

# Type 2 Diabetes & Chronic Kidney Disease

## What is Chronic Kidney Disease (CKD)?

CKD refers to kidney dysfunction or damage for over 3 months. It can lead to many complications, such as high blood pressure, anemia, and hyperlipidemia. Patients with diabetes have a high risk of developing CKD, which physicians classify as diabetic kidney disease (DKD), aka diabetic nephropathy.

## Who is Affected by CKD?

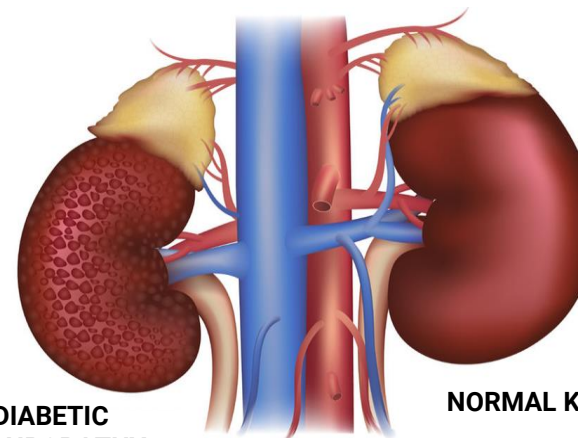
- 45% of dialysis patients suffer from CKD due to diabetes
- 23% of people with diabetes have kidney disease

## Goals for Managing CKD

- For patients under 65 years old with CKD and on dialysis, a hemoglobin A1c of <7.0% is recommended. If over 65 years old, aim for <8.0%
- To reduce the condition of anemia, the target hemoglobin value is 11-12 g/dL
- For patients with stage 5 CKD, the target serum phosphorus value is <5.5 mg/dL, and for those with stage 3-4 CKD, the target value is <4.6 mg/dL

## Prevention and Treatment

- Limit foods high in potassium e.g. fruits, potatoes and tomatoes
- Limit foods high in sodium and phosphorus, e.g. nuts, beans, dairy, cola, processed foods
- Reduce protein intake. Avoid red meats, replace with chicken or fish
- Take blood tests and discuss results with your physician for early detection and treatment



DIABETIC NEPHROPATHY

NORMAL KIDNEY

## Glomerular Filtration Rate (GFR) and Albuminuria

The GFR test and albuminuria test both measure your level of kidney function and determines your stage of CKD. The albuminuria test checks for albumin level in the urine.

		Albuminuria categories		
		A1 <30 mg/g <3 mg/mmol	A2 30-299 mg/g 3-29 mg/mmol	A3 ≥300 mg/g ≥30 mg/mmol
GFR stages (range in mL/min per 1.73 <sup>2</sup> )	Stage 1 (≥90)	Low risk	Moderate risk	High risk
	Stage 2 (60-89)	Low risk	Moderate risk	High risk
	Stage 3a (45-59)	Moderate risk	High risk	Very high risk
	Stage 3b (30-44)	High risk	Very high risk	Highest risk
	Stage 4 (15-29)	Very high risk	Highest risk	Highest risk
	Stage 5 (<15)	Highest risk	Highest risk	Highest risk



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# 二型糖尿病和慢性腎病

## 什麼是慢性腎病 (CKD)?

慢性腎病 (CKD) 是指多過3個月以上的腎功能不全或損害。它可導致多種併發症，包括高血壓，貧血，及高血脂。糖尿病患者患上慢性腎病的風險很高，醫生將其歸類為糖尿性腎病 (DKD)。

## 誰受CKD影響?

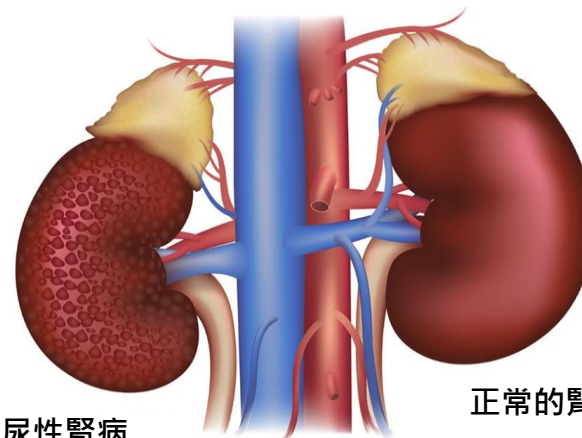
- 45% 的透析病人因糖尿病而患有CKD
- 23% 的糖尿病患者患有腎病

## 管理CKD的目標

- 對於65歲以下有CKD及透析的患者，目標糖化血紅蛋白 (HbA1c)是少於7.0%；對於65歲以上，目標是少於8.0%
- 為改善貧血症狀，目標血紅蛋白值為11-12 g/dL
- 對於第五期慢性腎病患者，目標血清磷值是少於5.5 mg/dL，對於三至四期慢性腎病患者，目標值是少於4.6 mg/dL

## 預防和治療

- 限制高鉀的食物，例如水果、土豆及西紅柿
- 限制高鈉和磷的食物，例如堅果、豆類、乳製品、可樂及加工食品
- 減低蛋白質攝取量，限制紅肉，並以雞肉和魚肉取代
- 定期抽血並與醫生討論血液報告，及早進行治療或獲得預防的資訊



糖尿性腎病

正常的腎臟

## 腎小球濾過率 (GFR) 及白蛋白尿

GFR測試和白蛋白尿測試均測量您的腎功能水平並確定您的CKD階段。白蛋白尿檢查是檢查尿液中的白蛋白水平。

		白蛋白尿類別		
		A1 <30 毫克/克 <3 毫克/毫摩爾	A2 30-299 毫克/克 3-29 毫克/毫摩爾	A3 ≥300 毫克/克 ≥30 毫克/毫摩爾
GFR階段 (範圍以毫升 / 分鐘 / 1.73 <sup>2</sup> 為單位)	第一期 (≥90)	低風險	中度風險	高風險
	第二期 (60-89)	低風險	中度風險	高風險
	第三期A (45-59)	中度風險	高風險	很高風險
	第三期B (30-44)	高風險	很高風險	最高風險
	第四期 (15-29)	很高風險	最高風險	最高風險
	第五期 (<15)	最高風險	最高風險	最高風險



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