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BMI and Triglycerides Influence Diabetes Progression

Executive Summary of Key Findings

Introduction

The following is a summary of findings from an exploratory analysis conducted on a publicly available diabetes dataset from the University of Copenhagen (2004). The analysis was completed in Python using Jupyter notebooks. View the full analysis on **GitHub**.

Key Results

This analysis shows that metabolic health measures are the strongest factors linked to diabetes progression over one year. BMI and triglycerides stand out as the biggest drivers, suggesting that higher body mass and higher triglyceride levels are linked to faster disease progression. Blood pressure, cholesterol ratios, and blood sugar also show smaller but meaningful effects, while HDL cholesterol appears protective.

Demographic factors are less influential. Men had slightly higher progression scores than women, and progression increased gradually with age, but these differences are modest compared with the overall variation in the data.

How This Fits into Broader Research

These findings align with established research on metabolic health. Higher BMI is a well-known risk factor for type 2 diabetes, with long-term studies showing that people with increasing BMI are more likely to develop diabetes (Nature, 2024). Elevated triglycerides are linked to insulin resistance and metabolic dysfunction, which contribute to faster progression (BMC Public Health, 2025; IJMS, 2025). The protective role of HDL cholesterol is also consistent with broader evidence.

Implications

Overall, monitoring BMI and triglycerides can help identify people at higher risk and guide interventions to slow disease progression. These insights can support early screening, program design, and communication strategies in health, biotech, and digital health settings.