Lifestyle or Body Weight what Matters more for Diabetes Risk

A group of researchers investigated the relationship between a composite Lifestyle Risk Factor Index (LSRI) and the incidence of type 2 diabetes mellitus (T2DM) in a multi-ethnic population.

Study

The present prospective cohort study utilized data from the Multiethnic Cohort (MEC), which included 215,903 adults aged 45-75 years from Hawaii and California, representing five ethnic groups: African American, Native Hawaiian, Latino, Japanese American, and European American. After excluding participants with incomplete data, those with T2DM at baseline, and ethnicities outside the five main groups, 165,383 individuals remained for analysis.

Researchers used a baseline questionnaire to collect data on demographics, body mass index (BMI), smoking status, alcohol consumption, physical activity, and dietary habits. Ethnicity assignment was based on a priority ranking when mixed ancestry was reported. It should be noted that data on lifestyle factors were collected at baseline and not updated for changes over time.

T2DM cases were identified via self-reported diagnoses, medication usage, and Medicare claims data up to 2016. The primary exposure was the LSRI, a composite score (0-4) that awarded one point for each of the following: not currently smoking, engaging in ≥150 minutes of moderate to vigorous activity per week, consuming less than 2 (men) or 1 (women) alcoholic drinks per day, and adhering to at least 3 of 7 cardiometabolic dietary recommendations.

These seven dietary recommendations included: ≥3 servings per day of fruits, ≥3 servings per day of vegetables, ≥3 servings per day of whole grains, ≥2 servings per week of fish, ≤1.5 servings per day of refined grains (with only 3% of participants meeting this guideline), ≤1 serving per week of processed meat (24%), and ≤1.5 servings per week of non-processed red meat (with only 6% adherence).

Cox regression models were used to calculate hazard ratios (HRs) and confidence intervals (CIs), adjusting for age, education, and BMI. Subgroup analyses were conducted by sex and ethnicity to explore variations in T2DM risk associations.

Findings

Over a mean follow-up of 17.2 years, 44,518 participants (27%) developed incident T2DM. The largest ethnic group was Japanese American (29%), followed by European American (27%), Latino (22%), African American (16%), and Native Hawaiian (7%). The average LSRI score was 2.73, with most participants scoring 2 or 3 points.

Although only 22% of participants met dietary adherence guidelines, adherence was highest among moderate alcohol consumers (86%), followed by those who were no current smokers (84%) and those meeting physical activity recommendations (81%).

Adherence to most individual dietary components was very low, with the exception of fish intake. For reference, only 3% of participants met the recommendation for refined grains, and just 6% for non-processed red meat, with intermediate adherence for fruits (24%), vegetables (22%), and processed meats (24%), and highest adherence for fish (73%).

The incidence of T2DM was inversely associated with LSRI scores. Participants scoring 4 points had a 16% lower risk of T2DM compared to those scoring 0-1 (HR = 0.84; 95% CI: 0.80-0.88), even after adjusting for BMI. Every increase in 1-point, LSRI was associated with a 6% reduced risk of developing T2DM (HR = 0.94; 95% CI: 0.93-0.95).

Among individual components, no current smoking and adequate physical activity showed strong inverse associations with T2DM in all models, while moderate alcohol consumption was surprisingly linked to a 19% increased risk. It is important to note that the "moderate alcohol" group (≤1 drink per day for women, ≤2 for men) also included abstainers.

Dietary adherence, although low, was weakly associated with a reduced risk of T2DM in models excluding BMI, but not in BMI-adjusted models. Sensitivity analyses using an LSRI composed only of smoking and physical activity yielded similar or slightly stronger inverse associations with T2DM, indicating that these two factors were the primary drivers of the composite index.

When examined across different ethnic groups, higher LSRI scores significantly correlated with lower type 2 diabetes risk among African Americans (27% reduction for highest versus lowest LSRI), Latinos (18%), and European Americans (14%). However, no significant association was found among Japanese Americans or Native Hawaiians after BMI adjustment. Physical activity adherence was notably lower among Latinos and African Americans, while dietary adherence was generally poor across all groups, with only fish consumption exceeding 50%.

BMI had a stronger association with T2DM risk than LSRI. Participants categorized as obese (BMI over 30 kg/m^2) were over three times more likely to develop T2DM compared to those with a normal weight. The effect of BMI also varied across ethnic groups, being especially pronounced in Japanese Americans and Native Hawaiians, possibly due to differences in visceral fat distribution.

Conclusion

To summarize, this study highlights the value of combining modifiable lifestyle behaviors such as non-smoking, physical activity, moderate alcohol consumption, and a healthy diet into a composite LSRI to assess T2DM risk. A higher LSRI score was linked to significantly lower T2DM incidence, particularly among African American, Latino, and European American groups.

However, not all lifestyle factors had equal influence, and BMI played a stronger role in predicting diabetes risk.

The LSRI was not associated with T2DM risk in Japanese Americans or Native Hawaiians after BMI adjustment, underscoring the importance of considering physiological differences, such as visceral fat distribution, in T2DM development in these groups.

A key limitation is that the LSRI assumes equal weighting of each component, which may not accurately reflect their true importance for T2DM risk, and lifestyle was only assessed at baseline rather than over time. These findings suggest the need for culturally tailored public health strategies that promote sustainable lifestyle improvements while also addressing obesity to effectively reduce Type 2 diabetes mellitus (T2DM) across diverse populations.

Source:

https://www.news-medical.net/news/20250618/What-matters-more-for-diabetes-risk-lifestyle-or-body-weight.aspx