

Nutrition Survey: Knowledge, Attitude & Practices of Hong Kong Elite Athletes

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NUTRITION SURVEY : KNOWLEDGE, ATTITUDES & PRACTICES OF HONG KONG ELITE ATHLETES

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The consensus conference on Foods, Nutrition and Sports Performance in Lausanne, February, 1991, marked the official recognition for the importance of nutrition in sports performance by the International and National Olympic Committees. It is now without doubt that the nutritional status of the athlete is, among other variety of factors, one of the most important factors affecting optimal athletic performance.

However, the actual eating habit of sportsmen may not reflect the existing level of knowledge in the science of sports nutrition. It is thus not surprising to find out that previous studies on nutritional intake of different groups of athletes have confirmed the existence of below desirable intake, as compared to the Recommended Dietary Allowances, for several key nutrients (8,13,18,19,27,22,24), concluding the need for nutrition education and diet counseling. Poor nutritional intake not only affects athletic potential (16,17), but may also affects physical health of the athletes (21). In some studies, there are evidence that some athletes may have such minimum calorie intake that it may put these men in nutritional jeopardy (3,28,29). In some cases, even when caloric intakes were adequate, vitamin and mineral deficiencies were observed due to low nutrient density of food choices and poor dietary habits (4,15,23).

The study on dietary patterns of elite Australian Football players concluded that although many aspects of training and preparation of athletes enjoy a systematic and scientific approach, the dietary preparation does not make best use of current sports nutrition knowledge (6). It will be important to assess the knowledge and practice of our athletes since nutrition knowledge and attitudes are two factors that have been documented as influencing the nutrition-related behavior of individuals (7).

Useful information about the eating habits of athletes could be obtained by assessing their nutrition knowledge, beliefs and attitudes, food selection etc. by means of interviews and/or questionnaires (9,30,31). Previous studies of athletes in many countries have indicated low

levels of nutrition knowledge among athletes (12,27). Since no nutritional observation had been made on the Hong Kong elite athletes, the present survey will serve as a pioneer study to evaluate the knowledge, attitudes and practices of the athletes in Hong Kong. The observation will also be compared to a previous study (sponsored by Mars) in Australian coaches in Oct.1991, so a better evaluation can be made.

OBJECTIVES

Objectives of the survey were:

- (a) to assess nutrition knowledge, attitudes and practice of elite athletes in Hong Kong
- (b) to compare the nutritional knowledge of elite athletes and coaches in Hong Kong
- (c) to compare nutritional attitudes of Hong Kong athletes to Australian athletes

METHODS

PROFILE OF SUBJECTS:

The subjects consisted of 104 athletes, among which 90.4% are scholarship athletes receiving financial support from Hong Kong Sports Institute(Table 1). 85.6 % of the studied population have represented Hong Kong in national competition events; among which 37.5% are female athletes and 62.5% male athletes (Table 2). They represented athletes from 12 sports, the distribution of which is shown in Table 3. The mean age of the athletes was 18 years (range 9-32 years), with the majority (64.5%) in the 9-18 years age range (Table 4).

Table 1 - Status of Athletes

	Number	%
Scholarship athletes	94	90.40
Non-scholarship athletes	10	9.60

Table 2 - Sex and status of athletes

	Number	%
Female athletes	39	37.50
Male athletes	65	62.50
Hong Kong team member	89	85.60
non-Hong Kong team member	15	14.40

Table 3 - Profile of athletes population

SPORTS	NO. OF ATHLETES (total 104)
Swimming	18
Soccer	14
Tennis	10
Gymnastics	10
Fencing	10
Rowing	9
Track & Field	8
Badminton	8
Table Tennis	7
Squash	5
Wind-surfing	3
Triathlon	2

Table 4 - Age, sex of athletes

Age(%)	Number	(%)
9-11	6	5.80
12-18	61	58.70
19-25	25	24.00
26 or over	12	11.50

DATA COLLECTION

A questionnaire was designed based on questions used in previous surveys and observations in eating habit of the athletes by the author. The questionnaire was reviewed by a panel of 5 experts in nutrition and /or physical activity for content validity.

Components of the questionnaire consisted of :

1. age, sex, sports event, athlete status (e.g. being a scholarship athlete and/or Hong Kong team member);
2. sources from which they obtained their nutritional information;
3. identify confidence in the source of nutrition information;
4. cultural food believes and practice;
5. 11 attitude statements;
6. 27 knowledge statements on general nutrition and sports related nutrition.

The athletes were asked to respond "Agree" or "Disagree" and to indicate the degree of certainty using the Likert-type response format.

RESULTS & DISCUSSION:

Sources of nutrition information: (Table 5,6,7)

The primary sources of nutrition information used by the athletes were from books and magazines/newspaper, accounting 78.6% of information source. While books and doctor are considered the most reliable information source, accounting 56.7% of reliable source. Magazines/newspaper and work-place are considered the least reliable information source, accounting 48.8% of response.

Table 5 - Sources of nutritional information:

	%
books	68
magazine/newspaper	10
dietitian	5
seminars	5
television/radio	3
school	3
home	3
others	3

Table 6 - Sources of reliable nutritional information

	%
books	42.3
doctor	14.4
magazine/newspaper	10.3
seminars	9.3
school	7.2
others	16.5

Table 7 - Sources of unreliable nutritional information

	%
magazine/newspaper	29.5
work-place	19.3
family	13.7
radio/television	9.1
friend	8.0
others	20.4

Cultural Food Attitudes and practices

The majority of our athletes, 63.7% believe in cultural concepts of foods i.e. foods can be categorized into "hot" or "cold" according to cultural beliefs. For those who believe in the principles, 55.6% also tend to select or avoid foods based on the above belief (Table 8).

Previous studies in Hong Kong has confirmed the presence of food selection based on cultural belief in the Hong Kong population (20).In the Chinese culture and traditional medical theory, foods are classified into 'hot/cold' or 'wet/dry' according to the 'Ying' 'Yang' theory. Balancing of foods selection in these categories is believed to be important for maintaining health and energy.

Hong Kong Elite Athletes Chinese Traditional Diet Belief

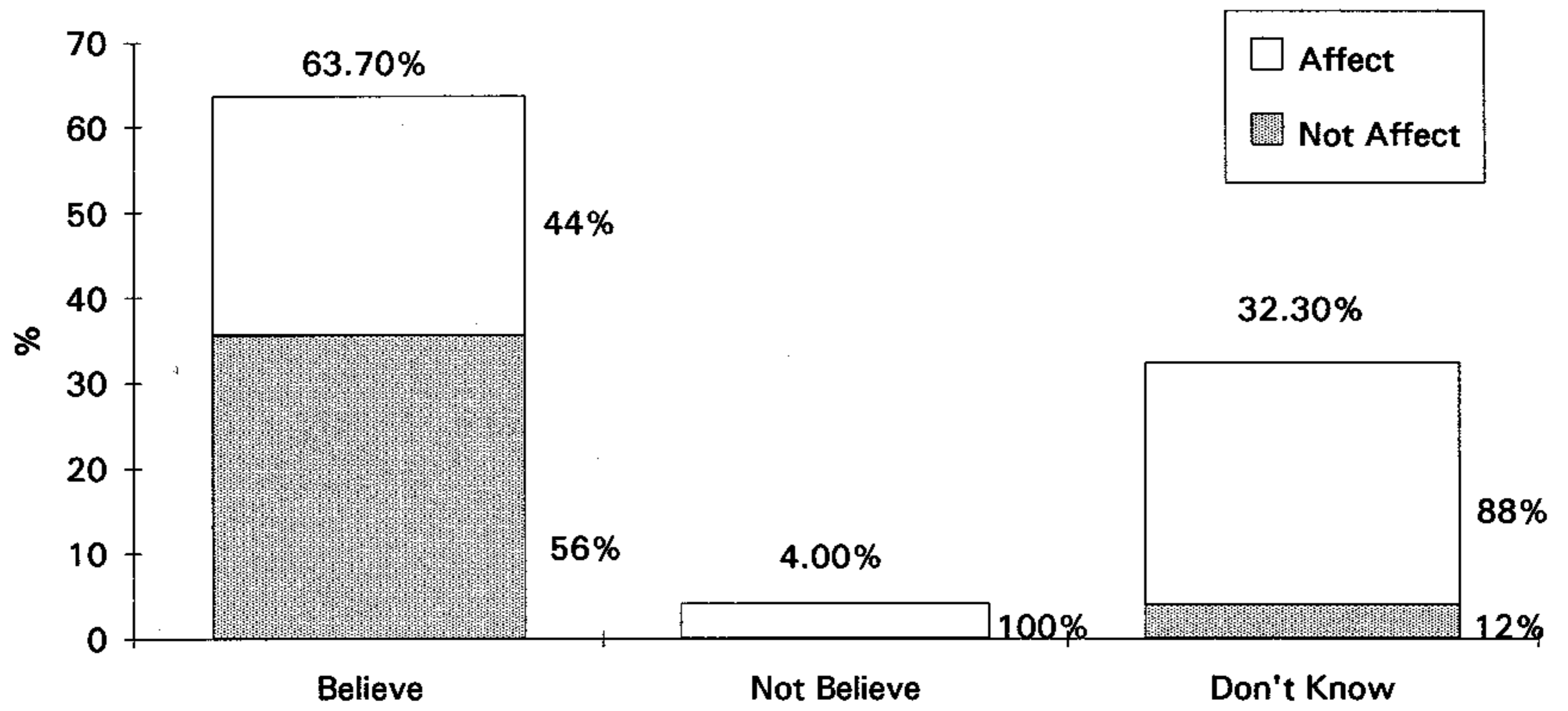


Table 9 - Nutrition Attitudes of Hong Kong & Australian athletes

	<u>% of agree response</u>	
	Australian athletes	Hong Kong athletes
Believe in the important role of nutrition in sports:		
- what you eat has a big impact on performance	96	88
- a balanced diet is equal in importance with training	98	89
- one should eat 3 balanced meals a day	88	97
Believe that foods assist sports performance:		
- carbohydrates are more easily converted into energy	96	66
- carbohydrates are good sources of energy	96	78
- take carbohydrates immediately after training will assist recovery	84	50
- training diet is more important than competition meal	79	58
Believe that certain foods should be avoided:		
- some foods are good, and some are bad	85	88
- should avoid all high-fat foods	71	75
- should eliminate most sweet snacks	72	29
Believe that sweets and snacking are O.K.:		
- the occasional high fat/sugar snacks are an accepted part of a healthy diet	75	62
- chocolate is an acceptable part of a high carbohydrate diet	21	20
- snacks is a good way to supply more energy	69	37
Athletes have special requirements:		
- vitamins and minerals needs will increase with increase activity level	86	68

Nutritional Attitudes Assessment (Table 9):

Both group of athletes strongly believe in the important role of nutrition for sports performance, with a >88% positive response in both groups. For the concept that certain foods will assist performance, and that there is an increased nutrient requirements in athletes, again there is a positive response in the majority of both groups. However, for athletes that do not agree, Hong Kong athletes has a significantly higher indicator of uncertain/don't know response(16-32% uncertain in Hong Kong athletes v.s. 1-4% uncertainty in Australian athletes. $p<0.05$). This may due to the lack of knowledge of the basic functions of foods, especially in relation to the role of carbohydrate in performance. The daily carbohydrate intake of heavily trained athletes is important, since heavy demands are made on muscle and glycogen stores (5,11). Knowledge in this area is thus essential to select appropriate foods for performance.

The majority of athletes in both groups believe that not all foods are the same (85% in Australian athletes and 88% in Hong Kong athletes) and that some foods should be avoided, however, H.K. athletes disagree (53% disagree) that sweet snacks should be completely avoided, while Australian athletes feel a stronger need for their total abstinence (71-72%).

Both groups have a minority of athletes believing chocolate as a proper food choices for increasing carbohydrate in the diet (21%-22% in both groups). However, chocolate is reported as the most favorite snack food in the Hong Kong athletes, accounting 41% of popular snacks taken recently. 40% of our athletes will also take chocolate at least 1-2 times in a week, and 5% will eat chocolate every day. The preference for chocolate, however, is not as high as incidence reported in Australian athletes (52% eat chocolate at least once or twice a week; 7% eat chocolate every day (Table 10).

Although most H.K. athletes reported to have snacking habit (66% athletes), they seem to have more negative or uncertain feelings (H.K. athletes 37% positive response and 37% uncertain response) towards whether one should take snacks in between meals.

Table 10 - Chocolate intake of Hong Kong and Australian athletes

	Hong Kong	Australian
eat chocolate 2-3 times per week	40%	52%
eat chocolate every day	5%	7%

Table 11 - Snacking Habit of Hong Kong elite athletes

	No. of athlete	%
one has snacking habit	69	66.3
one has no snacking habit	35	33.7

Believe that snacks are a good way to lift and sustain energy:

<u>Agree</u>	<u>Disagree</u>	<u>Uncertain</u>
36.5%	27%	36.5%

Knowledge Assessment

Among the 27 nutrition knowledge statements, mean percentage of correct response is 47% (Table 12). While incorrect and uncertain response accounts for the majority of answers.

For the 11 common statements conducted both in H.K. athletes and H.K. part-time coaches, the percentage of correct answers in the athletes (40.5%) is significantly higher than correct answers from coaches (24.1%) Table 13. Although coaches play a major role in the dietary practices of athletes, previous studies in other countries that assessed nutritional knowledge and attitudes of coaches concluded that coaches appear to be inadequately prepared to provide guidance in nutrition (1,10,14,26,32).

For the 15 common statements conducted both in H.K. athletes and Australian athletes, our athletes score a significantly less correct response (58.7% $p < 0.05$) than the Australian athletes' response (75.6%) (Table 14).

Table 12 - Result of 27 nutrition knowledge questions in Hong Kong athletes

correct answer	1316 (47%)
incorrect answer	556 (20%)
uncertain response	926 (33%)

Table 13 - Result of 11 common statements answered by athletes and coaches in Hong Kong:

	coaches	athletes
correct response	187 (24.1%)	461 (40.5%)
incorrect response	184 (23.7%)	300 (26.3%)
uncertain response	404 (52.1%)	378 (33.2%)

Table 14 - Result of 15 common statements answered by Hong Kong and Australia athletes:

	Hong Kong	Australia
correct response	919 (58.7%)	1587 (75.6%)
incorrect response	186 (11.9%)	386 (18.4%)
uncertain response	460 (29.4%)	127 (6.0%)

CONCLUSION

Based on the result of the questionnaire, one may conclude that the nutritional knowledge of our athletes is generally poor, especially in the area of nutrient functions and proper food choices. Since our athletes rely heavily on books, magazines and newspapers for nutrition information, their incorrect knowledge score may also reflect the lack of correct/reliable nutrition information from these media.

Studies have shown that athletes cannot be assumed to have diets associated with optimal athletic performance (24). This study will serve as a pilot effort in nutrition study in H.K. athletes, further research will be needed to make observations of the actual food intake of our athletes. And effort is clearly needed both in counseling and teaching for improving nutritional knowledge in the training programs of our athletes and coaches.

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