

Letters to the Editor

Physical training and plasma lipids in Type 2 (non-insulin-dependent) diabetic patients

Dear Sir,

Lampman et al. recently reported that a moderate exercise training program (three 30–40 min supervised sessions each week over a 9-week period) does not influence lipid and lipoprotein concentration in middle-aged hypertriglyceridaemic, carbohydrate intolerant men [1]. Quoting other papers considering the metabolic effects of physical training in obese and diabetic patients, the authors observed that none of these studies has assessed both carbohydrate and lipid metabolism as well as in vivo insulin sensitivity.

As far as our quoted study is concerned [2], it could probably be of some interest to know the results of training-induced lipid changes that have been investigated but not reported in the paper. Briefly, we studied six Type 2 (non-insulin-dependent) diabetic patients. Their clinical data (values given as mean \pm SEM) were: age 55 ± 4 years, diabetes duration 4.8 ± 1.7 years, body mass index 27.6 ± 2.2 , fasting plasma glucose 8.7 ± 0.8 mmol/l, glycosylated haemoglobin A₁ $9.3 \pm 1.1\%$. No patient showed signs of micro- or macroangiopathy and no patient received drug treatment for diabetes. Patients were engaged in a 6-week physical training program (60 min per day, 7 days per week, of exercise at 50–60% of the maximum oxygen uptake). During the training, patients were asked to add to their usual diet a caloric supplement corresponding to the exercise-induced energy expenditure. Training did not modify body weight. For five of these patients, who completely accomplished all the studies planned to evaluate glucose metabolism (oral and intravenous glucose tolerance tests, euglycaemic hyperinsulinaemic clamp), data about glucose control, glucose tolerance, insulin secretion and insulin action are reported in the paper [2]. Fasting plasma lipid concentrations have been determined in all six subjects. Values before and after the training, given as mean \pm SEM and compared by means of paired Student's *t*-test, were: total cholesterol 5.97 ± 0.54 and 5.68 ± 0.57 mmol/l (NS); HDL-Cholesterol 1.25 ± 0.22 and 1.27 ± 0.16 mmol/l (NS); total cholesterol/HDL-cholesterol ratio 5.09 ± 0.45 and 4.54 ± 0.35 (NS); triglycerides 1.64 ± 0.2 and 1.44 ± 0.13 mmol/l (NS). Our study, therefore, demonstrates that a short-term physical training, more strenuous than that described by Lampman et al. [1], does not modify significantly plasma lipid concentrations after a 6-week period.

Recently, Rönnemaa et al. presented a very interesting study showing the effects of a 4-month physical training program (5–7 sessions per week of at least 45 min of exercise at 70% of the maximum oxygen uptake) on lipid concentrations in 13 Type 2 diabetic patients [3]. They observed a significant decrease of mean LDL-cholesterol (from 4.6 to 4.3 mmol/l) ($p < 0.05$), and a significant increase of mean HDL-cholesterol (from 1.22 to 1.29 mmol/l) ($p < 0.05$), whereas triglycerides remained unchanged. This study shows, therefore, that even a strenuous long-term physical training induces only slight changes in cholesterol concentrations and no change at all in triglycerides values.

In conclusion, exercise programs should not be considered a very effective strategy to reduce the lipid concentrations in Type 2 diabetic patients.

Yours sincerely,
M. Trovati

References

1. Lampman RM, Schteingart DE, Santinga JT, Savage PJ, Hydrick CR, Bassett DR, Block WD (1987) The influence of physical training on glucose tolerance, insulin sensitivity, and lipids and lipoprotein concentrations in middle-aged hypertriglyceridaemic, carbohydrate intolerant men. *Diabetologia* 30: 380–385
2. Trovati M, Carta Q, Cavalot F, Vitali S, Banaudi C, Greco Lucchina P, Fiocchi F, Emanuelli G, Lenti G (1984) Influence of physical training on blood glucose control, glucose tolerance, insulin secretion and insulin action in non-insulin-dependent diabetic patients. *Diabetes Care* 7: 416–420
3. Rönnemaa T, Marniemi J, Puukka P, Kuusi T (1987) Effects of long-term physical exercise on serum lipids in Type 2 (non-insulin-dependent) diabetic patients. A controlled randomised study. *Diabetologia* 30: 575 A

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Statement on “post-prandial” or “reactive” hypoglycaemia

Dear Sir,

This text represents the consensus reached in September 1986 in Rome at the end of the Third Symposium on Hypoglycaemia organised by Dr. Andreani. It has been approved, after discussion and modification, by all the participants, which included many experts from North America, Europe and Japan.

The participants to the Third International Symposium on Hypoglycaemia held in Rome on September 22–23, 1986:

1. Recognise that in several countries “hypoglycaemia” has become a fashionable disorder and that few patients in fact suffer from it.
2. Emphasize that self-diagnosis of hypoglycaemia, overdiagnosis by some physicians and popularisation in the lay literature have led to a gross overestimation of the problem.

3. Express the view that the oral glucose tolerance test by itself, although useful in clinical investigation, is not appropriate for the diagnosis of “post-prandial” or “reactive” hypoglycaemia.

4. Observe however, that some patients exhibit in everyday life post-prandial symptoms suggesting hypoglycaemia and that, if these symptoms are accompanied by blood glucose levels between 2.8 and 2.5 mmol/l or below (determined by a specific method on capillary or arterialised venous blood), the diagnosis of “post-prandial” or “reactive” hypoglycaemia may be envisaged. In these patients, every effort should be made to document hypoglycaemia under their everyday living conditions. In these cases, simultaneous relief of symptoms and correction of low blood glucose values are strong arguments in favour of the diagnosis.

5. Emphasize that, in some patients, “post-prandial” or “reactive” hypoglycaemia can occur as a consequence of gastric surgery, of rapid gastric emptying, of the simultaneous ingestion of sugar and ethanol, of the presence of autoantibodies against insulin or against insulin receptor (two rare conditions) and, perhaps also, of other unidentified causes.

6. Recommend to limit the use of the wording “functional” hypoglycaemia unless when utilised for classification purposes of syndromes non-organic in nature.

7. Recommend that more prospective studies should be initiated in order to elucidate the natural history of bona fide “post-prandial” or “reactive” hypoglycaemia, to understand its pathophysiology and to propose effective and safe therapeutic measures.

For the participants: P.J. Lefèbvre, Liège, Belgium, D. Andreani, Rome, Italy, V. Marks, Guildford, UK, and W. Creutzfeldt, Göttingen, FRG

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Announcements

Advance Course in Endocrinology

This Course will be held from 9–20 May 1988. Fee: £ 295.00. *For further details and application forms please contact:* Courses Department, British Postgraduate Medical Federation, 33 Millman Street, London WC1N 3EJ. Telephone: 01-831 6222, extension 171.

Computers and Quantitative Approaches to Diabetes

This symposium will be held from 17–19 November 1988 in Sydney, Australia, as a satellite meeting to the 13th International Diabetes Federation Congress. Topics included are the use of computer-based systems and quantitative methods in diabetes therapy, diabetes research and metabolic assessment. *Deadline for abstracts:* 31 March 1988. *For further information please contact:* “Computers & Diabetes”, Conference Action Pty Ltd, PO Box 925, Crows Nest NSW 2065, Australia. Tel: 6124396185, Telex: AA23023, Fax: 6124363730.