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NUTRITION HABITS OF STUDENTS WHO ATTEND SPORTS ACADEMIES

ABSTRACT

The objective of this study is to determine the nutritional habits of students who attend sports academies. The sample of the study consists of 343 students selected from among first year (180) and fourth year (163) students attending departments of teaching and coaching at academies of Hacettepe, Gazi and Ankara Universities in Ankara. The data were collected through a questionnaire. The findings were analyzed in the Statistical Package for Social Sciences-(SPSS) programme. Sixty-four point seven percent of the students stated that they were actively involved in sports, and 68.5% stated that they kept abreast of the news about nutrition. It was found out that 92.1% of the students stated that they consumed food and drinks between meals. It was observed that chocolate-waffle was the food that was consumed the most and tea with sugar was the drink that was consumed the most. It was concluded that students of physical education and sports academies where teachers and trainers of the future are trained are not yet conscious of the importance of nutrition, which contributes considerably in performance.

Keywords: Sports, Nutrition Habits, University Student,
Physical Education, Health

SPOR EĞİTİMİ VEREN YÜKSEKOKULLARA DEVAM EDEN ÖĞRENCİLERİN BESLENME ALIŞKANLIKLARI

ÖZET

Bu araştırmanın amacı spor eğitimi veren yüksekokullara devam eden öğrencilerin beslenme alışkanlıklarını belirlemektir. Ankara'da Hacettepe, Gazi ve Ankara Üniversitelerinde spor eğitimi veren yüksek okulların öğretmenlik ve antrenörlük bölümlerine devam eden, birinci sınıf (180) ve dördüncü sınıf (163) öğrencileri arasından seçilen toplam 343 kişi araştırmanın örneklemi oluşturmuştur. Araştırma verileri anket formuyla toplanmıştır. Araştırma verileri SPSS 11.5 paket programından yararlanılarak değerlendirilmiştir. Öğrencilerin %64.7'si aktif olarak spor yaptıklarını, %68.5'i beslenme ile ilgili haberleri takip ettiğini ifade etmişlerdir. Araştırmaya katılan öğrencilerin %92.1'inin öğün aralarında yiyecek içecek tüketikleri; tüketilen yiyeceklerde ilk sırayı çikolata-gofretin; içeceklerde ise şekerli çayın aldığı saptanmıştır. Geleceğin öğretmenlerinin ve antrenörlerinin yetiştirdiği beden eğitimi ve spor yüksekokullarında okuyan öğrencilerin, beslenmelerine gereken özeni göstermedikleri, performansa çok önemli katkısı olan beslenmenin önemini henüz farkında olmadıkları sonucuna varılmıştır.

Anahtar Kelimeler: Spor, Beslenme Alışkanlıkları, Üniversite Öğrencisi, Beden Eğitimi, Sağlık

1. INTRODUCTION (GİRİŞ)

In addition to being a hobby for some people to have a good time and a healthy life, sport in our day is also a profession that brings income for some [1 and 2]. As nutrition affects sportspeople's general health and sports performance, it deserves attention [3]. An adequate and balanced diet is a fundamental condition, and perhaps the most essential one, to the healthy living of individuals and societies, their economic and social development, an increase in their level of well-being, and their happy, peaceful and safe maintenance [4].

Nutrition for sportspeople aims to ensure that they take sufficient and balanced nutrients according to their gender, age, daily physical activity, the type of sport they practice, and their training and competition times [1 and 5]. However, when planning nutrition for sportspeople, their height and weight, body fat percentage, nutrition knowledge level, nutrition habits, health condition, and social and economic conditions should also be considered [1].

2. RESEARCH SIGNIFICANCE (ÇALIŞMANIN ÖNEMİ)

Student athletes and their trainers often are misinformed or have misconceptions about sports nutrition. Poor nutrition habits of trainers and sports students prevent the formation of the high performance that is intended. Studies on sportspeople nutrition play an important role in the identification of methods to increase sportspeople's nutrition information level and to give them favorable eating habits. The aim in sportspeople nutrition is to ensure the intake of sufficient and balanced foods by regulating eating in relation to gender, age, daily physical activity, type of sports, and training and competition times [1 and 5]. The present study was planned and conducted in order to identify the nutrition habits of students who attend sports academies.

3. MATERIALS AND METHODS (MATERIAL VE YÖNTEM)

The study sample included a total of 343 people selected from among first (180) and fourth (163) year students attending the teaching and training departments of sports academies in Hacettepe, Gazi and Ankara universities in Ankara. Of the participants, 39.7% were females and 60.3% were males. Data were collected by using questionnaire forms.

Students' body weight and height were learned, and their Body Mass Index (BMI) was calculated with the formula $BMI = \text{Body Weight (kg)} / \text{Height (m}^2\text{)}$. BMI percentile values were used for participants aged 19 and below; "<5. percentile was evaluated as underweight", " $\geq 5. - < 15.$ percentile as mild underweight", " $\geq 15. - < 85.$ percentile as normal", " $\geq 85. - < 95.$ percentile as overweight. For those aged 20 and above, " $< 18.5 \text{ kg/m}^2$ was evaluated as underweight", " $18.5 - 24.9 \text{ kg/m}^2$ as normal", " $25.0 - 29.99 \text{ kg/m}^2$ as overweight", and " $30.0 - 34.9 \text{ kg/m}^2$ as obese" [6].

For more obvious comparisons of students' food preferences, the formula $T = 3T1 + 2T2 + T3$ was used. In this formula, T shows total score, T1 shows first preference, T2 shows second preference, and T3 shows third preference. The students were asked to list foods and drinks as 1, 2 and 3 from their first preference to last. In the scoring system, first preferences were given 3 points, second preferences were given 2 points, and third preferences were given 1 point. Each student's food and drink preference scores were established by adding up the points obtained in this way, and the mean food and drink scores were calculated and evaluated [7].

In the evaluation of foods consumed at breakfast, lunch and dinner as balanced or imbalanced, the nutrient groups consumed at each meal were analyzed. When breakfast included only tea, olives, bread, butter and jam, it was considered imbalanced; and when a source of protein (cheese or eggs) was added, it was considered balanced. When lunch and dinner were evaluated, toasted cheese or one type of food was considered imbalanced, and three or four food groups consumed together were considered balanced [8].

Data obtained in the study were analyzed by using SPSS 11.5 for Windows (Statistical Package for the Social Sciences) package program. Data were tabulated with absolute values and percentages (%). When necessary, arithmetic means and standard deviation values ($\bar{X} \pm S$) were taken. Percentage values of questions where more than one choice was made were calculated by considering the "N" value for each choice. Data were evaluated by using Chi-Square Significance Test (χ^2), and G test when Chi-Square conditions were not met [9].

4. FINDINGS AND DISCUSSIONS (BÜLGÜRLER VE TARTIŞMALAR)

4.1. General Information (Genel Bilgiler)

The age range of female participants was 17-28, while that of male participants was 17-32. In the general sample, 54.5% of students were aged between 21 and 24, 28.6% were ≤ 20 , and 16.9% were ≥ 25 . The mean age of participants in the general sample was 22.19 ± 2.76 years, 21.33 ± 2.09 years among girls, and 22.76 ± 2.99 years among boys.

The majority of students (68.6%) stated that they were living with their families, 19.5% in private dormitories, 5.5% with their friends, 2.9% in their own home, 2.6% in state dormitories, and 0.9% in the sports facility where they practiced. In a study by Topçu et al. (2006), 35.2% of the participants were living with their families, 29.2% with their friends, and 27.6% in a dormitory [10]. In another study by Erten (2006), 56.7% of sportspeople were living with their families, 25.0% with their friends, 10% in sports facilities, and 8.3% on their own [11].

Of the students in this study, 64.7% stated that they practiced a sport actively, while 35.3% stated they did not. Of those who practiced actively, 55.8% were involved in a team sport, 18.9% in endurance sports, 15.4% in speed strength sports and 9.9% in competitive sports. When asked about regular training, 58.0% of the students said they trained regularly, 42.0% said they did not.

Of the students, 68.5% stated that they followed news items about nutrition. The most common source of these news items were TV-radio (59.1%), followed by the Internet (55.7%), newspapers (39.1%), magazines (21.2%), and scientific journals (18.3%). On the other hand, Mollaoğulları (1992) showed in a study that news sources included the trainer for 57.7%, books for 26.9%, magazines and newspapers for 9.6%, and radio-TV for 5.8% [12]. In a study by Arslan (1995), 55.4% of footballers mentioned their trainers as their news source about the nutrition of sportspeople, 24.3% mentioned books-newspapers and journals, 19.0% mentioned health personnel and 14.9% mentioned the courses they took at school [13].

Sources of information about the nutrition of sportspeople in Bayraktar's (2002) study were as follows: 45.7% used books, 30.6% used scientific articles, 24.3% used seminars, 19.7% used newspapers and 13.9% used their colleagues [14]. Ak (2004) found that 23.1% of students at physical education and sports departments obtained their nutrition knowledge from books, articles and dietitians, 39.4% from their trainers, 34.3% from the nutrition of sportspeople class, and 3.2% from the TV, newspapers and the Internet [15]. In yet another study, it was established that 15.9% of basketball players received

their nutrition knowledge from the trainer, 28.9% from books, 34.8% from their sportspeople friends, and 20.4% from a nutrition specialist [16].

The best method in identifying the appropriateness of body structure is the "body mass index (BMI)" [17]. Correlated with total body fat and based on height and weight, the body mass index allows for the definition of overweight and its risks for the society [18].

When the students' body weight according to their BMI was evaluated in general, it was found that 79.2% of males and 80.1% of females were within normal boundaries (Table 1). While the proportion of overweight males was 16.7%, that of overweight females was 0.7%. The difference may be due to the fact that females lose more weight to be physically more attractive. The difference between the female and male students' body weight was statistically significant ($p<0.05$, $p<0.001$).

Table 1. Students' body weight according to their body mass index
(Tablo 1. Öğrencilerin beden kütleye göre vücut ağırlıkları)

BMI (17-19 age)	Female		Male		Total	
	n	%	n	%	n	%
Underweight	1	3.6	-	-	1	2.0
Mild underweight	6	21.4	-	-	6	12.3
Normal	21	75.0	20	95.2	41	83.7
Overweight	-	-	1	4.8	1	2.0
Total	28	100.0	21	100.0	49	100.0
BMI (20-32 age) G=10.11 sd=3 p<0.05						
Underweight	19	17.7	3	1.6	22	7.5
Normal	88	81.5	144	77.4	232	78.9
Overweight	1	0.8	34	18.3	35	11.9
Obese	-	-	5	2.7	5	1.7
Total	108	100.0	186	100.0	294	100.0
G=52.05 sd=3 p<0.001						
Total	136	100.0	207	100.0	343	100.0

Mean BMI values were 19.97 ± 1.70 kg/m² in females and 23.38 ± 2.52 kg/m² in males. In Altun's (2001) study, mean BMI was 19.2 ± 0.4 kg/m² in females and 21.3 ± 0.2 kg/m² in males [19]. In another study, BMI values showed that 2.74% of males and 17.19% of females were underweight; 81.92% of males and 78.13% of females were normal, 14.52% of males and 3.75% of females were overweight, and 0.82% of males and 0.94% of females were obese [20].

4.2. Nutrition Habits (Beslenme Alışkanlıklar)

An adequate and balanced diet is the stepping stone of health in all stages of life. This is only possible through positive nutrition habits. These habits are crucial as they affect people's bodily and mental health [21]. Nutrition habits are influenced by many factors including culture, religion, ethnic structure, economy, traditions and psychology [22]. There are differences between the nutrition habits of not only people from different countries but also people of different parts of the same country. This situation affects the types and amount of the foods consumed, their preparation and cooking styles, the number and times of meals eaten in one day, and the distribution of different foods in each meal [23].

Table 2 shows that the largest group comprises those who eat three meals a day both in the general sample (51.0%) and also by gender (females 47.8%, males 53.1%). This is followed by people who

eat only two meals a day among females (26.5%), and those who eat four meals a day among males (21.3%).

Table 2. Number of students' daily meals
 (Tablo 2. Öğrencilerin günlük öğün sayıları)

Number of meals	Female		Male		Total	
	n	%	n	%	n	%
Two	36	26.5	37	17.9	73	21.3
Three	65	47.8	110	53.1	175	51.0
Four	26	19.1	44	21.3	70	20.4
Five and more	9	6.6	16	7.7	25	7.3
Total	136	100.0	207	100.0	343	100.0
$X^2=3.63$ sd=3 p>0.05						

Kasap (1979) reported in her study that 60% of the wrestlers ate three meals a day, and the most commonly skipped meal was breakfast [24]. Avar (1992) identified the proportion of those who consumed their daily food intake in three meals as 32.5%, and those who consumed it in four meals as 34.0% [25]. In another study, it was found that 84.6% of sportspeople consumed three meals daily, and 12.5% four or more [26]. Yet another study showed that 2.39% of students ate one meal daily, 47.46% ate two meals, 40.85% ate three meals, and 9.30% ate more than three meals daily [20]. Vançelik et al. (2007) showed that 60.1% of students consumed 3-4 meals in one day [27]. The findings of the present study mirror those found by Kasap (1979) and Vançelik et al. (2007) [24 and 27].

As shown in Table 3, the most commonly skipped meal was breakfast (10.8%). Together with those who said that they sometimes skip it, the proportion increased to 48.7%. Similarly, while the proportion of those who skipped lunch was 28.6% (no lunch+sometimes), that of those who skipped dinner was 9.9%. Meal skipping with respect to gender was as follows: The proportion of female students who said they always ate morning, noon and evening meals was lower than that of male students who said so. It was decided that eating lunch and dinner differed between the two genders ($p<0.05$). In certain previous studies too, the most commonly skipped meal was found to be breakfast [28, 29, 30 and 31]; whereas Günay (2003) found that the proportion of skipping breakfast and lunch was equal [32].

Table 3. Main meals consumed by students
 (Tablo 3. Öğrencilerin ana öğün tüketme durumu)

Meal status	Female		Male		Total		
	n	%	n	%	n	%	
Breakfast	Yes	67	49.2	109	52.7	176	51.3
	No	16	11.8	21	10.1	37	10.8
	Sometimes	53	39.0	77	37.2	130	37.9
$X^2=0.45$ sd= 2 p>0.05							
Lunch	Yes	86	63.2	159	76.8	245	71.4
	No	7	5.2	3	1.4	10	2.9
	Sometimes	43	31.6	45	21.8	88	25.7
$X^2=9.08$ sd= 2 p<0.05							
Dinner	Yes	116	85.3	193	93.2	309	90.1
	No	1	0.7	-	-	1	0.3
	Sometimes	19	14.0	14	6.8	33	9.6
Total		136	100.0	207	100.0	343	100.0
$G=6.73$ sd= 2 p<0.05							

In the general sample, the first reason for students to skip meals was lack of time for breakfast, and lack of appetite for lunch and dinner. Another common reason for skipping dinner was weight loss (Table 4). When considered with respect to gender, the table shows that the reasons for skipping breakfast and dinner were similar for males, females and the general sample. As regards lunch, number one reason for skipping meals was lack of appetite (58.0%) among females and lack of time (37.5%) among males.

Table 4. Reasons why students missed meals
 (Tablo 4. Öğrencilerin öğün atlama nedenleri)

Reasons for Missing Meals	Breakfast				Lunch				Dinner			
	Female		Male		Female		Male		Female		Male	
	n	%	n	%	n	%	n	%	n	%	n	%
Economic hardships	-	-	4	4.1	-	-	7	14.6	-	-	1	7.1
Weight control	6	8.7	2	2.0	5	10.0	6	12.5	7	35.0	4	28.6
No appetite	27	39.2	36	36.7	29	58.0	12	25.0	12	60.0	4	28.6
No time	33	47.8	51	52.1	13	26.0	18	37.5	-	-	1	7.1
Training	1	1.4	-	-	1	2.0	1	2.1	1	5.0	2	14.3
Irregular life	2	2.9	5	5.1	2	4.0	4	8.3	-	-	2	14.3
Total	69	100.0	98	100.0	50	100.0	48	100.0	20	100.0	14	100.0

In many previous studies too, the two most common reasons for skipping meals were similarly lack of time and no wish to eat [33, 34 and 35]. Karayormuk (2002) found that the most important reason for university students to skip meals was "no wish to eat" [36]. On the other hand, Vançelik et al. (2007) and Günay (2003) concluded in their studies that sportspeople skipped meals due to not having a chance to eat [27 and 32].

Table 5. Balanced and imbalanced foods students consume in main meals
 (Tablo 5. Öğrencilerin ana öğünlerde tükettikleri besinlerin dengeli dengesiz olma durumu)

Meals	Breakfast*				Lunch**				Dinner***			
	Female		Male		Female		Male		Female		Male	
	n	%	n	%	n	%	n	%	n	%	n	%
Balanced	92	76.7	155	83.3	49	38.0	123	60.3	79	58.5	149	72.0
Imbalance	28	23.3	31	16.7	80	62.0	81	39.7	56	41.5	58	28.0
Total	120	100.0	186	100.0	129	100.0	204	100.0	135	100.0	207	100.0

* $\chi^2 = 2.08$ sd=1 p>0.05 ** $\chi^2 = 15.75$ sd=1 p<0.01 *** $\chi^2 = 6.66$ sd=1 p<0.05

Students' main meals were evaluated to discover whether they were balanced or not (Table 5) and it was found that the proportions of those who ate balanced meals in the morning (females 76.7%, males 83.3%) and evening (females 58.5%, males 72.0%) were high. The proportion of males whose dinners were balanced was higher than that of females. As for lunch, 62.0% of females ate imbalanced meals, while 60.3% of males ate balanced ones. Consumption of balanced lunch ($p<0.01$) and dinner ($p<0.05$) varies with respect to gender.

Table 6. Places where students ate
 (Tablo 6. Öğrencilerin yemeklerini yedikleri yerler)

Eating places	Breakfast				Lunch				Dinner			
	Female		Male		Female		Male		Female		Male	
	n	%	n	%	n	%	n	%	n	%	n	%
Home	89	74.1	158	84.9	36	27.9	40	19.6	108	80.0	177	85.5
Dormitory	17	14.2	8	4.3	8	6.2	1	0.5	18	13.3	7	3.4
Canteen	11	9.2	18	9.8	30	23.3	22	10.7	-	-	1	0.5
Home-made food restaurant	1	0.8	-	-	7	5.3	33	16.1	2	1.5	12	5.8
School Cafeteria	-	-	-	-	30	23.3	75	36.8	-	-	3	1.4
Kebab restaurant	-	-	-	-	2	1.6	5	2.5	3	2.2	3	1.4
Fast-food joints	-	-	-	-	16	12.4	22	10.8	4	3.0	2	1.0
Other	2	1.7	2	1.0	-	-	6	3.0	-	-	2	1.0
Total	120	100.0	186	100.0	129	100.0	204	100.0	135	100.0	207	100.0

In the general sample, the most common place where morning (80.7%) and evening (83.3%) meals were consumed was the home, while the noon meal was most commonly consumed in the school cafeteria (31.5%). When evaluated with respect to gender, morning and evening meals were similar to the general sample in both males and females; however, lunch was most commonly consumed at home (27.9%) by females, and in the school cafeteria (36.8%) by males. Previous studies too found that the home was the most popular choice for morning and evening meals, while the school cafeteria seemed to be the top choice for lunch [34, 37 and 38].

In a study conducted on higher education students, Arslan et al. (1993) concluded that lunch was most commonly eaten at home (59.7%) or in the dormitory (64.0%), the high frequency of which led to the consumption of more balanced dinners. Imbalanced food consumption was most common at lunch due to the skipping of meals by students (65.7%) [8].

The majority of the participants of the present study (92.1%) were shown to consume food and drinks between meals. This was similar to the general sample in both females (92.6%) and males (91.8%). Süel (2000) reported 85.7% of basketball players and Bozkurt (2001) reported 83.2% of students who were actively practicing a sport to eat between meals [39 and 40]. Both sets of findings are in line with ours.

The first choice for students among the foods they chose to consume between meals was chocolate-wafers (437 points). The second most commonly preferred food was fruit (281 points), followed by biscuits-crackers (196 points) as their third choice. In Süel's study (2000), basketball players were shown to most commonly consume chocolate (26.8%), sweets (19.6%) and fruit (14.3%) between meals [39].

When the drinks consumed between meals were examined, the first three most commonly preferred drinks were tea with sugar (523 points), fizzy drinks (304 points) and processed fruit juice (286 points). Beyhan and Ersøy's (1988) study showed that 40.3% of students consumed fizzy drinks between meals and 9.7% consumed fruit juice [41]. Similar to the present study, the one conducted by Mollaoğulları (1992) revealed that tea was the most common choice (50.0%) [12]. In a study conducted on university students, Arslan and Mendeş (2002) found that the most commonly consumed drink was water (45.9%), followed by tea (27.0%), while the least commonly consumed drink was fermented beet juice (1.2%) [42].

Among the basic needs of humans, nutrition or eating comes first. In our day, eating is a social and cultural phenomenon [43]. The fast food system appeals to the palate and solves the time problems of people who are away from home during the day. Despite the

conveniences they bring, most foods labeled as fast food also bring many negative outcomes according to nutrient analysis reports [44]. The students who participated in the present study preferred hamburgers (284 points) most among fast-food alternatives, followed by red meat döner kebab (275 points) and pizza (225 points). Zeki (2000) found that sportspeople engaged in team sports ate more regularly and influenced their team mates, while those involved in individual sports tended towards fast food for an easy meal [45].

The Turkish Food Codex refers to products whose energy or calories; in other words, whose fat, carbohydrates and sugar content is decreased by 25% as light products [46]. Of the student, 17.2% (59 people) stated to consume light products, and 82.8% (284 people) stated not to do so. The most commonly consumed light product by students was whole bran bread (62.7%); followed by low-energy biscuits (49.2%), skimmed milk (42.3%), semi-skimmed milk (40.6%) and diet coke (38.9%). Memiş (2004) showed that 69.9% of university students did not consume semi-skimmed milk, 70.9% did not consume low-fat yoghurt, 93.2% did not consume fruit yoghurt, and 82.5% did not consume low-fat white feta cheese [35].

Of the participating students, 20.1% said they used vitamin and mineral supplements while 79.9% said they did not. Of those who said they were using vitamin and mineral supplements, 52.2% said they used them regularly and 47.8% used them when they felt the need. When asked who recommended them to use vitamin and mineral supplements, 37.7% said they were recommended by a doctor, 30.4% said they were recommended by a trainer, 21.8% said they decided to use them on their own will, and 10.1% said they were recommended by a chemist, parents or friends. In Kasap' study (1979), 75.6% of the participating wrestlers said they used vitamin and mineral tablets at certain times, although they were not addicted. Cherundolo et al. (1999) established that the dietary supplements used most commonly by athletes were vitamin C (56.0%) and multivitamins (45.0%) [47]. In another study, 80.0% of sportspeople and 10.0% of other people reported to sue vitamin and/or mineral tablets [48]. Öztürk (2006) found that 20.0% of professional footballers and 90.0% of amateurs used vitamin mineral tablets [49].

The students in the present study were asked about their consumption of sports drinks, performance boosters, cigarettes and alcoholic drinks. As a result, 42% stated that they used sports drinks. Cherundolo et al. (1999) also showed that the most common dietary supplement used by athletes was sports drinks (84.0%) [47]. Bilgiç (2003) showed that 50.0% of sportspeople used these drinks [48], while Öztürk (2006) showed that 95.0% of professional footballers and 15.0% of amateurs consumed them [49]. The big majority of students who participated in this study (92.7%) said they did not use performance boosters. Gökdemir's (1996) study found that the proportion of those who consumed an energy boosting food prior to a game was 51.8% [50].

Of the students, 27.7% stated that they smoked and 6.7% that they had quitted. A previous study found that approximately $\frac{3}{4}$ of university students smoked cigarettes and that males outnumbered females in smoking [35]. Mazıcıoğlu and Öztürk (2003) showed that males (43.4%) smoked more than females (23.6%) and that the difference was significant [37]. As for alcoholic drink consumption, 61.5% of the students were shown to consume such drinks, with 44.6% only consuming them occasionally. It was found in a previous study that 75% of professional footballers and 85% of amateurs did not consume alcoholic drinks [49].

5. CONCLUSION AND RECOMMENDATIONS (SONUÇ VE ÖNERİLER)

The present study concluded that the students of physical education and sports academies, which train the teachers and trainers of the future, do not care enough about their nutrition and do not yet have sufficient awareness of the immense importance of nutrition in performance. Ideal nutrition should be a way of life and a habit for sportspeople. It is therefore necessary that nutrition counseling be provided at universities and dormitories, and that student scholarships and loans be sufficient to meet their needs. Additionally, the number of courses about sportspeople and nutrition should be increased and the main goal of this course should include the everyday applicability of the theoretical information given to students.

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