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Actual and wished supports to promote a successful dual career according to Italian student-athletes' point of view

Paolo Riccardo Brustio[1], Alberto Rainoldi[1], Cristina Onesta Mosso[2], Cristina López de Subijana[3], Corrado Lupo[1].

[1]NeuroMuscularFunction Research Group, School of Exercise and Sport Sciences, Department of Medical Sciences, University of Turin, Italy.

[2]Department of Psychology, University of Turin, Italy.

[3]Faculty of Physical Activity and Sport Sciences (INEF), Polytechnic University of Madrid (UPM), Madrid, Spain.

Corresponding author:
Corrado Lupo, Ph.D.
NeuroMuscularFunction Research Group, School of Exercise and Sport Sciences, Department of Medical Sciences, University of Torino, Torino, Italy
P.za Bernini 12, 10143 Torino, Italy
Phone: 0039 0117764708
Fax: 0039 011748251
Email addresses: corrado.lupo@unito.it
ORCID: 0000-0001-8422-5132

Abstract

Purpose: The present study aimed to investigate the actual and wished supports to promote a successful dual career for Italian student-athletes.

Methods: An ad-hoc questionnaire (9 items) was administered to 711 academic Italian student-athletes (age=23±4 years). A binomial regression for categorical outcome was applied to discriminate subcategories for each item.

Results: According to the items which could be considered as more related to the actual and wished supports to promote a successful dual career, student-athletes mostly answered that tutoring (≤24 years old, 95%, OR=3.55; team, 95%, OR=2.27; elite, 97%, OR=3.33; not sport science path, 93%-96%, OR range=3.45-7.69), e-learning (last year, 95%, OR=1.97), and extra-academic merits (team, 71%, OR=1.47; elite, 77%, OR=2.13) resulted not satisfactory supported by university, but highly whished by student-athletes. Also the flexibility in lessons frequency and exams sustainability resulted strongly considered, but perceived as limited (≤24 years old, 84%, OR=2.43; Medical and Humanistic, 87%, with respect to Sport Science path, OR=9.01). In addition, in terms of identity, female (68%, OR=2.22), >24 years old (68%, OR=2.22), sub-elite (68%, OR=2.22), not sport science (57%-65%, OR=2.48-2.03), and last year of attendance (62%, OR=3.45) participants showed to be more student-oriented, whereas elite (60%), sport science path (61%), and out of course (56%) student-athletes perceived their-self as mainly athletic-oriented.

Conclusion: Italian student-athletes could be better supported by University in complying sport and academic requirements, especially by means of an improvement of tutoring, e-learning and a more flexible schedule, in line with the European Commission guidelines.

Keywords: sport career; academic career; European Union policies, university education, sport requirements.

Introduction

The achievement of sport success is a progressive process [1] that requires a high number of training hours as well as high competition levels since youth [2]. Indeed, different stages in athletic development are identified: from about 6 to 7 years of age young athletes are introduced to organized competitive sports, after this, from about 12 to 13 years of age, talented athletes perform intensive levels of training and competitions until they reach the highest and elite competitive level (from about 18 to 19 years of age) which ends with transition out of competitive sports [2]. As the consequence, different stages of athletic development coincide with school commitments and young athletes have to combine their sport and education careers especially for a positive athletes' career transition [3].

Combining a career in sports with studies is known in literature as ‘dual career’ defined as “a career with major foci on sport and studies or work” [4]. In the optimal dual career process, the athletes should be able to follow and achieve their academic and athletic objectives, living a satisfying private life at the same time, and maintaining their health and well-being [5, 6]. Actually, youth student-athletes have to face the challenge of reconciling sport with school commitments [5, 7] perceiving their experience as highly demanding [8].

Student-athletes are doubly engaged and face several difficulties, with the risk of being limited at least in one of the two future careers [9, 10]. Indeed, educational path may negatively influence sport career, as well as short-term and long-term adjustments after retirement [3]. On the one hand, student-athletes can decide to give the priority to sports path at expenses of an adequate inclusion in the world of work at the end of the career or to give the priority to the educational path in order to benefit from possible future employment opportunities or, on the contrary, to give up the studies prematurely [9, 11, 12]. According to this view, recently Cartigny and colleagues [13] proposed and developed a theory of dual career pathways and identified three possible scenario: a dual career pathway (i.e., a fluctuated progression at

different stages of development both of athletic and educational/vocational career) and a sporting or educational/vocational pathway (i.e., realize one domain with the risk of fail to the other domain).

Despite the European commission has included and recommended in its strategic agenda some policy actions for supporting dual careers in high-performance sport [14, 15], few European countries completely recognize these recommendations [16]. Indeed, several European contests do not provide institutional partnerships between sport and educational system bodies [17] and are categorised as into the laisser-faire/no formal group [18]. Among these states, Italy is characterized by the absence of any support policies toward student-athletes' dual career, determining the need of individual negotiations between athletes and the teaching staff of the University for a flexible academic path, or the technical staff of a sport club/Federation for a flexible training/competition schedule [19-22]. The consequence related to these lacks of political support can represent the cause of a high occurrence of talented athletes' sport dropout [23]. Despite this, student-athletes perceive the importance and the need to develop new competences (e.g., entrepreneurship-related competencies) necessary after sport withdrawal [19]. Indeed, a university path may be important to prepare student-athletes after their athletic career [23].

Despite this, to our knowledge, only one study investigated the Italian student-athletes' daily and weekly limitations and their wished solutions about the combination of sport and academic tasks during their university path. Therefore a better schedule of lessons and exams could represent the most crucial solution to effectively combine sport and academic demands [22]. Thus, the present study aimed to investigate the actual and wished supports to promote a successful dual career of Italian student-athletes, showing results in relation to gender, age, type of sport, competition level, educational area and year of attendance subcategories. A better understanding of these aspects can increase the awareness of the problems perceived by the

student-athletes and allow them to successfully manage their daily life and dual career paths.

Methods

Participants

Seven hundred eleven (age 23 ± 4 years) participated in the study. All participants were students enrolled in an academic course at University of Torino (Turin, Italy). The participants of this study are the same of a previous one already published, and respected the same inclusion criteria [22]. Nevertheless, the data collection and the research questions are original. A written informed consent was provided by each participant and the study was conducted in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. In addition, the study was approved by the Bioethics Committee of the University of Torino (Turin, Italy Protocol Number 20743).

Procedures

Participants initially completed an online sociodemographic questionnaire to be classified in terms of gender, age (i.e., ≤ or > 24 years old), type of sport (i.e., individual or team sports; for "mixed" sports such as tennis, participants were asked to answer according to their preeminent individual or team practice), competition level (i.e., sub-elite, for second national division and not-professional levels, or elite, for professional and international levels), educational area (i.e., medical and humanistic, or technical and economical, or movement and sport area), and year of attendance (i.e., first-intermediate, last years, or out of course). Specifically, the category first-intermediate year included participants at their first university year regardless of the course, at the second year courses in a three-year course, and at the second, third or fourth year in a five-year course. After this, each participant completed an online ad-hoc questionnaire about dual career aspects. The questionnaire was composed of 9 items with categorical answers

as reported in Table 1. Actually, before the submission of the questionnaire, a larger number (n=13) of items was formulated and submitted to the judgment of seven experts to ascertain the pertinence of each item in relation to purpose of the study.

[Table 1 near here]

Data reduction

The online ad-hoc questionnaire used in this study was reduced in order to create dichotomous variables. In particular:

- Item 3 was categorized in "No remuneration" (Answer: A = No) or "Remuneration/reimbursement of expenses" (Answer: Yes from my club; C = Yes from my Federation; D = Yes from Army);
- Item 5 was categorized in "No flexibility" (Answers: A = No, there is not, however I do not believe it useful; B = No, there is not, however it would be useful) or "flexibility" (Answers: C = Yes, it is a recognized right in the university path, therefore the professors provide a flexibility; D = Yes, some professors provided me a flexibility after my request);
- Item 6 was categorized in "No presence of individual tutoring" (Answers: A = No, there is not, however I do not believe it useful; B = No, there is not, however it would be useful) or "Presence of individual tutoring" (Answers: C = Yes, there is, but it should be better organized; D = Yes, there is and it is useful);
- Item 7 was categorized in "No presence of e-learning course" (Answers: A = No, there is not, however I do not believe it useful; B = No, there is not, however it would be useful) or "Presence of e-learning course" (Answers: C = Yes, there is, but it should be better organized; D = Yes, there is and it is useful);

- Item 8 was categorized in “No presence of extra-academic merits” (Answer: A = No, there is not) or “Presence of extra-academic merits” (Answers: B = Yes, there is, but not for sport grants; C = Yes, there is, for sport grants too);
- Item 9 was categorized in “Athlete” (Answers: A = 10% student - 90% athlete; B = 20% student - 80% athlete; C = 30% student - 70% athlete; D = 40% student - 60% athlete) or “Student” (Answers: E = 60% student - 40% athlete; F = 70% student - 30% athlete; G = 80% student - 20% athlete; H = 90% student - 10% athlete).

Due to the lower frequency of answers (< 12%) we decided to exclude from the analysis answer E in item 5, 6 and 7 and answer D in item 8, which are related to neutral (i.e., not referred to “No” or “Yes”) answers.

Data Analysis

Frequency of occurrence (expressed in absolute values and percentages) was calculated for each answer related to the 9 items, in relation to gender, age, type of sport, competition level, educational area, and year of attendance, to provide a detailed scenario of the questionnaire.

Successively, a further dataset was structured to provide two subcategories determined by the merging of positive and negative answers as described in the previous section. Therefore, a series of binomial logistic regression was performed to ascertain the effects of gender (i.e., male; female), age (i.e., ≤ 24 years; > 24 years), type of sport (i.e., individual sport; team sport), competition level (i.e., elite; sub-elite), educational area (i.e., Medical and Humanistic study; Technical and Economical area; Sport Science study), and year of attendance (i.e., first-intermediate year; last year; out of course) on dependent variables (i.e., “No” vs “Yes” answers for item 1-8; “Athlete” vs “Student” answers for item 9). The Statistical Package R (version

3.5.2, R Foundation for Statistical Computing, Vienna, Austria) and Jamovi (Version 1.0) were used for all statistical analyses, and the statistical significance level was set at $p < 0.05$.

Results

About half of the student-athletes involved in the study were females (n = 355; 49.9%). The majority of the student-athletes were ≤ 24 years old (n = 577; 81.2%), and were performing individual sport (n = 437; 61.5%) and competing in sub-elite competition (n= 484; 68.1%). In relation to educational path, 333 student-athletes (46.8%) were attending Medical and Humanistic study, 302 (46.8%) Technical and Economical study and 76 (10.7%) Sport Science study. Moreover, the majority of student-athletes (n=335; 47.1%) was attending the first-intermediate year, 294 (47.1%) the first year and only 82 (11.5%) was out of course.

The Table 2 provided the frequency of occurrence (expressed in absolute values and percentages) of each answer related to the 9 items, in relation to gender, age, type of sport, competition level, educational area, and year of attendance.

[Table 2 near here]

In table 3, the binomial and categorical data set was reported. In particular, the regression reported that no main effect emerged for item 2 [$\chi(8) = 4.62$; $p=0.797$] and 4 [$\chi(8) = 11.5$; $p=0.175$]. Differently, the logistic regression model was significant for the other items. For item 1 [$\chi(8) = 35.5$; $R^2 = 0.05$; $p<0.001$], a difference emerged in term of competition level. In particular, sub-elite student-athletes have 3.17 (95%CI = 1.74-3.83) times higher odds to not participate in organized competitions than elite student-athletes. For item 3 [$\chi(8) = 70$; $R^2 = 0.09$; $p<0.001$], differences emerged in term of gender, type of sport and competition level. Female, student-athletes engaged in individual sports, and sub-elite student-athletes resulted to have 2.22 (95%CI = 1.5-3.29), 2.58 (95%CI = 1.74-3.83), and 2.60 (95%CI = 1.74-3.83) times

higher odds to not receive remuneration/reimbursement from their Sport Club, Federation, or Army than gender, type of sport, and competition level counterparts, respectively.

For item 5 [$\chi(8) = 63.6$; $R^2 = 0.15$; $p<0.001$], the model showed differences in term of age and educational path. Younger student-athletes (≤ 24 years) have 2.43 times higher odds (95%CI = 1.39-4.26) to not benefit from flexibility in lessons frequency and/or exams sustainability than older student-athletes (> 24 years). Moreover, student-athletes engaged in Medical and Humanistic study have 9.01 (95%CI = 4.88-16.65) times higher odds to not benefit from flexibility in lessons and/or exams than student-athletes engaged in Sport Science study. For item 6 [$\chi(8) = 35.2$; $R^2 = 0.14$; $p<0.001$], differences were reported in term of age, type of sport, level of competition and educational path. Younger (≤ 24 years), engaged in team sport, elite student-athletes have 3.55 (95%CI = 1.63-7.75), 2.27 (95%CI = 1.05-4.99), 3.33 (95%CI = 1.39-8.33) times higher odds to not follow individual tutoring in university path than older (> 24 years), engaged in individual sport, and sub-elite counterparts, respectively. Finally, student-athletes engaged in Medical and Humanistic study, and in Technical and Economical study have 7.69 (95%CI = 2.7-18.52) and 3.45 (95%CI = 1.39-9.09) times lower odds to report individual tutoring in university path than student-athletes engaged in Sport Science study, respectively.

For item 7 [$\chi(8) = 23.4$; $R^2 = 0.03$; $p<0.001$], differences emerged in term of year of attendance. In fact, student-athletes attending the last year have 1.97 (95%CI = 1.28-3.03) times lower odds to follow e-learning course than student-athletes enrolled in the first-intermediate year of attendance. For item 8 [$\chi(8) = 18.7$; $R^2 = 0.02$; $p=0.017$], differences in term of type of sport and competition level were found. Student-athletes competing in team sports and in elite level have 1.47 (95%CI = 1.01-2.13) and 2.13 (95%CI = 3.23-14.29) times lower odds to report extra-academic merits than student-athletes in type of sport and sub-elite counterparts, respectively.

Finally, the logistic regression model was significant for item 9 [$\chi(8) = 95.8$; $R^2 = 0.12$; $p<0.001$], showing differences in term of gender, age, competition level, educational path, and year of attendance. In particular, females, older (> 24 years), and sub-elite student-athletes have 1.61 (95%CI = 1.16-2.27), 1.97 (95%CI = 1.22-3.16), and 3.57 (95%CI = 2.44-5.26) times higher odds to perceive themselves as student than their gender, age, competition level counterparts, respectively. Similarly, student-athletes engaged in Medical and Humanistic study and in Technical and Economical study have 2.48 (95%CI = 1.44-4.27) and 2.03 (95%CI = 1.18-3.5) times higher odds to perceive themselves as students than student-athletes engaged in Sport Science study, who mainly showed an athletic profile. Finally, student-athletes in the last year of attendance have 3.45 (95%CI = 1.92-5.88) times higher odds to perceive themselves as students than out of course student-athletes, who resulted mainly athletic oriented.

[Table 3 near here]

Discussion

The present study aimed to investigate the actual and wished supports to promote a successful dual career of Italian student-athletes. For this purpose, we investigated Italian student-athletes perception about the university facilitations in term of lessons frequency flexibility, tutoring and e-learning, university recognition for extra-academic merits, scholarship, as well as self-perception of student-athletes career showing results in relation to gender, age, type of sport, competition level, educational area and year of attendance subcategories. The main findings of this study tend to describe a partial support from academic and sport system, where only limited sport (i.e., elite competition level) and academic (i.e., Sport Science educational path) realities seem to substantially consider the student-athletes' dual career needs and limitations.

It is well known that the combination of athletic and educational career paths is challenging because of an overlap between the two careers [7, 13]. In particular, the entering

the university system is a crucial transition of any young athlete that has to combine training and competitions and school activity [24]. Nonetheless, the results of this study showed that only few student-athletes competing at elite level (31%) participated also in organized competitions at university level (item 1), highlighting how the two sport realities (i.e., Club/Federation and University) are separately managed. In addition, despite no effect emerged in comparing the student-athletes subcategories, it can be highlighted how the 5% of participants obtained in average a scholarship from university as common student (item 4), whereas only the 2% of these for their student-athlete role (item 2). Although the Italian university system is affected by a progressive decrement of students receiving a public grant emerged in general for [25], and a fifth of eligible students do not receive a grant due to a lack of funding [26], the results regarding student-athletes seem to be even more restricting. Nonetheless, a less negative trend was reported for the obtaining a remuneration/reimbursement of expenses as athletes from sport club, Federation, or Army (item 3). In particular, males (23%), team sport (30%), and elite (25%) student-athletes showed to benefit a remuneration/reimbursement from their clubs, which confirm to be the central body for regulating the sport system of the “No structure” national category [11, 18].

Regarding the flexibility of lessons frequency (i.e., recovery in other dates, reduction of required minimum frequency, etc.) and/or exams sustainability (i.e. exam date, procedure, etc.) (item 5), only student-athletes with >24 years old (24%) and engaged in Sport Science study (51%) reported higher odds compared to their age and educational path counterparts, respectively. Therefore, it possible to speculate that older student-athletes are more able to effectively negotiate alternative strategies to follow classes and take exams [27] with teachers involved in Sport Sciences field are more aware of the dual career issues in comparison with those of other areas [27]. However, the most part (82.5%) of student-athletes reported no time flexibility, confirming how time management results to be a big issue for student-athletes [28,

29], who may lead to drop out sport or educational career [3, 7, 9, 11, 12]. In particular, focusing on athletic career, and considering that elite athletes reach their peak performance in the early adulthood of career [e.g., 30, 31], the early dropping out from sport career may lead to a loss of possible talent athletes [23]. Similarly, the early dropping out from education most likely reduces the chances of learning those professional competences, which European student-athletes considered as important [e.g., 8, 19].

In general, it was reported that the university path provides scarce support (7%) to student-athletes in terms of individual tutoring (item 6), whereas higher values emerged for e-learning courses (item 7; 22%). In particular, although tutoring seems to be highly absent especially for student-athletes with ≤24 years old, practicing team sports, elite, and engaged in Medical and Humanistic or Technical and Economical paths, the most part of student-athletes answered that it could be useful if improved. Similarly, although student-athletes in the first-intermediate year reported a higher adherence to the e-learning courses than student-athletes in the last year of attendance, the general tendency highlights how an eventual increase of this educational method is positively perceived. Taken together the present results showed as student-athletes would wish a better schedule of classes and exams as well as e-learning and tutoring supports. Therefore, despite not all the bachelor´s and master's degrees were supported for e-learning and tutoring, the University system should promote a progressive innovative orientation in terms of new technologies programs for young people and students-athletes inclusion (i.e., promotion of "dual career").

Although the providing of credits for extra-academic merits (item 8) were reported as more considered (31%) by university than tutoring and e-learning supports, results are mostly related to not-sport merits, limiting potential speculations about the effects emerged between different types of sport and competition levels, and confirming how much student-athletes' dual-career should be mostly valorised.

Interesting findings emerged about the participants' self-perception as more student- or athlete-oriented (item 9). Results showed that female, older (>24 years old), and sub-elite student-athletes showed to be more student-oriented than their gender, age, and competition level counterparts, respectively. Nevertheless, male and younger student-athletes resulted anyway mainly student-oriented in absolute terms. Only participants classified as elite athletes resulted more athletic-oriented, finding coherence with the findings emerged for the European [20, 21] and Italian [20, 21] student-athletes. Further similarities emerged for educational path and year of attendance, where student-athletes attending the sport science paths and in course years reported significantly high athletic (i.e., sport motivation) and student (i.e., academic motivation) propensity, respectively [21]. On the other hand, out of course student-athletes seem to be principally focused on sport career, speculating how limitations during the educational path could have been determined by lacks of time and support for effectively studying and keeping to compete in sport.

Although it is not clear which is the best motivation and propensity between sport or education to follow, both can play an fundamental role in dual career progression [11] as well as in possible drops out of the sport [23] or professional [23] career. Actually, the last item of this questionnaire represented an alternative and original procedure to measure student-athletes' identity, forcing the choice toward sport or educational career, not leaving possibility to indicate an intermediate profile. Differently, in a previous study [32], the student-athlete has been considered as a unique profile based on the social appurtenance to a specific group. Although experimental differences are evident in comparing the two studies, a higher sport-oriented profile in the present study and higher identity score in the previous study [32] are associated to younger and elite student-athletes, suggesting how these particular subject categories can live a higher involvement into the student-athlete role.

However some limitations should be underlined. First, the external validity of this study was limited due to the recruiting of only Italian student-athletes. Second, we investigated actual and wished supports to promote a successful dual career using an ad hoc questionnaire that was not still validated and statistically analysed according to dichotomous answers to prevent an excessive fragmentation of subcategory data. Even if this approach was used in previous studies [e.g., 8, 19], caution is need when interpreting the present results. Third, unbalanced recruitment of participants in relation to age, type of sport, competition level, educational path, and year of attendance could limit the generalization of findings. In particular, the specificity of the results regarding the Sport Science category suggests the need of further studies only focused on the comparison between different Italian and European universities with this particular educational path.

Conclusions

Athletic career and in particular dual career is not only the result of social agents, such as athletes, parents, and coaches, but also a consequence of the wider social environment [14]. According to this view, university system represents a possible facilitator as well as an obstacle to promote an effective dual career. The present study highlights the actual and wished supports to promote a successful dual career for Italian student-athletes, thus contributing to better understand the daily and weekly demands, difficulties, and wished solutions of this particular subjects' category to combine sport and academic tasks. In addition, this type of research can be considered as pertinent to the European Union Guidelines on dual-careers [14].

In general, an unsatisfactory scenario has been reported for tutoring and e-learning, even though these supports are highly wished by student-athletes. An unsatisfactory scenario is also related to the recognition of credits for extra-academic merits, with particular reference to the lack of consideration of sport-merits. In addition, a flexibility in lessons frequency (i.e. recovery in other dates, reduction of required minimum frequency, etc.) and/or exams sustainability (i.e.

exam date, procedure, etc.) are strongly wished by student-athletes, despite they are perceived as lacking. Finally, the fact that female, ≤24 years old, and sub-elite participants showed to be more student-oriented than their gender, age, and competition level counterparts, and that elite and out of course student-athletes perceived their-self as mainly athletic-oriented is interesting, requesting further investigations on this issue.

Conflict of interest

The authors declare no conflict of interest.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in the study.

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Table 1

Items and answers about dual career issues proposed to Italian student-athletes.

#	Items	Answers
Section A		
1	Do you participate or have you participated in organized competitions at university level?	A = No; B = Yes.
2	Do you receive a scholarship from University considering your role of student and athlete?	A = No; B = Yes.
3	Do you receive from your sport club, Federation, or Army a remuneration/reimbursement of expenses as athlete?	A = No; B = Yes from my club; C = Yes from my Federation; D = Yes from Army.
4	As student, do you receive a scholarship from University?	A = No; B = Yes.
5	In your degree course for the student-athletes is there a flexibility in lessons frequency (i.e. recovery in other dates, reduction of required minimum frequency, etc.) and/or exams sustainability (i.e. exam date, procedure, etc.) foreseen?	A = No, there is not, however I do not believe it useful; B = No, there is not, however it would be useful; C = Yes, it is a recognized right in the university path, therefore the professors provide a flexibility; D = Yes, some professors provided me a flexibility after my request; E = I am not able to answer, the frequency is not mandatory in my university path.
6	In your university path, is there an individual tutoring for student-athletes?	A = No, there is not, however I do not believe it useful; B = No, there is not, however it would be useful; C = Yes, there is, but it should be better organized; D = Yes, there is and it is useful; E = I am not able to answer, the frequency is not mandatory in my university path.
7	In your university path, is there an e-learning course for student-athletes?	A = No, there is not, however I do not believe it useful; B = No, there is not, however it would be useful; C = Yes, there is, but it should be better organized; D = Yes, there is and it is useful; E = I am not able to answer, the frequency is not mandatory in my university path.
8	In your university path, is there any credit (i.e. access to degree course, university credits, etc.) for extra-academic merits?	A = No, there is not; B = Yes, there is, but not for sport grants; C = Yes, there is, for sport grants too; D = Actually, I do not know.
9	How do you evaluate yourself as student- athlete?	A = 10% student - 90% athlete; B = 20% student - 80% athlete; C = 30% student - 70% athlete; D = 40% student - 60% athlete; E = 60% student - 40% athlete; F = 70% student - 30% athlete; G = 80% student - 20% athlete; H = 90% student - 10% athlete.

Table 2.

Frequencies of occurrence; percentage (*p* value; effect size) of the Italian student-athletes in relation to the observed dual career aspects (i.e., items 1-9), in relation to gender, age (≤ 24 years, > 24 years), type of Sport (individual, team), competition level (elite, sub-elite), educational area (i.e., medical and humanistic area, technical and economical area, sport science area), and year of attendance (i.e., first-intermediate year, last year, out of course) factors.

		Gender		**Age**		**Type of Sport**		**Competition level**		**Educational area**			**Year of attendance**		
#	**Answer**	**Female**	**Male**	**≤24 years**	**>24 years**	**Individual**	**Team**	**Sub elite**	**Elite**	**Medical humanistic**	**Technical economical**	**Sport Science**	**First/ intermediate**	**Last**	**Out of course**
1	A	295 (83)	285 (80)	470 (82)	110 (82)	350 (80)	230 (84)	423 (87)	157 (69)	274 (82)	246 (82)	60 (79)	278 (83)	236 (80)	66 (81)
	B	60 (17)	71 (20)	107 (18)	24 (18)	87 (20)	44 (16)	61 (13)	70 (31)	59 (18)	56 (18)	16 (21)	57 (17)	58 (20)	16 (20)
2	A	350 (99)	349 (98)	568 (98)	131 (98)	429 (98)	270 (99)	477 (99)	222 (98)	328 (99)	296 (98)	75 (99)	332 (99)	286 (97)	81 (99)
	B	5 (1)	7 (2)	9 (2)	3 (2)	8 (2)	4 (1)	7 (1)	5 (2)	5 (1)	6 (2)	1 (1)	3 (1)	8 (3)	1 (1)
3	A	300 (85)	250 (70)	446 (77)	104 (78)	361 (82)	189 (69)	392 (81)	158 (69)	277 (83)	219 (73)	54 (71)	271 (81)	215 (74)	64 (78)
	B	48 (14)	81 (23)	105 (18)	24 (18)	46 (11)	83 (30)	73 (15)	56 (25)	47 (14)	64 (21)	18 (24)	51 (15)	63 (21)	15 (18)
	C	5 (1)	22 (6)	21 (4)	6 (4)	25 (6)	2 (1)	18 (4)	9 (4)	9 (3)	15 (5)	3 (4)	11 (3)	13 (4)	3 (4)
	D	2 (0)	3 (1)	5 (1)	0 (0)	5 (1)	0 (0)	1 (0)	4 (2)	0 (0)	4 (1)	1 (1)	2 (1)	3 (1)	0 (0)
4	A	337 (95)	335 (94)	547 (95)	152 (94)	413 (95)	259 (95)	452 (93)	220 (97)	316 (95)	283 (94)	73 (96)	316 (94)	275 (94)	81 (99)
	B	18 (5)	21 (6)	30 (5)	9 (6)	24 (5)	15 (5)	32 (7)	7 (3)	17 (5)	19 (6)	3 (4)	19 (6)	19 (6)	1 (1)
5	A	37 (11)	46 (13)	69 (12)	14 (10)	45 (10)	38 (14)	76 (16)	7 (3)	36 (11)	44 (15)	3 (4)	36 (11)	41 (14)	6 (7)
	B	228 (64)	222 (62)	372 (64)	78 (59)	281 (64)	169 (62)	282 (58)	168 (74)	226 (68)	192 (63)	32 (42)	205 (62)	186 (63)	59 (72)
	C	19 (5)	23 (6)	32 (6)	10 (7)	25 (6)	17 (6)	33 (7)	9 (4)	17 (5)	16 (5)	9 (12)	21 (6)	15 (5)	6 (7)
	D	33 (9)	38 (11)	52 (9)	19 (14)	47 (11)	24 (9)	48;10)	23 (10)	23 (7)	21 (7)	27 (35)	35 (10)	29 (10)	7 (9)
	E	38 (11)	27 (8)	52 (9)	13 (10)	39 (9)	26 (9)	45 (9)	20 (9)	31 (9)	29 (10)	5 (7)	38 (11)	23 (8)	4 (5)
6	A	77 (22)	86 (24)	140 (24)	23 (17)	86 (20)	77 (28)	123 (25)	40 (17)	75 (23)	77 (25)	11 (14)	76 (23)	76 (26)	11 (13)
	B	210 (58)	215 (61)	345 (59)	80 (60)	274 (62)	151 (55)	264 (54)	161 (70)	204 (61)	177 (60)	44 (58)	193 (58)	177 (60)	55 (67)
	C	9 (3)	8 (2)	9 (2)	8 (6)	13 (3)	4 (1)	13 (3)	4 (2)	5 (2)	7 (2)	5 (7)	7 (2)	6 (2)	4 (5)

	D	11 (3)	14 (4)	16 (3)	9 (7)	18 (4)	7 (3)	22 (5)	3 (1)	8 (2)	13 (4)	4 (5)	11 (3)	9 (3)	5 (6)
	E	48 (14)	33 (9)	67 (12)	14 (10)	46 (11)	35 (13)	62 (13)	19 (10)	41 (12)	28 (9)	12 (16)	48 (14)	26 (9)	7 (9)
7	A	40 (11)	60 (17)	87 (15)	13 (10)	57 (13)	43 (16)	75 (15)	25 (11)	50 (15)	40 (13)	10 (13)	48 (14)	45 (15)	7 (9)
	B	204 (58)	181 (51)	311 (54)	74 (56)	246 (56)	139 (51)	246 (51)	139 (61)	193 (58)	156 (51)	36 (47)	165 (49)	172 (59)	48 (59)
	C	26 (7)	36 (10)	48 (8)	14 (10)	34 (8)	28 (10)	42 (9)	20 (9)	24 (7)	35 (12)	3 (4)	38 (11)	18 (6)	6 (7)
	D	33 (9)	43 (12)	62 (11)	14 (10)	53 (12)	23 (8)	56 (12)	20 (9)	26 (8)	42 (14)	8 (11)	42 (13)	24 (8)	10 (12)
	E	52 (15)	36 (10)	69 (12)	19 (14)	47 (11)	41 (15)	65 (13)	23 (10)	40 (12)	29 (10)	19 (25)	42 (13)	35 (12)	11 (13)
8	A	75 (21)	78 (22)	122 (21)	31 (23)	92 (21)	61 (22)	114 (24)	39 (17)	71 (21)	76 (25)	6 (8)	71 (21)	59 (20)	23 (28)
	B	213 (61)	223 (63)	355 (61)	81 (61)	259 (59)	177 (65)	273 (56)	163 (72)	211 (63)	180 (59)	45 (59)	200 (60)	188 (64)	48 (58)
	C	23 (6)	23 (6)	39 (7)	7 (5)	35 (8)	11 (4)	37 (8)	9 (4)	15 (5)	14 (5)	17 (22)	21 (6)	21 (7)	4 (5)
	D	44 (12)	32 (9)	61 (11)	15 (11)	51 (12)	25 (9)	60 (12)	16 (7)	36 (11)	32 (11)	8 (11)	43 (13)	26 (9)	7 (9)
9	A	9 (3)	6 (2)	12 (2)	3 (2)	10 (2)	5 (2)	5 (1)	10 (4)	5 (2)	6 (2)	4 (5)	5 (1)	6 (2)	4 (5)
	B	13 (4)	25 (7)	33 (6)	5 (4)	22 (5)	16 (6)	17 (4)	21 (9)	17 (5)	14 (5	7 (9)	15 (4)	15 (5)	8 (10)
	C	39 (11)	39 (11)	64 (11)	14 (10)	52 (12)	26 (9)	35 (7)	43 (19)	28 (8)	35, 12)	15 (20)	31 (9)	36 (12)	11 (13)
	D	69 (19)	92 (26)	140 (24)	21 (16)	91 (21)	70 (26)	100 (21)	61 (27)	66 (20)	75 (25)	20 (26)	83 (25)	55 (19)	23 (28)
	E	99 (28)	91 (26)	156 (27)	34 (25)	110 (25)	80 (29)	141 (29)	49 (22)	95 (29)	77 (25)	18 (24)	90 (27)	87 (30)	13 (16)
	F	78 (22)	64 (18)	117 (20)	25 (19)	92 (21)	50 (18)	113 (23)	29 (13)	69 (21)	65 (22)	8 (11)	74 (22)	61 (21)	7 (9)
	G	20 (6)	26 (7)	27 (5)	19 (14)	31 (7)	15 (5)	37 (8)	9 (4)	24 (7)	21 (7)	1 (1)	19 (6)	18 (6)	9 (11)
	H	28 (8)	13 (4)	28 (5)	13 (10)	29 (7)	12 (4)	36 (7)	5 (2)	29 (9)	9 (3)	3 (4)	18 (5)	16 (5)	7 (9)

Notes: *difference with respect to counterpart subgroup; $^{\#,)}$ difference with respect to "Technical and economical area" and "Sport Science area" counterparts, respectively; $^{\gamma}$ difference with respect to "Out of course".

Table 3. Binomial regression data for categorical outcome (i.e., "No" vs "Yes" answers for item 1-8; "Athlete" vs "Student" answers for item 9) applied to discriminate subcategories for each item.

		Gender		Age		Type of Sport		Competition level		Educational area			Year of attendance		
#	**Answer**	**Female**	**Male**	**≤24 years**	**>24 years**	**Individual**	**Team**	**Sub elite**	**Elite**	**Medical humanistic**	**Technical economical**	**Sport Science**	**First/ intermediate**	**Last**	**Out of course**
1	No	295 (83)	285 (80)	470 (82)	110 (82)	350 (80)	230 (84)	423 (87)	157 (69)	274 (82)	246 (82)	60 (79)	278 (83)	236 (80)	66 (81)
								*							
	Yes	60 (17)	71 (20)	107 (18)	24 (18)	87 (20)	44 (16)	61 (13)	70 (31)	59 (18)	56 (18)	16 (21)	57 (17)	58 (20)	16 (20)
2	No	350 (99)	349 (98)	568 (98)	131 (98)	429 (98)	270 (99)	477 (99)	222 (98)	328 (99)	296 (98)	75 (99)	332 (99)	286 (97)	81 (99)
	Yes	5 (1)	7 (2)	9 (2)	3 (2)	8 (2)	4 (1)	7 (1)	5 (2)	5 (1)	6 (2)	1 (1)	3 (1)	8 (3)	1 (1)
3	No	300 (85)	250 (70)	446 (77)	104 (78)	361 (83)	189 (69)	392 (81)	158 (70)	277 (83)	219 (73)	54 (71)	271 (81)	215 (73)	64 (78)
		*				*		*							
	Yes	55 (15)	106 (30)	31 (23)	30 (22)	76 (17)	85 (31)	92 (19)	69 (30)	56 (17)	83 (27)	22 (29)	64 (19)	79 (27)	18 (22)
4	No	337 (95)	335 (94)	547 (95)	152 (94)	413 (95)	259 (95)	452 (93)	220 (97)	316 (95)	283 (94)	73 (96)	316 (94)	275 (94)	81 (99)
	Yes	18 (5)	21 (6)	30 (5)	9 (6)	24 (5)	15 (5)	32 (7)	7 (3)	17 (5)	19 (6)	3 (4)	19 (6)	19 (6)	1 (1)
5	No	265 (84)	268 (82)	411 (84)	92 (76)	326 (82)	207 (84)	358 (82)	175 (85)	262 (87)	236 (86)	35 (49)	241 (81)	227 (84)	65 (83)
				*						#					
	Yes	52 (16)	61 (18)	84 (16)	29 (24)	72 (18)	41 (16)	81 (18)	32 (15)	40 (13)	37 (14)	36 (51)	56 (19)	44 (16)	13 (17)
6	No	287 (94)	301 (93)	485 (95)	103 (86)	360 (92)	228 (95)	387 (92)	201 (97)	279 (96)	254 (93)	55 (86)	269 (94)	253 (94)	66 (88)
				*		*		*		#	#				
	Yes	20 (6)	22 (7)	25 (5)	17 (14)	31 (8)	11 (5)	35 (8)	7 (3)	13 (5)	20 (7)	9 (14)	18 (6)	15 (6)	9 (12)
7	No	244 (81)	241 (75)	398 (78)	87 (75)	303 (78)	182 (78)	321 (77)	164 (80)	243 (83)	196 (72)	46 (81)	213 (73)	217 (84)	55 (78)
													¥		
	Yes	59 (20)	79 (25)	110 (22)	28 (25)	87 (22)	51 (22)	98 (23)	40 (20)	50 (17)	77 (28)	11 (19)	80 (27)	42 (16)	16 (23)
8	No	213 (69)	223 (69)	355 (69)	81 (68)	259 (67)	177 (71)	273 (64)	163 (77)	211 (71)	180 (67)	45 (66)	200 (69)	188 (70)	48 (64)
						*		*							
	Yes	98 (32)	101 (31)	161 (31)	38 (32)	127 (33)	72 (29)	151 (36)	48 (23)	86 (29)	90 (33)	23 (34)	92 (31)	80 (30)	27 (36)
9	Athlete	130 (37)	163 (45)	249 (43)	43 (32)	175 (40)	117 (43)	157 (32)	135 (60)	116 (35)	130 (43)	46 (61)	134 (40)	112 (38)	46 (56)
		*		*				*		#	#			Φ	
	Student	225 (63)	194 (55)	328 (57)	91 (68)	262 (60)	157 (57)	327 (68)	92 (40)	217 (65)	172 (57)	30 (39)	201 (60)	182 (62)	36 (44)

*, #, ¥, Φ different with respect to category counterpart, Sport Science educational path, last year of attendance, Out of course, respectively.