Interpretation of the *ACLM Clinical Practice Guideline: Lifestyle Interventions for the Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults*

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Abstract

Lifestyle interventions can effectively lower blood glucose levels, control body weight, improve quality of life, and reduce the risk of cardiovascular disease, making them an important foundation for the prevention and control of chronic noncommunicable diseases such as diabetes. Against this background, the American College of Lifestyle Medicine (ACLM) released the Clinical Practice Guideline for Lifestyle Interventions for Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults, the first multidisciplinary clinical practice guideline to position lifestyle intervention as the core therapeutic strategy. Based on existing evidence-based medical evidence, the guideline systematically integrates six key lifestyle elements—optimization of dietary patterns, promotion of physical activity, sleep management, stress intervention, avoidance of harmful substance use, and social support—and establishes a comprehensive management framework covering assessment, intervention, follow-up, and dynamic adjustment. The guideline emphasizes patient-centered care and multidisciplinary collaboration, proposes the possibility of achieving diabetes remission through intensive lifestyle intervention in some patients, and provides principled recommendations on medication adjustment and long-term medication safety monitoring. In addition, the guideline provides assessment tools, intervention prescription templates, and follow-up strategies, thereby enhancing its operability in clinical practice. This article interprets the core recommendations of the guideline, including its evidence base, clinical significance, and key points for implementation, and proposes localized recommendations based on the characteristics of the Chinese population and the current status of diabetes management in China, with the aim of providing a reference for the standardized application of lifestyle interventions in the management of dysglycemia and type 2 diabetes.

Full Text

Guideline Interpretation

Interpretation of the *ACLM Clinical Practice Guideline: Lifestyle Interventions for the Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults*

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Abstract Lifestyle interventions can effectively lower blood glucose levels, control body weight, improve quality of life, and reduce the risk of cardiovascular disease; they are an important foundation for the prevention and control of chronic non-communicable diseases such as diabetes. Against this background, the American College of Lifestyle Medicine (ACLM) released the *Clinical Practice Guideline on Lifestyle Interventions for the Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults*. This is the first multidisciplinary clinical practice guideline to take lifestyle intervention as the core therapeutic strategy. Based on existing evidence-based medical evidence, the guideline systematically integrates six key lifestyle domains—optimization of dietary patterns, promotion of physical activity, sleep management, stress intervention, avoidance of harmful substance use, and social support—and establishes an integrated management framework covering assessment, intervention, follow-up, and dynamic adjustment. The guideline emphasizes "patient-centered" care and multidisciplinary collaboration, proposes the possibility of achieving diabetes remission in some patients through intensive lifestyle intervention, and offers principled recommendations regarding medication adjustment and long-term medication safety monitoring. At the same time, the guideline provides supporting assessment tools, intervention prescription templates, and follow-up strategies, thereby enhancing the operability of clinical practice. This article interprets the guideline' s core recommendations, its evidence base, clinical significance, and key points for implementation, and, based on the characteristics of the Chinese population and the current status of diabetes management in China, proposes localized recommendations, with the aim of providing a reference for the standardized application of lifestyle intervention in the management of dysglycemia and type 2 diabetes.

[**Keywords**] lifestyle intervention; diabetes mellitus, type 2; diabetes remission; clinical practice guideline

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Abstract Lifestyle interventions can effectively lower blood glucose levels, promote weight control, improve quality of life, and reduce cardiovascular risk, and constitute a fundamental strategy for the prevention and management of diabetes and other chronic non-communicable diseases. In this context, the American College of Lifestyle Medicine released the *Clinical Practice Guideline on Lifestyle Interventions for the Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults*, representing the first multidisciplinary clinical practice guideline to position lifestyle intervention as the core therapeutic strategy. Based on available evidence from randomized controlled trials, systematic reviews, and observational studies, the guideline systematically integrates key lifestyle domains, including dietary optimization, promotion of physical activity, sleep management, stress

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reduction, avoidance of unhealthy substance use, and social support, and establishes a comprehensive management framework encompassing assessment, intervention, follow-up, and dynamic adjustment. The guideline emphasizes patient-centered care and multidisciplinary collaboration, highlights the potential for achieving diabetes remission in selected individuals through intensive lifestyle intervention, and provides principle-based recommendations on medication adjustment and long-term safety monitoring. In addition, practical assessment tools, intervention prescription templates, and follow-up strategies are provided to enhance clinical feasibility. This article interprets the core recommendations of the guideline, focusing on its evidence base, clinical implications, and implementation considerations, with the aim of informing the standardized

application of lifestyle interventions in the management of prediabetes and type 2 diabetes in adults.

[Key words] Lifestyle intervention; Diabetes mellitus, type 2; Diabetes remission; Clinical practice guideline

Diabetes has become a major global public health challenge. As of 2021, there were approximately 530 million people with diabetes worldwide, and this number is projected to surge to 1.31 billion by 2050[^1]. Data from the Chinese Center for Disease Control and Prevention show that the prevalence of diabetes in China has reached 11.9%[^2]. Although lifestyle intervention can lower blood glucose, control obesity, improve quality of life, and reduce cardiovascular disease risk—and is a cornerstone for the prevention and control of chronic noncommunicable diseases such as diabetes—most people with prediabetes and diabetes have not effectively implemented lifestyle interventions. In view of this, the American College of Lifestyle Medicine (ACLM), by integrating a large body of previous clinical research reports and systematic review findings and using evidence-based medical methods for evaluation, issued for the first time in June 2025 a guideline on lifestyle intervention for diabetes and prediabetes (hereinafter referred to as "the guideline")[^3]. The guideline puts forward 14 key action statements (KAS). Among them, strong recommendations are all based on evidence from randomized controlled trials, systematic reviews, and observational studies, with benefits clearly outweighing risks. China likewise faces insufficient implementation of lifestyle interventions among populations with diabetes and prediabetes[^4]. Therefore, a systematic interpretation of this guideline is of great significance for promoting the application of lifestyle medicine in diabetes management in China. This article aims to introduce the core content of the 14 KAS proposed in the ACLM guideline and, in light of the characteristics of the Chinese population and clinical practice scenarios, put forward adaptive recommendations, thereby providing a reference for the standardized implementation of lifestyle interventions for dysglycemia and type 2 diabetes in China.

1 Advocating Lifestyle Intervention

The guideline recommends that healthcare professionals advocate lifestyle intervention as a first-line management strategy. For adult patients with prediabetes, type 2 diabetes mellitus, or a history of gestational diabetes mellitus (GDM), assessment should be conducted across six domains: restorative sleep, stress management, adequate physical activity, positive social engagement, a natural dietary pattern predominantly based on plant-based foods, and avoidance of exposure to harmful substances. Healthcare professionals should discuss with patients the role of SMART goals (Specific, Measurable, Achievable, Relevant, and Time-bound) in supporting positive lifestyle changes, introduce feasible pathways to patients, and assess their readiness for behavior change (strong recommendation evidence). In China, lifestyle intervention has also been listed as the foundation of diabetes management in the *Guideline for the Prevention*

and Treatment of Type 2 Diabetes in China[^5], and the *Chinese Guideline for Behavioral and Lifestyle Intervention in Diabetes (2024 Edition)* has also been officially released[^6]. However, inadequate implementation remains a problem in clinical practice. In the future, various models within the primary-level chronic disease management system can be leveraged to strengthen lifestyle assessment and health education, thereby improving the accessibility and sustainability of lifestyle interventions.

2 Conducting Lifestyle Assessment

The ACLM guideline provides lifestyle intervention assessment tools in tabular form; see Table 1. During assessment, healthcare professionals not only need to convey health information clearly and accurately, but also need to engage in equal dialogue and discussion with patients through multiple approaches such as motivational interviewing (MI), so as to enhance patients' awareness, confidence, and determination regarding behavior change. The assessment results should be recorded in the medical record by means such as infographics [e.g., MI/open-ended questions-affirmation-reflection-summary (Open-ended—open-ended questioning, Affirm—affirmation, Reflection—reflection, Summary—summary) / the ruler-change ruler (Rating—scoring, Understanding—understanding, Listen—listening, Explore—exploration, Reflect—empathic reflection, Summarize—summarizing)]. China has a large population base and relatively limited medical resources; primary healthcare institutions have relatively insufficient application of lifestyle assessment tools in routine diagnosis and treatment[^4]. In the future, by relying on China' s chronic disease management information systems and incorporating information technologies, simple and standardized lifestyle assessment tools and methods of use that fit the characteristics of the Chinese population can be gradually introduced, thereby helping to promote the standardization of related management.

3 Establishing Priorities for Lifestyle Intervention

For patients with prediabetes, type 2 diabetes, or a history of GDM, the guideline proposes that healthcare professionals should, through shared decision making (SDM), set priorities for lifestyle change around the six pillars of lifestyle intervention (strong recommendation evidence). Systematic reviews indicate that goal setting and SDM are effective strategies for the management of prediabetes and diabetes, and can improve patients' health awareness and help hemoglobin A1c (HbA1c) and fasting blood glucose (FBG) reach target levels[^7-^8]. Wearable devices combined with goal setting can promote behavior change in patients and effectively improve glycemic management[^9-^10]. In clinical practice in China, the concept of SDM is still in the stage of promotion[^11]. The application of SDM in type 2 diabetes management remains insufficient and faces challenges including the need to improve primary-level healthcare professionals' awareness and practical skills, as well as decision-support [[unclear: text continues beyond the visible page]].

Table 1 Lifestyle intervention assessment tool

Lifestyle intervention dimension	Brief clinical assessment/screening tools	In-depth assessment tools for research or clinical practice
Comprehensive screening	Lifestyle Medicine Assessment; Loma Linda University Short Form, 20 items	Loma Linda University Long Form, 150 items
Avoidance of harmful substances	Alcohol Use Disorders Identification Test, AUDIT-C; NIDA Quick Screen	AUDIT (10 items); NIDA Modified Assist (8 items)
Nutrition	ACLM Diet Screener	Automated Self-administered 24-hour Recall; Food Diaries; Food Frequency Questionnaires
Physical activity	Exercise Vital Sign, EVS; Physical Activity Vital Sign, PAVS, 2–3 items	International Physical Activity Questionnaire, 7 items; Physical Activity Scale for the Elderly, more than 10 items
Social interaction	A Brief Measure of Social Support, 27 items	
Sleep	Single Sleep Quality Scale; Patient-Reported Outcomes Measurement Information System, PROMIS	Pittsburgh Sleep Quality Index, 10–24 items
Stress management	Perceived Stress Scale, PSS, 4 items; Patient Health Questionnaire, PHQ, 2 items, for depression assessment; Generalized Anxiety Disorder, GAD, 2 items	PSS (10 items); PHQ-9 (9 items, for depression assessment); GAD-7 (7 items)

insufficient localized adaptation of aid tools and other multiple real-world bottlenecks[12–13]. In the future, measures such as developing localized SDM decision aids and quantitative models, strengthening specialized training for medical personnel, and improving patients' health literacy may promote the translation of SDM from theory into clinical practice. Continued strengthening of physician–

patient communication and patient participation can further improve patients' awareness of and adherence to lifestyle interventions, thereby improving long-term glycemic management outcomes[14].

4 Aerobic exercise and muscle strength-training prescription

For patients with prediabetes, type 2 diabetes, or a history of GDM, medical personnel should prescribe exercise, with emphasis on aerobic exercise and muscle strength training. (Strong recommendation evidence)

The ACLM guideline recommends 150–300 min of moderate-intensity aerobic exercise per week and resistance training twice per week. Findings from the U.S. Diabetes Prevention Program (DPP) show that increasing the level of physical activity can reduce the incidence of diabetes by 44%, and that this benefit is independent of weight loss[14]; increasing physical activity to the recommended level can significantly reduce the risk of complications such as cardiovascular disease, chronic kidney disease, and amputation in patients with type 2 diabetes[15–16].

In the United States, before an exercise prescription is issued, a pre-exercise assessment must first be completed according to the recommendations of the American College of Sports Medicine (ACSM). That is, the guideline recommends that patients with type 2 diabetes who have already begun exercising may continue moderate-intensity exercise, but should undergo medical evaluation before starting high-intensity exercise. For patients who have not begun regular exercise, assessment is also recommended before starting moderate- or high-intensity exercise. Patients with cardiovascular disease, metabolic disease, or kidney disease must undergo medical evaluation before initiating an exercise program.

Exercise prescriptions are formulated according to the FITT principle and should be negotiated between medical personnel and patients so as to accommodate the patient' s abilities, needs, and preferences. Specifically, they include: (1) Frequency: the number of exercise days per week, increased gradually. (2) Intensity: classified as low, moderate, or high intensity according to heart rate and respiratory rate. (3) Time: the number of minutes of exercise. Although the guideline recommends 150–300 min of moderate-intensity exercise per week or 75 min of high-intensity exercise, there is no limit on the "duration of a single session" ; exercise may be divided into 5–60 min segments (such as walking, dancing, or gardening) and accumulated throughout the day. (4) Type: the mode of exercise (such as walking, jogging, swimming, etc.). The most common is walking. Brisk walking (which increases heart rate and breathing, allowing one to speak but not sing) is of moderate intensity. Low-intensity walking for more than 3 min after meals or throughout the day, or simple resistance activities (such as half-squats, heel raises, and knee lifts), can also improve glycemic management in patients with diabetes. In addition

to continuous moderate-intensity exercise, high-intensity interval training (HIIT) and vigorous intermittent lifestyle physical activity (VILPA) may also be selected. HIIT (such as jogging, hiking, and singles tennis) is associated with better physical fitness and glycemic management in patients with type 2 diabetes, but it increases the risk of musculoskeletal injury.

Muscle-strengthening training is an important aspect of the prescription. The ACLM guideline recommends twice weekly, with a focus on training large muscle groups (such as with elastic bands; body-weight training: push-ups/planks/squats; or machines/free weights). Resistance training can improve muscle strength and insulin sensitivity in patients with type 2 diabetes and reduce HbA_{1c}; the effect of combined aerobic and resistance training is superior to that of a single type of exercise[17].

In addition, exercise prescriptions also include flexibility and balance training. Activities such as yoga and tai chi can improve joint range of motion and balance ability, relieve symptoms of neuropathy, and also reduce BMI and improve FBG and HbA_{1c}[17]. Moreover, these exercises have low fitness requirements, require no equipment, and can be accessed online free of charge.

The exercise-dose recommendations in the *Chinese Guideline for Behavioral and Lifestyle Interventions for Diabetes (2024 Edition)* are similar to those in the ACLM guideline[6]. However, physical activity patterns among residents in China show marked regional differences. In clinical practice, it is recommended to incorporate culturally adapted forms of physical activity such as walking, tai chi, Baduanjin, and square dancing, so as to improve the acceptability and long-term adherence of exercise prescriptions.

5 Reducing sedentary time

Sedentary behavior refers to, while awake, energy expenditure lower than 1.5 times resting···

energy expenditure while seated, and any behavior performed in a sitting, reclining, or lying posture. Most desk-based office work, driving/riding in a vehicle, and watching television fall into this category. The ACLM guideline recommends that healthcare professionals provide individuals with SMART goals to minimize the negative health effects of prolonged sitting. In addition, the use of wearable activity trackers—such as pedometers, smart rings, and smartphones —is also an important tool for reducing sedentary time. With the acceleration of urbanization, sedentary behavior has become increasingly common among residents in China. Workplace health-promotion programs and monitoring with wearable devices can effectively promote changes in sedentary behavior.

6 Identify Sleep Disorders

Sleep disorders related to diabetes include, but are not limited to, obstructive sleep apnea (OSA), shift work, chronic insomnia, and sleep duration that is too

short or too long (strong recommendation evidence). Of note, the prevalence of sleep disorders in China has gradually increased in recent years, yet the application of relevant screening in diabetes management remains insufficient[^18]. Incorporating sleep assessment into chronic disease management processes can help further optimize glycometabolic management.

6.1 OSA

OSA is one of the most common sleep disorders. OSA can promote the occurrence of glycometabolic disorders through mechanisms such as systemic inflammation, dysfunction of the hypothalamic–pituitary–adrenal axis, oxidative stress, and excessive sympathetic activation. The STOP-Bang questionnaire is a simple OSA screening tool that has been widely validated internationally. Systematic reviews show that a STOP-Bang score of $ $3 has a sensitivity of >90% for detecting moderate-to-severe OSA, making it an effective means for early identification of individuals at high risk of OSA in primary care[^19].

6.2 Shift Work

Shift work is characterized by circadian rhythm disruption and chronic sleep insufficiency. In non-diabetic populations, it is associated with decreased insulin sensitivity and elevated postprandial blood glucose, thereby promoting the onset of diabetes. Measures such as sleep-hygiene education, adjustment of dietary composition during shift work, and restriction or modification of eating times during shifts have positive effects on controlling blood glucose or body weight[^20–^22]. Evidence supporting the effectiveness of melatonin or light therapy for shift work is limited, and these interventions have no clear beneficial effect on blood glucose[^23–^24].

6.3 Insomnia

The prevalence of insomnia symptoms among patients with type 2 diabetes is as high as 39%, and these symptoms are associated with poor glycemic management. Poor sleep quality, insomnia symptoms, and chronic insomnia disorder are associated with a 30%–40% increased risk of developing type 2 diabetes[^25–^26]. Studies show that sleep-hygiene education for patients with insomnia can significantly improve blood glucose levels[^27]. Current findings regarding the effects of pharmacological interventions for insomnia symptoms on blood glucose remain inconsistent[^28–^29].

6.4 Sleep Duration

There is a “U” -shaped relationship between sleep duration and blood glucose, but the underlying mechanisms have not yet been clarified. The U.S. Centers for Disease Control and Prevention recommends that adults sleep at least 7 h per night. Reduced sleep duration promotes insulin resistance and is associated with elevated HbA1c and FBG levels in patients with type 2 diabetes[^30–^31].

Excessively long sleep duration refers to a total sleep time exceeding 8.5 h. Excessively long sleep duration is associated with worsening glycemic indicators in patients with type 2 diabetes[^32].

7 Develop a Preventive Nutrition Plan

Healthcare professionals should formulate nutrition plans according to the SMART principle and align them with the individual' s cultural background. The core framework should consist of food-based recommendations, including caloric intake, nutritional needs, whole/natural foods, and dietary patterns centered on plant-based foods. (Strong recommendation evidence)

Early dietary intervention is beneficial and important. A 2019 consensus report issued by the American Diabetes Association (ADA) on nutrition therapy for adults with diabetes and/or prediabetes stated that eight dietary patterns—including the Mediterranean diet, vegetarian diet, low-fat diet, very-low-fat diet, low-carbohydrate diet, very-low-carbohydrate diet, DASH diet, and Paleolithic diet—can all reduce body weight[^33]. Four dietary patterns—the Mediterranean diet, vegetarian diet, DASH diet, and low-fat diet—are all associated with a reduced risk of developing type 2 diabetes. Although a very-low-carbohydrate dietary plan may help with short-term weight loss, it carries risks of inadequate nutrient intake and elevated low-density lipoprotein cholesterol. Therefore, the ACLM guideline does not encourage long-term maintenance of this dietary pattern. A plant-based, very-low-carbohydrate nutrition plan may be selected, and it may help improve cardiovascular risk factors; however, such patterns must be carefully designed to meet nutritional requirements.

The ACLM analyzed nutrition recommendations for the prevention and treatment of type 2 diabetes in 12 clinical practice guidelines and found that the recommendations across guidelines were highly similar: they emphasized intake of vegetables, legumes, whole grains, and fruits. Foods that should be eliminated or minimized to the greatest extent include processed meats, red meat and pork, refined grains, and high-fat meats. Whole/natural foods are rich in dietary fiber; increasing dietary fiber intake can reduce HbA1c and FBG levels in patients with type 2 diabetes, improve renal outcomes, and exert positive effects on the gut microbiota[^34-^35].

The dietary structure of Chinese residents is predominantly cereal-based, with marked regional differences. When promoting dietary interventions, the *Dietary Guidelines for Chinese Residents*[^36] should be incorporated, with emphasis on intake of whole grains, vegetables, and legumes, while reducing intake of refined carbohydrates and high-fat processed foods.

8 Develop a Therapeutic Nutrition Prescription

At present, many patients have achieved diabetes remission through energy-restricted diets, plant-based low-fat whole/natural food interventions, and

carbohydrate-restricted dietary patterns. Data from systematic reviews of overweight and obese patients show that a reduction in body weight of at least 10% should be set as the goal for remission of type 2 diabetes. Achieving diabetes remission requires dietary intervention of considerable intensity, involving substantial and comprehensive changes in eating patterns and food choices. The highest-intensity changes require replacing meat, refined foods, sweet and salty snacks, and sugar-added foods with vegetables, fruits, whole grains, and legumes. Lower-intensity dietary changes require reducing sugar-sweetened beverages, taking fiber supplements, or adding one salad per day, while still allowing continued consumption of a standard American diet centered on meat and processed foods. Compared with patients who have had the disease for many years, those with a shorter duration of diabetes are more likely to achieve remission. Some studies in China have shown that diabetes remission can also be achieved through intensive body-weight management and dietary intervention[^37-^38], but the relevant evidence-

The evidence remains limited, and further local studies are needed for validation.

9 Peer/Family Support and Social Connections

The ACLM guideline emphasizes the importance of encouraging patients with prediabetes, type 2 diabetes, or a history of GDM to actively build social connections. It recommends guiding patients to develop and maintain various forms of social support through peers, family members, healthcare providers, and other lifestyle-intervention health professionals, in order to improve glycemic management and achieve diabetes-related SMART goals. (Strong recommendation evidence)

Peer support is a structured intervention in which one or a group of patients with diabetes provides practical guidance and support to other patients who jointly participate in diabetes management. Multiple meta-analyses and systematic reviews have shown that peer-led interventions can effectively promote glycemic management, improve self-care behaviors, help achieve SMART goals, and improve quality of life [39-41]. Peer support can be delivered in various forms, including face-to-face meetings, online forums, or social-media platforms. Similarly, multiple randomized controlled trials have confirmed that one-on-one or group support provided by community health workers (CHWs; front-line caregivers who have been trained and possess health-education capabilities) can improve FBG, HbA_{1c}, and the achievement of other SMART goals [42-44].

At present, community-based chronic disease management and patient mutual-aid organizations in China are gradually developing, and social support networks can be strengthened through community health education, patient support groups, and other formats [45].

10 Identify the Need for Psychological Intervention

The ACLM guideline states that healthcare personnel should be able to identify the risk of serious psychiatric illness in patients with prediabetes, type 2 diabetes, or a history of GDM—including severe mood/emotional disorders, anxiety disorders, or psychiatric disorders—and refer them to professionals with corresponding diagnostic and treatment capabilities. For patients with stress, depressive, or anxiety symptoms, interventions such as mindfulness therapy and cognitive behavioral therapy should be provided to improve diabetes health outcomes.

Diabetes-related psychological problems are relatively common among patients in China. Studies have shown that the prevalence of depression among Chinese patients with type 2 diabetes is 13.3% [46]. However, psychological-intervention resources in China are currently relatively insufficient, and most clinicians lack knowledge and the ability to recognize the comorbidity of diabetes and mental illness [47]. Therefore, strengthening mental-health screening and establishing referral mechanisms in routine diabetes management will help improve the effectiveness of comprehensive management.

11 Avoid Exposure to Harmful Substances

The ACLM guideline emphasizes that smoking and alcohol consumption should be assessed in adults with type 2 diabetes, and patients should be informed about how these substances adversely affect type 2 diabetes management. (Strong recommendation evidence)

Healthcare personnel may use the NIDA Quick Screen tool to diagnose, assess, and treat nicotine dependence and alcohol addiction. Moderate alcohol intake —less than 5 ounces of wine, approximately 20 g of alcohol—may have a certain cardioprotective effect in the general population [48], but its effect on blood glucose levels remains inconclusive [49]. Studies suggest that moderate alcohol consumption may be associated with reduced risk of type 2 diabetes among populations at high cardiovascular risk [50], but this must be weighed against potential adverse effects, including hypoglycemia, weight gain, cancer, and risk of arrhythmia [51–52]. Smoking rates in China remain relatively high [53], and drinking culture is also widespread; strengthening tobacco control and health education is therefore important for improving the long-term outcomes of diabetes.

12 Achieve Personally Driven, Sustained Positive Behavior Change

The ACLM guideline recommends that, for patients with prediabetes, type 2 diabetes, or a history of GDM, healthcare professionals should use evidence-based methods—including but not limited to health coaching, motivational interviewing, and cognitive behavioral therapy—to help patients achieve sustained,

patient-centered positive behavior change. (Strong recommendation evidence)

Strong evidence from systematic reviews and randomized controlled trials indicates that interventions centered on health coaching are effective for the management of type 2 diabetes, reducing HbA_{1c} levels within 4–6 months, with effects comparable to pharmacological therapy [54–55]. However, when health coaching is delivered via remote monitoring or mobile phones, the consistency of results is somewhat weaker [56–58]. Motivational interviewing can improve metabolic indicators and psychosocial status in patients with diabetes. Integrated cognitive behavioral therapy (CBT) can reduce blood glucose levels by approximately 0.3% and decrease depressive symptoms by an average of nearly 3 points, demonstrating dual effectiveness in managing diabetes and improving mental health [59]. With the development of digital medicine, telehealth management and mobile health applications have favorable prospects for use in China and can provide sustained support for behavioral interventions.

13 Develop a Continuity-of-Care Plan

Continuity of care is naturally suited to lifestyle intervention. The ACLM guideline recommends formulating a continuity-of-care plan—that is, a plan in which an interdisciplinary care team collaborates over the long term to provide high-quality care. The plan should clearly specify lifestyle-intervention measures, while also defining visit frequency, expected duration of care, potential needs for medication adjustment, and expectations regarding individual participation. (Strong recommendation evidence)

The ACLM guideline states that clinicians should maximize interaction with other team members, such as diabetes educators and dietitians, and use multiple techniques to promote lifestyle change in patients with type 2 diabetes. Examples include arranging regular follow-up visits, using CGM when possible, and referring patients to other healthcare teams for further education and support. Whether through traditional outpatient visits, telemedicine, virtual group visits, or virtual appointments on other digital platforms, these approaches can help patients achieve lifestyle change and glycemic targets [60–61]. Smartphones, the internet, telemedicine, and other digital platforms can provide patients with timely preventive interventions and improve the accessibility of interventions. China is currently advancing the development of a tiered diagnosis-and-treatment system and a chronic disease management system; multidisciplinary team collaboration and continuity-of-care models can further improve the implementation effectiveness of lifestyle interventions [62].

14 Adjust Therapeutic Medications

The ACLM guideline recommends adjusting the type and dose of medications according to the impact of lifestyle interventions on medication needs. (This recommendation is based on observational studies, and the benefits substantially outweigh the harms.)

The guideline recommends that clinicians collaborate with pharmacists to monitor changes in the need for glucose-lowering and antihypertensive medications. New antidiabetic medications such as glucagon-like peptide-1

GLP-1 receptor agonists (GLP-1RA), glucose-dependent insulinotropic polypeptide (GIP)/GLP-1 receptor agonists (GIP/GLP-1RA), and sodium-glucose cotransporter 2 inhibitors (SGLT2i) have cardiovascular and renal protective effects in patients with type 2 diabetes complicated by cardiovascular disease or diabetic kidney disease. These drugs may continue to be used for indications other than diabetes, such as cardiovascular disease and chronic kidney disease; clinicians should monitor their dosage and safety.

Populations at high risk for hypoglycemia require closer monitoring. In addition to users of drugs known to readily cause hypoglycemia or those with a history of hypoglycemia, the ADA also clearly identifies the following factors as high risk: older age or preschool age, impaired renal/liver function, untreated pituitary/adrenal/thyroid insufficiency, cognitive impairment or impaired awareness of hypoglycemia, longer duration of diabetes or insulin use for more than 5 years, and behaviors such as alcohol consumption, eating disorders, or irregular eating [63]. Medication adjustment in special populations also warrants attention. The guidelines indicate that safer drugs are often recommended for older adults (such as GLP-1 receptor agonists), because they generally do not cause hypoglycemia or weight gain, although attention should be paid to risks such as sarcopenia [64–65]. Patients receiving insulin therapy require monitoring and support. Patients using insulin should use CGM to optimize glycemic management and receive timely hypoglycemia alerts. In addition, CGM can improve adherence to meal plans, healthy eating, and physical activity [66–67], helping patients better implement lifestyle interventions.

In clinical practice in China, pharmacotherapy remains an important means of diabetes management. As the effects of lifestyle interventions improve, blood glucose monitoring should be strengthened and medication dosages adjusted appropriately to avoid adverse events such as hypoglycemia [5–6].

15 Summary

The clinical practice guideline on lifestyle intervention issued by the ACLM systematically elaborates, from an evidence-based medicine perspective, the theoretical basis and practical pathways of lifestyle medicine in the management of prediabetes and type 2 diabetes. It reflects the current international trend in diabetes prevention and treatment: a shift from simple glycemic control toward integrated metabolic risk management. The guideline incorporates diet, exercise, sleep, stress management, avoidance of harmful substances, and social support into a unified framework, and provides feasible assessment tools, prescription templates, and follow-up strategies, thereby offering operational support for systematic implementation in primary care and specialty outpatient settings. It emphasizes patient-centered care and multidisciplinary collaboration,

and proposes the possibility of achieving diabetes remission in some patients, representing an important supplement to traditional management models.

It should be noted that the levels of evidence for some recommendations in this guideline remain limited, and the evidence is derived mainly from European and American populations; its applicability and generalizability in the Chinese population still require further verification. In the future, high-quality clinical studies and real-world research should be conducted in light of the characteristics of the Chinese population and the realities of the healthcare system, to further clarify effective implementation pathways and long-term outcomes of lifestyle interventions, thereby promoting the standardized application of lifestyle medicine in the management of prediabetes and type 2 diabetes.

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