



COMPARISON BETWEEN PHYSICAL ACTIVITY LEVELS IN RURAL AND CITY ELDERLY WITH MTI ACTIGRAPH.

Monteiro A. M.¹, Neves C., Baptista R., Mota P.², Carvalho J.³
(Polytechnic Institute of Bragança¹, University of Trás-os-Montes e Alto Douro², Research Centre in Physical Activity, Health and Leisure, Faculty of Sports, University of Porto³) - Portugal

1. Introduction

The quantification of physical activity in the elderly has been assuming a relevant role in the attempts to minimise and control problems related to functional decline and sedentary habits.

The physical activity (PA) recommendation of accumulating 30 min of moderate-to-vigorous physical activity (MVPA) is necessary to promote optimal health benefit.

Research into daily PA patterns of older adults (≥65 years) has primarily relied on self-report.

This study used accelerometers, an objective measure of minute-by-minute movement, to assess PA volume and intensity performed by older adults in different regions.

The main aim of this study is, therefore, to analyze the pattern of PA performed by the elderly from rural communities and by the elderly from urban communities in their daily routine, and to compare it with the recommendations pre-established by literature on the subject.

2. Methods

Subjects.

The sample was divided into two different groups aged between 66-91 yr (average age=77,52±6,5 years old), 33 of them constitute the rural group (RG) and the remained 42 belong to the city one (CG).

Data Collection.

The Physical activity levels were directly measured for seven consecutive days using a MTI Actigraph accelerometer model 7164. The assessment of the level of physical activity performed by each individual has been carried out using the values suggested by Freedson et al. (1998).

The habitual physical activity performed by the groups has been monitored and registered throughout a complete week, being, thus, obtained the results of their activity performed both on week days and weekend.



Figure 1. MTI Actigraph accelerometer model 7164



Statistical procedures.

The statistical procedures were the Descriptive Statistics (mean, standard deviation and frequency distribution) and a Student t-test was used to compare groups (rural, urban) on the physical activity (PA) performances.



Figure 2. City Group (CG)



Figure 3. Rural Group (RG)

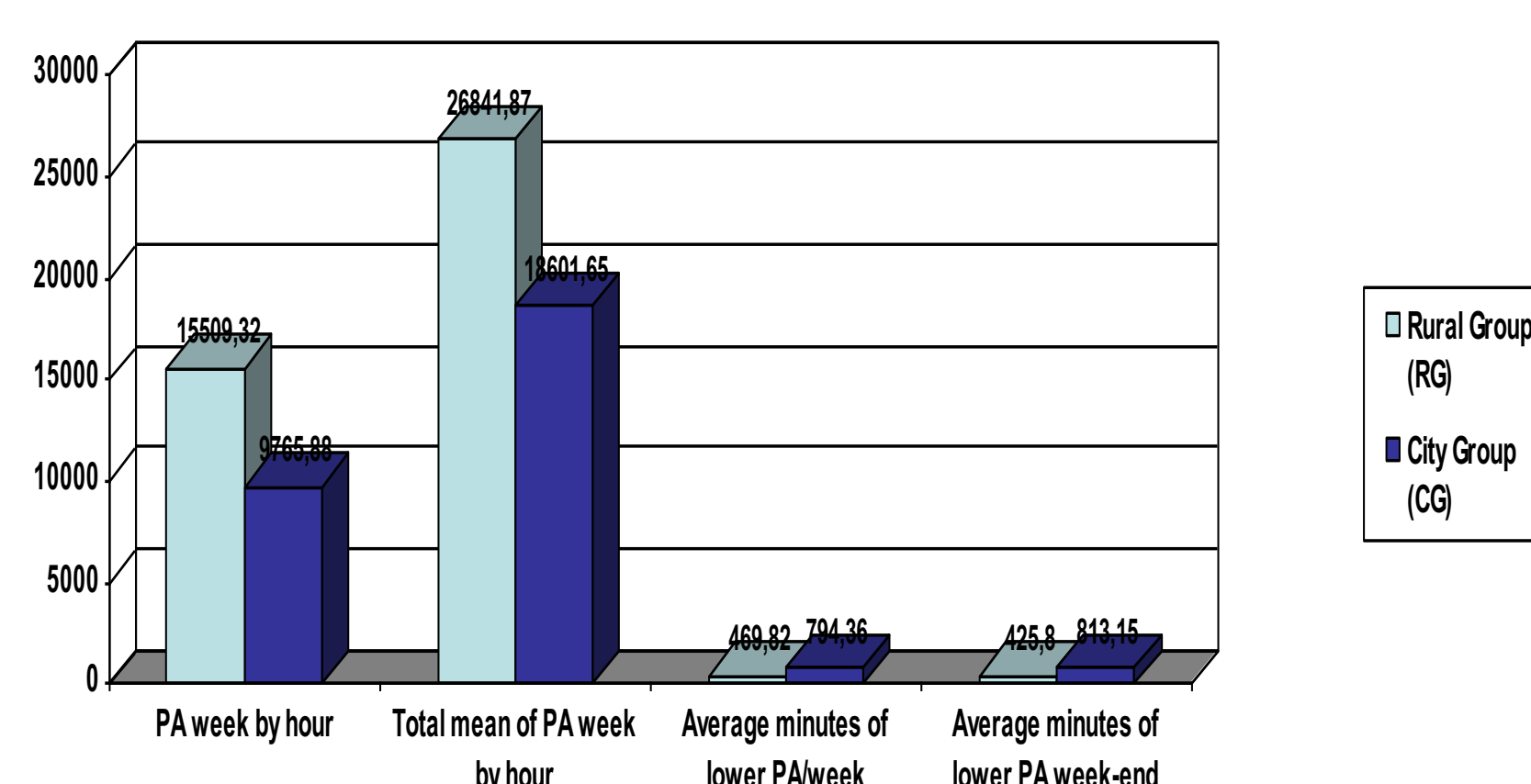
3. Results and discussion

PA quantity	Groups	n	Mean	Std. Deviation	t test	p
P A week by hour	Rural	33	15509,32	±7660,25	3,245	*0,002
	City	42	9765,88	±7568,81		
Total mean of P A week by hour	Rural	33	26841,87	±1 2992,66	2,638	*0,01
	City	42	18601,65	±1 3758,00		
Average minutes of lower P A/week	Rural	33	469,82	±152,72	11,386	*0,001
	City	42	794,36	±66,62		
Average minutes of lower P A/week-end	Rural	33	425,80	±218,74	9,456	*0,001
	City	42	813,15	±97,87		

Graphic.1 – Medium values (Mean ± sd) and t test (p<0,05) of Physical Activity Quantify by week and week-end by hour.

The results provided are:

- The mean PA at a week by hour was higher in the rural group ($p < 0,001$);
- Total mean of PA at a week by hour was higher in the rural group ($p < 0,01$);
- The average minutes of lower PA at a week was higher in the urban group ($p < 0,001$);
- The average minutes of lower PA at a week-end was higher in the urban group ($p < 0,001$);
- no statistics significance between groups was found in moderate PA and in vigorous PA.



Graphic.2– Medium values (Mean ± sd) and t test (p<0,05) of Physical Activity Quantify by week and week-end by hour.

4. Conclusions

We conclude that the groups has a different profile of performance in PA with distinct intensities: Urban perform better than rural when the PA is lower. There was no statistic significance wen the intensity is moderate or vigorous.

5. References

- American College of Sport Medicine (1998). American College of Sport Medicine (ACSM), Position Stand on Exercise and Physical Activity for Older Adults. Medicine and Science in Sports and Exercise. 30(6): 992-1008.
- Computer Science and Applications, Inc. (1995). Wrist Activity Monitor Users Manual, Model 7164.
- Freedson, P.S.; Melanson, E. & Sirard, J.(1998). Calibration of the Computer Science and Applications, Inc. accelerometer. Medicine and Science in Sports And Exercise. 30 (5): 777-781
- Shepard, R. (1997). Aging, physical activity, and health. Human Kinectic Publisher, Inc, Champaign, Illinois.

