A SCIENTIFIC APPROACH TOWARDS THE IDENTIFYING OF RUGBY TALENT AMONG TEN AND ELEVEN YEAR OLD BOYS

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Abstract

It has become apparent, since the dismantling of apartheid, that there is an urgent need especially among hitherto deprived groups of people, to develop talent in sport. The process of development and training of the young should be scientifically grounded. Departements of Physical Education can and should play an active role to ensure that such scientific individual development of sporting talent takes place and is monitored regularly. A group of 173, ten and eleven year-old boys from a cross-section of the population was subjected to a battery of tests. The group consisted of youngsters who had never played rugby on the one hand (n = 110) and boys who played rugby (n = 63). The AAPHERD "Football Skills Test" was used together with relevant standardized motor-ability tests. The results of the tests were a) descriptively analysed (x, sd) and b) analysed by means of analysis of variance (ANOVA) to determine significance differences (P<0,05). Group differences were determined by means of the Newman-Keuls-posthoc test. Results were compared to existing norm scales to substantiate strengths and weaknesses. It emerged that the deprived population groups have certain weaknesses to be addressed during talent development clinics. It also emerged, however, that these groups have the some potential as their more developed counterparts, given the same opportunities. Development programmes should be devised by experts to develop rugby talent and to monitor results. It is essential that research and organized rugby should co-operate to ensure professional development.

Keywords: *talent identification, rugby, ten-year old and eleven year old boys*

Zusammenfassung

WISSENSCHAFTLICHER ANSATZ ZUM ENTDECKEN VON DER BEGABUNG ZUM RUGBY BEI 10- UND 11JÄHRIGEN JUNGEN

Nach dem Auseinandernehmen von der Apartheid ist es klar geworden, daß bei den bisher benachteiligten Menschen die Notwendigkeit besteht, das Talent für Sport zu entwickeln. Der Prozeß der Entwicklung und des Trainings bei Jugendlichen soll wissenschaftlich gegründet werden. Die Abteilungen für Sport können und sollen eine aktive Rolle übernehmen, um zu sichern, daß eine solche wissenschaftlich basiierte Entwicklung der sportlichen Begabung geschieht, und daß sie kontrolliert wird. Die Gruppe von 173 10- und 11jährigen Jungen wurde der Testbatterie unterzogen. Diese Gruppe umfaßte einerseits diejenigen Jugendlichen, die kein Rugby gespielt haben (n=110), und andererseits diejenigen, die diesen Sport schon betrieben haben (n=63). Es wurde der AAPHERD "Football Skills Test" verwendet, zusammen mit relevanten standardisierten Tests der motorischen Fähigkeiten. Die Resultate wurden: a) deskriptorisch analysiert (x, sd) und b) analysiert mittels der Varianzanalyse (ANOVA), um die Signifikanzunterschiede (P< 0,05) festzustellen. Die Unterschiede zwischen den Gruppen wurden mittels des Newman-Keuls-Posthoc-Tests festgestellt. Die Resultate wurden mit der existierenden Normenskala verglichen, um die Stärken und Schwächen zu determinieren. Es hat sich gezeigt, daß die benachteiligten Populationsgruppen bestimmte Schwächen hatten, mit denen man sich in der Begabungsentwicklung befassen soll. Es hat sich auch gezeigt, daß diese Gruppe dasselbe Potential für Rugby hatte, wie die andere. Entwicklungsprogramme sollen von Experten entwickelt werden, mit dem Ziel, die Begabung zum Rugby zu entwickeln und die Resultate zu kontrollieren. Es ist wichtig, daß das wissenschaftliche und organisierte Rugby zusammenarbeiten, um die professionelle Entwicklung zu sichern.

Schlüsselwörter: *Entdecken der Begabung, Rugby, 10- und 11jährigen Jungen*

Introduction

With the establishment of one body for South African rugby in 1992, viz. SARFU, high priority was given to the development of rugby among marginalized groups. What was striking, however, was that there was no evidence anywhere of the scientific evaluation of any of these programmes. Each province offered its own and created development programmes in accordance with its own methods. The Western Transvaal Rugby Union, in conjunction with the Department of Human Movement Science at the Potchefstroom University, decided to make a scientific study of the abilities of children from the marginalized groups with regard to their rugby skills and abilities.

It is only if such information is made available that development programmes can be compiled in accordance with their needs and deficiencies, should these exist. Further scientific programmes, such as a test battery for talent identification, can emanate from this, thus rendering a further need for rugby development.

Related literature

The empirical study done for this project also serves as a pilot study for a further study aimed at talent identification among young rugby players. In this section attention will therefore be mainly directed at some findings in literature about the topic. There is no literature about comparative studies of ten and eleven year-old boys with regard to rugby development in South Africa, so that this study is therefore the first of its kind.

According to Du Randt (1992:295) talent identification and development in South Africa are at present, because of the exigencies of the transitional phase in the country, unco-ordinated and underresearched, although there is a definite need for such activities. Talent identification in other countries, in contrast, especially in the so-called former communist bloc, is the order of the day. Potential sportsmen and women are already identified early on, following which they receive specialized training in order to represent their countries. In South Africa talent identification in accordance with scientific methods is relatively unknown and is at present done largely on the basis of the child's achievements during competition and the trainer's judgement (Du Randt & Headley, 1992:298). The literature, however, does refer to some principles which are applicable during talent identification, and a few of these will be quoted. According to Hasse (1984) specific problems experienced in talent identification include the validity of tests, variable growth rates, trainability of talent determinants, lack of sports science, co-operation, uncertainty about selection age, lack of longitudinal studies, lack of conceptual models and the lack of norms. According to Regnier et al. (1992) it is also important that each type of sports should determine its own specific requirements before testing of talent can occur. Regnier et al. also state that a discriminant analysis should be compiled in the course of talent identification. The purpose of this is to measure the suspected performance determinants of a sample of the pool population and of a sample of the target population. Thereafter, a discriminant analysis should be conducted in order to identify the combination of variables that best discriminate between both populations and to produce the classification equation to determine the percentage of similarity between a member of a new sample of the pool-population and the members of the original target population.

According to Du Randt (1992:23) age and size of population of selection are also important variables in talent identification. She also maintains in this regard that "the first attempt to identify talent takes place, usually, at the age of 8 to 10 years and in some cases earlier, in the form of mass screening. The selection criteria are not too stringent as the emphasis is rather on risking the inclusion of untalented children than excluding potential talented children. The age of which one should start with sports-specific selection also cannot be determined rigidly from the literature. The researcher also mentions that further evaluations in accordance with a test battery are needed for application to the children selected.

Russel (1987) outlines three basic processes which occur sequentially from the detection to the perfection of talent. The first is talent detection, which comprises the measurement of athletes. The second is talent selection, where the athletes are selected for regional teams, and the third process is talent perfection, which involves the guidance of talent once it has been detected and selected.

Du Randt (1992:32) also refers to the so-called conceptual model of Regnier as a very good basis for when and how talent identification should occur. Three phases are distinguished, viz. 1) after exposure to a balanced and motor development programme the first attempt at identification takes place (usually at the age of eight to ten years). Observation and field tests evaluating general movement and physical ability are used. 2) The second talent identification takes place 18 to 24 months later, usually at the age of eleven to twelve years, through the use of observation, field tests of performance and the rate of improvement, taking into account the child's biological age. 3) Final talent identification takes place around the age of fourteen years. These athletes are then subjected to an elite sports programme.

From the literature it also emerges that there is a great need for standardized tests which can be used for talent identification. Countries such as the German Democratic Republic were more advanced than most in respect of selection procedures. However, Rowley (1987) noted that even there the need for better validated and more comprehensive screening methods has been recognized. Jarver (1979) also identified the lack of reliable test batteries and access to more sophisticated laboratory testing. Du Randt and Headley (1992) suggest, however, that initial selection on the basis of motor and physical abilities should be done in conjunction with sports specific skills. The researchers also indicate that "as far as could be ascertained little or no valid South African norms for identified talent predictors exist. This is a serious drawback in the investigation of talent identification".

From the research it is therefore clear that there is a great need for test batteries and norms for talent identification. There are no measuring instruments for rugby and the objective with the results obtained in this research will also be to establish a test battery for rugby talent identification and thus to begin with the process of talent identification among young players. It also has to be kept in mind that space should be left for regular adjustments to the test battery as more scientific data become available.

Method of investigation

A situation analysis with regard to the demands that rugby makes on the young player has revealed that the basic skills for the player are handling (catching and passing), running, kicking, speed and endurance (Guy et al., 1991). A test battery which measures most of these components had to be constructed. Specific rugby skills tests for young players do not yet exist, and thus the AAPHERD FOOTBALL SKILLS TEST (Strand & Wilson, 1991) was used. In order to adapt it to the South African situation, some execution of movement and apparatus had to be adjusted. A self-designed test for accuracy was added, while a further speed endurance

test also included the so-called "fatigue index" (Hazeldine & MacNab, 1991:121).

Seeing that motor and physical abilities are used as predictors for later sports achievement, a number of tests were also included in the test battery, viz. the pull-ups (dynamic strength), sit and reach (flexibility), flexed-arm hang (static strength), vertical jump (vertical strength), and the 500 m endurance tests (Johnson & Nelson, 1984:125).

A group of 173 ten year-old boys (White = 51; Coloured = 56; Blacks = 66) was identified as representative of the primary schools in the city of Potchefstroom (Nortwest Province). Among the White boys a number had already played rugby (n = 35), among the Coloured boys some had already attended a rugby clinic (n = 30), while the Black boys had no rugby background at all. A group of 47 White boys who were representative of the three league-winning teams were also tested in order to be able to determine what the abillities and skills of the recognized top achievers were.

Results and conclusions

When one looks at the means of the rugby skills tests, White boys achieved best in 9 of the tests, Coloureds in three and Blacks in one (Table 1). If one further looks at significant differences (p 0,05) among the different groups, it was found that in all nine tests where the White boys achieved best (X), they also differed significantly from the weakest group (Table 3). Coloured boys in the agility test (p = 0,0000) and Black boys in the speed test (p = 0,0081) differed significantly from the weakest group (Table 3). It thus emerges clearly that White boys

Table 1 Descriptive statistics of the different groups in rugby skills

VARIABLES	GROUP (N = 173)		WHITES (N = 51)		COLOUREDS (N = 56)		BLACKS (N = 66)	
	X	S	X	S	X	S	X	S
Forward pass for distance (SA)	9,1	2,0	10,2	2,0	9,2	2,3	8,3	1,3
Forward pass for distance (USA)	10,9	3,1	12,1	3,0	11,3	3,6	9,5	2,0
Forward pass for accuracy (SA)	4,1	4,8	6,6	6,0	3,2	3,7	2,9	3,7
Forward pass for accuracy (USA)	6,1	5,6	10,0	5,9	5,0	4,5	4,1	4,7
Forward pass for accuracy (SA-4m)	4,7	2,1	4,7	2,6	3,1	1,8	3,6	2,0
Catching the forward pass (SA)	9,5	5,3	12,5	5,4	7,1	4,4	9,3	4,8
Catching the forward pass (USA)	6,4	5,3	10,0	5,6	4,6	4,2	5,3	4,6
Punt for distance (SA)	16,1	5,5	20,5	5,8	15,0	4,3	13,6	4,0
Punt for distance (USA)	16,1	4,9	14,0	5,0	14,9	4,8	13,6	4,9
Kick-off test (SA)	14,0	4,9	14,0	5,0	14,9	4,8	13,6	4,9
Kick-off test (USA)	14,8	5,8	13,0	6,5	15,7	5,5	15,4	5,0
Dash test - 45,7 m (USA)	8,4	1,0	8,5	0,9	8,6	0,7	8,1	1,3
Ball changing zig zag Run (USA)	9,8	1,1	9,9	1,1	9,2	0,9	10,2	1,0

Table 2 Descriptive statistics of the different groups in motor and physical abilities

VARIABLES	GROUP (N = 173)		WHITES (N = 51)		COLOUREDS (N = 56)		BLACKS (N = 66)	
	X	S	X	S	X	S	X	S
Endurance (500 m)	136,5	37,1	115,0	23,9	167,3	44,9	126,2	13,3
Sit and reach	1,7	6,9	0,4	6,9	2,8	7,4	2,3	6,1
Flexed-arm hang	13,7	8,7	10,0	7,5	16,3	9,1	14,3	8,4
Pull-ups	2,8	2,8	3,6	2,8	3,8	3,1	1,3	1,6
Vertical jump	25,4	6,1	29,5	4,9	23,8	5,4	23,7	6,0
Speed endurance	6,7	3,4	6,4	3,2	6,8	3,9	6,8	3,2

Table 3 Significance of differences of rugby skills among

VARIABLES		ANALYSIS-VARIANCE			POSTHOC ANALYSIS (NEWMAN-KEULS)
		df	f	p	EXPERIMENTAL GROUPS
Forward pass for distance	(SA)	2,992	18,71	0,0000*	Black Coloureds White
Forward pass for distance	(USA)	2,101	16,31	0,0000*	Black Coloureds White
Forward pass for accuracy	(SA)	2,104	7,96	0,0006*	Black Coloureds White
Forward pass for accuracy	(USA)	2,272	21,66	0,0000*	Black Coloureds White
Forward pass for accuracy	(SA-4m)	2,272	9,10	0,0003*	Coloureds Black White
Catching the forward pass	(SA)	2,272	16,77	0,0000*	Coloureds Black White
Catching the forward pass	(USA)	2,108	16,86	0,0000*	Coloureds Black White
Punt for distance	(SA)	2,105	26,36	0,0000*	Black Coloureds White
Punt for distance	(USA)	2,272	18,36	0,0000*	Black Coloureds White
Kick-off test for distance	(SA)	2,272	0,63	0,5335	Black White Coloureds
Kick-off test for distance	(USA)	2,107	3,07	0,0506	White Black Coloureds
Dash test	(USA)	2,272	4,95	0,0081*	Black White Coloureds
Ball changing zig zag Run	(USA)	2,272	15,62	0,0000*	Coloureds White Black

*p<0,05

Table 4 Significance of differences of motor and physical abilities among groups

VARIABLES	ANALYSIS-VARIANCE			POSTHOC ANALYSIS (NEWMAN-KEULS)
	df	f	p	EXPERIMENTAL GROUPS
500 m endurance	2,272	47,78	0,0000*	White Black Coloureds
Sit and reach	2,272	3,47	0,0334*	White Black Coloureds
Flexed-arm hang	2,272	8,14	0,0004*	White Black Coloureds
Pull-ups	2,952	25,05	0,0000*	Black White Coloureds
Vertical jump	2,172	19,91	0,0000*	Black Coloureds White
Speed endurance	2,172	0,23	0,7987	Black White Coloureds

* $p < 0,05$

Table 5 Descriptive statistics of groups without experience

V A R I A B L E S	WHITES	COLOUREDS	BLACKS
	without experience (n = 16)	without experience (n = 28)	without experience (n = 66)
	X	X	X
Forward pass for distance (SA)	9,7	8,9	8,3
Forward pass for distance (USA)	11,0	10,7	9,5
Forward pass for accuracy (SA)	3,6	3,4	2,9
Forward pass for accuracy (USA)	7,8	4,8	4,1
Forward pass for accuracy (4m)	4,7	2,8	3,6
Catching the forward pass (SA)	8,9	7,2	9,3
Catching the forward pass (USA)	5,4	4,1	5,3
Punt for distance (SA)	18,3	14,4	13,6
Punt for distance (USA)	17,7	14,9	14,5
Kick-off test (SA)	11,4	14,2	13,6
Kick-off test (USA)	10,1	15,8	15,4
Dash test - 45,7 m (USA)	8,7	8,6	8,1
Ball changing zig zag Run (USA)	10,2	9,2	10,2

Table 6 Descriptive statistics of motor and physical abilities of groups without experience

V A R I A B L E S	WHITES	COLOUREDS	BLACKS
	without experience (n = 16)	without experience (n = 28)	without experience (n = 66)
	X	X	X
Endurance (500 m)	127,5	176,8	126,2
Sit- and reach	1,7	3,3	2,3
Flexed-arm hang	9,7	14,9	14,3
Pull-ups	3,6	4,2	1,3
Vertical jump	29,9	23,5	23,7
Speed endurance	6,6	6,2	6,8

did best as a result of their rugby background. The fact, however, that Coloured and Black boys did best in the kick-off for distance can possibly be attributed to their involvement in soccer.

If a comparison is made between the results of the three groups with regard to motor and physical ability tests, Coloured boys did best in three out of the six tests and White boys in two. (Table 2). If one further looks at the significance of differences in the motor and physical tests (Table 4), three of the tests in which Coloured boys did best (X) also differed significantly from the weakest group (there was no significant difference in the speed endurance test - $p = 0,7987$). The two tests in which the White boys did best, also differed significantly from the weakest group, viz. 500 metres endurance ($p = 0,0000$) and vertical jump ($p = 0,0000$) (Table 4). The conclusion can thus be drawn that with regard to motor and physical abilities (which are innate) and which also serve as predictors for later achievement, the marginalized or deprived groups show great promise.

Seeing that the White boys who had rugby experience, and the Coloured boys who had already attended a rugby clinic had a great effect on the results, attention was only focused on the results of the boys who had had no experience of rugby.

If one looks at the means of the rugby skills tests (Table 5) the White boys did best in eight of the thirteen tests. The tests in which the White boys did not do best included catching the forward pass, kick-off for distance, speed and zig zag run. It was striking that the differences in scores among the three groups were very small (different from when experience had also been brought into calculation) (cf. Table 1). The fact that White boys therefore still do best in the majority of skills tests, irrespective of experience, can possibly be attributed to their exposure to physical education programmes.

A further striking result which also emerged is that the number of rugby skills tests which now test significantly has now been reduced from eleven to nine (Table 7). The tests in which significant differences could not be found

Table 7 Significance of differences of rugby skills of groups without experience

VARIABLES		ANALYSIS-VARIANCE			POSTHOC ANALYSIS (NEWMAN-KEULS)
		df	f	p	EXPERIMENTAL GROUPS
Forward pass for distance	(SA)	2,39	11,06	0,0002*	Black Coloureds White
Forward pass for distance	(USA)	2	4,22	0,0172*	Black Coloureds White
Forward pass for accuracy	(SA)	2	0,34	0,7109*	Black Coloureds White
Forward pass for accuracy	(USA)	2	3,82	0,0249*	Black Coloureds White
Forward pass for accuracy	(SA-4m)	2	4,17	0,0180*	Coloureds Black White
Catching the forward pass	(SA)	2	1,67	0,1927	Coloureds White Black
Catching the forward pass	(USA)	2	0,74	0,4774	Coloureds Black White
Punt for distance	(SA)	2	7,53	0,0009*	Black Coloureds White
Punt for distance	(USA)	2	3,34	0,0391*	Black Coloureds White
Kick-off test for distance	(SA)	2	2,03	0,1359	White Black Coloureds
Kick-off test for distance	(USA)	2	7,27	0,0011*	White Black Coloureds
Dash test	(USA)	2	5,07	0,0079*	Black Coloureds White
Ball changing zig zag Run	(USA)	2	10,41	0,0001*	Coloureds Black White

Table 8 Significance of differences of motor and physical abilities among groups without experience

VARIABLES	ANALYSIS-VARIANCE			POSTHOC ANALYSIS (NEWMAN-KEULS)
	df	f	p	EXPERIMENTAL GROUPS
500 m endurance	2,28	19,51	0,0000*	Black White Coloureds
Sit and reach	2	0,37	0,6939	White Black Coloureds
Flexed-arm hang	2	2,45	0,0908	White Black Coloureds
Pull-ups	2,29	12,49	0,0001*	Black White Coloureds
Vertical jump	2,46	16,85	0,0000*	Coloureds Black White
Speed endurance	2,39	0,36	0,7003	Black White Coloureds

included passing for accuracy (p = 0,7109), catching the forward pass (p = 0,1927 and p = 0,4774) and kick-off (p = 0,1359). These three components are definitely very important for achievement in rugby and it is striking that the deprived groups did well in them.

If one looks at the motor and physical ability tests, the Coloured boys did best in four, the Blacks in one and Whites in one (Table 6). If one looks at the significance of the motor ability tests, significance could be found in three, viz. endurance, dynamic and explosive strength (Table 8).

From the results obtained from the motor and physical ability tests, it emerges that the deprived boys showed the best results. The conclusion can thus be draw that should these groups have the same opportunities for development, thus they do have the ability to achieve well in rugby.

Recommendations

Seeing that the deprived boys do have the ability to achieve well in rugby, they should become part of the talent identification programme and receive the best further specialist training. Schools can play an important role to achieve this goal.

The second recommendation is that the test battery used in this study can, with further statements, be used to identify talent among young rugby players.

The third recommendation is that SAFRU, provincial sports bodies, schools and clubs should, in conjunction with Departments of Human Movement Science of tertiary institutions, adopt a scientific approach in order to obtain the best results from the development programmes.

The fourth recommendation would be that adequate opportunites be created for all groups for rugby development, especially in the form of rugby clinics where the emphasis should be in skills development. Departments of Physical Education can and should play an active role to ensure that such scientific individual development of sporting talent takes place and is monitored regularly.

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