

# Type II Diabetes



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Type II Diabetes (T2DM): a progressive disorder defined by deficits in insulin secretion and action that lead to abnormal glucose metabolism and related metabolic derangements. Most common type of diabetes in adults (90-95%). T2DM is differentiated from type I diabetes by the absence of autoantibodies and normal/elevated C-peptide.

## Causes:

- Insulin resistance (inherited or acquired)
- Genetic mutations associated with T2DM

## Risk factors:

- Obesity
- >45 years old
- History of gestational diabetes in women
- Pre-diabetes
- Glucocorticoid medication (increases blood glucose levels)

## General Signs & symptoms:

- Polyuria (excessive urine production), polydipsia (excessive thirst), polyphagia (excessive hunger), glycosuria (presence of glucose in urine), weight loss, hyperpigmented cutaneous patches, genital & skin thrush, urinary tract infections

## Musculoskeletal manifestations:

- Global limited joint mobility (cheiroarthropathy)
- Greater predisposition to conditions such as trigger finger, Dupuytren's contracture, carpal tunnel syndrome, frozen shoulder
- Charcot joint - progressive degeneration of a weight-bearing joint - 'rocker-bottom' appearance of foot
- Stiff hand syndrome
- Osteoporosis
- Osteoarthritis

## Neurological manifestations:

- Peripheral paraesthesia - may occur in the extremities - caused by neuropathy - common in patients with prolonged undiagnosed diabetes
- Diabetic peripheral neuropathy - most common complication of T2DM - leads to pain and sensory disturbance in hands, legs and feet
- Blurred vision - due to retinopathy

## Cardio-respiratory manifestations:

- Greater predisposition to cardiovascular conditions such as coronary heart disease, stroke, peripheral artery disease, kidney failure
- Global atherosclerosis
- Greater predisposition to respiratory conditions such as pneumonia (due to immunosuppression), asthma, COPD & pulmonary fibrosis



## Diagnosis:

- Random/non-fasting glucose test
- Fasting glucose test
- Oral glucose tolerance test
- HbA1c (glycated haemoglobin) - >6.5% is diagnostic of T2DM
- Monofilament testing - to detect reduced tactile sensation
- Examination of lower extremities - reduced pedal pulses & presence of pressure ulcers
- Ankle-brachial index (ABI) - to detect peripheral arterial disease (PAD)
- Urine ketones - to detect ketoacidosis

## Treatment:

- Metformin, sulfonylureas
- Long/short-acting insulin
- Dietary change
- Exercise
- Weight loss

## Want to learn more?

With AcePhysio the learning journey doesn't stop here! Take a look at our further reading recommendations below to gain a deeper understanding on how type II diabetes influences clinical Physiotherapy:

1. Leon, Benjamin M, and Thomas M Maddox. "Diabetes and cardiovascular disease: Epidemiology, biological mechanisms, treatment recommendations and future research." World journal of diabetes vol. 6,13 (2015): 1246-58.
2. Sözen, Tümay et al. "Musculoskeletal problems in diabetes mellitus." European journal of rheumatology vol. 5,4 (2018): 258-265.
3. Balk EM, Earley A, Raman G, et al. Combined diet and physical activity promotion programs to prevent type 2 diabetes among persons at increased risk: a systematic review for the Community Preventive Services Task Force. Ann Intern Med. 2015 Sep 15;163(6):437-51.