

## **Position statement November 2014: Updated Evidence Base in the X-PERT Educator Manuals**

X-PERT Health strives to keep abreast of the latest research so that Educators and patients obtain the most up-to-date information regarding the lifestyle management for the prevention and treatment of diabetes. Literature reviews are undertaken on an annual basis and the research papers critically appraised to draw accurate and meaningful conclusions. The following hierarchical system for levels of evidence is used [1]:

### Grading of evidence

Ia: systematic review or meta-analysis of RCTs.

Ib: at least one RCT.

IIa: at least one well-designed controlled study without randomisation.

IIb: at least one well-designed quasi-experimental study, such as a cohort study.

III: well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies.

IV: expert committee reports, opinions and/or clinical experience of respected authorities.

### Grading of recommendations

A: based on hierarchy I evidence.

B: based on hierarchy II evidence.

C: based on hierarchy III evidence.

D: directly based on hierarchy IV evidence.

Professional Code for Conduct Standards state the requirement to deliver evidence-based practice. For example [2]:

- understand the need to act in the best interests of service users at all times
- understand both the need to keep skills and knowledge up to date and the importance of career-long learning
- understand the need to provide service users or people acting on their behalf with the information necessary to enable them to make informed decisions
- be able to empower individuals, groups and communities to make informed choices including diet, physical activity and other lifestyle adjustments
- be able to engage in evidence-based practice, evaluate practice systematically and participate in audit procedures
- be able to use research, reasoning, and a logical and systematic approach to problem solving skills to determine appropriate actions
- recognise the value of research to the critical evaluation of practice
- be able to use statistical, epidemiological, and research skills to gather and interpret evidence to make reasoned conclusions and judgements to enhance dietetic practice
- be aware of a range of research methodologies and be able to critically evaluate research in order to inform practice
- be able to undertake and explain dietetic interventions, having regard to current knowledge and evidence-based practice

These standards do not state that practitioners need to wait for published guidance before implementing the latest evidence base. If this was the case, practice would become severely outdated as guidelines take several years to be updated and then published. It is estimated that on average, there is a 17 year lag time between research and practice [3]. X-PERT aims to reduce this and provide a service that is in the best interest of users.

Current dietary recommendations state that there is insufficient evidence to prescribe an exact percentage of calories from carbohydrate, protein and fat for people with diabetes and therefore macronutrient distribution should be based on individualised assessment of current eating patterns, preferences, and

metabolic goals [4-6]. The most recent update of the Educator's Manual reflects this guidance and provides information and research findings for a variety of popular diets (low carb, intermittent fasting, low fat, Mediterranean, vegetarian, DASH, very low calorie, portfolio, palaeolithic and commercial food points) so that the Educator may respond to queries and questions from the patients to enable them to make informed decisions about their diet.

The Manual also has some major modifications in relation to saturated fat to bring it in-line with the current A-grade evidence. Previous research [for example the Seven Countries Study undertaken by Ancel Keys] that concluded that dietary saturated fat increased the risk of developing cardiovascular disease (CVD) had severe methodological limitations [7, 8] and did not establish cause and effect in relation to dietary saturated fat intake and heart disease. This diet-heart theory has never been proven, despite it having been the cornerstone of dietary recommendations since 1977 [8]. In fact, two thirds of people admitted to hospital with a diagnosis of acute MI have metabolic syndrome but 75% of these patients have completely normal total cholesterol concentrations [9].

Recent systematic reviews and meta-analyses conclude that current evidence does not support cardiovascular guidelines that encourage high consumption of polyunsaturated fatty acids and low consumption of total saturated fats in the primary and secondary prevention of CVD and there is no significant evidence for concluding that dietary saturated fat is associated with an increased risk of CHD or CVD [10-14]. Many recent studies have looked into the importance of LDL-particle size [15]. Studies show that people whose LDL particles are predominantly small and dense, have a threefold greater risk of coronary heart disease [16] as they are much more likely to become oxidized and lodged in the arteries [17-19].

It is excess consumption of dietary carbohydrate that results in de novo lipogenesis (conversion to fat) that has been shown to increase levels of small dense LDL particles i.e. carbohydrates are the principal driver of atherogenic dyslipidemia [19-26]. A low fat diet has been shown to reduce blood lipid levels but it is a concern that it is the large buoyant LDL cholesterol and protective HDL cholesterol that are reduced and not the small dense LDL particles [27, 28]. Eating excess carbohydrates also increases blood levels of triglycerides [29-31]. Low HDL and high triglycerides are two components of the metabolic syndrome, which is a stepping stone towards obesity, Type 2 diabetes and CVD.

The low fat diet has also not reduced the population prevalence of obesity and Type 2 diabetes [32, 33] or CVD [34, 35]. The metabolic syndrome and Type 2 diabetes is characterised by high levels of inflammation which increases risk of CVD [36]. Advice to incorporate polyunsaturated fat into the diet through processed vegetable oils such as sunflower, corn, safflower and spreads has led to an unbalanced intake of omega-6 to omega-3 fatty acids. The ratio was previously 1:1 prior to the agriculture revolution but has now increased to 16:1 in westernised populations [37]. Omega-6 fats are pro-inflammatory whereas omega-3 fats are anti-inflammatory and therefore the balance needs to be reinstated to reduce systematic chronic inflammation.

Polyunsaturated fat, due to the multiple double bonds, are also less stable and thus more prone to oxidation forming free radicals that lead to cell damage, CVD and cancer and therefore readdressing the balance between the different types of fat will assist with cell integrity [38-40].

It is time to provide correct and up-to-date information to people at risk of or with Type 2 diabetes so that they can make informed decisions regarding their diet. The recommendation to eat unprocessed foods with saturated, monounsaturated fats and some omega-3s from fish and grass-fed animals, but avoid trans fats and omega-6 rich vegetable oils and an excessive intake of high GI carbohydrate has been shown to improve health status.

## References

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