ORIGINAL ARTICLE

COMPARISON OF FUNCTIONAL PERFORMANCE BETWEEN COMMUNITY ELDERLY PEOPLE WITHOUT AND WITH COMORBIDITIES

Comparação do desempenho funcional entre idosos comunitários sem e com comorbidades

Comparación del desempeño funcional entre personas mayores comunitarias sin y con comorbilidades

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ABSTRACT

Introduction: in Brazil, the elderly are defined as those aged 60 or over. During the ageing process, there are associated diseases defined as comorbidities and these can directly interfere with the functionality and functional performance of the elderly. **Objective**: to analyze whether there is a difference in functional performance between community-dwelling elderly people without and with comorbidities. **Method:** a cross-sectional study with a sample made up of community-dwelling elderly people treated at the Family Health Care Centers. Data was collected using questionnaires and tests to assess functional performance: Five Times Sit-to-Stand (5STS), dynamometry, Timed Up and Go (TUG) and 4-Meter Gait Speed (4MGS). The participants were divided into two groups: without and with comorbidities. **Results:** 537 elderly people aged between 60 and 92 years took part (64.6% female), most of whom were sedentary, 129 without comorbidities (24.03%) and 408 with comorbidities (75.97%). The most prevalent comorbidities were cardiovascular (64.21% for the group without comorbidity and 35% for the group with comorbidity), musculoskeletal (8.42% for the group without comorbidity and 29% for the group with comorbidity), and endocrine (9.48% for the group without comorbidity and 15% for the group with comorbidity). A significant difference (p<0.05) was found in all the functional performance tests, with the group with comorbidities showing lower performance values**. Conclusion:** the group of elderly with comorbidities showed worse functional performance compared to the elderly without comorbidities.

Keywords: Aging; Primary Health Care; Physical Functional Performance; Chronic Disease

RESUMO

Introdução: no Brasil, considera-se idoso aquele indivíduo com idade maior ou igual a 60 anos. No decorrer do processo de envelhecimento existem as doenças associadas definidas como comorbidades e estas podem interferir diretamente na funcionalidade e no desempenho funcional dos idosos. **Objetivo**: analisar se existe diferença do desempenho funcional entre idosos comunitários sem e com comorbidades. **Método**: estudo transversal, com amostra composta por idosos comunitários atendidos nos Centros de Saúde da Família. A coleta de dados foi realizada através da aplicação de questionários e os testes para avaliar o desempenho funcional: teste de sentar e levantar 5 vezes (TSL5), dinamometria, *timed up and go (TUG)* e velocidade de marcha de 4 metros (VM4M). Os participantes foram divididos em dois grupos: sem e com comorbidades. **Resultados:** participaram 537 idosos com idade de 60 a 92 anos, (64,6% do sexo feminino) maioria sedentária, sendo 129 sem comorbidades (24,03%) e 408 com comorbidades (75,97%). As comorbidades mais prevalentes foram do sistema cardiovascular (64,21% para o grupo sem comorbidade e 35% para o grupo com comorbidade), musculoesquelético (8,42% para o grupo sem comorbidade e 29% para o grupo com comorbidade), e endócrino (9,48% para o grupo sem comorbidade e 15% para o grupo com comorbidade). Foi encontrada diferença significativa (p<0,05) em todos os testes de desempenho funcional sendo que o grupo com comorbidades apresentou menores valores de desempenho. **Conclusão**: o grupo de idosos com comorbidades apresentou pior desempenho funcional comparados aos idosos sem comorbidades.

Palavras-chave: Envelhecimento; atenção primária à saúde; desempenho físico funcional; doença crônica.

RESUMEN

Introducción: en Brasil, los ancianos son definidos como aquellos con 60 años o más. Durante el proceso de envejecimiento existen enfermedades asociadas definidas como comorbilidades y éstas pueden interferir directamente en la funcionalidad y el desempeño funcional de los ancianos. **Objetivo:** analizar si existen diferencias en el rendimiento funcional entre ancianos residentes en la comunidad sin y con comorbilidades. **Material y método:** estudio transversal con una muestra constituida por ancianos comunitarios atendidos en Centros de Salud de Familia. Los datos se recogieron mediante el uso de cuestionarios y pruebas para evaluar el rendimiento funcional: test de bipedestación quíntuple (TSL5), dinamometría, timed up and go (TUG) y velocidad de marcha de 4 metros (VM4M). Los participantes se dividieron en dos grupos: sin comorbilidades y con comorbilidades. **Resultados:** participaron 537 ancianos de entre 60 y 92 años (64,6% mujeres), la mayoría sedentarios, 129 sin comorbilidades (24,03%) y 408 con comorbilidades (75,97%). Las comorbilidades más prevalentes fueron cardiovasculares (64,21% para el grupo sin comorbilidad y 35% para el grupo con comorbilidad), musculoesqueléticas (8,42% para el grupo sin comorbilidad y 29% para el grupo con comorbilidad) y endocrinas (9,48% para el grupo sin comorbilidad y 15% para el grupo con comorbilidad). Se encontró una diferencia significativa (p<0,05) en todas las pruebas de rendimiento funcional, mostrando el grupo con comorbilidad valores de rendimiento inferiores. **Conclusión:** el grupo de ancianos con comorbilidades presentó peor rendimiento funcional en comparación con los ancianos sin comorbilidades.

Palabra Clave: Envejecimiento; Atención Primaria de Salud; Rendimiento Físico Funcional; Enfermedad Crónica**.

INTRODUCTION

The aging process is complex and encompasses various changes.[1] In Brazil, an elderly person is someone who is aged 60 years or older.[2] As age increases, physiological changes consequently occur in the body, which contribute to the development of chronic diseases and a greater dependence on care needs.[3]

A significant portion of these diseases is associated with the emergence of comorbidities, defined as the simultaneous presence of two or more diseases.[2] Inadequate lifestyle habits, such as a sedentary lifestyle, contribute to an increased presence of chronic diseases as well as the onset of comorbidities.[4] The World Health Organization (WHO) highlights the importance of regular physical activity as a benefit for preventing chronic diseases, cognitive decline, as well as maintaining overall well-being.[5]

According to the International Classification of Functioning, Disability and Health (ICF), performance is related to activities within one's usual environment and can also be seen as engagement in life situations. Functionality, on the other hand, refers to body functions, activity, and participation.[6] Assessing functional performance in the elderly is necessary, as a decline in physical function may indicate not only frailty but also greater dependence and increased risk of institutionalization.[7] The aging process involves changes that contribute to a greater vulnerability of the elderly, leaving them more exposed to diseases and susceptible to frailties.[8]

Studies report the high number of individuals with comorbidities and how these directly impact functionality. Among common diseases, hypertension stands out.[9,10] In this context, given the growth of the elderly population as well as the changes directly linked to the aging process, it is assumed that elderly individuals without comorbidities have better functional performance than those with comorbidities which consequently affects their daily activities and physical well-being. This study aims to analyze whether there is a difference in functional performance between community-dwelling elderly individuals without and with comorbidities.

METHOD

Cross-sectional study, with a sample composed of community-dwelling elderly individuals treated at Family Health Care Centers (CSF, in Portuguese) in the city of Goiânia, state of Goiás, through the Brazilian Unified Health System (SUS) from January 2022 to December 2023. The study included participants of both sexes aged ≥ 60 years, with or without the presence of comorbidities. Exclusion criteria were elderly individuals who did not respond to the questionnaire on self-reported diseases, those who did not complete functional performance tests, and those using wheelchairs, walking aids such as walkers, canes, or any other condition that interfered with the execution of the tests.

The research was approved by the Ethics and Human Research Committee of the Federal University of Goiás (UFG) under approval number 4.617.086 and by the Ethics Committee of Hospital and Maternity Dona Íris under approval number 4.680.770, in accordance with the Guidelines and Regulatory Norms for Research Involving Human Beings (Resolutions 466/2012 and 510/2016). The study is part of a larger project titled "Elderly health: social determinants, physical and functional parameters," linked to the Musculoskeletal Research Laboratory (LAPEME) at the State University of Goiás – ESEFFEGO, in Goiânia. Participants were recruited through the project "Physical therapy Care for elderly health."

Participants who met the inclusion criteria and agreed to participate in the research signed the Informed Consent Form (ICF). Evaluations were conducted in a reserved room at each Family Health Care Center (CSF, in Portuguese). Participants were invited to complete a questionnaire developed by the researchers to characterize their sociodemographic profile,

covering basic information such as: the date of the evaluation, name, phone number, date of birth, sex, age, time spent on physical activities.

The instruments used were an evaluation form with questions related to the presence of self-reported diseases, the amount of time spent on physical activity per week, and the administration of functional performance tests. Diseases were collected through self-reporting and were considered those for which the participant had a diagnosis provided by a doctor.

Regarding physical activity, if participants answered "yes" to engaging in physical activity, additional questions were asked about the frequency and duration of the activity. Classification was based on a calculation by multiplying the time spent by the number of days participants engaged in physical activity. The WHO recommends at least 150 to 300 minutes of moderate-intensity aerobic physical activity per week.[5]

In the evaluation of participants' functional performance, the following tests were conducted: the Five Times Sit-to-Stand test (5STS), the 4-Meter Gait Speed test (4MGS), and the Timed Up and Go test (TUG). These functional performance tests allow for the assessment of variables such as lower limb strength through the 5STS, gait speed, balance, and handgrip strength. These assessments help identify the association with reduced functionality in elderly individuals, enabling the promotion of physical activity.[11]

The 5STS is used to measure the time required for a person to rise five times from a seated position in a chair without lateral support and without using their arms. It can also serve as a substitute measure for lower limb muscle strength.[12] The following values are considered below-average performance according to age: 11.4 seconds for individuals aged 60 to 69, 12.6 seconds for those aged 70 to 79, and 14.8 seconds for those aged 80 to 89.[13] Our study considered that the longer the time taken, the poorer the performance in the test.

For the 4MGS test, this study measured gait speed by dividing the distance in meters by the time in seconds. Values of >0.8 meters/second were considered indicative of good performance in the test, while values of <0.8 m/s indicated a decline in test performance.[14]

The TUG test is used to assess the functional capacity of individuals.[12] The score is determined based on the time spent in seconds to complete the test.[15] Those whose performance exceeded 12 seconds were considered at risk of functional decline.[15]

Handgrip strength was measured using manual dynamometry.[16] The Saehan Hydraulic Hand Dynamometer, model SH5001®, was used. The test was performed three times, and the mean of the values was adopted. The cutoff point adopted was based on the calculation of the mean, considering values <27 kgf (kilogram-force) and <16 kgf as decreased handgrip strength for men and for women, respectively.[12]

Data were tabulated using Microsoft Excel® and subsequently transferred to the Statistical Package for the Social Sciences (SPSS®) version 23.0. To characterize the sample, descriptive statistics with measures of central tendency and variability (mean, standard deviation, median, and variance) were used. The normal distribution of variables was verified using the Kolmogorov-Smirnov test, and group comparisons were conducted using the Mann-Whitney test for non-parametric variables and the T-test for parametric variables. Categorical variable comparison was performed using the Chi-Square test. In all analyses, the significance level adopted was $p < 0.05$.

RESULTS

A total of 563 participants were assessed. After applying the exclusion criteria, 26 participants were excluded because they used walking aids, which in theory could already interfere with the test results, and/or because they did not answer the question regarding the presence of comorbidities. The final sample consisted of 537 participants, aged 60 to 92 years (mean age of 69.23 years). Of these, 347 (64.6%) were female and 190 (35.4%) were male. The

general characterization of the sample according to groups, in terms of age, weekly physical activity time, and the number of diseases, is presented in Table 1.

Table 1 – Characterization of the sample for groups of elderly individuals without and with comorbidities treated at Family Health Care Centers, Goiânia – GO, 2022-2023.

	Without comorbidities n = 129	With comorbidities n= 408	p*
Age (years)[1]	67.5/43.3/60-88	68/45.2/60-92	0.972
Physical Activity (minutes/week)[2]	77.09 ± 101.91	70.62 ± 112.48	0.561
Smoking (yes)[3]	11 (22.9%)	37 (77.1%)	0.851
Alcoholism (yes) [3]	16 (30.2%)	37 (69.8%)	0.268
Family income (up to 3 minimum wages) [3]	115 (23.3%)	379 (76.7%)	0.172
Number of self-reported diseases[1]	1/ 0.18/0-1	3/ 3.38/ 2-12	**<0.001**

[1] Mann-Whitney test (median/variance/minimum-maximum); [2] Independent sample t-test (mean and standard deviation); * Significance level adopted $p<0.05$; [3] Chi-Square test (value and percentage)

Figure 1 shows the most prevalent diseases in the elderly for the group without comorbidities (none or 1 disease) and for the group with comorbidities (two or more diseases).[17]

Figure 1 – Most prevalent diseases or the group without comorbidities (A) and with comorbidities (B) treated at Family Health Care Centers, Goiânia – GO, 2022-2023.
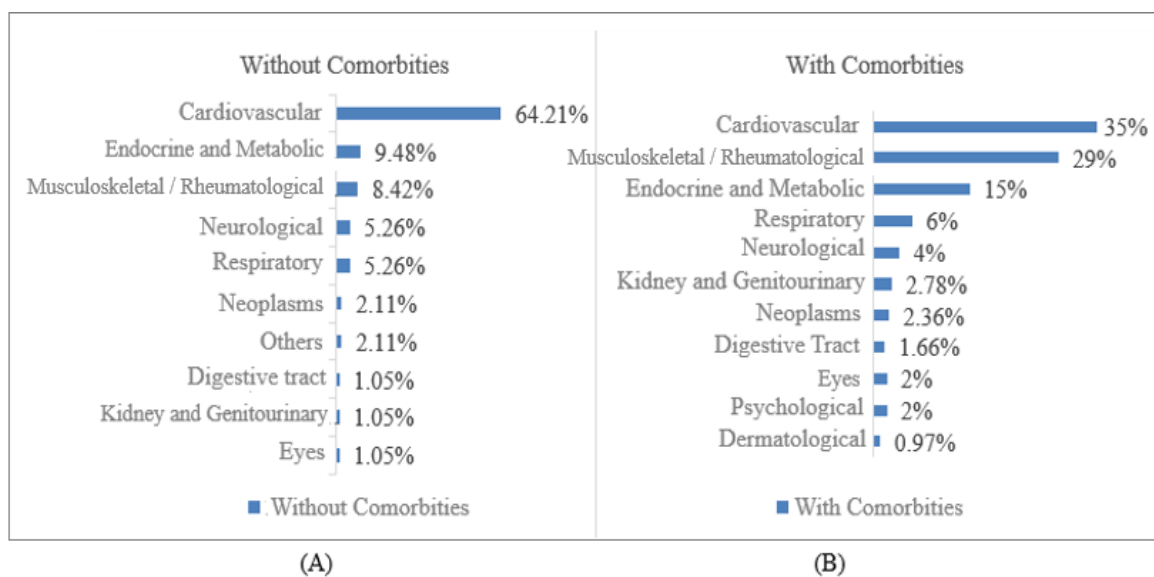

(A) (B)

Table 2 presents data on the comparison of functional performance between groups without and with comorbidities.

Table 2 – Comparison of functional performance between groups without and with comorbidities treated at Family Health Care Centers, Goiânia – GO, 2022-2023.

	Without Comorbities n = 129	With comorbities n = 408	p*
5STS (seconds) [1]	12.84 [41.85]	14.18 [81.64]	**0.006**
4MGS (m/s)[2]	0.99 ± 0.34	0.89 ± 0.27	**0.003**
TUG (seconds)[1]	09.24 [10.42]	10.39 [25.13]	**0.001**
Dynamometry (kgf/mean)[1]	24.0 [92.06]	21.5 [67.81]	**0.004**

[1] Mann-Whitney test (median [variance])/ KGF: kilogram-force, [2] t-test for independent samples (mean and standard deviation). 5STS – Five Times Sit-to-Stand Test; 4MGS – 4-Meter Gait Speed; TUG – Timed Up and Go.

DISCUSSION

The goal of the present study was to analyze whether there is a difference in functional performance between elderly individuals without and with comorbidities. Our findings revealed significant differences in the comparison between the groups, showing that those with comorbidities exhibited reduced performance in the tests compared to elderly individuals without comorbidities. It was observed that most participants presented a sedentary profile, accompanied by an unhealthy lifestyle, including smoking and alcoholism.

The sample consisted of two groups, with a higher number of participants in the group with comorbidities. Most participants were female. It is worth noting that studies conducted in the Brazilian context commonly report a predominance of females, as this public has a greater tendency to seek health services, focusing on self-care and disease prevention.[18,19] Additionally, the life expectancy is higher among females.[20] Primary health care serves as the gateway for patients into the health care system, offering a range of services aimed at welcoming patients and comprehensively addressing their needs.[21]

No significant difference was found regarding income between the two groups. Data from Brazil's National Family Secretariat, published in 2021, indicate that, in a broader view, a large portion of the elderly population lived on an individual monthly income of up to two Brazilian minimum wages.[22] Regarding age, the two groups presented similar values, and it is believed that this occurred because they represent a profile of community-dwelling elderly individuals that aligns with the age distribution of Brazil's elderly population. Data from the Brazilian Institute of Geography and Statistics (BIGE) show an increase in the elderly population and a significant rise in life expectancy.[23] This age group is represented by the two groups in our study. In addition to the increase in life expectancy, there is a predominance of the profile of community-dwelling elderly individuals, as shown in a study conducted in 2022, where the subjects were aged over 60 years.[24]

Regarding lifestyle, both groups reported on the use of cigarettes and alcohol. As highlighted in a study conducted in 2020, it is known that the abuse of alcoholism and alcohol dependence causes various health and integrity issues for the user, making them more susceptible to pathological changes, which are exacerbated during the aging process due to physiological decline.[25]

No difference was found between the groups concerning the level of physical activity, with both groups in this study demonstrating a sedentary profile. The elderly population exhibits sedentary behavior, frequently reinforced by the aging process itself, which increases this population's level of frailty.[26] It is also noted that sociodemographic conditions may play a role as in many cases, low income, for instance, impacts adherence to physical activity practices.[27] In addition to low income, it is also worth noting that age and gender are independent variables that impact the engagement of the elderly. The more advanced the age, the greater the barrier for the individual to continue practicing physical activities.[28]

Identifying the majority of sedentary elderly individuals in primary care serves as a warning for professionals to better guide elderly patients. Physical activity benefits individuals in many ways, such as increasing overall well-being and improving performance,[29] as well as enhancing quality of life and addressing signs of sarcopenia in the elderly.[30]

The most prevalent comorbidities observed were cardiovascular diseases, followed by musculoskeletal and endocrine diseases. The aging process contributes to the increase in comorbidities due to the accumulation of various factors such as advanced age, sedentary lifestyle, as well as factors like smoking and alcoholism.[31] The Brazilian Society of Cardiology highlights cardiovascular diseases as the main causes of morbidity and mortality among the individuals.[32]

Musculoskeletal diseases stand out as conditions that considerably impact health status and functional performance, especially in the elderly population.[33] Among the most prevalent endocrine diseases are hyperthyroidism, hypothyroidism, and diabetes.[34]

Functional performance encompasses the daily activities individuals engage in to maintain their usual functions.[35] In our study, significant differences in functional performance were found across all tests conducted. The presence of comorbidities contributes to a gradual loss of muscle strength and mass,[36] which impacts tests like the sit-to-stand task, where elderly individuals demonstrate more compensatory movements, such as the way they rise from a chair.[37]

The present of cardiovascular diseases, such as hypertension, and musculoskeletal conditions, such as osteoporosis and arthritis, in elderly people, influence the decline in gait speed, which depends on factors like muscle strength and power, mobility, and balance.[38] In our study, we observed that gait speed was better in the group of elderly individuals without comorbidities, as described in the literature. However, in both groups, the average gait speed exceeded 0.8 m/s, demonstrating good performance in the test.[38]

The TUG is a widely used test for evaluating functional performance, as it provides an indicator of relative muscular strength.[39] Evidence from the study indicates that the TUG test is effective in identifying individuals at risk of developing comorbidities.[40]

Handgrip strength has been utilized as a highly accessible method for evaluating individuals' muscle strength.[16] Measuring strength is crucial as it enables monitoring throughout different life stages and helps track physical conditions, such as injuries.[41]

Individuals with greater physiological reserves consequently perform better in strength tests.[42] A correlation is observed between the decline in handgrip strength and reduced functional performance.[43] Studies suggest that the presence of comorbidities contributes to a reduction in handgrip strength, often associated with disease-related weakness in the affected individuals.[44]

We can observe that aging brings various changes to the human body. It is noteworthy, therefore, that the presence of comorbidities contributes to difficulties in performing activities of daily living, affecting individuals' functional performance.[44]

This research presents limitations such as its cross-sectional design, which only aimed to compare whether significant differences existed between groups. As a result, it offers a snapshot, without the capacity to delimit cause and effect relationship. Furthermore, the variables were collected through self-reported data, which may be influenced by the physical and emotional state of the elderly participants at the time of data collection, emphasizing the potential for recall bias. Another limitation is the exclusion of participants using walking aids, as their use interferes with the performance of the tests.

The strengths of this study include the high number of elderly community-dwelling participants who attend Family Health Care Centers (CSF), thereby representing the elderly population served by these care centers in the city of Goiânia. Another noteworthy aspect is the significant number of reported diseases among these participants, indicating that the elderly have awareness of the diagnoses they have received.

CONCLUSION

It is concluded that community-dwelling elderly individuals reporting the presence of comorbidities, particularly cardiovascular and musculoskeletal conditions, exhibited reduced functional performance when compared to elderly individuals without comorbidities. The presence of these comorbidities, alongside socioeconomic factors, influences the adherence of elderly individuals to physical activity practices. This study underscores the importance of the

role of healthcare professionals in primary healthcare settings, given that this demographic of elderly individuals frequently seeks these services.

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REFERENCES

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1. World Health Organization (WHO). World Report on Ageing and Health [internet document]. Geneva. World Health Organization. 2015 [cited on 20 June 2024]. Available at: https://sbgg.org.br/wp-content/uploads/2015/10/OMS-ENVELHECIMENTO-2015-port.pdf

2. Brazil. Ministry of Health. Aging and health of the elderly [internet document]. Brasília, DF: MS; 2007 [cited on June 20, 2024]. Available at: https://bvsms.saude.gov.br/bvs/publicacoes/abcad19.pdf

3. World Health Organization. Integrated care for older people: guidelines on community-level interventions to manage declines in intrinsic capacity [internet document]. Geneva. World Health Organization. 2017. [cited on 20 June 2024]. Available at: https://www.who.int/publications-detail-redirect/9789241550109

4. Soares MM, Rocha KSC, Castro KCE, Amâncio NFG. The importance of healthy and proper habits in the prevention of non-communicable chronic diseases. Res Soc Dev 2023; 12(1):1-9. doi: http://dx.doi.org/10.33448/rsd-v12i1.39295

5. World Health Organization. WHO guidelines on physical activity and sedentary behaviour: at a glance [internet document]. Geneva. World Health Organization. 2020. [cited on 20 June 2024]. Available at: https://www.who.int/publications/i/item/9789240015128

6. World Health Organization (WHO); Pan American Health Organization (PAHO). *International Classification of Functioning, Disability, and Health.* São Paulo: University of São Paulo Press; 2003.

7. Silva NA, Pedraza DF, Menezes TN. Functional performance and its association with anthropometric and body composition variables in elderly individuals. Cienc Saude Colet *2015*; 20(12):3723-3732. doi: https://doi.org/10.1590/1413-812320152012.01822015

8. Silva ES, Pereira RKA, Cortez ACL. Scientific evidence about the prevalence of falls and associated factors in the elderly. Res Soc Develop 2020; 9(11):1-24. doi: http://dx.doi.org/10.33448/rsd-v9i11.9741

9. Hou Y, Jiang D, Liu X. Prevalence and related factors of comorbidity of chronic diseases among community elderly in Wuhan city. Chin Jour Pub Heal 2020; 36(11): 1604-1607. doi: https://dx.doi.org/10.11847/zgggws1122572

10. Fan ZY, Yang Y, Zhang CH, Yin RY, Tang L, Zhang F. Prevalence and patterns of comorbidity among middle-aged and elderly people in China: A cross-sectional study basea on CHARLS Data. Int Jour Gener Med 2021; 14: 1449-1455. doi: https://doi.org/10.2147/IJGM.S309783

11. Silva NA, Pedraza DF, Menezes TN. Functional performance and its association with anthropometric and body composition variables in the elderly. Rev Cienc e Sau Col 2015; 20(12): 3723-3732. doi: https://doi.org/10.1590/1413-812320152012.01822015

12. Cruz-Jentoft AJ, Bahat G, Bauer J, Boirie Y, Bruyère O, Cederholm T, et al. Sarcopenia: Revised European Consensus on Definition and Diagnosis. Age and Age 2019; 48(1):16-31. doi: https://doi.org/10.1093/ageing/afy169

13. Melo TA, Duarte ACM, Bezerra TS, França F, Soares NS, Brito D. Five Times Sit-to-Stand Test: safety and reliability in elderly patients discharged from the intensive care unit. Rev Bras Ter Int 2019; 31(1):27-33. doi: https://doi.org/10.5935/0103-507X.20190006

14. Studenski S, Perera S, Patel K, Caterina R, Faulkner K, Inzitari M, Brach J, Chandler J, Cawthon P, Connor EB, Nevit M, Visser M, Kritchevsky S, Badinelli S, Harris T, Newman AB, Cauley J, Ferruci L, Guralnik. Gait Speed and Survival in Older Adults. JAMA Med New 2011; 305(1):50–58. doi: https://doi.org/10.1001/jama.2010.1923

15. Alexandre TS, Meira DM, Rico NC, Mizuta SK. Accuracy of Timed Up and Go Test for screening risk of falls among community-dwelling elderly. Braz Jour Phys Thera 2012; 16(5):381-388. doi: https://doi.org/10.1590/S1413-35552012005000041

16. Zanin C, Jorge MSG, Knob B, Wibelinger LM, Libero GA. Handgrip strength in the elderly: an integrative review. Pan-Amer Jour Agi Res 2018; 5(1):22-28. doi: https://doi.org/10.15448/2357-9641.2018.1.29339

17. Brazil. Ministry of Health. Health Care Secretariat. Department of Primary Care. Guidelines for the care of people with chronic diseases in health care networks and priority care pathways [internet document]. Brasília: Ministry of Health; 2013 [cited on 20 June 2024]. Available at: https://bvsms.saude.gov.br/bvs/publicacoes/diretrizes%20_cuidado_pessoas%20_doencas_cronicas.pdf

18. Gutmann VLR, Santos D, Silva CD, Vallejos CCC, Acosta DF, Mota MS. Reasons why women and men seek primary healthcare units. Jour Nurs Heal 2022; 12(2):2-11. doi: https://doi.org/10.15210/jonah.v12i2

19. Carneiro VSM, Adjuto RNP, Alves, KAP. Men's health: identification and analysis of factors associated with seeking, or avoiding, primary healthcare services. Arq Cienc Sau UNIPAR 2019; 23(1):35-40. doi: https://doi.org/10.25110/arqsaude.v23i1.2019.6521

20. Guimarães RM, Andrade FCD. Life expectancy with and without multimorbidity among Brazilian elderly individuals: National Health Survey 2013. Rev Bras Estud Popu 2020; 37:1-15. doi: https://doi.org/10.20947/S0102-3098a0117

21. Guimarães ARC, Almeida KYP, Pereira ML. Cognitive screening in populations without prior clinical comorbidities in primary healthcare. Braz Jour Heal Ver 2020; 3(6): 16144-16156. doi: https://doi.org/10.34119/bjhrv3n6-041

22. Brazil. Ministry of Women, Family, and Human Rights. National Secretariat for the Family. Elderly and Family in Brazil [internet document]. Brasília: Ministry of Women, Family, and Human Rights; 2021 [cited on 12 September 2024]. Available at: https://www.gov.br/mdh/pt-br/navegue-por-temas/observatorio-nacional-da-familia/fatos-e-numeros/idosos-e-familia-no-brasil.pdf

23. Brazil. Brazilian Institute of Geography and Statistics. Elderly individuals aged 60 or older – Census 2022 [internet document]. Brasília: BIGE, 2022 [cited June 20, 2024]. Available at: https://agenciadenoticias.ibge.gov.br/media/com_mediaibge/arquivos/0c84737978791f626ea10b75eae18b3c.docx

24. Almeida JRS, Solano LC, Freire MAM, Oliveira LC. Health profile of elderly individuals monitored by the Family Health Strategy in a city in the interior of Ceará, Brazil. Rev Cienc Sau 2022; 12(3):67-74. doi: https://doi.org/10.21876/rcshci.v12i3.1316

25. Castro LHA, Pereira TT, Moreto FVC. Alcoholism and smoking in the elderly: an analysis of the current scenario [Internet document]. Atena Editora; 2020. [cited September 12, 2024]. Available at: https://atenaeditora.com.br/catalogo/post/etilismo-e-tabagismo-na-terceira-idade-uma-analise-do-cenario-atual

26. Chudasama YV, Khunti KK, Zaccardi F, Rowlands AV, Yates T, Gilies CL, Davies MJ, Dhalwani NN. Physical activity, multimorbidity, and life expectancy: a UK Biobank longitudinal study. BMC Med 2019; 17(108):2-13. doi: https://doi.org/10.1186/s12916-019-1339-0

27. Monteiro GR, Santos CKA, Pereira GJ, Silva RJS. Factors associated with adherence to a community physical activity program in a Brazilian capital city. Rev Bras Ativ Fis Sau 2022; 27:1-9. doi: https://doi.org/10.12820/rbafs.27e0265

28. Costa TB, Neri AL. Factors associated with physical and social activities in a sample of Brazilian elderly individuals: data from the FIBRA Study. Rev Bras Epidemiol 2019; 22:1-15. doi: https://doi.org/10.1590/1980-549720190022

29. Niklasson J, Fagerström C, Bergman P, Lindberg T, Backâberg S. The meaning of sedentary behavior among older adults: a phenomenological hermeneutic study. BMC Pub Heal 2023; 23(1134): 2-9. doi: https://doi.org/10.1186/s12889-023-16052-5

30. Oliveira DV, Yamashita FC, Santos RM, Freire GLM, Pivetta NRS, Júnior JRAN. Does the duration and frequency of physical activity influence the indication of sarcopenia in elderly individuals? Rev Fisio e Pesq 2020; 27(1): 71-77. doi: https://doi.org/10.1590/1809-2950/19004527012020

31. Ciumãrnean L, Milaciu MV, Negrean V, Orãsan OH, Vesa SC, Sãlãgean O, Ilut S, Vlaicu SI. Cardiovascular Risk Factors and Physical Activity for the Prevetion of Cardiovascular Diseases in the Elderly. Int Jour Environ Res Pub Heal 2022; 19(1):1-16. doi: https://doi.org/10.3390/ijerph19010207

32. Oliveira GMM, Brant LCC, Polanczyk CA, Malta DC, Biolo A, Nascimento BR, Souza MFM, Lorenzo AR, Júnior AAPF, Schaan BD, Castilho FM, Cesena FHY, Soares GP, Junior GFX, Filho JASB, Passaglia G, Filho MMP, Carrion MJM, Bittencourt MS, Neto OMP, Villela PB, Teixeira RA, Sampaio RO, Gaziano TA, Perel P, Roth GA, Ribeiro ALP. Estatística Cardiovasculares – Brasil 2021. Arq Bras Cardiol 2022; 118(1):115-373.

33. Jahan S, Islã R, Rahman T, Kabir F, Islam W, Hossain K, Hossain A, Hossain Z, Rahman E, Chakrovorty SK, Sarker AH, Moula G, Antara A. The assessment of musculoskeletal disorders, quality of life, and comorbidities in older people in Bangladesh. Sec Agi Pub Hea 2023; 11:1-6. doi: https://doi.org/10.3389/fpubh.2023.1269444

34. Silva KLT, Pescador MVB. Endocrine diseases of senescence: a literature review. FAG Jour Heal 2021; 2:1-12. doi: https://doi.org/10.35984/fjh.v3i2.348

35. Larson JL. Functional performance and physical activity in chronic obstructive pulmonar disease: theoretical perspectives. Jour Crhon Obst Pulm Dis 2009; 4(3):237-242. doi: https://doi.org/10.1080/15412550701480372

36. Clark BC. Neuromuscular changes with aging and sarcopenia. Jour Frail Agin 2019; 8(1):7-9. doi: https://doi.org/10.14283/jfa.2018.35

37. Meulemans L, Alcazar J, Alegre LM, Dalle S, Koppo K, Seghers J, Delecluse C, Roie EV. Sensor- and equation-based sit-to-stand power: The effect of age and functional limitations. Exp Gerontol 2023; 179:1-7. doi: https://doi.org/10.1016/j.exger.2023.112255

38. Guedes R de C, Dias RC, Neri AL, Ferriolli E, Lourenço RA, Lustosa LP. Decline in gait speed and health outcomes in elderly individuals: data from the Rede Fibra Study. Fisio Pesq 2019; 26(3):304-10. doi: https://doi.org/10.1590/1809-2950/18036026032019

39. Wanser EL, Valderramas SR, Paula JÁ, Schieferdecker MEM, Amarante TP, Pinotti F, Coleho RA, Stanczk L, Guimarães ATB, Gomes ARS. Best performance in the Timed Up and Go is associated to best functional performance in community-dwelling older women. Geriat Gerontol Agi 2015; 9(4):138-143. doi: http://dx.doi.org/10.5327/Z2447-2115201500040003

40. Larsson BAM, Johansson L, Axelsson KF, Harvey N, Vandenput L, Magnusson P, McCloskey E, Liu E, Kanis JÁ, Sundh, Lorentzon. The timed up and go test predicts fracture risk in older women independently clinical risk factors and bone mineral density. Osteo Int 2021; 32:75-84. doi: https://doi.org/10.1007/s00198-020-05681-w

41. Nevil A, Ducan M, Cheung DSK, Wong ASW, Kwan RYC, Li CKY. The use of functional performance tests and simple anthropomorphic measures to screen for comorbidity in primary care. Inter Jour Old Peop Nurs 2020; 15(4): 1-12. doi: https://doi.org/10.1111/opn.12333

42. Patrizio E, Calvani R, Marzetti E, Cesari M. Physical Functional Assessment in older adults. Jour Frail Agi 2021; 10(2):141-149. doi: https://doi.org/10.14283/jfa.2020.61

43. Pereira LC, Prestes J, Melo, G.F, Neto LSS, Funghetto SS, Pires AB, Boff G, Alves AT, Karnikowski MGO. The influence of body composition on the strength of elderly Brazilian men. Rev Bras Med Esporte 2015, 21(3):196-99.

44. Tavares MCA, Filho BABS, Barbosa HM, Vanderley ICS. Handgrip strength profile in elderly patients with prostate cancer. Rev Scient Med 2020; 30:1-12. doi: https://doi.org/10.15448/1980-6108.2020.1.35399