

# Weight Gain During Christmas Holidays in Costa Ricans

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## Abstract

Obesity is a rising problem in Costa Rica and in the developed countries. Recent national studies have shown a prevalence of obesity of 23% and overweight of 37% in the adult population. There have been multiple hypotheses regarding the rising prevalence of obesity, mainly related to an increase in caloric intake and reduced exercise. The objective of this study is to evaluate the weight gain in a Costa Rican urban population during the Christmas holidays, which is a period of time where excessive food intake occurs.

### Materials and methods

We selected the patients randomly from the Endocrinology Outpatient Clinic of the San Juan de Dios Hospital and the Diabetes Clinic. Healthy volunteers and diabetics were selected from both places. Basal measurements were made on the last week of November 2003, and the follow up measurements were made on the first week of January 2004. Statistical analysis was performed using SPSS 8.0.

### Results

We evaluated a total of 217 subjects. 139 were healthy volunteers, 65 had type 2 diabetes and 13 had type 1 diabetes. We grouped all patients in two groups: controls (healthy volunteers) and those with diabetes. 38.5% were males and 61.5% were females. There was an average increase of 0.97 kg (1.38% of body weight,  $p < 0.001$  vs basal). This increase was present in both groups. In controls, the average weight gain was 1.47 kg (2.16%,  $p = 0.019$ ) and in diabetics the average weight gain was 0.46 kg (0.62%,  $p = 0.006$ ). There was no difference in weight gain regarding gender.

### Conclusions:

There is a significant weight gain during Christmas holidays in Costa Ricans. There is no difference between the control group and diabetics and there is no difference in gender.

## Background

Obesity is a rising problem in Costa Rica and in the developed countries. Recent national studies have shown a prevalence of obesity of 23% and overweight of 37% in the adult population.<sup>1</sup> There have been multiple hypotheses regarding the rising prevalence of obesity, mainly related to an increase in caloric intake and reduced exercise.

Christmas holidays is a period in which Costa Ricans usually have a higher caloric intake. There are usually family reunions, work gatherings and friends meetings. In these gatherings there is always food. Also, this is a period in which a high percentage of Costa Ricans take vacations and usually the physical activity will diminish.

Previous reports have shown that Americans gain approximately 0.48 kg in this period.<sup>2</sup> There has been no studies about weight gain in Christmas holidays in Costa Ricans.

The objective of the present study is to evaluate the weight gain in a Costa Rican urban population during the Christmas holidays, which is a period of time where excessive food intake occurs.

## Materials & Methods

Patients were selected randomly from the Endocrinology Outpatient Clinic of the San Juan de Dios Hospital and the Diabetes Clinic, which are located in San José, an urban area. Healthy volunteers and diabetic patients were selected from both places.

Basal measurements were made on the last week of November 2003 and follow up measurements on the first week of January 2004. Weight and height were taken by the same investigator.

No instructions were given to the patients. Healthy volunteers continued their usual caloric intake and exercise program and diabetic patients continued their usual medications and controls.

Statistical analysis was performed using SPSS 8.0

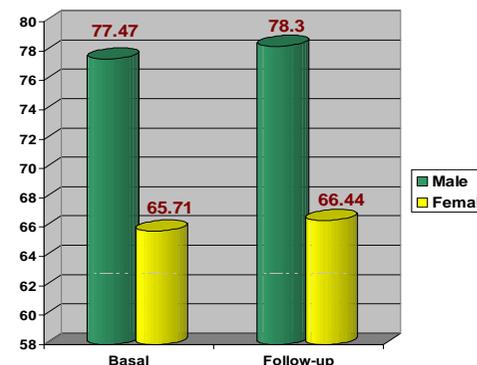
## Results

We evaluated a total of 217 subjects. 139 were healthy volunteers, 65 had type 2 diabetes and 13 had type 1 diabetes. We grouped all patients in two groups: controls (healthy volunteers) and those with diabetes. 38.5% were males and 61.5% were females.

Table 1. Characteristics of the patients

	Controls (n=139)	Diabetics (n=78)	P
Age (average)	46.62	55.17	0.74
Gender (male/female %)	31.5/68.5	51.3/48.7	0.004
Height (cm)	162.73	163.36	0.63
Basal weight (kg)	67.94	74.43	0.002
Follow-up weight (kg)	69.41	74.89	0.15
Basal BMI	25.61	27.8	0.001
Follow up BMI	25.97	28.1	0.003

Graph 1. Weight comparison between gender



There was an average increase of 0.97 kg (1.38% of body weight,  $p < 0.001$  vs basal). This increase was present in both groups. In controls, the average weight gain was 1.47 kg (2.16%,  $p = 0.019$ ) and in diabetics the average weight gain was 0.46 kg (0.62%,  $p = 0.006$ ). There was no difference in weight gain regarding gender.

## Discussion

Weight gain during holidays has been related to long term obesity. Most people that gain weight during the holidays will lose some in the next months although it will not reach the basal weight. Several authors think that an effective weight management program should address these seasonal changes.<sup>3</sup> Although this weight gain is small, it will potentially produce a significant increase over the years.

In this study, Costa Ricans increased 0.97 kg. Yanovski et al reported an increase of 0.48 kg in Americans. Genetic and environmental factors could influence this difference in weight gain. Hispanics are at increased risk of developing obesity, metabolic syndrome and diabetes. A bigger weight gain could explain some of this risk.

## Summary

There is a significant weight gain during Christmas holidays in Costa Ricans. There is no difference between the control group and diabetics and there is no difference in gender.

## References

1. Cunningham L, Rodriguez S, Ronderos M, Jimenez JG. Prevalence of diabetes and hyperlipidemia in an urban population of Costa Rica. American Association of Clinical Endocrinologists 2003 Syllabus. Abstract #94. Pp 325.
2. Yanovski JA, Yanovski SZ, Sovik KN, Nguyen TT, O'Neill PM, Sebring NG. A Prospective Study of Holiday Weight Gain. N Engl J Med. 2000;342:861-7.
3. Gillis L, McDowell M, Bar-Or O. Relationship between summer vacation weight gain and lack of success in pediatric weight control program. Eat Behav. 2005;6:137-43.
4. Roberts SB, Mayer J. Nutr Rev. 2000;58:378-79.