



Survey of Supplement Use and Effects Felt by Amateur Boxers

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Abstract

Study purpose. To investigate type of supplement and amount of supplement used as well as the perceived effect and needs of boxers.

Materials and methods. This research is a survey conducted from December 2022 to January 2023. The instrument used a questionnaire (*google form*). Boxers have 2 criteria, namely: 1) are still active as athletes and 2) have been champions at the provincial level with a total of 155 boxers, 116 male boxers and 39 female boxers.

Results. 74 boxers used more than 1 type of supplement (48%), 81 boxers used only 1 type of supplement (52%). Type of supplement, Creatine 23 boxers (8.1%). Whey Protein 14 boxers (4.9%), Fat Burner 93 boxers (32.9%). BCAA 26 boxers (9.2%). Amino 12 boxers (4.2%). Multivitamins and minerals 114 boxers (40.7%). The effect felt, 22 boxers felt effect is "very low" (14.21%), 40 boxers felt effect is "low" (25.80%), 53 boxers felt effect is "enough" (34.19%), 14 boxers felt effect is "high" (9.03%), 26 boxers felt effect is "very high" (16.77%). The need to use supplements, namely 7 boxers need supplements is "very low" (4.54%), 13 boxers need supplements is "low" (8.38%). 52 boxers need supplements is "enough" (33.54%). 44 boxers need supplements is "high" (28.38%). 39 boxers need supplements is "very high" (25.16%).

Conclusion. Multivitamins and minerals and fat burners are popular supplements used by boxers because of their convenience and more beneficial benefits. However, boxers are still less concerned about how to use supplements. It is evident from the results that show that many boxers feel in the categories of "enough", "low" and "very low" in the use of supplements but boxers think that the use of supplements is really needed. Further research is expected, to determine the amount and type of supplement recommended specifically for boxing athletes.

Keywords: Supplement, Boxing Supplement, Amateur Boxing

Introduction

Currently the use of supplements is often found among elite athletes. One sport that uses a lot of supplements is boxing athletes. Boxing is a hard sport that requires two athletes to engage in physical contact (Kojman et al. 2022; Wang et al. 2019). Therefore the use of supplements for boxing athletes has become a basic necessity. The purpose of using supplements for athletes in general is to improve performance in training or during matches, maintain fitness, increase body metabolism, maintain body weight, prevented and recovery from injuries. (Ricci et al., 2020; Januszko & Lange, 2021; & Turnagöl et al., 2022b). For combat sport athletes, especially boxers, the use of supplements in addition to improving performance is to meet nutritional needs (Alabsi, Rashidlamir, and Dokht 2022). This happens because combat sports involve weight class categories. Many combat sport athletes prefer to choose a lighter weight category in order to achieve a competitive advantage. Using supplements is an alternative for boxing athletes.

Previous research explained that the use of supplements for boxing athletes is to help reduce fat during the training period (Ma 2015; Prabowo, Tomoliyus, et al. 2022). Still with the same problem, namely reducing fat, using carnitine, zinc, vitamin C supplements can reduce the weight of boxing athletes for 4 weeks (Nasr & Shehata, 2017). The use of supplements for boxers is not limited to losing weight. Other research states boxers need additional vitamins, minerals, essential fatty acids, and amino acids through supplements to develop physically (Baranauskas et al. 2018). In addition, the use of supplements made from natural ingredients has the potential to improve endurance performance and reduce the risk of injury to boxers (Wang et al. 2019).

However, currently there is no research that mentions the use of supplements, especially boxers at the amateur level, besides that the research described previously did not explain amount of supplements used for amateur boxing athletes. If this research is not carried out, it will raise suspicions of doping levels in the boxers (Matthews and Jordan 2020). This suspicion can occur, because the use of doping tests in amateur boxing championships is still very minimal, especially in Indonesia.

The purpose of this study is to investigate the types of supplement use and how many supplements have been used so far. After using the supplement, is there a positive and negative impact felt by the boxers. By producing this research, it is hoped that it will bring out the types of supplements that are safe for boxers to use so that they are free from the influence of dopping.

Materials and Methods

Study participants

The population in this study were boxers from all over Indonesia. Then the sampling was carried out by purposive sampling, with 2 criteria, namely: 1) still active as an athlete and 2) have been regional champions at the provincial level with a total of 155 boxers, 116 male boxers and 39 female boxers. The following are the characteristics of the sample (table 1).

Table 1. Boxer Characteristic

Variable	Male (n=116)	Female (n=39)
Average Height (m)	±1.72	±1.61
Average Weight (kg)	±60.97	±54.88
Average Age (years, months)	±24,6	±22,5
Average Training Experience (years, months)	±9,3	±7,10

Study organization

This research is a survey (Sugiyono 2013). Data collection uses a questionnaire and is distributed to athletes via the Google form. The questionnaire contains questions (table 1) and 6 statements with a scale of 1-5 (table 2). The research was conducted from December 2022 to January 2023. Boxers who filled out this questionnaire prioritized boxers who would compete in the 2023 Pre-PON (Pekan Olahraga Nasional) qualification round.

Table 2. Question in Questionnaire

Do you use more than 1 type of supplement?
What type of supplement do you use?

Table 3. Statement in Questionnaire

Factor	Indicator
Effects felt on the body	1. I feel fit after using the supplement
	2. I don't feel any bad effects from the supplement
	3. I feel that the supplement meets my daily nutritional needs
The need to use supplements	1. I always need those supplements
	2. I can afford to buy these vitamins without help from KONI, officials or coach
	3. I don't feel confident when I don't use supplements

The validity test with the *product moment correlation* formula and *Cronbach's alpha* reliability test with a value of 0.712, which means the questionnaire is valid and reliable.

Statistical Analysis

After the data is collected, the analysis of this study uses a descriptive percentage. The results of this study describe the answers to the questionnaire questions in table 2 and the interval values for each category in the statement table 3.

Results

The results of the interview questions based on table 4 show that 155 boxers consisting of 116 male boxers and 39 female boxers used supplements. 74 boxers used more than 1 type of supplement consisting of 63 male boxers and 11 female boxers with a percentage of 48%. 81 boxers used supplements using only 1 type consisting of 53 male boxers and 28 female boxers with a percentage of 52%.

The types of supplements used by boxers consist of 6 types, namely Creatine, Whey Protein, Fat burner, BCAA (brained-chain amino acid), Amino, Multivitamin and Mineral. There are 23 boxers who use Creatine with a percentage of 8.1%. Whey Protein as many as 14 boxers with a percentage of 4.9%. Fat Burner as many as 93 boxers consisting of 88 male boxers and 5 female boxers with a percentage of 32.9%. BCAA 26 totaling 26 boxers consisting of 19 male boxers and 7 female boxers with a percentage of 9.2%. Amino as many as 12 boxers with a percentage of 4.2%. Multivitamin and minerals as many as 114 boxers consisting of 107 male boxers and 34 female boxers with a percentage of 40.7%.

Table 4. Intervie Result

Do you use more than 1 type of supplement?	Answer		Total	Percentage
	Male (n=116)	Female (n=39)		
Yes	63 boxers	11 boxers	74 boxers	48%
No	53 boxers	28 boxers	81 boxers	52%

What types of supplements do you use?	Answer		Total	Percentage
	Male (n=116)	Female (n=39)		
Creatine	23 boxers		23 boxers	8,1%
Whey Protein	14 boxers		14 boxers	4,9%
Fat Burner	88 boxers	5 boxers	93 boxers	32,9%
BCAA	19 boxers	7 boxers	26 boxers	9,2%
Amino	12 boxers		12 boxers	4,2%
Multivitamin dan mineral	107 boxers	34 boxers	141 boxers	40,7%

After knowing how much supplement is used along with the type of supplement, the next step is to analyze the factors of the effects felt by the body and the need to use supplements.

Table 5. Assessment of Effects Perceived on the Body

No	Interval	Category	Frequency	Percentage
1	13,91 < X	Very high	26	16,77%
	12,60 < X < 13,91	High	14	9,03%
43	11,31 < X < 12,60	Enough	53	34,19%
44	10,29 < X < 11,31	Low	40	25,80%
55	X < 10,29	Very low	22	14,21%
Amount			155	100%

Based on table 5 the effects felt for each boxer's body, namely 22 boxers felt the effects of supplements in the "very low" category with a percentage of 14.21%. 40 boxers felt the effects of supplements in the "low" category with a percentage of 25.80%. 53 boxers felt the effects of supplements in the "enough" category with a percentage of 34.19%. 14 boxers felt the effects of supplements in the "high" category with a percentage of 9.03%. 26 boxers felt the effect of the supplement in the "very high" category with a percentage of 16.77%.

Table 6. Assessment of Need Using Supplements

No	Interval	Category	Frequency	Percentage
1	3,64 < X	Very high	39	25,16%
2	12,18 < X < 13,64	High	44	28,38%
3	10,67 < X < 12,18	Enough	52	33,54%
4	9,16 < X < 10,67	Low	13	8,38%
5	X < 9,16	Very low	7	4,54%
Amount			155	100%

Based on table 6 the need for using supplements for each boxer, namely 7 boxers need supplements in the "very low" category with a percentage of 4.54%. 13 boxers need supplements in the "low" category with a percentage of 8.38%. 52 boxers need supplements in the "enough" category with a percentage of 33.54%. 44 boxers need supplements in the "high" category with a percentage of 28.38%. 39 boxers need supplements in the "very high" category with a percentage of 25.16%.

Discussion

Supplements are indeed an alternative to boxers to meet nutritional needs. Previous research has proven that boxers use supplements to help improve training and fighting performance (Prabowo, Hariono, et al. 2022). Based on table 4 regarding the number of supplements used, the percentage of boxers who use more than 1 type of supplement with boxers who only use 1 type of supplement is only 4% or both are close to 50%, meaning that the use of supplements does have an important role to play. Experienced martial arts athletes tend to use supplements as a support for achievement (Marley et al., 2021 & Simoncini et al., 2021). From the results of table 4, it can be said that athletes who use supplements are not only used by other combat sport, but are proven to be widely used by boxers.

Then from the type of supplement used, there are 6 types of supplement used. The most used supplements in the first place are multivitamins and minerals and in second place are *fat burner* supplements, of course the 6 types of supplements are not explained in detail about the brand names. Multivitamins and minerals are indeed the most widely used for athletes, because in 1 capsule there are various kinds of vitamins and minerals, of course according to the needs of athletes (San et al, 2021; Eck & Byrd-Bredbenner, 2021; & Barrack et al., 2022). Based on table number 5, boxers who use multivitamin and mineral supplements are 141 out of 155 boxers, this shows that boxers in Indonesia are more dominant in using these supplements. Apart from that, another advantage of multivitamin and mineral supplements is the ease with which they are obtained and they already have a halal certificate and are safe for use in Indonesia. In addition to multivitamin and mineral supplements, *fat burner* supplements are no less important for boxers. This is because many boxers find it difficult to lose weight (Prabowo et al., 2022). Therefore, with the help of supplements, you can lose weight quickly and practically. Other types of supplements used by boxers, according to them, these supplements are only used as a complement and on average these types of supplements are combined with multivitamin and mineral supplements or *fat burner* supplements.

The use of supplements is undeniable, especially boxing athletes. However, the use of supplements for the long term must receive strict supervision from doctors and trainers, because boxers do not know what substances and ingredients are used to make supplements that can cause doping (Kannan et al. 2020). Other studies explain that supplements containing amino acids, protein, antioxidants, creatine and omega 3 can help speed up the recovery process from injury (Turnagöl et al. 2022). The composition of the supplement is necessary because boxing is a physical contact sport which can result in injury. For female boxers, the use of supplements must be at a reasonable or sufficient level because supplements can disrupt the menstrual hormone cycle (Smith et al. 2022). The results of this study are expected to increase boxer awareness of the importance of managing their diet without having to use supplements every day. If an amateur boxer is going to use supplements, then he needs to consult with a doctor or nutritionist first, so that he is more careful in choosing supplements and more importantly he must get approval from the coach.

Conclusions

The practice of using supplements for boxers is still common. The number of supplements and types used also vary. Multivitamins and minerals and fat burners are popular supplements used by boxers because of their convenience and more beneficial benefits. However, boxers are still less concerned about how to use supplements, as evidenced by the results showing that many boxers feel that they are in the moderate or very low category and are low in the use of supplements but boxers think that the use of supplements is very much needed. Further research is expected, to find the number and types of supplements recommended specifically for boxing athletes.

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Conflict of interest

All authors declare that there is no conflict of interest whatsoever in this research.

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