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### Increased Physical Activity and Fitness above the 50th Percentile Avoid the Threat of Older Adults Becoming Institutionalized: A Cross-sectional Pilot Study.

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#### ABSTRACT

**Objective:** To analyze the impact of physical fitness and physical activity on the threat of older adults without cognitive impairment becoming institutionalized. **Methods:** This cross-sectional study involved 195 non-institutionalized (80.1±4.4yrs) and 186 institutionalized (83.8±5.2yrs) participants. Cognitive impairment was assessed using Mini-Mental State Examination, measures of physical fitness were determined by the Senior Fitness Test, and physical activity was assessed using the International Physical Activity Questionnaire. **Results:** Multivariate binary logistic analysis selected 4 main determinants of institutionalization in both genders: the likelihood of becoming institutionalized increased by +18.6% for each additional year of age, while it decreased by -24.8% by each fewer kg/m<sup>2</sup> in BMI, by -0.9% for each additional meter performed in the aerobic endurance test and by -2.0% for each additional 100MET-min/wk of physical activity expenditure (p<0.05). Values ≤50th percentile (age ≥81yrs, BMI ≥26.7kg/m<sup>2</sup>, aerobic endurance 367.6m, and physical activity 693MET-min/wk) were computed using Receiver Operating Characteristics analysis as cut-offs discriminating institutionalized from non-institutionalized older adults. **Conclusions:** The performance of physical activity, allied to an improvement in physical fitness (mainly BMI and aerobic endurance), may avoid the threat of institutionalization of older adults without cognitive impairment only if they are above the 50th percentile; the following is highly recommend: expending ≥693MET-min/wk on physical activity, being ≤26.7kg/m<sup>2</sup> on BMI, and being able to walk ≥367.6m in the aerobic endurance test, especially above the age of 80 years. The discovery of this trigger justifies the development of physical activity programs targeting the pointed cut-offs in old, and very old adults.

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