

A systematic review of lifestyle modification in adults with non-alcoholic fatty liver disease

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Background

Non-alcoholic fatty liver disease is an independent risk factor for type 2 diabetes and cardiovascular disease that affects about 30% of the adult population. There is no approved pharmacotherapy, thus lifestyle modification is broadly advocated as a treatment. Prior to this review, there was no systematic assessment of the evidence base for making lifestyle change recommendations in this group of patients.

Aims

To define the efficacy of lifestyle interventions in adult non-alcoholic fatty liver disease for improving:

- liver fat and/or liver enzymes
- liver histology
- glucose control

Methods

The following databases were searched for prospective diet, physical activity, and exercise trials in adults with non-alcoholic fatty liver disease: Pubmed; Scopus; and the Cochrane Register of Controlled Trials.

Studies were excluded if the intervention was not clearly described and/or no direct indicators of adherence reported.

Diet only

Fourteen studies lasting 2-26 weeks assessed diet only with weight reduction as the main goal. Weight reduction (2-14%) consistently lead to reductions in liver fat (26-80%) and improvements in glucose control/insulin sensitivity. Carbohydrate restriction lead to faster liver fat reductions, but over several weeks similar weight reductions lead to similar liver fat reductions irrespective of dietary macronutrient composition.

Exercise only

Five studies lasting 4-16 weeks assessed exercise only with little or no weight reduction. All exercise only interventions reported modest liver fat reductions (10-21%), and improvements in glucose control/insulin sensitivity, irrespective of using resistance or aerobic training.

Diet & physical activity

Thirteen studies lasting 12-48 weeks assessed diet combined with exercise and/or physical activity with weight reduction (3-12%) as the main goal reported reduced liver fat (35-51%) and improved glucose control/ insulin sensitivity in line with overall weight reduction.

Behaviour modification

Multiple interventions reported using one or more theories of behaviour change, but the effect of individual theories/approaches was not reported.

Recommendations

Patients with non-alcoholic fatty liver disease should be advised to:

- 1.Reduce their weight by dietary modification. Dietary macronutrient composition is secondary to the weight reduction.
- 2.Take up/increase their exercise - aerobic and/or resistance - to three or more sessions per week.

And informed that exercise, even in the absence of weight reduction, can have benefits in terms of liver fat reduction and metabolic health.

Flow of Study Selection

