

Fast Food: Loving it to Death?



Michael McDonald, MD, FRCPC; and Justin A. Ezekowitz, MBBCh, MSc, FRCPC

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The rise of the obesity epidemic has captured the attention of healthcare professionals and has entered into public consciousness through television, film and the popular press. It is widely speculated that the increase in obesity in the general population is attributable to a progressively more sedentary lifestyle and to a greater reliance on convenience food. While much research has focused on the link between obesity and adverse health outcomes, only recently has evidence emerged to support the contention that fast food itself is contributing to the problem of obesity. The Coronary Artery Risk Development in Young Adults (CARDIA) study reports on the association between fast food, weight gain and insulin resistance over a 15 year period in the US.¹



The need for the CARDIA study

The rationale for the CARDIA study centered on a few key observations, namely that fast food consumption is increasing. In the 1970s, children and young adults received only 18% of their calories from food prepared outside the home, but by the early 1990s, this had jumped to 32%, one-third of which was from fast food.²

Fast food portions are larger and have twice the energy density of recommended healthy

diets, frequently leading to a state of “passive over-consumption.”³ Fast foods also have a high glycemic index (defined as the relative increase in plasma glucose following ingestion of a carbohydrate). High glycemic index diets have been shown to promote:

- hunger,
- pancreatic β -cell dysfunction and
- dyslipidemia that may ultimately lead to:
 - obesity,
 - Type 2 diabetes and
 - heart disease.⁴

Therefore, it was postulated that an increased consumption of fast foods would be associated with weight gain and insulin resistance.



CARDIA study background

The CARDIA study was a prospective, 15 year, population-based assessment of the evolution of cardiac risk factors in 5,115 young individuals (18-years-of-age to 30-years-of-age) in four US cities (*i.e.*, Birmingham, Chicago, Minneapolis and Oakland). A rich data set was established that included demographic and clinical variables, in addition to lifestyle variables, such as:

- fast food habits,
- smoking,

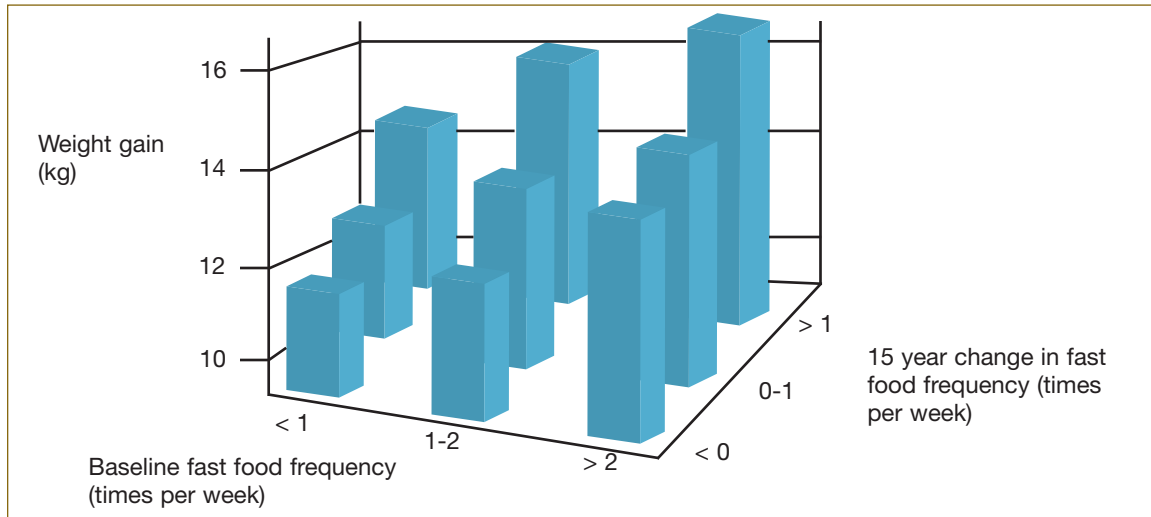


Figure 1. Joint association of year zero fast food frequency and 15 year changes in fast food frequency with 15 year changes in bodyweight.¹

- physical activity,
- television viewing,
- intake of fats, wholegrains, fruits, vegetables, dairy and
- soft drinks.

The primary aim was to investigate the relationship between self-reported fast food habits and long-term changes in bodyweight and the development of insulin resistance.

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Results of the CARDIA study

Fast food was consumed more frequently by men compared to women and by African Americans than compared to Caucasians. Among Caucasians, high-frequency (more than twice a week) fast food consumption was associated with:

- lower levels of physical activity,
- lower education levels,
- more television viewing,
- a lower intake of wholegrains, fruit and non-starchy vegetables and
- greater alcohol intake.

These subjects also had a higher baseline intake of:

- total energy,
- saturated fatty acids,
- soft drinks,
- refried grains and
- meat.

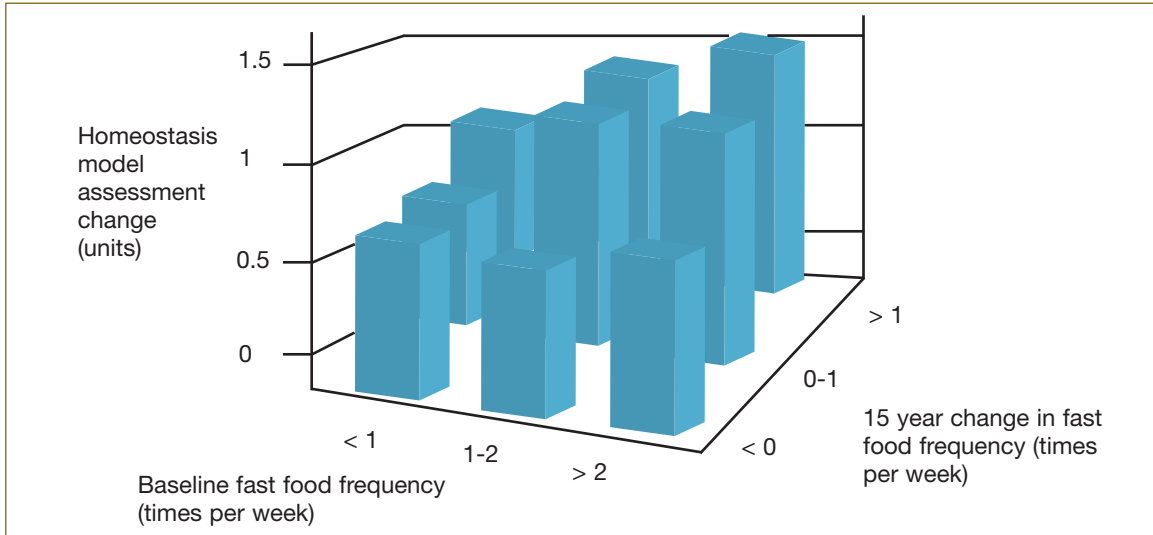


Figure 2. Joint association of year zero fast food frequency and 15 year changes in fast food frequency with 15 year changes in homeostasis model assessment.¹

Individuals who consumed fast food frequently gained an average of about 4.5 kg more than those who consumed fast food infrequently (less than once per week).

Importantly, eating fast food three times per week at baseline and at 15 year follow-up predicted both weight gain and insulin resistance, as determined by the homeostasis model assessment (HOMA). This association was significant even after adjusting for demographic, lifestyle and other dietary factors. (Figure 1 shows 15 year weight gain as a function of baseline fast food frequency and the change in fast food frequency over time). There was a significant and graded association, such that the

weight gain was greatest (approximately 16 kg) in subjects consuming fast food more than twice per week at the beginning of the study and in whom fast food habits increased by more than once per week. In comparison, those with a baseline fast food frequency of less than a week, who decreased consumption over time, gained the least weight (< 12 kg). Similarly, insulin resistance significantly increased over 15 years in association with baseline fast food frequency and with the changes in fast food consumption (Figure 2).



Implications of the CARDIA study


The CARDIA study demonstrated that fast food habits have a strong association with weight gain and insulin resistance in young adults over a 15 year period, independent of other lifestyle factors. Irrespective of the mechanisms involved, these findings are particularly

Dr. McDonald is a Cardiology Fellow at the Walter C. Mackenzie Health Sciences Centre, University of Alberta, Edmonton, Alberta.

Dr. Ezekowitz is an Assistant Professor of Medicine and Director of the Heart Function Clinic, University of Alberta, Edmonton, Alberta.

germane in the current era of the obesity epidemic.

As of 2004, 17% of adolescents and > 32% of adults in the US are obese.⁵ Among obese adolescents, the prevalence of glucose intolerance is > 20%⁶ and by midlife, obesity carries a two-fold to three-fold increased risk of death, even after adjusting for other lifestyle factors.⁷

Time should be taken to counsel teenagers and young adults as a strategy for primary prevention and to promote a message that goes beyond exercise alone. It follows that the consequences of obesity begin early and exact a biological toll over many years; facilitating change in adverse dietary practices is a worthy and imperative goal. 

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