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Basketball dribbling performance: Differences between using one ball or two balls

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BASKETBALL DRIBBLING PERFORMANCE: DIFFERENCES BETWEEN USING ONE BALL OR TWO BALLS

A Project

Presented to the

Faculty of

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In Partial Fulfillment

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in

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ABSTRACT

This study examined the effects of dribbling two basketballs simultaneously. Twenty-two boys and twenty-two girls from a fifth grade physical education class were pre-tested and then randomly assigned to one of two treatment groups. Both groups participated in eight practice sessions. Each subject completed ten practice trials per session. Group A performed each trial using one basketball alternating dribbling between hands while navigating through an assigned course. Group B dribbled two basketballs simultaneously using the same course as Group A. The course was a straight line forty feet in length with cones at ten foot intervals. Each subject weaved through the course until reaching the last cone and then returned through the cones to the starting point. After completion of the eight days of practice trials, subjects were post-tested. The results indicated subjects dribbling two basketballs simultaneously did not show a significant difference in speed from subjects dribbling only one basketball.

ACKNOWLEDGEMENTS

First of all, I would like to thank my God, who planted the dream of returning to school, and to Dr. Thom Gehring who listened and believed in my dream. Now that all the pieces of the puzzle have been put together, I eagerly await the Lord's guidance in the next phase of my life. I am also indebted to a host of individuals who have guided me through the completion of this work, especially my wife Susan, my three children, Pamela, Paul, and Joshua, and my professors, Dr. Clifford Singh, Dr. Jerry Freischlag, and Dr. Terry Rizzo who I came to know also as friends. Finally, I would like to thank Harold Blackard for the 1985 Toyota van. Without transportation I may have never made it this far.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

Introduction

The ability to dribble a basketball skillfully is important at all levels of the sport. For novice players, a common problem is dividing visual attention on the ball and the playing environment while dribbling. Practice sessions should assist the performer in relying on tactile control of the dribble in order to see teammates and opponents in games. One approach used by coaches is to have the performer wear specially designed goggles which restrict vision on the ball but not the playing environment.

Several studies have been conducted using a single basketball as a means of research. Regimbal et al.(1992), found ten year old children preferred a ball smaller than the one they normally used. Burton et al.(1990), examined the effect of ball size on dribbling performance in first-grade children. Chase et al.(1994), examined the effects of modification of basketball size and basket height on shooting performance and self-efficacy of girls and boys 9 to 12 years of age. Payne et al.(1981), examined the effects of varying ball diameters on catching ability of young children. While each of these studies in some way focused on a single ball, this author found no such study on the effects of using two basketballs simultaneously. The purpose of this study is to determine if there is a

difference in dribbling performance from a 1-2 ball practice pattern.

CHAPTER TWO

Methods

Subjects

In order to investigate dribbling performance forty-four fifth-grade children (22 boys, 22 girls) from Sandia Elementary School in Apple Valley, California participated in this study. The study took place during the students' regular physical education classes from November 12, 1997 through November 26, 1997.

Procedure

Day 1

Each subject was pre-tested using the AAHPERD control dribble test, (AAHPERD Basketball Skills Test Manual for Boys and Girls, Reston, Va.: AAPHERD, 1984.) This test is designed to measure ball-handling skills while moving. Six cones were placed as shown in Appendix A. On a signal, the subject began dribbling with the nondominant hand from the nondominant side of cone A to the nondominant side of cone B. For the remainder of the course, the performer could use the dominant hand or nondominant hand. Three timed trials with 20 to 30 seconds rest intervals were given. The first trial was used as a practice trial. The average score of the second and third trials was recorded.

To ensure objectivity in scoring three different individuals using identical timing devices were assigned for timing and recording scores of subjects. Three identical

courses were established. Courses were numbered 1, 2, and 3. Each student would start at course 1. After completing the course, the subject would proceed to course 2, and finally to course 3.

Mean scores of subjects were calculated and ranked from 1 to 44 with 1 being the fastest time. Two groups were established by placing all odd ranked numbered subjects in Group A (one Basketball) and all those evenly ranked students in Group B (two basketballs)(see Appendix B).

Day 2 through Day 8

Subjects in Groups A and B were each divided alphabetically by surname into eight sub-groups of 5 or 6 subjects. Each subject remained in the same group throughout the eight practice sessions. A practice course was developed, consisting of five plastic cones placed at ten feet intervals in a straight line for a total length of forty feet(see Appendix C). Each subject dribbled, using one or two basketballs, through the forty foot course, weaving through the cones and returning to the starting point. Subjects alternated with others in the group until completing 10 trials each. Upon completion of this process,(twenty to thirty minutes) students were dismissed. On each of the practice sessions, all four sub-groups in Group A (one basketball) finished before Group B (two Basketballs). This occurred as a result of more subjects in Group B losing control and spending time chasing the ball.

Day 9

Subjects were post-tested using the same procedure as in the pre-test. Mean scores were calculated from combined second and third trial performances.

CHAPTER THREE

Results and Discussion

Students in Groups A and B underwent pre/post testing. Data were tabulated and subjected to an independent t-test. The .05 level of significance was applied. The results showed improvement in both treatment groups. The one basketball group improved 1.07 seconds while those dribbling two basketballs improved 0.73 seconds(see Table 1).

Table 1

Mean Scores of Pretest and Posttest by Number of Basketballs

Coed Groups	Pretest	Posttest	Mean
Group A (one basketball)	12.25*	11.18*	1.07*
Group B (two basketballs)	12.21*	11.48*	0.73*

* (seconds)

An independent t-test showed the effects of practicing with two basketballs rather than one basketball was not significant.

Although no significant improvement was seen between Group A and Group B, post hoc information revealed some interesting insights. By grouping boys' and girls' data separately (see Table 2), it was revealed that boys who practiced with one basketball improved an average of only 0.55 seconds compared to 0.93 seconds for boys dribbling two basketballs. However, girls who practiced with one basketball improved an average of 1.67 seconds compared to 0.55 seconds for girls who practiced with two basketballs.

Table 2

Mean Improvement X Number of Basketballs and Sex

Group	Girls	Boys
Group A (one basketball)	1.67*	0.61*
Group B (two basketballs)	0.55*	0.93*

* (seconds)

Improvement in any sport requires that an individual work more on weaknesses rather than strengths. Most young basketball players will use their dominant hand when dribbling a basketball. Dribbling two basketballs simultaneously eliminates the need for coaches to be constantly reminding individuals to use their nondominant hand. Another problem that can be eliminated, is that of watching the ball while it is being dribbled. When dribbling two basketballs, it is very difficult to watch both balls at the same time. A player will usually focus attention on the nondominant hand, thus simulating a proper relationship between ball handler and teammates. If a player, while dribbling, is not focused on the ball, but on teammates' movements, the chances of successfully completing a pass greatly increases.

One of the biggest concerns in coaching youth basketball is not having enough practice time. By using two basketballs in dribbling drills, more may be accomplished in the same amount of time. Players may also develop concentration skills which could help to improve other areas

such as agility, balance, speed, coordination, and performance time.

These differences may be that, on the average, boys at this age have played more basketball, thus allowing for an easier transition in the use of two basketballs. This transition for many of the girls, as observed during this study, produced more frustration during the practice sessions. More enjoyment was seen in the group of girls practicing with one basketball.

Since the pretest/posttest involves quick bursts of speed with change of direction, only the girls in Group A experienced any sense of speed in the practice trials. The girls in Group B who practiced with two basketballs, never achieved this type of speed needed for better posttest scores.

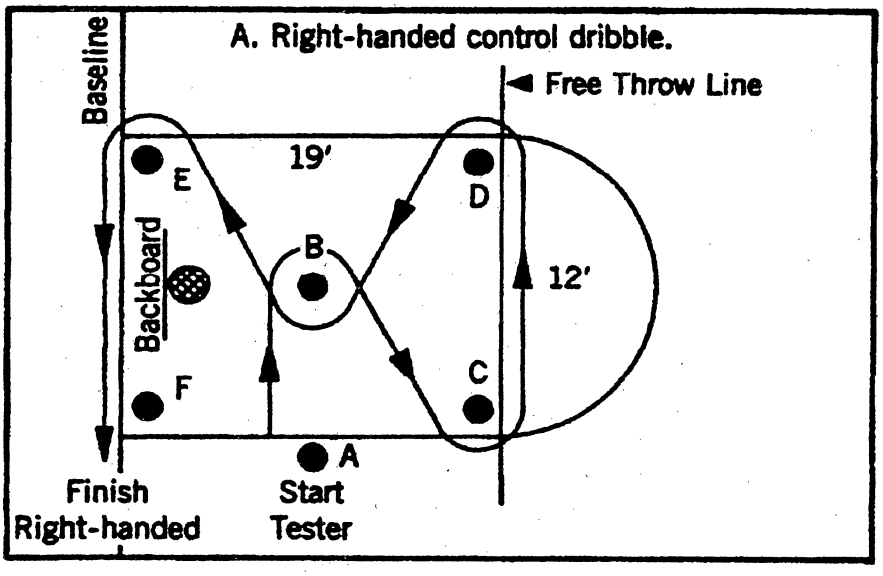
Future research may include more subjects and more practice time. Testing could also be done using skilled individuals such as a men's and/or women's intercollegiate basketball team. Other studies may include grouping students in a regular physical education class with individuals in adapted physical education. Will A.P.E students have a better score as a result of practicing with their non-disabled peers? Using senior citizens as subjects may also produce new insights into the problems related to equilibrium, for as many as 250,000 individuals each year are injured as a result of falling. As the review of

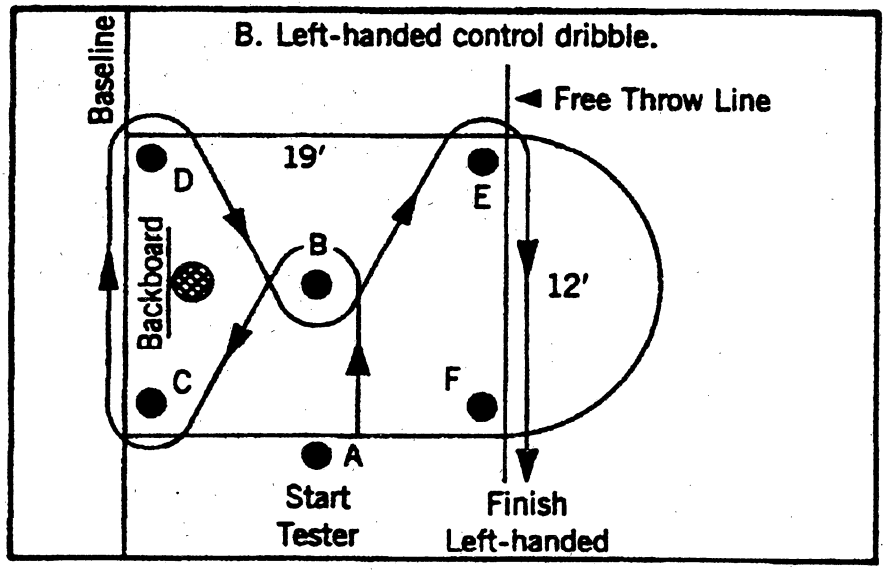
literature on this subject was minimal, the door remains wide open for new studies and discoveries.

APPENDIX A: Pretest/Posttest

AAHPERD Control Dribble Test

(AAHPERD Basketball Skills Test manual for Boys and Girls, Reston, VA.: AAPHERD, 1984.)





APPENDIX B: Rank Order

Pretest Rank	Group A (one ball)	Group B (two balls)
1	X	
2		X
3	X	
4		X
5	X	
6		X
7	X	
8		X
9	X	
10		X
11	X	
12		X
13	X	
14		X
15	X	
16		X
17	X	
18		X
19	X	
20		X
21	X	
22		X
23	X	
24		X
25	X	
26		X
27	X	
28		X
29	X	
30		X
31	X	
32		X
33	X	
34		X
35	X	
36		X
37	X	
38		X
39	X	
40		X
41	X	
42		X
43	X	
44		X
Totals	22	22

APPENDIX C: Practice Course

Group A (one Basketball)

Group A1	Group A2	Group A3	Group A4
C	C	C	C
C	C	C	C
C	C	C	C
C	C	C	C

Group B (two basketballs)

Group B1	Group B2	Group B3	Group B4
C	C	C	C
C	C	C	C
C	C	C	C
C	C	C	C

Note. . Cones are ten feet from each other in addition to the starting line.

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