Somathotypical profiles of basic physical qualities and dermathoglyphical profiles of the FAB hunt pilots with lieutenant’s and captain patents

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ABSTRACT: The profile of characteristics is constituted in an excellent diagnosis instrument, basing the actions and strategies in for of the investigated group (DANTAS; FERNANDES FILHO, 2002). The objective of this study is centered in the identification of the Somathotypical profiles of basic physical qualities and Demathoglyphical profiles of the F. A. B Hunting Pilots with lieutenant’s and captain’s patents. To the elaboration of this study, they were considered as sample, pilots N=34 with age 28.4 ± 3.50, weight 76.1 ± 8.42 and stature 170.3 ± 30.40. F.A.B. Hunting Pilots, CHosen in a random way between the lieutenant’s and captain’s aviators. The evaluation protocols used were dermathoglyphical of Cummins and Midlo (CUMMINS; MIDLO, 1942); somathotypological of Heath and Carter (ISAK, 2001); speed of reaction hand-oculum manual with the use of the metallic bar (CARNAVA, 1995); speed tests of 50 meters (MATSUDO, 1983); statical force test of manual dynamic apprehension (FERNANDES FILHO, 1999); explosive force test of vertical impulsion (CARNAVA, 1995); Burpee coordination (CARNAVA, 1995); agility Suttle Run (MATSUDO, 1983); and maximum aerobic potency (V02max) jogging test (FERNANDES FILHO, 1999). It consists of the chosen theme analysis, the descriptive method, with profile typology and the indication almost experimental. The descriptive statistics and the dispersion analysis were used, combined to the curtose test (as test post hoc), for verification of the homogeneity hypothesis among the pilots. In the investigation, they were obtained the endomorphical-mesomorphical characterisation; dermathoglyphical characteristics arch 0.3 ± 0.86; strap 6.4 ± 2.45; verticil 3.3 ± 2.55; SQTL 129.4 ± 32.10; and D10 13.1 ± 2.90; speed of reaction 10.7 ± 2.51; pure speed 6.8 ± 0.47; statical straight force 41.1 ± 1.83, left 41.1 ± 1.85; vertical impulse 39.2 ± 7.24; coordination 9.5 ± 0.97; agility 10.7 ± 0.67; and V02max 46.9 ± 5.62. It was evident the homogeneity of the group as for all the investigated characteristics. Even as being the comparison object of this study, we registered that when it is observed the literature data for some athletic proofs especially as for the predisposition of the coordinate characteristics, it is noticed some important similarities. Then, it is recommended that other studies are accomplished, with the intention of observing the groups which need high income of moving abilities, functional and somathotypical in their práxis pilots of civil aviation, dancers, acrobats, skaters, and other, for a better visualization of these demands. Then, it is suggested to include in the batteries of tests the use of dermathoglyphia as an instrument.

Keywords: hunting pilots, profile, dermathoglyphia, somathotypical, basic physical qualities.
INTRODUCTION

The history of the Aviation in Brazil in the group, believing that F.A.B - Brazilian Air force, in the meaning of the word, was only “born” in the seventies, when the system of aerial defense and the First Group of Aerial Defense were created. The First Group of Hunt that was constituted in dawning of the Ministry of the Aeronautic to go to the war (MENEZES, D.T., 2001). Now, F.A.B it goes by transformations, leaving the aerial combat practiced in the decades of 60/70 (last century) and entering in the select group of the ready air forces for the combat on this beginning of the century XXI.

The hunt aircrafts were always instruments of combat of the most demanding. The combatant should be in state physical, psychological and behavioral in superior level, to overcome those impositions. The whole exacerbation of the ability and expertise join to the pilot a second nature, in such a way that his steering and behavior, that start to be instinctive, allow the pinnacle of the binomial man’s + machine (MENEZES, L.N., 2000, 2001).

The students’ expectation and cadets of F.A.B., it is to reach official aviator’s position, above all in the specialty it hunts, for the one of larger military performance to be considered. It is known, therefore, that few conquer such done, being constituted the selection one of the fundamental points of the methodologies of candidates’ choice for this task.

The theoretical and formal object of this research was centered in the military aviator of hunt of F.A.B. Its aim is based in the results obtained through tests, demonstrating that they can induce, direct and indirectly, on the understanding phenomenological
and axiological way in the practicing Being’s motive aspects, in several specialization levels, in the area in analysis. It is intended that such understanding generates an explanation phenomenological and that this, for its time, prove what is the common sense for the knowledge epistemological, then, being born, then, the prescription and the forecast, in a hermeneutical cycle.

The study is justified for the importance of the identification of the profile of the referred group, since this can be the differential between the success and the failure in the programming of the strategy of training of the same profile (FERNANDES, 1999).

This whole process pronounces intimately with the confirmation of a method, inside of Ergomotricity (strength of movement), which method appears and it creates changes and evaluations, in other evaluation methods already proposed. It generates, simultaneously, changes and variations, in paradigms, causing interference in the instituted order. The establishment of a certain method is born of a need: it owes, therefore, to assist to the same, in their specificities.

This work enrolls in the Sciences of Human Motricity, it is important to the area thematic training of motive performance and of high income, observing the line of research somatotypical and dermathoglyphical studies of the motive performance having been authorized its execution, for the Commission of Ethics of the Master’s degree in Science of Human Motricity of the Castello Branco University.

Objective

The objective of this study is centered in the identification of the somatotypical profiles, of basic physical and dermathoglyphical qualities of the hunting pilots’ of F.A.B with lieutenant’s and and captain’s patent.

Variables

Somatotypical Profile endomorphe, mesomorphe and ectomorphe (quantitative); Profile of basic physical qualities reaction speed, maximum speed, forces static, it forces explosive, coordination, agility and maximum aerobic potency (quantitative); Dermathoglyphical Profile, types of drawings of the fingerprints The L, and W (qualitative); SQTL, D10 (quantitative).

Delimitation of the Study

The study was ruled by the descriptive type. The samples were chosen, in a random way, among the hunt pilots of F.A.B group., N=34.

Hypothesis

The present work lays on the homogeneity existence of somatotypical characteristics, of basic physical and dermathoglyphical qualities, in hunting pilots of F.A.B., in other words, it is supposed there to be a homogenous profile, own to this this type of pilots as signalling item for the high income. The hypothesis were enunciated, in the null form, and in the alternative for p < 0.05, that is, 95% of certainty for the affirmatives, and/or negatives, that the study comes to demonstrate in each one of the variables.

REVISION OF THE LITERATURE

In agreement with Hoffman (1999), the physiologic and psychological benefits are derived of the physical component, important for giving conditions of supporting the stresses offered by the activities. The same authors still affirm that, in function of the great cost of the pilot’s development, the Israeli Air force started to give great emphasis to the improvement of the selective process, which has as objective to predict candidate’s profile, relating the ones that presents better conditions of exercising the activity.

With more specific character, when referring to the hunting pilot, Jacobs (1987) she mentions that: “[...] the training of force can improve the tolerance to the acceleration of Gs + during the simulated combat in the human centrifuge force”.

The use of the previous knowledge of the capacities and tendencies genetic, allied, to the phenotypic contribution, it can contribute, no exclusively with the determination of the talent, but also with plenty probability with their development. The observation and determination of ideal parameters, being intended this or that modality, they are not an exclusion stereotype, through a profile of common characteristics; they correspond, to the opposite, to the urgency in assisting the demands of each sport, with their particularities.

“To be an athlete is not constituted in a predisposition common to all of the individuals, but to the minority. Besides, inside of this minority, the factor, opportunity, plays fundamental role.” (PÁVEL;
Fernandes Filho (1997), he believes that, “the use of the genetic marks, in the prognostic sportive selection allows a high degree of probability in the precocious stage of the orientation and of the initial sportive selection [...]”. Still, Fernandes Filho (1997), he ratifies that the model of fingerprints leads to choose, more appropriately, the specialization in the sport, with the optimization perspective, as for the individual talent. Such a presupposition is an excellent way, of which the team dispose, in order to specify the sportsmen’s position, during the game, being known, beforehand, their performance. Most of the authors distinguishes three groups of drawings: arch (A), fastener (L), and, together, verticil and the S-drawing (W). The form of the drawings constitutes-in a qualitative characteristic. The amount of lines of each one of the fingers (QL), the sum of the total amount of lines (SQTL) and the amount of cutaneous crests, inside of the drawing, the quantitative aspects.

The evaluation of the intensity of drawings occurs, initially, in the presence of the deltas (D), and being calculated the index of deltas (D10, that may be, in minimum, “0”, and the maximum, “20”. The value of “zero” it appears because the arch (A) represents the drawing, without deltas; the fastener (L), the drawing of a delta; the verticil and the S-drawing (W), the drawings of two deltas. For tabulation of the data it is of custom to use the following classification: the arch is “0”, the fastener “1”, being the verticil and the S-drawing “2.” Was concluded that the simplest drawing is the arch, and the more compounds, the verticil and the S-drawing (ABRAMOVA, 1996).

The low level of D10, the increase of the portion of simple drawings (A, L), the decrease of the portion of complicated drawings (W, S), the decrease of SQTL, all are own of the sporting modalities, with high potency, and short time of accomplishment. The high level of D10, the arch lack (A), the increase of the portion of W, the increase of SQTL characterizes sporting modalities and the differences, in groups of resistance of speed. In the modalities of games, the same tendency (DANTAS; FERNANDES FILHO, 2002).

As for the somatotype, its identification is due to the need of comparing an individual, with certain patterns and pre-established. So, the key of the search for procedures well happened, in the identification and in the development of the talent in the sport (HEBBELINCK, 1989).

Marins and Giannichi (1996) they judge Somathypotypology, of Heath & Carter, able to allow a select study on the ideal physical type, in relation. Besides, it is constituted, in an excellent instrument, in the discovery of talents, allowing, also the continuous monitor of the corporal composition.

Dantas (2001) he observes that the need of the identification of the basic physical abilities is on time when one want to observe the moment or the apprentice’s state, in their several abilities, of motive the functional ones, basing like this the creation of batteries of specific tests for force maintenance need and execution of specific tasks; coordination in the sense of the thickest and thin praxis in the execution of the motor gestures; resistance as landing of more appropriate levels of general health and endurance; and speed in the aid taking the decision and of the own execution of the motor gesture.

### METHODOLOGY

#### Model and Typology of the Study

The present research has the descriptive stamp with profile typology and almost -experimental delineation.

#### Sample

In the elaboration of this study, they were considered, as sample, pilots N=34 with age 28.4 ± 3.50 , pilots of hunt of F.A.B., chosen in random way between the lieutenants and captains aviators.

#### Instruments

The protocol of dermatoglyphia of Cummins and Midlo (CUMMINS; MIDLO, 1942); somatotypical, of Heath and Carter (ISAK, 2001); speed of reaction hand-oculum with the use of the metallic bar (CARNAVA, 1995); speed tests of 50 meters (MATSUDO, 1983); it forces static test of dinamometria of manual apprehension (FERNANDES FILHO, 1999); it forces explosive test of Vertical Impulse (CARNAVA, 1995); coordination Burpee (CARNAVA, 1995); agility Suttle Run (MATSUDO, 1983); and maximum aerobic potency (VO2max.) test of Jogging (FERNANDES FILHO, 1999).

Illustration 1 - Graphic Representation of the Established Profile of Somathotype

![Illustration 1 - Graphic Representation of the Established Profile of Somathotype](image)

Illustration 2 - Graphic Representation of the Established Profile of Dermatoglyphic process

![Illustration 2 - Graphic Representation of the Established Profile of Dermatoglyphic process](image)
Statistical treatment

They were used the descriptive statistics, structuring in medium values and yours derived, for the variables of continuous stamp, and the distributions of frequencies, for the variables of discreet stamp. The dispersion analysis, combined to the curtose test (as test post hoc), they seek to quantify the degree of homogeneity of the considered population. Still, there is a variable of character adimensional and relative, derived of the classification for score, understood among the maximum and minimum values, observed, in the sense of could eliminate the dimensional differences, among the several variables of the study. This way, it can be made a comparative analysis of the distributions of the same ones, as well as and best to understand the peculiarities of the profile of the studied group. It is still, for better visualization the normatização of the data was used in the sense of eliminating the dimensional differences.

PRESENTATION AND DISCUSSION

OF RESULTS

In the presentation and discussion of the results they were observed, for the profile somathotycal, the values refered in the TABLE 1.

This way, the pilots’ of hunt of F.A.B profile., until the instant of the accomplishment of the data collection, it presented the classification endomorphy-mesomorphy. It is believed that the result can be originating from the environmental conditions (phenotypical) lived by the sample, such as the feeding habit, the practice of physical activity, among others.

In agreement with the averages admitted for endomorphy a 5.3 ± 1.46, for mesomorphy of 4.5 ± 1.36, and for ectomorphy of 1.8 ± 1.09, the Illustration 1 represents the somatotypical profile in the following way:

As for the results of the genetic profile, the TABLE 2 presents the found data.

In agreement with the genetic profile, starting from the found medium interval of 0.3 ± 0.86, for the drawing arch, 6.4 ± 2.45, for fastener, 3.4 ± 2.55, for the verticil, 129.4 ± 32.10 for SQTL and 13.1 ± 2.90, for D10, the Illustration 2 presents the dermathoglyphical profile.

As for the results of the profile of basic physical qualities, the TABLE 3 presents the discoveries.

The found medium profile was: Speed of reaction 10.7 ± 2.51; it Forces static right side 41.1 ± 6.48; it Forces static left side 41.1 ± 6.55; it Forces explosive 39.2 ± 7.24; Coordination 9.5 + 0.97; Agility 10.7 ± 0.67; pure Speed 6.8 ± 0.47; (VO2máx.) maximum 46.9 ± 5.62, the Illustration 3 represents the profile of the basic physical qualities.

Table 2 – Médium values for dermathoglyphya

<table>
<thead>
<tr>
<th></th>
<th>Fastener (L)</th>
<th>Verticil (W)</th>
<th>Arch (THE)</th>
<th>SQTL</th>
<th>D10</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Medium</td>
<td>6.4</td>
<td>3.4</td>
<td>0.3</td>
<td>129.4</td>
<td>13.1</td>
</tr>
<tr>
<td>D.P</td>
<td>2.45</td>
<td>2.55</td>
<td>0.86</td>
<td>32.10</td>
<td>2.90</td>
</tr>
<tr>
<td>Patern Error</td>
<td>0.69</td>
<td>0.72</td>
<td>0.24</td>
<td>9.06</td>
<td>0.82</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>54</td>
<td>7</td>
</tr>
<tr>
<td>Average _Min.</td>
<td>5.6</td>
<td>2.5</td>
<td>0.0</td>
<td>118.7</td>
<td>12.1</td>
</tr>
<tr>
<td>Medium</td>
<td>6.4</td>
<td>3.4</td>
<td>0.3</td>
<td>129.4</td>
<td>13.1</td>
</tr>
<tr>
<td>Average _Max.</td>
<td>7.2</td>
<td>4.2</td>
<td>0.6</td>
<td>140.2</td>
<td>14.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>195</td>
<td>20</td>
</tr>
<tr>
<td>Curtose</td>
<td>0.07</td>
<td>0.04</td>
<td>13.13</td>
<td>0.06</td>
<td>0.05</td>
</tr>
<tr>
<td>Result of the curtose Homogen</td>
<td>Homogen</td>
<td>Homogen</td>
<td>Homogen</td>
<td>Homogen</td>
<td>Homogen</td>
</tr>
</tbody>
</table>

Source: the authors of this work.

Table 3 – Medium values and your derivation for basic physical qualities

<table>
<thead>
<tr>
<th></th>
<th>V.R.</th>
<th>F.E.D</th>
<th>F.E.E</th>
<th>F.E.X.</th>
<th>COOD</th>
<th>AG.</th>
<th>V.P.</th>
<th>VO2máx.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Average</td>
<td>10.7</td>
<td>41.1</td>
<td>41.1</td>
<td>39.2</td>
<td>9.5</td>
<td>10.7</td>
<td>6.8</td>
<td>46.9</td>
</tr>
<tr>
<td>D.P</td>
<td>2.51</td>
<td>6.48</td>
<td>6.55</td>
<td>7.24</td>
<td>0.97</td>
<td>0.67</td>
<td>0.47</td>
<td>5.62</td>
</tr>
<tr>
<td>Patron Error</td>
<td>0.71</td>
<td>1.83</td>
<td>1.85</td>
<td>2.04</td>
<td>0.27</td>
<td>0.19</td>
<td>0.13</td>
<td>1.59</td>
</tr>
<tr>
<td>Minimum</td>
<td>6.7</td>
<td>30</td>
<td>30</td>
<td>17.5</td>
<td>8.03</td>
<td>9.41</td>
<td>5.65</td>
<td>27.69</td>
</tr>
<tr>
<td>Average _Min.</td>
<td>9.9</td>
<td>38.9</td>
<td>38.9</td>
<td>36.7</td>
<td>9.1</td>
<td>10.5</td>
<td>6.7</td>
<td>45.0</td>
</tr>
<tr>
<td>Average</td>
<td>10.7</td>
<td>41.1</td>
<td>41.1</td>
<td>39.2</td>
<td>9.5</td>
<td>10.7</td>
<td>6.8</td>
<td>46.9</td>
</tr>
<tr>
<td>Average _Max.</td>
<td>11.6</td>
<td>43.2</td>
<td>43.3</td>
<td>41.6</td>
<td>9.8</td>
<td>11.0</td>
<td>7.0</td>
<td>48.8</td>
</tr>
<tr>
<td>Max.</td>
<td>16</td>
<td>59</td>
<td>59</td>
<td>49.3</td>
<td>12.53</td>
<td>12.6</td>
<td>7.59</td>
<td>56.8</td>
</tr>
<tr>
<td>Curtose</td>
<td>-0.75</td>
<td>0.32</td>
<td>0.17</td>
<td>1.86</td>
<td>2.13</td>
<td>0.68</td>
<td>0.13</td>
<td>3.66</td>
</tr>
<tr>
<td>Curtose Result</td>
<td>Homo</td>
<td>Homo</td>
<td>Homo</td>
<td>Homo</td>
<td>Homo</td>
<td>Homo</td>
<td>Homo</td>
<td>Homo</td>
</tr>
</tbody>
</table>

Acronyms: V.R. = reaction Speed; F.E.D. = Forces right static; F.E.E. = Forces left static; F.E.X. = forces explosive; COOD. = Coordination; AG. = Agility; V.P. = pure Speed; (VO2máx.) = (VO2máx.). Source: the authors of this work.
CONCLUSIONS AND RECOMMENDATIONS

It is stood out, according to the observed results, the prevalence of the digital ones containing fasteners, following by the verticils and of the almost inexistent number of arches, what portrays the elevation of D10, that, in agreement with Dantas’ studies (2001), Fernandes Filho (1997) and Medina (2000), it corresponds to the prevalence of the coordinated capacities.

It is evident, therefore, that the phenotypic conditions are intervening in the genotypic conditions, in agreement with the environmental conditions intervening in the genotypic conditions, in agreement with the presented statistical demonstrations, both in the case of the environmental conditions and of the observed results, the prevalence of the component mesomorphical.

Starting from the presentation of the results obtained by the study, it can be affirmed that the null hypothesis (H0) is not accepted, since it denies the existence of homogeneity of the characteristics somatotípicas and genetics, except as for the reaction speed where the null hypothesis was accepted. To the observed heterogeneity, such fact only demonstrates for the study Profile a specific characteristic for the studied group.

It is proven, in agreement with the presented statistical demonstration, the homogeneity existence, so much for the somatotípical characteristics, of basic physical qualities, as for the genetics, portraying, in that way, the existence of a profile, for these instances, among the pilots of hunt of F.A.B.

We recommended then that other studies are accomplished, with the intention of observing the groups that need high income of abilities motive, functional and somatotípological in their práxis, pilot of civil aviation, dancers, acrobats, skaters, and other, for a better visualization of these demands. It is suggested then the inclusion in the batteries of test of the dermatoglyphia as an instrument.

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