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Assessment of healthy life, nutrition and physical activity in different age groups

Elizabeta Popova Ramova[1], Leonid Ramo[2]

1. High Medical School Bitola, University St.ClementOhridski Bitola, R.Macedonia
2. Medical faculty, University GoceDelcev, Stip, R.Macedonia
Corresponding author email: betiramova62@yahoo.com

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A B S T R A C T

Prevention of osteoporosis is an activity of WHO in the current decade (2011-2020). It consists of: early detection of risk caring patients, healthy life style, and insolation. The aim of our research was in those age groups to assess healthy life and physical activity. Material and method: The data was collected on population of 1490 (age groups: 10-14, 15-21, 22-50, 51-65, 66-75, 76>) with questioner during one project. Results: Average positive habits were 43%, negative were 31%, and both were not significant. Discussion: The age group of teenagers has more negative than positive habits. Prevention of osteoporosis in old people age 65 and more can prevent complications from it, in our population it is on low level 28-38%. Conclusion: Promotion of healthy life policies, can increase body mass and prevent future complication of the bone loss. Prevention in all population can be done with national educational polices adapted for each age and promotion of healthy life with exactly collected data.

Key words: *healthy life, nutrition, physical activity.*

Introduction

It is admitted that at least 46-65% of the variance in bone mineral density (BMD) depends of genetic factors, consequently around 38-54% of the variance of BMD can be modified by environmental factors in which nutrition plays a large role.(Chao R, et al.(2011), Hiroto T, et al.(2011).Regarding the skeleton, nutrition could theoretically have a direct and indirect role: firstly to maximize bone strength during growth through the amelioration of the peak bone mass, by improving both the protein compartment of bone mineralization, and by decreasing the rate of bone loss with ageing, secondly, to maintain the muscle strength by restraining sarcopenia in elderly.(Iuliano-Bums.S,et al.(2003), Bass SL, Naughton G, et al. (2007)The combined effect of nutrition and exercise has been less studied for other nutriments. During growth, an interaction between environment, hormonal factors, nutrition, ethnicity, sex and genetics probably exists. The aim of our research was in those age groups to assess healthy life, nutrition and physical activity.

Material and method

Daily intake of food, dietary nutrients and physical activity were assessed in population of 1490 people in few age groups. The population was from South-West region of Macedonia, divided in age groups: 10-14, 15-21, 22-50, 51-65, 66-75, >76. The questionnaire was consisted of five parts: personal data, positive and bad nutrition habits, assessment of physical activity and insolation. The optimal daily dose of calcium was taken from standard measure by age.(De Silva CC et al.2012)For positive nutrition habits were considered: daily intake of milk, fish, fruits and vegetables (Peters BS,2010), and for (negative: intake of cigarettes, alcohol, fast food andcaffeine (Hallstrom H, et al 2006, Kanis JA 2005a, .Kanis JA, et al.2005b) Physical activity was also assessed in age groups by different standards, specifiedby age. (Hirota T, et al,2011)Selection of data is showed in table 1, and results in table 2.

>Tab.1 insert here<

The total positive and negative activitieswere scored with one point, from total people. The significance of positive and negative activities was made with T-test and difference of proportion with significance of $p<0.05$.

Results

The collected data from nutrition status and physical activity in different age groups is showed in table 2.

>Tab.2 insert here<

Assessment with positive and negative activities is showed in table 3 and in figure 1.

>Tab.3 insert here<

>Fig.1 insert here<

Discussion

It is clear that good bone mass is starting to build itself in early age. Assessing dietary intake on children becames more difficult as they age. Parents have less control over their intake and are less able to provide a complete and accurate picture of their childrens food intake. The use of questionnaires administered directly to children at school, can provide a resonably accurate picture of their usual pattern. (Hirota T, et al.2011)

The differences in body mass density and muscle mass are greater if exercise is started before puberty and the enlargment of periostal envelope is greater in males than in fameles.(Cardadeiro G, 2012,Nisson M et al.2010, Nisson M et al.2012)The physical activity during adolescence have positive effects on total body, lumbar spine and total hip body mass density and prevention of spine deformity. (AhlesCP,et al.2012)Some children who traine sport profesionaly in adolescent age, have better bone mass than the not active ones and it is not the same with all kinds of sports. (Gulding A.2007) In children with fractures during growth age, lower femoral neck body mass density was found.(Body J.J.,et al.2011)The best effect on bone mass have sports with jumping(basketball), and it's best if it starts before the age of 13, with optimum 4 hours per week. (Gulding A.2007)

In our study the age group of 10-14years had good healthy habits70%,and bad nutrition habits 35%, daily physical activity and insolation was present in all 100%. In the age group of15-21 years (teenagers) the negative nutrition habits are 20% higher than the positive, and physical activity is decreasingby 72% from previous age group.

In adult population bone can be maintained by turning on bone growth and prevent its reduction of various factors acquired due to health problems, genetic predisposition, diet and physical activity. (Vanderspank D, et al.2012, Taes Y.et al.2010) It is known that certain diseases can reduce bone mass, here there is primarily imbalance of hormones thyroid, pancreas and parathyroid and adrenal gland. (Sakuma M, et al.2012)In adult population healthy diet means not only prevention of osteoporosis but also cancer and cardiovascular diseases. Inactivity in the adult population and its impact on bone was studied in different categories of people. (Tereszkowski CM, et al. 2012) In the absence of gravity astronauts were followed by reduction of bone mass during space travel. (Sakuma M, et al.2012).Indult populations application of extreme diets without adequate intake of calcium and despite physical activity leads to reduced bone mass. (Ho-Pham LT et al.2009)It was noted in ballerinas and athletes. Athletes have unequal distribution for asymmetric load. Among the players the best built legs are those on basketball and tennis players(AhlesCP,et al.2012, Nisson M, et al.2012).In menopausal and perimenopausal women and men with prostatectomy due to deficiency of sex hormones, as well as those with coronary bypass and receivers of anticoagulant therapy, or people with Parkinson's disease they all have a decrease of bone mass. (Cumhi SM et al.2012, ShenoyS,et al.2012).

In adults, 22-50 years old, the level of healthy nutrition is 31%, and negative habits 37%, the level of tobacco intake is the highest in all age groups. They work 8 hours a day and have less habits for recreate gymnastic. Our country has many sunny days, so sun exposition is on high level. Age group, 51-65 is a risk group for early detection of osteoporosis risk factors. 65% of them are taking calcium with food, but only 33% takecalcium supplementation, DEXA screeningwasdone only by 8% and bone loss therapy intake is 17%, thephysical activities alsois low 10%.

In people older than 65 years, despite iatrogenic factor, loss of sex hormones and the general reduction of functions due to desorption of food by GLI and neurological diseases they are at high risk of fall and fractures. Healthy eating habits should be adjusted to morbidity reduction, and in the presence of more than one risk factor to make an assessment of bone mass with DEXA chemicals, but it also can include drug therapy for bone loss, as determined and approved protocol to work in the medical community. (Vanderspank D, et al.2012) For already established physical activity during osteoporosisit doesn'tincrease bone mass, (Maggioni MA et al.2012, Marques EA, et al.2012, Kruavit A, et al.2012), but it can improve the quality of life and prevent the risk of a fall. (GillespiLD,et al.2009)

Our population of old people has positive nutrition habits 71-88%, screenings with DEXA have been done by 8-29%, and intake of medical anti bone loss therapy is 17-26%. They have daily physical activity walking 30-60 min. per day, 67-94%, but they haven't done exercises for fall prevention.

Table.1 Daily intake of calcium, physical activity, insolation, healthy habits

Age in years	1.Daily calcium intake in mg	2.Healthy food	3.Bad food habits (cola, cafe, fast food)	4.Smoking Alcohol	5.Active weekly sport 4 hours	6.Recreate Physical activity, Corrective Gym.	7.Exercises for fall prevention	8.Sun exposition	9.DEXA	10.Anti-Bone loss therapy	11.Phytoestrogens herbal testosterone
10-14	1300	X	X	X	X	X	/	2-4 hours	/	/	/
15-21	1300	X	X	X	X	X	/	2-4 hours	/	/	/
22-50	1000	X	X	X	X	X	/	2-4 hours	/	/	/
51-65	1200	X	X	X	/	X	/	15 min	X	X	X
66-75	1200	X	X	X	/	X	X	15 min	X	X	X
76>	1200	X	X	X	/	X	X	15 min	X	X	X

X-collecting data, significant for age, /-not collecting data, not significant for ag

Table.2 Results from collecting data in age groups

Age in year	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
10-14 N=404	/	170	283	/	156	404	/	404	/	/	/
%	/	42	70	/	39	100	/	100	/	/	/
15-21 N=158	/	50	123	28	54	28	/	43	/	/	/
%	/	32	78	18	34	18	/	27	/	/	/
22-50 N=549	32	330	168	171	110	32	/	350	4	/	/
%	6	60	30	31	20	6	/	64	0.72	/	/
51-65 N=250	32	162	70	70	/	25	/	120	54	20	0
%	13	65	28	28	/	10	/	48	22	8	0
66-75 N=105	37	88	14	8	/	94	0	5	30	27	0
%	35	84	13.3	7.6	/	89		5	29	26	0
76> N=24	8	17	2	1	/	16	0	0	2	4	0
%	33	71	8.3	4.1	/	67	0	0	8.3	17	0
Total N=1490	109	817	660	278	320	599		922	90	51	
%	12(n=379)	55	44	19	29(n=1111)	40	0	62	24(n=379)	13(n=379)	0

Table 3. Life habits

Age in years	Analyze	Total positive habits	Results	%	Analyze	Total bad habits	Results	%
10-14	2,5,6,8	1616	1134	70	3,4	808	283	35
15-21	2,5,6,8	632	175	28	3,4	316	151	48
22-50	2,5,6,8	2196	822	37	3,4	1098	339	31
51-65	1,2,6,8,9,	1250	393	31	3,4	500	140	28
66-75	1,2,6,7,8,9,10	735	281	38	3,4	210	22	10
>75	1,2,6,7,8,9,10	168	47	28	3,4	48	3	6
Total 1490		6597	2852	43		2980	938	31
T,P<0.05		T=0.1 p>0.05				T=0.072 p>0.05		

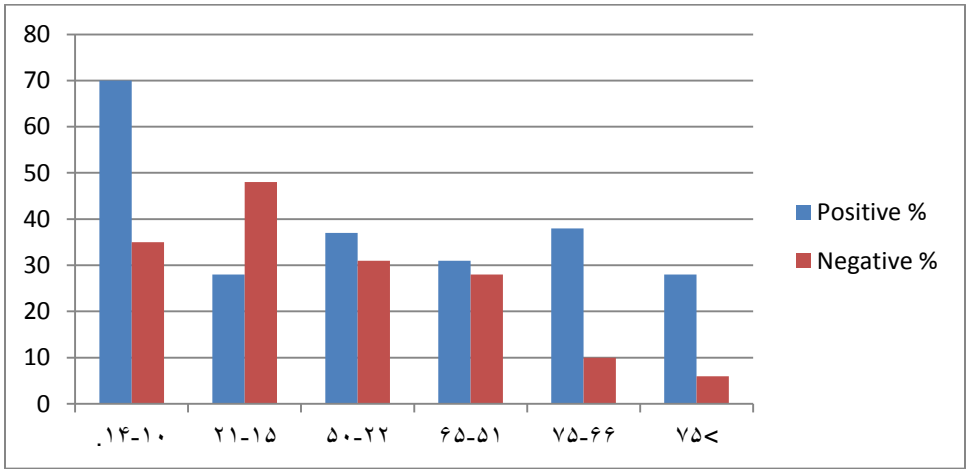

Figure 1. Differences of positive and negative life habits

Conclusions

Our population who was analyzed in this study had no significant positive nutrition habits and physical activity, except children 10-14 years, but also no significant bad nutrition habits.Promotion of healthy life style with national polices is the future of our activities. This national action can increase bone mass and prevent future health complication of inactivity and bone loss.

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