

100 - SOMATOTYPE CHARACTERISTICS AND THE CORPORAL DENSITY OF THE STUDENTS OF THE CENTER OF GRADUATION OF OFFICERS OF NAVAL SCHOOL. A COMPARATIVE STUDY AMONG THE YEARS OF GRADUATION.

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INTRODUCTION

The association of the excess of corporal fat to the increase of the risk to develop illnesses of coronary artery type, high blood pressure, diabetic type II, obstructive pulmonary, osteoarthritis, and some types of cancer (Hayward & Stolarczyk, 2000), is nowadays one of the most concerns to the society. The extreme fat accumulation for certain corporal mass is, admittedly, a risk factor for different pathological conditions (Pollock & Wilmore, 1993). The last decades, great emphasis has been given to the corporal fat study (de Pinho e Petroski, 1999).

The Brazilian nutritional profile has disclosed prevalence of overweight and obesity has increased in an important way in the last thirty years (Neves, 2008). This way, become important, significant studies in the military scope, observing that those can offer parameters for the civil society, according to Neves 2008 affirmation, thousands of young people all over the country they sign out for any military unit every year. The military contingent of Brazil has a large of people that reflect the social conditions of the population, so, that can show the healthy conditions similar to the civil population, although the professional characteristics that each of them specify.

The naval school (EN) graduate official for the Brazilian navy. With intention to keep its candidates in good physical conditions, and able for the realization of daily activities, they go through daily physical training. So it believes that: the structure and the goals for the military service demand that its integrants has satisfactory physical aptitude (Pereira e Teixeira, 2006); also that, the high level of physical aptitude must be reached and kept by the militaries enabling them to do their duties inherent their professional activity (Pereira e Teixeira, 2006), (Pinheiro e Dantas, 2005); and finally that one balanced corporal composition must not compromise the military physical performance (military- Tfm, 2002).

In the international sphere, it noted that military population, they are widely studied, face the institutional valuation to the physical exercise practice, besides the easy pursuing localization, that makes possible the continued production of researches in this issue (Blacker et al. 2008, Vanderburgh e Crowder 2006). Contrarily, in the national terms, it is rare the scientific references of impact involving the military context (Rodrigues et al.). It can be found some articles about the nutritional profile of the military, particularly about women military. That can be related to the recent increase of women in the military scope. About the nutritional military profile, male gender, the study became still more rare (Neves, 2008).

Therefore, the determination of corporal composition has many applications to program directed to healthy and physical-sport training. With the advance of technology, a trend for the development of techniques of corporal composition estimated is observed for the outside laboratory environment (Rodrigues, Da Silva et al. 2001). Among them, the anthropometric has been used, because it is field method that requires low cost equipments, and makes possible to measure a large number of people in a little time (Glaner e Rodriguez, 1999), being very used in the ascertainment in military.

The necessity of application a lot of tests for certain population will help to verify if it has a group convergence for certain aptitude level, characterizing, this way, a physical profile (Pereira e Teixeira, 2006). Particularly in the Naval school, become essential to identify the physical profile of the candidates, due to the fact of the same ones go through four years to graduate, subjected to alterations as much in the somatotype profile, as much in the corporal composition during this period.

The main goal of this study was to identify which is the somatotype profile and the corporal composition during the years of graduation of the candidates, and to observe the main alterations year by year.

METHODOLOGY

Type of study

This study it's characterize as a descriptive/ comparative degree, therefore it has an objective to describe the measure and the shunting line standard of the anpotromety characteristic of the corporal composition, somatotype, and the comparison within the years of graduation of the naval school candidates.

Population/ sample

The total population is constituted of 821 internal candidates of the naval school. The sample is characterized by 82 candidates, all male gender, random selected, being 24 from the 1st grade, 21 from the 2nd grade, 20 from the 3rd grade and 17 from the 4th grade ($\pm 10\%$ for each grade), ages between 18 and 25 years old, medium of $21,37 \pm 1,41$ years.

Inclusion and exclusion criteria

Was considered the criteria of inclusion every candidate random selected, and that the candidates of the test did not make formal opposition

Was considered the criteria exclusion every candidate that showed contagious infected illness at the moment of the test.

CARES TECHNICIANS

The actual study is based on Helsingue (1984) orientations. All the participants of the research have been informed on the procedure of the data collection. The military organization which its participants is part of this study, was informed on the methodology procedure.

Tools

It has been used in this study a compass of cutaneous folds (CESCORF, with grade of 1 inch and constant pressure in all the openings de 10g/mm²); a metric ribbon without metallic locking (SANNY of 2 feet); Caliper (SANNY with grade of 1 inch); a digital scale (FILIZOLA, made in Brazil, with capacity of 150 lb and precision 100 g); A stadiometer (SANNY with grade of 1 inch)

PROCEDURES

Was collected ages data, stature (H, inches), weight (lb), cutaneous folds (Cf), (breast, abdominal, thigh, triceps, sub scapular, supra spinal and ankles) Perimeters of (ankles and pressure arms) and diameters of (humerus and femur).

To calculate the somatotype, was used the Heath and Carter (1990) anthropometric method. Being for the endomorphic components was used the Dc sub scapular and supra spinal addition of Dc of triceps, where (Dcx170, 15) divided by stature (H). To calculate the mesomorphic components, was used the values of stature (H), diameters of humeros (Dh), diameters of femur (Df), correct perimeters of arms (AcP) and corrected perimeters of calf (CcP.). Where can measure = 0, 858 (Dh) + 0, 601 (Df) + 0, 188 (AcP) + 0,161 (CcP) – 0,131 (H) + 4, 5. For ectomorphic components calculation was used the weight and stature measures, dealing with Sheldon ponderal index (IP) (1954). IP= stature/v3 of weight. Where IP> than 40, 75 ecto= (IPx0, 732) - 28, 58. When IP>- 38, 25 and <- 40, 75, ecto = (IPx0, 463) - 17, 63. And when IP<- 38, 25, ecto = 0, 1. To calculate the fat percentage (%G), was used the Jackson and Pollock's protocol (1993) of three cutaneous folds, correlated to the Siri's equation (1961). Where the results of the addition of breast, abdominal and thigh's Cf, were correlated to gender and age.

All the measures were obtained from the right side of the candidates, which were wearing no shoes, and dressing bath suits, following ISAK of Norton and Olds (2000) recommendation.

The statistic treatment was composed by descriptive analyses, according to Costa Neto (1995), objectifying to get the profile of data set, through measure of localization (medium) and dispersion (shutting line - standard). The study admitted the level of significance of p, 0, 05 and it got a correlation index (r=0, 97).

RESULTS AND QUARREL

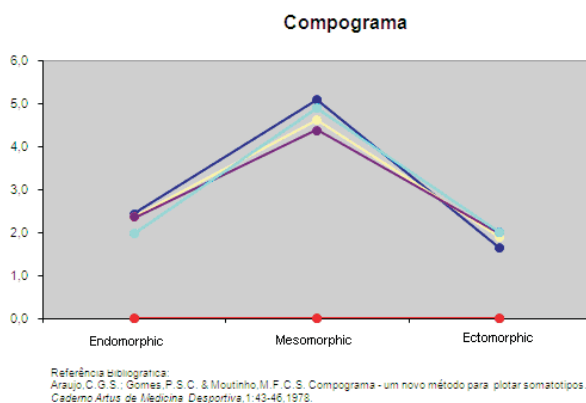
With the intention to better shows the somatotype joined in the used sample, the Graph 1 shows the average results for stature, weight, cutaneous folds and perimeters used for the endomorphic, mesomorphic and ectomorphic components calculation, with its respective shutting line standard, separated by year of graduation.

Graph 1 - average and shutting line standards (±) of the anthropometrics characteristics used in the somatotype calculation.

	1st year	2nd year	3rd year	4th year
E stature (H)	175,3 ± 5,17	177,3 ± 7,47	177,2 ± 5,20	177,9 ± 6,47
Weight (lb)	73,9 ± 7,84	76,6 ± 12,62	77,1 ± 6,02	80,0 ± 8,11
Dc triceps	9,02 ± 3,47	10,3 ± 2,95	10,4 ± 2,90	11,0 ± 3,22
Dc sub scapular	11,08 ± 3,21	14,3 ± 4,28	14,3 ± 4,88	14,5 ± 4,30
Dc supra spinal	10,13 ± 3,59	12,55 ± 5,57	12,05 ± 5,51	12,41 ± 4,75
Dh	6,65 ± 0,29	6,54 ± 0,47	6,90 ± 0,92	6,79 ± 0,38
Df	9,47 ± 0,48	9,44 ± 0,63	9,39 ± 0,51	9,77 ± 0,38
AcP	32,2	32,2	31,2	32,6
CcP	36,7	35,8	36,6	37,6

Getting the following results for the endomorphic, mesomorphic and ectomorphic components : 1st grade (2,0 - 4,9 - 2,0); 2nd grade (2,3 - 4,4 - 2,0); 3rd grade (2,4 - 4,6 - 1,9); and 4th grade (2,4 - 5,1 - 1,6), respectively. The Graph 1 in Compograma form it shows the results in progression of these components.

Graph 1- compogram of progression of the endomorphic, mesomorphic and ectomorphic components .Where:
 = 1st grade - = 2nd grade - = 3rd grade - = 4th grade



Being able the somatotype profile from 4th and 3rd grades to be classified as meso-endomorphy, where the mesomorphy is dominant, and the endomorphism is bigger than the ectomorphy. In the same way the profile from 2nd and 1st grades present a somatotype characteristic of balanced mesomorphy, where the mesomorphy is dominant and the endomorphism and ectomorphy are equal (they do not differ more than 0.5), (Fernandes,2003). A study made by Dos Santos (2003) to the Brazilian army parachutist, found out values of 2, 5 - 4, 5 - 2, 3, respectively for the same components. Showing a positive correlation (r=0, 95) to the study in question.

The cutaneous folds and ages results, used to the corporal composition calculation, and the fat percentage found, are shown in Graph2.

Graph 2 - Medium and shutting line standard (±) of anthropometrics characteristics (age and cutaneous folds) used to calculate the corporal composition and the fat percentage found (%G).

	1º ano	2º ano	3º ano	4º ano
Dc peitoral	7,6 ± 2,60	9,4 ± 3,48	9,6 ± 3,33	13,9 ± 5,11
Dc abdominal	16,4 ± 6,82	20,2 ± 6,77	20,4 ± 9,28	23,6 ± 6,62
Dc coxa medial	13,0 ± 4,63	15,8 ± 3,74	15,6 ± 5,33	19,2 ± 7,81
Idade	19,8 ± 0,95	21,2 ± 1,50	22,3 ± 1,39	22,9 ± 1,55
%G	9,8	12,5	12,5	15,8

According to Pollock and Wilmore (1993), being able to be classified as good for 1st grade, average for 2nd and 3rd grades and below average expectations for 4th grade of graduation. The results found, they show that between the candidates it has a corporal composition increase process about the percentage of fat. A study made by Cardoso (2008), with military people in the same average age, $18 \pm 0,6$ years old, to the NPOR (preparation of reserve officers) students that found a fat of percentage of 9,4%. Comparing to the main study, it shows that candidates of Naval school from 1st grade are inside of standard of fat percentage, which is in accordance to the military reality, but in the following years started showing signs of significant distance of the standard results found in the military studies, specially when we analyze the 4th grade results.

CONCLUSION

According to the results we can observe an increase, as much in the somatotype profile, as much in the corporal composition, of the candidates in relation to the years of graduation. Specially if we observe the differences from the 1st grade to the 4th grade. But we also can notice that this increase is gradual, what can happen even if all are having the same load of daily physical activity.

We concluded that this study was on average expectations on the description of the somatotype characteristics and the corporal composition of the naval school candidates. That can be a reference for another studies, with the same average age, similar population, as well as a reference for the military institution itself, which is part of this research, for the future verifications about the nutritional profile of the students.

BIBLIOGRAPHICAL REFERENCES

- Blacker SD, Wilkinson DM, Bilzon JL, Rayson MP. Risk factors for training injuries among British Army recruits. *Mil Med* 2008; 173:278-86.
- Carter, J. E. L. e Heath, B. H. (1990) *Somatotyping - Developmente and Applications*. Cambridge Studies Biological Anthropology. Londres. Cambridge University Press.
- De Pinho, R. e E. Petroski. Adiposidade corporal e nível de atividade física em adolescentes. *Revista Brasileira de Cineantropometria e Desempenho Humano*, v.1, n.1. 1999.
- Dos Santos M, Fernandes Filho J. Perfis dermatoglífico, somatotípico e das qualidades físicas básicas dos pára-quedistas do exército brasileiro do ano de 2003.
- Glaner M, Rodriguez-Añez C. Validação de procedimentos antropométricos para estimar a densidade corporal e percentual de gordura em militares masculinos. *Revista Brasileira de Cineantropometria & Desempenho Humano* 1999;1 (1):24-9.
- Heyward, V. H. & Stolarczyk, L. M. (2000). *Avaliação da composição corporal*. SP: Manole.
- Neves, E. Prevalência de sobrepeso e obesidade em militares do exército brasileiro: associação com a hipertensão arterial. *Ciênc. saúde coletiva*, v.13, n.5. 2008.
- Norton, K. & Olds, T. *Anthropometrica*. Sidney, Australia: Southwood Press, 2000.
- Fernandes Filho J, *A prática da Avaliação Física*, 2ª ed, Shape, 2003.
- Militar-Tfm, T. *Manual de Campanha C 20-20*: Brasília, EGGCF 2002.
- Pereira, É. e C. Teixeira. Proposta de valores normativos para avaliação da aptidão física em militares da Aeronáutica. *Rev. bras. Educ. Fís. Esp.*, São Paulo, v.20, n.4, p.249-56. 2006.
- Pinheiro, J. e E. Dantas. Efeitos do Treinamento Aeróbico com Intensidade na Zona do Fatmax ($64 + 4\%$ do VO_2 máx) na Composição Corporal de Cadetes da Academia Militar das Agulhas Negras. *Fitness & performance journal*, n.3, p.157. 2005.
- Pollock ML, Wilmore JH. *Exercícios na saúde e na doença. Avaliação e prescrição para prevenção e reabilitação*. 2ª ed. Rio de Janeiro: MEDSI, 1993.
- Rodrigues AVS, Martinez EC, Duarte AFA, Ribeiro LCS. O condicionamento aeróbico e sua influência na resposta ao estresse mental em oficiais do Exército. *Rev Bras Med Esporte* 2007; 13:113-7.
- Rodrigues, M., S. Da Silva, et al. Estimativa da gordura corporal através de equipamentos de bioimpedância, dobras cutâneas e pesagem hidrostática. *Revista Brasileira de Medicina do Esporte*, v.7, p.125-31. 2001.
- Siri WE. Body composition from fluid spaces and density: analyses of methods. In BROZEK J, HENSCHLA (eds.). *Techniques for measuring body composition*. Washington: National Academy of Science, 1961 Vanderburgh PM, Crowder TA. Body mass penalties in the physical fitness tests of the Army, Air Force, and Navy. *Mil Med* 2006; 171:753-6.

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ABSTRACT

The main goal of this study it was to identify the somatotype profile of the corporal density of the naval school candidates during the years of formation. The population of the candidates is 821. The first sample has 82 candidates, male gender, random selected, being 24 from 1st grade, 21 from 2nd grade, 20 from 3rd grade and 17 from 4th grade (about 10%/ year), range ages between 18 and 25 years old, median of $21,37 \pm 1,41$. Was collected information about age, weight, height, cutaneous folds, perimeters and diameters. For the somatotype calculation was used the heath and Carter (1990), anthropometry method. To calculate the fat percentual (%G), it used the Jackson and Pollock protocol (1993), three folds, correlated to Siri equation (1961). The measure was obtained from the right side, according ISAK of Norton and Olds (2000) recommendations. The statistical treatment was through descriptive analyzes, according to the Costa Neto (1995), with the main purpose was to obtain the profile of the data set, through measure of localization (medium) and dispersion (shunting line-standard) . It admitted the level of significance of $p < 0,05$, and correlation index ($r = 0,097$). Had been found the followings results for endomorphyc, mesomorphyc and ectomorphyc components 1st year= $2,0 - 4,9 - 2,0$; 2nd year= $2,3 - 4,4 - 2,0$; 3rd year= $2,4 - 4,6 - 1,9$; e 4th year= $2,4 - 5,1 - 1,6$, respectively. The somatotype profile of 4th and 3rd grades was classified like meso-endomorphyc. And 2nd and 1st grades as balanced mesomorphyc. The fat percentage found was 1st year= 9, 8%, 2nd year= 12, 5%, 3rd year= 12, 5%, 4th year= 15, 8%, being classified as 1st grade = good, 2nd and 3rd grades = medium, average and 4th grade = below average expectations. According to the results we can observe an increase, as much in the somatotype profile, as much in the fat percentage, of the candidates in relation to the years of formation.

KEYS WORD: Obesity, Anthropometry, Health Profile, Body Composition.

FUNCION SOMATOTIPIQUE ET DE COMPOSITION CORPORALLE DES ÉTUDIANTS DE CENTRE DE FORMATION OFFICIERS DE LA MARINE (ÉCOLE NAVAL). ÉTUDE COMPARATIF ENTRE LES ANNEES DE FORMATION

RÉSUMÉ

L'objectif de cette étude a été d'identifier le profil somatotypique et de composition corporelle des aspirants de l'EN durant les années de formation. La population est de 821 aspirants. L'échantillon étant de 82 aspirants, de sexe masculin, sélectionnés de façon aléatoire, où 24 de la 1ère année, 21 de la 2ème année, 20 de la 3ème année et 17 de la 4ème année ($\pm 10\%$ / an), âgés de 18 à 25 ans, moyenne de $21,37 \pm 1,41$. Ont été cueillies des données d'âge, taille, poids, plis cutanés, périmètres et diamètres. Pour le calcul du somatotype a été utilisée la méthode anthropométrique de Heath et Carter (1990). Pour calculer le pourcentage de graisse (%G), a été utilisé le protocole de Jackson et Pollock (1993) 3 Dc, corrélationné à l'équation de Siri (1961). Les mesures ont été réalisées du côté droit, selon les recommandations ISAK de Norton et Olds (2000). Le traitement statistique a été réalisé par l'analyse descriptive, selon Costa Neto (1995), dans le but d'obtenir le profil de l'ensemble des données, par l'entremise de mesure de localisation (moyenne) et de dispersion (écart-type). A été admis le niveau de signficance de $p < 0,05$, et un indice de corrélation ($r=0,97$). Ont été trouvés les résultats suivants pour les composants endorphie, mésomorphie et ectomorphie: 1ère année= $2,0 - 4,9 - 2,0$; 2ème année= $2,3 - 4,4 - 2,0$; 3ème année= $2,4 - 4,6 - 1,9$; et 4ème année= $2,4 - 5,1 - 1,6$, respectivement. Le profil somatotypique de la 4ème et 3ème année a été classé comme méso-endomorphique. Et de la 2ème et de la 1ère années comme mésomorphisme équilibré. Le pourcentage de graisse trouvé a été: 1ère année= $9,8\%$, 2ème année= $12,5\%$, 3ème année= $12,5\%$, 4ème année= $15,8\%$. Le classement a été: 1ère année= bonne, 2ème et 3ème années: dans la moyenne et 4ème année= tendant au dessous de la moyenne. Selon les résultats nous pouvons observer une augmentation aussi bien dans le profil somatotypique que dans le pourcentage de graisse des aspirants par rapport aux années de formation.

MOTS-CLÉS: Obésité, Anthropométrie, Profil, Composition Corporelle.

CARACTERÍSTICAS DEL SOMATOTIPO Y COMPOSICIÓN CORPORAL DE ESTUDIANTES DE CENTRO DE FORMACIÓN DE OFICIALES DE LA MARINA (NAVAL). UN ESTUDIO COMPARATIVO ENTRE LOS AÑOS DE ENTRENAMIENTO.

RESUMO

El objetivo de este estudio ha sido identificar el perfil somatotipo e de la composición de lo cuerpo de los aspirantes de EN, durante los años de formación. La población es de 821 aspirantes. Siendo la muestra de 82 aspirantes, sexo macho, seleccionados al azar, donde 24 del primer año, 21 del segundo año, 20 del tercer año y 17 del cuarto año ($\pm 10\%$ / año), con edad entre 18 y 25 años, media de $21,37 \pm 1,41$. Fueron recogidos datos de edad, estatura, peso, pliegues cutáneos, perímetros y diámetros. Para el cálculo de el somatotipo fue utilizado el método antropométrico de Heath y Carter (1990). Para calcular el porcentaje de grasa (%G), fue utilizado el protocolo de Jackson e pollock (1993), 3 Dc, corelacionadas a la ecuación de Siri (1961). Las medidas fueron realizadas del lado derecho, segundo las recomendaciones ISAK de Norton Y Olds (2000). El tratamiento estadístico fue por análisis descriptiva, segundo Costa Neto (1995), objetivo obtener el perfil del conjunto de datos, por medida de localización (media) y de dispersión (desvío-padrón). Se admitió el nivel de significancia de $p < 0,05$, y un índice de correlación ($r=0,97$). Fueron encontrados los siguientes resultados para los componentes endomorph, mesomorpho y ectomorfia: primer año= $2,0 - 4,9 - 2,0$; segundo año = $2,3 - 4,4 - 2,0$; tercer año = $2,4 - 4,6 - 1,9$; Y cuarto año = $2,4 - 5,1 - 1,6$, respectivamente. El perfil somatotipo del cuarto y tercer años fue clasificado como meso- endomorfico. Y del segundo e primer años como mesomorfismo balanceado. El porcentaje de grasa encontrado ha sido; primer año= $9,8\%$, segundo año= $12,5\%$, tercer año = $12,5\%$ y cuarto año= $15,8\%$. Siendo clasificado como primer año=bueno, segundo e tercer año = medianos e cuarto año = con tendencia abajo de la media. De acuerdo con los resultados podemos observar un aumento, tanto en el perfil somatotipo cuanto en el porcentaje de grasa, de los aspirantes con relación a los años de formación.

PALABRAS LLAVES: Obesidad, Antropometría, Perfil de Salud, Composición de lo Cuerpo.

CARACTERÍSTICAS SOMATOTIPIOLÓGICAS E DE COMPOSIÇÃO CORPORAL DE ALUNOS DO CENTRO DE FORMAÇÃO DE OFICIAIS DA MARINHA (ESCOLA NAVAL). UM ESTUDO COMPARATIVO ENTRE OS ANOS DE FORMAÇÃO.

RESUMO

O objetivo deste estudo foi identificar o perfil somatotípico e de composição corporal dos aspirantes da EN durante os anos de formação. A população é de 821 aspirantes. Sendo a amostra de 82 aspirantes, do sexo masculino, selecionados aleatoriamente, onde, 24 do 1o ano, 21 do 2o ano, 20 do 3o ano e 17 do 4o ano ($\pm 10\%$ / ano), com idade entre 18 e 25 anos, média de $21,37 \pm 1,41$. Foram coletados dados de idade, estatura, peso, dobras cutâneas, perímetros e diâmetros. Para cálculo do somatotipo utilizou-se o método antropométrico de Heath e Carter (1990). Para calcular o percentual de gordura (%G), utilizou-se o protocolo de Jackson e Pollock (1993) 3 Dc, correlacionados a equação de Siri (1961). As medidas foram realizadas do lado direito, segundo as recomendações ISAK de Norton e Olds (2000). O tratamento estatístico foi por análise descritiva, segundo Costa Neto (1995), objetivando obter o perfil do conjunto de dados, através de medida de localização (média) e de dispersão (desvio-padrão). Este estudo admitiu o nível de significância de $p < 0,05$, e foi encontrado um índice de correlação ($r=0,97$). Foram encontrados os seguintes resultados para os componentes endomorfia, mesomorfia e ectomorfia: 1º ano= $2,0 - 4,9 - 2,0$; 2º ano= $2,3 - 4,4 - 2,0$; 3º ano= $2,4 - 4,6 - 1,9$; e 4º ano= $2,4 - 5,1 - 1,6$, respectivamente. O perfil somatotípico do 4º e 3º anos foi classificado como meso-endomórfico. E do 2º e 1º anos como mesomorfismo balanceado. O percentual de gordura encontrado foi: 1º ano= $9,8\%$, 2º ano= $12,5\%$, 3º ano= $12,5\%$, 4º ano= $15,8\%$. Sendo classificado como: 1º ano= bom, 2º e 3º anos: na média e 4º ano= tendendo a abaixo da média. De acordo com os resultados podemos observar um aumento, tanto no perfil somatotípico, quanto no percentual de gordura, dos aspirantes em relação aos anos de formação.

PALAVRAS CHAVE: Obesidade, Antropometria, Perfil, Composição Corporal.

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