2003 (Suppl. 2): S24-S26.

ARTICLES SUBMITTED TO REFEREED JOURNALS: (as of June 2004)

1. Lin M, Chen Y, Sigal RJ Impacts of socioeconomic status on the risk of hospitalization associated with diabetes and hypertension (Submitted to *Diabetes Care*, June 2004)
2. Chen Y, Lin M, Stewart P, Bryan S, Sigal RJ. Diabetes: Are older women most likely to benefit from physical activity? (Submitted to *Diabetologia* April 2004).
3. Zhao W, Chen Y, Lin M, Sigal RJ. Depression in diabetic patients: sex- and age-differences. (Submitted to *Journal of Epidemiology and Community Health*, April 2004.
4. Kenny G, Périard JD, Journeay WS, Sigal RJ, Reardon FD. Cutaneous vasodilation and sweating response following dynamic exercise in humans. (Submitted to *Acta Physiologica Scandinavica*, Feb. 2004)

ARTICLES IN PREPARATION:

1. Sigal RJ, Kenny G, Phillips P, Prud'homme D, Reid RD, Fortier M, Boulé NG, Attema R, Dittmann K, Jennings A. The Diabetes Aerobic and Resistance Exercise (DARE) Pilot study. To be submitted to *Diabetologia*.
2. Adamo K, Sigal RJ, Williams K, Kenny G, Prud'homme D, Tesson F. Influence of Pro¹²Ala PPAR α Genotype on Glucose Response to Exercise Training in Type 2 Diabetes. To be submitted to *Diabetes*.
3. Lin M, Chen Y, Sigal RJ. Cardiovascular disease associated with diabetes among Canadians: Sex and age differences.
4. Zhao W, Chen Y, Sigal RJ. Hospital mortality among diabetic patients: Sex and age differences. To be submitted to *Health Reports*.
5. Plotnikoff RC, Taylor LM, Wilson PM, Courneya K, Sigal RJ, Birkett N, Raine K, Svenson LW. Demographic and Health Factors Associated with Physical Activity in Adults with Type 1 or Type 2 Diabetes. To be submitted to *Diabetes Care*.

OTHER PEER-REVIEWED PUBLICATIONS, TECHNICAL REPORTS

1. Field Epidemiology Training Program, Laboratory Centres for Disease Control. Immunization Survey in Adults with Diabetes in Ontario, June-August 1997. Ontario Ministry of Health, 1998. (Sigal RJ, member of writing committee).
2. Boulé NG, Haddad E, Kenny G, Sigal RJ. Exercise for type 2 diabetes mellitus (Protocol for a Cochrane Review). In: The Cochrane Library, Issue 1, 2001. Oxford: Update Software.
3. Sigal RJ, Boulé NG, Kenny G. Exercise and glycemic control in diabetes. *JAMA* 2001 Dec; 286(23):2941-2942.
4. Sigal RJ. More than just hype. *CMAJ*. 2003 Jun 24;168(13):1647

BOOKS, BOOK CHAPTERS

1. Marliss EB, Purdon CJ, Miles PDG, Halter JB, Sigal RJ, and Vranic M. Glucoregulation during and after intense exercise in control and diabetic subjects. In: Devlin J, Horton ES and Vranic M (Eds.), *Diabetes Mellitus and Exercise*. London: Smith-Gordon, 1992, 173-190.
2. Marliss EB, Sigal RJ, Miles PDG, Manzon A, Halter JB, Vranic M. Glucoregulation in intense exercise and its implications for persons with diabetes mellitus. In Kawamori R, Vranic M, Horton ES and Kubota M, *Glucose fluxes, exercise and diabetes*. London, Smith-Gordon, 1995 pages 55-66.
3. Sigal RJ, Kenny G. Exercise in Diabetes Mellitus. In: Pickup JC and Williams G, *Textbook of Diabetes*. Oxford: Blackwell Scientific, 2002, pages 37.1-37.19.

4. Sigal RJ, Meggison H, Malcolm J. Diabetes and Cardiovascular Disease. In Clinical Evidence, Issue 10, London, BMJ Group, 2003. (I update this evidence-based literature review every 6 months; I wrote the corresponding chapters in Issues 1 through 9).
5. American Diabetes Association. Medical Management of Type 1 Diabetes, 4th ed. (Sigal RJ, contributing author). American Diabetes Association, Alexandria, VA, 2004.
6. Sigal RJ, Malcolm J, Meggison H. Prevention of Cardiovascular Disease in Diabetes. In Clinical Evidence, Issue 11, London, BMJ Group, 2004.

INVITED COMMENTARIES & EDITORIALS

1. Sigal RJ. Commentary on "Detection of microalbuminuria. Receiver operating characteristic curve analysis favors albumin-to-creatinine ratio over albumin concentration". ACP J Club, 1999 Sept.-Oct.
2. Sigal RJ. Commentary on "Insulin lispro reduced nocturnal hypoglycemic episodes in type 1 diabetes mellitus when used to achieve tight glycemic control". ACP J Club, 2000 May-June.
3. Sigal RJ. Commentary on "Review: Metformin does not increase fatal or nonfatal lactic acidosis or blood lactate levels in type 2 diabetes mellitus". ACP J Club, 2002 Nov-Dec. Pg 88 and Evidence-Based Medicine, 2002 Nov-Dec;7:176.
4. Sigal RJ. When is a stress test necessary? Can J Diabetes 2002;26(3):192-193 (Editorial)
5. Sigal, RJ. Exercise and Diabetes Mellitus, Diabetes Quarterly, Spring 2003 (Guest Editorial)
6. Sigal, RJ. Increased ramipril prescribing represents HOPE for rapid implementation of important research findings, not Hype. CMAJ June 2003;168(13). (Letter to the Editor)
7. Sigal, RJ. An Unsuccessful Intervention to Achieve Behaviour Change in Offspring of Caribbean Patients with Type 2 Diabetes. Can J Diabetes 2003;27(3):226. (Editorial)
8. Sigal RJ. Metformin: can it be used in patients with renal dysfunction? Practical Medicine (Polish), 2004 in press.

INVITED LECTURES

1. Diabetes mellitus, insulin therapy and exercise. Presented at the conference, "Current Trends in the Management of Diabetes Mellitus", Bromont, Quebec, Feb. 1993.
2. Update in Diabetes. Canadian Association on Gerontology Annual Scientific Meeting, Ottawa, ON, Nov. 1999.
3. Prevention of Type 2 Diabetes and its Complications: the Role of Exercise. Plenary Lecture, presented at the Scientific Session of the International Diabetic Athletes Association, Vancouver BC, July 2000.

4. Resistance Exercise in Diabetes. Plenary lecture, presented at the Scientific Session of the International Diabetic Athletes Association, Vancouver, BC, July 2000.
5. Resistance Exercise in Diabetes: Do Current ADA Guidelines Make Sense? Plenary lecture/discussion session, American Diabetes Association Council on Exercise, Philadelphia, PA, June 2001.
6. Exercise and Type 2 Diabetes. Symposium Chair, Canadian Diabetes Association Professional Conference and Annual Meeting, Edmonton, AB, Oct. 2001.
7. Should People with Type 2 Diabetes be Pumping Iron? Canadian Diabetes Association Professional Conference and Annual Meeting, Edmonton, AB, Oct. 2001.
8. Controversies: Roles of resistance exercise and aerobic exercise in people with diabetes. Symposium, American Diabetes Association Scientific Sessions, San Francisco, CA June 2002.
9. Insulin Resistance, Type 2 Diabetes and Cardiovascular Disease. Presented at the National Investigators' meeting for the REACT-2 Study, Sept 29, 2002.
10. Physical Activity and Diabetes: Proposals for New Clinical Practice Guidelines, American Diabetes Association Council on Exercise meeting, New Orleans, LA, June 2003.

ABSTRACTS AND PRESENTATIONS (as of June 2004)

1. Sigal RJ, Purdon C, and Marliss, EB. Glucoregulation by catecholamines in intense exercise: effects of propranolol. *Diabetes* 41 (suppl. 1):70A, 1992. (Presented at scientific session of the American Diabetes Association, San Antonio, TX, June 1992.)
2. Sigal RJ, Purdon C, Vranic M, Bilinski D, and Marliss EB. Hyperinsulinemia is essential for normal glucoregulation in recovery from intense exercise in normal and type I diabetic subjects. *Clin and Invest Med* 15(4)(Suppl.):A29, 1992. (Presented at Royal College of Physicians and Surgeons of Canada/CSCI meeting, Ottawa, ON, Sept. 1992.)
3. Sigal RJ, Purdon C, Bilinski D, Marliss EB. In intense exercise, mild insulin deficiency does not potentiate glucose production, but increased insulin is required to restore normoglycemia in recovery. *Diabetes* 42(4 Suppl. 1):203A, 1993.
4. Sigal RJ, Purdon C and Marliss EB. Glucoregulation in intense exercise as defined by the islet cell clamp. *Diabetes* 43, Suppl. 1:159A, 1994. (Presented at the American Diabetes Association Scientific Session, New Orleans, LA, June 1994.)
5. Sigal RJ, Fisher S, Halter JB, Vranic M, Marliss EB. Alpha-adrenergic mechanisms in glucoregulation in intense exercise. (Presented at the International Diabetes Federation Congress, Kobe, Japan, Nov. 1994.)

6. Sigal RJ, Warram JH, Tracey J, Krolewski AS. Can a “normal” OGTT predict S_I, S_G and subsequent diabetes mellitus in offspring of parents with NIDDM? (Presented at Third International Symposium on Minimal Modeling, Baton Rouge, LA, June 1994.)
7. Warram JH, Sigal RJ, Krolewski AS. Follow-up study in Boston: natural history of impaired glucose tolerance. Presented at the symposium “Phenotypic Characterisation of NIDDM: East and West”, Kobe, Japan, Nov. 1994.
8. Sigal RJ, Warram JH. Prediction of S_I, S_G, and subsequent NIDDM using the OGTT. *Diabetes* 43, Suppl 1: 201A, 1995. (Presented at American Diabetes Association Scientific Session, Atlanta, GA, June 1995.)
9. Guimond MC, Sigal RJ, Fisher SJ, Morais JA, Vranic M, Halter JB, Marliss EB. Glucoregulatory responses to intense exercise in the fed state. *Clin Invest Med* 18(4 Suppl 1). (Presented at Royal College of Physicians and Surgeons of Canada/CSCI meeting, Montreal, Quebec, Sept. 1995.)
10. Sigal RJ, El-Hashimy M, Warram J, Soeldner JS, Krolewski AS. Acute postchallenge hyperinsulinemia predicts weight gain over subsequent decades. *Diabetes* 45 (Suppl. 2): 102A, 1996. (Presented at American Diabetes Association Scientific Session, San Francisco, CA, June 1996.)
11. Sigal RJ, Rich-Edwards JW, Colditz GA, Stampfer MJ, Willett WC, Speizer FE, Manson JE. A prospective study of physical activity and risk of non-insulin-dependent diabetes mellitus (NIDDM) in women. *Am J Epidemiol* 143:S73. (Presented at Society for Epidemiological Research annual meeting, Boston, MA June 1996.)
12. Manzon A, Lipscombe L, Guimond MC, Sigal RJ, Fisher SJ, Morais JA, Halter JB, Vranic M, Marliss EB. Control of glucose turnover in intense exercise during glucose infusion. *Diabetes* 45 (Suppl. 2): 42A, 1996. (Presented at American Diabetes Association Scientific Session, San Francisco, CA, June 1996.)
13. Warram JH, Sigal RJ, Laffel LMB. Glycosylated hemoglobin and risk of microalbuminuria in IDDM: a follow-up study. *J Am Soc Nephrol* 7:1366-1367, 1996. (Presented at American Society of Nephrology Scientific Session, New Orleans, LA Nov. 1996.)
14. Sigal RJ, Yale JF, Meltzer S. Postpartum lipid profiles in gestational diabetes. *Can J Diabetes Care* 21 (Suppl.):14, 1997. Presented at Canadian Diabetes Association Scientific Session, October 1997.
15. Sigal RJ, Meltzer S. Postpartum lipids and glucose tolerance in gestational diabetes mellitus. *Diabetes* 47 (Suppl. 1): A50, 1998. Presented at American Diabetes Association Scientific Session, Chicago, IL, June 1998.
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