



THE ROLE OF PHYSICAL FITNESS IN TEACHING ALPINE SKIING ON ASSESSMENT, FEAR AND SELF-ESTEEM

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ABSTRACT

The purpose of the research was to determine the relation between the level of students' physical fitness and the effectiveness of Alpine ski instruction as regards the assessment of technique, the level of fear and self-esteem. The research took place during the CAMP training in the ski resorts of Parnassos in the Greece and Janské Lázně in the Czech Republic. The experimental group consisted of 71 Greek students and 153 Polish students respectively. The International Physical Status Test (ICSPFT), the questionnaire on fear, self-assessment, the evaluation of the technique by trainers on the scale 1 to 4 and the self-evaluation of the technique by the students themselves were applied in this research. The evaluation of the skiing technique by the ski instructors as well as the self-evaluation of men was higher (2.4 ± 0.5 and 2.8 ± 0.7 respectively) than that of women. Social fear and athletic fear were significantly lower in the Greek group (67.0 ± 10.9 and 22.2 ± 3.6 respectively). Finally, self-esteem was higher in athletes (52.2 ± 5.0) and the value of credibility (lying) was lower in athletes (13.5 ± 2.5). In conclusion, the students' psychological predisposition and preparation before the winter CAMP must be taken into account.

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INTRODUCTION

Ski teaching in schools, athletic clubs and skiing schools is applied in a traditional way of teaching only in the ski resort through the international teaching material. The following motives of the researchers have been examined:

Obtaining comparative information on the physical condition of skiers before the ski season and other sports on dry ground (Baka, 2007; Baka, & Aschenbrenner, 2007; Chatoupis, *et al.*, 2007; Clarke, & Petersen, 1961; Elegañczyk - Kot, *et al.*, 2008; Giovanis, & Kotrotsios, 2012; Giovanis, *et al.*, 2017a; Giovanis, & Panou, 2017; Komi, 1984; Krasicki, 2005; Krasicki, & Chojnacki, 2001; Kunysz, & Blachura, 2008; Malina, 1984; Sale, 1991; Sharkey, 1990; Shephard, 1997; Stupnicki, *et al.*, 2005; Tomaszewski, *et al.*, 2011; Tremtarczy, 2004; Wojtyczek, *et al.*, 2014; Zounhia, *et al.*, 2004, 2006, 2007).

Verification of importance of ski instruction on dry ground by simulation in open spaces eg.

with rollers or indoors, for example, in gymnasts and skating rinks (Chojnacki, & Orlewicz-Musiał, 2005; Čillík, & Král, 2008; Giovanis, 2006, 2008, 2009; Giovanis, *et al.*, 2017; Mleczko, 1992; Radman, *et al.*, 2016; Reilly, 2001; Staniszewski, *et al.*, 2016; Ulatowski, 1986; Ziemilski, & Sykut, 1979).

Notification of the kinds of fear, for example, social fear, athletic fear and the kinds of evaluation e.g. evaluation of technical performance by trainers and self-evaluation by the students themselves (Baka, *et al.*, 2007; Everly, & Rosenfeld, 1992; Gierat, & Górská, 1999; Goszczyńska, & Sudenski, 2006; Gracz, & Sankowski, 2001; Hobofol, 2006; Meyer, 2003; Sankowski, 2001; Strelau, 2003; Terelak, 2001).

Ski instruction is a complex teaching process, which is implemented in peculiar and harsh conditions (that differ from the ordinary teaching of physical education). Physical education's students training in the field of winter skiing CAMP is the basic element of preparation for the profession of a ski instructor. The apprehension of the physical fitness level and self-confidence of students will make it easier for ski instructors to choose the means and methods of the teaching process. The final stage of the teaching process is the instructors to control and evaluate the technical training of the

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students. The purpose of the research was to determine the relation between the level of students' physical fitness and the effectiveness of Alpine ski instruction as regards the assessment of technique, the level of fear and self-esteem. The following hypotheses have been formed on the basis of the experience of theory and practice: 1) Do students with a high level of social fear (from the necessity of social applause) have a low physical state and learn less slowly various skiing exercises? 2) Do people with a high degree of athletic fear (deriving from the need for appraisal) worse assess the future ability to enhance athletic skill? 3) Are students, who have the best technical skills after training, those who are at first characterized with a low level of fear? The measurements and constraints included in the survey were conducted in a different geographic area and at the same time of day in a corresponding CAMP.

METHODOLOGY

Participants

Ski college students of two universities (n = 224): University of Athens (n = 71, 35 men and 36 women) and Bialystok University of Poland (n = 153, 132 men and 21 women - Table

Participated in This Research

Table 1 The somatometric characteristics of the Greek and Polish skiers

Groups	Participants	Age (Years)		Height (m)		Weight (kg)		BMI (kg/m ²)	
		n	M	SD	M	SD	M	SD	M
Greek students	71	21,7	1,34	1,74	0,09	65,96	11,46	21,68	2,39
Men	35	21,8	1,48	1,80	0,07	74,54	8,49	22,99	1,92
Women	36	21,7	1,22	1,68	0,06	57,61	6,87	20,41	2,10
Polish students	153	22,0	1,75	1,77	0,08	73,93	11,73	23,48	2,96
Men	132	22,1	1,80	1,80	0,06	76,6	10,04	23,90	2,74
Women	21	21,3	1,32	1,68	0,08	61,31	11,20	21,56	3,23
Sum	224								

Data collection

For the research, the International Committee for Sport and Physical Fitness Test (ICSPFT), which assesses the physical condition (Zak, 1977; Trzeźniowski, & Pilicz, 1989, Giovanis, 1986, 1989; Baka, 2007), was applied. The tests are performed on two consecutive days and evaluate the corresponding physical abilities in the following order: 50 m speed, standing long jump to evaluate the legs explosive power, 1000 m men or 800 m women endurance run, assessment of the strength of the strongest palm arm with hand grip dynamometer, single-handed pull ups with A-handle to assess the hand strength, 4x10m agility run, 30 s abdominal flex to evaluate abdominal muscle strength and sit reach and test to evaluate the flexibility.

The Alpine skiing exercises were evaluated in a methodical manner as follows: snowplow, slide, slopes, V-turns, parallel turns and march to cross-skiing. The evaluation of the above exercises was conducted by three ski instructors and the self-evaluation for the execution of individual ski exercises on a scale of 1 to 4, respectively, for the purpose of self-esteem by each student.

The research covered the personal questionnaire after translation into the Greek language and its validity and reliability (Baka, *et al.*, 2007) of social (apparent) fears with 69 questions or closed form proposals was tested: factor (type of fear - I am "very worried about doing everything perfectly") - way of responding with a corresponding score (I agree - 4,

probably agree - 3, I probably disagree - 2, disagree - 0). The above questionnaire focused on four basic behaviors: social fear (maximum score of 132), athletic fear (maximum score of 44), self-rating (maximum score of 84), confidence rating (maximum score of 24). The following types of fear prevail are distinguished:

- a. Social fear: it interprets the definition of excessive sensitivity to the criticism of others. In other words, social fear comes from the need for social approval.
- b. Athletic Fear: interprets the definition of excessive sensitivity to the criticism of coaches and other athletes. That is to say that, athletic fear comes from the necessity of performance approval, or the failure to achieve the identified goal.

Furthermore, the scale of reliability ("lie"), which measures the sincerity of the participants' response to the questionnaire completion, was used in this research (Everly, 1992; Gracz, & Sankowski, 2001; Grzegolowska-Klarkowska, 1986).

Research process

The tests took place during the planned weekly winter CAMP training camp in the ski resorts of Parnassus and Janskie Laznie in the Czech Republic, where the Greek and Polish students respectively practiced.

The first stage of the research, apart from the assessment of physical abilities in Poland and Greece, was to assess the level of fear of novice students as regards their skiing knowledge, and of advanced students who are specialized in a high level of athletic knowledge. The second stage of the research was conducted at the Winter Camp, where students completed the basic phase of skiing training.

The evaluation of the ski exercises was carried out by the three ski instructors and the self-assessment for the execution of the individual ski exercises, on a scale of 1 to 4 respectively, by each student.

Design

Factorial design (2 × 3 × 2) was applied, where there were 2 research groups, with physical fitness assessment, fear level assessment, and evaluation of skiing exercises, the last factor, was sex (male and female).

Statistical analysis

The STATISTICA 8 statistical program was applied for this statistical analysis. Based on the sum of the physical fitness grades, the following groups were chosen: a) the group of students from Poland and the group of students from Greece; b) the group of students with amateur athletes and the one with professional athletes. Separate analysis was conducted for women and men. A standardized statistical process was used for these results. The results of the assessment of Alpine skiing exercises by instructors have been compared to the self-assessment which was conducted by each student. Alpine skiing exercises were rated in the 1 to 4 scale respectively and the average was calculated. The fluctuations which appeared in all groups were normal; this fact, allowed the mean value, the standard deviation and the fluctuation range to be calculated. The results of the psychological tests were standardized into groups and turned into categories based on the mean values. The difference in frequency of variance was then evaluated using the "x²" test. The fitness tests have tested the

significance of the mean differences between these groups through the “t-student” test. In order to perform the appropriate classification, the results of the physical fitness tests were converted into grades based on the International Standard Testing Schedules - ICSPFT (Zak, 1977; Trzeźniowski, & Pilicz, 1989). Moreover, the Pearson correlation coefficient was calculated among the results in Alpine skiing exercises and physical abilities (Brzeziński, & Siuta, 2006).

RESULTS

Results of Physical Ability

The results of the physical fitness tests were classified and the mean value was calculated. The groups were divided on the basis of the average values of physical fitness tests. In all consecutive trials, the best team was Poland and had the highest performance scores, which were converted into points based on norms. The biggest difference was in the following tests: standing long jump (7 points), pull ups in the horizontal bar (6 units) and agility test 4x10m (5 points - Table 2).

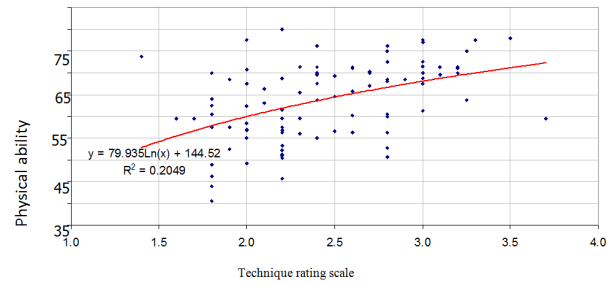


Figure 1 Correlation between the students’ physical ability and the assessment of Alpine skiing technique.

There is a relationship between the physical ability of the Alpine skiing students / skiers and the evaluation of the ski instructors in the Polish team (Table 2, 3, Figure 1).

Table 2 The results of the international physical ability test based on the particular norms (ICSPFT)

Group	Statistical indexes	50m	1000m	4x10	Long jump	Pull ups	Abdominal flex (30s)	Sit and reach	Handgrip	Mean value
Sample sum	min	37	32	31	20	35	32	26	26	30
	max	68	90	75	77	100	91	100	100	89
	M	49	52	48	49	62	60	57	54	55
	SD	4.04	9.18	12.3	7.17	58.47	8.75	23.52	12.74	17.7
	V	8.25	17.65	25.63	14.63	94.31	14.58	41.26	23.60	30.6
Polish students	min	42	32	34	28	38	32	28	28	33
	max	68	85	75	77	100	91	94	100	88
	M	50	53	52	50	65	60	59	55	56
	SD	3.80	9.09	11.7	8.11	59.96	8.88	22.01	15.46	18.2
	V	7.61	17.14	22.50	16.21	92.25	14.80	37.30	28.10	30.5
Greek students	min	37	39	31	20	35	43	26	26	32
	max	61	90	71	72	100	84	100	82	84
	M	48	52	47	43	59	58	55	52	48
	SD	4.57	10.71	15.3	4.65	57.93	7.96	26.94	13.88	18.1
	V	9.53	20.59	32.55	10.80	98.18	13.72	48.98	26.70	32.6

Results of the technique of ski exercises

The average value of ski instructor assessment for all subjects was 2.4 ± 0.5, with Poland's best group (2.5 ± 0.4), while the team in Greece had an average of 2.2 ± 0.2. The mean value of self-assessment for all subjects was 2.7 ± 0.7 where the groups of Poland and Greece had almost the same values: 2.7 ± 0.7 and 2.6 ± 0.7 respectively (Table 3).

Table 3 The mean value of the ski test assessment results by the instructors and the self-assessment of the students.

	Sample sum		Polish		Greek		Women		Men		Athletes	
	A*	B**	A	B	A	B	A	B	A	B	A	B
min	1,0	1,4	1,0	2,2	1,0	1,4	1,0	1,4	1,0	1,4	1,0	1,4
max	4,0	3,7	4,0	3,7	4,0	2,2	3,0	3,7	4,0	3,5	4,0	3,5
M	2,7	2,4	2,7	2,5	2,6	2,2	2,4	2,2	2,8	2,4	2,7	2,6
SD	0,7	0,5	0,7	0,4	0,7	0,2	0,8	0,6	0,7	0,5	0,8	0,5

*A: Self-assessment **B: Assessment by the ski instructors

The ski technique (Table 3) of the athletes and men was better (2.6 ± 0.5 and 2.4 ± 0.5 respectively) than that of women (2.2 ± 0.6), according to the assessment held by the instructors. Similarly, the self-assessment was greater in athletes and men (2.7 ± 0.8 and 2.8 ± 0.7 respectively) compared to women (2.4 ± 0.8). Notable was the fact that, women had the smallest deviation of self-assessment from the ski instructors’ assessment than men.

Physical ability results are correlated with the Alpine ski students' technique assessment (r = 0.28). Physical fitness tests revealed a significant correlation between the long jump (r = 0.33).

Results of the psychological tests

Social fear: the mean value of social fear for the Greek team was 67.0 ± 10.9, while for the Polish group it was 71.9 ± 10.2 (Table 4, Figure 2). Social fear was significantly lower in men (68.3 ± 11.2) compared to women (70.8 ± 9.4). The fact that athletes had the greatest social fear (72.7 ± 10.0) was remarkable.

Athletic Fear: The mean value of the athletic fear for the Greek team was 22.2 ± 3.6 while for the Polish team the value was 24.0 ± 10.2 (Table 4, Figure 3). The athletic fear was significantly lower in males (22.2 ± 3.7) than in females (24.8 ± 3.8). Athletes were expected to have the lowest value (20.9 ± 2.8).

Self-Esteem: the mean value of the self-assessment for the Greek group was 50.9 ± 5.1. Equally, for the Polish group it was the same: 50.9 ± 6.3 (Table 4, Figure 4). The self-assessment was significantly lower in men (50.6 ± 5.7) compared to women (52.1 ± 4.2). Athletes were expected to have the highest value (52.2 ± 5.0).

Table 4 The results of the psychological test in absolute and percent values (%)

Group		Social fear		Self-esteem		Athletic fear		Scale reliability	
		Absolute values	%	Absolute values	%	Absolute values	%	Absolute values	%
Sample	min	46,0	34,8	38,0	45,2	16,0	36,4	8,0	33,3
	max	99,0	75,0	67,0	79,8	34,0	77,3	22,0	91,7
	M	68,6	52,0	50,9	60,6	22,8	51,7	14,0	58,2
	SD	10,8	8,2	5,5	6,5	3,8	8,6	2,9	11,9
Greek	min	46,0	34,8	38,0	45,2	16,0	36,4	8,0	33,3
	max	92,0	69,7	62,0	73,8	32,0	72,7	21,0	87,5
	M	67,0	50,7	50,9	60,6	22,2	50,4	13,8	57,3
	SD	10,9	8,3	5,1	6,1	3,6	8,1	2,8	11,6
Polish	min	54,0	40,9	39,0	46,4	17,0	38,6	9,0	37,5
	max	99,0	75,0	67,0	79,8	34,0	77,3	22,0	91,7
	M	71,9	54,5	50,9	60,6	24,0	54,5	14,5	60,2
	SD	10,2	7,7	6,3	7,5	4,0	9,2	3,0	12,6
Women	min	56,0	42,4	44,0	52,4	17,0	38,6	11,0	45,8
	max	88,0	66,7	60,0	71,4	33,0	75,0	21,0	87,5
	M	70,8	53,6	52,1	62,0	24,8	56,3	14,1	58,6
	SD	9,4	7,1	4,2	5,0	3,8	8,5	2,9	11,9
Men	min	46,0	34,8	38,0	45,2	16,0	36,4	8,0	33,3
	max	99,0	75,0	67,0	79,8	34,0	77,3	22,0	91,7
	M	68,3	51,7	50,6	60,3	22,2	50,6	13,9	57,9
	SD	11,2	8,5	5,7	6,8	3,7	8,4	2,9	12,0
Athletes	min	48,0	36,4	42,0	50,0	17,0	38,6	9,0	37,5
	max	99,0	75,0	67,0	79,8	26,0	59,1	19,0	79,2
	M	72,7	55,0	52,2	62,2	20,9	47,5	13,5	56,2
	SD	10,0	7,6	5,0	6,0	2,8	6,4	2,5	10,3

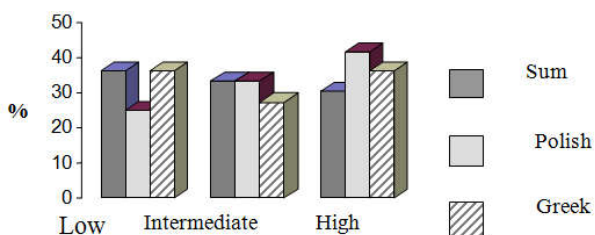


Figure 2 The levels of social fear

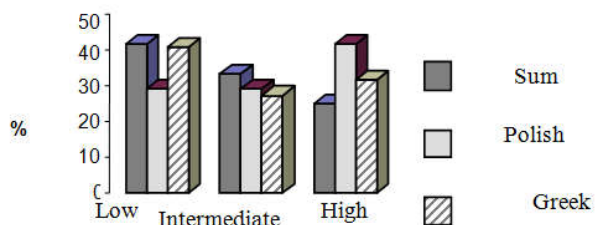


Figure 3 The levels of athletic fear

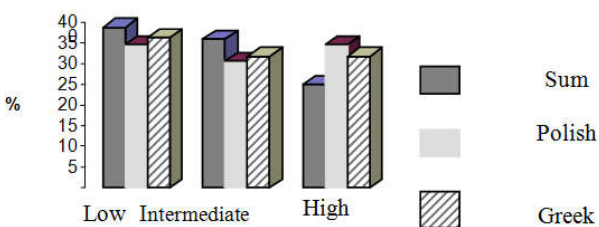


Figure 4 The levels of self-assessment

The Confidence Scale (lie): the mean confidence interval for the Greek team was 13.8 ± 2.8 , while for the Polish group the value was 14.5 ± 3.0 (Table 4).

It is noteworthy that the confidence was rated lower in men (13.9 ± 2.9) than in women (14.1 ± 2.9), while athletes had the lowest value (13.5 ± 2.5) as expected.

DISCUSSION - CONCLUSIONS

Similar ski researches, conducted according to the process and methodology of this research, have not been found in the bibliography. It is suggested that further research should be conducted as regards this topic. According to the results, it could be concluded that there is a correlation between the performance of the physical ability of Alpine skiing students and the assessment by the ski instructors mainly in the Polish team. From these fitness tests, it can be concluded there was a significant correlation between physical ability and the standing long jump test.

Alpine ski technique assessment by ski instructors as well as the self-assessment was greater for athletes' and men than women. The fact that women had the smallest deviation of self-rating after athletes was remarkable.

Social fear was significantly lower in the Greek team and in men overall. It was remarkable that athletes had the greatest social fear, which revealed fear of social approval. Athletic fear was significantly lower in the Greek team, the men overall and of course the athletes compared to women. This means that the increased level of fear diminished the progress in skiing, while people with low levels of fear, better rated motor skills, using their self-criticism to achieve significant performance. These people seem not to be afraid of gaining social appreciation.

The self-assessment in the present research was the same for the two groups, while it was lower in men than in women and athletes. Finally, scale reliability was lower in the Greek team, men and athletes. In conclusion, the psychological predisposition of the students and the special preparation before the winter CAMP, by creating the programming of the methodical teaching of the winter CAMP, must be taken into account.

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