

Study on the somatic profile of the volleyball outside hitter

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Abstract

Contemporary volleyball is developing from both the point of view of players' preparation and of phase dynamics proper due to the considerable progress in the selection, physical development, technical and tactical preparation, psychological preparation, and competition strategies. The database of the Volleyball European Championship Men in Denmark and Poland (2013) there are important data and information that we try to systematise, process and present in a differentiated, scientific, personal and original way. Outside hitters of 16 volleyball teams attending this competition have been the subjects of the research. We also studied the volleyball players of the "Universitatea" Timișoara team, who played as outside hitters in the competition year 2013-2014. We mention, for each of these volleyball players, the following parameters: age, height, and weight. The mean age of the studied volleyball teams is 25.7 years. The highest age mean is that of the Czech Republic team (28.2 years), while the lowest is that of the Slovak volleyball team (23.6 years). The mean height of the studied volleyball teams is 197.0 cm, with the highest height mean in the volleyball team of Netherlands (201.8 cm) and the lowest mean in the Belarus volleyball team (193.0 cm). The mean weight of the studied volleyball teams is 88.8 kg, with the highest mean in the volleyball team of the Netherlands (96.4 kg) and the lowest mean in the volleyball team of Poland (83.6 kg). There is a difference of 1 year between the mean age of the participants in the Volleyball European Championship Men (25.7 years) and that of the volleyball team "Universitatea" Timișoara (24.7 years). The mean height of the Volleyball European Championship Men contestants (197.0 cm) is almost 3 cm higher than that of the volleyball team "Universitatea" Timișoara (194.2 cm), while the mean weight of the former teams (88.8 kg) is almost 5 kg higher than that of the volleyball team "Universitatea" Timișoara.

Key words: *outside hitter, somatic profile, volleyball*

Rezumat

Jocul de volei este astăzi într-o dezvoltare continuă, atât din punctul de vedere al pregătirii sportivilor, cât și al dinamicii fazelor propriu-zise, datorită progreselor însemnate care se fac din ce în ce mai alert în domeniile în care se implică selecția, dezvoltarea fizică, pregătirea tehnico-tactică, pregătirea psihologică și strategia concursului. În baza datelor obținute în urma desfășurării Campionatului European de volei masculin din Danemarca și Polonia (2013) am consemnat o serie de date și informații pe care încercăm să le sistematizăm, prelucrăm și prezentăm în continuare, în mod diferențiat, științific, personal și original. Subiecții cercetării au fost trăgătorii de zona 4 (extreme) din cele 16 echipe participante la această competiție. De asemenea, am luat în studiu jucătorii echipei Universitatea Timișoara care au evoluat pe acest post în anul competițional 2013-2014. Am consemnat pentru fiecare dintre acești jucători valorile următorilor parametri: vârsta, înălțime, greutate. Vârsta medie a echipelor în studiu este de 25,7 ani. Constatăm cea mai ridicată medie a vârstei la echipa Cehiei (28,2 ani), iar cea mai scăzută la echipa Slovaciei (23,6 ani). Înălțimea medie a echipelor în studiu este de 197 cm. Constatăm cea mai ridicată medie a vârstei la echipa Olandei (201,8 cm), iar cea mai scăzută la echipa Belarus (193 cm). Greutatea medie a echipelor în studiu este de 88,8 kg. Constatăm cea mai ridicată medie a greutății la echipa Olandei (96,4 kg), iar cea mai scăzută la echipa Poloniei (83,6 kg). Se remarcă o diferență de un an (25,7 ani la Campionatul European și 24,7 ani la echipa Universitatea Timișoara. Media înălțimii echipelor de la Campionatul European este cu aproape 3 cm superioară celei a echipei Universitatea Timișoara (197 cm față de 194,24 cm). Greutatea medie a jucătorilor de la Campionatul European este mai mare cu aproape 5 kg față de cea înregistrată la echipa Universitatea Timișoara.

Cuvinte cheie: *Tragator de zona 4, profil somatic, volei*

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Introduction

Contemporary volleyball is developing from both the point of view of players' preparation and of phase dynamics proper due to the considerable progress in the selection, physical development, technical and tactical preparation, psychological preparation, and competition strategies. Within a relatively short period of time, they have accumulated considerable amounts of data on the methodology of preparing volleyball players from initiation to great performance: far from being exhaustive, this engenders more and more hypotheses whose practical confirmation needs a complex scientific approach (methodologically, biophysically, neuro-physiologically, and neuro-psychically). Almost one hundred years after this sport was born, volleyball has reached a peak from the point of view of organisation, instruction, competition strategy and, last but not least, selection of players for performance and great performance. (1)

The new volleyball regulations (lack of sanctions for the first hit, accumulation of points no matter the serve execution, hitting the volleyball with the foot, appearance of a "libero" volleyball player) asks for essential changes of action content and game patterns, of selection and prototyping specialised volleyball players, and of content and methodology in players and team preparation. (2)

The need to know the features of the present volleyball game, of its developmental trends and of progress elements is essential in a coach's training activity.

Goal

In 2013, Denmark and Poland hosted the greatest Volleyball European Championship Men ever organised by the European Volleyball Confederation. On this occasion, they recorded the evolutions of the volleyball players of all participating teams, which allows methodologists and technicians in volleyball to analyse different aspects relevant for the specificity of a volleyball game physically, technically and tactically.

Based on the data from the database of the Volleyball European Championship Men from Denmark and Poland (2013), we obtained information that we systematise, process and present below in a differentiated, scientific, personal and original way. (3)

Our goal was to see if the parameters recorded in outside triggers are determining for the volleyball teams and the hierarchy established at the end of the championships.

A comparison between these data and the similar data of the volleyball team "Universitatea" Timișoara could be a starting point in the developing of the strategy of selecting top volleyball players in Timișoara.

Material and methods

To carry out this study, we have used three research methods, as follows:

- *The bibliographical study*

We studied bibliographical sources on the topic to be able to clarify all aspects related to outside hitters.(4)

- *The statistical-mathematical analysis*

In analysing the data, we used the following statistical formulas:

a) Arithmetic mean (\bar{X}):

$$\bar{X} = \frac{\sum x}{n}$$

b) Span (W):

$$W = X_{MAX} - X_{MIN}$$

- *The graphic representation*

We used this method to present the material observed in a suggestive way.

Research was carried out during the Volleyball European Championship Men from Denmark and Poland in 2013.

The outside hitters of the 16 participants in the competition were the subjects of our research.

We also studied the volleyball players of the "Universitatea" Timișoara team who played in this position in the competition years 2013-2014.

We recorded, for each of these volleyball players, the following parameters:

- Age years);
- Height cm);
- Weight (kg).

Results and interpretation

Table 1. Mean parameters

Team	Age (years)	Height (cm)	Weight (kg)
Belarus	27.7	193.0	93.3
Belgium	24.1	197.0	91.7
Bulgaria	26.0	198.0	88.0
Czech Republic	28.2	198.6	86.9
Denmark	25.3	197.2	90.7
Finland	26.4	195.1	87.9
France	25.8	194.2	86.8
Germany	27.4	199.0	92.7
Italy	26.1	194.8	86.2
Netherlands	24.2	201.8	96.4
Poland	25.5	196.5	83.6
Russia	26.8	199.1	93.3
Serbia	24.3	196.7	83.7
Slovakia	23.6	198.4	86.6
Slovenia	24.6	196.5	86.3
Turkey	25.7	195.5	87.0
“Universitatea” Timișoara	24.7	194.2	84.0

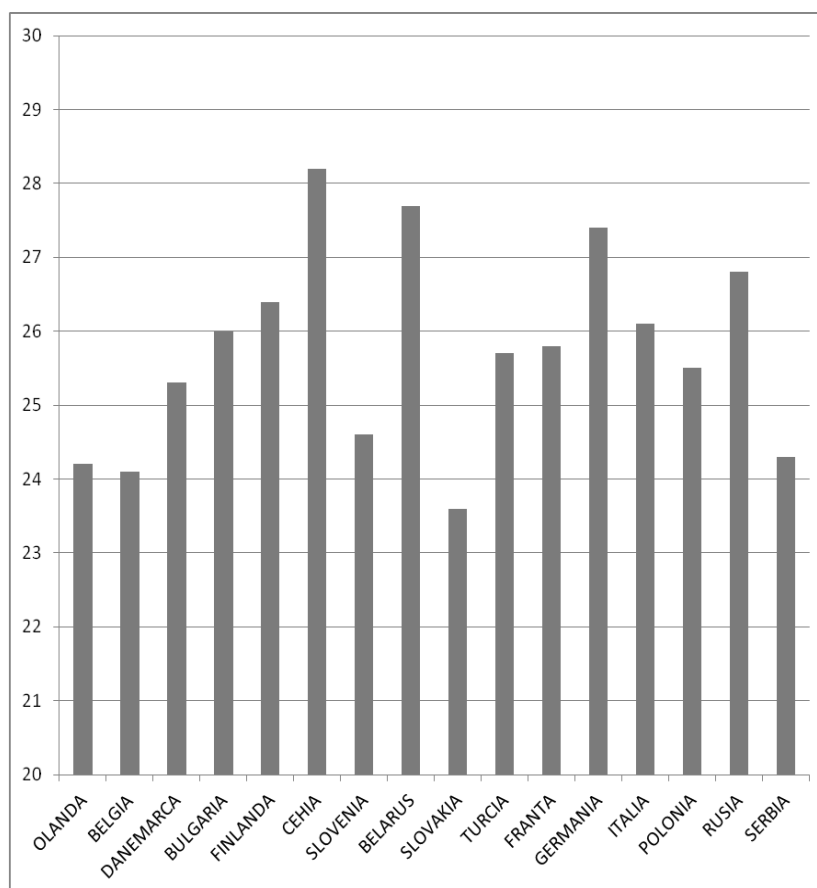


Figure 1. Volleyball European Championship Men - mean age (years) of the players

The mean age of the studied volleyball teams is 25.7 years, with the highest mean age in the volleyball team of the Czech Republic (28.2 years) and the lowest mean age in the volleyball team of Slovakia (23.6 years).

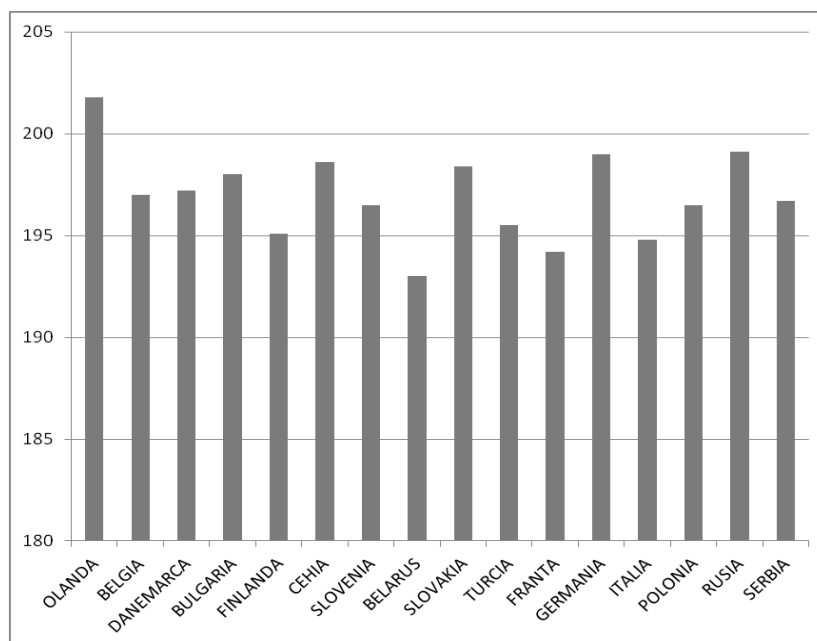


Figure 2. Volleyball European Championship Men - mean height (cm) of the players

The mean height of the studied volleyball teams is 197.0 cm, with the highest mean height in the volleyball team of the Netherlands (201.8 cm) and the lowest mean height in the volleyball team of Belarus (193.0 cm).

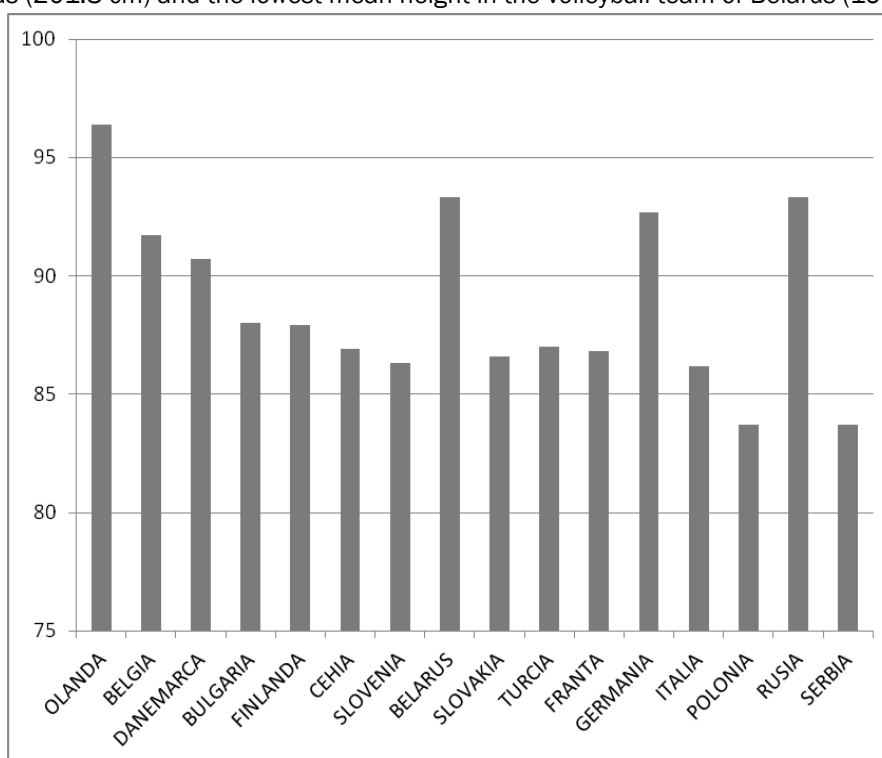


Figure 3. Volleyball European Championship Men - mean weight (kg) of the players

The mean weight of the studied volleyball teams is 88.8 kg, with the highest mean weight in the volleyball team of the Netherlands (96.4 kg) and the lowest mean weight in the volleyball team of Poland (83.6 kg)

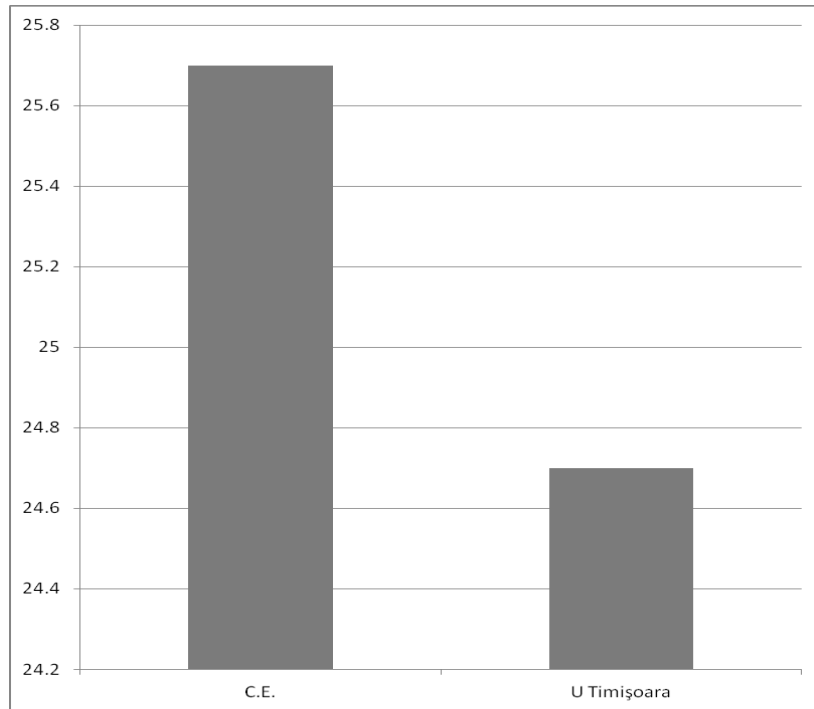


Figure 4. Comparison between the mean age of the Volleyball European Championship Men and that of “Universitatea” Timișoara (years)

There is a difference of one year between the mean age of the Volleyball European Championship Men teams (25.7 years) and that of “Universitatea” Timișoara (24.7 years).

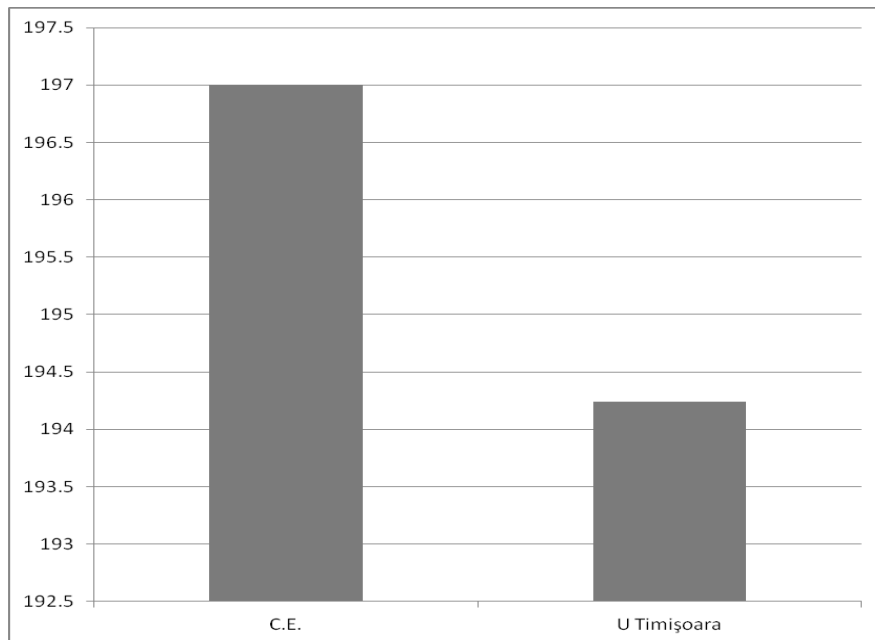


Figure 5. Comparison between the mean height of the Volleyball European Championship Men and that of “Universitatea” Timișoara (cm)

The mean height of the Volleyball European Championship Men teams is almost 3 cm higher (197.0 cm) than that of the “Universitatea” Timișoara (194.2 cm).

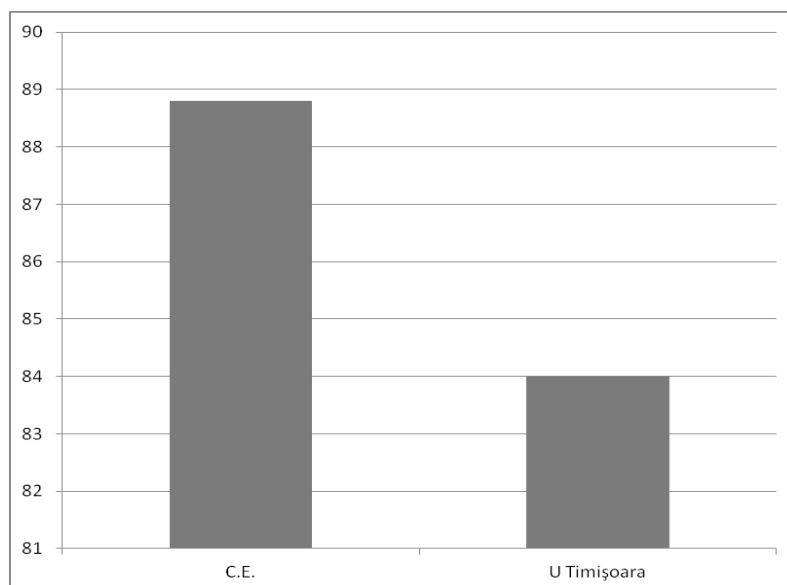


Figure 6. Comparison between the mean weight of the Volleyball European Championship Men and that of “Universitatea” Timișoara (kg)

The mean weight of the Volleyball European Championship Men players is almost 5 kg higher than that of “Universitatea” Timișoara.

Conclusions

The research we carried out allows us to draw the following conclusions:

- The mean outside hitter of continental level is 25.7 years old and 197.0 cm tall, and weighs 86.4 kg;
- The mean profile of the first four volleyball teams in the Volleyball European Championship Men (Russia, Italy, Serbia, and Bulgaria) is almost similar with that of all the studied teams;
- The parameters of the “Universitatea” Timișoara volleyball team are close to those of the top volleyball teams of the Volleyball European Championship Men and are a premise for their future increase;
- Only the outside hitters of the “Universitatea” Timișoara volleyball team are close to European level volleyball players: the other positions (central hitter, universal hitter, lifter-coordinator hitter, libero hitter) are far from the values in similar

positions in the Volleyball European Championship Men;

- The mean values of these parameters are determining for the volleyball teams since the volleyball players’ involvement is complete.

In order to make a team’s game more efficient, we suggest:

- Monitoring the somatic parameters from one major competition to another;
- The levels of these parameters are crucial in the selection of the players starting with junior players.

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