

Diabetes Aerobic and Resistance Exercise (DARE) trial

Submission date 05/09/2005	Recruitment status No longer recruiting	☐ Prospectively registered
Registration date 05/09/2005	Overall study status Completed	☐ Protocol
Last Edited 27/01/2010	Condition category Nutritional, Metabolic, Endocrine	☐ Statistical analysis plan
		☒ Results
		☐ Individual participant data

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

Contact name
Dr Ronald Jeremy Sigal

Contact details
7th floor, North Tower
Foothills Medical Center
1403 29 Street NW
Calgary, Alberta
Canada
T2N 2T9
+1 403 944 1788
rsigal@ucalgary.ca

Additional identifiers

ClinicalTrials.gov (NCT)
NCT00195884

Protocol serial number
MCT-44155

Study information

Scientific Title

Effects of aerobic exercise, resistance exercise, or both in type 2 diabetes: a randomised trial

Acronym

DARE

Study objectives

To assess the impact of exercise training (aerobic exercise, resistance exercise, combined aerobic and resistance exercise) versus a sedentary waiting list control on glycaemic control (as reflected in reduced haemoglobin A1c [HbA1c]), body composition (weight, body mass index [BMI], waist circumference, total body fat, visceral and subcutaneous abdominal fat, mid-thigh muscle cross-sectional area), lipids (Apo-B, Apo-A1, Apo-B/A1 ratio, low density lipoprotein (LDL) particle diameter, high-sensitivity C-reactive protein) and quality of life.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Loeb Health Research Institute at the Ottawa Hospital approved on the 25th March 1999

Study design

Randomised controlled trial

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Type 2 diabetes mellitus

Interventions

Aerobic and resistance exercise training versus none.

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

Change in haemoglobin A1c (HbA1c) between baseline and end of the 6-month supervised exercise period. HbA1c is a reflection of the mean blood glucose over the previous 2 - 3 months.

Key secondary outcome(s)

1. Change in health related quality of life
2. Nontraditional cardiovascular risk factors: Apo-B, Apo-A1, high-sensitivity C-reactive protein, LDL particle diameter, estimated insulin resistance
3. Blood pressure

4. Lipid concentrations
5. Body composition (weight, BMI, waist circumference, total body fat, visceral and subcutaneous abdominal fat, mid-thigh muscle cross-sectional area), lipids (Apo-B, Apo-A1, Apo-B/A1 ratio, LDL particle diameter, high-sensitivity C-reactive protein)
6. Resting metabolic rate

Completion date

31/03/2005

Eligibility

Key inclusion criteria

1. Type 2 diabetes mellitus as defined by the 1998 CDA guidelines
2. Male or female, treated with diet and/or oral agents (no insulin), aged 40 - 70 years, HbA1c 0.066 - 0.099

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Key exclusion criteria

1. Participation during the previous 6 months in a regular program of exercise or aerobic sports greater than or equal to 2 times/week for at least 20 minutes per session, or in any resistance training during the previous 6 months
2. Insulin therapy, or uncontrolled hyperglycaemia (HbA1c greater than 0.099). Insulin therapy is an exclusion criterion because it would render Homeostasis Model Assessment (HOMA) insulin sensitivity calculation invalid.
3. Changes in medications for diabetes in the 2 months prior to enrolment, or for blood pressure (BP) or lipids in the 1 month prior to enrolment
4. Significant weight change (increase or decrease of greater than or equal to 5% of body weight during the 2 months before enrolment)
5. Significant renal disease: serum creatinine greater than or equal to 200 mEq/1 or proteinuria greater than 1 g/24 hours
6. Uncontrolled hypertension: blood pressure (BP) greater than 160 mmHg systolic or greater than 95 mmHg diastolic BP in a sitting position
7. Restrictions in physical activity due to disease: intermittent claudication, severe peripheral neuropathy or active proliferative retinopathy, unstable cardiac or pulmonary disease, disabling stroke, severe arthritis
8. Significant cognitive deficit resulting in inability to understand or comply with instructions
9. Other illness judged by the patient or study physician to make participation in this study inadvisable

- 10. Pregnancy at the start of the study, or intention to become pregnant in the next two years
- 11. Inability to communicate in English or French
- 12. Unwillingness to sign informed consent

Date of first enrolment

01/04/2001

Date of final enrolment

31/03/2005

Locations

Countries of recruitment

Canada

Study participating centre

7th floor, North Tower

Calgary, Alberta

Canada

T2N 2T9

Sponsor information

Organisation

Ottawa Hospital Research Institute (OHRI) (Canada) - formerly Ottawa Health Research Institute

ROR

<https://ror.org/03c62dg59>

Funder(s)

Funder type

Research organisation

Funder Name

Canadian Institutes of Health Research (CIHR) (Canada) - <http://www.cihr-irsc.gc.ca> (ref: MCT-44155) funding for all remaining subjects

Funder Name

Canadian Diabetes Association (Canada) - funding for first 28 subjects

Funder Name

University of Ottawa Interfaculty Grant (Canada) - funding for energy expenditure measurement on first 28 subjects

Results and Publications

Individual participant data (IPD) sharing plan**IPD sharing plan summary**

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	18/09/2007		Yes	No