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Research Paper

Study on the Nutritional Status of Karate Martial Art Exponents

HOME SCIENCE

KEYWORDS : Karate martial art exponents, biochemical parameters, nutrition, chronic diseases.

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ABSTRACT

Martial arts are systems of codified practices and traditions of training for combat. The studies on martial art exponents like Karate are very limited. Hence, this study will enable us to elicit information on the demographic profile, anthropometric, biochemical, clinical parameters, dietary pattern and personal habits of the martial art exponents and at the same time the nutritional assessment will give us a bird's eye view of the possibilities of chronic diseases among the subjects and their dietary habits in depth. The study also aimed at assessing the biochemical parameters such as fasting plasma glucose levels and serum lipid profile and clinical parameters for the Karate Martial Artist exponent.

The results of the study revealed that majority the karate martial artists belonged to the age group of 20-25 years, and are graduates. Most of them do not have any chronic diseases. And none of the karate martial artists have the habit of smoking. Data pertaining to the nutritional status revealed that the karate martial artists were overweight, the mean body fat percentage was higher, and the blood pressure levels were slightly elevated among the Karate martial artists. The mean energy intake of the Karate martial art exponents were (1959±355g). This study helped to understand the nutritional importance for Karate martial artists.

Introduction

Martial arts are systems of codified practices and traditions of training for combat. The major importance of this study is to expound on the basic fitness levels and the nutritional significance of the Karate martial art personalities. The prevalence of a number of nutritional deficiencies, chronic medical diseases has also increased substantially in the nutritional transition countries. Through a general nutritional assessment of the martial artists the study will truly depict the overall profile of the martial artists. Martial art builds and maintains muscle tone. A martial art student is designed to keep the body perfectly conditioned. Its insistence on mental alertness keeps a sound mind in a sound body.Physical activities which used to enhance mental conditioning are helpful in developing a positive self-image. Nutrition for martial artists deals with diet and a good nutrition to positively affect a practitioner's performance. The first main objective of this study is to elicit information on the demographic profile, personal habits and food frequency pattern of Karate martial Artists, to assess the nutritional status of the subjects using anthropometric measurements, clinical parameters and dietary pattern of all the Karate martial artists. Secondly to analyze the selected biochemical parameters- serum lipid profile and fasting plasma glucose levels for Karate Martial Artists. Successful martial arts nutrition can lead to improved body chemistry for balance, explosive power, better mobility, greater speed and strength, increased energy for intense workouts, higher endurance for sport and self-defense situations, speedier recovery times, strengthened immune systems and maintenance of a healthy body weight. An adequate diet comes from eating a variety of foods from the four food groups (NIN, 2011). Hence, this study will enable us to elicit information on the demographic profile, anthropometric, biochemical, clinical parameters and dietary pattern of the Karate martial art exponents and at the same time the nutritional assessment will give us a bird's eye view of the possibilities of chronic diseases among the subjects and their dietary habits in depth.

Materials and Methods

The present investigation was undertaken to assess the nutritional status of twelve Karate martial art exponents. The nutritional assessment involved determination of the relevant anthropometric measurements, selected biochemical parameters like serum lipid profile and fasting plasma glucose levels, clinical parameters which includes blood pressure levels and dietary assessment was done using a 24-hour dietary recall method and was followed for three non-consecutive days which included two weekdays and one week end for all the Karate martial artists.

Karate martial artists were selected for the study and general information regarding demographic profile, personal habits, exercise pattern, family history of diseases were elicited using an interview schedule. The nutritional status of the Karate martial artists was assessed using anthropometric measurements which included the height, body weight, waist circumference, hip circumference, waist-hip ratio, body fat and thereafter the BMI and waist hip ratio was calculated. Selected biochemical parameters such as serum lipid profile and fasting blood glucose were analyzed. The dietary assessment was assessed for all the martial art exponents using 24-hour dietary recall method and was repeated for three non-consecutive days which included two weekdays and one week end. General nutritional counseling was given on the importance of balance diet to all the subjects at the end of the study period. The Karate martial artists were selected based on their technical exposure to their respective style and their willingness to participate in the study.

Results and Discussion

The data regarding demographic details, dietary habits and physical activity were collected using an interview schedule. The data was processed, tabulated and subjected to descriptive analysis.

General Information

The demographic profile of the subjects revealed that majority 75 per cent of the Karate martial artists belonged to the age group of 25-35 years. Results pertaining to educational status revealed that 58 per cent of the Karate martial artists were graduates. Data pertaining to number of years practicing the art by the subjects revealed that 25 per cent of the subjects performing Karate have been practicing the art for 7-10 years. Results pertaining to purpose of practicing the art showed that 41 per cent of the subjects practice karate as a physical activity whereas 33 per cent for self defence. Results indicate that Karate martial artists indulge in some form of intense workouts. Fifty per cent of them indulge in beach practice, 33 per cent in stamina exercise, 16 per cent in hill practice. Results pertaining to history of chronic illness revealed that 16 per cent of the Karate martial artists have a history of hypertension. Data pertaining to personal habits none of

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the karate martial artists smoke. Results pertaining to family history of disease condition revealed that 16 per cent of the Karate martial artists had a strong family history of diabetes followed by heart diseases (16%) and hyperlipidemia (16%).

Results pertaining to type of diet revealed that all the Karate martial artists were non vegetarians, Data pertaining to knowledge about ergogenic aids revealed that all the karate martial artists use mechanical ergogenic aid and none of the subjects use any other form of ergogenic aids like pharmacological, physical , dietary aids.

Food Frequency

The food frequency pattern revealed that all the subjects consumed rice and wheat daily. Vegetables like onion, carrot, tomato and beans were consumed by the subjects on a daily basis. Fruits were consumed occasionally by the subjects. Fish, meat and poultry were consumed weekly. Milk was also consumed by all the subjects on a regular basis

Anthropometric Measurements

Anthropometric, Biochemical, Clinical and Dietary Assessment (ABCD) for Karate Martial Artists

The anthropometric, biochemical, clinical and dietary assessment of the Karate martial artists are tabulated in the table.

Table 1

Anthropometric, Biochemical, Clinical and Dietary Assessment (ABCD) for Karate Martial Artists

PARAMETERS	KARATE (n = 12)
ANTHROPOMETRIC	
Height (cms)	171±5
Weight (Kgs)	73±10
BMI (Kg/m^2)	25±4
Waist Circumference (cms)	101±3
Hip Circumference (cms)	86±2
W/h ratio (cms)	1.17±1.4
Body fat (%)	21±5
BIOCHEMICAL	
Fasting Plasma Blood Glucose Levels (mg/dl)	91±11
TOTAL CHOL (mg/dl)	182±20
TG (mg/dl)	118±68
CHOL HDL (mg/dl)	42±4
CHOL LDL (mg/dl)	120±12
CHOL/HDL RATIO	4±0
CLINICAL	
Systolic Blood Pressure (mmHg)	135±9
Diastolic Blood Pressure (mmHg)	84±10
DIETARY	
Major Nutrients	
Energy (Kcal)	1959±355
Carbohydrate (g)	276±41.4
CHO Percent (%)	56
Protein (g)	64±14.7
Protein Percent (%)	13
Fat (g)	66±18
Fat Percentage (%)	30
Saturated fatty acid	32.02±11.38
Saturated Fatty Acid Percentage (%)	14
MUFA	23.25±63.50
MUFA Percentage (%)	10
PUFA	10.58±30.70
PUFA Percentage (%)	7.3
Cholesterol (g)	160±95
Vitamins	
Vit A (µg)	2±1
Thaimine (mg)	2±0
Riboflavin (mg)	1±0
Minerals	
Calcium (mg)	828±210
Iron (mg)	19±4

The mean anthropometric parameters (Height, Weight, BMI, Waist circumference, Hip circumference, Waist to Hip Ratio and Body fat) were assessed for the karate martial artists and it is found be (171±5cms), (73±10kg), (25±4 kg/m^2), (101±3cms), (86± 2cms), (1.17±1.4cms), (21±5 mg) respectively.

It is found that subjects practicing Karate had a higher mean body weight when compared to the other martial arts. Therefore the body mass index of the Karate martial artists (25±4 kg/m^2) is comparatively higher than the other martial arts and they are classified under the overweight category. The mean waist circumference was highest among the Karate (101±3 cm) martial artists when compared to the other martial artists. It is also seen that the Karate martial artists had a highest hip circumference 86±2cms when compared to the other martial artists. Hence the highest waist to hip ratio (1.17±1.4cm) was seen among the Karate martial artists. It is also seen that mean body fat of the Karate martial artists was 21±5%, which is slightly above the ideal level recommended by WHO (2002).

The biochemical assessment included fasting blood glucose levels and the serum lipid profile, the fasting blood glucose levels were estimated to be (91±11mg/dl) which is well within the normal cut off level, the results of the serum lipid profile revealed that the mean total cholesterol of Karate martial artists was 182±20mg/dl and the mean triglyceride levels was 118±68mg/dl, which was under the normal levels recommended by NCEP ATP III, 2002. The mean cholesterol HDL direct levels of the subjects were found to be 42±4mg/dl which is slightly higher than the lower cut off level recommended by the NCEP ATP III, 2002.The mean cholesterol LDL levels of the subjects was found to be 120±12mg/dl which is near optimal range and the mean cholesterol/ HDL ratio of the subjects was found to be 4±0 mg/dl which falls under the desirable levels recommended by the NCEP ATP III.

The mean blood pressure levels of the Karate martial artists were found to be, mean systolic blood pressure level and diastolic blood pressure level was135±9mmHg and 84±10 mmHg which is slightly above the normal levels recommended by WHO (2005) for adults.The dietary intake revealed, the mean energy, carbohydrate, protein and fat were found to be (1959±355Kcal),(276±41.4g), (64±14.7g) and (66±18g) re-

spectively. The mean percentage of carbohydrate, protein and fat was found to be (56%), (13%), (30%) and the mean cholesterol was found to be 160±95g respectively. Of the total fat (66g) the saturated fat percentage was 14 per cent which is regarded as high and the MUFA and PUFA percentages were found to be 10 per cent and 7 per cent. The mean vitamin intake of the Karate martial artists was also observed, the mean vitamin A, Thiamine and Riboflavin intake was 2±1µg, 2±0 mg, 1±0 mg. The mean mineral intake of calcium and iron was 828±210mg, 19±4mg.

Conclusion

Proper nutrition is concerned with the type and quantity of fluid and food taken by an athlete, it deals with nutrients such as vitamins, minerals,supplements and organic substances. The poor nutritional status of athletes may predispose them to immune suppression and other chronic metabolic diseases. Hence the nutritional status of athletes is very crucial and important. The assessment of the Karate martial art exponents has helped to define and understand the importance of nutrition for endurance athletes and also will give a nut shell overview of the physiological and

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