Are there increases on the body weight during weekends and New Year celebrations? Analysis on participants in a supervised exercise program

Paloma Gomes[1] and Claudio Gil Soares de Araújo[1,2]

ABSTRACT

Objective: It is believed that adults' body weight (BW) tends to increase during weekend days, either through the higher ingestion or through the reduction of exercises. We had as objective to verify whether or not the BW increases during weekend days and New Year celebrations. **Methods:** We analyzed, retrospectively, data from 53 adults (36 men) with ages ranging from 38 to 81 years (64 ± 10), who attended a supervised exercise program – three to six weekly 60-minute sessions, including aerobic exercises, muscular strengthening and flexibility, individually prescribed. Those who missed over than 25% of sessions, more than two consecutive weeks or those who made use of diuretic or other remedies capable to affect the BW were excluded from the study. The BW was recorded before each session. Data from two weeks recorded during the month of November and from two pre and post-New Year celebration sessions were recorded. **Results:** The BW was stable – (average ± standard deviation) 74.6 ± 1.7 vs. 74.6 ± 1.7 kg –, respectively, before and after the weekend days ($p = 0.382$), while a small but significant increase during the New Year celebrations was observed 74.3 ± 1.7 vs. 74.9 ± 1.7 kg – ($p < 0.001$). Gains above 1 and 2% of the BW (individual maximum of 3.8%) during the New Year celebrations were observed, respectively, in only nine (16.9%) and six (11.3%) of individuals, with higher absolute variations in the heaviest individuals. **Discussion:** In adults who attended a supervised exercise program, the impact of the weekend and New Year celebrations on the BW is none or small and probably restricted to a small parcel of the heaviest men. Probably, the healthy lifestyle does not allow an important unbalance between the calorie ingestion and the energy expenditure by physical exercise to occur in the studied circumstances.

Key words: Body weight. Supervised exercise. Sarcopenia. Physical exercise. Cardiac rehabilitation.

INTRODUCTION

Among the biological variables, the body weight is probably the most commonly measured. Normally, it is believed that the maintenance of adult body weight within narrow limits represents signs of good health. While in the beginning of the adult life a balance between the calorie ingestion and the energy expenditure seems to occur, as years pass, primarily in function of the loss of muscular mass and strength (clinical condition called as sarcopenia) and consequent reduction on the basal metabolism, this balance tends to disappear and a relative prevalence of the caloric consumption component emerges, leading to a slow and progressive increment of the body weight. This increase is proportionally higher in body fatness that tends to accumulate in the body's central region. Recent data suggest that there are over one billion of overweighted or obese individuals, reaching important levels in some populations, as the North American population[1,2].

The regular physical exercise and the hypocaloric diet have been successfully used for the reduction of obesity levels and of its associated co-morbidities, as dyslipidemia and metabolic syndrome[2,3]. Particularly, the irregularity and the alimentary compulsion cause additional concern, leading to great weight variations in short periods of time, situations in which the regular physical exercise also seems to bring benefits, especially if associated to the cognitive-behavioral therapy[4,5].

Many participants or candidates to regular physical exercise aim for reduction of body weight. Generally, participants in this type of program, with or without specialized nutritional orientation, tend to obtain health benefits, including the possibility of weight and body fatness reduction[6]. However, the follow-up of the body weight may become difficult in function of its variability in the daily activities, due to changes on the individual's hydration and alimentary state. In addition, the body weight measure may be evaluated using different and diverse protocols.

Our alimentary standard trends to vary especially between weekends and weekdays[7,8]. In those who attend regularly weekdays exercise programs, there is a fear of increasing their body weight, especially in those who, for some reason, cannot perform exercises in these days, with an inverse tendency during the weekdays, in which they would be physically more active, presenting less tendency to alimentary excesses. These unfavorable body weight eventual changes could be even greater during celebration periods, especially the New Year celebrations.

Considering the practical relevance of these matters, we had as objective to study whether or not there is an increase on body weight during weekends and during the New Year celebrations in adult individuals attending a supervised exercise program.

MATERIAL AND METHODS

The present study was characterized by a segmental study, where individuals who attend regularly a supervised exercise program were retrospectively analyzed – three to six weekly sessions of approximately one hour, including 30 to 40 minutes of aerobic exercises, two series of six to eight repetitions of eight to 12 muscular strengthening exercises, and one series of flexibility exercises predominantly static, always individually prescribed. The prescription was initially based on the clinical condition of the individual determined from an initial medical evaluation specific for the supervised exercise program, which included a cardiopulmonary exercise test with determination of the anaerobic threshold. Later, this prescription was reevaluated based on the results from the previous sessions and on the clinical condition of the individual that preceded the performance of the exercise session.

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Only individuals who attended at least eight weekly exercise sessions in months from November to December (before New Year celebrations) of 2002, to the two first session of January 2003 and those who were not absent for over than 15 days from program during the studied period were included in the study. Also, those who made use of diuretic or other medicine prescribed specifically to reduce the BW as well as those who weighted over than 150 kg, out of the measure range of our balance, were excluded from the study. Thus, data from 53 individuals (36 men and 17 women) with ages ranging from 38 to 81 years (64 ± 10) were included.

The body weight was recorded at the beginning of each session with accuracy of 0.1 kg always using the same balance *Personal Line* (Filizola, Brazil) and at the same wearing conditions. For the statistical analysis, the following were objectively identified: a) for the comparison of pre and post-weekend body weight, data from the last and the first exercise sessions in two consecutive weeks, respectively, their average were calculated, and b) for the comparison of pre and post-New Year celebrations body weight. The differences between the body weight average measures were tested through the paired *t*-test and the Pearson moment-product correlation coefficients were calculated whenever necessary. For all statistical procedures, the significance level of 5% was adopted.

RESULTS

The body weight was stable – (average ± standard deviation) 74.6 ± 1.7 vs. 74.6 ± 1.7 kg –, respectively, before and after the weekends (p = 0.382) (figure 1), while a small but significant increase during the New Year celebrations was observed – 74.3 ± 1.7 vs. 74.9 ± 1.7 kg – (p < 0.001) (figure 2). From the total of individuals analyzed, about 70% (n = 37) gained weight with the New Year celebrations.

Gains above 1 to 2% of the body weight (maximum of 3.8%) with the New Year celebrations were observed respectively in nine (16.9%) and in six (11.3%) of the individuals, and greater absolute variations occurred to heavier individuals. Gains above 1% were far more common to men than to women – 32% (n = 12) vs. 8% (n = 3), while no correlation with age was observed.

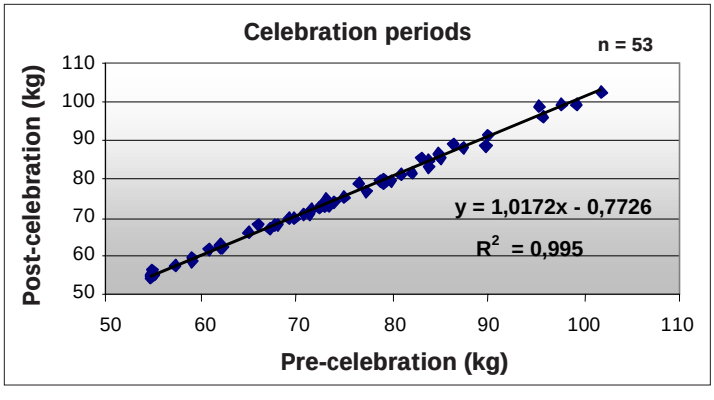

Fig. 1

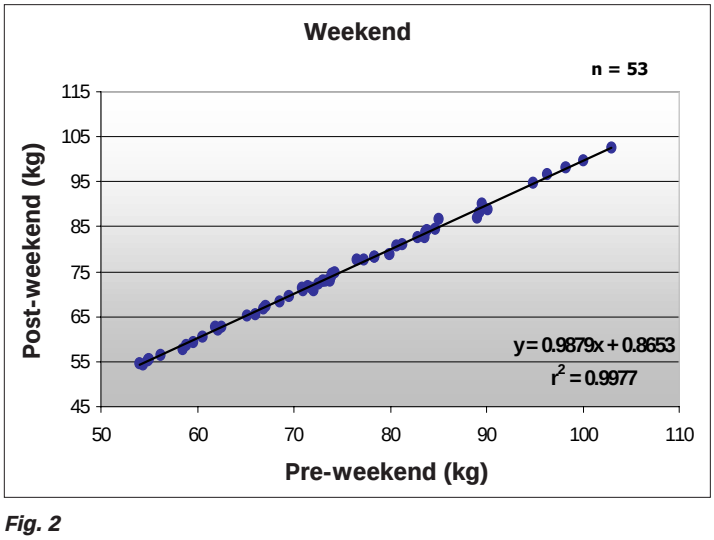

Fig. 2

DISCUSSION

The most scientifically valued experimental design is the one with randomized individuals, the existence of an adequate control group and double-blind evaluation. However, many times, this design may not be feasible or may even be harmful to the performance and interpretation of the study. Variables related to the lifestyle such as habits and nutritional and exercise attitudes are voluntarily modulated by individuals, being strongly influenced by external actions. In our specific case, a prospective approach to participant and non-participant individuals of a supervised exercise program on the body weight measures would introduce a relevant and non-individually quantifiable variable. Thus, we selected the retrospective design in which we could carefully select individuals who attended some criteria, thus removing the probable effect of the previous knowledge that repetitive measures would be performed on the body weight before and after weekends or New Year celebrations. With this strategy, we lost the possibility of having a control group and thus to compare the impact of the participation in an exercise program medically supervised to the absence of participation. Taking this limitation into consideration, our results should be analyzed as something that could be observed from individuals who participate in an exercise program, without any inference about what could have happened to individuals who do not participate on a similar program.

Contradicting the initial expectancy, our results indicated maintenance of the body weight of individuals after weekends, what probably may be explained through the regular practice of physical exercises and higher attention and care with diet, and consequently healthier life habits even in days when they did not participate in the supervised exercise program. In a little different approach, Schairer *et al.*[9] also observed that participants of exercise programs trend to keep physically more active during leisure time. In addition, it may be expected that the frequent alimentary variations typical from weekdays and weekends[7,10] do not tend to occur significantly in individuals who participate in a supervised exercise program.

On the other hand, a slight but significant increase on the body weight with the New Year celebrations may have occurred due to the reduction on the physical exercise practices and to a "traditional" increase on the caloric ingestion associated to these celebration events. It is interesting to observe that in this context, men tend to present higher body weight gain when compared with women, what may be due to the smaller caloric ingestion of women in function of their concern about the maintenance of the body weight and esthetics[11]. Now, the heavier individuals presented a higher body weight variation, probably due to their difficulty on keeping the caloric ingestion during the celebration periods, when compared with the days they attend to the supervised exercise program.

Although the body weight measure and the participation in the exercise program have been well controlled, this study presents a series of methodological limitations. Initially, the diet or the practice of physical exercises as well as the physical activities out of the program were not controlled or questioned. The duration of the preceding participation in the exercise program was not controlled either, once the studied sample included individuals with participation duration ranging from many years to a few weeks. In

addition, more precise measures of body composition or of laboratorial profile were not obtained in order to enlarge the implications or interpretations of the results observed. Particularly, it would have been interesting to observe if our individuals, apparently with adequate attitude regarding exercise and diet in days when they do not attend the supervised exercise program, presented the same worsening as observed in laboratory values for measures collected on Mondays when compared with the other weekdays in patients studied by Urdal *et al.*[8].

CONCLUSION

Despite the limitations mentioned above, one concludes that in adults who participate in a supervised exercise program, the impact of weekends and New Year celebrations on the body weight is none or small and probably restricted to a small parcel of the heaviest men. Probably the healthy life-style does not allow an important unbalance between the calorie ingestion and the energy expenditure by physical exercise to occur in the studied circumstances.

Another theoretical possibility for our results is that the regular practice of aerobic exercises and muscular strengthening minimizes the sarcopenia normally observed on individuals in that age range[12], what, theoretically, could facilitate the maintenance of a higher metabolism even in days when no physical exercise is performed, reducing the possibility of relevant body weight gain.

Finally, the fact that these results were obtained from individuals who practice physical exercises regularly must be emphasized. The divulgation of these results to society is not possible once a control group formed by sedentary individuals was not studied. It is believed that with the increase of the prevalence levels of sedentariness and obesity, higher variations on the body weight should be expected. A suggestion of study would be to compare the behavior of the body weight in these situations between physically active and sedentary individuals.

All the authors declared there is not any potential conflict of interests regarding this article.

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