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# STUDY REGARDING THE LINK BETWEEN PHYSICAL QUALITIES AND THE SYMBOLS OF THE FINGERPRINTS

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**Abstract**

*Objectives.* The purpose of this study was to show the link between fingerprints symbols and the handball players aged 10-12 physical qualities.

*Methods of research***.** The group of subjects consisted in 30 handball players aged 10-12. Their physical qualities are revealed after sustaining 5 specific handball samples: 30 meters speed, 30 meters dribbling between milestones, jump in length, throwing the ball and triangle movement. The digital signs are shown after the analysis of their fingerprints.

*Results***.** In order to carry out the research, after the samples, the results were connected to the digital signs.

*Conclusions:* The symbols found in their fingerprint chart are linked to the handball players physical qualities.

*Key words*. fingerprint symbol, handball, physical qualities.

## Introduction

Sports in general, and handball in particular is very complex and in the last period of time acquired a spectacular note and rapidity in all the game phases. It is characterized by a remarkable speed of travel, reaction and execution combined perfectly with force, resistance and coordination of an individual, as well as of the team.

The game phases are quickly changing and that gives the game a touch of atractivity. Because of the high rithm that the attack team has, the defense moments has raised a lot in intensity so that the team can face the opponents. To deal with the actions in attack, one needs force and resistance equally, as well as anticipation capacity. To overcome a strong defense a team needs speed, coordination, mobility and tactical thinking, that will be needed in all attack phases.

From what we can see there are needed complete players to be part of the elite sports, nowadays.

There is a growing interest in sports medicine, sports science and human performance.

Lately, medical genetics entered the modern sports area, where the players have to be extremely good and with the help of dermatological criteria related to physical testes it can be found the perfect training combination so that the players can give their all in the sports field.

Everybody, except from the physical qualities has characteristics particular like signs on the fingerprints formed from skin lines. Those signs help the safe identification of the individual.

Fingerprints signs are formed since month six of life inside the uterus and suffer no changes in the lifetime. It exists until the body goes into putrefaction after death. (Filho, F., 1997)

The correct orientation towards a sport can be made after discovering the potentially genetic through the fingerprint model.

It can be distinguished 3 types of fingerprint models as following:

- ✓ Spring type (A) – is the type of papillary drawing least common, with a very simple form. This type of drawing is composed from lines that cross the mark without intersecting with each other.

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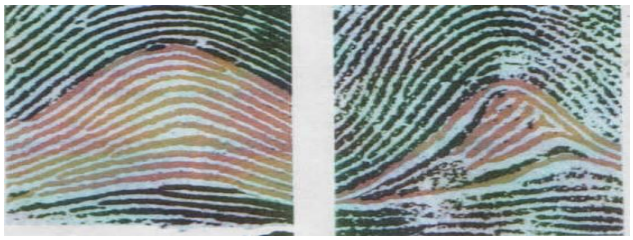

- ✓ Loop (L) – is the most common mark drawing. The point where the lines meet forms a delta, hence the name of monodeltic. Drawings of the monodeltic type are ranked according to delta position:
  - Dextrodeltic type is represented by the delta sign located on the right side of the fingerprint.

  - Sinistrodeltic type is represented by the delta sign located on the left side of the papillary drawing.

- ✓ Whorl (W) - is easily identifiable due to the holes in the form of a circle. They form two deltas at the point of intersection with the starting point of the ridges.At this papillary drawing, the central region is represented by a closed drawing due to concentric ridges.

As a conclusion referring to the mark drawings it can be said that the spring type (A) is the simplest one, comparing to the whorl (W) drawing which the most complex one. (Abramova, Nikitina, Ozolin, 1996)

The delta index may have a value of 0 to 20, and it is calculated based on the presence of the drawings that include the delta sign.

$\sum L + 2 \times \sum W = \Delta 10$ where,

Spring type – characterized by the lack of delta (Δ)

Loop (L) = 1Δ

Whorl (W) = 2Δ. (Carvalho, E., Filho, F., Novaes, J., 2005)

For sports games it is very important that the drawings include all the three types of signs, because a player needs a combination of qualities depending on the spots and the position on the sports field, and the delta index to be as high as possible.

According to the specialists in the field, the presence of the A drawing relates with the capacity of developing force, the L drawing is linked to the capacity of velocity, and the presence of the W drawing reflects coordination and resistance.

**Methods**

In the present study we have tested 15 handball players with age between 10 and 12 years, both physical and dermatological.

The physical tests are common to a handball player: 30 meters sprint, 30 meters dribble through poles, two leg long jump on the spot, throwing the handball ball at distance with 3 step thrust, triangle movement 2 routes.

Those tests were executed 2 times, and the best result was taken into consideration.

The dermatological method consists in fingerprinting the young players and analizing the distinctive signs that can be found on the surface of the fingers.

For collecting the fingerprints we used the Cummins &Mildo protocol, using black ink,

dactyloscopic sheets, an ink roller, magnifier, wet and dry wipes, soap. (Cummins., H &Mildo, C., 1961)

For a qualitative fingerprinting it needs to be respected a few rules like the following:

- ✓ The ink must be evenly distributed on the fingers surface;
- ✓ The fingerprints must be placed vertically;
- ✓ The papillary drawings must be placed in their special places on the sheet. ( Popa, Gh., 2011)

In the following we present the results of the players for the physical tests.

**Results**

**Tabel1**
**Physical tests results of the young handball players**

| No. Crt. | 30 m sprint (s) | 30 m dribble (s) | Long jump (cm) | Throwing the ball (m) | Triangle movement (s) |
|---|---|---|---|---|---|
| 1. | 5,06 | 7,44 | 190 | 29 | 17,31 |
| 2. | 4,76 | 7,4 | 202 | 32 | 17,6 |
| 3. | 4,7 | 7,12 | 207 | 33 | 17,15 |
| 4. | 5,59 | 7,8 | 141 | 18 | 17,14 |
| 5. | 5,02 | 7,8 | 171 | 33 | 19,57 |
| 6. | 5,83 | 7,88 | 180 | 28 | 19,63 |
| 7. | 5,5 | 7,47 | 200 | 27 | 18,09 |
| 8. | 5,49 | 7,93 | 150 | 28,5 | 17,71 |
| 9. | 5,3 | 8,75 | 149 | 27 | 19,98 |
| 10. | 5,15 | 7,82 | 160 | 24 | 19,15 |
| 11. | 6,1 | 7,97 | 163 | 31 | 18,19 |
| 12. | 5,29 | 8,31 | 172 | 21 | 18,23 |
| 13. | 5,1 | 8,22 | 150 | 17 | 18,87 |
| 14. | 5,12 | 8,14 | 136 | 20 | 19,19 |
| 15. | 5,25 | 7,81 | 155 | 29 | 18,17 |
| 16. | 5,43 | 8,13 | 171 | 23 | 17,95 |
| 17. | 5,26 | 8,14 | 173 | 25 | 18,38 |
| 18. | 5,24 | 8,41 | 148 | 26 | 18,23 |
| 19. | 4,8 | 8,34 | 168 | 21 | 16,67 |
| 20. | 6,24 | 8,25 | 164 | 24 | 17,25 |
| 21. | 5,4 | 7,99 | 169 | 21 | 18,4 |
| 22. | 5,36 | 8,87 | 175 | 19 | 18,84 |
| 23. | 6,31 | 8,56 | 130 | 20 | 18,06 |
| 24. | 6,41 | 8,9 | 144 | 20 | 19,94 |
| 25. | 6,26 | 9,43 | 143 | 17 | 20,15 |
| 26. | 6,2 | 8,3 | 149 | 19 | 18,26 |
| 27. | 7,1 | 8,45 | 120 | 24 | 18,1 |
| 28. | 5,58 | 8,56 | 148 | 18 | 17,97 |
| 29. | 5,38 | 8,93 | 172 | 18 | 18,69 |
| 30. | 5,21 | 9,03 | 148 | 19 | 19,2 |

In the previous tabel we can see that the players that have the results highlighted with different colours are the ones above the scale of each test taken.

The scales results are shown in the tabel 2, according to the age of the players.

**Tabel 2**
**Scales for the motor tests ages 10-12**

| 30 m sprint | 30 m dribble | Long jump | Throwing the ball | Triangle movement |
|---|---|---|---|---|
| 5,2 s | 7,8 s | 175 cm | 17 m | 18,3 s |

To be able to link the motor test to the fingerprinting, in tabels 3and 4 are presented the papillary signs and percentages found on the surface of the skin. Tabel 5 is the one that show the formulas that are used in determinating the percentage that certain papillary drawing can be present.

**Tabel 3**
**Fingerprinting results**

| Nr. crt. | Δ10 | Tip arc (A) | Tip monodeltic (L) | Tip bideltic(W) |
|---|---|---|---|---|
| 1. | **12** | **-** | **8** | **2** |
| 2. | **19** | **-** | **1** | **9** |
| 3. | **13** | **-** | **7** | **3** |
| 4. | **15** | **-** | **5** | **5** |
| 5. | **13** | **-** | **7** | **3** |
| 6. | **13** | **-** | **7** | **3** |
| 7. | **15** | **-** | **5** | **5** |
| 8. | **17** | **-** | **3** | **7** |
| 9. | **11** | **-** | **9** | **1** |
| 10. | **12** | **-** | **8** | **2** |
| 11. | **15** | **-** | **5** | **5** |
| 12. | **12** | **-** | **8** | **2** |
| 13. | **11** | **-** | **9** | **1** |
| 14. | **11** | **-** | **9** | **1** |
| 15. | **14** | **-** | **6** | **4** |
| 16. | **18** | **-** | **2** | **8** |
| 17. | **11** | **-** | **9** | **1** |
| 18. | **14** | **-** | **6** | **4** |
| 19. | **14** | **-** | **6** | **4** |
| 20. | **17** | **-** | **3** | **7** |
| 21. | **11** | **-** | **9** | **1** |
| 22. | **9** | **1** | **9** | **-** |
| 23. | **10** | **1** | **8** | **1** |
| 24. | **7** | **4** | **5** | **1** |
| 25. | **8** | **2** | **8** | **-** |
| 26. | **15** | **-** | **5** | **5** |
| 27. | **14** | **-** | **6** | **4** |
| 28. | **7** | **3** | **7** | **-** |
| 29. | **10** | **-** | **10** | **-** |
| 30. | **10** | **-** | **10** | - |

**Tabel 4**
**Percentages of papillary drawing types**

| Types | A% | L% | W% | Δ10 |
|---|---|---|---|---|
| **Mean** | 3,6 | 66,7 | 29,7 | 12,6 |
| **Minimum** | 0 | 1 | 0 | 7 |
| **Maximum** | 4 | 10 | 9 | 19 |

**Tabel 5**
**Digital formulas of the fingerprints**

| Digital formulas | | | | |
|---|---|---|---|---|
| **AL** | **ALW** | **10L** | **LW** | **WL** |
| 10% | 6,7% | 6,7% | 63,3% | 13,3% |

AL – represents the percentage of the signs A and L – capacity of force and velocity;

ALW – represents the percentage of all the papillary signs – A, L and W – signs that totals all physical qualities

10L – represents the players that have only the L design – capacity of developing velocity;

LW – the players have the signs that show velocity and coordination, resistance; but the velocity is the dominant quality;

WL – represents the amount of players that have the dominant quality coordination and resistance, and velocity as a secondary quality. (Zaar, A., 2007, Silva, H., Costa, C.L.A., da Silva, M, 2010)

**Conclusions**

From the tabels presented so far, we get to the following conclusions:

- The majority of the players have a high number of deltas (>11), which means that they meet the premises of playing a sports game, in our case handball.
- As shown in the fifth table, we can see a reduction of the A sign and a growth in the L and W. This is because, the modern handball players from wings, center back, goalkeeper need more agility, speed, coordination than force in antithesis with the players from left and right back. The player from the pivot position need all the physical qualities because of the special position between the other team opponents.
- The best results at the motor tests have been registered by the players with the highest delta number.
- For the speed test, the players with more L signs have had the results equal or better than the scale for the specific motor test.
- The players with the signs that create formulas like LW or WL scored the best for long jump, throw the ball and triangle movement. Those players have a combination between speed, coordination and resistence.
- With the aid of this method – fingerprinting – we can find players that correspond to the sports games.
- The motor tests linked with the fingerprinting might be in the future years a way of orientating the players on the right positions in the game field, of course with the aid of the present criteria for selection and the knowledge of the modern training .

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