101 - PROFILE DERMATOGLIPHY OF PROFESSIONAL PADDLE PLAYERS OF BRAZIL

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doi:10.16887/87.a1.101

ABSTRACT

The paddle is a strong sport in the brazilian southern region, but little publicized in the media and low in scientific publications. It has similar features to tennis and squash. The dermatogliphy is a protocol to better assembly of the training program cycles, and look for possible talents. The study aims to determine which is the dermatogliphy profile of professional paddle players, comparing the results with other studies using the dermatogliphy as data collection method. They were selected voluntarily 20 professional male paddle players (age= 28,85 ± 6,18; stature (m) = 1,80 ± 0,05; body mass (kg) = 80,44 ± 8,25), who were competing in the 2nd stage of the Brazilians Championship of Paddle, held in Curitiba, PR, using the protocols of Cummins and Midlo (1961), stature and body mass (FERNANDES FILHO, 2003). For statistical analysis was the Shapiro-Wilk test used to check normality of variables and Pearson's correlation to check relationship between two parametric variables. The dermatogliphy profile verified by fingerprints were: A= 0,65 ± 0,88; L= 6,4 ± 1,88; W= 2,95 ± 1,9; D10 = 12,30 ± 2,3; SQTL = 118,13 ± 23,42, with correlation between SQTL and D10 r = 0,64. Greater genetic predisposition was verified for explosive strength and speed, and lower in coordination. It is recommended to apply more research in the form, relating dermatogliphy with other variables within the sport, for further enrichment of information.

INTRODUCTION

The mode is prevalent in Brazil's southern region, but with little publicity by the media and popular recognition. Internationally, Brazil is among the top three in the world by country, and with it the federations and confederation has invested in training high-performance athletes programs.

The dermatogliphy is a very simple and important tool to check the prevalence of physical valences athlete, helping the physical education professional periodize the higher quality the training of athletes in search of greater physical performance.

In this research aims to determine the dermatogliphy profile of professional paddle players in order to contribute to the physical education professionals working in sports training area high yield paddle, in search of new talents and also to assist in periodization training of their athletes.

Currently the sport is in contemporary phase (TUBINO, 2003), which can be divided into three types: Sports-Education; Sport-Leisure and Performance Sports. The performance sport, as a way of life for professional athletes, in terms more widespread with very strong media work, just motivating and perfecting those who practice the sport for leisure and as teaching in schools.

The sports training has gone through several stages since its implementation in high performance sport, and successively has gained more space in the scientific area in greater achievement of results of athletes and professionals from each respective sport teams.

This step division was suggested by Da Costa (1972) cited in Tubino (p.33, 2003), being respectively: Art Period; Improvisation period; Period of systematization; Period Pre-Scientific and Scientific period.

The Scientific period has gained a lot of investment and space, especially in high performance training centers where applied science in practice, searching for the most achieving results. In Brazil stands out in football in this regard, as many teams use more technological resources with their athletes.

The sports training has evolved considerably in recent decades. The systems and means which are currently at the disposal of sports technicians are far beyond those that exist in the first half of the twentieth century (Grannel and Cervera, 2003).

But the applicability of science and its training methods must always be respected by periodization, to have greater control of volume and intensity of your workouts, and subdivide the training with physical valences focuses most used and needed in their respective sport.

According Bompa (57 p. 2002):

All sports should incorporate the fundamentals of physical training, technical, tactical, psychological and theoretical, which are an essential part of any training program, regardless of the age of the athlete, their individual potential, level or training phase. The relative emphasis given to one of these factors varies, in any case, according to the attributes and characteristics of sport or event.

Besides periodize training, they must be understood which are the functional needs, not restricted their age, potential, and should also regard to gender athlete.

The dermatogliphy - Latin, dermo, meaning "skin"; and Greek, glypha, "record" - is a term proposed by Cummins and Midlo. It was introduced at the 42nd Annual Meeting of the American Association of Anátomos, held in April 1926. He received the method of classification in the field of Medical Science of relief study.

The dermatogliphys method is to use fingerprinting to identify possible genetic predispositions to certain basic physical valences and also fiber types (BEIGUELMAN, 1995)

There are three types of digital: A (Arco, without deltas), L (stab, has only a delta) and W (Whorl, two deltas), are classified as qualitative variables.



Arco (A) Presilha (L) Verticilo (W)

Figure 1: Types of digital drawings of the fingertips (NISHIOKA, DANTAS, FERNANDES FILHO, 2007)

The quantitative variables are the values which are the sum of the total number of lines (SQTL), and the delta index (D10) that compose the number of deltas found in digital.

Several studies have tried to prove the dermatogliphy profile of various types, such as futsal (DANTAS, 2001); beach football (FAZOLO et al, 2005), volleyball (FONSECA et al, 2008), ballet dancers (NISHIOKA, DANTAS; FERNANDES FILHO, 2007).

With these scientific findings of each specific sport, looking more economically and with greater accuracy to detect possible talent to achieve high performance, and have greater knowledge of the physical aspects of each athlete.

The Paddle is a little known sport in the country, which has gained more and more space, especially in the south and southeast, where the vast majority of athletes practicing. It features a confederation and state federations of Rio Grande do Sul, Santa Catarina, Paraná and São Paulo to promote the growth of the sport.

Worldwide 25 countries have federated the World Federation of Paddle, having greater dominance in the American and European continents (PADEL, web).

The mode is very similar to tennis, having the same scores with some more specific rules (PÁDEL, web). The court has 200m² (20m x 10m) with walls at the back and railings on the sides, always played in pairs.

The ball is identical to the tennis racket and is lower with carbon material and glass fiber, up to 38mm thick. The service is done with a bounce to the line of the pelvic girdle, launched the opponent on its diagonal (PADEL, web).

Unfortunately, being a sport with low popularity, it is poor in scientific articles, making the most physical trainers be based on tennis training methodology, adapting to the paddle.

METHODOLOGY

The methodological procedures of the research are of nature quantitative - qualitative characterized by cross data collection.

Given the nature of research, we opted for the use of the protocols: dermatogliphy of Cummins and Midlo (1942, p.257); stature and body mass according to Fernandes Filho (2003, p. 33 - 35). The subjects involved are in Curitiba Padel, located at Street Manoel Hygino dos Santos, 157 - Guaira, Curitiba - PR.

The samples were composed of 20 professional paddle players, who participated voluntarily signing the consent form Clarified, with the inclusion criterial: be competing in the 1st category in Brazilian Championship of Paddle, which was held in Curitiba Padel in the city of Curitiba - PR; and being male. Research will be excluded subjects who do not wish to participate or did not contemplate the inclusion criteria.

Was collected height and body mass of individuals first and second time, to distinguish dermatogliphy profile, we used the Cummins and Midlo protocol, which is caught digital two hands of athletes using a paint where the researcher painted the fingertips of the samples with a small paint roller, and then staked out a role for the collection of digital to be done to dermatogliphy analysis.

The data collection was performed after approval by the Ethics Committee of the University of Joinville Region, with the opinion 1,554,411.

The statistical analysis was basic statistics used for the composition of the data as mean (X), standard deviation (s), minimum values and maximum values; we used the Shapiro-Wilk test to check normality of variables and Pearson correlation (r) between variables with normal using the Action 2.9.

DISCUSSION AND ANALYSIS OF DATA

Table 1 shows the data of each sample in relation to body weight, height, BMI (Body Mass Index), and age, and the only non-parametric variable was the body mass.

Table 2 shows the average values of dermatogliphy professional paddle players of Brazil, showing the qualitative variables that comprise of: arch (A), loop (L) and whorl (W); and the quantitative variables as the total sum of the number of lines (SQTL) and delta index (D10).

Table 1 - Anthropometric data of professional athletes Padel(n=20)

	Age	Body Mass (kg)	Stature (m)	BMI (Body Mass Index)
X	28,85	80,44	1,80	24,79
s	6,19	8,25	0,05	1,88
Minimum	18	59,70	1,65	20,06
Maximum	40	89,70	1,87	27,46

Source: Primary (2016)

It found that the average professional paddle players in Body Mass Index variable is within the normal range (24.79 ± 1.88), but almost to meet the overweight group, which is top of 25,00kg / m² (WHO, 2000).

Wasn't collected subcutaneous fat, which would open the possibility to check the percentage of body fat in athletes and can find out if there is any correlation between body mass index and fat mass in the samples.

However, in a study of elite futsal athletes was verified data of subcutaneous fat and body mass index both classified in different ways. BMI showed overweight (above 25,00kg / m²) and 13% body fat (AVELAR et al, 2008).

Table 2 - Average values and their derivatives dermatoglyphic in professional Paddle athletes

	A	L	W	D10	SQTL
N	20	20	20	20	20
X	0,65	6,4	2,95	12,30	118,13
s	0,88	1,88	1,9	2,3	23,42
Minimum	0	2	0	9	77,50
Maximum	2	10	7	17	173,50

Source: Primary (2016)

The only variable that was identified as non-parametric by the Shapiro-Wilk test was the arc (A), also confirming the study with sprinters (DOS SANTOS et al, 2007). Pearson's correlation coefficient between the D10 and SQTL variables, determining r = 0.56 was also checked.

The not high delta index (D10) shows that does not have dominance in motor coordination, unlike the findings in indoor soccer players (DANTAS, FERNANDES FILHO, 2002) and dancers (NISHIOKA et al, 2007) that has good levels of this physical valence.

Table 3 represents the digital formulas of professional paddle athletes for analysis of physical quality predominance.

Table 3 - Distribution of digital formulas of professional paddle athletes

DF	10A	AL	ALW	10L	L-W	10W	L>W	L<W
Distribution	0%	0%	40%	5%	15%	0%	35%	5%

Source: Primary (2016)
DF: Digital Formulas

With greater ALW index and L> W (40% and 35%), characterized that the sample has predominantly explosive force and speed of resistance, respectively. For the study mode fits positively due to the dynamics of the sport, being in a closed court and played in pairs, in a not very spacious.

Fonseca et al (2008) in their study of 28 female volleyball athletes of high performance also corroborated with similar data for the present study, more ALW index, L>W and also W>L, the latter is related to agility (21.4%) which was higher compared to paddle players (5%).

The practice of sport also has set positions, which are divided between right and left. In Tables 4 and 5 shows the average values of the variables per block position. The variable nonparametric found was the arc (A) in both positions, with 10 athletes by position of the sample.

Table 4 - Average values dermatogliphy athletes who play on the left (n=10)

	A	L	W	D10	SQTL
X	0,5	6,5	3	12,50	120,15
s	0,85	2,17	1,94	2,07	25,50
Minimum	0	2	0	9	77,5
Maximum	2	10	6	15	173,50

Source: Primary (2016)

Table 5 - Average values dermatogliphy athletes who play on the right (n=10)

	A	L	W	D10	SQTL
X	0,8	6,3	2,9	12,10	116,10
s	0,92	1,64	1,97	2,6	22,33
Minimum	0	3	1	9	78
Maximum	2	8	7	17	147

Source: Primary (2016)

Many practitioners of the sport consider that athletes who play on the left side are more offensive of playing on the right, and instead on defense. When forming a dual which each player has these features achieve a balance between them.

Interesting that the average values of all variables were very close than the full profile, and there is also no difference between the positions. It is also seen similarity in the correlations of SQTL and D10 on the left and right positions, and r = 0.59 and r = 0.55 respectively.

In the study sought to target the dermatogliphy profiles per game position in women's handball athletes (CUNHA JÚNIOR et al, 2006) has been a similarity between the pivot and point guard positions; among male sand soccer players (FAZOLO, 2005): wing, defense and goalkeeper.

FINAL CONSIDERATIONS

This study aimed to verify the dermatogliphy profile professional paddle players and found that have genetic predispositions for explosive speed and strength, and consequently suffers a negative trend in motor coordination.

For an assembly training it is of utmost importance to use the dermatogliphy as evaluation tool for better fitting of your training cycles, thus better results in competitions.

They should be done studies that seek more information mode, in addition to dermatogliphy also using other variables such as somatotype, physical tests, seeking greater results in a little sport recognized by the media and weak in research in the scientific realm.

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PROFILE DERMATOGLIPHY OF PROFESSIONAL PADDLE PLAYERS OF BRAZIL

ABSTRACT

The paddle is a strong sport in the brazilian southern region, but little publicized in the media and low in scientific publications. It has similar features to tennis, however the dermatogliphy through genetic predispositions analysis helps to better assembly of the training program cycles, and look for possible talents. The study aims to determine which is the dermatogliphy profile of professional paddle players, comparing the results with other studies using the dermatogliphy as data collection method. They were selected voluntarily 20 professional male paddle players (age= 28,85 ± 6,18; stature (m) = 1,80 ± 0,05; body mass (kg) = 80,44 ± 8,25), who were competing in the 2nd stage of the Brazilians Championship of Paddle, held in Curitiba, PR, using the protocols of Cummins and Midlo (1961), stature and body mass (FERNANDES FILHO, 2003). For statistical analysis was the Shapiro-Wilk test used to check normality of variables and Pearson's correlation to check relationship between two parametric variables. The dermatogliphy profile verified by fingerprints were: A= 0,65 ± 0,88; L= 6,4 ± 1,88; W= 2,95 ± 1,9; D10 = 12,30 ± 2,3; SQTL = 118,13 ± 23,42, with correlation between SQTL and D10 r = 0,64. Greater genetic predisposition was verified for explosive strength and speed, and lower in coordination. It is recommended to apply more research in the form, relating dermatogliphy with other variables within the sport, for further enrichment of information.

Keywords: sports training, dermatogliphy, paddle.

ATHLÈTES DERMATOGLYPHES PROFIL DES PADEL PROFESSIONNELS BRÉSIL

RÉSUMÉ

La padel est un fort sport dans la région sud du brazilian, mais peu de publicité dans les médias et faible dans les publications scientifiques. Il a des caractéristiques similaires au tennis et squash. Le dermatogliphy est a protocole à mieux assemblage des cycles de programmes de formation, et de chercher des talents possibles. L'étude vise à déterminer quel est le profil de dermatogliphy des joueurs de padel professionnels, en comparant les résultats avec d'autres études utilisant le dermatogliphy comme méthode de collecte de données. Ils ont été choisis volontairement 20 joueurs de padel professionnels masculins (âge= 28,85 ± 6,18; stature (m) = 1,80 ± 0,05; masse corporelle (kg) = 80,44 ± 8,25), qui étaient en compétition dans la 2ème étape du Championnat Brésiliens de Padel, tenue à Curitiba, PR, en utilisant les protocoles de Cummins et Midlo (1961), la stature et la masse corporelle (FERNANDES FILHO, 2003). Pour l'analyse statistique a été le test de Shapiro-Wilk utilisé pour vérifier la normalité des variables et la corrélation de Pearson pour vérifier la relation entre deux variables paramétriques. Le profil de dermatogliphy vérifié par les empreintes digitales ont été : A= 0,65 ± 0,88; L= 6,4 ± 1,88; W= 2,95 ± 1,9; D10 = 12,30 ± 2,3; SQTL = 118,13 ± 23,42, la corrélation entre SQTL et D10 r = 0,64. Prédisposition génétique Grand a été vérifiée pour la force et la vitesse explosive, et plus faible dans la coordination. Il est recommandé d'appliquer plus de recherche sous la forme, concernant dermatogliphy avec d'autres variables dans le sport, pour un enrichissement supplémentaire de l'information.

Mots-clés: entraînement sportif, dermatogliphy, padel.

PERFIL DERMATOGLIFICO DE LOS ATLETAS PROFESSIONALES DE PÁDEL DEL BRASIL

RESUMEN

El Pádel es un deporte fuerte en la región sur de Brasil, pero poco difundido en los medios y bajos en las publicaciones científicas. Tiene características similares a las de tenis y squash. El dermatogliphy eres uno protocolo que ayuda a un mejor montaje de los ciclos de los programas de formación, y buscar posibles talentos. El estudio pretende determinar cuál es el perfil dermatogliphy de jugadores profesionales de pádel, comparando los resultados con otros estudios utilizando la dermatoglifia como método de recolección de datos. Fueron seleccionados voluntariamente 20 jugadores profesionales masculinos de pádel (idad= 28,85 ± 6,18; estatura (m) = 1,80 ± 0,05; masa corporal (kg) = 80,44 ± 8,25) que estaban compitiendo en la segunda etapa del Campeonato Brasileño de Pádel, celebrada en Curitiba, PR, utilizando los protocolos de Cummins y Midlo (1961), la estatura y la masa corporal (FERNANDES FILHO, 2003). Para el análisis estadístico fue la prueba de Shapiro-Wilk utilizado para comprobar la normalidad de las variables y la correlación de Pearson para comprobar la relación entre dos variables paramétricas. El perfil dermatoglífico fue verificada por huellas fueran: A= 0,65 ± 0,88; L= 6,4 ± 1,88; W= 2,95 ± 1,9; D10 = 12,30 ± 2,3; SQTL = 118,13 ± 23,42, con correlación entre SQTL y D10 r = 0,64. Una mayor predisposición genética fue verificada por la fuerza explosiva y la velocidad, y la más baja en la coordinación. Se recomienda aplicar una mayor investigación en la forma, en relación con otras variables dermatoglificas dentro del deporte, para un mayor enriquecimiento de la información.

Palabras clave: entrenamiento deportivo, dermatoglifia, pádel

PERFIL DERMATOGLÍFICO DOS ATLETAS PROFISSIONAIS DE PÁDEL DO BRASIL

RESUMO

O Pádel é uma modalidade forte na região sul brasileiro, porém pouco divulgado na mídia e pobre em publicações científicas. Possui características semelhantes a do tênis, entretanto a dermatoglifia, através da análise das predisposições genéticas, auxilia para uma melhor montagem do programa dos ciclos de treinamento, além de procurar possíveis talentos. O estudo tem como objetivo verificar qual é o perfil dermatoglífico dos atletas profissionais de Pádel, comparando os resultados com outros estudos que utilizaram a dermatoglifia como método de coleta de dados. Foram selecionados de forma voluntária 20 atletas profissionais de Pádel do sexo masculino (Idade= 28,85 ± 6,18; Estatura (m)= 1,80 ± 0,05; Massa Corporal (kg)= 80,44 ± 8,25), que estavam competindo na 2ª Etapa do Campeonato Brasileiro de Pádel, realizado em Curitiba-PR, utilizando os protocolos de Cummins e Midlo (1961), estatura e massa corporal (FERNANDES FILHO, 2003). Para tratamento estatístico foi utilizado o teste de Shapiro-Wilk para verificar normalidade das variáveis e Correlação de Pearson para verificar relação entre duas variáveis paramétricas. O perfil dermatoglífico verificado através das impressões digitais foram: A= 0,65 ± 0,88; L= 6,4 ± 1,88; W= 2,95 ± 1,9; D10 = 12,30 ± 2,3; SQTL = 118,13 ± 23,42, com correlação entre SQTL e D10 r = 0,64. Foi verificada maior predisposição genética para força explosiva e velocidade, e menor em coordenação. Recomenda-se que apliquem mais pesquisas na modalidade, relacionando a dermatoglifia com outras variáveis dentro do esporte, para maior enriquecimento de informações.

Palavras-chaves: treinamento desportivo, dermatoglifia, pádel.