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A STUDY CONCERNING SOMATIC MODEL FOR MALE HANDBALL PLAYERS

***Dan Mihai Rohozneanu*[1]**
[1]*The University Eftimie Murgu of Reşiţa, Romania*
[1]*Traian Vuia High School of Reşiţa, Romania*

Keywords: *handball, study, somatic model, male.*
Abstract: *The ciclicity of competitions requires the establishment of these essential values for a certain period and determines the success level for competitors. Generally, the modification of the success occurs slowly and not always uniformly throughout the typical values that determine it at a time.*

This value clearly indicates the increasing weight of the handball players, fact that could be explained more plausible by a major muscle increase and demonstrated by the physical aspect of the global elite handball players.

These conclusions can not be generalized because in the case of the elite handball the data were obtained by studying materials and having access to updated information, while in the case of the Romanian handball we generalized data from specialists.

Introduction

In the field of sports training, the model prefigures the maximum requirements that sportsmen must satisfy to be able to face successfully the demands imposed by the competitive confrontations of the contemporary performance sports.

When we talk about modeling we must emphasize the model, being a transposition of data, information, relationships in a complex activity field, through simple structures. Models are characterized by a prospective feature; they could be regarded as working hypothesis for their design in a further practice. The formulation of such assumptions requires a well thought strategy along with an organizational and material structure in order to create the necessary conditions for the operation of the developed model.

The ciclicity of competitions requires the establishment of these essential values for a certain period and determines the success level for competitors. Generally, the modification of the success occurs slowly and

not always uniformly throughout the typical values that determine it at a time. This change occurs because of the competition rules, but most often it occurs due to the evolution of the selection and training conception, being in a close correlation and interdependence with it.

Material - method

Talking about the elite handball, the data used in this study are based on information from the sites of the competitions organized at European level, for national teams and club teams.

The data for Romania are collected from specialized works, which are based on information from 70s and 80s. An updated documentary was not possible in the case of Romania because of the lack of information on the specialized sites in our country (the National Handball Federation, clubs).

The analysis was done taking into account three anthropometric indices (height, weight, report height – 100 / weight).

Referring to data for Romania, for each of the three indices there were used two arguments: optimal index and admitted quotas for all the game posts. Referring to data for the elite handball the three indices were processed through three parameters: arithmetic mean, minimum, maximum for all the game posts.

Results

The wing

Somatically speaking, the ideal model of the player on this kind of post is getting closer to the anthropometric features of the speed runners. His height is smaller than that of other players; his body weight is a little bigger to outface the hard contacts with the adverse defenders. His optimum weight declared by the value of a 1.05 ratio between height and weight is a determinant factor in the performance sports. The up and down variations can become limiting factors, adversely influencing the sportsman's physical shape.

	Anthropometric indices	**Wing**				
		Romania		The elite handball (n = 26)		
		Optimum index	Admitted quotas	Average	Min	Max
1	Height (cm)	**1 83**	**180 -187**	**187,50**	**68**	**00**
2	Weight (kg)	**7 9**	**76-82**	**87,46**	**8**	**00**

3	The report **height – 100/weight**	**1, 05**	**1,0 5**	**1,0004**	**,88**	**,10**

The backcourt

The players who are specialized on the post of backcourt are higher than most of the players. Their height is important for the execution of the throwing to the but from a certain distance and for the supervision of the game field so crowded in front of the but. The backcourt could have a bigger body weight and this is an advantage in the corporal fight with his opponents and can ensure the success of the screens and blocs schemes. The backcourt player must be athletic, have a good mobility of his scapular joints, of his backbone and of his pelvic belt, and also must have muscular elasticity in order to execute more easily and more skillfully specific technical schemes.

No.	Anthropometric indices	**Backcourt**				
		Romania		The elite handball (n = 42)		
		Optimum index	Admitted quotas	Average	Min	Max
1	Height (cm)	**1 91**	**1 86-198**	**1 96,62**	**86**	**08**
2	Weight (kg)	**8 6**	**8 1-94**	**9 8,02**	**0**	**11**
3	The report **height – 100 / weight**	**1,06**	**1,06**	**0,9860**	**0,87**	**1,12**

The goalkeeper

The goalkeepers are selected from among high young men, with a physical harmonious development. The report between height and weight shows that the goalkeeper must be a slim player, with great ease in performing the most complicated movements, even in conditions of imbalance. His long arms and the big opening of his palms are favorable conditions in the defense of the but.

No.	Anthropometric indices	Goalkeeper				
		Romania		The elite handball (n = 20)		
		Optimum index	Admitted quotas	Average	Minimum	Maximum

1	Height (cm)	**1 87**	**1 84-194**	**1 93,80**	**1 85**	**2 04**
2	Weight (kg)	**8 2**	**8 0-88**	**9 6,70**	**8 7**	**1 19**
3	The report **height – 100 / weight**	**1,06**	**1,05 – 1,06**	**0,9710**	**0,81**	**1,05**

The centerback

The players who are specialized on this post are higher than the semicircle players and shorter than the goalkeepers and the backcourt players. Their height is important for the execution of the throwing to the but from a certain distance and for the supervision of the game field so crowded in front of the but. The centerback could have a bigger body weight and this is an advantage in the corporal fight with his opponents and can ensure the success of the technical and tactical actions that were taken.

o.	Anthropometric indices	Centerback				
		Romania		The elite handball (n = 14)		
		Optimum index	Admitted quotas	Average	Minimum	Maximum
1	Height (cm)	**1 85**	**1 83-188**	**1 90,07**	**1 84**	**97**
2	Weight (kg)	**8 1**	**7 9-84**	**9 2,79**	**8 6**	**00**
3	The report **height – 100 / weight**	**1,05**	**1,05**	**0,9729**	**0,88**	**1,06**

The pivot

The actions on small spaces, the long struggle with the opponent defenders in order to fill favorable positions, determine the particular profile that a player on the pivot post needs to have.

He is high, his body weight is a little bigger in order to outface the hard contacts with his opponent defenders. His optimum weight declared by the value of a 1,00 ratio between height and weight is a determinant factor in the performance sports. The robustness is necessary for him to keep control of his body and create difficulties to his opponent defenders that brand him. His arms are shorter and the opening of his palms is bigger to be able to catch the ball in difficult positions.

No.	Anthropometric indices	Pivot				
		Romania		The elite handball (n = 26)		
		Optimum index	Admitted quotas	Average	Minimum	Maximum
1	Height (cm)	**184**	**181-190**	**194,08**	**187**	**205**
	Weight (kg)	**84**	**81-88**	**101,50**	**87**	**124**
3	The report **height – 100 / weight**	**1,00**	**1,00**	**0,9258**	**0,80**	**1,09**

Discussion

The analysis was done taking into account three anthropometric indices (height, weight, report height – 100 / weight).

Referring to data for Romania, for each of the three indices there were used two arguments: optimal index and admitted quotas for all the game posts. Referring to data for the elite handball the three indices were processed through three parameters: arithmetic mean, minimum, maximum for all the game posts. To correlate data from the elite handball and Romanian handball, we have achieved the following correspondence: index - arithmetic mean, admitted quotas – minimum, maximum. To obtain data from the elite handball there were selected 128 top handball players, sharing the following game posts: wing – 26, backcourt – 42, goalkeeper – 20, centerback– 14, pivot – 26.

For specialized players on the wing post, the difference for height (optimum index, average) is 4,5 cm, being higher for the elite handball, the admitted quotas offering a margin of 7 cm, and between minimum and maximum the difference is 32 cm. For weight the difference between optimum index and average is 9,46 kg, for admitted quotas there is allowed a variation of 6 kg and for minimum and maximum there was registered a difference of 22 kg.

Making reference to the report, the optimum index and the quota share the same value-1,05, and for the elite handball the average was 1,0004, respectively values between 0,88 and 1,10.

For backcourt players, referring to their height, the difference between index and average is 5,62 m, referring to admitted quota the variation is 12 cm, respectively 22 cm between minimum and maximum. For weight, there was obtained a difference of 12.02 kg between index and average, in the case of admitted quotas there is accepted a difference of 12 kg and between minimum and maximum a difference of 21 kg. The report between the optimum index and the quota amounts to 1,06, for the

elite handball the average is 0,9860, respectively values between 0,87 and 1,12.

For goalkeepers, the height difference is 6,8 cm, having a higher value for the elite handball; the admitted quotas offer a margin of 10 cm, between minimum and maximum the difference being 19 cm. For weight the difference between optimum index and average is 14,7 kg, referring to admitted quotas there is a variation of 8 kg, and between minimum and maximum there was registered a difference o 32 kg. Talking about the report, the optimum index value is 1,06, for quotas there are accepted values between 1,05 – 1,06, and for the elite handball the average is 0,9710, respectively values between 0,86 and 1,06.

For centerback players, talking about their height, the difference between index and average is 5,07 cm, for the admitted quota the variation is 5 cm, respectively 13 cm between minimum and maximum. For weight between index and average the difference is 11,79 kg, for the admitted quota – 5 kg, and between minimum and maximum – 14 kg. The report between the optimum index and the quota amounts to 1,05, for the elite handball the average is 0,9729, respectively values between 0,86 and 1,06.

For pivot players, talking about their height, the difference between index and average is 10,08 cm, for the admitted quota the variation is 9 cm, respectively 18 cm between minimum and maximum. For weight, between index and average the difference is 17,5 kg, for the admitted quota – 7 kg, and between minimum and maximum – 37 kg. The report between the optimum index and the quota amounts to 1,00, for the elite handball the average is 0,9258, respectively values between 0,80 and 1,09.

Conclusions

For all the game posts that we examined in this study, we notice that the values for height and weight are higher for the elite handball players compared to the model of the special literature from our country, respectively values between 4,5 and 10 cm for height, respectively 8,46 – 17,5 kg for weight; in all cases the weight difference was double compared to the height difference. This fact led to a lower height-100/weight report under the value of 1, the exception being for the wing post – 1,0004. This value clearly indicates the increasing weight of the handball players, fact that could be explained more plausible by a major

muscle increase and demonstrated by the physical aspect of the global elite handball players.

Starting from this issue, we emphasize the need for muscle training in handball by working at the gym and combining the muscle training exercises with the training technique. These conclusions can not be generalized because in the case of the elite handball the data were obtained by studying materials and having access to updated information, while in the case of the Romanian handball we generalized data from specialists.

To achieve an objective analysis of this issue it would be necessary to create a database of anthropometric indices of Romanian handball players, and then to make an objective study based on real, current data.

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Titlu: Studiu privind modelul somatic al jucătorilor de handbal.
Cuvinte cheie: handbal, studiu model somatic, masculin.
Rezumat: Ciclicitatea competiţiilor impun stabilirea unor valori esenţiale pentru o anumită perioadă şi determină nivelul succesului pentru competitori. Modificarea se produce în general lent şi nu întotdeauna uniform pe ansamblul valorilor tipice care îl determină la un moment dat. Această valoare indică în mod clar greutatea tot mai mare a jucătorilor de handbal, fapt care ar putea fi explicată mai plauzibil de o creştere a masei musculare si a demonstrat de aspectul fizic al jucătorilor din handbalul de elită. Aceste concluzii nu pot fi generalizate, deoarece, în cazul handbalului elita datele au fost obţinute prin studierea materialelor şi acces la informaţii actualizate, în timp ce în cazul jucătorilor de handbal români, datele sunt obţinute de la specialişti.

Titre: Une étude concernant modele somatique pour les joueurs de handball male

Mots-clés: handball, étude, modèle somatique, mâle.

Résumé: Le cyclicité des compétitions exige la mise en place de ces valeurs essentielles pour une certaine période et détermine le niveau de réussite pour les concurrents. En règle générale, la modification de la réussite se produit lentement et pas toujours de façon uniforme à travers les valeurs typiques qui la déterminent à la fois. Cette valeur indique clairement le poids croissant des joueurs de handball, fait qui pourrait être expliqué plus plausible par une augmentation musculaire importante et démontrée par l'aspect physique des acteurs mondiaux de handball d'élite. Ces conclusions ne peuvent être généralisés, car dans le cas du handball d'élite les données ont été obtenues par l'étude des matériaux et d'avoir accès à l'information mise à jour, tandis que dans le cas du handball roumain nous des données généralisées de spécialistes.