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SPECIFIC VALUATION OF MAXIMUM AEROBIC POWER IN BASKETBALL

Investigation scholarship of the General Sport Secretary; Autonomous Gouvernament of Catalonia. Spain.

(Adresse: Av. Països Catalans, 12. 08950 ESPLUGUES DE LLOBREGAT; SPAIN)

RIBERA NEBOT, DAVID Institute of Physical Education(INEF)
University of Barcelona
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TUTOR: PORTA, JORDI Prof. Sistemàtica de l'exercici,
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BARCELONA, 1987.

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ABSTRACT

The purpose of the study was to create an example of specific test to assess the Maximum Aerobic Power in the initiation of basketball; and so to establish some methodological bases to create specific effort tests in team sports similar to basketball.

A transversal study was made to compare the new test with the following: Curs Navette 1', Curs Navette track and treadmill. Twelve basketball players and twelve non basquetball players realized the four tests. The results in the new specific test in relation to the other three tests is meanfully higher in the basketball players. That shows the necessity to create specific effort tests that make us understand the tecnical- tactical requests of the sport of each person or group to test.

INTRODUCTION

The determination of factors like Maximum Aerobic Power is necessary to the control and programming of the training in middle and long duration sports.

In team sports like basketball, where different actions are followed without order in time we normally have trouble to create specific tests to assess the Maximum Aerobic Power.

PURPOSE

-To propose an example of a specific test to asses the Maximum Aerobic Power in the initiation of basketball and its analysis comparing it to other laboratory and range tests.

-To establish some methodological basis to create specific effort tests in team sports similar to basketball.

PROCEDURE

The first part of the study was to create the "DRN BASQUET GENERAL" test.

-"DRN BASQUET GENERAL" TEST

It is a range test to value the Maximum Aerobic Power in the initiation of basquetball.

The mean characteristics of the test are:

-It is a test with a progressive intensity(similar to the Curs Navette tests of Leger and Mercier).

-In the course of the test it is diferentiated between a part that represents the attack(course of attack) and a part that represents the fullback(course of fullback).

-There are different types of actions to make; between all of them the run must be realized during a high % of the time.

-You have to make a decision about the moment to jump to touch a ball that is oscillating to and fro depending of every previous impulse.

Material and distribution(figure 1)

-Two minibasquet balls hang from every board with a rope.

-One pole with signs which indicate the height of the ball must be hung depending on the age of the subject to test.

-Ten marks: cones, chairs, etc.

-Adhesive tape.

-Cassette with the protocol of the "DRN BASQUET GENERAL" test.

-Magnetofone.

Development

The subject must realize the course of the test(*1) during the maximum time possible following the rhythm marked by the whistle emitted by a cassette in every period(*2). Each whistle signs the moment to touch the ball hanging and the end of the course of attack or fullback.

The test finishes when the subject can't follow the rhythm marked realizing the course.

.Course of the test(*1)

It is diferenciated between a course of attack and a course of fullback; both always follow each other during the test (figure 2).

1. the start is from a mark placed at 1.20m. from the bottom line of the basketball ground. The subject must run to 2. , make a direction change and go to 3. to make another direction change to 4. where he must jump to touch the ball hanging by a simultaneous impulse of legs. Here finishes the named course of attack.

After the jump the player must run to 5. where he will turn to go to 6. by a lateral run and he wil continue to 7. by a lateral run too. There he again must jump to touch the ball hanging by a simultaneous impulse of legs. Here finishes the named course of fullback.

After the jump the player continues to 2.

.Periods of the test(*2)

The "DRN BASQUET GENERAL"test has a course of attack and a course of fullback. That means there is a different

time to realize each course in every period of the test.

There are nineten periods which have a duration of about one minute each . In the first period the attack time is thristeen seconds and the fullback time is fourteen seconds. The rhythm increases decreasing 0.5 seconds for the attack and fullback time in every period.

The periods are numbered from one to nineteen. In every period the attack and fullback course are also numbered from the begining of every period.

Valuation

It is the number of periods and courses that the player realizes accurately following the rhythm marked. This result will be the indicator of the maximum aerobic power in this test.

You can see on table 1. some reference results of the test.

The second part of the study was a transversal study to compare the "DRN BASQUET GENERAL" test with the following: Curs Navette 1', Curs Navette track and Treadmill test(periods were similar to the Curs Navette 1').

Twelve basquetball players and twelve sportmen who are not basquetball players realized the four tests.

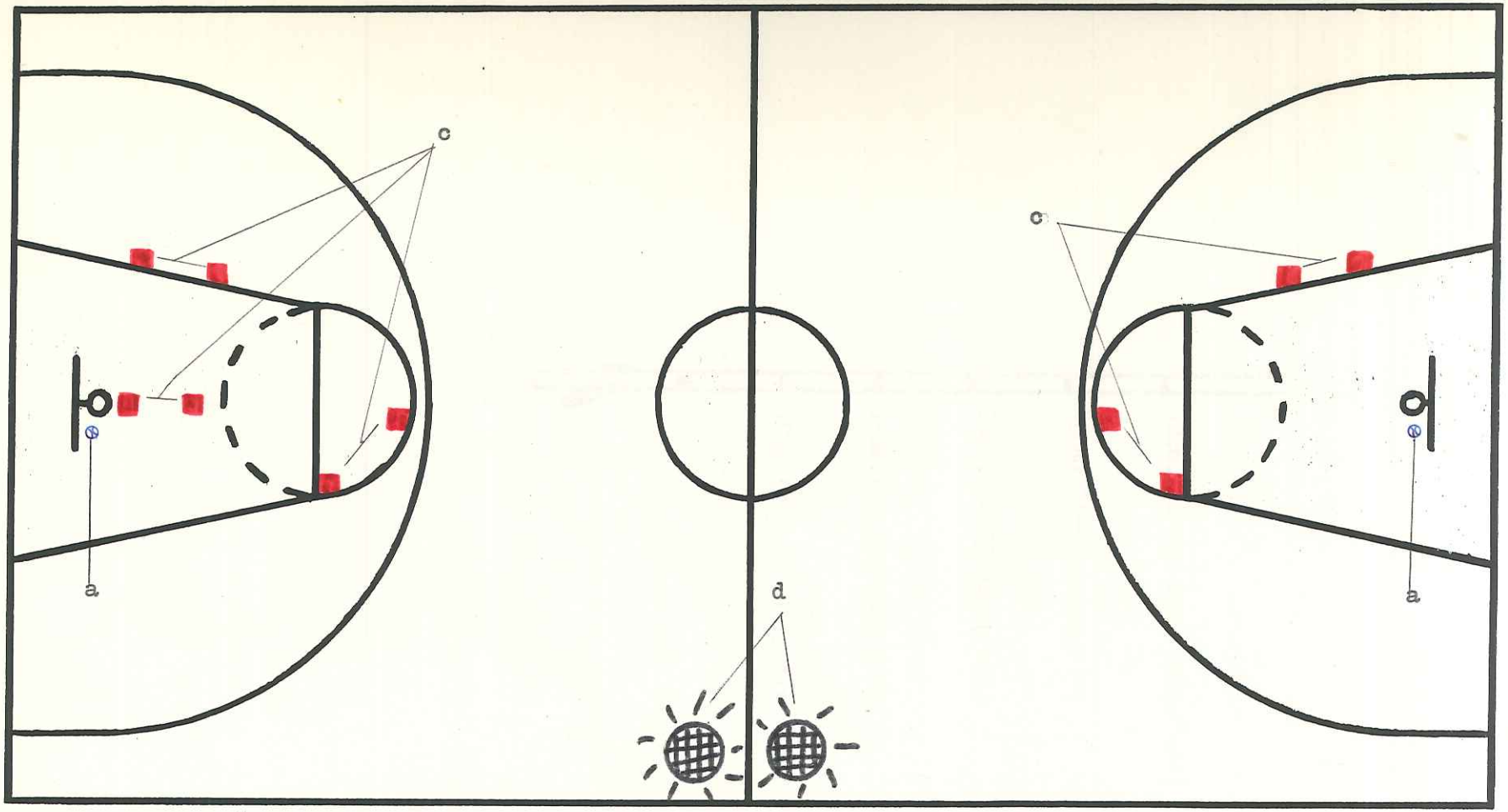


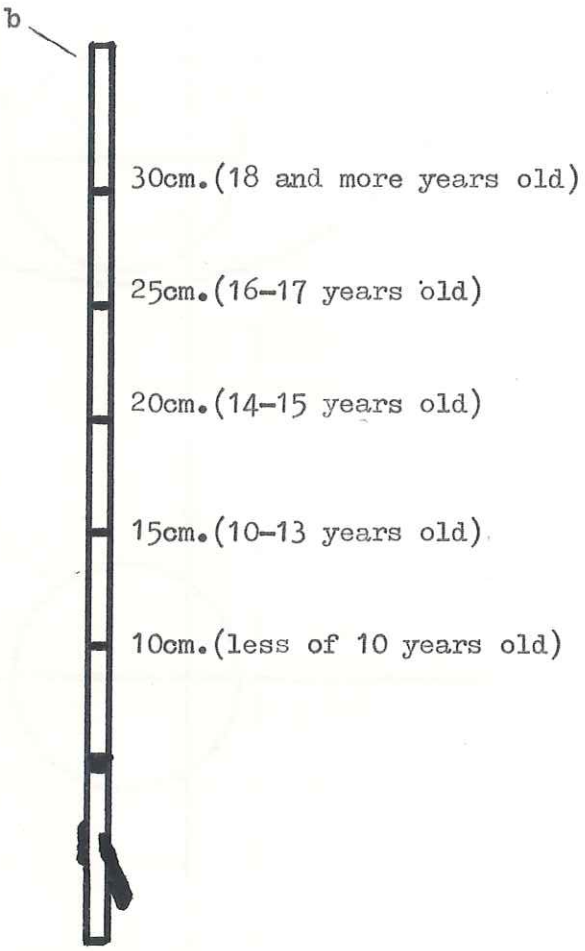
FIGURE 1. Material and distribution, of the "DRN BASQUET GENERAL" test.

a. Minibasket balls hanging.

b. Pole with signs (see next page).

c. Marks.

d. Magnetofone with cassette of the "DRN BASQUET GENERAL" test.


b
30cm.(18 and more years old)
25cm.(16-17 years old)
20cm.(14-15 years old)
15cm.(10-13 years old)
10cm.(less of 10 years old)

(FIGURE 1)

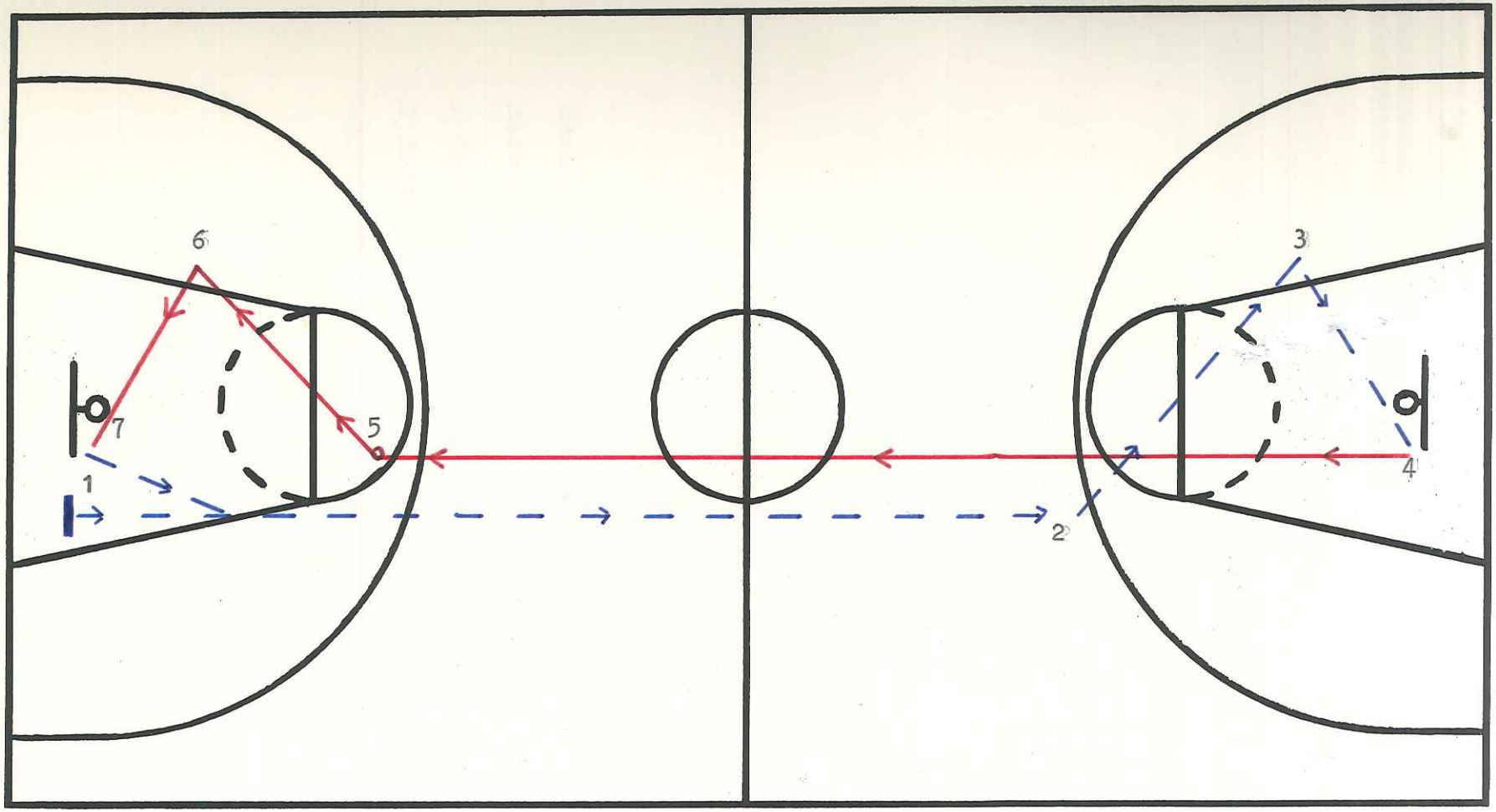


FIGURE 2. Course of the "DRN BASQUET GENERAL" test.

— — — — — Course of attack.

——————— Course of fullback.

TABLE 1

SAS TEAM(1)	F.C.BARCELONA TEAM(2)
9.5	13.1
10	13.2
8.1	13.3
9.5	13
5.1	12.5
9.6	12.7
6.5	11
10	13.2
9.6	12
8	

Results of the "DRN BASQUET GENERAL" test in different basketball players:

1.Basketball players from SAS team(10-12 years old).1988.

2.Basketball players from F.C.BARCELONA team(14-15 years old).1987.

RESULTS

You can see on table two the results of the study. (DP: result of the "DRN BK GRAL" test; CNP:result of the Curs Navette 1'; CP: result of the Curs Navette Track; TP: reslut of the Treadmill test)

TABLE 2

	BASKETBALL	NON BASKETBALL	RESULT DIFFERENCE
$\bar{X}$ DP(σ)	12.6(0.8)	12.8(0.7)	0.2
$\bar{X}$ CNP(σ)	11.3(1.7)	13.2(1.2)	1.9
$\bar{X}$ CP(σ)	15.4(1.5)	17.5(1.7)	2.1
$\bar{X}$ TP(σ)	13	15.8	2.8

Basketball and non basketball players results of the study.

DICUSSION

In the "DRN BASQUET GENERAL" test the non basketball players obtain a result 0.2 more high than the basketball players. In the other three tests the non basketball players obtain a result 1.9,2.1 and 2.8 respectively higher than the basquetball players.

So, the result in the "DRN BASQUET GENERAL" test in relation with the other three tests is meaningfully higher in the basquetball players.

We can conclude:

-Each person possesses a different Maximum Aerobic Power in each one of the tests to assess this factor.

-The more important fact in this type of effort tests is how the subject arrives at the Maximum Aerobic Power. Effort tests must make one understand the tecnical-tactical requests of the sport of each person or group to test. In the initiation stage we need specific tests of the sport but general tests for all the players; and in posterior stages the tests will become more specific until they become individual tests.

Now we can propose a methodological basis to create specific effort tests in sports similar to basketball:

1. To analyse the tecnical-tactical actions of the player during the game in relation with the tecnical-tactical actions you want the player to realize in the future.

2. Selection and distribution of the more

requested tecnical-tactical actions.

3.To define the different courses and the place where you want to mark the rhythm of the test.

4. To chose the necessary material to create the test.

5. Make a maximum speed test of the different courses; it will be a reference of the maximum rhythm of the test)

6. Make a middle speed test of the different courses; it will be a reference of the start rhythm of the test.

7. To create the periods of the tests in relation to the course of the test and in relation to the improvements in the rhythm you want put in.

Now we are creating examples of specific tests to assess the Maximum Aerobic Power of the starter player, forward player and pivot player; and we will rest it to control the endurance training.

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