

The spreading and playing ability of defensive players in competitive table tennis

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Abstract: this inquiry shows that, despite the decline of backspin defence in the world of table tennis, this recession proceeds rather slowly as far as the presence of defensive players on a world-class level is concerned. Besides this, it seems obvious that defensive players were not that widespread on a world-class level in the recent past as suspected. Moreover, it is shown that the proportion of defensive players across different levels of performance is surprisingly stable which argues for the capability of defensive play. To examine this, three studies were carried out totalling 890 players from world-class to leisure sports level. Statistically, there is even a tendency that the proportion of choppers on the highest level is larger than in the categories below. Two follow-up studies including 700 high-class athletes show the same trend. It becomes clear that the number of female choppers among the top 200 of the world is significantly higher than the respective number of male defenders.

Keywords: defensive player, playing ability, coaching.

1. INTRODUCTION

The term defensive play is known in many different sports. In the field of racket sports, however, the word defensive player is quite distinct to table tennis [11]. Defensive techniques can be seen in all racket sports such as badminton or squash, and in former times in tennis the distinction between baseline players and serve and volley players was quite common. But this dichotomy does not match the reality of modern high performance tennis [5]. As opposed to this, defensive play in table tennis is a still existing peculiar style based on techniques and tactics which are rarely seen in the way offensive players act.

Defensive play is as old as competitive table tennis [17]. Throughout the 1930s and 1940s lots of defenders could be seen in table tennis competition. It is said that they were dominating this era [10]. Beginning in the 1950s, various alterations in the world of table tennis such as rubbers based on sponge and sticky surfaces, the invention of the modern topspin-stroke or loop-drive, the fresh-gluing of rubbers and the so-called two-colour rule turned to a decline of backspin defence. As a result of these developments the number of top-class defensive players in the world ranking list decreased over the last decades. Backspin defence in table tennis is frequently confronted with the saying that its population of athletes is on the brink of extinction [13-14]. In June 2011, for example, three of the top 50 male players of the world preferred cut defence while in June 1981 eight defensive players could be identified among the top 50 of the world [Data basis: 3, 6]. The loss of playing ability at the highest level is also reflected by the numerical decline of medals won by defensive players in the singles event of the diverse world championships over the last decades (see Table 1).

Table 1 Medals in men's and women's singles won by long-range defensive players at the world table tennis championships (a biennial event since 1959).

Years	Number of medals in men's singles (gold / silver / bronze)	Number of male defenders who won these medals	Number of medals in women's singles (gold / silver / bronze)	Number of female defenders who won these medals
1961 – 1969	7 (0/1/6)	4	5 (0/3/2)	4
1971 – 1979	4 (0/0/4)	3	7 (2/2/3)	5
1981 – 1989	1 (0/0/1)	1	2 (1/0/1)	2
1991 – 1999	1 (0/0/1)	1	0	0
2001 – 2009	1 (0/1/0)	1	0	0
2011	0	0	0	0

Data basis: [7]

However, if one compares the top of the respective world ranking lists, as far as men are concerned, at the beginning of the various decades, two things should be pointed out (see Table 2): firstly, this reduction of playing ability on a world-class level proceeds rather slowly. Secondly, even prior to the adoption of the two-colour rule, defensive players were not that widespread at world-class level as one might expect.

Table 2 Number of male defensive players in the top 30 world ranking list at the beginning of each decade (Note: in the ranking of 1961 only 27 players were included).

Year	Number of male defensive players in the top 30 of the world ranking list
Mid 1961	4
Early 1971	3
Early 1981	3
Mid 1991	3
February 2001	1
February 2011	2

Data basis: [3, 6, 9]

The first-mentioned conclusion is confirmed by a comparison of the top 100 male and female players in 2001 and 2011 (see Table 3).

Table 3 Number of defensive players in the top 100 world ranking list: a ten-year comparison.

Year	Women	Men
Top 100, February 2001	19	7
Top 100, February 2011	17	6

Data basis: [6]

2. AIM OF THE PAPER AND METHODS

Regardless of the numerical decline, there is the assumption that the playing ability of defensive players in table tennis might be as high as the performing strength of offensive players [16]. Thus, the real power of modern backspin defence in competition could be hidden by the fact that the percentage of players is rather small. In order to examine this assumption, five comparative studies were conducted regarding the proportions of defensive and offensive players across different levels of performance. The diverse samples included world-class players, recreational athletes, and national top-class players. The observed differences between the samples were examined by using the chi-square test.

3. RESULTS

3.1 Study I

Based on the world rankings 2011 (February) the playing style of the top 200 athletes were compared. Two groups were formed: players ranking among the top 100 and athletes from position 101 to 200. A total of 400 table tennis athletes were classified as offensive or defensive players as the study included both genders. The main aids were video clips, photos and articles which could be found on the internet. Besides this, books, journals and diverse hints from experts, e.g.

national coaches, officials, players and journalists, were helpful. So-called chop-blockers standing rather close to the table not using a long-range backhand chop were not categorized as defensive in this study. Among the top 200 only three chop-blockers were identified: one man and two women. As a result, it can be seen in Table 4 that in both samples the number of choppers in the stronger group of players is not smaller, but actually larger than the number of defensive players in the somewhat weaker category. The difference is not statistically significant.

Table 4 Defensive and offensive players in the world rankings among the top 200 (February 2011).

	Number of defensive players	Number of offensive players
Top 100 Women	17*	84*
Ranked 102 to 200 Women	13*	86*
Top 100 Men	6	94
Ranked 101 to 200 Men	4	96

Data basis: [6]

Note: In February 2011, two female players with an identical point score were ranked number 100.

♀: $\chi^2 = 0.537$, $df = 1$, $p = 0.464$

♂: $\chi^2 = 0.421$, $df = 1$, $p = 0.516$

3.2 Study II

The hypothesis that both styles are of comparable strength was tested within the field of leisure sports. An inquiry was done including all male table tennis players of the German district of Germersheim. The administrative district of Germersheim is located in the southeast of Rhineland-Palatinate. Overall 291 athletes continuously playing for a club in this district during the second half of the 2010-2011 season were examined. They played for a total of 49 teams in the German league system beginning at the lowest district level (Kreisklasse B) up to interstate level (Oberliga). They were classified by table tennis experts, such as club presidents and fellows playing in the same league who knew the respective players. Again, chop-blockers were not classified as defensive players in this sense. The criterion to be categorized as defensive player was that an athlete mainly plays a chop on his backhand side standing far from the table. However, one player was identified whose style is based very much on lobbing the ball. He was classified as a defender, too.

Table 5 Defensive and more offensive players from the district of Germersheim in league play (early 2011).

	District level (Kreis-klasse, Kreis-liga)	County level (Bezirks-klasse, Bezirks-liga)	State and interstate level (Pfalz-liga, Ober-liga)	
Total number of defensive players	15	5	4	24
Percentage of all league players	8.0%	8.1%	9.5%	8.2%
Percentage of all defensive players	62.5%	20.8%	16.7%	
Total number of offensive/all-round players	172	57	38	267
Percentage of all league players	92.0%	91.9%	90.5%	91.8%
Percentage of all offensive/all-round players	64.4%	21.3%	14.2%	
Total number	187	62	42	291
Percentage	64.3.6%	21.3%	14.4%	

$$\chi^2 = 0.106, df = 2, p = 0.948$$

As can be seen from Table 5, starting from the lowest level of performance to the top the total number of defensive players diminishes, but so does the total number of all-round and offensive players. However, the percentage of defensive players across these three performance categories remains quite stable. There is even a tendency that the proportion of choppers in the highest leagues is larger than in the categories below. 17 percent of all defensive players in the district of Germersheim made it to the state or interstate level whereas only 14 percent of all attackers and all-rounders got the chance to play on this standard. As in study I, the difference is not statistically significant.

3.3 Study III

The observation of a constant rate of choppers across different performance categories was tested again with

players from Southwest Palatinate. This administrative district is larger than the district of Germersheim. In early 2011, the German league system included a total of 90 teams from Southwest Palatinate. For the sake of practicality, only athletes who regularly played higher than district level were classified and compared. The inquiry is based on 199 male players representing 31 teams. As in study II, the players were categorized by local experts. Again, chop-blockers were not classified as defensive players, as well as all-round players. The criterion for categorizing a player as defensive was that he plays the chop from the backhand side as a main weapon while standing away from the table. One lobber was detected and classified as a defensive player.

Table 6 Defensive and more offensive players from the district of Southwest Palatinate in league play (early 2011).

		County level (Bezirks-klasse, Bezirks-liga)	State and interstate level (Pfalz-liga, Ober-liga)	
Defensive Players	Total number	19	5	24
	Percentage	11.4%	15.6%	12.1%
Offensive/All-round Players	Total number	148	27	175
	Percentage	88.6%	84.4%	87.9%
		167	32	199

$$\chi^2 = 0.457, df = 1, p = 0.499$$

As can be seen from Table 6, the results are similar to the findings of study II. The percentage of defensive players in both performance categories is about the same. There is a tendency that the proportion of defenders among all state and interstate level players is higher than the proportion of choppers within the group of players competing on county level.

3.4 Study IV

Two years after study I, a follow-up study was conducted, including the top 300 male and top 200 female players in the world. Thus, a total of 500 table tennis athletes were classified as offensive or defensive players based on video clips, photos, articles and diverse hints from experts. Again, chop-blockers were not classified as defensive players. Among the 500 male and female players only three chop-blockers were identified: one man and two women. The results of study IV closely resemble the results of study I. As it can be seen in Table 7, in both samples the number of defenders in the stronger group of players is not smaller,

but actually larger than the number of defensive players in the somewhat weaker category. As can be seen in regard to the male sample, the number of defensive players ranked among positions 201 and 300 is even lower than in the intermediate category.

Table 7 Defensive and offensive players in the world rankings among the top 200 and 300, respectively (January 2013).

	Number of defensive players	Number of offensive players
Top 100 Women	19	81
Ranked 101 to 200 Women	12	88
Top 100 Men	8	92
Ranked 101 to 200 Men	5	95
Ranked 201 to 300 Men	2	98

Data basis: [8]

♀: $\chi^2 = 1.871$, $df = 1$, $p = 0.171$

♂: $\chi^2 = 3.789$, $df = 2$, $p = 0.150$

3.5 Study V

At the beginning of the year 2013, another follow-up study was carried out, including the top 100 male and top 100 female players in Germany. The classification procedure resembled that in studies I to IV. One female chop-blocker was detected and classified as an offensive player. The result of study V shows the same trend as the findings of the other research studies. As it can be seen in Table 8, in both samples the number of defenders in the stronger group is slightly larger than the number of defensive players in the somewhat weaker category. Looking at the numbers, defensive play seems to be underrepresented among German male high-class table tennis players.

Table 8 Defensive and offensive players in the German national rankings among the top 100 (February 2013).

	Number of defensive players	Number of offensive players
Top 50 Women	9	41
Ranked 51 to 100 Women	5	45
Top 50 Men	3	47
Ranked 51 to 100 Men	0	50

Data basis: [12]

♀: $\chi^2 = 1.329$, $df = 1$, $p = 0.249$

♂: $\chi^2 = 3.093$, $df = 1$, $p = 0.079$

4. DISCUSSION

Facing the fact that cut defence is somewhat downgraded in the world of table tennis, the results are striking because they confirm that modern chop-and-attack play is competitive. According to this inquiry, playing defence is not a handicap in itself. The rather slow numerical decline of defensive players on a world-class level throughout the last decades could be the consequence of the peculiar efficiency of this playing style. Therefore, it is obvious that backspin defence is on the descending branch, but this phenomenon may only partially be the outcome of equipment improvement, technical development and rule changes. It might be that the demise of cut defence in table tennis could be attributed to a great extent to coaching. In order to teach this playing style, a coach does not only need broad knowledge about technique, tactics and material but also the courage and social competence to take up and pursue this very special path [14]. As a consequence, coach education should be revised [2]. Future coaches, who usually do not play this style on their own, should learn methodical ways to teach long-range defence. They have to acquire knowledge about criteria athletes have to meet in order to be schooled as defenders. In addition, coaches must have or must acquire soft skills because lobbying has to be done for this peculiar style not only in regard to the athletes but also in regard to their parents. The framework conditions of clubs and training centres should be adjusted so that more good defensive players can be formed. First of all, chopping and lobbing should be part of the basic training for beginners. In the field of literature, extracurricular units of one-on-one practice including the upcoming player and his coach are considered useful. Besides, a higher amount of multi-ball training is claimed to train young defenders [1, 4, 15-16].

The main finding of this research can be claimed as an artefact because of two reasons. First and foremost, one can argue that the categorization is not adequate. Linking all-round players and chop-blockers to attackers ignores the fact these two playing styles also use chop shots like defenders do. By doing this, the proportion of defensive players is kept down especially in lower divisions, because the number of all-round players and chop-blockers is rather high at the bottom of the league hierarchy. However, the term defensive player in this study is substantially related to the idea of a dominant long-range defence at least in regard to one side of the body. Furthermore, one can argue that neither the world rankings nor the league system does reflect performing strength veridically. Players listed in the world rankings are preselected. Only a couple of players of a nation can play internationally. Thus, it is possible indeed that the number 7 or 10 of a country is stronger than the number 100 in the world but the former does not get the chance to play on an international level. Equally, the division a German table tennis athlete plays in does not show in any case his performing strength. One must keep in

mind that a men's team in Germany usually includes six athletes who represent a wide range of performance levels. Hence, there is no doubt that a number one player of a team who wins fifty percent of his matches, for example, could easily play for a team one level higher above.

Nevertheless, the league system stands for a hierarchy of different performance levels, as well as the world rankings. It has turned out that the central finding is supported five times by investigation of male players. It is frequently said that the probability of success for defenders is highest among female table tennis players because on average they play with less speed and spin [1]. This is statistically confirmed by study I, IV and V. The number of female choppers among the top 200 of the world is significantly higher than the respective number of male defenders (in 2011: $\chi^2 = 11.111$, $df = 1$, $p < 0.001$; in 2013: $\chi^2 = 8.274$, $df = 1$, $p = 0.004$). This is also true for German top 100 players ($\chi^2 = 7.779$, $df = 1$, $p = 0.005$). All in all, the stable rate of defensive players in different levels of performance, which could be observed five times among both males and females, argues for the capability of defensive play.

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