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DIETARY IMBALANCE IN THE NUTRITIONAL STATUS OF A POPULATION IN ECUADOR

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Abstract: The proper balance of macronutrients is essential for maintaining body weight and preventing chronic diseases; In recent years it has become an area of nutritional research. The objective of the study is to relate dietary imbalance with nutritional status and body composition in a population from Ecuador. This is a descriptive, observational, cross-sectional study, non-random sampling, for convenience. The data were obtained from the dietary history of 180 individuals, which included the 24-hour recall, anthropometric data, and clinical data; allowing to evaluate dietary intake of macronutrients, nutritional status and body composition. The data were processed with SPSS version 22 using chi-square tests, probability of risks. The results show that there is a high intake of non-nutritious foods that lead to a dietary imbalance in 87.2% of young people and adults. This in turn significantly influences the nutritional status (p=.000), presenting malnutrition due to excess 30% and due to deficiency 4.5%. Likewise, a42.8% of subjects with fat hypertrophy, and 30.6% with pre-sarcopenia,It also constitutes a cardiovascular risk. Reason whyand evidences an imbalance in the consumption ofnutrients, generating malnutrition due to both excess and deficiency; The etiology of overweight and obesity may not only be due to high calorie consumption, but is also associated with an imbalance of macronutrients, independent of the amount of total energy consumed, related to sporadic consumption of saturated fat through fast foods. Therefore, nutritional dietary treatment must not only be focused on calorie restriction but on the balance of macronutrients according to the amount of calories, the reduction of subcutaneous adipose tissue, conservation of muscle mass and not only weight loss.

Keywords: Nutritional assessment,Nutritional and metabolic diseases, Metabolism, Nutrients.

INTRODUCTION

The proper functioning of the human body depends on the consumption of macronutrients such as proteins, fats and carbohydrates, therefore, their intake in recommended proportions has a significant impact on the nutritional status, body composition and health of the individual, through the maintenance of a healthy body weight and the prevention of chronic diseases.

Several studies highlight the importance of proteins, because they promote satiety, maintain muscle mass and prevent catabolism, preventing excessive gain of subcutaneous fat, being beneficial for weight control by reducing the risk of comorbidities.(1).

It has been observed that a diet high in complex carbohydrates with high fiber content such as whole grains, whole grain breads, among others, unlike low quality carbohydrates, such as sucrose and fructose included in products such as beverages, are associated with a better composition. body, that is, normal body fat levels and less visceral fat(2)United States.\nPARTICIPANTS: 53 553 women and 27 916 men without cardiovascular disease or cancer at baseline.\nMAIN OUTCOME MEASURE: Death confirmed by state vital statistics records, the national death index, or reported by families and the postal system.\nRESULTS: 14 019 deaths occurred during 1.2 million person years of follow-up. Increases in red meat consumption over eight years were associated with a higher mortality risk in the subsequent eight years among women and men (both P for trend<0.05, P for heterogeneity=0.97.

On the other hand, fat intake plays a crucial role in nutrition and body composition; unsaturated fats may have benefits in reducing the risk of heart disease, while saturated and trans fats cause adipose hypertrophy,

increasing the risk of obesity and metabolic diseases(3)410 women, aged 50-79 years, and evaluated their risk for clinical myocardial infarction (MI.

Micronutrient intake, which includes essential vitamins and minerals, plays a crucial role in various bodily functions, including metabolism, immune function and cellular development. Adequate intake of micronutrients, such as calcium and vitamin D, may be associated with lower body fat and greater muscle mass(4), micronutrients such as iron, vitamin B12 and folic acid play an essential role in energy metabolism and overall health(5). Whereas, excessive consumption of certain micronutrients, such as sodium and vitamin A, can lead to health problems such as hypertension and vitamin A toxicity, respectively.(6).

Data from the National Health and Nutrition Survey (ENSANUT), identified the existence of an imbalance in the intake of macronutrients in the adult population of Ecuador, observing that the intake of proteins and saturated fats are above dietary recommendations, while carbohydrate intake is below. These findings may have significant health implications, as diets high in saturated fat have been associated with an increased risk of cardiovascular disease(7)as are metabolic abnormalities. However, few studies have addressed the associations between obesity/ metabolic risk phenotypes and dietary macronutrient intakes (carbohydrate, protein, and fat. Identifying these risks is the first step to developing effective nutritional interventions that can help improve the health and well-being of this population in Ecuador. Therefore, the purpose of the study was to relate the imbalance of proteins, carbohydrates and fats in relation to the amount of energy consumed with the alteration of nutritional status and body composition in a population from Ecuador, for future nutritional interventions.

MATERIALS AND METHODS

A cross-sectional descriptive observational study was carried out, where parameters such as caloric intake, nutritional status and body composition of the population were evaluated. The population was made up of 180 young people and adults between 17 and 65 years old, selected by non-probabilistic sampling for convenience, with inclusion criteria such as being apparently healthy, being within the age range, signing the informed consent and as exclusion criteria, have catastrophic, metabolic diseases or disabilities.

The imbalance between calories consumed and the amount of proteins, carbohydrates and fats was estimated through the analysis of the 24-hour recall of each participant and the results obtained were compared with the recommended daily intake (RDI) calculated with prediction formulas according to weight, height, age and gender of each individual and to categorize as deficit, excess or normal, the percentage of adequacy of what was consumed of between 95 to 105% was applied.

To identify nutritional status, anthropometric measures such as weight and height were used, thus determining the body mass index (BMI) and classifying individuals according to parameters established by World Health Organization: Underweight, Normal, Overweight, Obesity. Taking 4 folds such as the triceps, biceps, subscapularis and suprailiac and circumferences such as the arm made it possible to identify the reserves of body fat and muscle mass for which body density was determined with the formulas of Durnin and Womerley and SIRI for reserve. of adipose tissue; In addition, the presence of fatty hypertrophy and muscular hypertrophy was identified through the Arm Muscle Area (Heymsfiel et al. 1982) and Arm Fat Area (Jelliffe-Jellife 1996) and according to percentiles established by Frisancho in 1990.

The data obtained were analyzed with the

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SPSS version 22 package, through descriptive and inferential analyzes considering the type of variables, chi-square tests, and probability of risks were performed.

RESULTS

We worked with 180 subjects, men (40.6%) and women (59.4%), between 17 and 65 years old (30±12.7), located in different cities of Ecuador, mainly Ambato and Latacunga (67. 2%). Their dietary intake presented a deficit and excess in the consumption of macro and micronutrients, evidencing an imbalance in the diet. A high consumption of fast food, sugary drinks and snacks, together with an inadequate intake of vegetables and fruits, does not allow an adequate supply of vitamins and minerals, reducing the body's metabolic processes and use of nutrients.

Table 1 indicates an unbalanced proportion of macronutrients, excessive protein consumption is in 40% of the population while the deficit is in 35% of daily consumption and no significant difference is observed by gender (p=.26). There is also a 31.7% excess in fat consumption per day, accompanied by a deficit in the intake of this same nutrient for 50% of the population. In carbohydrate consumption, 51.7% report maintaining a deficient consumption of this macronutrient and only 4.5% of the subjects present an excess of their consumption. Deficient fiber consumption, 81.1% of the population has low consumption.

This imbalance of macronutrients in the diet generates a deficit in people's daily caloric intake; 61.7% of the population presents this caloric deficit. With respect to micronutrients, according to the parameters established for consumption by FAO and World Health Organization, we can say that 15% meet the needs of vitamins and minerals, it is reported that the lowest consumption is folic acid; A significant difference was observed in the deficit in the intake of iron and vitamin A micronutrients in women.

Table 2 analyzes dietary consumption based on nutritional status, obtaining the following results: there is a significant difference between nutritional status and CHO consumption (p=.000), where 21.6% of the subjects present some degree of malnutrition due to deficiency or excess in consumption, the condition of excess weight occurs more in those people with a deficit due to CHO consumption, and not due to excess.

Protein consumption does not present a significant difference with the alteration of nutritional status (p=.466), however, excess weight is observed in those individuals who have high and low protein intake in the diet.

With respect to fat, only 12.8% of the population that consumes excess fat presents weight gain, while in those who have a deficient intake of fat, overweight and/or obesity is 17.12%, even though there is no significant difference (p=.229).

Independent of the contribution of proteins, carbohydrates and fats, it is observed that the excess of energy caused 11.1% of people to suffer from overweight and/or obesity, while the caloric deficit caused 18.3% to develop malnutrition due to excess, although without significant difference (p=0.065). (Table 2)

In general, it is observed that 87.2% of young people and adults present an imbalance between carbohydrates, proteins and fat in their diet, with no significant difference by gender (p>.05) and where 30% of them present malnutrition due to excess and only 4.5% would have a balanced diet, are overweight (Table 2). However, it is also observed that 62.2% of young people and adults maintain a normal nutritional status, without a significant difference (p=.0627). Despite this, the probability of risk between sick (malnourished) and healthy vs. with and without dietary imbalance, yielded a value

	Macronutrients					Macronutrients			
	Range	Male	Feminine	% Total	Px		Male	Feminine	%Total	Px
Calories	*Déficit*	48 (26,7%)	63 (35%)	61,7%	0,521	Iron ***(Fe)***	29 (16,1%)	76 (42,2%)	58,3%	0,000
	Exceso	20 (11,1%	32 (17,8%)	28,9%			34 (18,9%)	17 (9,4%)	28,3%	
	Normal	5 (2,8%)	12 (6,7%)	9,5%			10 (5,6%)	14 (7,8%)	13,4%	
Protein	*Déficit*	21 (11,7%)	42 (23,3%)	35,0%	0,26	Vitamin A	41 (22,.8%)	41 (22,8%)	45,6%	0,046
	Exceso	30 (16,7%)	42 (23,3%)	40,0%			28 (15,6%)	61 (33,9%)	49,5%	
	Normal	22 (12,2%)	23 (12,8%)	25,0%			4 (2,2%)	5 (2,8%)	5,0%	
Fat	*Déficit*	39 (21,7%)	51 (28,3%)	50,0%	0,397	B12 vitamin	28 (15,6%)	47 (26,1%)	41,7%	0,111
	Exceso	19 (10,6%)	38 (21,1%)	31,7%			41 (22,8%)	46 (25,6%)	48,4%	
	Normal	15 (8,3%)	18 (10,0%)	18,3%			4 (2,2%)	14 (7,8%)	10,0%	
CHO	*Déficit*	41 (22,8%)	52 (28,9%)	51,7%	0,608	Calcium ***(Ca)***	59 (32,8%)	85 (47,2%)	80,0%	0,466
	Exceso	3 (1,7%)	5 (2,8%)	4,5%			13 (7,2%)	17 (9,4%)	16,6%	
	Normal	29 (16,1%)	50 (27,8%)	43,9%			1 (0,6%)	5 (2,8%)	3,4%	
Fiber	*Déficit*	58 (32,2%)	88 (48,9%)	81,1%	0,867	Zinc ***(Zn)***	35 (19,4%)	56 (31,1%)	50,5%	0,705
	Exceso	13 (7,2%)	17 (9,4%)	16,6%			35 (19,4%)	45 (25,5%)	44,9%	
	Normal	2 (1,1%)	2 (1,1%)	2,2%			3 (1,7%)	6 (3,3%)	5,0%	
						Ac. Folic	35 (36,1%)	99 (55%)	86,1%	0,107
							5 (2,8%)	8 (4,4%)	7,2%	
							3 (1,7%)	0 (0,0%)	1,7%	

Table 1 Intake of macro and micronutrients by gender in the study population

		Nutritional condition					
		Under weight	Normal weight	About weight	obesity	**% Total**	**Px**
Caloric contributions	Deficit	3 (1,7%)	75 (41,7%)	24 (13,3%)	9 (5,0%)	61,7%	0,065
	Excess	3 (1,7%)	29 (16,1%)	17 (9,4%)	3 (1,7%)	28,9%	
	Normal	3 (1,8%)	8 (4,4%)	6 (3,3%)	1 (0,6%)	9,4%	
Carbohydrates	Deficit	4 (2,2%)	59 (32,.8%)	24 (13,3%)	6 (3,3%)	51,7%	0,000
	Excess	3 (1,7%)	3 (1,7%)	2 (1,1%)	0 (0,0%)	4,4%	
	Normal	2 (1,2%)	50 (27,8%)	21 (11,7%)	7 (3,9%)	43,9%	
Protein	Deficit	3 (1,7%)	36 (20%)	20 (11,1%)	4 (2,2%)	35,0%	0,466
	Excess	4 (2,2%)	44 (24,4%)	20 (11,1%)	4 (2,2%)	40,0%	
	Normal	1 (0,6%)	32 (17,8%)	7 (3,9%)	5 (2,8%)	25,0%	
Fat	Deficit	6 (3,4%)	54 (30%)	22 (12,2%)	9 (5,0%)	50,0%	0,229
	Excess	1 (0,6%)	33 (18,3%)	21 (11,7%)	2 (1,2%)	31,7%	
	Normal	2 (1,2%)	25 (13,9%)	4 (2,2%)	2 (1,2%)	18,3%	
Nutritional imbalance	Yes	8 (4,5%)	95 (52,8%)	43 (23,9%)	11 (6,.1%)	87,2%	0,0627
	No	0 (0,00%)	17 (9,4%)	4 (2,2%)	2 (1,1%)	12,8%	

Table 2. Dietary imbalance and its influence on nutritional status

		Nutritional condition					
		Under weight	Normal weight	About weight	obesity	**% Total**	**Px**
Caloric contributions	Deficit	3 (1,7%)	75 (41,7%)	24 (13,3%)	9 (5,0%)	61,7%	0,065
	Excess	3 (1,7%)	29 (16,1%)	17 (9,4%)	3 (1,7%)	28,9%	
	Normal	3 (1,8%)	8 (4,4%)	6 (3,3%)	1 (0,6%)	9,4%	
Carbohydrates	Deficit	4 (2,2%)	59 (32,.8%)	24 (13,3%)	6 (3,3%)	51,7%	0,000
	Excess	3 (1,7%)	3 (1,7%)	2 (1,1%)	0 (0,0%)	4,4%	
	Normal	2 (1,2%)	50 (27,8%)	21 (11,7%)	7 (3,9%)	43,9%	
Protein	Deficit	3 (1,7%)	36 (20%)	20 (11,1%)	4 (2,2%)	35,0%	0,466
	Excess	4 (2,2%)	44 (24,4%)	20 (11,1%)	4 (2,2%)	40,0%	
	Normal	1 (0,6%)	32 (17,8%)	7 (3,9%)	5 (2,8%)	25,0%	
Fat	Deficit	6 (3,4%)	54 (30%)	22 (12,2%)	9 (5,0%)	50,0%	0,229
	Excess	1 (0,6%)	33 (18,3%)	21 (11,7%)	2 (1,2%)	31,7%	
	Normal	2 (1,2%)	25 (13,9%)	4 (2,2%)	2 (1,2%)	18,3%	
Nutritional imbalance	Yes	8 (4,5%)	95 (52,8%)	43 (23,9%)	11 (6,.1%)	87,2%	0,0627
	No	0 (0,00%)	17 (9,4%)	4 (2,2%)	2 (1,1%)	12,8%	

Table 3. Frequency of food consumption in relation to Nutritional Status

of 1.9, that is, those with dietary imbalance have a risk probability of presenting states of malnutrition, twice as high. than those people who do not have an imbalance in their diet.

Regarding body composition, dietary imbalance is related to 42.8% of subjects with fatty hypertrophy, which translates into weight gain in fat, with a deficit in muscle mass, 30.6% of subjects with pre-sarcopenia causing an imbalance of macronutrients with the caloric component. Furthermore, in the study group, 6.7% of subjects were reported to have muscular hypertrophy, that is, with better metabolic conditions, and of the population that presented fat hypertrophy, only 16.1% registered an excess in fat consumption (p =.162), and a 10.6% excess in caloric intake (p=0.413), while there was no significant difference for protein (p=0.445) and carbohydrate intake (p=.151). All of this at the same time is further affected by the presence of a sedentary lifestyle in 48.3% of subjects, especially in adults.

Through dietary history, the frequency of consumption of fast foods was identified, including pizza, hamburgers, French fries, fried chicken, soda, processed juices, pastries, cakes and snacks such as Doritos and potato chips.

50.7% consume fast food sporadically, 31.3% consume it weekly, and only 1.8% of people consume this type of food daily (Table 3); Even so, this infrequent consumption has a significant relationship with weight gain (26.1%) (p= .00); in turn with the presence of cardiovascular risk (17.3%) and alteration of body composition such as greater fat hypertrophy (42.2%) and presence of pre-sarcopenia (30.6%).

The sporadic sweet intake of ice cream, soda, cakes and donuts reaches 88.8% (Table 3), but no significant difference is observed with respect to nutritional status, cardiovascular risk and body composition (p>.05), the 34% of people with low frequency of consumption are overweight and obese, and 15% are at high cardiovascular risk. The consumption of snacks is also infrequent, but weight gain (33.3%) is observed (Table 3), cardiovascular risk (15%), and an increase in adipose tissue reserves (61%).

DISCUSSION

Balanced intake of nutrients is related to good health, while nutrient imbalance presents a deficiency or excess of certain nutrients, affecting people of all ages and socioeconomic groups, giving a negative effect on the quality of life of the population(8)

The Westernization of the diet and global eating habits have increased the consumption of fast foods, simple sugars, and animal fats, leaving aside the consumption of a diet based on fruits, vegetables and whole grains.(9), this globalization of the diet has led to the population being more likely to have obesity, cardiovascular diseases, diabetes, among others.

According to the body mass index obtained in the study, overweight and obesity corresponds to a third of the population studied, a lower prevalence than that found in a study carried out in 2022 among the Ecuadorian population between 19 and 50 years old. where the problem of overweight and obesity was 64.68%. However, the data are similar to those found by the World Health Organization in June 2021, where the prevalence of this problem worldwide is 39%, with the female gender being the most affected.

Likewise, it is noted that the human body obeys the law of energy conservation, which refers to the relationship between energy input and storage and its output or expenditure, where the combustion of macronutrients from food releases energy. chemistry through the complex process of oxidative

phosphorylation in the mitochondria, but not all macronutrients are completely absorbed by the body, the protein does not undergo complete combustion but instead produces urea and ammonia and this way all the energy consumed is stored in the form of fat in the body(10)which currently remains lacking, will be useful in determining the etiology and treatment of obesity and other conditions resulting from prolonged energy imbalance. Here, we show that a mathematical model of the macronutrient flux balances can capture the long-term dynamics of human weight change; all previous models are special cases of this model. We show that the generic dynamic behavior of body composition for a clamped diet can be divided into two classes. In the first class, the body composition and mass are determined uniquely. In the second class, the body composition can exist at an infinite number of possible states. Surprisingly, perturbations of dietary energy intake or energy expenditure can give identical responses in both model classes, and existing data are insufficient to distinguish between these two possibilities. Nevertheless, this distinction has important implications for the efficacy of clinical interventions that alter body composition and mass., Understanding the dynamics of human body weight change has important consequences for conditions such as obesity, starvation, and wasting syndromes. Changes of body weight are known to result from imbalances between the energy derived from food and the energy expended to maintain life and perform physical work. However, quantifying this relationship has proved difficult, in part because the body is composed of multiple components and weight change results from alterations of body composition (i.e., fat versus lean mass, which influences the person's body composition over time. Several studies have shown that the proportion of macronutrients in the diet in relation to the total calories provided can influence weight gain as body fat.

The quantitative analysis of the diet through the 24-hour recall method and analyzed through the NutriSurvey program, one of the software recommended by the FAO, shows that of 180 participants, 87.2% present an imbalance in the composition of their diet. However, half of the participants have a normal nutritional status, this phenomenon could be explained by the age of the population, because the predominant age is between 17 and 40 years, physical activity is greater than in others age groups; In the study, it was observed that overweight and obesity are present in 30% of individuals who present an imbalance in their diet, whether due to excess or deficiency.

Since obesity is a chronic, multifactorial problem, where the interaction of genetic variants and an obesogenic environment has caused the number of people with this condition to double from the 1980s to 2014, according to data of World Health Organization, it is estimated that for By 2035 there will be 4 billion people with this problem(12). Most studies have identified the increase in total energy intake, lack of physical activity and poor eating habits through Westernization of the diet as the etiology of obesity; however, there have been several attempts to relate the presence of obesity with variation in macronutrient intake and few studies have been descriptive with little capacity to make significant epidemiological inferences(13).

The idea that obesity is caused by a high calorie consumption in the diet may not be entirely true, as some studies describe it.(14) In the proposed study, it is observed that the presence of overweight and obesity is in 18.3% of individuals who have a deficient caloric intake, that is, they do not meet the minimum requirement for the day, while 9.4%

of Participants with obesity according to BMI, have a caloric consumption greater than the recommended dietary intake (RDI) according to their weight, height, age, gender and physical activity, women are the ones with the greatest energy deficit (61.7%) this observation of the data obtained are comparable with a study carried out by Calvo et al., in a population between 5.5 and 18 years old, where although the data does not establish a correlation of said approach in their study population, the intake low calorie intake was present more in those children and adolescents who were overweight and obese(14).

Since total energy intake is highly variable between individuals, increasing the consumption of one macronutrient means decreasing the intake of others., so the balanced consumption of proteins, carbohydrates and fats in the diet helps to improve body composition, prevent obesity and improve the state of health of people, while an isocaloric diet, where the deficiency of a nutrient is replaced by another, to maintain the same total caloric intake, produces unfavorable results in the alteration of the body composition of the individuals(15).

According to the results of excessive or deficient consumption of macronutrients in the investigated population, there is a low intake of carbohydrates in the diet in both men and women and in turn a close relationship with the presence of overweight and obesity (p =0.000), while no type of relationship is observed with body composition (p=0.151), it is still seen that 22.8% of individuals with this characteristic present greater reserves of subcutaneous white tissue. The main functions of protein in the body range from tissue regeneration to protein synthesis at the muscle level, but for this process to occur, the energy intake of carbohydrates and fats must be adequate, otherwise protein metabolism will suffer. alterations, resulting in a loss of muscle mass, as demonstrated by Noakes et al., in their controlled study on body composition and cardiovascular risk, indicates that a low-carbohydrate diet is not associated with protein savings, since their data based on dual-energy maintain blood glucose levels through gluconeogenesis(16).

Several investigations relate the type of fatty acids that make up the diet with the presence of obesity, insulin resistance, therefore greater risk of metabolic diseases, where long chain fatty acids (LFA) of the saturated type, not only cause fat deposits at the subcutaneous level but also at the visceral level(17)(18).

Like the intake of fat in the diet, the results obtained through dietary analysis on high or low protein consumption and its relationship with the presence of overweight or obesity do not express a direct association (p=0.446) with a similar condition. happens with body composition (p=0.445). Several investigations describe that high protein diets could have a beneficial effect on weight control.(19)low-carbohydrate diets decrease caloric intake and cause weight loss. It is unclear whether these effects are due to the reduced carbohydrate content of such diets or to their associated increase in protein intake.\nOBJECTIVE: We tested the hypothesis that increasing the protein content while maintaining the carbohydrate content of the diet lowers body weight by decreasing appetite and spontaneous caloric intake.\nDESIGN: Appetite, caloric intake, body weight, and fat mass were measured in 19 subjects placed sequentially on the following diets: a weight-maintaining diet (15% protein, 35% fat, and 50% carbohydrate, but in reality the information is still not convincing, for example, a study carried out in children analyzed whether the supply of proteins during childhood up to 11 years of age could interfere with the rebound of adiposity and the increase in BMI, these results showed a positive relationship

between high protein intakes with an increase in adiposity index and BMI(twenty). Several studies suggest that animal protein from meat, dairy and processed meats are associated with weight gains due to their high saturated fat content, and consider vegetable proteins as more favorable for preventing weight gain. (9). InIn the present study, the trend of body weight gain in relation to protein intake for the two conditions, whether due to excess or deficiency, is similar with 13.3%, however, both the deficit, the excess and the high consumption of this macronutrient, leads to a greater accumulation of subcutaneous adipose tissue in individuals, it is also observed that 25% present muscle mass depletion and even more so in individuals with normal nutritional status according to BMI, if we consider this relationship of increase in body fat and loss of muscle mass, you couldsuggest the suffering of Sarcopenia of Obesity (OS), a situation that was believed to be a condition only of the elderly and that according to several studies currently occurs even in pediatric populations and young adults, the same one that is associated with cardio diseases. metabolic, inflammation and mental health of individuals(fifteen).

This study also analyzed whether monthly, weekly or daily consumption of fast foods; sweets and snacks are related to weight gain, increase in adipose tissue reserves and cardiovascular risk, it was observed that the intake of sweets and snacks is not a determining factor for changes in weight and body composition (p=> 0.05), this condition does not label these products as safe, on the contrary, according to studies in mice through nutritional geometry studies, they determined that the mixture of products that combine fat with sugars and products with glucose and fructose are related with increased visceral fat and insulin resistance(twenty-one), despite there not being a close relationship, especially with sweet foods and snacks, the problem of weight gain and subcutaneous adipose tissue is present in the population with frequent monthly consumption of these pseudo foods, which suggests that their influence It could be slight in the alteration of nutritional status and body composition, as they are products rich in trans fats and containing simple sugars, they could increase inflammatory processes and oxidative stress.(9) (twenty-one), modifying genetic expression and increasing the population's risk of suffering from metabolic abnormalities.

CONCLUSION

The study showed that the majority of the population presented a dietary imbalance due to the consumption of nutrients, generating malnutrition due to both excess and deficiency.

On the other hand, the consumption of fast foods has a significant relationship with the presence of overweight, obesity, body composition and cardiovascular risk; Although there is sporadic consumption of this type of products, they are the ones that can present the greatest metabolic complications due to their high saturated fat content. Eating habits and inflammatory processes generated by the accumulation of body fat, regardless of nutritional status according to BMI, could have a greater relationship with cardiovascular pathologies.

We conclude that nutritional dietary treatment must not be focused on caloric restriction, but on the balance of macronutrients, according to the amount of calories, the reduction of subcutaneous adipose tissue, conservation of muscle mass and not only the loss of weight.

RECOGNITION

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AUTHORIZATIONS

The authors express that there are no conflicts of interest and are responsible for the content of the manuscript.

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