The Influence of Long Range Shooting Training to 3-Point Shooting Percentage of Male College Basketball Players

Chen C. H.

Tamkang University/Office Of Physical Education,Tamsui,Taiwan

Abstract—The purpose of this study is to explore how the male college basketball players would be adapting themselves in long range shooting training load, to increase the percentage, efficiency and stability of 3-point shooting. In this experiment, from the different stages of training, the experimental data presented, the test results and trend analysis, long-distance training group is better than 3-point group, while the 3-point group was better than the control group. When doing shooting training, lengthen the distance and improve the adaptation of physiological and psychological, breaking the rules has long been attached to the training, and thus to achieve the goal of field goal percentage.

I.Introduction

Basketball is a popular sport in the world. This is evident from the audience level of NBA. Not only a complete organization, but also technical needs, tactic, agreement, experience and the potential for contest is shown in a game (Chiou, 2001).

Hitting a jump shot in basketball is an amazing accomplishment. Unlike in other far aiming tasks (such as rifle shooting,pist ol shooting and archery), the body is in full motion and,the distance to the target is never exactly the same from one shot to the next. Shooting is the basic way to get score in basketball and for this reason it is the most frequently used technical action (Hey, 1994). Several studies have examined shooting technique at different distances from the basket (e.g. Miller and Bartlett, 1993).

The jump shot is distinguished as the most important of all the shooting actions (Hess, 1980). Miller (1996) has discussed the relationship between basketball shooting kinematics, distance and playing position. Chin (2002) also analyzed the basketball shooting of different distances and movements.

However, none has been done on the effect of distances improvement on basketball shooting accuracy. Therefore, the purpose of this study is to explore how the male college basketball players would be adapting themselves in long range shooting training load, to increase the percentage, efficiency and stability of 3-point shooting.

II. Methodology

2.1 Participate

There were 18 males college

basketball players (average age: 21.78±2.64 years old; average height: 177.67± 5.06cm; average weight: 72.33± 6.74kg) participated in this study, and these players were divided in three groups: long range training group (8 meters); 3-point line training group (6.25meters); and the control group according to the pre-test results.

2.2 Shooting Training

All of the groups were given shooting training for 8 weeks (150 shots for each time, twice a week); the mid-test was given at the end of the four weeks.

2.3 Data Collecte and Analysis

The data collected were processed and analyzed using 2-way mixed design, 2-way repeated measure ANOVAs and Trend Analysis with SPSS 10.0 (Windows Edition). The significant level was set for $\alpha = .05$.

III. Result

The finding of this study goes as follows:

3.1 Three different stages and different positions of test hit rate

Table 1 shows the shooting percentage in different tests is significantly different, and there is interaction between different groups and tests ($p<.05$), and the players in position 3 has higher grades in the mid-test and the post-test than the pre-test ($p<.05$).

3.2 Different stages between the three groups differences in test scores at each position

Table 2 shows the shooting efficiency and percentage of the 3-point group is significantly better than control group , and the post-test of the 3-point group in position 1 and 3 are significantly better than the ones of control group ($p<.05$). The shooting efficiency of long range group is better than control group in post-test ($p<.05$).

3.3 Trend Analysis of 3 Point a Groups at different stages and different positions.

Table 3 and 4 shows the ANOVA and Trend Analysis of the 3-point group is significantly different among testing period; and the players in position 3 has higher grades in the mid-test and the post-test than the pre-test ($p<.05$).

IV. Disscuss

Either from the coach's ideas or the research of Sports Biomechanics, innovative technology should meet all the needs of match. Therefore, the training mode must always be consistent with the characteristics of competition. Because of the tension, characteristics and intensity of competitions are different with the opponent's preparation and the environment, players must adjust the technical model and game technology all the time. Technology can not only applicable to normal and ideal competition conditions, but also in a complex competition environment can still be adjusted.

The experimental design is to increase the training load to simulate the actual game, and explore the effect on the training of 3-point shot field goal

percentage. From a biological point of view, training is systematic training on athletes and applies load, the results of the training make athletes get adaptive changes in the formation of a biological transformation process. It improves the function of the body of the athletes, thus achieving the training goal. In this experiment, from the different stages of training, the experimental data presented, the test results and trend analysis, long-distance training group is better than 3-point group, while the 3-point group was better than the control group.

Table 1 Three different stages and different positions of test hit rate statistics

		Position 1	Position 2	Position 3	Shooting efficiency	Shooting average
Baseline group	pre-test	24.33 ± 8.04	22.50 ± 7.97	22.50 ± 4.46	69.33 ± 16.94	0.46 ± 0.12
	mid-test	25.33 ± 6.65	25.83 ± 8.13	21.67 ± 5.65	72.83 ± 19.50	0.44 ± 0.13
	post-test	24.50 ± 4.72	26.17 ± 6.01	25.33 ± 6.31	76.00 ± 14.89	0.41 ± 0.10
Long distance group	pre-test	20.33 ± 3.50	24.50 ± 11.95	24.33 ± 6.22	69.17 ± 14.76	0.45 ± 0.10
	mid-test	19.33 ± 4.55	20.83 ± 3.43	20.00 ± 4.73	60.17 ± 8.33	0.51 ± 0.07
	post-test	20.00 ± 4.69	16.83 ± 6.34	18.50 ± 4.51	55.33 ± 10.27	0.56 ± 0.10
3-point group	pre-test	21.50 ± 10.99	24.00 ± 10.75	24.00 ± 9.33	69.50 ± 13.94	0.45 ± 0.09
	mid-test	19.50 ± 5.32	18.00 ± 4.56	15.17 ± 2.79*	52.67 ± 6.92	0.58 ± 0.09
	post-test	17.33 ± 3.88	23.17 ± 7.36	17.00 ± 4.65*	57.50 ± 12.72	0.54 ± 0.12

Table 2 Different stages between the three groups differences in test scores at each position

Test group		Pre-test of baseline group	Mid-test of baseline group	Post-test of baseline group			
		Position 3	Efficiency	Position 1	Position 3	Efficiency	Shooting average
Mid-test of 3-point group	Position 3	-7.33*	--	--	-10.17*	--	--
	efficiency	--	20.17*	--	--	-23.33*	--
	Shooting average	--	--	--	--	--	0.17*
Post-test of 3-point group	Position 1	--	--	7.17*	--	--	--
	Position 3	--	--	--	8.33*	--	--
Post-test of long distance group	efficiency	--	--	--	--	20.67*	--

V. Conclusion

The distance of 3-point line that set up by FIBA is expect the player to shoot outside the 3-point line. But it only

requires the shortest distance of 6.25 meters away from the basket , but don't set up the limit of farthest distance. Therefore, there should be different thinking for shooting training: give up the maximum profit, but also the most vulnerable position , which is closest to the location of 3-point line. When doing shooting training, lengthen the distance and improve the adaptation of physiological and psychological, breaking the rules has long been attached to the training, and thus to achieve the goal of field goal percentage.

Table 3 3-Point a Groups at different stages and different positions two factor dependent samples Summary of ANOVA

Source	SS	df	MS	F	sig
Test of different stages	.166	2	.083	11.335	.003*
Position	.047	2	.023	.989	.406
Interaction	.109	4	.027	1.209	.338
Error（Test of different stages×Position）	.450	20	.023		

Table 4 3-Point Groups at different stages and different positions Summary of Trend Analysis

Source	Test	Position	SS	df	MS	F	Sig.
Test of different stages		Linear trend	.076	1	.076	.076	.018*
		quadratic trend	.091	1	.091		
Position		Linear trend	.002	1	.002	.002	.791
		quadratic trend	.045	1	.045		
Interaction	Linear trend	Linear trend	.026	1	.026	.026	.241
		quadratic trend	.030	1	.030	.030	.212
	quadratic trend	Linear trend	.048	1	.048	.048	.113
		quadratic trend	.005	1	.005	.005	.753

References

Tah-Tzong Chiou (2001) .*Techniques and Tactics of Professional Basketball — Huang- Kao Elephant Team*; Unpublished doctoral dissertation, National college of physical education and sports, Taipei,Taiwan.

Miller, S. A., & Bartlett, R. M（1993）. The effects of increased shooting Kinematics, distance and playing position. Journal of sport Sciences, 14, 285-293.

Hey, J. G. (1994). The Biomechanics of Sports

Techniques. (Englewood CliVs, NJ: Prentice-Hall).

Hess, C. (1980). Analysis of the jump shot. Athletic Journal, 61(3), 30 - 33, 37 - 38, 58.

MILLER, S. and BARTLETT, R. M. (1996). The relationship between basketball shooting kinematics, distance and playing position. Journal of Sports Sciences,14, 243 - 253.

Su-Li Chin (2002) .The Analysis of Basketball Shooting on Different Distance and Movement; Unpublished doctoral dissertation, National college of physical education and sports, Taipei, Taiwan.