Heterogeneity of Dietary Profiles in Highly Sedentary Young Guadeloupean Women

Sophie Antoine-Jonville, Stéphane Sinnapah, Bruno Laviolle, François Paillard, and Olivier Hue

Objective: The aim was to examine the relationship between physical activity pattern and dietary profile. Although some clustering of the variables related to these major determinants of cardiovascular risk has been demonstrated, they have not been extensively studied together. Participants, Design, and Setting: Two hundred two female university students from the main Guadeloupe (French West Indies) campus participated. They self-administered a validated Food Frequency Questionnaire and the 1-yr recall Modifiable Activity Questionnaire. Principal-component analysis was performed on the scores and the variables related to the physical activity pattern and dietary profile. Results: A model including 10 variables explained 84.9% of the total variance. The physical activity pattern was not associated with the dietary profile, apart from fruit intake. The physical activity level was homogeneously low (median 1.58, first and last quartile cutoffs 1.54 and 1.66, respectively). There was no correlation between the physical activity level and the Food Frequency Questionnaire score ($r = -0.005$). Conclusions: The absence of a strong relationship between the food and physical activity profiles is interpreted as a possible reflection of a dysregulation of the quality of food intake in this population with a sedentary lifestyle.

Keywords: physical activity, nutritional habit, cardiovascular risk, principal component analysis

It is widely acknowledged that the human body is optimally adapted over a certain range of physical activity (Manson, Skerrett, Greenland, & VanItallie, 2004; Melzer, Kayser, Saris, & Pichard, 2005; Saris et al., 2003). The lifestyle in advanced industrialized countries has become dangerously sedentary, and the lifestyle in developing countries is coming to resemble it: A large proportion of the global population is thus exhibiting more sedentary behavior (Mohan, Deepa, Farooq, Prabhakaran, & Reddy, 2008; U.S. Department of Health and Human Services, 1996) to an extent that is probably not physiological. The dissonance between our genetic background and lifestyles (Cordain, Gotshall, Eaton, & Eaton, 1998; Saris et al., 2003) is likely to be incriminated in the obesity epidemic (Galani & Schneider, 2007; World Health Organization, 2002) and its metabolic and cardiovascular consequences.

In this context, physical activity is an obvious means to increase energy expenditure, whereas its putative role in the control of energy-intake quantity and quality seems to be neglected. The short-term coupling of energy intake and energy expenditure is well documented (Hubert, King, & Blundell, 1998). However, the interrelations between physical activity and appropriate diet, both mainstays in preventing cardiovascular risk (Pate et al., 1995), have not been widely investigated. Even when adjusted for age, smoking, and socioeconomic variables, significant associations have been shown between higher levels of physical activity and favorable eating habits such as high consumption of fruit and vegetables or whole-grain breads (Matthews, Hebert, Ockene, Saperia, & Merriam, 1997; Mensink, Loose, & Oomen, 1997; Oppert et al., 2006), fewer servings per week of meat and fried foods (Matthews et al., 1997), and less total and saturated fat (Eaton et al., 1995). This suggests that higher physical activity levels are associated with a generally healthier lifestyle, conferring protection against cardiovascular and metabolic diseases. However, despite this general profile, many questions remain. For example, does the relationship between attitudes toward food and physical activity lie along a continuum or is there a threshold effect? Are the adjustments that determine this possible interaction conscious or not? What are the mediating mechanisms? Investigation of this interaction might have both theoretical and practical consequences. A strong interaction, as suggested by Eaton et al. (1995), would indicate that the accepted relationship of habitual physical activity and chronic disease is confounded by diet. It would also suggest that the physical activity pattern is an underestimated parameter in the analysis of diet or its markers and chronic...
disease (Antoine-Jonville & Hue, 2008). Moreover, a better understanding of this relationship might suggest some specific or common levers for lifestyle change to prevent cardiovascular and metabolic disease.

The aims of this study were to characterize the physical activity pattern and dietary profile of a population in a period of life transition and to identify a cluster of variables related to both their physical activity and dietary patterns.

Methods

Study Population and Design

The participants were female Guadeloupean students recruited from several academic departments on the main campus of the University of Guadeloupe. The local ethics committee gave its approval. The experiment conformed to the Helsinki declaration and with the standards currently applied in France. Individuals or small groups of students standing or sitting in a public area of the campus (library, cafeteria) or queuing in the administration building were randomly approached. Of the 280 people initially interviewed (13.7% of the women studying on the campus), those who had been studying for more than 1 year were given detailed explanations of the study aim and methods, and 221 of them agreed to participate and signed a written informed consent. Participation consisted of completing the Food Frequency Questionnaire (FFQ) and the 1-year recall Modifiable Activity Questionnaire (MAQ: Vuillemin et al., 2000). All but 3 participants completed the MAQ, but only 203 gave all the frequency and duration information required for analysis. One of these last (and the only one) did not provide answers to every question of the FFQ. The analysis was thus performed the 202 who provided complete sets of data for the FFQ and MAQ.

Body-mass index (BMI) was calculated as self-reported body mass divided by self-reported squared height (kg/m²) and was used to determine weight status. Normal-weight and underweight participants (BMI < 25 kg/m²) were grouped together, those with 25 ≤ BMI < 30 kg/m² were considered overweight, and those with BMI ≥ 30 kg/m² were considered obese.

The questionnaires required 10–15 min to complete. After questions about age, height, weight, and academic department, the FFQ and MAQ were proposed.

FFQ

The FFQ has been validated and the details published elsewhere (Laviolle et al., 2005). Briefly, it includes 14 questions designed to assess the consumption of foods associated with an increase or decrease in coronary risk. The weighting of each food item in the FFQ was based on an earlier investigation of food consumption in a large French sample. In this study, slight adaptations were made to account for Creole food habits. The weight of each of the three food groups needed to calculate the final score was attributed according to its influence on that risk. A set of six closed questions summarized by a first score assessed saturated-fatty-acid intake from the reported frequency of eating cheese or delicatessen products, for example. Another set of five questions, both closed (e.g., frequency of fish intake) and open (e.g., type of oil for seasoning, for cooking), was used to calculate the intake in grams (with a corresponding scale in points) of vegetable monounsaturated fatty acids (MUFA) and omega-3 and omega-6 polyunsaturated fatty acids. A last set of three questions assessed fruit and vegetable intake. A global score of food impact on coronary risk was calculated as the sum of the points with a favorable impact (MUFA, omega-3, fruits, and vegetables) minus the score for saturated fatty acids. This gave an estimation of dietary pattern graded from –17 to +19, where 0 is neutral, a positive score is protective, and a negative score is deleterious for the cardiovascular system. The calculations of the score by food group and the final score were made using Microsoft Office Excel 2003 for Windows.

MAQ

The MAQ has been described in detail elsewhere (Fitzgerald, Kriska, Pereira, & de Courten, 1997; Vuillemin et al., 2000). In line with Kriska et al.’s (1990) recommendations, a preliminary study of the targeted population was made. Two hundred fifty-four female students on campus were asked to list the physically fatiguing activities they had performed in the past year. These activities could be anything that they personally considered fatiguing: leisure, sports, or occupational activities. We thus were able to draw up a comprehensive and appropriate list of 40 activities that included three occupational or personal activities (nonstrenuous walking, shopping, and household-related tasks) and 37 leisure-time activities, with an additional line left open for “other.” We considered the leisure-time physical activity to be the sum of the occupational activities and the sports activities. The participants had to select (and specify for “other”) from the list the activities they had performed more than 10 times in the past year. They then had to provide detailed information in the appropriate table about the months when each activity was performed, the average frequency per month, and the average duration of each activity. Physical activity level and energy expenditure from the sports, occupational, and overall leisure-time physical activity were calculated using Microsoft Office Excel 2003 for Windows as follows.

The average time per week spent in each activity was calculated as the number of times per month the activity was performed times the number of months the activity was performed times the average duration divided by 52, the number of weeks in a year. The average time per week of each activity was then multiplied by its estimated metabolic equivalent (MET) drawn from the 2000 Compendium of Physical Activities (Ainsworth et al., 2000). This energy-expenditure index in MET-hr/week was also...
calculated in MET-hr/day for the purpose of a physical-activity-level calculation explained further on. One MET is defined as the metabolic rate of a resting individual set at 4.18 J per kg of body mass per hour. The MET-hr/week was thus multiplied by a participant's mass to estimate the average weekly number of joules spent in each activity. These were appropriately summed to provide the leisure-time physical activity, the occupational physical activity, and the global physical activity energy expenditure, all expressed in joules per week.

The physical activity level (PAL) was calculated as the ratio between the total energy expenditure estimated from the MAQ and the resting energy expenditure, assumed to equal 1,440 MET-min/day (1 MET multiplied by 1,440 min in a day). The MET-min/day of each activity reported in the MAQ was summed and added to the MET-min/day corresponding to 7 hr of sleep (7 hr × 60 min × 0.9 MET = 378 MET-min) and to the MET-min/day from the activities not reported in the MAQ, assumed to be quite similar across participants. The former quantity was calculated as the remaining time (24 × 60 – 7 × 60 – average minutes of practice per day in activities reported in the MAQ) multiplied by a daily student living constant determined as 1.555 (corresponding to a PAL of 1.50 when no activity was reported in the MAQ). Based on the assumption that the thermal effect of food is 10% of the energy expenditure, this value was multiplied by 1.1 to calculate the total energy expenditure.

**Statistical Analysis**

Apart from the weight status presented as a percentage (95% confidence interval), the variables are presented by their medians, with the limits between the first and the second quartiles and the third and the fourth quartiles.

Log transformations were undertaken to normalize the distribution of positively skewed variables (weight, BMI, number of physical and occupational activities, energy expenditure from physical and occupational activities, total energy expenditure, PAL, omega-3 and omega-6 polyunsaturated fatty-acid scores, saturated- and monounsaturated-fatty-acid scores). No data set was significantly skewed. The normality of the distributions before and after transformation was assessed using the Kolmogorov–Smirnov test, and the transformation was optimized to decrease the d values enough for the p to reach more than .2 (.1 when not possible). Consequently, parametric tests could be applied to the transformed data sets.

Principal-component analyses were undertaken to identify factors, that is, clusters of variables, quantitatively grouped on the basis of the correlation between the variables introduced. The model was optimized by removing the variables with the lowest sum of factor loadings for all factors.

After computation of a correlation matrix for all included variables, factors were extracted. The first principal component accounts for the greatest amount of variance in the whole data set, the second is the next cluster indicating the next greatest amount of variance, and so on. In this study, four factors were introduced because the fifth factor did not add sufficient information (Cattell, 1966). The eigenvalue of the fifth factor was less than 1, which is the generally accepted cutoff to include factors. The factors were independent from each other, and the total variance summarized by the model was the sum of the variance explained by each factor.

The factors were rotated by orthogonal varimax rotation to maintain uncorrelated factors and greater interpretability and to determine the factor loading, which quantifies the intensity of the relationship between the factor and the considered variable. Variables were considered for the interpretation of results when their loading was greater than .4, indicating that they shared at least 16% of the variance with the factor.

The principal-component-analysis results presented here are based on a selected number of variables presented in the Results section. We thought that this model presented the best combination in terms of meaning and amount of explained variance.

Chi-square tests were performed on a limited number of variable pairs, on the basis of a hypothesis drawn from the results of the principal-component analysis. The continuous variables were thus separated into three or four categories, depending on the scattering of the data.

Bravais–Pearson correlations were used to analyze the relationships among the FFQ score, the PAL, and the BMI, using the transformed data sets.

An analysis of variance with one group factor, with three modalities corresponding to PAL tertiles, was performed on the total dietary score.

Data were analyzed using Statistica software for Windows (version 5.5; Statsoft Inc., USA) and Modalisa (version 5.1; Kynos, France). Statistical significance was set at two-sided p < .05.

**Results**

Of the study participants, 82.7% (77.4–87.9) were normal weight, 13.4% (8.7–18.1) were overweight, and 4.0% (1.3–6.7) were obese. The anthropometric variables and the main indices extracted from the MAQ and the FFQ are presented in Table 1.

The four factors extracted from the principal-component analysis explained 84.9% of the total variance of the 10 variables introduced into the model: BMI, number of occupational activities, weekly energy expenditure from leisure-time activities, weekly energy expenditure from occupational activities, percentage of sports in the leisure-time energy expenditure, PAL, fruit and vegetable score, omega-3 polyunsaturated fatty acids (g/week), and FFQ score. The factor-loading pattern of the four identified factors is presented in Table 2.

Thirty-four participants (16.8%) had a PAL value greater than 1.7, which is the recommended physical activity threshold, whereas 46.1% of the students reported 0 or 1 physical activity in the MAQ. Half the study
sample had less than 30% of their leisure-time energy expenditure from sports activities and thus had more than 70% from some or all of the three other activities considered occupational, that is, nonstrenuous walking, shopping, and household chores. Accordingly, the following all contributed to the finding that the participants’ PAL belonged to a specific class: the energy expenditure related to physical activity \(\chi^2 = 115.5, df = 12, p = .001\), the number of these activities \(\chi^2 = 72.5, df = 12, p = .001\), the energy expenditure related to occupational activities \(\chi^2 = 85.1, df = 12, p = .001\), and the number of these activities \(\chi^2 = 25.9, df = 12, p = .011\). The highest tertile was characterized by a high number of physical and occupational activities and high energy expenditure from both types of activity.

PAL was not correlated with BMI \((r = -.01, p = .937)\) or the FFQ score \((r = -.01, p = .941)\). The FFQ score was not correlated with BMI \((r = .02, p = .818)\). Given the independence-test results (all \(p > .9\)), none of the variables related to the physical activity pattern, such as the number of sports activities, number of occupational activities, energy-expenditure class, or PAL class, was associated with the tertile of FFQ score. Similarly, most of the variables and scores extracted from the FFQ, such as cooked- and raw-vegetable scores, class of monounsaturated fatty acids, and class of omega-3 and -6 polyun-

<table>
<thead>
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<th>Table 1</th>
<th>Descriptive Statistics of Anthropometric Variables and Variables Extracted From the Physical Activity and Food Frequency Questionnaires ((N = 202))</th>
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<tr>
<td><strong>First quartile</strong></td>
<td><strong>Median</strong></td>
</tr>
<tr>
<td>Age (years)</td>
<td>19</td>
</tr>
<tr>
<td>Body mass (kg)</td>
<td>53.3</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>163</td>
</tr>
<tr>
<td>Body-mass index (kg/m^2)</td>
<td>19.3</td>
</tr>
<tr>
<td>Number of sports activities</td>
<td>1</td>
</tr>
<tr>
<td>Number of occupational activities</td>
<td>1</td>
</tr>
<tr>
<td>Energy expenditure from sports (J/week)</td>
<td>275</td>
</tr>
<tr>
<td>Energy expenditure from occupational activities (J/week)</td>
<td>1,251</td>
</tr>
<tr>
<td>% of energy expenditure from sports</td>
<td>5.9</td>
</tr>
<tr>
<td>Total energy expenditure reported in the Modifiable Activity Questionnaire (J/week)</td>
<td>3,000</td>
</tr>
<tr>
<td>Physical activity level</td>
<td>1.54</td>
</tr>
<tr>
<td>Points attributed for saturated fatty acids</td>
<td>3.0</td>
</tr>
<tr>
<td>Points attributed for fruits and vegetables</td>
<td>1.0</td>
</tr>
<tr>
<td>Monounsaturated fatty acids (g/week)</td>
<td>3.2</td>
</tr>
<tr>
<td>Omega-3 polyunsaturated fatty acids (g/week)</td>
<td>0.17</td>
</tr>
<tr>
<td>Omega-6 polyunsaturated fatty acids (g/week)</td>
<td>3.98</td>
</tr>
<tr>
<td>Food Frequency Questionnaire final score</td>
<td>–3.0</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Table 2</th>
<th>Factor Loading by Principal-Component Analysis With Varimax Rotation of Variables Extracted From the Physical Activity and Food Frequency Questionnaires ((N = 202))</th>
</tr>
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<tbody>
<tr>
<td><strong>Factor 1</strong></td>
<td><strong>Factor 2</strong></td>
</tr>
<tr>
<td>% of total variance</td>
<td>.372</td>
</tr>
<tr>
<td>% of cumulative variance</td>
<td>37.2</td>
</tr>
<tr>
<td>Body-mass index</td>
<td>–.010</td>
</tr>
<tr>
<td>Number of occupational activities</td>
<td>.847*</td>
</tr>
<tr>
<td>Energy expenditure from sports (J/week)</td>
<td>.915*</td>
</tr>
<tr>
<td>Energy expenditure from occupational activities (J/week)</td>
<td>–.274</td>
</tr>
<tr>
<td>% of energy expenditure from sports</td>
<td>.927*</td>
</tr>
<tr>
<td>Total energy expenditure reported in the Modifiable Activity Questionnaire (J/week)</td>
<td>.368</td>
</tr>
<tr>
<td>Physical activity level</td>
<td>.508*</td>
</tr>
<tr>
<td>Points attributed for fruits and vegetables</td>
<td>.187</td>
</tr>
<tr>
<td>Omega-3 polyunsaturated fatty acids (g/week)</td>
<td>–.087</td>
</tr>
<tr>
<td>Food Frequency Questionnaire final score</td>
<td>–.004</td>
</tr>
</tbody>
</table>

*Loading with absolute value \(\geq .4\).
saturated fatty acids, were independent of the PAL tertile (all $p > .8$). The fruit-consumption score ($\chi^2 = 17.1, df = 12, p = .147$) and the saturated-fatty-acid score ($\chi^2 = 13.8, df = 9, p = .13$) were not significantly related to the PAL tertile, but the power of the test with such $p$ values was too low to claim independence. Moreover, graphic analysis of the principal-component analysis revealed that the fruit-and-vegetable variable was between the other FFQ-related variables and the MAQ-related variables. The analysis of variance showed no significant difference in dietary score related to the tertile of PAL ($F = 1.18, p = .31$, Figure 1).

The raw- and cooked-vegetable scores were reciprocally dependent ($\chi^2 = 26.7, df = 9, p = .002$), and 36.6% of the students had a naught score (corresponding to 0, 1, or 2 servings per week) for both questions. Similarly, the participants with more than 3 points from the sum of raw and cooked vegetables were more likely to have a score of 2 or 3 for fruits, and those with a low score for fruits were more likely to have a low score for vegetables ($\chi^2 = 32.8, df = 16, p = .008$).

**Discussion**

The main results of this study were that this population of female university students had a lifestyle associated with cardiovascular risk, and no clustering of features related to both the dietary profile and the physical activity pattern was identified.

Given the FFQ scores, dietary profile, and leisure-time physical activity pattern, we believe that this study population needs an intervention program. The very low scattering and the low average of the PAL indicate that our population was quite homogeneous in having a highly sedentary lifestyle. The method we chose to investigate physical activity could theoretically have interfered with our observation. The MAQ is self-administered and the results are thus potentially biased by misreporting and social desirability. However, it was designed to maximize the feasibility and appropriateness of physical activity assessment in a variety of populations (Kriska, 1997). It is the primary questionnaire used in large public health studies and programs such as the Diabetes Prevention Program (2002). It met our need to discriminate individuals on the basis of their leisure-time physical activity, including sports, household-related activities, and commuting, the three classes of activity likely to account for a large portion of expended energy and likely to differ among female students who share some lifestyle characteristics. The use of self-reported rather than measured weight may have underestimated the energy-expenditure values calculated from the MAQ but would not have affected the PAL calculation, which was independent of weight. The daily student-living constant we introduced could have biased the PAL calculation but was unlikely to affect the heterogeneity of the behaviors. We assume that these methods did not distort the facts to the point of exaggerating the degree of sedentary lifestyle, particularly because occupational activities—whose highest metabolic equivalent was 3 METS—contributed as much as sports activities to the variability of the PAL. This observation tended to confirm the sedentary lifestyle of this population and merits further investigation. Data on sedentary behavior should be collected, particularly television viewing because it may show more discriminating power on BMI or more convergence with dietary profile than the PAL.

Although it did not appear to have an impact on the weight status of the study population (unless under-reporting of weight was massive), the spread (83.2%) of insufficient leisure-time physical activity is worrying for the future health of these young women, even considering the lowest cutoff for the PAL when the results from the literature vary between 1.7 and 1.8 (Saris et al., 2003). There is indeed extensive evidence that individuals with higher leisure-time physical activity are more likely to maintain or lose weight (Coakley et al., 1998) and are less likely to develop metabolic and cardiovascular diseases (World Health Organization, 2002). Comparisons are difficult because the indices used in the literature are numerous. Some studies have reported quite high levels of physical activity. For example, 61% of U.S. medical students were reported to adhere to the general recommendations for physical activity throughout their studies in a prospective survey where the frequency and intensity of leisure-time sports activity were assessed independently of duration (Frank, Tong, Lobelo, Carrera, & Duperly, 2008). The percentage of the general Brazilian population taking part in leisure-time physical activity at a satisfactory level was estimated as 13% (Monteiro et al., 2003), and a large Taiwanese study found 18.9% of the adult population to be active (Wai et al., 2008). In an adult urban Portuguese population, 79% of men and 86% of women were considered sedentary, even when household chores were included (Gal, Santos, & Barros, 2005), making our results plausible.

We believe that it is even more necessary to propose exercise training to our study population given the wide intervention window and the likelihood that the

![Figure 1 — Food Frequency Questionnaire (FFQ) score by physical activity level (PAL) tertile, the first tertile including the lower values. $N = 202$. The group effect is not significant.](image)
spontaneous course will not improve as these young adults approach a period of life transition (Brown & Trost, 2003).

Even though the median score for saturated fatty acids was moderate, reaching only 4.5 out of a maximum of 17, the food profile that emerged was not reassuring. It was determined on the basis of an FFQ, which was not intended to address the quantitative aspects of energy intake. However, the differences with respect to dietary intake related to physical activity evidenced in the literature are more qualitative than quantitative (Tormo et al., 2003) so we considered this method interesting for our purpose. It evidenced very low fruit and vegetable intake, with a median sum between 1.3 and 2.8 servings per day and more than a third of the participating students reporting fewer than six portions of fruit and vegetables per week. Unfortunately, our results cannot be adjusted for socioeconomic conditions because no data of this nature were collected. Healthy food choices are less frequently made by individuals with lower socioeconomic status (Lallukka, Laaksonen, Rahkonen, Roos, & Lahelma, 2007).

The second aim of this study was to investigate the interactions between food and physical activity patterns. The approach was to study clustering, which has already proven to be useful (de Bruijn & van den Putte, 2009). Fruit intake had the highest probability of being related to the physical activity pattern—the literature has demonstrated its strong positive associations with the hours per week of sports and other leisure activities (Agudo, Pera, & the EPIC Group of Spain, 1999; Mensink et al., 1997) and the amount of leisure-time physical activity (Oppert et al., 2006). There are nevertheless some subtle discrepancies among these studies that may be meaningful. Whereas some have insisted on the deleterious effect of a sedentary lifestyle on health, others have shed light on the positive character of physical activity, which is different (Aadahl, Kjaer, & Jorgensen, 2007). In the study by Agudo, Pera, and the EPIC Group of Spain (1999), the participants characterized by a lack of sports activity differed considerably from the others in terms of fruit and vegetable intake. However, there seemed to be a more gradual and complex relationship between the quantity of other leisure activities (or work activity) and fruit and vegetable intake. In a more recent study, the odds ratio for fruit and vegetable intake and eating breakfast rose progressively in increasingly active quartiles, suggesting a continuous relationship (Matthews et al., 1997). Thus, for many dietary outcomes, substantial benefit is associated with active rather than sedentary lifestyles, regardless of the additional increment associated with more vigorous or frequent activity. This may depend on the characteristics of the population investigated. Because our study population displayed a narrow range of physical activity levels, we are unable to add further information on this specific point and cannot draw conclusions that would improve program designs to target diet and physical activity together. This would have been possible if we had identified a cluster of unfavorable factors from the physical activity and food profiles. Nevertheless, our observations are interesting in that they support the view that no regulation of the quality of food intake is possible below a certain threshold of physical activity, under which there would not be minimal physiological adaptation.

Melzer et al. (2005) built a model from both animal and human studies that suggested that an organism is unable to spontaneously adjust energy intake for energy expenditure below a physical activity threshold of 1.75, resulting in weight gain. The contribution of physical activity to improved energy balance is generally presented as being on the energy-expenditure side. Their model implies that the role of physical activity in weight control, as mediated by its impact on energy intake regulation, is probably underestimated. The heterogeneity in BMI observed in sedentary participants but not in active participants was used to support their proposition. Indeed, the compilation of studies that used the doubly labeled water method to study energy expenditure showed considerable variation in body fat among healthy sedentary individuals and presented a low rate of overall energy expenditure as a permissive factor for obesity (Schulz & Schoeller, 1994). Similarly, the lack of homogeneity in the dietary profiles of the current study indirectly suggests that the human body is not adapted to sedentary lifestyles, which has public health implications when such a level of physical inactivity is widespread. To corroborate the literature analyzed by Melzer et al., it would be interesting to test the assumption that the heterogeneity we observed lessens in more active populations and is manifested by a linear or curvilinear relationship between physical activity and dietary patterns. The validation of this hypothesis would support the promotion of physical activity relatively independent of energy expenditure in individuals with a sedentary lifestyle.

Despite its limitations, the current study identified a population of Guadeloupean women with a highly sedentary profile who would benefit from a program promoting physical activity. The absence of a strong relationship between the food and physical activity profiles in this study is consistent with the contention that regulating food intake is ineffective below a certain threshold of daily physical activity related to energy-expenditure level, leading to dysregulation of energy balance.

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References


