

TIME IN RANGE

Developed with support from



Time in range (TIR) refers to the amount of time someone's blood glucose (BG) is within a designated target range.

These BG readings may be collected continuously by wearing a continuous glucose monitor (CGM), a device that can collect nearly 300 blood sugar measurements each day if worn all day. Readings may also be collected multiple times a day manually using finger pokes, a BG meter, and downloading the data into an online or mobile app.

TIR is a different way to assess and describe how well blood glucose management plans and treatments are meeting their goals.

TIR may be expressed as a percentage of total readings (x%, or # of in-range readings / # of total readings) or an amount of time (hours or minutes) spent in range per day.

Recommended target ranges

- For people with type 1 diabetes and type 2 diabetes: 70 to 180 mg/dL [3.9-10.0 mmol/L]
- During pregnancy: 63 to 140 mg/dL [3.5-7.8 mmol/L], along with a set of targets for the time per day [% of CGM readings or minutes/hrs].
- For people with diabetes who are older and/or considered at higher risk of harm from using narrower target ranges: Ranges need to be individualized and more conservative, focused on reducing the time spent below 70 mg/dL (3.9 mmol/L) and preventing excessive high BG levels. (Higher risk includes age, diabetes duration, duration of insulin use, low BG unawareness, cognitive and/or physical impairments, and other diabetes complications or comorbidities such as kidney, cardiovascular, or joint disease, osteoporosis, or fracture, as well as people with diabetes requiring assisted care).

A blood test called the HbA1c (A1C) estimates someone's average blood glucose over the past 3 months, but it is a single number. The A1C does not give people with diabetes any indication of frequency or severity of severe low BG levels, and it does not show the frequency and amount of time experiencing BG levels that are lower or higher than safe or comfortable.

Spending more time in range (TIR) means more stable blood glucose levels, which should mean fewer complications associated with diabetes such as vision problems, kidney damage and chronic kidney disease, cardiovascular problems, nerve damage, or severe low BG.

Increasing TIR can also mean more and better quality of life, since the physical, mental, and emotional effects from out-of-range BGs will decrease as well.

