THE EFFECT OF NUTRITION ON SLEEP QUALITY IN JUNIOR FEMALE (AGED 15-17) WRESTLERS*

Halil Tanir[1*], Erkan Cetinkaya[1],
Mehmet Ozdemir[2], Ibrahim Bozkurt[2]

[1]Adnan Menderes University, Physical Education and Sport High School, Aydin,
[2]Selcuk University, Faculty of Sport Sciences, Konya, ***TURKEY***

*Corresponding author: halil.tanir@adu.edu.tr

ABSTRACT

The success of the athlete is based on the achievement of the highest performance in sports. Due to the complex nature of sportive performance, the number of factors that affect performance is quite large. Two of these factors are nutrition and sleep patterns and quality. It is very important for children and young people who are doing sports to have good nutrition and good sleep qualities in order to increase their sporty performance. For this reason, in this research, it was aimed to determine the effect of nutrition on sleep quality in junior female wrestlers who are engaged in wrestling, which is a branch which requires strength, endurance, speed, calmness, concentration and self confidence. The sample of the study consisted of 117 athletes who have participated to the Turkey Junior Female Wrestling Championship (aged 15-17 years) that was organized in Aydin in 2017. The Pittsburgh Sleep Quality Index (PUKI) was used to determine the last 1-month sleep quality of female wrestlers (α=0.77). The Turkish validity and reliability study was reported by Agargun and his friends (1996) as internal consistency coefficient of 0.80. Nutritional habits of female wrestlers were determined using the Nutrition Habits Questionnaire (BAA), consisting of 3 sections and 21 questions. It was found that there was a significant difference between the junior female wrestlers who pay attention to the liquid intake of pre-training and pre-competition and those who did not pay attention to the attentive athletes and this difference is favored by the athletes who pay attention (p<0.05). In addition, there was a significant difference between the athletes in terms of sleep quality (p<0.05), according to the time of the training and the refreshment meal before the competition and the meal after the training-competition. It was seen that the sleep quality of the female wrestlers who were eating 1-2 hours before the training and competitions and who were eating the protein after the training and competitions were better. In the results obtained, in junior female wrestlers (aged 15-17 years) was reached the result that the eating habit affects the sleep quality and the regular nutrition increases the sleep quality. For this reason, the coaches of the athletes in the junior female category should often

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warn to regularly feed their athletes. Having dietitians in the bodies of the clubs struggling in the category of junior female may be appropriate in terms of bringing regular sports nutrition to athletes. Thus, it is thought that the athletes may have improved sleep quality and increased performance due to regular eating habits.

Keywords: *Nutrition, Sleep Quality, Wrestling*

INTRODUCTION

The basis of the success of the athlete is to make the sport the most healthy and the highest performance. It is possible to define sportive performance together with all the positive factors and despite all the negative factors, the athlete's ability to produce athletic work, the combination of production quality and capacity. This definition also requires consideration of all the factors that determine and affect the components of performance for evaluation. The complexity of sportive performance is due to the multiplicity and diversity of the number of factors that affect the outcome (Bayraktar and Kurtoglu, 2009; Koca, 2015). One of these factors is sleep pattern and quality.

Sleep is a state of unconsciousness that can be reversed, but it is not only a state of inactivity that allows the body to rest, but also an active regeneration period that prepares the whole body to live again (Karadag, 2007). It is one of the basic and indispensable daily life activities that affect the quality of life and health of the individuals and it is a concept with physiological, psychological and social dimensions (Bingol, 2006). Sleep, one of the basic requirements of human beings, is important for health and quality of life at all ages (Fadiloglu et al. 2006).

Another important factor affecting sportive performance is nutrition. There is a directly proportional relationship between sportsmen 's eating habits and performances (Gunes, 2005). The purpose of feeding; the amount of energy and nutrients needed for each individual according to their age, sex, work and special situation is taken in sufficient quantities (Baysal, 2002). Daily nutritional support for growth and development during life will not only meet all the necessary nutrients, but will also provide balanced energy intake with energy expenditure (Onurlubas, 2011). Thus, both sports for health and amateur and professional sports can be achieved in sports if nutrition and energy balance are used well.

Especially in our country, it is seen that there are very serious problems related to nutrition in the researches about the eating habits of the young people in Turkey. It has been found out that students are generally not paying attention to meals, consuming single meals, consuming more food such as sandwiches and bagels, economic difficulties are effective in the problem of insufficient and students staying in the dormitories were not well fed because of the bad conditions of the dormitories and only fed their bellies (Onurlubas et al. 2015). This is extremely dangerous for children and young people who are engaged in sports. Proper nutrition is very important in terms of both ensuring the growth of children and young people who are doing sports, as well as showing them a good performance. Thus; women wrestlers who deal with wrestling, a branch that requires strength, strength, speed, calmness, concentration and self-confidence,

need regular diet and sleep. However, many women wrestlers are not able to adequately sleep and nourish after intense training. For this reason, this research aimed at determining the effect of eating habits of the female wrestlers who are struggling in the juniors category on the sleep quality is important in terms of presenting suggestions on how the regular eating and sleeping habits should be in the female wrestlers.

METHODOLOGY

The sample of the study consisted of 117 athletes who have participated to the Turkey Junior Female Wrestling Championship (aged 15-17 years) that was organized in Aydin in 2017. To determine the last one month's sleep quality of each female wrestler; Pittsburgh Sleep Quality Index (PUKI), a reliable test that is consistent and reproducible, was used (α = 0.77) (Buysse et al. 1989). PUKI, which provides 19 questions to assess the quality of sleep, quantity, presence and severity of sleep disturbance in the individual, was filled in by individual interviews with the patients and by the same physician. PUKI consists of seven items that are assessed for subjective sleep quality, sleep delay, sleep duration, sleep efficiency, sleep disturbance, sleep medicine use and daytime work deterioration. Each response scored between 0 and 3 according to symptom frequency. Scoring; 0 if not during the previous month, 1 if less than once a week, 2 once a week or 2 times, 3 times a week or 3 times a week. In the evaluation of the sleep quality asked in the survey; very good 0, fairly good 1, fairly bad 2, very bad 3. The global score obtained ranged from 0 to 21 and high values indicate poor sleep quality and a high level of sleep impairment. A global score of 5 or higher indicates clinically significant sleep quality. Diagnostic sensitivity was 89.6%, specificity was 86.5% (Buysse et al. 1989, Buysse et al. 1991). The Turkish validity and reliability study of the scale was conducted by Agargun et al. (1996) and the internal consistency coefficient was reported as 0.80. Nutritional habits of female wrestlers were determined using the Nutrition Habits Questionnaire (BAA), consisting of 3 sections and 21 questions.

FINDINGS

Table 1. *Comparison of Athletes' Sleep Quality According to Their Nutrition Habits*

Point	Groups	N	x	Sd	S_{error}	*t* Test		
						t	*df*	*p*
PUKI	Paying attention	92	5.47	2.49	0.26	-4.944	120	0.000*
	Not paying attention	30	8.17	2.90	0.53			

** Significance at 0.05 level*

Table 1. shows that there is a statistically significant difference between the junior female wrestlers who pay attention to the liquid intake of pre-training and pre-competition and those who did not pay attention to the attentive athletes and this difference is favored by the athletes who pay attention (p<0.05).

Table 2. *Comparison of Athletes' Sleep Quality According to Training and Pre-Event liquid Intakes*

Point	Groups	N	x	Sd	S_{error}	*t* Test		
						t	*df*	*p*
PUKI	**Paying attention**	91	5.73	2.34	0.24	-2.782	120	0.006*
	Not paying attention	31	7.32	3.74	0.67			

** Significance at 0.05 level*

Table 2. shows that there is a significant difference in favor of junior female wrestlers who pay attention to fluid intake between junior and junior female wrestlers who pay attention to pre-competition liquid intake (p<0.05).

Table 3. *Comparison of Athletes' Training and Pre-Competition Eating Hours in terms of Sleep Quality*

Point	Groups		N	x	Sd	S_{error}	F	*p*	Difference
	1	1-2 hours	59	5.17	2.61	0.34			
PUKI	2	3-4 hours	41	7.34	2.68	0.41	8.118	0.000*	1-2
	3	Don't attend	22	6.45	2.87	0.61			

** Significance at 0.05 level*

Table 3. shows that there is a significant differentiation between the junior female wrestlers because of time of eating before the training and event (p<0.05). When the average values for PUKI scores are examined, it is seen that the sleeping qualities of junior female wrestlers eating 1-2 hours before training and competition are better than those who eat 3-4 hours.

Table 4. *Comparison of sleep quality of athletes according to their after training and competition meal times*

Point	Groups		N	x	Sd	S_{error}	F	*p*	Difference
	1	0-1 hours	63	5.54	2.86	0.36			
PUKI	2	2-3 hours	46	6.85	2.98	0.44	3.023	0.052	-
	3	Don't attend	13	6.46	1.19	0.33			

According to Table 4. there is no statistically significant difference between the hours of sleep and the quality of food after training and competition in junior female wrestlers (p> 0.05).

Table 5. *Comparison of Sleep Quality and Food Types Consumed by Athletes Before Training and Competition*

Point	Groups		N	x	Sd	S_{error}	F	*p*	Difference
PUKI	1	Carbohydrate	18	5.56	2.59	0.61	0.426	0.790	-
	2	Protein	82	6.27	2.86	0.31			
	3	Vitamin	10	6.50	2.06	0.65			
	4	Fat	12	5.44	3.97	1.32			

When examined in Table 5. it is seen that the consumed food before training and competition did not cause a significant difference between the junior and female wrestlers in terms of sleep quality ($p>0.05$).

Table 6. *Comparison of sleep quality in terms of type of food consumed after training and competition*

Point	Groups		N	x	Sd	S_{error}	F	*p*	Difference
PUKI	1	Carbohydrate	22	7.88	3.63	0.90	7.448	0.000*	1-2
	2	Protein	59	5.44	2.62	0.36			2-4
	3	Vitamin	30	5.88	2.05	0.41			3-4
	4	Fat	11	11	0.00	0.00			

** Significance at 0.05 level*

Table 6. shows that the consumed food after training and competition cause a significant difference between the junior and female wrestlers in terms of sleep quality. ($p<0.05$). According to this finding, it can be said that the sleep quality of junior female wrestlers consuming protein after training and competition is better than that of women wrestling carbs and fat. It is also seen that junior female wrestlers who consume food containing vitamins after training and competition are better than junior female wrestlers who consume oily foods of sleep quality.

DISCUSSION AND CONCLUSION

It is a matter of interest from many ancient times that the athletes' special feeding in every sport (Ersoy, 1995). Along with the growing interest in sports, the feeding of athletes is also a subject of further discussion and research. Regular and balanced diet is very important for the athlete. A number of situations affecting athletes directly or indirectly, such as increasing performance, preventing weight loss and overweight, preventing discomfort of electrolyte losses in the body, regular working of the digestive system, and renewal of energy resources during recovery, can be achieved through balanced nutrition (Suel et al., 2006). In addition, the main part of the athlete's post-training recovery occurs during night sleep. It is important to relax and deep sleep. During sleep, the depths of the brain are caused by hormonal changes in the sleeping order to reduce the excitability of the centers where the senses such as hearing, sight and touch are located. Thus, sleep calm causes brain cells to rest and increase working capacities and accumulate brain energy for future work (Ziyagil, 2008).

Today, sleep quality is an important concept in clinical practice and sleep research. The reasons for this are; sleep complaints are quite common, poor sleep quality may be a symptom of many medical illnesses, and a strong relationship between sleep wellness and physical and psychological well-being (Keshavarz Akhlaghi and Ghalebandi, 2009). Less sleeping people are more difficult during the day than those sleeping well; it is reported that even those who are extremely distressed and underdeveloped are more difficult to perform functions during the day than those who are at least as distressed and asleep (Alapin et al. 2000).

Nutrition and sleep quality, which are important factors in improving the performance of the spore, can affect each other. For this reason, in this research aimed at evaluating the effects of sleeping on junior female wrestlers it is understood that the sleep quality of female wrestlers who are interested in nutrition and fluid ingestion and who eat 1-2 hours before training and competition is better. It is also observed that the sleep quality of junior female wrestlers who are fed with protein-weight foods after training and competition is high. On the other hand, the junior female wrestlers' sleeping qualities such as eating and drinking hours after training and after competition does not affect their sleeping qualities. 82 of the 117 athletes participating in the survey, consume more protein-type foods before training and competition. The number of athletes consuming carbohydrate-type food before training and competition is only 18. According to this finding, it can be said that junior women's wrestlers are lacking in knowledge about nutrition.

In the results obtained, in junior female wrestlers (aged 15-17 years) was reached the result that the eating habit affects the sleep quality and the regular nutrition increases the sleep quality. For this reason, the coaches of the athletes in the junior women category should often warn to regularly feed their athletes. Having dietitians in the bodies of the clubs struggling in the category of junior women may be appropriate in terms of bringing regular sports nutrition to athletes. Thus, it is thought that the athletes may have improved sleep quality and increased performance due to regular eating habits.

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