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Cardiovascular risk factors and food consumption of cadets from the Brazilian Air Force Academy

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Abstract *This article aims to investigate the prevalence of cardiovascular risk factors and food intake inadequacies in cadets from the Brazilian Air Force Academy and the association with sex and year of graduation. Cross-sectional study with 166 adult cadets from the Air Force Academy, placed in Pirassununga – SP, from June to December 2013. Anthropometric measures, biochemical and clinical parameters, physical activity level, smoking habit and food intake were evaluated. Pearson's Chi-square and Fisher's exact tests were used. Overweight prevalence (BMI > 25.0 kg/m²) was 29.7% in men and 16.7% in women. Hypertension was observed in 15.2% of men. Hypercholesterolemia was detected in 50.7% of the cadets; 24.3% presented high levels of low-density lipoprotein and 11.2%, low levels of high-density lipoprotein. There was association between the time spent in the Academy and low levels of high-density lipoprotein. High intake of saturated fat (87.2%) and cholesterol (42.7%) were observed. Inadequate intake of fibers was verified in 92.7% of the sample. There was considerable prevalence of cardiovascular risk factors among the cadets, especially hypercholesterolemia and inadequate food intake.*

Key words *Adult, Cardiovascular diseases, Dyslipidemias, Eating, Military personnel*

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Introduction

The changes observed in the lifestyle patterns of contemporary population are related to the processes of industrialization, urbanization and economic development. Some of these changes reflect negatively on the individuals' health, considering its relationship with risk factors for chronic noncommunicable diseases (NCD), such as poor eating habits, smoking, physical inactivity and harmful alcohol intake[1].

In 2012, approximately 68.0% of the worldwide causes of death were attributed to NCD, being 40.0% of them in people under 70 years of age[2]. Among the NCD, cardiovascular diseases (CVD) are the leading cause of mortality, accounting for about 17.5 million deaths worldwide[3]. In Brazil, there is a downward trend in mortality caused by CVD, however they are still the leading cause of death and hospitalization in the country, being responsible for 31.3% of deaths in the adult population[4].

CVD are considered of progressive nature once age acts as a risk factor for its development. However, the presence of cardiovascular risk factors (CVRF) has also been diagnosed at earlier life stages[5].

Similar to the civilian population, the increasing CVRF prevalence in young people can also affect the military population[6], characterized as healthy, physically active and at low risk of developing NCD. Investigations of CVRF in the military population have been reported[5-12], however, few studies have assessed dietary intake of these subjects[13-17]. In Brazil, just a few researches on cardiovascular risk in the military population have been found over the past decade[18-24], and only two studies evaluating food consumption were located[18,21]. This research was outlined given the importance of knowing the CVRF profile among the military in order to trace the necessary measures for prevention, early diagnosis and treatment. This study aimed to investigate the prevalence of CVRF and inadequacies of food intake in cadets from the Brazilian Air Force Academy (AFA), as well as the association of these factors with sex and year of graduation.

Methods

A cross-sectional study was conducted with cadets of both sexes, aged between 20 and 30 years and enrolled in the AFA, in Pirassununga city, São Paulo, Brazil. Data collection was performed from June to December 2013. The cadets were invited to participate in the study during lectures given by the main researcher, with explanations of all the steps that would be taken. From approximately 800 cadets registered in the AFA, 175 were recruited for this research. From these 175, two cadets were dismissed during the course, one gave up participating in the study and six did not attend the nutritional assessment consultation. Thus, the final sample consisted of 166 individuals. Pregnant women; individualstakingmedicines with the potential to interfere with biochemical serum lipids profile; and those with infection, inflammation, fever, diarrhea and metabolic stress were not included in the study:

The study was approved by the Ethics Committee of the Federal University of Goiás (Protocol 189/12). The consent form was presented to the participants during the first appointment and it was signed in duplicate by the main researcher and all those who agreed to participate.

Data collection was divided into two phases: (1) collection of socioeconomic, lifestyle and anthropometric data, blood pressure data, and instructions for completing the food records; (2) collection of biological material to carry out the biochemical tests.

Socioeconomic, lifestyle and anthropometric data collection was held at the Nutrition room in the AFA's Health Subdivision, conducted by a single researcher. In relation to lifestyle, emphasis was given to the level of physical activity and smoking habit. Anthropometric measurements included weight, height, waist circumference, and skinfold thickness. In the same appointment, participants were instructed how to fill the food records and received orientation for the blood collection, held in pre-scheduled appointments with each individual. Measures of systolic blood pressure (SBP) and diastolic blood pressure (DBP) were also taken.

The level of physical activity was evaluated in minutes / week and measured in accordance with the reports of activities during physical education classes. The recommendation for physical activity considers moderate activity longer or equal to 150 minutes per week or 75 minutes of intense activity per week[25]. The sum lower than 150 minutes of moderate activity was the cutoff point used to classify the cadets as insufficiently active or sedentary[25]. For quantification of physical activity as moderate or intense, the Metabolic Equivalents scale (MET) was used, in which MET values of 3.0 to 5.9 are classified as moderate activity and above 6, as intense activity[26].

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Smokers were those individuals who reported smoking, regardless of the number of cigarettes per day.

Measurements of weight (kg) and height (m) were used to calculate body mass index (BMI), obtained by dividing the value of weight in kilograms by height in square meters. The cutoff points for BMI classification were based on references proposed by the World Health Organization[27]: BMI < 18.5 kg/m^2 – underweight; BMI between 18.5 kg/m^2 to 24.9 kg/m^2 – normal weight; BMI ≥ 25.0 kg/m^2 – overweight, including obesity.

Abdominal obesity was determined from waist circumference (WC). The measure was performed with an inelastic tape, in centimeters, disposed at the midpoint between the iliac crest and the last rib at the time of expiration[27]. The cutoff points for abdominal obesity were ≥ 94.0 cm for men and ≥ 80.0 cm in women[28].

Triceps, subscapular, suprailiac, abdominal and thigh skinfolds were measured to estimate body fat percentage (% BF). Skinfolds measurement were performed in triplicate by a single evaluator in order to ensure greater accuracy and prevent errors. For skinfolds measurement a scientific Sanny® adipometer (Sao Paulo, Brazil) and standard protocol were used[29,30]. The body density (Dc) and, subsequently, the % BF were calculated[31,32]. The cutoff points used for assessment of % BF adequacy were ≤ 15.0% for men and ≤ 23.0% for women[33].

SBP and DBP were checked according to pertinent recommendations[28] and with an analogical sphygmomanometer (Becton Dickinson's Brasil®, São Paulo, Brazil), calibrated by INMETRO. We opted for the use of threshold PA values for diagnosis of systemic arterial hypertension (SAH), that is, values ≥ 130.0 mmHg for SBP and ≥ 85.0 mmHg for PAD[28], since the population was young and physically active, factors that are not considered risk for CVD[28].

For laboratory tests, participants were asked to attend the AFA's Health Subdivision Laboratory in a previously scheduled day, for a 12-hour fasting blood collection, which was performed by a qualified professional, using disposable syringes and stainless steel disposable needles. Blood samples (15 mL) were transferred into polypropylene tubes adequate for lipid profile determination. Evaluation of serum lipid profile was performed by enzymatic colorimetric methods, using kits from Biotécnica® (Minas Gerais, Brazil) and Biosystems® (Paraná, Brazil). Test readings were performed on a LabMaxPlenno, Labtest® (Minas Gerais, Brazil) biochemical analyzer. Cholesterol contained in high-density lipoproteins (HDL) was determined after precipitation of the low-density lipoproteins (LDL) and very low-density lipoprotein (VLDL) fractions. LDL and VLDL were calculated using the Friedewald et al. equation[34]. All analyzes were conducted at the AFA's Health Subdivision Laboratory. To interpret the results, the following cutoff points for cardiovascular risk were adopted: triacylglycerol (TG) ≥ 150.0 mg/dL, LDL > 100.0 mg/dL, HDL < 40.0 mg/dL[28] and total cholesterol > 200.0 mg/dL[35].

Fasting blood glucose was measured by automated enzymatic colorimetric method, with the kit from Biotécnica® (Minas Gerais, Brazil) and LabMaxPlenno, Labtest® (Minas Gerais, Brazil) biochemical analyzer. The cutoff point for fasting blood glucose was 100.0 mg/dL[28].

The assessment of food intake was based in the use of food diaries of three non-consecutive days, including a weekend day[36] (alternate day chosen by individuals). During the first appointment, participants received forms to fill and they were returned to the researcher on the day scheduled for blood collection. For calculation and assessment of dietary intake software Avanutri® (Rio de Janeiro, Brazil) was used. Data were entered as household measures andfor purposes of analysis, the three-day meanof food consumption was used.

The evaluation of the macronutrients and dietary fiber intake adequacy was based on the cutoff points proposed by the World Health Organization and the Food and Agriculture Organization[37]. The adequacy of fatty acid consumption was based on the IV Brazilian Guidelines on Dyslipidemia and Prevention of Atherosclerosis recommendations[38]: saturated fatty acids ≤ 7.0% of total energy intake (TEI); polyunsaturated ≤ 10.0% of TEI; and monounsaturated ≤ 20.0% of TEI.

Statistical analysis was performed on STATA/SE version 8.0. A descriptive analysis of continuous variables (mean ± standard deviation) was performed and the difference between sexes was analyzed by Student's t test. Pearson's Chi-square test or Fisher's exact test were used to evaluate the association between CVRF, sex and year of graduation. The 5.0% level of significance was adopted as standard. For association analysis between CVRF and year of graduation we chose to separate cadets into two main groups: those from the 1st and 2nd years (younger) and those from the 3rd and 4th years (older).

In order to refine the food intake data, macronutrient, saturated fat, polyunsaturated and monounsaturated, cholesterol and fiber intake values were adjusted to the energy value when appropriate. This procedure was performed according to the residual method, which allows the identification of relationships between dietary aspects and chronic diseases development without the influence of energy consumption[39].

To verify the sample size adequacy, maximum error was determined *a posteriori*. The confidence interval was 95.0% and the study power, 80.0%. The sample of 166 cadets was considered representative of the AFA because it was selected randomly among the cadets who attended the different years of teaching, from 800 cadets. The maximum error was 6.7%, considering the prevalence of hypercholesterolemia.

Results

One hundred and sixty-six cadets from the AFA participated in this study, of whom 147 (88.6%) were male. In relation to the four classes (years) of graduation: 39 (26.5%) were men in the first year; 25 (17.0%) were men in the second year; 74 (50.4%) were men and 17 (89.5%) were women in the third year; nine (6.1%) were men and two (10.5%) were women in the fourth year. The mean age was 21.5 ± 1.2 years for men and 21.6 ± 0.9 years for women, ranging from 19 up to 28 years.

The mean BMI for both sexes remained below 25.0 kg/m^2 and mean WC values were < 94.0 cm for men and < 80.0 cm in women. In relation to the biochemical tests, mean values were also within the appropriate standards. Mean values of LDL, VLDL, TG and glucose levels were not different between the sexes. The total cholesterol (151.4 ± 27.4 versus 173.4 ± 46.9, p = 0.0040) and HDL mean levels (51.8 ± 10.3 vs. 71.4 ± 16.6, p = 0.0000) were significantly higher in women, although within the normal range (Table 1).

We found that 29.7% (n = 41) of men and 16.7% (n = 3) of women were overweight. Moreover, the prevalence of hypertension reached 15.2% (n = 22) of men. In relation to the lipid profile, 50.7% (n = 73) of all cadets had hypercholesterolemia and 24.3% (n = 35), high LDL levels. No significant differences between sexes for biochemical variables, lifestyle and anthropometric measures were observed, except for abdominal obesity, statistically associated with female sex (p = 0.0040), and prevalence of 21.0% (n = 4). Sedentary lifestyle, i.e., the practice of less than 150 minutes of moderate physical activity during the week, was found in a low percentage of the sample (4.8%), as well as the smoking habit (4.2%) (Table 2).

There was a statistically significant association between the length of stay (years of training) in the AFA and low HDL levels, with a higher prevalence in cadets from first and second years. The remaining variables did not differ statistically according to the year of graduation (Table 3).

Fifty-six cadets (55 men and one woman) did not complete the food records and, therefore, food consumption data of 110 subjects were analyzed. In this assessment, 58.7% of men and 50.0% of women had a food intake higher than the daily needs. Both men and women presented high consumption of saturated fat and men consumed high amounts of cholesterol, as well as monounsaturated and polyunsaturated fats. The intake of saturated fat was statistically higher among women. Inadequate fiber intake was found in 92.3% and 94.4% of men and women, respectively. Protein intake was significantly higher among men (Table 4).

Discussion

The results of this study show significant prevalence of CVRF among young cadets: hypertension, overweight, high adiposity, hypercholesterolemia, high LDL levels; high intake of saturated, mono and polyunsaturated fat; in addition to the low consumption of dietary fiber. Results are worrying, since a healthier profile with lower prevalence of CVRF among physically active young was expected. This profile indicates future risk for CVD in this group. These are important results of this research, signaling the need to implement actions in order to prevent CVRF among young military.

Hypertension prevalence in male cadets is worrisome, considering that their age is not a risk factor for this condition, and because it was was higher than in a Brazilian research (Vigilância de Fatores de Risco e Proteção para Doenças-CrônicasporInquéritoTelefônico – VIGITEL) which found a hypertension prevalence of 7.5% among young people aged from 18 to 24 years[40]. However, high prevalence of hypertension and prehypertension have been observed in military populations, such as in the Brazilian military police, aged between 20-54 (40.0% in men)[18]. In men from the Air Force of São Paulo, aged

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Table 1. Variables related to the cardiovascular risk factors stratified by sex, Brazilian Air Force Academy cadets, Pirassununga-SP, 2013 (n = 166).

Variables	Men (n= 147) Mean (± SD)	Women (n = 19) Mean (± SD)	p-value
Age (years)	21.5 ± 1.2	21.6 ± 0.9	0.6742
Height (m)	1.8 ± 0.1	1.6 ± 0.1	0.0000
Weight (kg)	74.9 ± 8.8	59.5 ± 8.2	0.0000
BMI (kg/m2)	24.0 ± 2.2	21.8 ± 2.2	0.0000
Waist circumference (cm)	81.1 ± 8.8	74.2 ± 7.9	0.0013
Body fat (%)	11.1 ± 3.8	21.8 ± 3.4	0.0000
Total cholesterol (mg/dL)	151.4 ± 27.4	173.4 ± 46.9	0.0040
HDL (mg/dL)	51.8 ± 10.3	71.4 ± 16.6	0.0000
LDL (mg/dL)	87.1 ± 23.6	88.6 ± 32.8	0.7997
VLDL (mg/dL)	12.2 ± 6.0	13.4 ± 7.1	0.4238
Triacylglycerol (mg/dL)	61.1 ± 30.1	67.1 ± 35.1	0.4286
Glycemia (mg/dL)	86.9 ± 10.7	81.0 ± 4.9	0.0207
Systolic BP (mmHg)	113.9 ± 14.7	99.2 ± 10.8	0.0000
Diastolic BP (mmHg)	72.6 ± 9.0	62.9 ± 10.7	0.0004
Physical activity (min/week)	513.8 ± 255.1	465.8 ± 188.9	0.4301

SD = standard deviation; BMI = Body Mass Index; HDL = high-density lipoprotein; LDL = low-density lipoprotein; VLDL = very low-density lipoprotein; BP = blood pressure. * Student's t test

Table 2. Prevalence of cardiovascular risk factors in Brazilian Air Force Academy cadets, and association with sex, Pirassununga-SP, 2013 (n = 166).

Risk factors	Prevalence of CVRF						p
	Population (n = 166)		Male (n = 147)		Female (n = 19)		
	n	%	n	%	n	%	
Arterial hypertension	22	13.4	22	15.2	0	0.0	0.0540†
Abdominal obesity	7	4.3	3	2.1	4	21.0	0.0040†
Overweight	44	28.2	41	29.7	3	16.7	0.1920†
High adiposity	25	17.5	21	16.5	4	25.0	0.2960†
Hypercholesterolemia	73	50.7	61	48.8	12	63.2	0.2430*
Hypertriglyceridemia	4	2.8	3	2.4	1	5.3	0.2430†
Low HDL	12	8.3	12	9.6	0	0.0	0.1700†
High LDL	35	24.3	30	24.0	5	26.3	0.8260*
Altered fasting glycemia	1	0.7	1	0.8	0	0.0	0.8670†
Sedentary lifestyle	8	4.8	7	4.8	1	5.3	0.6330†
Smoking	7	4.2	7	4.8	0	0.0	0.4180†

CVRF = Cardiovascular Risk Factors; HDL = high-density lipoprotein; LDL = low-density lipoprotein. * Pearsons' Chi-Square Test or † Fisher's Exact Test; Biochemical tests n = 144.

between 19-35, the prevalence of hypertension was 22.0%[24]. Members of the Cameroon defense forces (mean ± SD age 37.3 ± 9.6 years)presented a hypertension prevalence of 39.1%[16], while pre-hypertension reached 80.0% of India's military aged 18-50 years[11].

In our study there was a high prevalence of hypercholesterolemia and high LDL levels among cadets, which is worrying given the relationship between dyslipidemia and atherosclerosis genesis[38]. Similar resultswere verified in a study with Belgian military aged between 20-56, in which the prevalence of hypercholesterolemia reached 56.0% of men[9]. In Rio Grande do Sul, Brazil, a research with the military police aged 20-54 years found a dyslipidemia prevalence of 54.0%[18].

Low HDL levels were associated with the year of joining the AFA, with higher prevalence among the cadets of the first and second years. This result can be explained by the greater time dedicated to physical activity among the cadets of the third and fourth years, as they are practitioners of daily physical activity for a longer time than younger cadets. There is evidence that physically active adults have higher serum HDL concentrations and lower LDL and TG levels when compared to inactive individuals[41].

Table 3. Prevalence of cardiovascular risk factors in Brazilian Air Force Academy cadets, and association with year of graduation (n = 166), Pirassununga-SP, 2013.

Risk factors	Prevalence of CVRF: 1st and 2nd years (n = 64)		3rd and 4th years (n = 102)		p
	n	%	n	%	
Arterial hypertension	9	14.5	13	12.8	0.7470*
Abdominal obesity	1	1.6	6	6.1	0.1640*
Overweight	19	31.7	25	28.2	0.4480*
High adiposity	9	15.0	16	19.3	0.5060*
Hypercholesterolemia	29	45.3	44	55.0	0.2480*
Hypertriglyceridemia	1	1.6	3	3.8	0.3980*
Low HDL	11	17.2	1	1.2	0.0010†
High LDL	17	26.6	18	22.5	0.5720*
Altered fasting glycemia	0	0.0	1	1.2	0.9990†
Sedentary lifestyle	2	3.1	6	5.9	0.3360†
Smoking	4	6.2	3	3.0	0.2630†

CVRF = Cardiovascular Risk Factors; HDL = high-density lipoprotein; LDL = low-density lipoprotein. * Pearsons' Chi-Square Test or † Fisher's Exact Test; Biochemical tests n = 144.

We observed significant prevalence of overweight. Although BMI is widely used as anutritional status evaluation method, it can provide inaccurate estimates when the assessed individuals have a high lean body mass percentage and lower fat mass, causing false-positive results[42]. However, this type of bias was not observed in this research, as the BMI results were corroborated by the prevalence of high adiposity, which reached 17.5% of the cadets, according to body fat percentage in skinfold analysis. It is also important to highlight that the determination of lean mass percentage through skinfold measurement underestimates the results compared to the Radiological Dual Energy Absorptiometry (DEXA), which is the gold standard for this evaluation. Certainly, the prevalence of excess body fat would be significantly higher if assessed through DEXA[43].

Data on overweight prevalence are similar to other studies with military personnel which also showed high prevalence of this condition[44,45]. In the United States, overweight and obesity preva-

Table 4. Prevalence of risky dietary intake for cardiovascular diseases, according to sex, in Air Force Academy cadets (n = 110), Pirassununga-SP, 2013.

Nutrients	Prevalence of risky dietary intake for CVD: Population (n = 110)		Male (n = 92)		Female (n = 18)		p*
	n	%	n	%	n	%	
TEI higher than the needs	63	57.2	54	58.7	9	50.0	0.4900*
Proteins (> 15% TEI)	82	74.5	75	81.5	7	38.8	0.0001*
Carbohydrates (> 75% TEI)	5†	4.5	3†	3.2	2†	11.1	0.1400*
Lipids (> 30 % TEI)	69	62.7	56	60.8	13	72.2	0.3600*
Saturated (≥ 7% TEI)	96	87.2	80	86.9	16	88.8	0.0100*
Monounsaturated (≥ 20% TEI)	110	100.0	92	100.0	18	100.0	0.9900*
Polyunsaturated (≥ 10% TEI)	110	100.0	92	100.0	18	100.0	0.9900*
Cholesterol (> 300 mg)	47	42.7	44	47.8	3†	16.6	0.0100*
Dietary fiber (< 25 g)	102	92.7	85	92.3	17	94.4	0.7500*

CVD = Cardiovascular Diseases; TEI = Total Energy Intake. * Pearson's Chi-Square Test. † Fisher's Exact Test.

lence in the military reached 60.0% of the studied population[46]. In a study of Belgian military (men aged between 20-56), 15.3% were diagnosed with obesity and 43.1% were overweight[9]. In Brazil, research with military men identified overweight and obesity prevalence of 51.6% and 12.9%, respectively[23]. High overweight and obesity prevalence among the military deserve attention and raises the need to implement intervention programs in order to improve nutritional status and, consequently, general health, preventing future cardiovascular events.

The prevalence of abdominal obesity was high and associated with female sex. Visceral fat is associated with metabolic disorders such as adverse changes in the profile of plasma lipoproteins, as well as to the genesis of coronary events[47]. The highest prevalence of obesity among women might be explained due to the greater amount of fat accumulated in the gluteal-femoral region, in addition to the influence of female steroid hormones, which plays a role in fat tissue accumulation[48].

Smoking habit was only observed among men, and the prevalence can be considered low. In a research with 10,500 soldiers in Saudi Arabia there was smoking habit prevalence of 35.0%[6]. Among military men from the US Navy the prevalence of smoking was 20.0%[49]. Avoidingsmoking is an important measure in the control of CVD because cigarette components act directly on endothelial cells, reducing the vasodilation and increasing blood carbon monoxide concentrations and blood pressure[50].

We observed a satisfactory time devoted to the practice of physical exercise among cadets, demonstrating a common practice in Brazilian military schools, where physical education is a compulsory subject of the curriculum. Physical activity is considered an essential pillar in the reduction of NCD risk[51], including CVD[52].

Dietary intake of the cadets drew attention to the high consumption of total fat, especially saturated fatty acids, which is one of the factors closely related to the high hypercholesterolemia prevalence observed among cadets. These results were similar to the Brazilian research data observed in the general population, in which the prevalence of saturated fat inadequate intake reached 82.0% of men and 87.0% of women aged between 19-59 year[53].

In addition to the high consumption of fats, the results showed low intake of dietary fiber, which is in line with the changes in the eating patterns of the Brazilian population in the last two decades, characterized by high consumption of saturated fat and sugars, as well as intake of foods low in dietary fiber[53]. If the sample loss observed in our study had been smaller or even absent, we believe that the dietary pattern would have been quite similar taking into account the homogeneity of the eating habits at the AFA.

The dietary intake pattern presented by the young cadets reveals that this population has adopted unhealthy food choices, represented by high intake of saturated fat- and sugar-rich foods; by low intake of fruits, vegetables, legumes and, in consequence, dietary fibers[5]. Research on food habits of 209 US young military revealed that they did not meet the recommendations relative to the optimal intake of total and saturated fat, fiber, fruits and vegetables[5]. Low consumption of dietary fiber has also been observed in military men of the Brazilian Air Force (FAB) in São Paulo, with only 2.3% of the population reporting consumption of dietary fiber food sources, according to the recommendation[21].

The results on the food intake of AFA cadets demonstrated an inadequate eating habits profile, as these young people had high intake of fatty food and low consumption of dietary fiber. Sigrist et al.[54] highlight that one contributing factor to inadequate food habits among the military is over-demanding activities in the service. Although some of them are aware of the importance of consuming healthy foods, they adopt less healthy pattern due to excessive activities and consequent lack of time. However, it seems that this pattern reflects more the habits of young adults and that joining the military career does not add healthier eating habits.

The inadequate dietary pattern among young adults observed in our study deserves attention from a public health viewpoint, since inadequate nutrition plays a key role on the incidence of obesity and other NCD, such as CVD. In this context, Crombie and coworkers[55] point out that higher impact related to the prevalence of obesity and overweight among US military is associated to eating habits, characterized by insufficient intake of fruits, vegetables and dietary fiber[55].

Limitations of the study include the difficulty faced in the cadets recruitment, as a significant number of them did not complete the protocol of clinical and/or biochemical evaluations (n = 22) and 56 did not fill the form of food consumption. However, the quality of data collection must be emphasized, as it was conducted by a single researcher after prior training, thus minimizingin-terviewer or secondary database bias.

We conclude that the results indicate significant prevalence of CVRF in AFA young cadets, especially hypertension, hypercholesterolemia, overweight, and poor eating habits, mostly independent of sex and year of graduation. This scenario highlights the presence of CVRF affecting younger individuals because of changes in the lifestyle of the Brazilian population.

Therefore, there is urgency in establishing nutrition and health education programs for the military population in order to prevent and/or reduce the incidence of CVRF in young adults, ensuring better life quality and reduction of long-term cardiovascular problems.

Collaborations

FE Hilgenber: conception, design, data collection and interpretation; article writing. ASAC Santos data analysis and interpretation; article writing. EA Silveira and C Cominetti: conception, design, data analysis and interpretation; critical revision of the article; approval of the final version.

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