

A Group of Factors Influencing the Development of the Greeks Volleyball Athletes at School Age

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Abstract: The study of the multitude factors that influence the development of the athletes is the subject of extensive scientific research so that the implementation of optimized sport development models can be designed and practiced. As part of a broader research of ours during the past two years, by the process of completing anonymous self-report questionnaires of personal data by the athletes themselves, a database was created by 29 different factors affecting the development of volleyball athletes in Greece and abroad. This paper presents the results of a sample processing 466 people which is comprised exclusively by Greek athletes of A1, A2 and A3 volleyball class and a comparative investigation of the degree of influence of a group of factors is done in their athletic development. Specifically, the influence of the family environment (degree of parental support) is studied, the age of onset, the systematic engagement of the athletes in volleyball during childhood-school age. Finally, their possible involvement with other different sports is investigated during the school year and the degree of impact of this factor in their sport development and career paths. From the statistical sample processing (frequency diagrams) and the multivariate correlation of various factors among the athletes in different categories, it was established that, starting the sport of volleyball at an early age which is associated with intense pace workouts does not show a strong correlation with the expectation of future creation of high-level athletes. While in contrast, the simultaneous engagement of children with other collective sports (mainly basketball and football), and the degree of support of their efforts from parents are very positive factors for their athletic development. Through the results of our study, the view of the generalization of the application of an “early specialization model” of the volleyball athletes is not supported, which as we have seen from the survey, is already underway in A3 category. Instead, a very careful and thorough investigation of all relevant factors should be preceded, which will help in the final selection of the most appropriate development model of volleyball athletes in our country.

Key words: Volleyball, sports development factors, school age, Greece.

1. Introduction

The study of the multitude factors that influence the development of athletes constitutes a widely scientifically researched topic, which aims in the design and the practice of optimized models for the athlete’s development.

Internationally, there are three main development models for athletes: (1) the early specialization. Pursuing the efficiency of an athlete at an early age (10-12 years old); (2) the long-term development. Pursuing: the continuity of the athlete’s action in the sport, the satisfaction from it as well as the efficiency

at a later age (16-18); (3) the 10,000 training hours rule (10 years, 1,000 hours/year, 3 hours/day) [1].

A necessary requirement for designing a model for the athlete’s development in a country is the study of some specific factors, which, according to the international bibliography, affect the athlete’s growth. In this project, the subject of research was the effect of a number of factors in the development of volleyball athletes (such as: the age at which the person enters the activity; their motive; the family’s implication; the simultaneous activity in other sports; the hours and days of training; the accessibility and distance of the sports center from the person’s house; the number of teams and coaches; the age of the athlete’s prime; causes that lead to the withdrawal from the sport), in order for our findings to assist us in the selection of

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the best model for athlete's growth in our country.

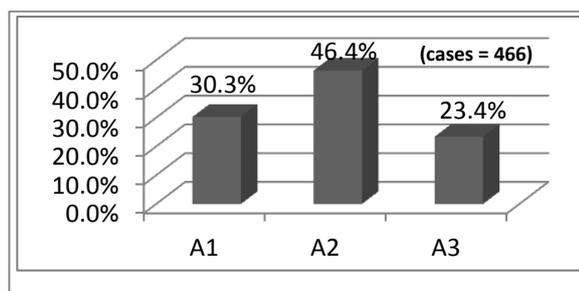
2. Methodology

The total sample of this research consists of 466 male and female athletes of A1, A2 & A3 volleyball class and the data were collected at the end of their racing commitments in the Greek league in 2014-15 (sampling period: May-October 2015).

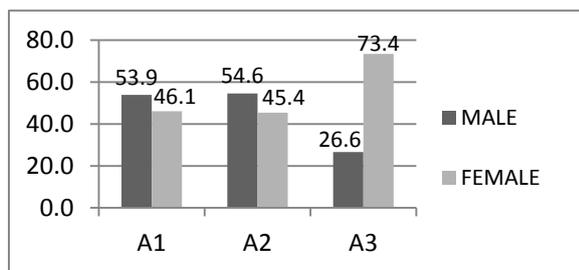
Our sample is balanced in relation to the gender of the athletes competing in the A1 and A2 category while in amateur championships (class A3) women are superior (73.4%) to men (26.6%) (Fig. 1).

The athletes that surveyed personally completed the self-report questionnaire [2, 3] that comprises four groups of questions whose answers enable investigation of the factors affecting the development of the athletes.

Initially, there was a grouping and classification of responses to 28 different parameters-factors, the sample was separated into three subgroups: (athletes A1 - athletes A2 and athletes of amateur teams). Then, a basic statistical processing was done, charts of frequency allocation and multivariate correlation of all data, in order to identify so that the factors with the



(a)



(b)

Fig. 1 (a) Percentage frequency the athlete's class of the sampling; (b) Percentage frequency male/female per class.

highest positive or negative correlation can be identified, which were subject to further processing and comparative study among the three categories.

3. Results

In Table 1, the average value of each factor in the three categories of athletes is registered, which depicts comparatively their differences.

We note that the average age of the athletes in the three categories is respectively: 25.8, 23.8 and 18.3 years, and their years of experience in the sport are: 13.8, 12.4 and 8.1 years (Fig. 2). The average age of involvement with the sport is 11.8, 11.4 and 10.6 years, respectively (Fig. 3). We observe that the higher-level athletes (A1) started the sport later than

Table 1 Average values of various factors in the sample subgroups.

FACTORS	SEX		CATEGORIES		
	Male	Female	A1	A2	A3
Number of cases:	(257)	(263)	(196)	(215)	(109)
Sex	1	2	1.4	1.5	1.7
Age	25.9	21.0	25.8	23.8	18.3
Place of residence	2.2	2.0	1.8	1.9	2.7
Place of birth	1.8	1.6	1.8	1.7	1.7
Number of bothers	1.3	1.2	1.2	1.3	1.3
Birth order	1.7	1.7	1.7	1.7	1.7
Years of experience	13.5	10.5	13.8	12.4	8.1
Age of involvement with sport	12.4	10.5	11.8	11.4	10.6
Motive	5.3	6.0	5.6	5.5	6.2
Other sport	1.3	1.4	1.3	1.4	1.4
Kind of sport	3.4	4.7	3.8	4.1	4.6
Hours of training	6.1	6.8	7.6	6.1	5.0
Days of training	3.3	3.9	4.0	3.4	3.2
Time distance	13.2	14.3	15.0	13.1	12.8
Support of family	1.1	1.0	1.0	1.1	1.1
Degree of support	3.1	3.3	3.4	3.0	3.3
Friends	1.0	1.0	1.0	1.0	1.0
Protypo	1.3	1.3	1.3	1.3	1.4
Greatest success	4.1	4.4	3.7	4.3	4.9
Age of success	18.2	14.7	19.5	16.3	11.4
Number of coaches	8.5	7.0	10.0	7.3	4.6
Number of teams	4.2	3.1	5.0	3.4	1.6
National teams	3.9	4.1	3.5	4.1	4.9
Rest time of action	10.4	11.7	10.0	11.3	12.5
Cause withdrawal	1.7	2.0	1.4	1.8	2.7

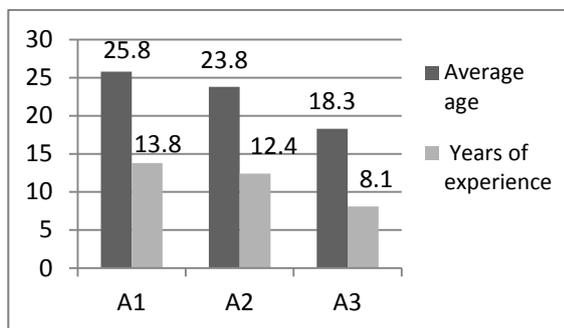


Fig. 2 The average age of the athletes in the three categories and mean value of their experience.

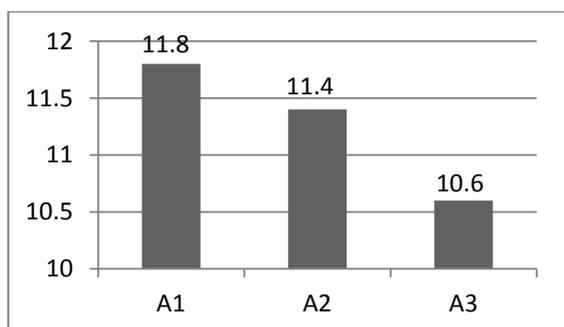


Fig. 3 The average age of involvement with the volley.

those in the other categories. In cumulative percentage (58%), they started before finishing primary school, the remaining 34% in junior high school (13-15 years) and 7% in high school (15-18 years).

From the comparison, we see that a strong input tendency to the sport to ever younger ages is displayed, both in the A2 and A3 categories, but mainly in A3 the cumulative rate in primary school stands at 76 % (Fig. 4).

The main motive of the volleyball athletes is “the sport as a hobby, I loved the sport and the family” and in even smaller percentages the school and the company follow, while the complete absence of any of the above incentives represents 8% of athletes (Fig. 5). For the athletes of the A3 class, we

observe that “the sport as a hobby” is the strongest motivation.

It is remarkable to note that the possible existence of specific sports skills (anthropometric characteristics) is not an incentive for the athletes neither they chose the sport by some friendly encouragement or for entertainment (for fun).

Generally, the sample indicates that the athletes had the support of their family in all their efforts. However, it is observed that the rate of the family’s support shows significant fluctuations and variations among different categories (Fig. 6). The majority of A1 athletes had the support of their parents to a grade of 3.4 (i.e. Moderate to high support), compared to the 3.0 degree of athletes of class A2.

We also observe that the younger athletes of A3 category have an average degree of support from their parents (3.3) and even in cumulative rate 40% the support is large, indicating the importance of this factor in the development of athletes.

The significant majority of athletes indicate that besides volleyball, they were dealing with another sport during their childhood (Fig. 7).

The choice of “other sport” from the category A1 athletes is in descending order: basketball (21%) and soccer (17%) followed by a sport unlisted which shows much higher selection rate (31%) of the athletes, category A3. That occupation is displayed at higher rates to higher-level athletes (A1 class), which confirms the references to the positive effect of this factor in the development of athletes (Fig. 8).

The percentages of athletes per category and the number of days and hours of training per week, until the age of 12, are shown in Fig. 9.

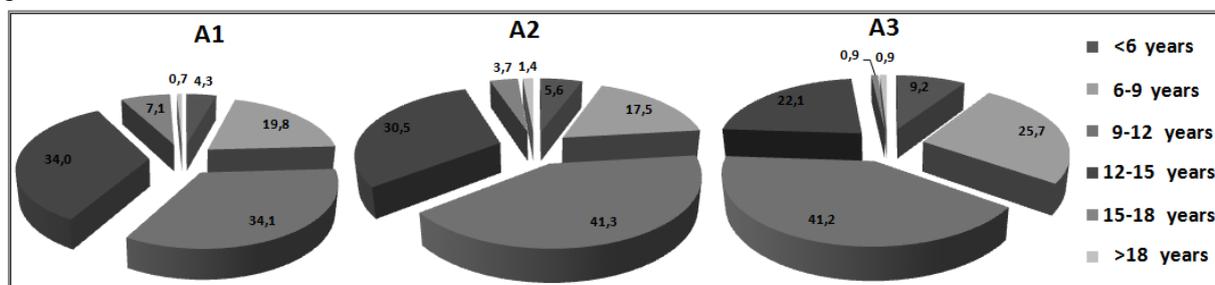


Fig. 4 The percentage frequency and the athlete’s age of involvement with the volley.

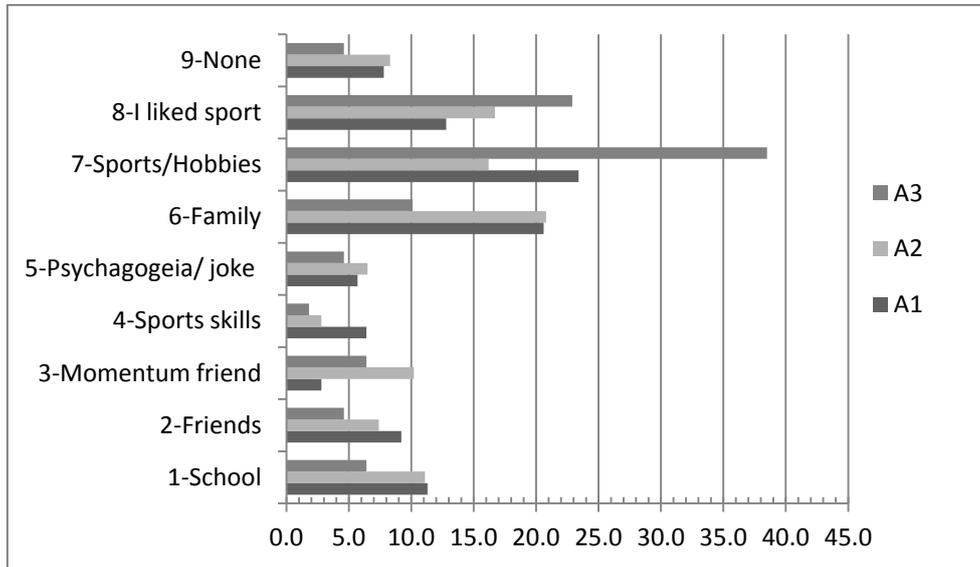


Fig. 5 Comparative presentation of the frequency (%) for motive.

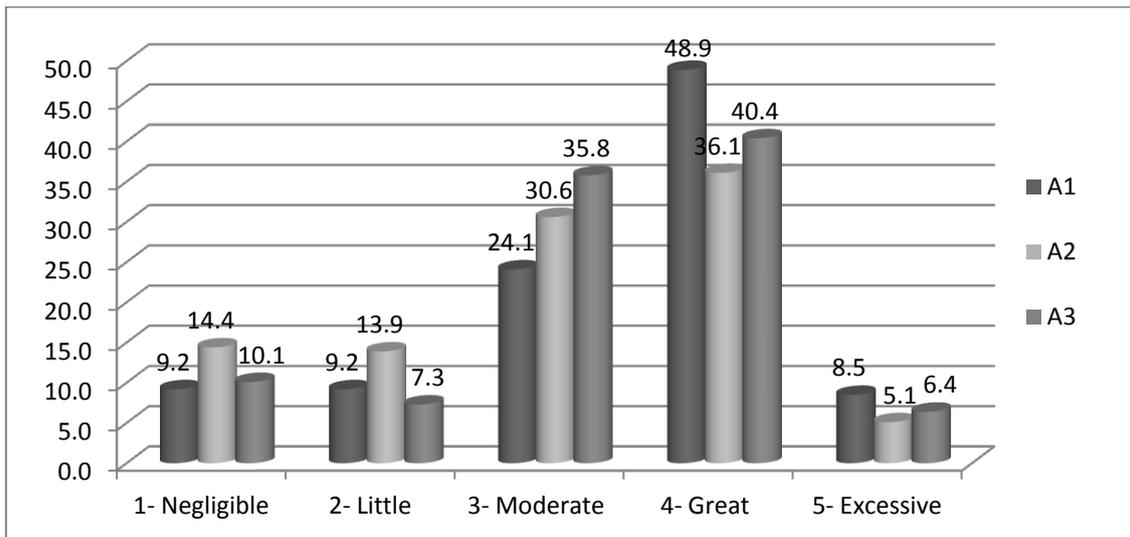


Fig. 6 Comparative presentation of the frequency (%) for degree of the family support.

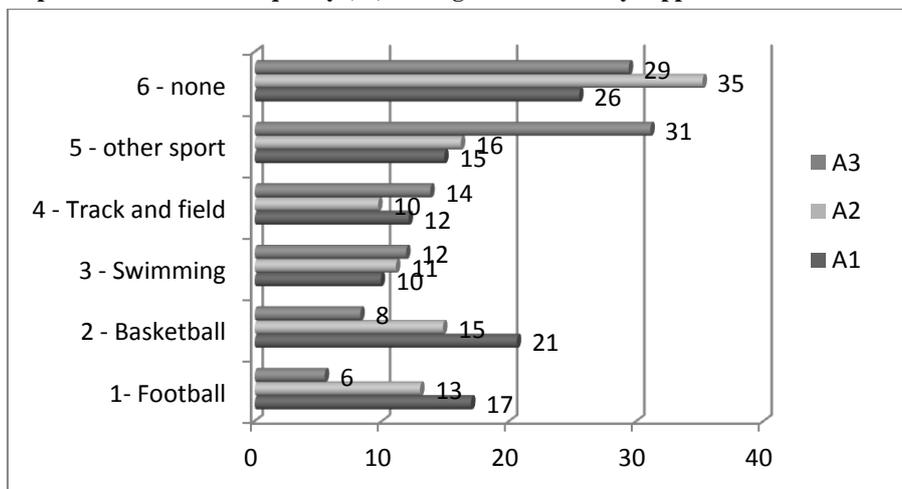


Fig. 7 Frequency (%) of the dealing with another sport during their childhood.

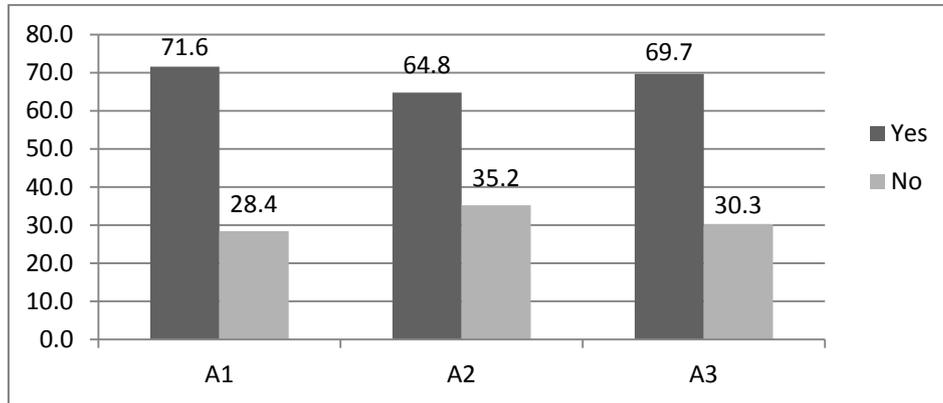


Fig. 8 Dealing with another sport (Yes/No).

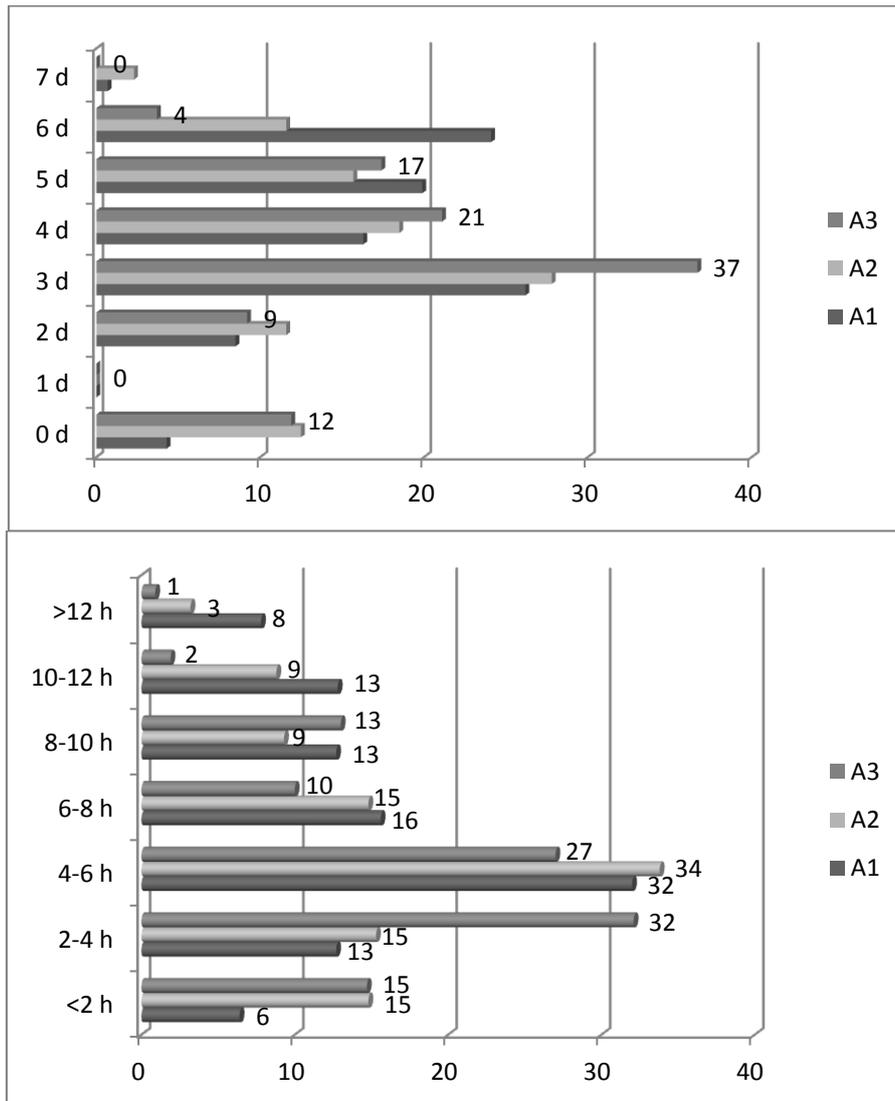


Fig. 9 The percentages of athletes per category and the number of days and hours of training per week.

Generally (on average) the athletes A1 trained for more days and hours per week compared to those in the other categories.

We observe that in cumulative percentage (58%) the athletes of the A3 trained for 3 days per week and a corresponding percentage (73%) 4-6 hours.

Consequently, we find that while the A3 athletes begin the sport at an early age they do not follow very intense training rates compared to those at higher-level (Fig. 10).

It is therefore interesting to see the evolution of volleyball athletes through their achievements and the timing (i.e. their age) which were made so that we can draw conclusions about the influence of different factors and the model sports development that

followed.

The majority of the athletes of A3 (67%) have only to demonstrate their personal promotion and just 6% have some success on a Pan-Hellenic level while a very significant percentage (27%) do not have any success (Fig. 11).

The class A2 athletes in percentage (34%) have achieved some success at a Pan-Hellenic level and in percentage (53%) only their personal promotion.

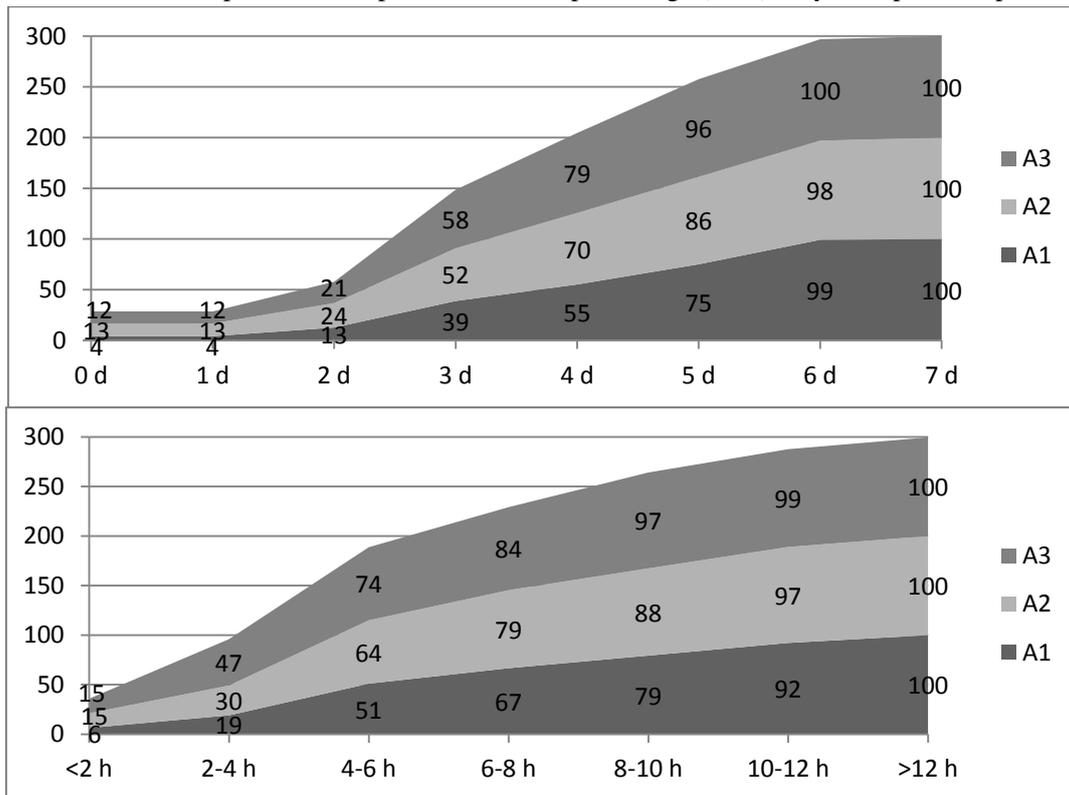


Fig. 10 The cumulative percentages of athletes per category and the number of days and hours of training per week.

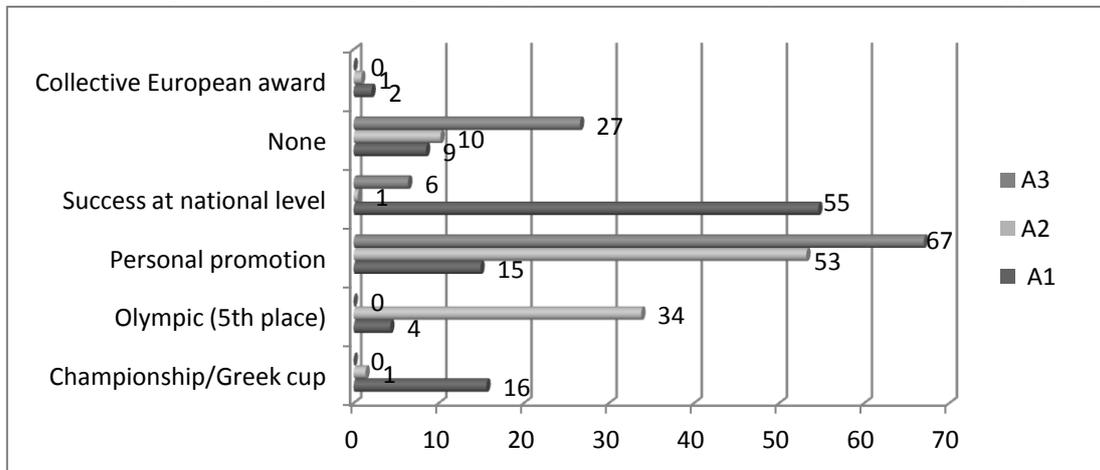


Fig. 11 The percentages of athletes per athletic success.

Finally, the athletes of A1 except for their success at a national level (in percentage: 55%) have succeeded in championships and Greece cup (16%) and also in international environment (4% 5th place in the Olympics).

the number of coaches and the age of athletes when they had their greater success in different categories. The average age that the athletes scored their greatest success is respectively: 19.5, 16.3 and 11.4 years in the three categories.

Fig. 12 shows comparatively the number of groups,

Finally, regarding the possible causes of withdrawal

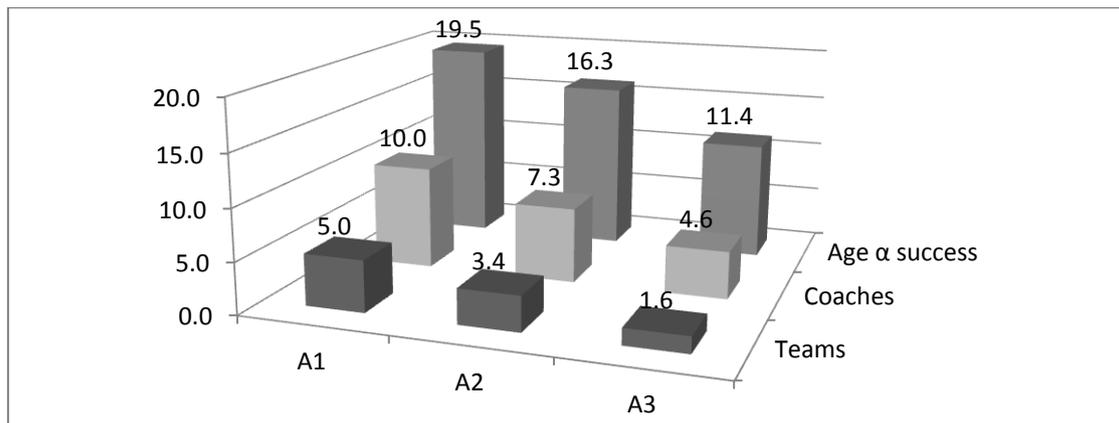


Fig. 12 Average number of the teams, coaches and the age of greater success.

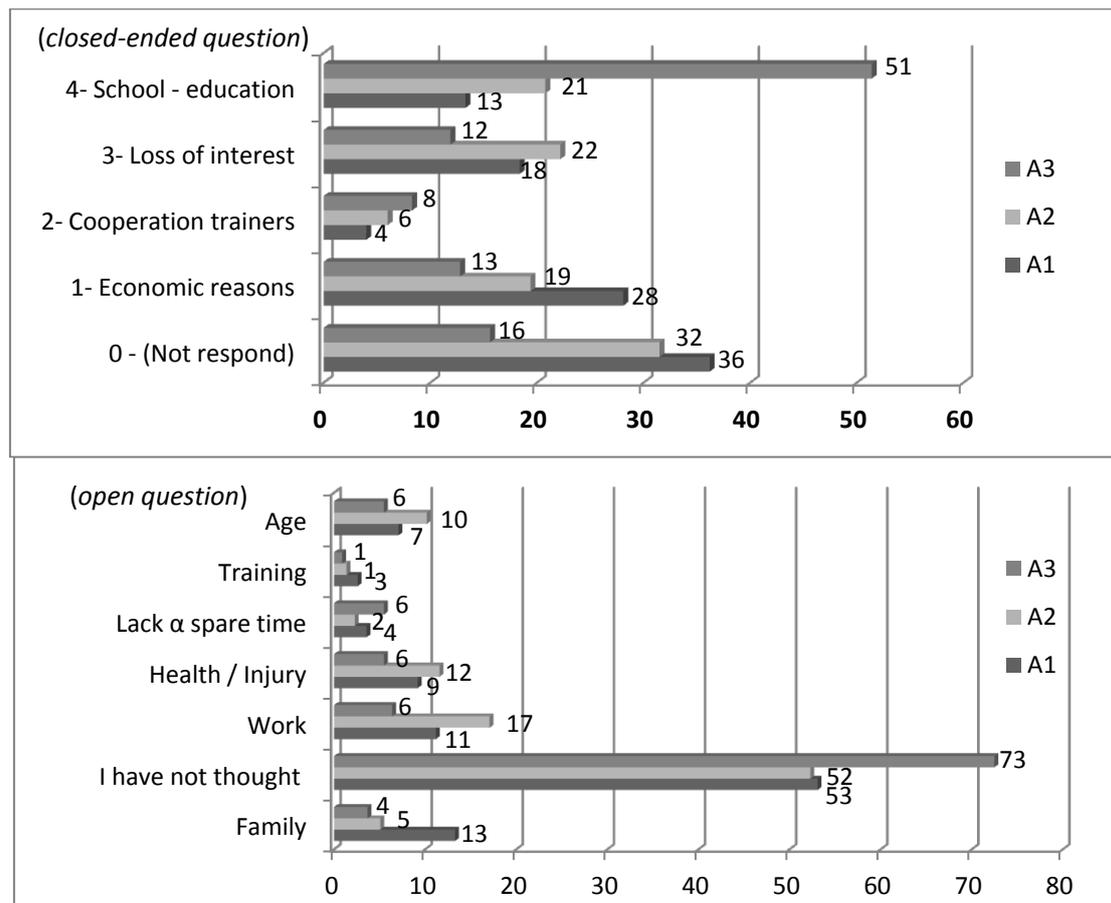


Fig. 13 The possible causes of withdrawal from the sport.

from the sport, one in three athletes of A1 and A2 class did not answer the closed-ended question for the listed causes of withdrawal from volleyball (Fig. 13).

The athletes of A1 & A2 class consider the cost and the loss of interest as the most possible reasons of their withdrawal from the sport, while the athletes of A3 class consider (51%) the school-studies as a basic cause.

The athletes had the opportunity to state, in reply to an open-ended question, other causes of withdrawal from the sport. We note that at a high percentage, the athletes said they have not thought of the possibility to leave the sport. Among the possible causes of withdrawal the athletes of the A1 category mentioned in descending order: family, work and health/injury, while those of the A2 indicate labor, health and age. Finally, the vast majority of the A3 athletes say they have not thought of the possibility of withdrawal.

4. Conclusions

The main motive of the volleyball athletes is “the sport as a hobby, I loved the sport and the family”. It is notable that, the possible existence of specific sports skills (anthropometric characteristics) is not an incentive for the athletes, nor they chose the sport by some friendly encouragement.

They choose volleyball having a sports model and the great support of the family. In the sport area, they make friends and they have not thought of their withdrawal from the sport.

The reasons for leaving are connected in descending order with a family, work, state of health (age, injury) and age.

Higher-level athletes (A1 class): The higher-level athletes (A1) started volleyball later than the other two groups (11.8 years).

Generally (on average) the athletes A1 trained for more days and hours per week compared to the other categories.

The average age when they recorded their biggest success is 19.5 years. Apart from success at national

level (in percentage: 54.6%) have succeeded in championships/Greece cup (15.6%) and also in the international environment (4.3%—5th place in the Olympics).

They have changed several coaches and they have obtained great sports experience.

The A1 athletes seem to follow the model of long-term development [3, 4].

Athletes A2 & A3 class: In these categories (A2, A3), it is recorded a strong input tendency of the athletes in the sport of volleyball at younger ages. In categories A2 and A3, the cumulative percentage of Elementary reaches 76%.

The athletes start the sport earlier in age (11.4 and 10.6 years, respectively), but do not follow very intense training rates compared to higher-level athletes.

The average age in which they recorded their biggest success is 16.6 and 11.3 years, respectively, and therefore seem to follow the early specialization model [4, 5].

Nevertheless, we must emphasize that the majority of the athletes of A3 (67%) have succeeded only their personal promotion and only 6.4% have some success in a national level, while 26.6% did not have any success. Similarly, the A2 athletes can show only their personal promotion (53.2%) and some success at a national level (33.8%).

In conclusion, it was found that the start of the sport of volleyball at an early age which is associated with intense pace training does not show a strong positive correlation with the creation of future high level athletes. Instead, the simultaneous engagement of children with other team sports (especially basketball and football) during childhood and the degree of parental support are very positive factors for their athletic development.

From the results of the survey, the generalization “model of early specialization” of volleyball athletes is not supported, which as has already noted, is in progress in A3 category.

We think that careful and thorough investigation of all the relevant factors is needed and in particular the application of longitudinal recording program (monitoring system), which will help the State and the Federation of the sport in the final selection of the most appropriate development model of volleyball athletes in our country.

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