

## CONCISE REVIEW

## Clinical nutrition of diabetes

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The nutritional considerations in diabetes are:

- (1) To prevent its expression in those who are vulnerable for genetic, family reasons or because some other disease or treatment predisposes a person to it (eg disease of the pancreas which produces insulin; administration of steroids, such as cortisol or prednisolone, which antagonize the action of insulin)<sup>6</sup>.
- (2) To manage the elevated blood glucose (glycaemic) problem so as to reduce its damaging effects on tissues like the eye, kidneys, nervous system and arteries<sup>3</sup>.
- (3) To keep the blood fats (cholesterol, triglycerides, HDL or high density lipoprotein cholesterol) as normal as possible, because these also increase the risk of damaging the large and distributing arteries supplying heart, brain, lower limbs and kidneys, by way of the process of atherosclerosis<sup>7,13</sup>.
- (4) To reduce damaging effects on tissues by any other mechanism, such as oxidation<sup>9,12</sup>.
- (5) To improve the action of available insulin by:
  - (i) *minimizing abdominal fatness*
  - (ii) *improving the action of the insulin receptor* in cell membranes, possibly by altering its fatty acid composition in the direction of polyunsaturated fats<sup>14</sup>
  - (iii) *improving the action of insulin in the cell*, especially by reducing the amount of circulating free fatty acids (FFA) or increasing their utilization by ways that do not interfere with glucose metabolism – physical activity and reducing body fatness are important<sup>8,10,11</sup>.
- (2) Have a wide variety of foods, especially of plant foods to provide different natural colours and dietary fibre types<sup>17</sup>.
- (3) Have fish regularly (2–3 times a week) since whatever the controversy about fish oil, blood glucose and lipids, arteries and life expectancy are not adversely affected and are likely to be improved<sup>2,16</sup>.
- (4) Have alcohol in moderation and preferably with food to minimize its impact on blood levels and tissues like the pancreas.
- (5) Avoid having too much food at once and prefer low-fat snacks (eg apples, Scandinavian type hard rye breads).
- (6) Use foods with a 'low glycaemic index' (ie for a given amount of carbohydrate, less impact on blood glucose):
  - eg ● wholegrain rather than wholemeal (and wholemeal rather than white flour)
  - legumes/lentils
  - apples
- (7) minimize sodium (salt) intake in favour of potassium<sup>4</sup>.

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By various mechanisms the following nutritional strategies are useful in prevention of non-insulin-dependent diabetes (NIDDM) and management of diabetes of both main types (insulin dependent, IDDM and non-insulin-dependent, NIDDM):

- (1) Avoid overfatness, especially around the abdomen by regular physical activity (eg walking at least 45'/day, 5 days a week) and having a low total fat intake (low-fat meats and dairy foods, avoid fried food, read food labels to avoid hidden fat in snack foods, biscuits, baked foods, etc.)<sup>5</sup>.

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