Attitudes towards and knowledge of the Croatian wrestling coaches about supplements and doping

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ABSTRACT

PURPOSE: The aim of this paper is to define attitudes towards and knowledge of the Croatian wrestling coaches about the permitted supplements and doping in wrestling. METHODS: Knowledge and attitudes were investigated by a valid test (17 questions) consisting of questions about knowledge (11 questions) and questions about attitudes (6 questions). Descriptive statistical parameters: mode, mode frequency, percentage frequency of the correct answers and total percentage of the correct answers were calculated. RESULTS: Results indicate that majority of wrestling coaches did not answer properly on important questions about diet and 57.5% of them did not check prohibited list of the World Anti-Doping Agency (WADA). It is alarming that 17.5% of wrestling coaches would allow any kind of performance enhancers if they knew the doping control would not test them. CONCLUSION: Based on the results of this study it can be concluded that the Croatian wrestling coaches are still not educated enough when it comes to diet issues. Therefore, it is necessary to continuously educate wrestling coaches and wrestlers in diet, supplements and doping. These results could be valuable in prevention, which is known as the best method for fighting against doping.

Key words: supplement, test, combat sports

Introduction

Diet, supplements and food intake have the main role in wrestling because wrestling is a sport with weight categories. That is the main reason why wrestlers should take care of
details in their diet. Nowadays, coaches' knowledge is improving due to easier access to information. During 2018 the official weighing has been set on the competition day so the procedure for weight losing protocol has become totally different from the earlier protocol when the weighing was one day before the competition. The changes in the official wrestling rules aimed at reducing an unhealthy weight loss in top wrestlers, especially those who reduce 15% of total body mass (Slačanac, Starčević, & Sajković, 2016). Wrestling trainers have realized that body mass reduction can improve wrestlers’ competitive performance. Unfortunately, some wrestlers are very radical; they use all kinds of permitted and even prohibited methods such as taking diuretics (doping) to reduce body weight. It is a very dangerous practice, especially when knowledge about doping is low, which has already been noted among the Iranian wrestlers (Halabchi, Esteghamati, Razzaghi, & Noori, 2011). Unhealthy methods do not just jeopardize health, they may be life threatening. The problem becomes more complex with the fact that top-level wrestlers need to be simultaneously at the highest possible level of their fitness and reduce their body mass to compete in a lower weight category. Results of this study are valuable since they reveal wrestling coaches’ knowledge about and attitudes towards dietary supplements and performance enhancers. These results could be valuable in prevention, which is known to be the best method for fighting against doping (Ismaili, Yousefi, & Sobhani, 2013).

Aim of this paper is to define attitudes towards and knowledge of Croatian wrestling coaches about the permitted supplements and prohibited performance enhancers in wrestling.

**Methods**

Participants were 40 wrestling coaches (18-76 years old) from all parts of Croatia, what is approximately 60% of the total number of wrestling coaches. The research was conducted during the mandatory seminar for the coaching licence renewal, which was attended by trainers of all levels (from the club to the international level). The research was conducted at the Faculty of Kinesiology, University of Zagreb. All respondents anonymously and voluntarily filled in the questionnaire. The questionnaire reliability was determined by the test-retest method. After the items of unsuitable characteristics had been excluded, the satisfactory overlap rate was 80% (Karniničić, Barić, & Slačanac, 2014). In the area of knowledge, the two extracted latent dimensions were: coaches’ practical and physiological knowledge. Among attitudes, the three extracted latent dimensions were: critical attitudes towards doping, followed by the affirmative attitudes towards doping and attitudes towards nutrition (Karniničić, Barić, & Slačanac, 2014). The first part refers to the knowledge about nutrition and supplements (11 questions) – the participants were to choose either YES or NO. The second part of the questionnaire is about the attitudes towards doping (6 questions) – participants were offered a 5-degree response scale ranging from the completely accurate to completely incorrect.

**Questions – Nutrition and supplement knowledge with accurate answers**

1. Basic group of supplements are: keratin, amino acids, CLA, L-glutamine? – Yes
2. Can blood doping develop the risk of bacterial infection? – Yes
3. Is it allowed to use diuretics in wrestling? – No
4. Antioxidants Burn Fat? – Yeah
5. Vitamin E is a powerful antioxidant important for muscle work? – Yes
6. Does the World Anti-doping Agency list a prohibited substance every two years? – Yes
7. Does CLA (conjugated linoleic acid) promote muscle growth? – Yes
8. Glycemic index is equal with level of glucose in blood? – Yeah
9. Carbohydrates are the primary source of energy? – Yeah
10. Do proteins also have a role of injury prevention? – Yeah
11. Protein is a substance that primarily builds muscle cells? – Yeah
Attitudes towards doping
1. I would recommend to my wrestlers illegal substances if I knew they would not be detected in the doping test.
2. If the wrestlers do not take supplements, they can still have the same intensity and volume of training.
3. Performance enhancers have side effects only if it is taken at a higher level than recommended.
4. Nowadays there is no wrestler who does not use any dietary supplements.
5. Every year I check the list of forbidden substances.
6. I know some wrestlers who use performance enhancers.

Methods of data processing
Data were processed by descriptive statistics – frequencies of answers and the total percentage of correct answers were computed for knowledge about diet and supplement, whereas for attitudes towards doping mod and frequency of mod were calculated.

Results

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>36.0</td>
<td>35.0</td>
<td>36.0</td>
<td>23.0</td>
<td>23.0</td>
<td>8.0</td>
<td>16.0</td>
<td>31.0</td>
<td>28.0</td>
<td>22.0</td>
<td>30.0</td>
</tr>
<tr>
<td>%</td>
<td>90.0</td>
<td>88.5</td>
<td>90.0</td>
<td>57.5</td>
<td>57.5</td>
<td>20.0*</td>
<td>40.0*</td>
<td>79.1</td>
<td>70.0</td>
<td>55.0</td>
<td>75.0</td>
</tr>
</tbody>
</table>

Table 1. Frequency and total percentage of correct answers to the questions about diet and supplements – knowledge

f – frequency; % - percentage; * most participants mistakenly answered

We can see that most participants did not know the correct answer to questions 6 and 7, the total percentage of correct answers was 67.5 percent.

<table>
<thead>
<tr>
<th>Attitude</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>Total</td>
<td>Total incorrect</td>
<td>Mostly incorrect</td>
<td>Mostly correct</td>
<td>Total correct</td>
<td>I am not sure</td>
</tr>
<tr>
<td>f mode</td>
<td>27</td>
<td>13</td>
<td>12</td>
<td>17</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 2. Modal value and frequency of wrestling coaches' attitudes towards doping

mode – mod; f mode – mod frequency

Most participants responded positively to the assertion: I would recommend to my wrestlers illegal substances if I knew they would not be detected in the doping test (the highest frequency).

Discussion
Although participants responded correctly to 67.5% of questions, the participants do not have basic knowledge about the key details related to diet and supplementation. Similar results were indicated by Sossin et al. (1997), however, the high-school wrestlers' coaches
showed a lower level of knowledge than the Croatian wrestling coaches. Croatian coaches are slightly better in results because they are better educated and have passed shorter seminars about diet and doping. Sossin et al. (1997) found 59% of correct answers to dietary questions and 64% of correct answers about weight loosing protocol. Even 57% of the Croatian trainers answered correctly to the question “Vitamin E is a powerful antioxidant important for muscle work?”, while only 20% of them knew that the World Anti-Doping Agency (WADA) updates the list of prohibited substances each year. It is very interesting that 60% of the Croatian wrestling coaches do not believe that CLA promotes muscle hypertrophy. Although most of the coaches mostly responded totally incorrect \( (f = 27) \), 17.5% of wrestling coaches are generally or completely agreeing to recommend illegal substances to their athletes if they know they would not be detected in the doping test. Almost half of participants, 47.5% wrestling coaches, generally or completely agree that performance enhancers have side effects only if they are taken at a higher level than recommended. In Turkey, the situation is opposite: there most wrestling coaches think that doping is not fair advantage over opponents (Turkcapar, Mine, & Mustafa, 2014). Coaches with a higher educational level showed a higher level of knowledge about doping (Couture et al., 2015) so education is the only way to fight with unacceptable attitudes and poor knowledge.

**Conclusion**

Based on the results of this paper, it can be concluded that the Croatian wrestling coaches are not educated enough in the field of allowed dietary supplements and performance enhancers. According to the data, 17.5% of the coaches are generally or completely agreed they would recommend illegal substances to their athletes if they knew they would not be detected in the doping test. The most frustrating thing is that even 57.5% of wrestling coaches do not check the list of prohibited substances (WADA). This study indicates that extra training and seminars are needed to improve knowledge about and attitudes of wrestling coaches, but of wrestlers also, towards diet, supplements and doping. Better knowledge would, hopefully, prevent the use of radical methods of body mass reduction in wrestlers who often radically reduce their body mass before competitions. This knowledge can be very useful for prevention that has already been identified as the most effective way fighting with manipulation with doping.

**References**


Influence of choreography on the development of first-graders’ coordination abilities

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**ABSTRACT**

PURPOSE: To examine the effectiveness of choreography on the formation of coordination abilities in first-graders. METHODS: Pedagogical testing: holding posture with open eyes (c); shuttle running 3x10m, (s); running on the spot during 10s, 30s, 60s, (s); walking in the straight line without a visual guide, (s & m); throwing rings on a tripod from a distance of 1.5m, 2.5m, 3.5m, (number of hits); game task “Transmit telegram”, (one point); three moves forward with the exit (s); carpal dynamometry in full force and 50% from maximal power, (kg). Methods of mathematical statistics. Research was conducted in the elementary school №7 in Pereiaslav-Khmelnyskyi. In the experiment, 53 pupils of the first form took part (22 girls and 31 boys). RESULTS: Purposeful pedagogical influence of choreography on the