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SOME BASKETBALL SKILLS OF PLAYERS AGES 12, 13 AND 14 FROM THREE GENERATIONS

KOŠARKARSKE SPRETNOSTI 12, 13 IN 14 LET STARIH IGRALCEV TREH GENERACIJ

ABSTRACT

The main goal of this research was to evaluate the basic technical skills with the ball of young basketball players aged 12 to 14 from three different generations, as well as to compare basketball players of the same age from three different generations. A sample of 90 young basketball players, participants of the Development Training Centre of the Basketball Association of Serbia, were selected from three different generations (three groups): born in 1989, 1992 and 1995. Also, three groups of the same age were created, from all three generations (born in 1989, 1992 and 1995): ages 12, 13 and 14. Basketball skills with the ball were tested with three tests that assessed: dribbling speed and control, shooting accuracy, and passing accuracy and speed. Body height and body mass were also measured. Basic descriptive statistics were used in data processing. ANOVA and Bonferroni Post Hoc Test, as integral part of ANOVA, were used for comparison. Respondents are taller and heavier than their peers and score well on tests of ball basketball skills compared to AAHPERD norms. When comparing players within a generation, it can be concluded that there is a trend of progress, especially in body height and body mass, but also in the area of technical skills with a ball, with the exception of certain deviations in the variable of shooting. Players of the same age from different generations are approximately the same body height (12 years old - M=168.83cm; 13 years old - M=176.7cm; 14 years old - M=184.45cm) and body mass (12 years old - M=53.3kg; 13 years old - M=60.8kg; 14 years old - M=69.13kg). In the area of basketball skills, there are differences in almost all three technical skills (Sig. = 0.000 – 0.049), with a few exceptions (shooting and passing, Sig. = 0.053 – 0.931).

Keywords: youth, basketball skills, growing up, comparison

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IZVLEČEK

Glavni cilj raziskave je bil ovrednotiti osnovno tehnično znanje z žogo mladih košarkarjev, starih od 12 do 14 let, ter primerjati košarkarje iste starosti iz treh različnih generacij. V vzorec 90 mladih košarkarjev, udeležencev Razvojno trenažnega centra Košarkarske zveze Srbije, smo izbrali tri različne generacije (skupine): igralce rojene leta 1989, 1992 in 1995. Oblikovane so bile tudi tri enako stare skupine iz vseh treh generacij: 12, 13 in 14 let. Košarkarske spretnosti z žogo smo preverjali s tremi testi, ki so ocenjevali: hitrost in kontrolo vodenja, natančnost pri metu ter natančnost in hitrost podajanja. Izmerili so tudi telesno višino in maso. Pri obdelavi podatkov je bila uporabljena osnovna deskriptivna statistika, za primerjavo med skupinami pa ANOVA in Bonferroni Post Hoc test. Izbrani igralci so višji in težji od svojih vrstnikov in dosegajo dobre rezultate na testih košarkarskih veščin v primerjavi z normami AAHPERD. Če primerjamo igralce znotraj generacije, lahko sklepamo, da obstaja trend napredka predvsem v telesni višini (12-letniki M=168.83cm; 13-letniki M=176.7cm; 14-letniki M=184.45cm) in telesni masi (12-letniki M=53.3kg; 13-letniki M=60.8kg; 14-letniki M=69.13kg). Prav tako obstaja trend v tehničnih spretnostih z žogo, z izjemo določenih odstopanj pri variabilnosti metov. Igralci iste starosti iz različnih generacij imajo približno enako telesno višino in telesno maso. Na področju košarkarskih veščin so razlike v skoraj vseh treh tehničnih veščinah (Sig. = 0.000 – 0.049), z nekaj izjemami (met in podaja, Sig. = 0.053 – 0.931).

Ključne besede: mladost, košarkarsko znanje, odraščanje, primerjava

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https://doi.org/10.52165/kinsi.30.3.63-81

INTRODUCTION

The popularity of basketball is indisputable on a planetary level, which is largely due to great players who appeared in all eras of basketball's development. At the national level, basketball's popularity also comes from top players. Almost everything is known about these top players, but little is known about the characteristics and basketball technical skills they possessed in childhood, in the period when they started playing basketball. In the scientific literature we can find a lot of studies dealing with technical skills of young basketball players, even at age of 14 or less (Coelho et al., 2008; Karalejić & Jakovljević, 2009; Marić et al., 2013; Abd Al Jabbar, 2015; Kong et al., 2015; Kumaran & Mahaboobjan, 2018). To assess technical skills the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) test battery is offten used (Jakovljević et al., 2015; Guimarães et al. 2012). These studies often deal with talented players, but we don't know how they develop their talent (if they latter become elite or professional players). In the scientific literature we couldn't find any study that provide us such a data.

Basketball abounds in simple and complex movements in conditions of cooperation among team members. It sets complex tasks before the players, which are basically a combination of individual abilities and skills, team play, tactical and motivational characteristics (Trninic & Dizdar, 2000). Technical and tactical elements make basketball unique. The quality and efficiency of the performance of these elements largely determine the success of the players and the team. That is why the training of these skills occupies the most prominent place in the training/preparation of players and teams. Basketball technique implies basketball specific and stylized movements with which the player solves certain situations in the game (Karalejić & Jakovljević, 2022).

The most attractive actions are usually the result of unusual, unexpected and effective "moves" of the player. However, at the basis of such "moves" are very well mastered and perfected basic technical skills. Karalejić and Jakovljević (2022) define basketball technique as the rational and efficient execution of certain movements, without and with the ball, which are in the domain of the rules of the game, and whose goal is to solve tactical tasks (situations) in the basketball game. It is important to note that the application of the technique in the game and its effectiveness depends on the individual tactics of the basketball player. A basketball player must recognize the game situation and choose the best solution. In the systematization of basketball technique, there were several approaches, in relation to the breadth of the

systematization (Karalejić & Jakovljević, 2022; Scoot, 1989) and the aspect from which the technique is viewed (Fontanella, 2006). Basketball technique is very rich and varied, but it is often reduced to: movement with the ball (dribbling), movement without the ball (in offense and defense), shooting, passing, jumping, control of the ball in place, control of dribbling in place (Karalejić & Jakovljević, 2007; Hopkins, 1976; AAHPERD, 1984).

There is not much research available on the technical skills of young basketball players, especially of 12 to 14 years old. The available research is very often descriptive (Apostolidis et al., 2004; Balčiunas et al., 2006), or examine the relationship between technical skills and certain abilities and characteristics of young players (Tang & Shung, 2005; Coelho et al., 2008; Kilinc et al., 2017; Pojskić et al., 2014; França et al., 2021), and also, examine biomechanical parameters of shooting and passing (Podmenik et al., 2015).

Training of coordination and special technical skills at age from 12 to 14 is very important in different sports (Ford et al. 2011; Balyi, 2010; Balyi et al., 2014), but also in basketball (Marić et al., 2013; Canadian Basketball Association, 2008). The reasons for this can be found in the fact that serious basketball training usually begins around the age of 12, and it is known that around the age of 14 there is a sudden growth in height (Peak Height Velocity), as well as an increase in certain motor skills (Malina et al., 2004). It is also very important because of very significant impact on motor learning and special skills development at this age (Škof, 2007).

In order for a coach to be successful, it is necessary to control the training effects. In this sense, it is necessary to have ways to register these effects. Skill tests are used for this purpose. In basketball research and training practice, a large number of different tests are used, but there is a relatively small number of standardized tests. The battery of tests proposed by the American Alliance for Health, Physical Education, Recreation and Dance - AAHPERD (1984) is widely used in research.

The main goal of this research was to evaluate and compare the basic technical skills with the ball of young basketball players ages 12, 13 and 14 from three different generations, as well as to compare basketball players of the same age from three different generations. The assumption is that in all three generations, 14-year-olds will achieve better results in all three tests of technical skills with the ball, and that there will be no differences in the test results between players of the same age from three different generations.

METHODS

This research is the result of the "ACE do 2004" (AS do 2004) project of the Basketball Federation of Serbia (KSS), within which the Development Training Centre (RTC) was founded in 1997. Until today, for 26 years, this centre has been gathering the most talented young basketball players in Serbia ages 12 to 14, chosen by experts from the national federation. RTC aims to identify talents in a concentrated training process through basketball training, motor tests, anthropometric measurements, health examinations and determine the player's perspective for top results and direct them towards proper development.

Participants

All respondents (N=89) attended the RTC for three years in a row at different times. They were divided into three groups: players born in 1989 (N=22) who were in RTC 2011, 2012, and 2013; players born in 1992 who were in RTC 2014, 2015 and 2016 (N=31); and players born in 1995 (N=36), who were in RTC 2017, 2018 and 2019. Within each group (generation) there are three subgroups in relation to the age at a particular time: 12, 13 and 14 years old. Also, three groups of the same age were created, from all three generations (born in 1989, 1992 and 1995): ages 12, 13 and 14. The data comes from nine different years. The idea is to present their basic anthropometric characteristics and technical skills with the ball, given that among the respondents there is a large number of those who later became professional basketball players at the club level, as well as members of the national teams of Serbia. Forty-nine players from these three-generation played in U16, U17, U18, U19 and U20 national teams of Serbia (almost all of them later became professional basketball players) and twelve players played in senior national teams of Serbia. At the last basketball World Championship (Manila 2023) in the basketball team of Serbia, which won the silver medal, there were five players who participated in this study (one of them born in 1992 and four of them born in 1995).

All subjects voluntarily participated in the testing, with the consent of their parents. The tests were conducted according to all ethical norms and under the supervision of experts from the Serbian Basketball Association and the Faculty of Sports and Physical Education of the University of Belgrade.

Anthropometry

The variables of the morphological status of the subjects, body height and body mass, were obtained by standard measurement procedures. Body height was measured with a stadiometer

(Seca 220, UK) with a sensitivity of 0.1 cm, and body mass was measured with a portable scale (Tanita BF683W, GER) with a sensitivity of 0.1 kg.

Special basketball skills

The variables of special technical basketball skills (skills with the ball) were obtained by applying three tests from the aforementioned battery of tests proposed by the American Alliance for Health, Physical Education, Recreation and Dance – AAHPERD (1984).

In the speed spot shooting test (Figure 1), which lasts 60 seconds, the subject starts the task from one of the marked points at a distance of 3.65 m. At the signal, the subject shoots, goes to get the ball and dribbles to another point from which he shoots again. The participant performs a jump shot and four lay-up shots, but not two in a row. The test taker must first make at least one shot from each point; a hit from the first shot is scored with two points, and after a missed first shot, the hit is worth one point. The task is performed three times, the first is trial, and the second two are scored; the end result is the sum of the points from the two attempts.

The control dribble test sets the task before the participants to dribble through the polygon shown in Figure 2 in the shortest possible time. The participant starts from the side of the "weaker hand", at cone A, and at the signal of the timekeeper dribbles always with the hand farthest from the cone along the path shown in Figure 2. The participant has one trial attempt, and then performs the task two more times, and the final result (expressed in seconds) is the sum of the times achieved in these two attempts.

The passing test, which lasts 30 seconds, is shown in Figure 3 (the distances in the figure are given in centimeters). The subject with the ball stands in front of target A behind the line and passes from the chest to target A, catches the ball that bounces off the wall, moves laterally towards target B and passes it and continues in the same way to target F, to which he makes two passes and goes back targeting targets E, D, C... all the way to A to which he now makes two passes, and then again. Two points are scored for a hit on the target or in the frame of the target, and one point for a hit outside the target. The first attempt is a trail, and the other two are scored; the result is the sum of the points from the last two attempts.

The tests were conducted in cooperation with the Department of Basketball from the University of Belgrade, Faculty of Sports and Physical Education in Belgrade.

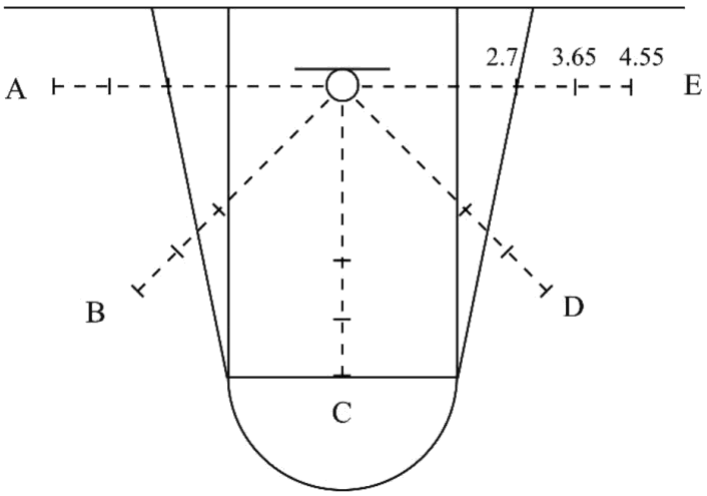

Figure 1. Speed spot shooting test.

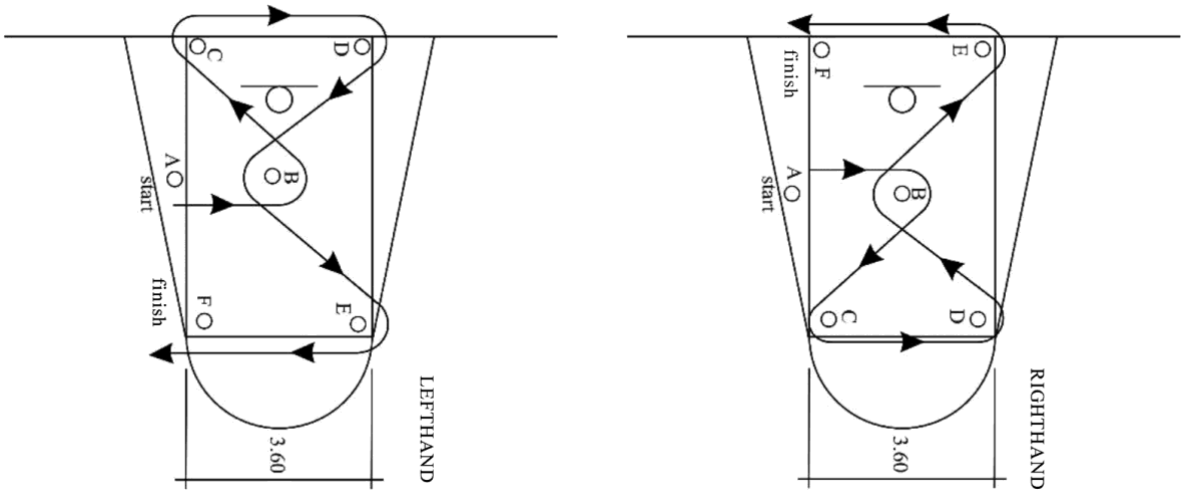

Figure 2. Control dribble test.

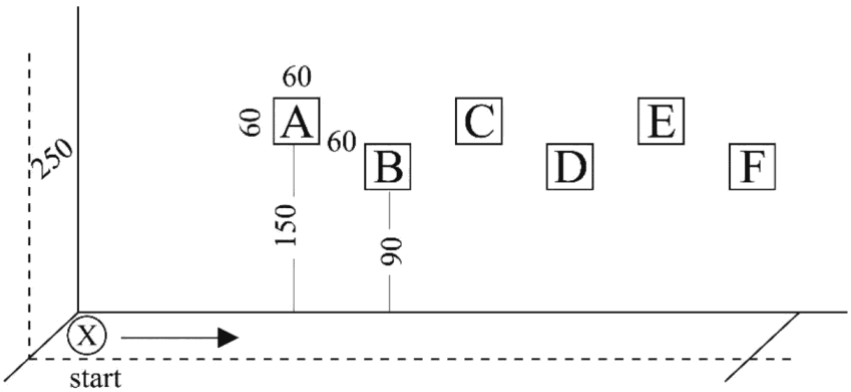

Figure 3. Passing test.

Statistical analysis

Normality of data distribution and homogeneity of variances were verified before further analysis. The data was processed with basic descriptive statistics and the following were calculated: arithmetic mean (M), standard deviation (SD), minimum (MIN) and maximum (MAX) values for all distributions. Differences between subsamples were assessed using analysis of variance (ANOVA) and Bonferroni Post Hoc test. The data was processed in the statistical program SPSS 20.

RESULTS

Comparison of players within a generation

As expected, there were significant differences in body height and body mass between subjects when they were of different ages in all three generations (born 1989, 1992 and 1995). The respondents were significantly taller and heavier from year to year.

Table 1 shows the values of descriptive statistics and ANOVA (F and Sig.) parameters of basketball technique tests for generations of players born in 1989, which they achieved in the periods when they were 12, 13 and 14 years old. Based on these values, the studied groups differ significantly in all variables.

Table 1. Descriptive statistics, ANOVA (F and Sig.) and Post-Hoc test (Differences in M and Sig.), respondents born in 1989.

Variable	Age	M±SD	Min.	Max.	F	Sig.	Groups	Diff. in M	Sig.
Speed spot shooting (point)	12	39.31±8.32	27.00	56.00	11.77	.000	12 - 13	8.36	.000
	13	30.95±5.33	24.00	46.00			12 - 14	8.14	.000
	14	31.18±5.43	18.00	40.00			13 - 14	**-.23**	**.908**
Control dribble (sec)	12	22.52±1.52	19.92	25.74	136.23	.000	12 - 13	3.57	.000
	13	18.95±2.06	14.46	22.20			12 - 14	7.97	.000
	14	14.55±1.05	12.72	17.40			13 - 14	4.40	.000
Passing (point)	12	65.33±6.44	54.67	82.67	100.46	.000	12 - 13	-26,18	.000
	13	91.51±9.50	76.67	108.67			12 - 14	-36.33	.000
	14	101.67±9.95	72.00	116.67			13 - 14	-10,15	.000

Table 1 also shows the results of the post-hoc test, which was used to obtain specific differences between the groups. In the skill of shooting, participants, at the age of 12, achieved better results than when they were older, while there is no significant difference in that skill when they were 13 and 14 years old. In dribbling and passing skills, they achieved significantly better results the older they were.

And the 1992 generation (when they were 12, 13 and 14 years old) progressed from year to year. Differences can be observed in all basketball variables between different ages. Table 2 also shows the results of the post-hoc test. The respondents, from year to year, were better in technical skills, with no significant difference in shooting skills between the scores they achieved as 12- and 13-year-olds, and in passing skills as 13- and 14-year-olds.

Table 2. Descriptive statistics, ANOVA (F and Sig.) and Post-Hoc test (Differences in M and Sig.), respondents born in 1992.

Variable	Age	M±SD	Min.	Max.	F	Sig.	Groups	Diff. in M	Sig.
Speed spot shooting (point)	12	29.32±5.14	20.00	41.00	209.65	.000	12 - 13	**2.35**	**.064**
	13	31.68±4.97	24.00	43.00			12 - 14	-5.19	.000
	14	34.51±4.68	25.00	43.00			13 - 14	-2.84	.026
Control dribble (sec)	12	18.61±1.26	16.80	22.04	21.99	.000	12 - 13	1.13	.000
	13	17.49±1.05	15.80	19.40			12 - 14	1.82	.000
	14	16.80±0.92	14.70	18.10			13 - 14	0.69	.014
Passing (point)	12	100.56±11.20	76.00	121.33	22.86	.000	12 - 13	-18,43	.000
	13	118.99±16.81	77.33	157.33			12 - 14	-22,99	.000
	14	123.55±13.94	93.33	150.67			13 - 14	**-4.56**	**.209**

Like the previous two, the 1995 generation (when they were 12, 13 and 14 years old) progressed from year to year. Differences can be observed in all variables between different ages (Table 3). Shooting, dribbling and passing skills were improved. Table 3 also shows the results of the post-hoc test, which was used to obtain specific differences between the groups. The trend is the same as with the previous generation - year after year, the older respondents had better results in almost all three technical skills. But there was no significant difference in shooting and passing skills between the results they achieved as 13- and 14-year-olds.

Table 3. Descriptive statistics, ANOVA (F and Sig.) and Post-Hoc test (Differences in M and Sig.), respondents born in 1995.

Variable	Age	M±SD	Min.	Max.	F	Sig.	Groups	Diff. in M	Sig.
Speed spot shooting (point)	12	33.75±5.66	19.00	43.00	8.03	.001	12 - 13	-5.17	.001
	13	38.92±6.63	21.00	55.00			12 - 14	-5.28	.001
	14	39.03±6.81	16.00	53.00			13 - 14	**-0.11**	**.941**
Control dribble (sec)	12	18.59±1.52	16.01	21.62	47.65	.000	12 - 13	1.62	.000
	13	16.96±1.11	15.07	20.09			12 - 14	2.81	.000
	14	15.77±0.99	14.00	18.71			13 - 14	1.189	.000
Passing (point)	12	48.92±10.82	37.00	96.00	312.61	.000	12 - 13	-53.58	.000
	13	102.50±13.81	65.00	129.00			12 - 14	-61.50	.000
	14	110.42±8.89	90.00	127.00			13 - 14	**-7.92**	**.209**

Comparison of players of the same age from different generations

Table 4 shows the results of descriptive statistics and ANOVA (F and Sig.) of 12-year-olds, members of different generations (born in 1989, 1992 and 1995). The table shows that the Body height and Body mass variables of different generations have very similar values, with the respondents born in 1989 having the highest values. In the technical skills variables, those values are different. Respondents differ in all variables of technical skills. Thus, respondents born in 1989 achieved the best results in the shooting test, while respondents born in 1992 achieved the lowest results. Only, in the skill of dribbling control, it was shown that there is no significant difference between players born in 1992 and 1995.

Table 4. Descriptive statistics, ANOVA (F and Sig.) and Post-Hoc test (Differences in M and Sig.), 12-year-old respondents born in 1989, 1992 and 1995.

Variable	Year	M±SD	Min.	Max.	F	Sig.	Groups	Diff. in M	Sig.
Body high (cm)	1989	172.09±8.46	153.00	183.00					
	1992	167.42±8.05	151.00	181.50	1.61	.143	/	/	/
	1995	167.07±8.44	145.00	183.00					
Body mass (kg)	1989	56.20±12.57	39.00	89.50					
	1992	51.61±9.46	34.00	77.00	0.98	.441	/	/	/
	1995	52.08±11.49	34.00	94.00					
Speed spot shooting	1989	39.31±8.33	27.00	56.00			1989-1992	4.67	.049
(point)	1992	29.32±5.15	20.00	41.00	42.78	.000	1989-1995	5.02	.029
	1995	33.50±5.53	19.00	43.00			1992-1995	-4.17	.010
Control dribble	1989	22.52±1.53	19.92	25.74			1989-1992	3.91	.000
(sec)	1992	18.61±1.26	16.80	22.04	55.70	.000	1989-1995	3.93	.000
	1995	18.58±1.53	16.01	21.62			1992-1995	.020	**.931**
Passing (point)	1989	65.33±6.44	54.67	82.67			1989-1992	-35.22	.000
	1992	100.56±11.20	76.00	121.33	171.82	.000	1989-1995	16.05	.000
	1995	49.27±12.33	37.00	106.00			1992-1995	51.21	.000

The results of descriptive and comparative statistics of 13-year-olds belonging to different generations (born in 1989, 1992 and 1995) are shown in table 5. The results are very similar to those of 12-year-olds when it comes to the variables Body height and Body mass. In the variables of basketball technical skills, respondents who were born later achieved better results, except for the skill of passing, where those born in 1992 had better results than those born in 1995.

Table 5. Descriptive statistics, ANOVA (F and Sig.) and Post-Hoc test (Differences in M and Sig.) 13-year-old respondents born in 1989, 1992 and 1995.

Variable	Year	M±SD	Min.	Max.	F	Sig.	Groups	Diff. in M	Sig.
Body high(cm)	1989	178.50±8.66	157.00	189.00					
	1992	176.53±7.24	160.00	189.00	1.61	.145	/	/	/
	1995	175.08±8.40	153.00	191.00					
Body mass (kg)	1989	63.23±12.61	41.00	94.00					
	1992	59.82±9.30	45.00	87.00	1.11	.352	/	/	/
	1995	59.33±11.30	41.00	95.00					
Speed spot shooting	1989	30.95±5.33	24.00	46.00			1989-1992	-.82	**.643**
(point)	1992	31.77±5.03	24.00	43.00	16.29	.000	1989-1995	-7.96	.000
	1995	38.92±6.63	21.00	55.00			1992-1995	-7.14	.000
Control dribble	1989	18.95±2.07	14.46	22.20			1989-1992	1.402	.000
(sec)	1992	17.55±1.03	15.80	19.40	23.96	.000	1989-1995	1.964	.000
	1995	16.98±1.09	15.07	20.09			1992-1995	.562	**.053**
Passing (point)	1989	90.30±8.92	72.00	108.67			1989-1992	-28.51	.000
	1992	118.82±16.71	77.33	157.33	20.19	.000	1989-1995	-12.25	.001
	1995	102.56±13.74	65.00	129.00			1992-1995	16.26	.000

Table 6 shows the results of descriptive and comparative statistics of 14-year-old members of the generations born in 1989, 1992 and 1995. The table shows that in the Body height and Body mass variables, respondents born in 1989 have the highest values. In the skill of shooting, the best results were achieved by respondents born in 1995, while in the skills of dribbling and passing, the best results were achieved by those born in 1992. Unlike the previous two generations of respondents, here a difference in body height appeared. In all variables of technical skills, respondents differ, except respondents born in 1989 and 1992 do not differ in shooting skills.

Table 6. Descriptive statistics, ANOVA (F and Sig.) and Post-Hoc test (Difference in M and Sig.) 14-year-old respondents born in 1989, 1992 and 1995.

Variable	Year	M±SD	Min.	Max.	F	Sig.	Groups	Diff. in M	Sig.
Body high(cm)	1989	186.91±8.32	163.00	187.00			1989-1992	1.86	**.423**
	1992	185.05±6.21	173.00	195.00	2.22	.042	1989-1995	5.52	.015
	1995	181.39±8.36	158.00	195.00			1992-1995	3.66	.014
Body mass (kg)	1989	72.40±14.54	46.00	110.00					
	1992	67.83±9.06	53.00	85.00	0.68	.666	/	/	/
	1995	67.19±11.73	46.00	104.00					
Speed spot shooting	1989	31.18±5.43	18.00	40.00			1989-1992	-3.33	**.059**
(point)	1992	34.52±4.68	25.00	43.00	35.08	.000	1989-1995	-7.90	.000
	1995	39.08±6.80	16.00	53.00			1992-1995	-4.57	.003
Control dribble	1989	14.55±1.06	12.72	17.40			1989-1992	-2.24	.000
(sec)	1992	16.80±0.93	14.70	18.10	16.23	.000	1989-1995	-1.22	.000
	1995	15.77±0.98	14.00	18.71			1992-1995	1.03	.000
Passing (point)	1989	102.88±9.00	76.67	116.67			1989-1992	-20.67	.000
	1992	123.55±13.94	93.33	150.67	18.15	.000	1989-1995	-7.65	.010
	1995	110.53±8.89	90.00	127.00			1992-1995	13.02	.000

DISCUSSION

Based on the results of descriptive statistics, the respondents are taller and heavier than their peers (Malina et al., 2004). This is expected considering that they were carefully selected by experts. When it comes to body height, the subjects of all three groups are between the 90th and 95th percentiles compared to the American population (Malina et al., 2004). On the other hand, when it comes to body mass, they are between the 70th and 75th percentile. Similar results are reported by Karalejic et al. (2011). These data on body height and mass (along with minimum and maximum values) can be included in databases as a representative part of the morphological status of elite young basketball players.

The respondents achieved very good results in the basketball technical skills tests, especially in the shooting test. Thus, 12- and 13-year-olds scored at the 99th percentile compared to AAHPERD norms (AAHPERD, 1984), while 14-year-olds scored at the 95th percentile. The results they achieved in the dribbling control test are between the 85th and 90th percentile for all three groups of respondents, while in the passing test the 12-year-olds achieved slightly lower results and are at the 65th percentile, and the respondents from the other two groups are at the 95th percentile. Similar results were obtained in other studies (Karalejic et al., 2011).

Such good results, especially in the tests of shooting, dribbling control and passing, can be explained by the way young basketball players are trained in Serbia. Namely, the training methodology and the very approach in the training of basketball players of this age largely favors practicing with the ball. Building good technique, especially with the ball, is one of the most important goals in general, in training with young basketball players. This means that these technical elements are repeated a large number of times. The regularity of the performance is emphasized, which means that necessary corrections are made.

And these data can be included in databases as a representative (norms) of the level of technical skills of elite basketball players aged 12 to 14 years.

Comparison of players within a generation

In the generation of 1989, the players were taller and heavier year after year, and also, these players, in most cases, achieved, year after year, better results in technical skills tests (Table 1). Only the test subjects, as 12-year-olds, achieved the best results in the shooting skill, and this is something that can be surprising. It could be expected that as 13- and 14-year-olds, they would achieve better results in the shooting test, because then they were taller and heavier. In addition, older respondents usually have better and certain motor skills, primarily in terms of strength (Jakovljević & Janković, 2007). However, shooting is an element of technique that primarily requires skill, that is, fine coordination and motor skills, and often not force. This is especially evident in the applied test, where shots were taken from close distances from the basket. Also, shooting technique changes at older ages in an attempt to reach conventional shooting technique. This, first of all, refers to raising the ball to a higher level before shooting, which can disrupt the existing coordination and rhythm of the shot. 12-year-old players in this generation were probably still at the beginning level of learning to shoot, which means that they have been shooting the same way for a number of years. Another problem can be, first of all, with 14-year-olds, the effort to perform a proper jump shot, while the younger ones still shoot

the so-called, shot-jump or impulse shot. It takes more time to stabilize the shooting technique through training, because by then the children have built a relatively stable motor stereotype of shooting. At the age of 14, that stereotype needs to be reorganized, and this increases the psycho-motor requirements during training. The results of the Post Hoc test show that significant differences do not exist in two cases: in the first two years (12- and 13-years-old) in body mass and in the last two years (13 and 14 years old) in the shooting variable. The absence of differences in body mass is probably accidental, while in the shooting variable it can be explained by the very similar motor skills of boys aged 13 and 14 (Jakovljević & Janković, 2007).

Respondents born in 1992 also showed, from year to year, better results in all variables (Table 2). The differences between the results in these three years are significant, except that there are no significant differences in the first two years in the shooting test and the last two years in the passing test, which was not the case for players born in 1989. The absence of differences in the shooting test can be interpreted in the way that 13-years-old players still use their own shooting technique without trying to approach the conventional jump shot technique, which contributed to better accuracy, while the absence of differences in the passing test could again be explained by the similar motor skills of these two ages (Jakovljević & Janković, 2007).

Respondents born in 1995 showed, from year to year, better results in all variables (Table 3). The differences between the results achieved during the three years are significant, except for the shooting variable in the last two years. This could be explained by approximately the same abilities of explosive strength and agility in players of these two ages (Jakovljević & Janković, 2007).

Considering these results, it can be said that there is a trend of progress, especially in the body height and body mass variables. In the area of technical skills with the ball, deviations from year-to-year progress were obtained in the shooting variable. The very act of shooting represents an element of basketball technique in which skill is the most required, and in these test conditions, certain motor abilities such as strength, speed and others are less important. During the execution of the test, the shots are performed in standard conditions, without interference, where each participant decides for himself the way of execution of the shots within the test procedure. This, on the other hand, also brings greater variability of results, so it happened in two generations that the respondents achieved the best results as 12-year-olds. The

change in shooting technique and the biological maturity status of the respondents additionally explain this.

Comparison of players of the same age from different generations

Respondents aged 12, members of different generations, are approximately the same height and weight, which is expected (Table 4). There are no differences between generations, although it can be noted that those born in 1989 were slightly taller and heavier than the other two generations. There are differences in basketball technical skills variables, but not systemic. For example, those born in 1989 were the best in the shooting test and those born in 1992 in the passing test, but in the control dribble test there were no differences between those born in 1992 and 1995.

The results obtained from subjects aged 13, members of three different generations (Table 5) show that a certain regularity can be observed in the results of the technical skills tests. Namely, as a rule, 13-year-olds born later achieve better results than those born earlier, except in the passing test, where the best were those born in 1992. In the control dribbling test, no differences were shown between those born in 1992 and 1995, while in the shooting test there were no differences between the generations of 1989 and 1992.

In contrast to the previous results, when comparing the results between respondents aged 14 years, members of three generations, a significant difference in body height was obtained (F=2.22 and Sig.=.042), while the differences are present in the tests of technical skills (Table 6). In the shooting test, those born later achieved better results, while in the dribbling test, those born in 1989 were the best, and in the passing test, those born in 1992. Players born in 1989 and 1992 did not differ in body height, nor in the shooting test.

Based on these indicators, generations of young basketball players develop according to their specific dynamics. This, first of all, refers to their biological status (maturity), and it is advisable to include that variable in future similar research. This is especially evident in 14-year-olds, where a difference in body height between generations has appeared. It is likely that some generations at that age had a greater (faster) increase in height compared to others, since it is normally an age in which a sudden increase in body height occurs, which is often used as an indicator of biological maturity (Malina, 1994).

This state can be influenced by the selection of players. On the one hand, the so-called primary selection introduces children to basketball in general, and then at the next level of selection

players with better potential are selected. In the case of primary selection, the interest and motivation of children in playing basketball has a great influence, which is usually directly related to the success of the clubs and the national team. Therefore, it is quite possible that in certain periods there was simply less interest among children in playing basketball. Because of that, in the next level of selection, children with weaker basketball potential appear.

The quality of the training process can also affect this state. The following factors can be singled out: children's approach to basketball training, motivation for persistent and systematic training, training conditions in clubs and the quality of professional work, i.e., its orientation. Very often, the training of young basketball players is dominated by the training of skills (technical and tactical), while the development of basic motor abilities, which are the basis of technical skills, is neglected (Karalejić & Jakovljević, 2009). Regarding the training process, the amount of training work is also important, both organized training in clubs and those basketball activities that children carry out outside of organized training. Namely, in the development of basketball skills, regular organized trainings often cannot provide enough stimulating training loads, and children's free basketball activities (play and practice outside of training) can contribute to their stability and progress.

CONCLUSION

Based on the results of descriptive statistics, it can be concluded that the respondents are taller and heavier than their peers, which is expected considering that they were carefully selected by experts. Respondents scored highly on tests of basketball technical skills compared to AAHPERD norms (AAHPERD, 1984).

When comparing players within a generation, it can be concluded that there is a trend of improvement, especially in the variables body height and body mass, but also in the area of technical skills with the ball, except for certain deviations in the variable of shooting.

Players of the same age from different generations are about the same height and weight, which is expected. On the other hand, there are differences in almost all three basketball technical skills with the ball. This means that each generation of young basketball players develops according to a dynamic unique to it. Each generation obviously "brings" something of its own in the field of basketball technical skills.

This research can contribute to a better understanding of the quality of basketball technical skills of players aged 12, 13 and 14, primarily by setting more realistic norms in tests of basic basketball skills in relation to the age of the respondents. In addition, since each generation seems to have "its" results in technical skills, some caution should be exercised when using these results as norms. In any case, coaches will be in a situation to compare the results of their young players with the results of such elite young basketball players. It should be emphasized that players selected in our research belong in a very top players in international sense. Also, Serbian basketball school and its training program is recognized as one of the best in Europe. The findings of this research can also contribute to a better selection of young players, i.e., better: predicting the degree of development of technical skills, predicting competitive success and forecasting the quality of technical skills in young basketball players. But, also better planning and programming of training for young basketball players aged 12 to 14 and better optimization of the training process of developing technical skills with the ball.

Although the importance of development of special basketball skills of young players of age 12 to 14 is evident we found a lack of up-to-date studies dealing with this issue at this age group. So unfortunately, we were not able to compare our results with some newest investigations. We hope our study will enable this comparison to authors who will investigate this topic in the near future.

Also, in researching of the technical skills of young basketball players, it would be good to include some of their other characteristics and abilities, first of all, biological maturity.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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