

PERSONALITY DIFFERENCES BETWEEN THE PLAYERS REGARDING THE TYPE OF SPORT AND AGE

Viktorija Trninić¹, Marko Trninić¹ and Zvezdan Penezić²

¹Basketball club "Cedevita", Zagreb, Croatia

²University of Zadar, Department of Psychology, Croatia

Original scientific paper

Abstract

Personality psychology focuses on the study of differences and classification of differences and the analysis of the consequences of these differences among people. Research in sport and exercise psychology includes differences in how personality traits are expressed in individual and team sports. Understanding the difference between young and senior athletes in contact ball sports in terms of their personality is important information for expert coaches, scientist- practitioners, and sport psychologists involved in management of the development of athletes and teams. In this study data on athlete's personality was collected via self-assessments. This data provides the basis for answering to proposed research questions dealing with personality differences of athletes which might be related to type of collective ball sport and their age. Sample included 602 athletes from active in one of the three team sports, all training and playing in Croatia. Big Five Inventory - BFI self-report personality questionnaire was used as a measure of personality traits. Results of the two-way ANOVA suggest that football players, handball and water polo players differ significantly in Conscientiousness and Openness. In comparison to young players, senior players show more pronounced Agreeableness and Conscientiousness (ability to control impulses), which facilitates goal and tasks directed behavior. Also, Openness is more pronounced in senior players. These findings suggest a more stable behavior (or its correlates) in senior players during training and competition (more mature, prosocial, flexible, imaginative and creative behavior in athletic environment).

Key words: personality, age, athletes, team sports

Introduction

Research in personality includes studies of basic personality tendencies or abstract psychological potentials and characteristic adaptation. It is important to note that personality traits should be viewed in the context of demands of collective ball sports, the process of preparation and competition. Furthermore, it should be noted that personality traits should not be understood as features directly leading to athlete's peak performance. Five-factor model includes a hierarchical structure with five continuous and bipolar personality dimensions (Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness). There is a consensus among theorists of personality traits about the existence of these dimensions. Numerous studies have been conducted within the framework of trait approach - a dominant approach to the study of personality in contemporary research - to study personality determinants of successful athletes. Results of these studies indicate the importance of Neuroticism (lower results), Extraversion (higher scores) and Conscientiousness (higher results) (Hagberg et al., 1979; Courneya & Hellsten, 1998; Ingledew, Markland, & Sheppard, 2004; Watson & Pulford, 2004; Eagleton, McKelvie, & de Man, 2007; Gallucci, 2008; LeUnes, 2008). In this study data on athlete's personality was collected via self-assessments. This data provides the basis for answering to proposed research questions dealing with personality differences of athletes which might be related to type of collective ball sport, their age. Since our hypothesis is derived from the scientific

problems described in previous section, it will be formulated as plausible explanation to this problem. The hypothesis is based on previous findings about personality, and these differences were based on self-assessment data. According to that we try to answer are *there any personality differences between athletes in different collective ball sports?* Therefore, we formulated a null-hypothesis due to ambiguous empirical findings, and the hypothesis was that there are no differences in personality of athletes in different team sports. Recent findings indicate that athletes in team sports show higher levels of Extraversion and lower levels of Conscientiousness than athletes in individual sports (Eagleton, McKelvie, & de Man, 2007; Nia & Besharat, 2010; Allen, Greenlees, & Jones, 2011).

Methods

Considering the possible differences in the level of expression of certain fundamental personality traits in athletes in a variety of team sports, it is necessary to take into account at least the type of sport and the athletes' age. So, in this study, we have focused on team sports (football, handball and water polo) and age group (youth and senior athletes).

Participants

The initial sample included 630 athletes from active in one of the three team sports, all training and playing in Croatia.

Players who did not fill in the questionnaires as instructed (gave more than one answer on some items, did not respond to a large number of items, gave the same answer to all items) were excluded from the study ($N=28$), so final sample consisted of 602 athletes. The athletes were football, handball and water polo players from 28 clubs (in 14 Croatian counties: $N_{\text{football}} = 176$, $N_{\text{handball}} = 247$, $N_{\text{water polo}} = 179$). Participants were divided into two groups according to their age: 316 young players (age 15-18, $M_{\text{age}} = 16.88$, $SD = .96$) and 286 seniors (age 19-35, $M_{\text{age}} = 24.26$, $SD = 4.11$).

In defining the sample characteristics, we have tried to satisfy the following conditions:

- young players are those from the highest level of national sport leagues, age 15-18
- senior players are those from the first division selections of the highest level in national sports championships (age 19-35)

Measure

A review of the literature shows that the interpretation of findings about personality traits of athletes are primarily based on self-reports. Accordingly, self-report (personality questionnaire) was used in this study.

Big Five Inventory - BFI (Benet-Martinez & John, 1998)

Although other questionnaires have some advantages, Big Five Inventory - BFI (Benet-Martinez & John, 1998) was used to measure dimensions of the Five-factor model of personality. BFI is a 44-items self-assessment inventory measuring Extraversion (8 items), Conscientiousness (9 items), Neuroticism (8 items) and Openness (10 items). Participants use a 5-point Likert type scale (from 1 = strongly disagree to 5 = strongly agree) to assess their agreement with each item. BFI (John et al., 1991) was constructed to allow efficient and flexible assessment of the five dimensions when there is no need for a more differentiated measurement of individual facets. Items were selected from Big Five prototype definitions (John, 1990) that have been developed through expert ratings and subsequent factor analytic verification of observer's ratings.

Results

Between-players differences, depending on the type of sport and age, were analyzed by a two-way ANOVA and post hoc tests (Bonferroni) when necessary.

Table 1. Results of the two-way ANOVA for personality differences depending on the type of sport and age of the players

	Sport				Age groups			Sport × age groups
Personality trait	Football players (<i>N</i> =176)	Handball players (<i>N</i> =247)	Water polo players (<i>N</i> =179)	<i>F</i>	Young players (<i>N</i> =316)	Senior players (<i>N</i> =286)	<i>F</i>	<i>F</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
Extraversion	30.13 (3.44)	30.00 (4.02)	29.82 (3.79)	.18	30.22 (3.77)	29.73 (3.80)	2.68	.67
Agreeableness	33.59 (4.54)	32.83 (4.42)	33.20 (4.47)	1.95	32.69 (4.37)	33.69 (4.54)	10.16**	3.62*
Conscientiousness	29.93 (4.49)	28.54 (4.66)	29.16 (4.36)	6.49**	28.22 (4.27)	30.13 (4.65)	34.76**	6.54**
Neuroticism	19.25 (4.66)	18.63 (4.39)	18.97 (4.51)	1.11	18.83 (4.15)	19.00 (4.87)	.20	1.40
Openness	32.60 (4.87)	33.89 (5.14)	33.67 (5.26)	3.36*	32.81 (5.16)	34.15 (4.99)	9.21**	.10

Legend: M - mean; SD - standard deviation; F - F-test

** $p < .01$; * $p < .05$

No significant differences were found in Extraversion, regardless of the type of sport and age. Also, no significant interaction between type of sport and age was found. A significant difference was found in Agreeableness depending on age ($F = 10.16$; $p = .002$), and no such difference was found for the type of sport. A

iso, a significant interaction of type of sport and age of the players was found (Table 1). Seniors show higher levels of Agreeableness than young players. Specifically, a difference in Agreeableness was found in young water polo players and senior football players, and between young and senior water polo players (Table 2). It seems that young water polo players are a specific group showing lowest levels of Agreeableness.

Table 2. Post-hoc analysis between groups for the variable Agreeableness

	1	2	3	4	5
1 Football young players ($M=32.88$)					
2 Football senior players ($M=34.51$)	.24				
3 Handball young players ($M=32.90$)	1.00	.17			
4 Handball senior players ($M=32.76$)	1.00	.12	1.00		
5 Water polo young players ($M=32.12$)	1.00	.01	1.00	1.00	
6 Water polo senior players ($M=34.14$)	.72	1.00	.55	.38	.04

Also, a significant interaction of the type of sport and age ($F = 3.62$; $p = .027$) was probably due to the difference between football and water polo players. Such interaction was not found in handball players. A significant difference in Conscientiousness was found depending on the type of sport and age (Table 1). Also, a significant interaction of the type of sport and age was found. Highest level of Conscientiousness was found in football players, then water polo players, and lowest scores were found in handball players. In general, Conscientiousness was more pronounced in senior players, except for the handball players - in this group age differences were found (Table 3).

Table 3. Post-hoc analysis between groups for the variable Conscientiousness

	1	2	3	4	5
1 Football young players ($M=28.65$)					
2 Football senior players ($M=31.58$)	.00				
3 Handball young players ($M=28.37$)	1.00	.00			
4 Handball senior players ($M=28.75$)	1.00	.00	1.00		
5 Water polo young players ($M=27.49$)	1.00	.00	1.00	.71	
6 Water polo senior players ($M=30.59$)	.03	1.00	.00	.04	.00

No significant differences in Neuroticism were found, regardless of the type of sport or age. Also, no significant interaction was found (Table 1). A significant difference was found in Openness, depending on the type of sport and age (Table 4). However, no significant difference was found between the type of sport and age. Post-hoc analysis suggested that such results can mainly be attributed to the difference between young football players and senior handball players (Table 4). Highest Openness was found in handball players, and lowest in football players. Also, senior showed marked Openness in comparison to young players, and this trend was evident in all three sports.

Table 4. Post-hoc analysis between groups for the variable Openness

	1	2	3	4	5
1 Football young players ($M=32.09$)					
2 Football senior players ($M=33.25$)	1.00				
3 Handball young players ($M=33.19$)	1.00	1.00			
4 Handball senior players ($M=34.72$)	.00	.75	.28		
5 Water polo young players ($M=33.06$)	1.00	1.00	1.00	.36	
6 Water polo senior players ($M=34.20$)	.06	1.00	1.00	1.00	1.00

Discussion

Based on the cross-sectional research design, i.e. on the basis of group comparison of athletes in different sports (football, handball and water polo) and different age groups (young and senior athletes), we attempted to formulate inferences

about personality differences determined by selection, maturational changes and the impact of environmental factors on athletes. Findings show that football, handball and water polo players do not differ in Extraversion, and there was no difference in Extraversion found between young and senior players. Athletes scoring high on Extraversion usually prefer interactive or team sports (Newcombe & Boyle, 1995). Extraversion summarizes sociability, assertiveness, activity level, energy, dominance and positive emotions. Although Extraversion is „more based on genetic than environmental factors“ (Pederson et al., 1998; according to Reeve, 2008, p. 373), it seems that multi-year participation in team sports promotes facets of Extraversion, especially during the biological development period of childhood and adolescence (change hypothesis). Evidence suggests that social attention is the cardinal feature of Extraversion (Aston, Lee, & Paunonen, 2002). Accordingly, extraverts tend toward group interaction and exhibit more influence on their social environment.

Findings indicate difference in Agreeableness in young and senior collective sport players. Senior players show higher Agreeableness characterized by altruism, trust, cooperativeness, avoidance of conflicts, straightforwardness, modesty and prosocial orientation toward others. This can be relevant for athletes in collective ball sports which demand cooperative behavior. Agreeable players are ready to assist others, avoid conflicts, and tend toward harmonious relations. Also, they are prosocial and empathic, and find enjoyment in helping others (Caprara et al., 2010). Our results indicate the young water polo players in the period of late adolescence (15-18 years) exhibit lowest level of Agreeableness which is characterized by aggressive behavior, provoking of conflicts, antagonistic behavior, uncooperativeness and selfishness. Players low on Agreeableness tend to use their group power to solve conflicts as opposed to Agreeableness athletes whose fundamental aim is harmonious group interaction and cooperative athletic behavior. Lazarević (1981) indicates that senior players, in comparison to young ones, show lower degree of aggressive reactions, while Tušak (1997) argues that aggressiveness in team sport decreases as a function of age.

It is presumed that athletes high on Agreeableness are most amenable to coaching (LeUnes, 2008) especially in interactive sports where cooperative behavior is one of the prerequisites for coordinated and joint action of players and their team in the game. A significant interaction of type of sport and age was found. This interaction was due to the significant age difference in football and water polo players, as opposed to handball players. More specifically, football and water polo players increase in Agreeableness as a function of age, while there is a tendency of a slight decrease in Agreeableness with the increase in age in handball players. Results suggest that the highest level of Conscientiousness is seen in football players (the most professional

sport), followed by water polo players, and the lowest level is found in handball players. This low Conscientiousness in football and water polo players is probably connected to the low task goal orientation found in handball players. They probably start to train later in life than football or water polo players. We can assume, in accordance with our practical experience, that handball players in this sample have the smallest training and competitive age. Therefore, the situational factors (coach's leadership behavior, motivational climate, systematized process of sport preparation) have less possibility of influencing facets or subcomponents of Conscientiousness. It seems that athletes who are high on Conscientiousness and Agreeableness are characterized by ability to control impulses (Benet-Martinez & John, 1998), reliability and will-to-achieve. Conscientiousness is most closely linked to will to achieve (Digman, 1989) and has often been linked to sport performance indicators (Piedmont, Hill, & Blanco, 1999). This factor is associated with sustained effort and goal-setting (Barrick, Mount, & Strauss, 1993; Poropat, 2009).

Expert knowledge and experience of professionals and sport psychologists suggest that successful transition from young players to senior selection is connected with the degree of athlete's maturity, and not just his abilities and skills. For example, successful athletes may differ from less successful ones in terms of their organizational skills (LeUnes, 2008). Furthermore, our findings show a significant difference in Conscientiousness between players in different sport and of different age. A significant interaction is probably due to the age differences of football and water polo players, while no age differences in Conscientiousness were found among handball players. Regarding Neuroticism, our findings suggest no significant differences regarding the type of sport and age. Lazarević (1981) argues that team sport players have more pronounced Emotional stability in the context of sport achievement, in comparison to athletes in individual sport. He further argues that team sport athletes have the opportunity to share the responsibility for the game and its results with their teammates, and this contributes to lower Neuroticism and less anxious responses. Individual sport athletes are highly aware of the fact that the result is mostly due to their actions.

Another possible explanation of no significant differences in Neuroticism, regarding the age and type of sport, is a general tendency of participants to give social desirable answers thus covering negative aspects of their personality. Although research findings show no differences (with regard to sport and age), it is important to point out that „higher levels of Neuroticism were related to lower levels of coachability, athletic ability, game performance, and „team playerness“. Individuals high on Neuroticism have poor coping mechanisms resulting in psychological distress" (Gallucci, 2008, p. 285). Finally, our findings show marked differences in Openness/Intellect, regarding the

type of sport. Handball players score highest, and football players score lowest, which indicates the necessity of taking into account the level of athletes' intellectual interests. It is possible that, in comparison to water polo and football players, shorter training and competition experience (they usually start to train later) have given young handball players more free time in middle childhood and early adolescence enabling them to exhibit more social interests, involvement in various situations, free game, more curiosity, i.e. exploratory behavior. Young football and water polo players have spent more time in organized athletic environment with a reduced space for their interests. Openness is characterized by creativity, originality, flexibility, curiosity, independence in judgments, desire for new knowledge and reflections of own experiences, and a tendency towards variety. Results have also shown that senior players have higher Openness/Intellect than young players. It seems that senior players tend to use their reasoning and rationality which indicates higher levels of maturity. Openness in team sport athletes is related to fantasy and ideas. Also, Openness has been linked to experimentation and liking for novel experiences (Buss, 1993). Larsen and Buss (2008) argue that individuals high in Openness have a "wide open gate" for perception and processing of information from a variety of sources.

Conclusion

In sum, our findings show that football, handball and water polo players show significant differences in Conscientiousness and Openness. Among these group of athletes, football players express highest Conscientiousness and lowest Openness. These results have shown that, in comparison to young players, seniors show higher levels of Agreeableness, Conscientiousness (the ability to control impulses), both of which facilitate task and goal directed behavior. Also, senior players exhibit higher levels of Openness. These findings about senior players suggest more stable and persistent behavior in training and competition (a more mature, prosocial, flexible, imaginative and creative behavior in athletic setting).

These basic personality traits include positive aspects of personality important for increasing positive affects during athlete's career. No difference was found between players with regard to type of sport and age in two basic dimensions of personality: Extraversion (which disposes to experiencing positive emotions and temperamental characteristics typical of approaching behaviors) and Neuroticism (which disposes to experiencing negative emotions and temperamental characteristics typical of avoiding behaviors) (Elliot & Trash, 2002). It is worth mentioning that Extraversion and Neuroticism explain 80% of the variance of general personality factor (Museum, 2007). The analysis of personality differences has shown different developmental trends in Agreeableness and Conscientiousness, regarding

the age and type of sport. Football and water polo players become more agreeable and conscientious as a function of age, while these traits do not change in handball players during development. Although self-reports (of personality traits) provide useful information for personality researchers, sport psychologists, expert coaches and scientist-practitioners, it might be possible that situation-

specific measures (e.g. sport-specific measures) predict athlete's behavior more reliably in achievement context. In this regard, psychologists and kinesiologists should be aware of the various factors that cause the effective performance and sporting outcomes. Personality traits are only one possible set of causes of efficient performance and sports achievement.

References

- Allen, M.S., Greenlees, I., & Jones, M. (2013). Personality in sport: a comprehensive review. *International Review of Sport and Exercise Psychology*, 6(1), 184-208.
- Allen, M.S., Greenlees, I., & Jones, M.V. (2011). An investigation of the five-factor model of personality and coping behaviour in sport. *Journal of Sports Sciences*, 29(8), 841-850.
- Ashton, M.C., Lee, K., & Paunonen, S.V. (2002). What is the central feature of extraversion? Social attention versus reward sensitivity. *Journal of Personality and Social Psychology*, 83, 245-252.
- Barrick, M.R., Mount, M.K., & Strauss, J.P. (1993). Conscientiousness and performance of sales representatives: Test of the mediating effects of goal setting. *Journal of Applied Psychology*, 78, 715-722.
- Benet-Martinez, V. & John, O.P. (1998). Los Cinco Grandes across cultures and ethnic groups: Multitrait multimethod analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology*, 75, 729-750.
- Buss, D.M. (1993). Strategic individual differences: The role of personality in creating and solving adaptive problems. In J. Hettema and I. Deary (Eds.), *Social and biological approaches to personality* (pp.175-189). New York: Wiley.
- Caprara, G.V., Alessandri, G., De Giunta, L., Panerai, L., & Eisenberg, N. (2010). The contribution of agreeableness and self-efficacy beliefs to prosociality. *European Journal of Personality*, 24, 36-55.
- Courneya, K.S. & Hellsten, L.A.M. (1998). Personality correlates of exercise behavior, motives, barriers, and preferences: An application of the five-factor model. *Personality and Individual Differences*, 24, 625-633.
- Digman, J.M. (1989). Five robust trait dimensions: Development, stability, and utility. *Journal of Personality*, 57, 195-214.
- Eagleton, J.R., McKelvie, S.J., & de Man, A. (2007). Extraversion and neuroticism in team sport participants, individual sport participants, and non-participants. *Perceptual and Motor Skills*, 105, 265-275.
- Elliot, A.J., & Thrash, T.M. (2002). Approach-Avoidance Motivation in Personality: Approach and Avoidance Temperaments and Goals. *Journal of Personality and Social Psychology*, 82(5), 804-818.
- Gallucci, N.T. (2008). *Sport Psychology: Performance Enhancement, Performance Inhibition, Individuals, and Teams*. New York: Psychology Press.
- Hagberg, J.M., Mullin, J.P., Bahrke, M., & Limburg, J. (1979). Physiological profiles and selected psychological characteristics of national class American cyclists. *Journal of Sports Medicine and Physical Fitness*, 19, 341-346.
- Ingledew, D.K., Markland, D., & Sheppard, K.E. (2004). Personality and self-determination of exercise behaviour. *Personality and Individual Differences*, 36(8), 1921-1932.
- John, O.P. (1990). The „Big Five“ factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L.A. Pervin (Ed.), *Handbook of personality: Theory and research* (pp.66-100). New York: Guilford Press.
- Kirkcaldy, B.D. (1982a). Personality profiles at various levels of athletic participation. *Personality and Individual Differences*, 3, 321-326.
- Larsen, R.J. & Buss, D.M. (2008). *Psihologija ličnosti: Područja znanja o ljudskoj prirodi* [Personality Psychology: Domains of Knowledge About Human Nature. In Croatian.]. Jastrebarsko: Naklada Slap.
- Lazarević, Lj. (1981). *Struktura motivacije kod sportista*. [Motivation structure in athletes. In Serbian.]. Unpublished doctoral dissertation. Beograd: University of Beograd.
- Le Unes, A. (2008). *Sport Psychology* (4th ed.) New York: Psychology Press.
- Musek, J. (2007). A general factor of personality: Evidence for the big one in the five-factor model. *Journal of Research in Personality*, 41(6), 1213-1233.
- Newcombe, P.A. & Boyle, G. (1995). High school students' sports personalities: Variations across participation level, gender, type of sport, and success. *International Journal of Sport Psychology*, 26(3), 277-294.
- Nia, M.E. & Besharat, M.A. (2010). Comparison of athletes' personality characteristics in individual and team sports. *Procedia Social and Behavioral Sciences*, 5, 808-812.
- Piedmont, R.L., Hill D.C., & Bianco, S. (1999). Predicting athletic performance using the five-factor model of personality. *Personality and Individual Differences*, 27(4), 769-777.
- Poropat, A.E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin*, 135(2), 322-338.
- Reeve, J.M. (2008). *Understanding motivation and emotion* (6th ed.). New York: John Wiley & Sons, Inc.
- Tušak, M. (1997). *Razvoj motivacijskega sistema v športu* [The development of motivational system in sport. In Slovene.]. Unpublished doctoral dissertation. Ljubljana: University of Ljubljana.
- Watson, A.E. & Pulford, B.D. (2004). Personality differences in high risk sports amateurs and instructors. *Perceptual and Motor Skills*, 99, 83-94.

RAZLIKE U LIČNOSTI IZMEĐU IGRAČA OBZIROM NA VRSTU SPORTA I DOB

Sažetak

Psihologija ličnosti usmjerena je na istraživanje i klasifikaciju razlika te analizu posljedica tih razlika među pojedincima. Istraživanja u psihologiji sporta i vježbanja provjeravaju razlike u načinu na koji se osobine ličnosti izražavaju u individualnim i timskim sportovima. Razumijevanje razlika između mladih i seniorskih sportaša u kontaktnim kolektivnim sportskim igrama s loptom s obzirom na značajke ličnosti važna je informacija za trenere, znanstvenike-praktičare i sportske psihologe uključene u upravljanje razvojem sportaša i ekipa. U ovom istraživanju, podaci o ličnosti sportaša prikupljeni su pomoću samoprocjene. Ovi podaci pružaju osnovu za odgovor na postavljena pitanja istraživanja koja se tiču razlika o ličnosti sportaša, a koje mogu biti povezane s vrstom kolektivne sportske igre i dobi sportaša. Uzorak uključuje 602 sportaša koji treniraju i igraju u Hrvatskoj. aaktivni su u jednom od tri timska sporta. Upitnik za mjerenje „Velikih pet“ faktora ličnosti korišten je kao mjera temeljnih osobina ličnosti. Rezultati dvosmjerne analize varijance upućuju da se nogometaši, rukometaši i vaterpolisti značajno razlikuju u osobinama Savjesnost i Otvorenost. U usporedbi s mlađim, seniorski igrači pokazuju izraženiju Ugodnost i Savjesnost (sposobnost kontrole impulsa) što facilitira ponašanje usmjereno prema cilju i zadatku. Isto tako, Otvorenost je izraženija kod seniorskih igrača. Ovi nalazi upućuju na stabilnije ponašanje (ili njihove korelate) kod seniorskih igrača tijekom treninga i natjecanja (zrelije, prosocijalno, fleksibilno, maštovito i kreativno ponašanje) u sportskom okruženju.

Ključne riječi: ličnost, dob, sportaši, ekipni sportovi

Received: July 28, 2016
Accepted: December 15, 2016
Correspondence to:
Viktorija Trninić
Basketball club "Cedevita"
Avenija Dubrovnik 15/26
10 000 Zagreb, Croatia
Tel: +385 1 34 91 144
Fax: + 385 1 34 90 937
E-mail: kkcedevita@kkcedevita.hr