

THE PILLOW COMFORTABLENESS AND KIPHOTIC POSTURE

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Abstract

The subject of this research is estimation of kiphotic posture abnormalities in spine and relation of such abnormalities with appropriateness with sleeping pillow. There was a sample of 299 pupils of both gender from elementary school. For kiphotic posture estimation there were used a somatoscopic and somatometrics methods, and with bad posture identification it was average of less strength criterium used. Influence of adequateness of sleeping pillow was estimated by questionnaire. Kiphotic bad posture in this population is 43.14 %. Totally 87.63 % entities claim that pillow is comfortable for sleeping, with very small percentage unsecure answers and negative ones. Most kiphotic posture entities exist in group with unsecure answers, following with those who are satisfy with pillow, and finally with those that are not satisfy. Values of Pearson Chi-Square test and Contingency Coefficient, shows that there is not significant statistical relation between sleeping pillow comfortableness and bad kiphotic body posture in estimated population.

Key words: kiphotic posture, pillow, pupils

Introduction

A poor posture does not always signify a pathological state; on the other hand, a good posture helps the body to work very well in everyday life. It is known that the human body functions best when its parts are well balanced in sleeping positions, sitting, walking, standing, or in any other activity. So far, many studies have dealt with the problem of estimation of body posture, selecting the best indicators, and assessment of the reliability of these procedures, Stefanovic et al (1972), Watson & Mac Donncha (2000); Straker & Mekhi (2000); Paušić (2005), McEvoy & Grimmer (2005). All the mentioned studies, and those unlisted as well, were carried out in order to detect irregularities in the physical position of children and adults. Disturbances in body posture in children, based on previous research and statistical data, are mainly caused by muscle weakness of the region back, chest or abdomen. Also, the weakness of the pelvic area and lower extremities can lead to secondary disturbances in the upper parts.

The primary changes usually first occur in the muscles, then there is a change in ligaments device and at the end of the bone system. The poor posture is essentially a single initial stage of a particular deformity. Rapid and asymmetrical growth in children with the other elements especially during school time (carrying a school bag, working conditions in schools, working conditions at home, bed and pillow, sitting chairs and so on.) are also an important element of an emerging strain of the spinal column. Kiphosis is a reinforcement of physiological curvature of the spine in the sagittal (antero-posterior) plane in the thoracic region of the spinal column, with the convexity facing backwards. It is characterized by the fact that the head is bent forward in front-line vertical.

Shoulders are rolled forward, reinforced by the stoop and back area, the breasts are drawn, the blades are highlighted and separated from the spinal column, a flabby stomach and bulging, and knees are very bent and moved forward as a whole and feet are often insufficient. A large number of registered irregular kiphotic type of poor posture indicates a sudden growth and development of the skeleton, the loss of muscle strength of backstroke, the lack of body hygiene, the lack of physical activity, as well as preventive and corrective training models - Jovovic, V. (2003), Bogdanovic, Z.(2008). A peaceful and healthy sleep is necessary for normal functioning of the body, so the quality pillow that allows the correct position of the head, neck and body, is priceless. The pillow should be characterized by great flexibility and sensitivity to temperature, in order to establish the optimal position and allow the proper sleeping position, and thus better blood circulation in the head, neck, shoulders and back. The pillow should provide a natural position of the head and neck when sleeping on the stomach, side or back, to keep the spine in the neck in the optimal physiological position to tendons, connective tissue and muscles could relax and regenerate.

Problem and objective research

The subject of this research is to determine the amount of patients and correlation of postural disorders in the sagittal plane - irregular kiphotic posture, with the pillow adequacy (i.e. comfortableness), with the population junior school. The aim was to determine the number of students with kiphotic posture, as well as to determine the presence of disorder depending from gender, and the presence of irregular kiphotic posture depending on the pillow comfortableness.

Methods

Complete program is carried out in Kragujevac in several elementary schools among the fifth grade students (age of 12 years - 6 months). The study included 299 primary school pupils, boys and girls of the same grade and classes. The methods of somatoscopy and somatometry were used in order to establish this deformity. In determining bad posture the mean value of mild criterion was used. All respondents whose value was more than 35mm. (neck) were registered as patients with kiphotic bad posture. The influence of the pillow adequacy, as one of the exogenous factors that affect the poor posture, was evaluated on the basis of a questionnaire completed by the students covered by the program. The questionnaire contained 16 questions, among which was the one: Do you find the pillow you sleep on comfortable?, and the given answers were - "YES", "I DO NOT KNOW" and "NO". Further analyses were carried out based on the subjective assessments of the students. We used the chi-square test of independence to calculate the statistical significance between categories of respondents per indicator control variables. The presence and size of the connection between these areas were calculated by Pearson Chi-square test and contingency coefficient as a measure of association based on the X square test. All analysis were performed on a personal computer using statistical package for data analysis (SPSS 8.1 Statistical Package of Social Sciences-For Windows).

Results

Table 1. Do you find the pillow you sleep on comfortable?

	Frequency	%	Valid %	Cumulative %
Yes	262	87,63	87,63	87,63
do not know	22	7,36	7,36	94,98
No	15	5,02	5,02	100
Total	299	100	100	

Table 1 shows that, 87.63% of 299 respondents said that their pillow was comfortable, 7.36 said that they didn't know, and only 5.02% stated that they found their pillow uncomfortable.

Table 2. Do you find the pillow you sleep on comfortable - kyphtotic posture

Do you find the pillow you sleep on comfortable?		Kiphotic body posture		Total
		Good body position	Bad body position	
Yes	Count	148	114	262
	%	56,49	43,51/88,37	100
do not know	Count	12	10	22
	%	54,55	45,45 / 7,75	100
No	Count	10	5	15
	%	66,67	33,33 / 3,87	100
Total	Count	170	129	299
	%	56,86	43,14	100

In table 2 we analyze the data of the pillow comfortableness and irregular kiphotic bad posture. Irregular kiphotic bad posture in the tested population is 43.14%. The largest presence of deformities was in the group answers where students were undecided (45.45%), then in the group that found the pillow comfortable 43.51%, and at the end in the group who found the pillow uncomfortable (33.33%). If we analyze the answers in a group with low kiphotic posture, we see that the largest presence of poor posture is in the group of respondents who are satisfied with the pillow (88,37%), while in the other categories of responses that percentage is much lower (7,75% and 3,87%).

Table 3. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	0,65	2	0,72
Contingency Coefficient	0,05		0,72
N of Valid Cases	299		

The value 0.65 of Pearson Chi-Square test and the value 0.05 of Contingency Coefficient, indicate the absence of statistical correlation between the pillow comfortableness and irregular kiphotic bad posture.

Table 4. Do you find the pillow you sleep on comfortable? - kiphotic posture - the gender of the patients Crosstabulation

Gender examen		Kiphotic body position		Total	
		Good body position	Bad body position		
Male					
	Yes	Count	50	69	119
		%	42,02	57,98	100
Do you find the pillow you sleep on comfortable?	I don't know	Count	2	8	10
		%	20	80	100
	Ne	Count	4	3	7
		%	57,14	42,86	100
Total		Count	56	80	136
		%	41,18	58,82	100
Female					
	Yes	Count	98	45	143
		%	68,53	31,47	100
Do you find the pillow you sleep on comfortable?	I don't Know	Count	10	2	12
		%	83,33	16,67	100
	No	Count	6	2	8
		%	75	25	100
Total		Count	114	49	163
		%	69,94	30,06	100

Table 4 presents the results of the pillow comfortableness and irregular kiphotic bad posture depending on the gender. It is obvious that the largest presence of irregular kiphotic bad posture is at male respondents who said that they were undecided (80%), then, a large presence of irregular kiphotic bad posture is at the group who found the pillow comfortable (57.98%). As for the female population, it is obvious that the presence of this deformity is less present (30.6%) than at the male population (58.82%). Here we see the largest presence of bad posture in the category with the answer Yes (31.47%), followed by that group of respondents who found the pillow uncomfortable (25%).

Table 5. Chi-Square Tests

Gender examen		Value	df	Asymp. Sig. (2-sided)
Male	Pearson Chi-Square	2,62	2	0,27
	Contingency Coefficient	0,14		0,27
	N of Valid Cases	136		
Female	Pearson Chi-Square	1,26	2	0,53
	Contingency Coefficient	0,09		0,53
	N of Valid Cases	163		

The values of Pearson Chi-Square test (2.62 and 1.26) and the values of Contingency Coefficient (0.14 and 0.09) in male and female respondents, at the level of significance of 0:27 and 0:53, indicate the absence of significant correlation between the pillow comfortableness and irregular kiphotic bad posture body.

Discussion

Of 299 respondents, 87.63% found the sleeping pillow comfortable, while there was a small percentage of undecided and those who found the pillow uncomfortable. Irregular kiphotic bad posture in the tested population is 43.14%. The largest presence of deformities is in the group of responses where students are undecided in their reply, then follows a group who finds the sleeping pillow comfortable, and finally those that find the pillow uncomfortable. The value of Pearson Chi-Square test and the value of the Contingency Coefficient, indicate the absence of statistical correlation between the pillow comfortableness and irregular kiphotic bad posture. With male participants the largest presence of irregular kiphotic poor posture is in the group of respondents who were undecided, then follows the group of those who found the pillow comfortable. In female population, the presence of deformities of the study is less present than in male population. The largest presence of bad posture is in the category with "yes" answers, then follows the group who found the pillow uncomfortable.

Conclusion

According to this research, there is no statistically significant correlation between the pillow comfortableness with abnormalities in the spine in the sagittal plane in the thoracic part. These results can be attributed to the subjective perception of respondents about the pillow comfortableness, and without going into the analysis of the level of information the respondents in this age of ergonomic requirements for pillows, the optimal physiological position of the body, and therefore the spinal column during sleep. To obtain the explicit data, the research should contain the analysis of the level of information about the pillow ergonomics. It is also necessary to analyze the individual anthropometric indicators, body position during sleep, the pillow height, and the bed comfortableness; finally, it would be necessary to do some biomechanical analysis of cervical spine in correlation with these variables.

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UDOBNOSTI JASTUKA ZA SPAVANJE I KIFOTIČNO DRŽANJE TIJELA

Sažetak

Predmet ovog istraživanja je utvrđivanje kifotičnog lošeg držanja tijela i visina povezanosti tog poremećaja sa adekvatnošću jastuka za spavanje. Uzorak ispitanika je sadržavao 299 učenika osnovnoškolskog uzrasta oba spola. Za procjenu kifotičnog držanja tijela, korištena je metoda somatoskopije i somatometrije, a u utvrđivanju lošeg držanja, korištena je srednja vrijednost blažeg kriterija. Utjecaj adekvatnosti jastuka za spavanje, procjenjivan je na temelju anketnog upitnika. Prisustvo kifotičnog lošeg držanja kod ispitanice populacije je 43.14 %. Od ukupnog broja ispitanika, 87.63 % se izjasnilo da im jastuk odgovara za spavanje, dok je jako mali postotak bio neodlučni i onih kojima je jastuk neudoban. Najveće prisustvo deformiteta je u grupi odgovora gdje su učenici neodlučni u svom odgovoru, slijedi grupa kojima jastuk odgovara, i na kraju oni kojima jastuk ne odgovara za spavanje. Vrijednosti Pearsonovog Chi-Square testa i Contingency Coefficienta, ukazuju na nepostojanje statističke povezanosti između udobnosti jastuka za spavanje i kifotičnog lošeg držanja tijela u ispitanoj populaciji.

Ključne riječi: kifotično držanje, jastuk, učenici

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