

Original Paper

Survey of Nutrition Knowledge of Canadian Physicians

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Key words: nutrition education, physicians, family

Objectives: Previous reports have indicated that physicians generally have little training in nutrition and a poor knowledge of the subject. A survey was carried out to determine the nutrition knowledge of physicians working in general practice.

Methods: A questionnaire with multiple-choice questions was mailed to 248 physicians working in Alberta, Canada, mainly in Edmonton and Calgary. Non-respondents received a second questionnaire and a phone call.

Results: Completed questionnaires were received from 36.1% (84 of 233 eligible physicians). The average correct response was 63.1%. The results indicate that physicians are generally aware of information which has been publicized in the medical press: which nutrients are antioxidants; the nutrient associated with the prevention of neural tube defects (folate); the preventive action of fruit and vegetables against cancer; the energy value of fat (9 kcal/g); and the recommended fat intake (under 30% of energy). By contrast they have a poor knowledge of other important topics in nutrition: the typical salt intake of Canadians; the association between excess protein intake and calcium loss; the type of dietary fiber helpful in lowering the blood cholesterol level (soluble fiber); and the nutrient which helps prevent thrombosis (omega-3 fat).

Conclusions: These results support other data that physicians need more training in nutrition.

INTRODUCTION

Several studies have indicated that medical students receive relatively little education in nutrition [1]. A survey carried out in 1992–93 revealed that only a quarter of US and Canadian medical schools have a required nutrition course [2]. Moreover, the number of US medical schools with a required nutrition course fell from 46 in 1982 to 27 in 1995 [2]. However, there is much less information concerning the nutrition knowledge of practicing physicians.

A survey of physicians at Southampton University, England, revealed that most rated their nutrition knowledge as “poor” or “very poor” [3]. Surveys carried out in the 1980s of physicians in Miami [4] and Missouri [5] indicated that they seriously underestimated the role of diet in the causation of cancer. In other tests of nutrition knowledge, a 1988 study of physicians in California reported a correct response rate of 69.2% [5] while a 1995 test of family practice residents in Texas gave a score of 50.7% [7]. No other similar surveys could be located in the literature.

A recent survey of American physicians revealed that many

more physicians would give dietary counselling to their patients except for the problem of various barriers [8]. Sixty-two percent felt that lack of knowledge about nutrition was one such barrier. Other major barriers included lack of time, poor patient compliance, inadequate counselling skills, and lack of adequate reimbursement.

The object of the present study was to assess the nutrition knowledge of Canadian physicians working in general practice.

METHODS

Using the telephone directory (“Yellow Pages”) a list was prepared of 248 primary care physicians working in Alberta, Canada, mainly in Edmonton and Calgary. A questionnaire was mailed to them together with a personalized cover letter. If no reply was received after 1 month, the questionnaire was mailed again. In addition, at the time of the second mailing a phone call was made to the physician’s receptionist asking that the questionnaire be completed. The name of the physician was marked on the questionnaire on the first mailing but not on the

Presented in part at the 6th World Congress on Clinical Nutrition, Banff, Alberta, CANADA, July 23–26, 1997.

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Table 1. Nutrition Questionnaire

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1. A nutrient believed to help prevent thrombosis is:
 - a. omega-3 fat*
 - b. selenium
 - c. monounsaturated fat
 - d. vitamin E
 2. Excess of which nutrient may increase body calcium loss:
 - a. protein*
 - b. saturated fat
 - c. potassium
 - d. sugar
 3. What type of dietary fiber is helpful in lowering the blood cholesterol level:
 - a. soluble fiber*
 - b. wheat bran
 - c. insoluble fiber
 - d. cellulose
 4. The typical daily salt intake of Canadians is:
 - a. 1–3 g
 - b. 3–5 g
 - c. 6–9 g*
 - d. 11–14 g
 5. The major type of fat in olive oil is:
 - a. saturated fat
 - b. polyunsaturated fat
 - c. monounsaturated fat*
 - d. omega-3 fat
 6. Compared with unprocessed vegetable oil, hydrogenated fats contain:
 - a. more polyunsaturated fat
 - b. more trans fats*
 - c. less saturated fats
 - d. more cholesterol
 7. Which nutrient is protective against hypertension:
 - a. potassium*
 - b. chloride
 - c. alcohol
 - d. iron
 8. If a person habitually consumes 10 tablets a day of vitamin-mineral supplements, which nutrient is least likely to cause toxicity:
 - a. vitamin E*
 - b. vitamin A
 - c. vitamin D
 - d. iron
 9. The most concentrated source of vitamin B₁₂ is:
 - a. fruit
 - b. whole grain cereals
 - c. beans
 - d. meat*
 10. Which substance raises the blood HDL-cholesterol level:
 - a. animal protein
 - b. riboflavin
 - c. calcium
 - d. alcohol*
 11. Nutrition Recommendations for Canadians recommends that the diet should contain the following percentage of energy as fat:
 - a. under 40
 - b. under 35
 - c. under 30*
 - d. under 25
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Table 1 Continued

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12. A type of food believed to have a preventive effect on various types of cancer is:
 - a. fruit
 - b. vegetables
 - c. fish
 - d. a and b*
 13. The number of kilocalories in one gram of fat is:
 - a. 2
 - b. 4
 - c. 7
 - d. 9*
 14. Which of the following is not an antioxidant nutrient:
 - a. vitamin E
 - b. beta-carotene
 - c. zinc*
 - d. vitamin C
 15. A common nutrient deficiency in alcoholics is:
 - a. vitamin A
 - b. protein
 - c. vitamin B₁ (thiamin)*
 - d. iron
 16. The nutrient strongly associated with the prevention of neural tube defects is:
 - a. beta-carotene
 - b. zinc
 - c. folate*
 - d. vitamin C
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* Denotes the correct answer.

second. Fifteen physicians were not eligible as they had moved or were not primary-care physicians. The results are based on the 233 eligible physicians.

The questionnaire consisted of 17 multiple-choice questions, each with four possible answers. One question was eliminated from the results as it was unclear. The 16 questions on which the results are based are given in Table 1. Several additional questions were asked to determine such information as age, name of medical school, previous nutrition education, and area of speciality.

RESULTS

Of the 233 eligible physicians, 84 replies were received (36.1%). The questions asked are shown in a simplified form in Table 2 together with the correct answer.

The mean mark for correctly answered questions was 63.1% (SD=15.5). Most physicians (73%) scored between 50 and 75%, with the remainder equally divided between a lower (44% or less) and higher (81% or more) score.

The physicians had generally received meager nutrition instruction in their MD program (43% had under 5 hours; 28% had 5 to 10 hours; 23% had 10 to 20 hours; and the remaining 6% had over 20 hours). None described their knowledge of

Table 2. Questions Asked, Correct Answers and Percentage of Physicians with Correct Answer

Number ¹	Question ²	Correct answer	% Correct
1	Nutrient believed to help protect against thrombosis	omega-3 fat	27
2	Excess increases body calcium loss	protein	37
3	Type of dietary fiber that helps lower the blood cholesterol level	soluble	39
4	Typical salt intake of Canadians	6–9 g/day	41
5	Major type of fat in olive oil	monounsaturated	50
6	Compared with unprocessed vegetable oils, hydrogenated fats contain	more trans fats	54
7	Nutrient protective against hypertension	potassium	58
8	Nutrient least likely to cause toxicity	vitamin E	58
9	Most concentrated source of vitamin B ₁₂	meat	61
10	Substance that raises the blood HDL-cholesterol level	alcohol	70
11	Recommended fat intake for Canadians (as % of energy)	under 30	77
12	Type of food believed to have a preventive effect against various types of cancer	fruit and vegetables	79
13	Number of kilocalories in one gram of fat	9	81
14	Not an antioxidant nutrient	zinc	85
15	Common nutrient deficiency in alcoholics	thiamin	95
16	Nutrient strongly associated with prevention of neural tube defects	folate	98

1. Answers arranged in order of percentage correct.

2. Questions are given here in an abbreviated form. A choice of four answers was given. See Table 1 for full list of questions.

nutrition as “excellent,” 47% described it as “satisfactory,” and 42% as “weak.” There was no obvious relationship between these two measures and the actual test score on the nutrition test.

CONCLUSIONS

Despite sending out the questionnaire twice plus leaving a phone message, the response rate was only 36.1%. This low response rate leaves open the possibility that physicians who chose to respond may not be a representative sample. However, the poor mark on several questions (especially numbers 1 to 4) suggests that there was little tendency that physicians with an interest in nutrition—and therefore, presumably, a better knowledge of the subject—were the ones who tended to reply. Moreover, no physician described his nutrition knowledge as “excellent.” Nevertheless, much caution is necessary before generalizing these results beyond our study population of physicians in Alberta (Canada) practicing in primary care.

The results (Table 2) indicate that physicians are generally aware of information which has been publicized in the medical press (notably questions 11–14 and 16) but have a poor knowledge of other important topics in nutrition which have been given less exposure (questions 2 and 4). However, a surprisingly low number of physicians gave the correct answer to questions 1, 3, 7, and 8.

Overall, the results of this study indicate that there are serious gaps in the nutrition knowledge of the average physician. In particular, many physicians do not have the expertise to properly advise their patients on important aspects of the role of nutrition in the causation, prevention, and therapy of disease (e.g., the role of diet in hypertension, thrombosis, and hypercholesterolemia). This clearly reflects the low priority given

to the subject in medical schools and in continuing medical education.

The most comparable previous study to the one reported here is probably that by Mlodinow and Barrett-Connor [6]. A mailed questionnaire was sent to family physicians and general internists in California. The response rate was 40%, similar to that achieved here. The mean score was 69.2%, rather better than the score of 63.1% observed in this study. However, their questions were true-false suggesting that chance would have inflated the score far more than was the case here where a choice of four answers was given for each question.

Another comparable study was done by Kirby et al [7] on family practice residents in Texas. Using multiple choice questions they reported a score of 50.7%.

Taken as a whole the evidence clearly indicates that physicians in North America need more training in nutrition. Accordingly, nutrition needs to be properly integrated into the medical school curriculum. In addition, nutrition should be an essential part of continuing medical education as, first, most physicians have a deficient knowledge, and, second, because the subject is rapidly evolving.

ACKNOWLEDGMENTS

I thank Artur Machner for his assistance in carrying out this project and Athabasca University for financial support.

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Received July 1997; revision accepted March 1998.