News and Views

Achieving Type 2 Diabetes Remission Through Weight Loss: How Much is Enough?

A study published in *The Lancet Diabetes & Endocrinology* has shown that for every 1 percentage point reduction in body weight, the probability of reaching complete remission of type 2 diabetes increased by 2.17 percentage points. Similarly, for every 1 percentage point reduction in body weight, the likelihood of achieving partial diabetes remission increased by almost 3 percentage points[1].

This systematic review and meta-regression analysis was conducted to systematically review, synthesize, and report global evidence from randomized controlled trials involving individuals with type 2 diabetes and overweight or obesity. The primary outcome was the proportion of participants achieving either:

- Complete diabetes remission (glycated hemoglobin [HbA1c] <6.0% or fasting plasma glucose [FPG] <100 mg/dL, or both, without the use of glucose-lowering medications).
- Partial diabetes remission (HbA1c <6.5% or FPG <126 mg/dL, or both, without the use of anti-hyperglycemic agents).

Remission status was assessed at least 1 year following a weight loss intervention.

The objective of the study was to ascertain the association between the amount of weight loss and diabetes remission after adjusting for potential confounding factors. The study also sought to estimate the effect sizes of these factors on diabetes remission outcomes. Twenty-two relevant publications, which included 29 outcome measures of complete diabetes remission and 33 outcome measures of partial remission were identified.

The pooled mean proportion of participants achieving complete remission 1 year after the intervention varied by the degree of weight loss. It was 0.7% in individuals with <10% weight loss and 49.6% in those with 20%-29% weight loss. What was noteworthy was the observation that 79.1% of those who achieved ≥30% weight loss experienced diabetes remission. No studies reported complete remission for individuals with 10%-19% weight loss.

The pooled mean proportion of participants achieving partial diabetes remission 1 year after the intervention was 5.4% in individuals with <10% weight loss, 48.4% in those with 10%-19% weight loss, and 69.3% in those with 20%-29% weight loss. Nearly 90% of those with ≥30% weight loss could achieve partial remission of diabetes.

The study observed a strong positive association between loss of body weight and diabetes remission. For each 1% decrease in body weight, the probability of achieving complete remission increased by 2.17 percentage points. The probability of achieving partial remission increased by 2.74 percentage points.

No significant or appreciable associations were found between age, sex, race, diabetes duration, baseline body mass index (BMI), HbA1c, insulin use, or type of weight loss intervention and diabetes remission.

By demonstrating a strong dose-response relationship between weight loss and diabetes remission, this study reiterates the vital role of weight management in diabetes care. The effects were seen regardless of the type of weight loss intervention. Weight loss, therefore, is a fundamental strategy for diabetes management, independent of individual characteristics. Weight loss significantly reduces the risk of complications by improving glycemic control.

Reference

1. Kanbour S, et al. Impact of bodyweight loss on type 2 diabetes remission: a systematic review and meta-regression analysis of randomised controlled trials. Lancet Diabetes Endocrinol. 2025;13(4):294-306.

Nuchal Translucency Measurements in Prenatal Screening: Revisiting NT Cut-Offs

Fetuses with nuchal translucency measurements as low as 2.0 mm have a higher probability of chromosomal abnormalities, suggests a recent study published in *JAMA Network Open*[1]. Fetuses with nuchal translucency measurements of 3.0 to <3.5 mm were 20 times more at risk of having abnormalities versus those with measurements <2.0 mm. The risk was sixfold higher in fetuses with measurements of 2.5-3 mm and more than doubled when the nuchal transparency measurement ranged between 2 and 2.5 mm.

Kara Bellai-Dussault from the School of Epidemiology and Public Health, University of Ottawa, Canada and

co-authors conducted this retrospective cohort study to explore how different nuchal translucency measurements correlate with the likelihood of specific cytogenetic outcomes in singleton pregnancies. For this, they used data of all singleton pregnancies with an estimated delivery dates between September 2016 and March 2021 from the Better Outcomes Registry & Network, which serves as the perinatal registry for Ontario, Canada. The reference group for comparison consisted of pregnancies with a nuchal translucency measurement <2.0 mm. Chromosomal anomalies such as Down syndrome, Edwards syndrome, and Patau syndrome were identified through prenatal and postnatal cytogenetic tests conducted in Ontario laboratories. The results of cell-free DNA (cfDNA) screening and clinical assessment at birth were added to the data from cytogenetic testing to identify pregnancies free of chromosomal abnormalities.

Analysis of data revealed that a nuchal translucency of <2.0 mm was present in the majority of the study group (86.9%; n = 3,59,807) out of the 4,14,268 pregnancies that were included in the study. The mean maternal age at the predicted delivery date was 31.5 years. Chromosomal abnormalities were present in 0.5% of this group.

As the nuchal translucency measurement increased, the risk of chromosomal abnormalities increased. For pregnancies with nuchal translucency measurements of 3.0 to <3.5 mm, the adjusted risk ratio (aRR) was 20.33 and the adjusted risk difference (aRD) was 9.94%. When limited to chromosomal abnormalities outside the widely screened aneuploidies (excluding trisomies 21, 18, and 13 and sex chromosome aneuploidies), the aRR was 4.97 and the aRD was 1.40%.

The findings from this cohort study suggest a clear association between higher nuchal translucency measurements and the elevated risk of chromosomal anomalies. Those with nuchal translucency measurements <2.0 mm were at the least risk. The study further indicates that even after excluding the commonly screened chromosomal anomalies, there remains a significantly increased risk of anomalies not frequently checked for by many prenatal genetic screening programs associated with higher nuchal translucency measurements. Overall, this study underscores the importance of nuchal translucency measurements as a valuable screening tool in prenatal care. Even slight increases in nuchal translucency can potentially signal an elevated risk of chromosomal abnormalities.

A cut-off of 3.0 mm or greater or above the 99th percentile for the crown-rump length in the first trimester has been proposed by the American College of Obstetricians and Gynecologists (ACOG) for further diagnostic testing such as prenatal cfDNA screening or cytogenetic testing[2]. This study, by suggesting that pregnancies with nuchal translucency measurements <3.0 mm threshold were associated with risk of chromosomal anomalies, may have practice changing implications for prenatal genetic screening.

References

1. Bellai-Dussault K, et al. Ultrasonographic fetal nuchal translucency measurements and cytogenetic outcomes. JAMA Netw Open. 2024;7(3):e243689.
2. American College of Obstetricians and Gynecologists' Committee on Practice Bulletins—Obstetrics; Committee on Genetics; Society for Maternal-Fetal Medicine. Screening for Fetal Chromosomal Abnormalities: ACOG Practice Bulletin, Number 226. Obstet Gynecol. 2020;136(4):e48-e69.

Immunodeficiency in COPD: The Hidden Trigger for Recurrent Exacerbations?

Nearly 45% of patients with severe chronic obstructive pulmonary disease (COPD) who continue to have frequent exacerbations requiring steroids, despite triple therapy, have hypogammaglobulinemia, according to findings of a study presented at the 2025 American Academy of Allergy, Asthma and Immunology/World Allergy Organization Joint Congress and simultaneously published in the *Journal of Allergy and Clinical Immunology*[1].

The single-center study enrolled 38 patients, average age 65 years, with COPD receiving triple therapy (Inhaled corticosteroid [ICS] + Long-acting β2-agonist [LABA] + Long-acting muscarinic antagonist [LAMA]) and who had experienced at least two exacerbations necessitating steroids or one hospitalization within the preceding year. Exclusion criteria were pre-existing humoral dysfunction, ongoing immunoglobulin replacement therapy, or chronic use of prednisone (≥20 mg/day). Serum levels of immunoglobulin G (IgG), immunoglobulin M (IgM), and immunoglobulin A (IgA), lymphocyte subsets, and IgG responses to tetanus/diphtheria (Td) and pneumococcal polyvalent vaccine-23 (PPV23) before and after vaccination were measured to assess immune function.

IgG hypogammaglobulinemia was found in 44.7% participants. The median concentration of IgG was 730.5 mg/dL, IgM 80.0 mg/dL and IgA 203.5 mg/dL. While 95% responded adequately to Td, only 31.6% responded to PPV23. Around 23.7% had low CD19 (B-cell marker), and 21% had low CD4 (T-cell marker).

And, 34.2% study participants met the criteria for specific antibody deficiency.

Secondary immune deficiency is a well-known adverse effect of oral steroids. This study demonstrates a high prevalence of specific antibody deficiency in patients with acute exacerbations of COPD, which could possibly be due to the frequent use of systemic corticosteroids. This suggests that patients with severe COPD may have underlying humoral immunodeficiency, which may increase susceptibility to recurrent infectious exacerbations establishing a vicious cycle of corticosteroid dependence. Hence, such COPD patients should be screened for humoral immunodeficiency to ensure a more comprehensive approach to patient care rather than just treating the respiratory symptoms. However, the authors call for larger, multicenter studies to further substantiate these findings.

Reference

1. Agwaze R, et al. Higher prevalence of humoral immunodeficiency in patients with severe COPD. J Allergy Clin Immunol. 2025;155(2 Suppl):AB18.

Sleep Debt and Risk of Infections

Shift work, night shifts in particular, increase the risk of several common infections such as common cold in nurses, suggests a study, which analyzed self-reported data from Norwegian nurses published early this week in in the journal *Chronobiology International*[1].

This study examined the correlation of sleep duration, sleep debt, and shift work characteristics with self-reported infections among 1,335 Norwegian nurses from the SUrvey of Shift work, Sleep and Health (SUSSH) study. Their mean age was 41.9 years and the majority (90.4%) of them were female. Data was obtained from the SUSSH study. They self-reported sleep patterns, shift work schedules, and frequency of infections (such as common cold, pneumonia/bronchitis, sinusitis, gastrointestinal infection, and urinary tract infection) over the past 3 months.

Analysis showed that sleep debt, the gap between sleep need and actual sleep duration, was associated with at least a threefold increase in the risk of several infections in a dose-dependent manner after adjusting for demographic factors. Specifically, sleep debt ranging from 1 to 120 minutes increased the risk of common cold (adjusted odds ratio [aOR] 1.33), pneumonia/bronchitis (aOR 2.29), sinusitis (aOR 2.08), and gastrointestinal infection (aOR 1.45), compared to no sleep debt. Sleep debt exceeding 2 hours nearly doubled the odds of common cold (aOR 2.32), pneumonia/bronchitis (aOR 3.88), sinusitis (aOR 2.58), and gastrointestinal infections (aOR 2.45).

Those who worked the night shift were also at an increased risk of common cold (aOR 1.28), particularly with 1-20 night shifts (aOR 1.49). However, sleep duration and quick returns (short intervals between consecutive shifts) were not linked to any infection risk.

These findings highlight the role of sleep in shift workers, particularly in health care settings. The authors propose several strategies to reduce sleep debt such as maintaining consistent sleep schedules, limiting consecutive night shifts, taking days off after last night shift, and enhancing awareness about sleep hygiene. Sleep is crucial for a healthy immune system. Maintaining adequate sleep may help reduce infection risk; however, further research is needed to establish a definitive cause-and-effect relationship.

Reference

1. Hartveit Hosøy D, et al. Night work and sleep debt are associated with infections among Norwegian nurses. Chronobiol Int. 2025;42(3):309-18.

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