

# A global health imperative on ageing and diabetes: Prevention and treatment strategies

Erik Setour\*



**Received:** 09-Apr-2024, Manuscript No. FMDM-24-140986; **Editor assigned:** 11-Apr-2024, PreQC No. FMDM-24-140986 (PQ); **Reviewed:** 25-Apr-2024, QC No. FMDM-24-140986; **Revised:** 02-May-2024, Manuscript No. FMDM-24-140986 (R); **Published:** 09-May-2024, DOI: 10.37532/1758-1907.2024.14(3).609-610.

## Description

Type 2 diabetes mellitus, once considered a disease primarily affecting older adults, is increasingly becoming a global health concern across all age groups. However, age remains one of the most significant risk factors for its development. As individuals grow older, their likelihood of developing type 2 diabetes increases substantially. This phenomenon has spurred scientists and healthcare professionals to deeper into the important relationship between ageing and diabetes, aiming to unlock strategies for effective prevention and treatment.

### ■ Ageing and insulin resistance

Type 2 diabetes is characterized by insulin resistance, where cells become less responsive to insulin, a hormone critical for regulating blood sugar levels. Ageing is associated with several physiological changes that contribute to insulin resistance:

**Changes in body composition:** As people age, they often experience an increase in body fat and a decrease in muscle mass. This shift alters the way in which the body utilizes glucose leading to higher blood sugar levels.

**Cellular dysfunction:** Aging cells may not respond as effectively to insulin signaling, impairing glucose uptake. This dysfunction can escalate over time, contributing to the development of diabetes.

### ■ Biological mechanisms

Researchers have identified various biological

mechanisms linking ageing and diabetes.

**Oxidative stress and inflammation:** Ageing is accompanied by increased oxidative stress and chronic low-grade inflammation, both of which can disrupt insulin signaling pathways and promote insulin resistance.

**Mitochondrial dysfunction:** Declining mitochondrial function with age may impair the ability of cells to generate energy efficiently, impacting glucose metabolism.

**Genetic and epigenetic factors:** Age-related changes in gene expression (epigenetics) can influence susceptibility to diabetes, potentially exacerbating existing genetic predispositions.

### ■ Lifestyle and environmental factors

While ageing itself predisposes individuals to diabetes, lifestyle and environmental factors important roles in modifying this risk.

**Sedentary lifestyle:** Lack of physical activity exacerbates insulin resistance and weight gain, both of which are prevalent with age.

**Dietary habits:** Poor dietary choices, such as excessive intake of refined sugars and fats, contribute to obesity and metabolic dysfunction, increasing diabetes risk.

**Stress and sleep:** Chronic stress and inadequate sleep, prevalent in older adults, can disrupt hormonal balance and worsen insulin sensitivity.

**Lifestyle modifications:** Encouraging regular

Department of Health, Kangan Institute, Melbourne, Australia

\*Author for correspondence: E-mail: setourerik@rediffmail.com

physical activity, maintaining a healthy diet rich in fruits, vegetables, and whole grains, and promoting stress management techniques are crucial for preventing diabetes in ageing populations.

**Medical interventions:** Pharmacological interventions targeting insulin sensitivity and glucose regulation can help manage diabetes effectively in older adults.

**Early detection:** Regular screening for diabetes risk factors, especially in ageing populations, allows for early intervention and lifestyle modifications that can delay or prevent the onset of diabetes.

As the global population increases, the burden of type 2 diabetes is expected to rise. By resolve the complex relationship between

ageing and diabetes, scientists are prepare for targeted prevention strategies and personalized treatments. Empowering individuals with knowledge about lifestyle modifications and early detection is key to mitigating the impact of ageing on diabetes risk. Ultimately, collaborative efforts between researchers, healthcare providers, and policymakers are need to combatting this growing public health challenge effectively.

While age remains a significant risk factor for type 2 diabetes, ongoing research offers hope for improving outcomes through informed interventions and a deeper understanding of the underlying mechanisms. By addressing the intersection of ageing and diabetes comprehensively, we can strive towards a healthier future for all individuals, regardless of age.