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STUDIES ON THE USE OF MILK AND MILK PRODUCTS ATHLETES DIET

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Abstract

In order to ensure the energy, plastic and catalytic needs, the human consumes food. The consumption of milk and cheese leads to good physical development and also increases the physical resistance, which is also essential in sport activities. The food is a product made of nutrients. Milk and dairy products are also categories of nutritious foods. This paper presents a study on the nutritional value of the milk and dairy products, the advantages and disadvantages of their use in athletes' nutrition and the ration required.

Key words*: milk, dairy products, athletes' nutrition, ration.*

INTRODUCTION

The food is a product consisting of nutrients called trophines. Trophines (substances well-defined from the chemical point of view and indispensable to the humans) are: proteins, lipids, carbohydrates, minerals, vitamins and water(Craciun,1996). In human body, trophines have an important role to maintain its vital functions, to improve and restore cells (plastic role) and to provide the necessary energy needed for the work (energetic role) (Alexandrescu,1994). Depending on their compounds and on their biological value, foods are divided into several groups. Milk and dairy products belong to one of these groups. Milk and cheese combined with cereals may cover the full nutritional needs of an adult.

MATERIALS AND METHODS

The research presented on this paper was concluded by bibliographic study and by experimental method. Butter and cream had been excluded from milk and dairy products group because they are part of fats category.

RESULTS AND DISCUSSIONS

This paper evaluates the sport performances in relation to milk and dairy products nutrients consumption. Butter and cream had been excluded from milk and dairy products group because they are part of fats category. Based on the study will determine nutritional values and the athlete's diet. Milk and cheese should form 15% of the caloric intake (Craciun, 1996).

Nutritional value.

Milk and cheese are the most important source of calcium. Because of this quality it have mineralizing action on children and anti decalcifying action on adults due to their calcium, phosphorus and vitamin D content, which contributes to bone magnesium, sodium and iron salts retention (Hodosan, 2014). Also due to its calcium citrate, potassium, magnesium, and alkaline miliequivalents contents, the milk is the only food of animal origin to be recommended to be given to athletes even after the effort stops (Petrescu, 2002).

Milk and dairy products are a source of protein rich in essential amino acids. They are the cheapest protein animal (casein and lactalbumine) and also have a high digestive utilization coefficient (90-96%), which increases their plastic role. Therefore, milk and cheese consumption is indicated during growing. Being rich in essential amino acids, the proteins in this food category complement

the proteins in food made out of grain (corn, wheat and their derivatives) (Hodosan, 2004). Therefore, polenta or pasta is recommended to be consumed with milk and cheese in order to increase their nutritional value. Milk and its derivatives can also replace meat: whole milk contains all the vitamins as meat contains, but in different proportions. Example: 35 g of cheese or 0.250 l of milk can replace 50 g of meat (Table 1) (Craciun, 1996).

Table 1. The content of vitamins and minerals in milk and dairy products per 100 g of food used in the athletes' diet

Food	Vitamins per 100 grams of food				Minerals in milligrams per 100 grams of food				
	Carotene Y	B1 Y	A (U.I.)	D (U.I)	K	Na	Ca	Fe	P
Cow"s milk	35	45	150	3-4	160	50	125	0,05	90
Cheese	20	30	50	-	120	30	250	0,5	180
Cottage chesse	0	50	1200	20-40	150	2	500	0,6	400
Butter	700	-	3500	50	16	6	15	0,2	25
Sour cream	500	25	2000	35	95	30	70	0,2	60

Whole milk contains all the vitamins but in different proportions. It is rich in vitamins A (retinol), B2 (riboflavin), K (phylloquinone), B2 (pantothenic acid), relatively rich in vitamin D (cholecalciferol), B6 (pyridoxine), B12 (cyanocobalamin), but low in vitamins B1 (thiamine) and C (ascorbic acid). Acid dairy products (sour milk, yogurt, kefir, etc.) are richer in B group vitamins than fresh milk. Also, acid dairy content of lactose help intestinal microbial flora to thrive and to synthesize vitamins of group B. Fat cheeses are also a good source of A and B2 vitamins (Nistor, 2015).

Milk and cheese are also an important source of energy. It ranges from 70 calories per 100 ml. milk, up to 300-400 calories per 100 g of fat cheese.

Athlete rations on milk and milk products

In order to achieve performance and weight control (Table 2), food rations can be combined in athletes' diet by taking into consideration the caloric value of each food compound in relation to the needs of sport branches (Petrescu, 2002).

Table 2. Calories consumption per sports branch

Gymnastics	4500 calories
Boxing, wrestling	4500-5000 calories
Climbing competition	5000 calories
Sports games	4400-4600 calories
Cycling backgroung	6000 calories
Speed swimming	4500 calories
Swimming endurance	5000-5500 calories

Determining the rations was accomplished by taken into consideration a caloric intake of 5000 cal / 24h. This calculation was done for an athlete with an average weight (70 kg) (Table 3) (Alexandrescu, 1994).

Table 3. Average quantities of milk and dairy products that are part of the athlete's ration (protein content, fat, carbohydrate and calories)

Food	Quantity/week	Proteins	Lipids	Carbohydrates	Calories
Cow's milk	7 days x 300 g=2100 g	70	70	96	1340
Cheese	3 days x 100 g=300 g	42	4	12	252
Cottage cheese	3 days x 50 g=150 g	35	38	-	497
Butter	7 days x 50 g=350 g	3	294	1	2754
Sour cream	2 days x 100 g=200 g	6	40	7	426

Milk, taking into consideration its nutritive contribution, may be considered a complete food (Figure 1).

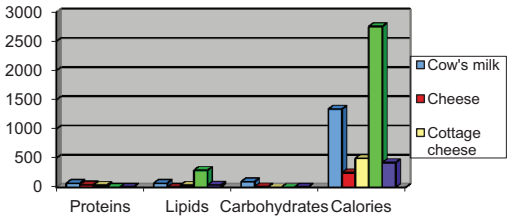

Figure 1. The contents of proteins, fat, carbohydrate and caloric value of the athlete's ration for dairy and milk products

Daily ratio of an athlet should contain about 500 ml of milk and 50 g cheese which, in addition to their nutritional value, will prevent muscle cramps occurrence. Drinking buttermilk or 200-250 ml yogurt is better than consuming soft drinks or beer or wine. Also, cheese, in addition to its nutritional value, help balance the intestinal flora in case of a mixed diet or in case of having a predominantly vegetable diet. However, fermented cheese should not be part of athletes' diet.

CONCLUSIONS

Milk and cheese are the most important source of calcium. Also, they are a source of rich in essential amino acids proteins.

Whole milk contains all the vitamins but in different proportions. It is also an important source of energy.

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