**Research Article**

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# Difference between Type 1 And 2 Diabetes Mellitus

## Gudisa Bereda

### Corresponding Author: Gudisa Bereda

**Department of Pharmacy, Negelle Health Science College, Negelle, Ethiopia**

**Abstract**

Type 1 diabetes mellitus involves autoimmune destruction of pancreatic beta cells which create insulin. The American Diabetes Association (ADA) defines type 1 diabetes mellitus (T1DM) as autoimmune β-cell destruction, usually leading to absolute insulin deficiency. In type 1 diabetes mellitus the pancreatic beta cells primarily lost. Type 1 diabetes is characterized by a progressive loss of insulin producing beta cells in pancreatic islets. The immune destruction of beta cells is partly mediated by high levels of pro-inflammatory cytokines. Type 2 diabetes mellitus also named as non-insulin dependent diabetes mellitus and adult onset diabetes mellitus. The American Diabetes Association (ADA) defines type 2 diabetes mellitus (T2DM) as progressive loss of β-cell insulin secretion frequently occurring on the background of insulin resistance. Type 2 diabetes is characterised by impaired beta cell function and insulin sensitivity and is often accompanied by other metabolic abnormalities.

**Keywords:** American Diabetes Association; Type 1 diabetes mellitus; Type 2 diabetes mellitus

## Introduction

### Type 1 diabetes mellitus

Type 1 DM is also named as insulin-dependent diabetes mellitus, Juvenile-onset diabetes mellitus and ketosis-prone diabetes mellitus because people with type 1 diabetes don't have insulin, which are gradually flushed through urine in people without a disease. For people with type 1 diabetes, ketosis can result in an accumulation of ketone acids in their blood stream known as DKA [1]. Ketosis-prone diabetes mellitus is defined as a hybrid form of diabetes mellitus, which is predominantly seen in overweight to obese men [2]. Type 1 diabetes involves autoimmune destruction of pancreatic beta cells which create insulin [3]. The American Diabetes Association (ADA) defines type 1 diabetes mellitus (T1DM) as autoimmune β-cell destruction, usually leading to absolute insulin deficiency [4]. Type 1 DM can develop at any age, but often happened in childhood or adolescent age of onset and occurred abruptly [5]. In type 1 diabetes mellitus the family history often negative [6]. Type 1 DM is prevalent from 5% to 10% [7]. Type 1 DM caused by

autoimmune process [8]. Type 1 diabetes is caused by an autoimmune process in the body that mistakenly destroys the insulin-producing cells, or beta cells and occurs in genetically predisposed individuals [9].Type 1 diabetes is caused by an autoimmune induced inflammatory destruction of the pancreatic tissue and clusters with several other autoimmune disease [10]. Type 1 diabetes is associated with the autoimmune process of pancreatic beta cell destruction, which leads to absolute insulin deficiency and organ damage [11]. T1DM is caused by autoimmune-mediated β-cell dysfunction and apoptosis [12]. Type 1 diabetes results from immune-mediated beta cell destruction and is accompanied by islet-directed antibodies, while T cell-mediated and cytokine-mediated cytotoxicity is thought to lead to beta cell destruction [13]. In type 1 DM the pancreatic beta cells primarily lost [14]. Type 1 diabetes is characterized by a progressive loss of insulin producing beta cells in pancreatic islets [15]. The immune destruction of beta cells is partly mediated by high levels of pro-inflammatory cytokines [16]. In type 1 DM the insulin levels lowered early in the disease and completely absent later. Childhood infections may be playing a role [17]. The immune system destroys these cells, which means that the body can no longer make enough insulin to regulate blood glucose levels [18]. The treatment of type 1 DM comprises insulin replacement along with strict dietary control. Insulin is the essential treatment to manage blood sugar in people with type 1 diabetes [19]. In type 1 diabetes the blood glucose levels fluctuate highly in response to infection, exercise and changes in caloric intake and insulin dose [20]. The most commonly occurred symptoms of type 1 DM comprise polydipsia, polyuria, weight loss and polyphagia [21]. The body compositions of patients with type 1 often thin and undernourished [22]. People with type 1 diabetes may lose weight unintentionally since they can't use the sugar they eat for energy [23]. In type 1 DM ketosis is common, particularly if insulin dosage is insufficient [24].

**Type 2 diabetes mellitus**

Type 2 diabetes mellitus also named as non-insulin dependent diabetes mellitus and adult onset diabetes mellitus [25]. Type 2 diabetes mellitus occurred in adult 40 and above age of onset [26]. The speed of type 2 DM onset is gradual and family history is commonly positive [27]. Family medical history represents valuable genomic information because it characterizes the combined interactions between environmental, behavioral and genetic factors [28]. The risk of developing type 2 diabetes increases with the number of affected family members [29]. If you have a mother, father, sister, or brother with diabetes, you are more likely to get diabetes yourself [30].

The American Diabetes Association (ADA) defines type 2 diabetes mellitus (T2DM) as progressive loss of β-cell insulin secretion frequently occurring on the background of insulin resistance [31]. Type 2 diabetes is characterised by impaired beta cell function and insulin sensitivity and is often accompanied by other metabolic abnormalities [32]. The prevalence of type 2 DM is from 90% to 95% [33]. The etiology of type 2 DM is unknown, but there is strong familial association [34]. In type 2 DM insulin resistance and inappropriate insulin secretion is the primary defect [35]. Type 2 diabetes happens when your pancreas doesn't make enough insulin or your body doesn't use insulin well (insulin resistance), resulting in high blood glucose levels. Insulin resistance syndrome includes a group of problems like obesity, high blood pressure, and high cholesterol ant type 2 diabetes mellitus [37]. In type 2 DM insulin levels may low if there is indicating deficiency, normal or high if there is indicating resistance [38]. The two main factors that seem to contribute to insulin resistance are excess body fat, especially around the belly, and lack of physical activity [39]. The primary treatment of type 2 DM is exercise and a lowered calorie diet, if not managed by this add oral anti-hypoglycemic medication and insulin [40]. In type 2 DM the blood glucose levels are more stable more than type 1 DM [41]. Type 2 DM may be asymptomatic [42]. The majority of patients with newly diagnosed type 2 diabetes are asymptomatic, without symptoms of catabolism (eg, without polyuria, polydipsia, or unintentional weight loss) [43]. Hyperglycemia may be noted on routine laboratory examination or detected by screening [44]. The body composition of type 2 DM commonly obese [45].Being overweight (BMI of 25-29.9), or affected by obesity (BMI of 30-39.9) or morbid obesity (BMI of greater than

40), greatly increases the risk of developing type 2 diabetes [46]. There is no ketosis in type 2 DM [47]. The residual beta cell function in the pancreas of these individuals could produce insulin in sufficient amounts so as to prevent ketogenesis but inadequate for the body's glucose requirements, thereby preventing buildup of ketones in the blood stream [48].

## Conclusion

Type 1 diabetes mellitus is also named as insulin-dependent diabetes mellitus, Juvenile-onset diabetes mellitus and ketosis-prone diabetes mellitus because people with type 1 diabetes don't have insulin, which are gradually flushed through urine in people without a disease. Type 2 diabetes mellitus also named as non-insulin dependent diabetes mellitus and adult onset diabetes mellitus. The body composition of type 2 diabetes is commonly obese. Being overweight (body mass index of 25-29.9), or affected by obesity (body mass index of 30-39.9) or morbid obesity (body mass index of greater than 40), greatly increases the risk of developing type 2 diabetes.

## Competing interests

The author has no financial or proprietary interest in any of material discussed in this article.

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