

# **Insulin resistance: Reading**

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- [Nephrology \(Carlton\)](#). 2017 Dec;22 Suppl 4:31-34. doi: 10.1111/nep.13147.
  - **Insulin resistance in chronic kidney disease.**
- [Xu H, Carrero JJ](#).
- **Abstract**
- This review provides an overview of insulin resistance (IR) in patients with chronic kidney disease (CKD). IR is a pathological state in which target tissues fail to respond normally to insulin. IR is understood as a consequence of CKD and its prevalence rises particularly in advanced CKD stages. Mechanisms leading to IR are complex and multifactorial, involving post-receptor signaling defects, unhealthy lifestyles, metabolic acidosis, inflammation, oxidative stress, vitamin D deficiency, anemia, and uremic toxicity, as shown by human and experimental studies over the last 30 years. Whereas hyperinsulinemic euglycemic clamp is the gold standard, it is unpractical at the bedside, and either estimated IR indices by fasting glucose or insulin and oral glucose tolerance tests (OGTT) provide satisfactory estimates of IR also in patients with CKD. IR is likely to play a key role in the development of cardiometabolic complications, but not all studies associate IR with the risk of cardiovascular events and death. Various interventions at the level of lifestyle modifications, adaptations in dialysis therapy (such as use of icodextrin based solutions) and pharmacological strategies such as thiazolidinediones or vitamin D therapy may improve IR in patient with CKD.