



Fundació
La Marató de TV3
22nd SYMPOSIUM
Diabetes and Obesity



CHRONONUTRITION AND CHRONOTYPE AND THEIR RELATIONSHIP WITH OBESITY AND TYPE II DIABETES

Paula Jakszyn

Institut Català d'Oncologia - IDIBELL Institut d'Investigació Biomèdica de Bellvitge

1. Project summary

This study aims to deepen knowledge on the relationship between food intake based on time of day (i.e. chrononutrition) and the distribution of macronutrients (carbohydrates, proteins and fats), as well as between sleep patterns (quality and chronotype) and type II diabetes, metabolic syndrome and obesity. It additionally assesses whether these factors are affected by some of the genes having to do with the regulation of the circadian clock.

Methods: This study was carried out within the EPIC-Spain project and included over 4,225 participants (893 from Asturias, 824 from Granada, 885 from Murcia, 795 from Navarra and 828 from Gipuzkoa). Participants provided data on the exposure (chrononutrition and chronotype) and confounding (smoking, physical activity, medication, histories of reproduction) variables. Blood pressure, anthropometric measurements, electrical bioimpedance and a fasting blood profile were also collected. Levels for glucose, insulin, triglycerides and cholesterol fractions were determined, and thus the prevalence of type 2 diabetes and metabolic syndrome. After a 2-year follow-up participants were contacted again to repeat the anthropometric measuring and electrical bioimpedance. Calculations were made for changes in body weight, BMI index category and waist circumference.

2. Results

Our results showed that greater energy contributions from breakfast were associated with a lesser prevalence of metabolic syndrome. An association was also found between late (>9am) breakfast and increased prevalence of metabolic syndrome. Similar trends were found for the prevalence of type 2 diabetes. Our analyses did not show any associations between either of these pathologies and sleep patterns. Changes in weight did not show any association with the aforementioned characteristics. The fact that weight change was recorded for a very short period of time was the most determinant factor in this lack of association. Future studies involving longer follow-up periods may add new, valuable information.

3. Relevance and potential future implications

This study dives into a field that is seldom investigated: the effects of chrononutrition on the prevalence of obesity, type 2 diabetes and related pathologies. Given the repercussions of obesity and type 2 diabetes on public health, all new lines leading to potential prevention and treatment strategies are highly important. We believe that once these results are published, they will constitute the necessary foundations for future studies to confirm results. The latter could focus not just on timing but also on the caloric load of breakfast. Our study is likely to encourage new research designs, maybe with longer follow-up periods, as well as interventions that could complement current prevention strategies against these very prevalent health conditions.

4. Issued scientific literature

We are currently working on two articles which will present the main results, but they have not yet been published.

Results have been presented in the following professional congresses:

Breakfast intake, sleep duration and body mass index in the Spanish EPIC cohort. London, 2018. Chrononutrition. From Epidemiology to molecular mechanism.

Energy intake, chronotype and eating timing in the Spanish EPIC cohort. International Conference on Dietary assessment methods (ICDAM). Wageningen University. Online. 2021.