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APPENDIX A



Questionnaire Pertaining to Talent Identification Structures in South African/New Zealand/Australian Rugby

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Proposed Research Title:

Designing a protocol and comparative norms for the identification and selection of talent among elite age-group rugby players in South Africa.

Purpose of Study:

The purpose of this study is to evaluate revised testing protocols that have been modified from pre-existing test protocols that have been designed to identify talent in rugby players.

Note:

This questionnaire serves the sole purpose of determining the talent identification (TID) structures within South Africa/New Zealand/Australian Rugby. Kindly discuss/list/describe the specific tests and approaches to TID within South Africa/New Zealand/Australia as they are listed below.

While it would be helpful to know if norms and standards are used as forms of comparison, no specific norms and standards are requested for the purposes of this study.

All information provided to me will be used for the purposes of contrasting and comparing TID structures used within the SANZAR nations of South Africa, New Zealand and Australia.

Your assistance in this regard is highly appreciated.

Yours truly,



1) GENERAL

1.1) Is TID performed country-wide? Please describe.

1.2) At what age-groups is TID officially performed? Please describe. A) Are tests and measurements performed at all levels including junior national, senior national, junior provincial, senior provincial and Super12/14?

1.3) Are the obtained results compared to a database containing norms and standards? Please describe. A) Please provide the name of the database used.

1.4) Can the results obtained from testing one age-group or group be objectively compared to the results obtained from testing another age-group or group? Please describe.



1.5) Who performs TID for the Rugby in South Africa/New Zealand/Australia? A) Is it done “in-house” or are these duties contracted out? B) If they are contracted out then to what organization are these duties assigned?

1.6) Regardless of the above questions, please provide a general description of how TID is performed in South African/New Zealand/Australian Rugby addressing any factors or issues not queried above.

Continued below...



2) Testing Procedures and Protocols

2.1) At this juncture a copy of the test protocol used by South African/New Zealand/Australian Rugby would be highly appreciated.

A) If this is not possible, would you please describe in general terms the test protocol used by South African/New Zealand/Australian Rugby below?

Please indicate whether the following categories i.e.: anthropometrical, physical-motor and skills tests are used or if these tests are performed under other descriptions.

B) Are any other tests or categories included that are not mentioned above?

2.2) Please list and describe the specific TID anthropometrical tests used in South Africa/New Zealand/Australia.

Anthropometrical tests=body mass, body height, fat % etc.



2.3) Please list and describe the specific TID physical motor tests used in South Africa/New Zealand/Australia.

Physical motor=speed, agility, explosive power etc.

2.4) Please list and describe the specific TID rugby skills tests used in South Africa/New Zealand/Australia.

Rugby skills tests=passing, kicking etc.

2.5) Are the TID rugby skill tests used in South Africa/New Zealand/Australia measured in a qualitative or quantitative manner?

Qualitative=perceptions (ranked poor to excellent)

Quantitative=measurements (assigning a score of 0/10 or 8/10)

2.6) Are the TID rugby skills tests position specific or divided into general and specific skills categories? Please describe.



2.7) Are there any other TID tests used in South African/New Zealand/Australian Rugby that have not been mentioned above?

2.8) Is there anything else re: TID in South African/New Zealand/Australian Rugby that you would like to mention or discuss?

Continued below...



3) TALENT DEVELOPMENT

3.1) Once someone has been identified as talented or gifted, what is done to develop this individual further? Please describe.

3.2) What talent development and improvement structures are in place in South African/New Zealand/Australian Rugby? Please describe.

3.3) Is there anything else re: talent development in South African/New Zealand/Australian Rugby that you would like to mention or discuss?

End of document.



APPENDIX B



INTERVIEW FORM FOR D-PHIL STUDY-CONRAD BOOYSEN

The purpose of this form is to help with assessing positional attributes felt to make a major difference in successful rugby playing at a high level. The general premise has been included with space provided for comments by the respective interviewee. Many of the statements have been adapted for the use in this study, with the reference included in brackets at the bottom.

Please note that although the information contained below is factually totally accurate, the statements that have been quoted are not exact or precise as found in the original documentation.

TIGHT FORWARD PLAY:

1) Tight forward play consists mostly out of the following:

- Rucks, mauls, line-outs, scrums, to attack and to defend (Craven, 1974; Van Gent, 2003).
- To keep and secure possession of the ball (Hare 1997, in Van Gent, 2003).

Additions:

- _____
- _____
- _____

2) NB components of tight forwards are: the correct body build and length, they must be strong, have speed and high endurance (Craven, 1974; Hazeldine & McNab, 1991; Pool, 1997; Van Gent, 2003).

Additions:

- _____
- _____
- _____

1) PROPS:

1) Props, along with the hookers, are responsible for securing possession of the ball in the rucks, mauls and scrums (Craven, 1974; Van Gent, 2003).

Additions:

- _____
- _____
- _____

Skills:

- They are the basis of line-outs and scrums (set pieces) (Van Gent, 2003).
- Primary components: proper support of jumpers in line-outs and effective scrumming (Joubert & Groenewald, 1998; Van Gent, 2003)



- Apply pressure on the opposition's scrum and retain own ball in scrum (Rutherford, 1983; Van Gent, 2003).
- Effective in the loose play in giving to the backs good ball and getting over the advantage line (Crave, 1974; Van Gent, 2003).
- Must have good ball handling skills (Van der Merwe, 1989 in Van Gent, 2003).
- Kicking skills? (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Physical Motor:

- Require power and strength to compete in set pieces and loose play (Hare, 1997 in Van Gent, 2003)
- Able to resist pressure in scrums with static and general strength in arms legs, back and neck (Craven, 1974; Hare, 1997 in Van Gent, 2003; Hazeldine & McNab, 1991).
- Must possess a high work rate and be mobile (Joubert & Groenewald, 1998; Van Gent, 2003).
- Must possess a good base of endurance (Van der Merwe, 1989 in Van Gent, 2003).
- Fast and fit? (Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

2) HOOKERS:

Skills:

- The hooker is a specialist position (throwing in line-out and hooking in scrum) (Hare, 1997 in Van Gent, 2003; Pool, 1997)
- Most important line-out player and must be consistent with throw-ins (Pool, 1997; Van Gent, 2003).
- Must have good ball handling skills for line-outs (Van Gent, 2003).
- Ball handling and tackling (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____



- _____
- _____

Physical Motor:

- Strong (Pool, 1997; Van Gent, 2003).
- Strong legs, back and neck (Craven, 1974; Van Gent, 2003).
- Require a fast reaction and leg speed in open games, as well as powerful legs for rucks, mauls and scrums (Nicholas, 1997 in Van Gent, 2003).
- Good reflexes and strength and good technique in binding in scrums (Norton, 1982).
- Good reactions for hooking in scrums (Van Gent, 2003).
- Hookers must be agile with some suppleness (Norton, 1982; Van Gent, 2003).
- Static and general strength in arms, legs, back and neck as well as muscle endurance and power (Craven, 1974; Hare, 1997 in Van Gent, 2003; Hazeldine & McNab, 1991).
- Fourth loose forward? Hare, 1997 in van Gent, 2003)?
- High endurance levels (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

3) LOCKS:

Skills:

- Ability to scrum and to catch balls in line-out (Pool, 1997; Van Gent, 2003).
- Must fight for ball possession in the line-out (Quarrie *et al.*, 1996; Van Gent, 2003).
- Ball handling and tackling (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Physical Motor:

- Mobile, strong and agile (White, 1982; Van Gent, 2003).
- Body length important, but overall strength is more significant than body size (White, 1982; Van Gent, 2003).



- To catch balls in mid-air during kick-offs and line-outs, proper balance and hand-eye coordination is needed (Van Gent, 2003).
- Weight and power are needed to successfully compete in loose-play and scrums (Bell, 1980 in Van Gent, 2003).
- Jumping ability is an important (Quarrie *et al.*, 1996; Van Gent, 2003).
- Require arm, leg, back and neck strength (Craven, 1974; Hazeldine & McNab, 1991; Van Gent, 2003).
- Strength and power in scrums (White, 1982).
- They need power to drive into mauls and rucks (Van Gent, 2003).
- Power and weight are advantageous in scrums (Craven, 1974; Hare, 1997 in Van Gent, 2003).
- Speed is an asset (Craven, 1974; Van Gent, 2003).
- Speed endurance required (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

LOOSE FORWARD PLAY:

1) Loose forwards operate in tandem or in combination. They keep the ball in play and secure possession from the opponents. Skill, speed and strength are emphasised (Pool, 1997; Van Gent, 2003).

2) They are quick over short distances and are effective in defence. They have a height advantage over the front rowers but are shorter than the locks. In loose play they are tasked with securing and keeping possession of the ball of (Quarrie, *et al.*, 1996; Van Gent, 2003). Van Gent (2003) says that to be effective in these roles they require mobility, power, endurance and acceleration in open play.

3) They require power and strength to participate in the rucks, mauls and scrums as well as for effective defence (Nicholas, 1997 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

4) FLANKERS:

Skills:



- Should be forward playing (Pool, 1997; Van Gent, 2003).
- Effective defenders able to stop the opposition (Hanekom, 2000 in Van Gent, 2003).
- Must be good defenders and ball handlers (Van Gent, 2003).
- Are considered vital in rucks and mauls (Hanekom, 2000 in Van Gent, 2003)
- Must possess handling, tackling, running, and ground skills (Van der Merwe, 1989 in Van Gent, 2003)

Additions:

- _____
- _____
- _____

Physical Motor:

- Speed (Craven, 1974; Van Gent, 2003).
- They need agility since they are the link between the backs and forwards in broken play (Van Gent, 2003).
- They frequently change directions and need enough speed to get to the mauls and rucks first (Hanekom, 2000 in Van Gent, 2003).
- Require good speed endurance (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

5) EIGHTH MEN:

Skills:

- This is a specialist position in which proper judgement, such as playing the ball or keeping it in the scrum is needed (Pool, 1997; Van Gent, 2003).
- Must be good jumpers at the back of the line-out and must be effective on blind side scrum defence and are utilised in attacking movements from the side of the scrum (Bell, 1980, in Van Gent, 2003).
- They require good ball handling skills since they are the initiators of driving play as opposed to mauls and rucks (Pool, 1997; Van Gent, 2003)
- Together with scrumhalf, the eighth man initiates offensive plays around scrum and are also responsible for cross-defence (Van Gent, 2003)
- Must possess handling, tackling, running, and ground skills (Van der Merwe, 1989, in Van Gent, 2003)



Additions:

- _____
- _____
- _____

Physical Motor:

- Must possess agility, power, muscle endurance, strength and speed. They are also faster than other forwards (Hare, 1997 in Van Gent, 2003).
- Must have good speed endurance (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

INSIDE BACK PLAY:

1) Inside backs utilise the possession that is obtained by the forwards and they decide how this possession is used, i.e.: defensive or offensive moves (Van Gent, 2003).

2) They need to be fast and be able to accelerate away from the rucks, mauls, scrums and line-outs. Endurance is important for the positional play of these players, for the cover defence or for player support (Nicholas, 1997 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

6) SCRUM-HALVES:

Skills:

- They need to have good ball handling skills and should be able to pass quickly and accurately to both the left and the right sides. They are the link between the back-line and the forwards (Pool, 1997; Van Gent, 2003).
- Must kick well (De Ridder, 1993 in Van Gent, 2003; Joubert & Groenewald, 1998) and possess good decision-making ability, such as when to pass or kick, when to break, or when to continue playing with the forwards (Pool, 1997; Joubert & Groenewald, 1998; Van Gent, 2003).



- Good defence, ball handling and decision making (Rutherford, 1983; Joubert & Groenewald, 1998; Van Gent, 2003).
- Must possess handling, tackling, running, and ground skills (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Physical Motor:

- They need agility and speed (Van Gent, 2003).
- They require acceleration from the scrum and bi-lateral coordination (Hare, 1997 in Van Gent, 2003).
- Dynamic arm strength ensures accurate and effective passing (Hare, 1997 in Van Gent, 2003).
- Endurance and speed are essential (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

7) FLY-HALVES:

Skills:

- Must be able to read opposition play, be able to receive and pass balls effectively and rapidly and must have solid kicking skills with both feet in either attacking or defensive situations (Pool, 1997; Van Gent, 2003).
- Require good leadership skills and knowledge of the game to effectively call plays and distribute the ball (Van Gent, 2003).
- Need good side-step, acceleration and running skills (Craven, 1974; Van Gent, 2003).
- They must be defensively solid (Rutherford, 1983; Van Gent, 2003).
- The responsibility of converting penalties and tries lies mostly with them, and therefore they must be specialist goal kickers (Rutherford, 1983; Van Gent, 2003).
- Must possess running, kicking and tackling skills (Van der Merwe, 1989 in Van Gent, 2003).



Additions:

- _____
- _____
- _____

Physical Motor:

- Agility, speed, alertness and quickness are needed (Craven, 1974; Rutherford, 1983; Van Gent, 2003).
- Should rapidly be able to return to position after passing the ball, to provide support to the forwards (Van Gent, 2003).
- Power, speed, strength and agility are needed (Hare, 1997 in Van Gent, 2003).
- Endurance and speed endurance are needed (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

BACK-LINE PLAY:

1) Must possess speed and good ball handling skills and must know when and how to use both as needed (Van Gent, 2003).

2) Motor capacities such as muscle endurance and aerobic capacity are on the whole better than forwards (Babic *et al.*, 2001; Van Gent, 2003).

Additions:

- _____
- _____
- _____

8) CENTRES:

Skills:

- Centres support both the wing and flyhalf by running straight (except when executing specific technical moves) and creating space (Van Gent, 2003).
- Make the most contact with opposing players (Quarrie *et al.*, 1996; Van Gent, 2003).
- They must be able to successfully pass the ball in contact situations (Van Gent, 2003).



- They fulfil offensive and defensive roles (Nicholas, 1997 in Van Gent, 2003).
- Centres are required to be good handlers of the ball and must be effective in passing the ball to the inside as well as outside under pressure (Rutherford, 1983; Van Gent, 2003).
- Aerial and ground kicks are important as are running skills such as side-steps and swerves (Van Gent, 2003).
- Must possess running, kicking, tackling and tackling skills (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Physical Motor:

- Agility and speed are needed (Craven, 1974).
- Must create space for wings through rapid acceleration (Van Gent, 2003).
- Must be defensively sound (Joubert & Groenewald, 1998; Van Gent, 2003).
- They absorb substantial physical contact in offensive and defensive passages of play and they need intermittent speed with varies power, intensity and strength to attack the opposition (Nicholas, 1997 in Van Gent, 2003).
- Powerful legs and dynamic upper body strength are needed for driving force (Hare, 1997 in Van Gent, 2003).
- They require speed endurance (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

9) WINGS:

Skills:

- Wings are involved in counter attack support, covering of the fullback when on attack as well as cross-defence (Pool, 1997; Van Gent, 2003).
- Wings chase high balls kicked onto the opposition, they apply pressure to the opposition wings and fullback, and are involved in defending against the opposition (Rutherford, 1983; De Ridder, 1993 in Van Gent, 2003).
- Must possess kicking, handling, catching, running and tackling skills (Van der Merwe, 1989 in Van Gent, 2003).



Additions:

- _____
- _____
- _____

Physical Motor:

- An important requirement in wings is speed (Craven, 1974; Van Gent, 2003).
- Wings must beat the opposition through a combination of strength, agility and speed (Quarrie *et al.*, 1996; Van Gent, 2003).
- Need to be quick on cross-defence and fast (Joubert & Groenewald, 1998; Van Gent, 2003).
- Need speed and speed endurance (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____

10) FULL-BACKS:

Skills:

- Acts as a second fly-half and needs to have good kicking and handling skills (Craven, 1974; Van Gent, 2003).
- Must be able to properly kick technical kicks on attack and be able to kick high balls to place pressure on the opposition (Van Gent, 2003).
- Must have pace to join the back-line movements during attacking moves (Van Gent, 2003) and must know where and when to enter the backline (Rutherford, 1983).
- Must be defensively sound (De Ridder, 1993 in Van Gent, 2003).
- Must possess running, handling, catching of high ball and tackling skills (Van der Merwe, 1989 in Van Gent, 2003).
- Must be able to read the game, kick with both feet, and have the speed to join the game attack and must be solid under the high ball (Pool, 1997; Van Gent, 2003).

Additions:

- _____
- _____
- _____



Physical Motor:

- Must possess agility and speed (De Ridder, 1993 in Van Gent, 2003).
- Must be able to outdo the opposition with strength and speed (Van Gent, 2003).
- Must have good overall endurance as well as speed endurance (Van der Merwe, 1989 in Van Gent, 2003).

Additions:

- _____
- _____
- _____

Psychological Factors and Vision/Anticipation/Reading of Game:

- _____
- _____
- _____



APPENDIX C



TESTING PROTOCOL SHEET

SUBJECT DETAILS

Name and Surname	_____
Age	_____
Position	_____
Injury?	_____

NOTE-TESTS TO BE FOLLOWED STRICTLY IN ORDER

ANTHROPOMETRICAL COMPONENTS

- 1) Height (Body Stature) _____cm
- 2) Body Mass _____kg
- 3) Biceps SF* _____mm
- 4) Triceps SF* _____mm
- 5) Subscapular SF* _____mm
- 6) Suprailiac SF* _____mm

*Needed for Durnin & Wormersly



PHYSICAL MOTOR

1) Vertical Jump

Reach 1: _____ cm	Jump 1: _____ cm
Reach 2: _____ cm	Jump 2: _____ cm
Reach 3: _____ cm	Jump 3: _____ cm

2) 10m/40m Dash

1: _____ sec (10m)	1: _____ sec (40m)
2: _____ sec (10m)	2: _____ sec (40m)

3) T-test

1: _____ sec	2: _____ sec
--------------	--------------

4) 3x5x22m Aerobic Capacity Test

5x22m Set 1	_____ sec
Rest (tick)	_____ 30 sec
5x22m Set 2	_____ sec
Rest (tick)	_____ 30 sec
5x22m Set 3	_____ sec



RUGBY SPECIFIC SKILLS

1) S-Test 1) ___pts T:___sec 2) ___pts T:___sec
5 points per target hit

2) Kick for Distance & Accuracy

L: 1:___ ___m 2:___ ___m

R: 1:___ ___m 2:___ ___m

SPORT VISION TESTING

Accuvision 1000-Test

1) 30 Accurate Lights Test in Total Time Test

1: Sec _____

2: Sec _____



APPENDIX D



Descriptive Statistics per Group per Variable

Non-Parametric Tests to determine whether statistically significant differences existed between the scores of the three positions on all variables measured.

Kruskal-Wallis Test – Anthropometrical Components

Ranks			
	Grouped Positions	N	Mean Rank
Height (cm)	Tight Forwards	21	49.24
	Loose Forwards	27	44.37
	Backs	30	28.30
	Total	78	
Body Mass (kg)	Tight Forwards	21	58.62
	Loose Forwards	27	41.33
	Backs	30	24.47
	Total	78	
Biceps SF* (mm)	Tight Forwards	21	48.74
	Loose Forwards	27	36.06
	Backs	30	36.13
	Total	78	
Triceps SF* (mm)	Tight Forwards	21	46.81
	Loose Forwards	27	35.59
	Backs	30	37.90
	Total	78	
Suprailiac SF* (mm)	Tight Forwards	21	49.05
	Loose Forwards	27	34.63
	Backs	30	37.20
	Total	78	
Subscapular SF* (mm)	Tight Forwards	21	51.90
	Loose Forwards	26	34.17
	Backs	30	34.15
	Total	77	
Skintotal	Tight Forwards	21	49.64
	Loose Forwards	26	33.79
	Backs	30	36.07
	Total	77	
Body Fat % vs Skinfold thickness	Tight Forwards	21	49.69
	Loose Forwards	26	33.31
	Backs	30	36.45
	Total	77	



Test Statistics(a,b)

	Height (cm)	Body Mass (kg)	Biceps SF* (mm)	Triceps SF* (mm)	Suprailiac SF* (mm)	Subscapular SF* (mm)	skintotal	Body Fat % vs Skinfold thickness
Chi-Square	12.486	28.335	4.789	3.139	5.287	9.615	6.680	6.879
Df	2	2	2	2	2	2	2	2
Asymp. Sig.	.002	.000	.091	.208	.071	.008	.035	.032

a Kruskal Wallis Test

b Grouping Variable: Grouped Positions

Kruskal-Wallis Test – Physical Motor Skills

Ranks

	Grouped Positions	N	Mean Rank
Vertical Jump Difference between Reach distance and Best attempt on Vertical jump	Tight Forwards	17	38.76
	Loose Forwards	24	36.46
	Backs	30	34.07
	Total	71	

Test Statistics(a,b)

	Vertical jump (cm) best effort
Chi-Square	.583
Df	2
Asymp. Sig.	.747

a Kruskal Wallis Test

b Grouping Variable: Grouped Positions

Kruskal-Wallis Test

Ranks



	Grouped Positions	N	Mean Rank
10m Dash sec (10m) (1) (sec)	Tight Forwards	18	42.94
	Loose Forwards	24	30.71
	Backs	25	30.72
	Total	67	
10m Dash sec (10m) (2) (sec)	Tight Forwards	14	32.79
	Loose Forwards	19	19.92
	Backs	16	24.22
	Total	49	
10m Dash sec (10m) Lowest Score (sec)	Tight Forwards	16	41.41
	Loose Forwards	20	27.63
	Backs	25	27.04
	Total	61	
40m Dash sec (40m) (1) (sec)	Tight Forwards	18	46.33
	Loose Forwards	25	31.64
	Backs	25	28.84
	Total	68	
40m Dash sec (40m) (2) (sec)	Tight Forwards	13	33.54
	Loose Forwards	19	20.95
	Backs	16	21.38
	Total	48	
40m Dash sec (40m) lowest score (sec)	Tight Forwards	18	49.58
	Loose Forwards	25	30.36
	Backs	25	27.78
	Total	68	

Test Statistics(a,b)

	10m Dash sec (10m) Lowest Score (sec)	40m Dash sec (40m) (1) (sec)	40m Dash sec (40m) (2) (sec)	40m Dash sec (40m) lowest score (sec)
Chi-Square	7.471	9.021	7.446	14.464
df	2	2	2	2
Asymp. Sig.	.024	.011	.024	.001

a Kruskal Wallis Test

b Grouping Variable: Grouped Positions

Kruskal-Wallis Test

Ranks



	Grouped Positions	N	Mean Rank
T-test (1) (sec)	Tight Forwards	18	46.00
	Loose Forwards	25	30.44
	Backs	26	31.77
	Total	69	
T-test (2) (sec)	Tight Forwards	14	33.21
	Loose Forwards	19	22.03
	Backs	16	21.34
	Total	49	
T-test lowest score	Tight Forwards	18	46.81
	Loose Forwards	25	29.78
	Backs	26	31.85
	Total	69	
Anaerobic Capacity 5x22m set 1 (sec)	Tight Forwards	18	39.50
	Loose Forwards	25	29.38
	Backs	25	36.02
	Total	68	
Anaerobic Capacity 5x22m set 2 (sec)	Tight Forwards	18	46.61
	Loose Forwards	25	28.38
	Backs	25	31.90
	Total	68	
Anaerobic Capacity 5x22m set 3 (sec)	Tight Forwards	17	44.97
	Loose Forwards	22	26.80
	Backs	25	29.04
	Total	64	

Test Statistics(a,b)

	T-test (1) (sec)	T-test (2) (sec)	T-test lowest score	Anaerobic Capacity 5x22m set 1 (sec)	Anaerobic Capacity 5x22m set 2 (sec)	Anaerobic Capacity 5x22m set 3 (sec)
Chi-Square	7.378	6.498	8.570	2.988	9.614	10.585
Df	2	2	2	2	2	2
Asymp. Sig.	.025	.039	.014	.224	.008	.005

a Kruskal Wallis Test

b Grouping Variable: Grouped Positions

Kruskal-Wallis Test – Vision Test

Ranks



	Grouped Positions	N	Mean Rank
Accuvision 1000 Test (30 lights test) (sec)	Tight Forwards	15	32.00
	Loose Forwards	18	21.56
	Backs	18	25.44
	Total	51	

Test Statistics(a,b)

	Accuvision 1000 Test (30 lights test) (sec)
Chi-Square	4.119
df	2
Asymp. Sig.	.127

a Kruskal Wallis Test

b Grouping Variable: Grouped Positions



APPENDIX E



Simulated data

Descriptives for Tight-Forwards on Anthropometrical Components

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Height (cm)	250	171.75	201.47	185.4830	6.95572
Body Mass (kg)	250	83.22	115.99	101.9518	7.74215
Biceps SF* (mm)	250	3.45	9.19	6.1838	1.38038
Triceps SF* (mm)	250	7.26	24.89	15.0627	4.37526
Suprailiac SF* (mm)	250	5.95	51.96	24.4743	10.63275
Subscapular SF* (mm)	250	7.70	27.17	16.6849	4.74259
Skintotal	250	27.65	103.44	61.4950	18.66609
Body Fat % vs Skinfold thickness	250	11.93	24.99	18.9538	3.28714
Valid N (listwise)	250				

Descriptives for Tight-Forwards on Physical-Motor Skills

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Vertical jump (cm) 1	250	220.68	317.54	267.6816	24.55104
Vertical jump (cm) 2	250	216.83	319.97	266.2885	25.55117
Vertical jump (cm) best effort	250	220.60	319.54	269.3776	25.05146
Vertical Jump Difference between Reach distance and best attempt	250	41.01	63.93	53.2460	5.51651
10m Dash sec (10m) Lowest Score (sec)	250	1.82	2.35	2.1264	.12858
40m Dash sec (40m) lowest score (sec)	250	5.33	6.56	5.9448	.29372
T-test lowest score	250	10.46	13.33	11.6222	.67761
Anaerobic Capacity 5x22m set 1 (sec)	250	20.51	23.21	21.9930	.67193
Anaerobic Capacity 5x22m set 2 (sec)	250	21.16	27.05	23.9308	1.30961
Anaerobic Capacity 5x22m set 3 (sec)	250	21.84	27.35	24.5261	1.39397
Accuvision 1000 Test (30 lights test) (sec)	250	19	29	24.18	2.477
Valid N (listwise)	250				



Descriptives for Loose-Forwards on Anthropometrical Components

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Height (cm)	250	170.39	193.72	182.4141	5.34549
Body Mass (kg)	250	71.79	106.49	92.1370	7.23231
Biceps SF* (mm)	250	3.13	9.16	5.4633	1.32353
Triceps SF* (mm)	250	5.10	18.88	11.0897	2.92889
Suprailiac SF* (mm)	250	6.77	35.74	15.9212	5.67021
Subscapular SF* (mm)	250	7.06	18.33	11.6752	2.37788
Skintotal	250	25.55	75.35	43.2199	10.10560
Body Fat % vs Skinfold thickness	250	11.04	24.49	16.3645	2.69821
Valid N (listwise)	250				

Descriptives for Loose-Forwards on Physical-Motor Skills

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Vertical jump (cm) 1	250	222.68	309.74	272.0851	20.93121
Vertical jump (cm) 2	250	222.77	313.99	273.9266	21.99182
Vertical jump (cm) best effort	250	223.30	313.72	274.3501	21.86138
Vertical Jump Difference between Reach distance and best attempt	250	39.15	66.88	53.4937	6.08430
10m Dash sec (10m) Lowest Score (sec)	250	1.69	2.43	2.0257	.16773
40m Dash sec (40m) lowest score (sec)	250	4.93	6.31	5.5938	.30959
T-test lowest score	250	9.78	12.50	10.8147	.60497
Anaerobic Capacity 5x22m set 1 (sec)	250	19.76	23.69	21.5763	.88241
Anaerobic Capacity 5x22m set 2 (sec)	250	20.58	25.06	22.5631	1.02314
Anaerobic Capacity 5x22m set 3 (sec)	250	19.92	24.96	22.5174	1.13407
Accuision 1000 Test (30 lights test) (sec)	250	18	28	22.37	2.474
Valid N (listwise)	250				



Descriptives for Backs on Anthropometrical Components

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Height (cm)	250	171.08	192.26	179.2819	4.89787
Body Mass (kg)	250	64.81	111.97	86.0929	9.24403
Biceps SF* (mm)	250	3.42	10.68	5.7281	1.41499
Triceps SF* (mm)	250	5.48	18.66	11.4469	2.99176
Suprailiac SF* (mm)	250	5.50	36.55	17.1261	6.73050
Subscapular SF* (mm)	250	5.89	20.72	11.6209	2.90216
Skintotal	250	23.70	84.45	46.0682	12.78660
Body Fat % vs Skinfold thickness	250	10.11	24.96	16.8523	3.33480
Valid N (listwise)	250				

Descriptives for Backs on Physical-Motor Skills

Descriptive Statistics



	N	Minimum	Maximum	Mean	Std. Deviation
Vertical jump (cm) 1	250	201.43	298.73	255.9915	24.10423
Vertical jump (cm) 2	250	205.53	299.99	259.0357	23.44387
Vertical jump (cm) best effort	250	205.03	299.74	258.2484	23.71965
Vertical Jump Difference between Reach distance and best attempt	250	41.10	64.50	52.6260	4.91956
10m Dash sec (10m) Lowest Score (sec)	250	1.75	2.39	2.0247	.14414
40m Dash sec (40m) lowest score (sec)	250	5.04	6.33	5.5749	.28014
T-test lowest score	250	9.23	12.83	10.8152	.79879
Anaerobic Capacity 5x22m set 1 (sec)	250	19.11	23.69	21.6320	1.05829
Anaerobic Capacity 5x22m set 2 (sec)	250	19.96	27.51	22.9971	1.52713
Anaerobic Capacity 5x22m set 3 (sec)	250	20.76	26.83	23.0414	1.24683
Accuvision 1000 Test (30 lights test) (sec)	250	17	29	22.89	3.054
Valid N (listwise)	250				

