

An Approach to Metaphor Studies Related to Type I and Type II Diabetes

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While India bears a significant diabetes burden, often termed the "diabetes capital of the world" with approximately 80 million cases projected to rise to 135 million by 2045 statistics, the United States also experiences a substantial prevalence to Type 1, Type 2, prediabetes, and gestational diabetes. Type 1 diabetes mellitus IDDM is a relatively common autoimmune disorder, particularly prevalent in childhood and adolescence, although diagnosis can occur at any age, commonly below 30. Its incidence varies globally, with higher rates observed in Northern European countries and populations of European descent. Understanding these prevalence patterns is crucial for targeted screening and resource allocation in healthcare. Type II diabetes NDDM is a prevalent chronic condition observed across diverse populations and age groups, although its incidence is notably higher among individuals with a family history of the disease, those with obesity or sedentary lifestyles, and certain ethnic groups.

Type I diabetes mellitus is characterized by a constellation symptom includes polyuria (frequent urination), polydipsia (excessive thirst), polyphagia (increased hunger), and fatigue. Furthermore, the disease often manifests with ketoacidosis, a dangerous metabolic state resulting from the body's reliance on fat for energy due to insulin deficiency. Pancreatic beta cells, residing within the islets of Langerhans, are responsible for the synthesis and secretion of insulin, a crucial hormone regulating glucose homeostasis. Their function is essential for maintaining proper blood sugar levels and preventing hyperglycemia. Disruptions in beta cell function or mass are implicated in the

pathogenesis of diabetes mellitus. T cell activation (Specifically cytotoxic CD8+ T cells) and subsequent cytokine release induce inflammation within pancreatic beta cells, initiating a slow, progressive destruction that unfolds over months to years. This ultimately results in near-complete endogenous insulin deficiency, necessitating lifelong exogenous insulin therapy to maintain metabolic control.

The endocrine system regulates bodily functions through the secretion of hormones. These chemical messengers are released directly into the bloodstream, enabling them to travel to target tissues and organs throughout the body to elicit specific physiological effects. This direct delivery mechanism allows for widespread and coordinated regulation of processes such as metabolism, growth, and reproduction. Exocrine glands play a critical role in digestion by secreting enzymes via ducts into the gastrointestinal tract. These enzymes facilitate the breakdown of complex food molecules, such as carbohydrates, proteins, and lipids, into smaller, absorbable units. The localized delivery ensures efficient and targeted digestion, contributing significantly to nutrient acquisition.

Insulin, a primarily single-chain polypeptide hormone secreted by pancreatic beta cells, plays a crucial role in regulating glucose metabolism. This peptide facilitates glucose uptake by cells, promotes glycogen synthesis, and inhibits hepatic glucose production, ultimately maintaining blood glucose homeostasis.