

## Integrative Approaches to Endocrine Health

### Overview

An Integrative Health approach to endocrine health focuses on the whole person, accounting for the power effects that glands like the thyroid, adrenals, and pancreas have on our health. This approach builds on what matters most to each individual and draws in mindful awareness and self-care, along with conventional and complementary approaches. Whether it is exploring ways to balance blood glucose, optimizing thyroid function, or discussing how dietary supplements might affect our hormones, an Integrative Health approach can be beneficial.

As with care for all of the systems of the body, empowerment through self-care is key. The Circle of Health highlights eight areas of self-care: Surroundings; Personal Development; Nutrition; Recharge; Family Friends, & Co-Workers; Spirit & Soul; Mind and Emotions; and Physical Activity. Using an example of an Integrative Health patient, this overview and related tools offer an array of options to consider. More details for specific conditions, are available in various digestive health clinical tools.

### Meet the Patient

Richard is a 62-year-old man who is following up in your office for discussion of abnormal labs detected on his physical exam two months ago. He has not been to the doctor in several years and his fasting lab work demonstrated a blood glucose of 130, triglycerides of 260, high-density lipoprotein (HDL, “good” cholesterol) of 29, and a low-density lipoprotein (LDL, “bad” cholesterol) of 135. His hemoglobin A1c (HbA1c) was 6.7. Other medical problems include obesity, with a body mass index (BMI) of 34, and borderline hypertension. He has a history of alcohol use, but he quit drinking alcohol 5 years ago and does not smoke. He is married and has three adult children. He is an avid outdoorsman. He and his wife have been under significant financial stress over the past two years due to his unemployment, though he is about to start a new job at a local manufacturing plant. Richard’s mother had diabetes and died of diabetic complications, and he wants to do whatever he can to avoid a similar course. He understands he has diabetes and presents now for follow-up. While he is willing to do all he can to treat early diabetes, he prefers to avoid medications if possible.

### Personal Health Inventory

On his Personal Health Inventory (PHI), Richard rates himself a 3 out of 5 for his overall physical well-being and a 4 for overall mental and emotional well-being. When asked what matters most to him and why he wants to be healthy, Richard responds:

*“I want to stay as healthy as possible for as long as possible. I enjoy spending time with my wife Susan, and I want us to be able to enjoy retirement together in a few years. I would like to I want to stay as healthy as possible for as long as possible. I enjoy spending time with my wife Susan, and I want us to be able to enjoy retirement together in a few years. I would like to be around for my kids and their families. If I had the time, energy, and finances, I would hunt, fish, and travel with my wife.”*

For the eight areas of self-care, Richard rates himself on where he is, and where he would like to be. He decides to first focus on the areas of Physical Activity and Nutrition by scheduling more time to exercise and finding strategies for healthy eating.

See [Richard's PHI](#) for more information.

## Introduction

Type 2 diabetes mellitus (T2DM) is a metabolic disorder characterized by insulin resistance and eventual insulin deficiency leading to high blood glucose. Extensive research is currently underway to better understand the causes of insulin resistance in the body and the many pathways to it, including how obesity, toxins, infections, and emotional stress all contribute to chronic inflammation and the development of T2DM. Several large clinical trials have shown that control of hyperglycemia alone reduces the microvascular (small-blood vessel) complications of diabetes, but it does not reduce the macrovascular (large vessel) complications such as cardiovascular disease or decrease mortality. This suggests, then, that only treating blood glucose in diabetics is not enough, and that other goals need more attention, including reducing inflammation and improving lifestyle choices. Patients need to know that diabetes is a preventable and reversible disease in most cases. This is the goal of an integrative approach to diabetes care.

Lab values offer important information about a patient's diabetes control, but treating glucose levels and hemoglobin A1c values should not be the only goal. Lifestyle, control of inflammation, and emphasis on other vascular risk factors are of fundamental importance in an Integrative Health approach.

## Self-Care

Supporting patients in the tasks of managing their diabetes calls for more than education, in which patients only gain knowledge. Patients need to have the skills and confidence to effectively manage the condition on their own, since they live with it daily. Self-management occurs within the framework of daily life patterns. It involves making effective health decisions day by day.

Many clinicians feel it is difficult to counsel patients on self-management strategies. While this longitudinal process may be challenging in some ways, it can also lead to some of the most rewarding experiences in the patient-clinician relationship. One systematic review on this topic showed that self-management interventions have positive effects on diabetes-specific quality of life. In addition, interdisciplinary self-management interventions can lead to clinically relevant improvements in behaviors and some clinical parameters.<sup>1</sup> There does not appear to be a significant difference between individual or group self-management interventions.<sup>2</sup>

More-recent literature suggests there are many effective ways to engage with self-care activities. For example, a systematic review of 26 articles and 2,645 total participants with T2DM found that smartphone-based self-management led to better self-efficacy, better health-related quality of life, and lower hemoglobin A1c.<sup>3</sup> While there are some reviews pointing to the successes of self-care for type 2 diabetes, there is still a significant body of literature pointing to the uncertainty of the benefit of these practices.<sup>4</sup> One review suggested that people with T2DM

are more likely to adhere to taking medications versus diet, exercise, blood sugar self-monitoring, or foot care.<sup>5</sup> Personalizing care may be a key component to more successful engagement with healthy self-care activities. This is supported by a review of people with disabilities who also have been diagnosed with T2DM.<sup>6</sup>

## Nutrition

Nutrition is a fundamental part of diabetes prevention and treatment. Current American Diabetes Association (ADA) guidelines do not endorse a specific dietary plan but rather identify carbohydrate counting as a key aspect of glycemic control. Patients on insulin must match carbohydrate content with doses of insulin and insulin secretagogues. To reduce cardiovascular disease (CVD) risk factors, patients with diabetes are advised to eliminate trans-fat intake and limit saturated fat to less than 7% of total calories. Weight loss also is recommended for overweight and obese patients.<sup>7</sup> Many patients with diabetes turn to integrative medicine as they seek additional dietary guidance and want to know how specific diet plans and food choices will affect glycemic control and comorbid health conditions (Table 1).

## Glycemic index

The 2011 ADA guidelines acknowledge that incorporating glycemic index (GI) into a patient's diet may provide additional benefit for glycemic control over consideration of total carbohydrate count alone. Table 1 lists some GIs for common foods. Authors of a Cochrane review of 11 small studies found a 0.5% reduction in HbA1c (95% CI -0.9 to -0.1, p=0.02) in patients with T2DM who followed a low-GI diet. This diet also led to a significant reduction in hypoglycemic events as compared with a high GI diet or other diets.<sup>8</sup> This finding was confirmed in an independent meta-analysis of the same studies.<sup>9</sup> One of the included studies also demonstrated a statistically significant increase in HDL.<sup>10</sup> For more information, see the "[Glycemic Index](#)" tool.

**Table 1. Average Glycemic Index Content of Foods (Note: some variation based on preparation)**

Food	Glycemic Index
Bagel	72
Pasta	49
Oatmeal	61
Instant Rice	87
Brown Rice	55
Barley	25
Carrots	35
Beans	29

Food	Glycemic Index
Baked Potato	85
Sweet Potato	54
Pineapple	66
Apple	36
Skim Milk	34
Broccoli	<20

## Low Glycemic Index (GI) Summary

### Description

- Emphasizes carbohydrate type
- Measures how quickly a carbohydrate affects postprandial glucose levels
- Results in a more gradual rise in glucose and insulin release versus high GI foods consumption

### Composition

- Glucose is assigned a GI of 100, the highest number possible, and all other foods are relative to this value.
- Food registries assigning GI are widely available.[7]

### Effects

- 0.4 to 0.5% reduction in HgbA1C

## Mediterranean diet

Eating a Mediterranean diet helps with prevention and treatment of metabolic syndrome, lipid disorders, and T2DM.<sup>11</sup> Compared to the 2003 ADA diet, the Mediterranean diet contains higher carbohydrate content, higher fat content, and equivalent amounts of dietary fiber and protein (Table 1).<sup>12</sup> Authors of a systematic review of five randomized controlled trials (RCTs) including 1,077 patients with diabetes found improved glycemic control with the Mediterranean diet versus other commonly used diets. Fasting blood sugar improved by 7-40 mg/dl and HbA1c decreased by 0.1-0.6%.<sup>13</sup> Another meta-analysis that included studies of 487 total patients showed improvement in HbA1C with the Mediterranean versus usual diet.<sup>14</sup> A 2015 systematic review of eight meta-analyses and five RCTs concluded that the Mediterranean diet was associated with better glycemic control and improved cardiovascular risk factors. This was in comparison to other control diets including a lower fat diet.<sup>15</sup> The effectiveness of the Mediterranean diet, despite its higher carbohydrate content, suggests a role for treating systemic inflammation, which contributes to insulin resistance and hyperglycemia.<sup>16</sup> For more information, see to the ["Choosing a Diet"](#) Integrative Health tool.

## Mediterranean Diet Summary

### Description

- Anti-inflammatory diet
- Counteracts chronic inflammation associated with many diseases
- Eliminates proinflammatory fats, restores healthy omega-3/omega-6-fatty acid balance

### Composition

- High in fruits and vegetables
- High in mono-polyunsaturated fats, low in saturated fats
- Regular fish consumption to increase omega-3 fatty acids
- Grains are low GI, high fiber
- Moderate alcohol/red wine

### Effects

- 83% reduction of diabetes incidence; 0.1 to 0.6% reduction in HbA1c<sup>13</sup>

## Vegetarian diet

Vegetarian and vegan diets also offer potential benefits in the management of T2DM (Table 1). In one 22-week RCT of 99 patients with T2DM, in which exercise was held constant, participants were randomized to a low fat, vegan diet versus a portion-controlled 2003 ADA diet. Those on the vegan diet lost more weight (6.5 kilograms versus 3.1 kilograms,  $p < 0.001$ ), experienced a greater decrease in HbA1c (-1.23 vs. -0.38,  $p < 0.01$ ), and had lower LDL cholesterol (average -22.6 mg/dl versus -10.7,  $p = 0.02$ ). Glycemic change correlated with body weight change.<sup>17</sup>

## Vegetarian Diet Summary

### Description

- Plant-based diet
- May be associated with lower circulating levels of insulin-like growth factor I (IGF-I.)<sup>18</sup>

### Composition

- High in fruits and vegetables
- Low in saturated fat
- Tend to be higher in fiber and lower in calories, leading to weight loss<sup>19</sup>

### Effects

- 1.23% reduction in HbA1c (based on 1 RCT)

Of note, many people have practiced a ketogenic diet or intermittent fasting to manage diabetes. While there is likely some benefit to both of these strategies, there is insufficient clinical research at this time to support widespread recommendation of these dietary patterns.

## Weight loss

Weight loss is recommended for overweight and obese patients with T2DM, independent of the type of diet a person follows.<sup>7</sup> Moderate weight loss (5% of body weight) can improve insulin

action, decrease fasting blood glucose (FBG) concentrations, and reduce the need for diabetes medications.<sup>20,21</sup> When weight loss is not achievable, instead stress weight maintenance.

Most research on weight loss in diabetes has focused on calorie restriction and weight targets.<sup>22,23</sup> Few studies are available to suggest a specific macronutrient diet composition (proportion of fats, proteins and carbohydrates) for weight loss, though some studies suggest carbohydrates and glycemic load of the diet might play an important role.<sup>24-29</sup>

A recent, small pilot study of 32 people showed that nondiabetic participants with high postprandial insulin levels lost more weight with a low-glycemic load diet than with high-glycemic load diet over 24 weeks.<sup>28</sup> Another study showed that obese women with insulin resistance lost significantly more weight on a low-carbohydrate, high-fat diet, compared to a high-carbohydrate, low-fat diet.<sup>29</sup>

In patients with diabetes, a high-protein, lower-carbohydrate diet was shown to yield improved weight loss in women with diabetes compared to a low-protein, higher-carbohydrate diet, but not in men, in a study conducted over 10 years ago.<sup>25</sup> There is some evidence that weight loss from low-carbohydrate diets is due to calorie restriction rather than macronutrient composition.<sup>26,27</sup>

More research is needed to determine the optimal diet in diabetes, but it is reasonable to suggest that patients decrease overall carbohydrates in their diets, by specifically focusing on reducing glycemic load while maintaining a moderate calorie restriction and avoiding increased fat intake.

Bariatric surgery also helps achieve weight loss, and often at substantially higher amounts than seen with diet in a typical practice. Recent research shows the benefits of roux-en-Y gastric bypass and laparoscopic adjustable gastric band on diabetes, although these remain controversial treatments.<sup>30</sup>

Nutritional approaches are central to the management and prevention of T2DM. As you create a PHP for a patient, keep in mind the importance of weight loss and the potential value of tools like the glycemic index diet, the Mediterranean diet, and vegetarianism.

## Physical Activity

Exercise is a fundamental component of diabetes care. It helps with both weight reduction and glucose uptake. The ADA recommends 150 minutes per week of moderate-intensity aerobic physical activity (at 50%-70% maximum heart rate), over at least three days per week with no more than two consecutive days without activity. Resistance training provides additional benefit and is recommended at least twice weekly for five major muscle groups.<sup>31</sup>

The overall type of exercise and how it is prescribed to patients seems to affect HbA1c. Authors of a large meta-analysis of RCTs<sup>32</sup> concluded the following:

- There is a decrease in HbA1c (-0.67%; 95% CI, -0.84% to -0.49%) with structured exercise training in which the physical activity is planned for the individual and supervised.
- Aerobic exercise reduced HbA1c -0.73% (95% CI, -1.06% to -0.40%) and resistance training by -0.57% (95% CI, -1.14% to -0.01%).
- Physical activity advice without planning and supervision did not lead to statistically significant reductions in HbA1c unless combined with dietary recommendations (HbA1c reduction: -0.58%, 95% CI, -0.74% to -0.43%).
- Structured exercise duration > 150 minutes/week results in statistically better glycemic control compared to exercise ≤ 150 minutes/week (-0.89% vs -0.36%).
- Higher-intensity activity did not result in improved glycemic control over moderate-intensity exercise.

For more information, check out the [“Physical Activity”](#) overview. The [“Prescribing Movement”](#) tool also offers guidelines for tailoring activity recommendations to specific individuals.

## Surroundings

It has been suggested that diet and exercise cannot fully explain the current epidemics of obesity and T2DM throughout the world and that the prevalence of toxins, including the exponential rise in production and release of organic and inorganic chemicals into the environment during the last half-century, is a major contributing factor.<sup>33-35</sup> Examples of toxic chemicals include arsenic (and other heavy metals), bisphenol A (BPA), and persistent organic pollutants (POPs). The latter group includes such chemicals as dioxins, polychlorinated biphenyls (PCBs), dichlorodiphenyldichloro-ethylene (pp'DDE the main breakdown product of dichlorodiphenyldichloroethylene DDT), trans-nonachlor, hexachlorobenzene, and hexachlorocyclohexanes (including lindane).

For the most part, POPs are the products of industrial processes released into the environment when used as pesticides and herbicides, or found in food storage containers and canned food liners as in the case with BPA. They make their way into the human body primarily through the consumption of meat, fish, and dairy products where they accumulate in tissue fat, degrade slowly, and may persist for 7-10 years. A proposed mechanism of action, which might explain how these disparate compounds can cause adverse effects, is that POPs are lipophilic and can permeate lipophilic membranes, thereby promoting the absorption of toxic hydrophilic substances that would not otherwise enter cells.<sup>36</sup>

Several pathways by which these substances may cause abnormalities have been identified, including endocrine disruption, genetic changes, xenobiotics, inflammation, and oxidative stress.<sup>37</sup> A workshop organized by the [National Institute of Environmental Health Sciences](#) (NIEHS) Division of the National Toxicology Program (NTP), underscores the importance of this work.<sup>38</sup> For more information, see the [“Food Safety”](#) tool and the [“Surroundings”](#) overview.

## Family, Friends, & Co-Workers

Anecdotally, we can appreciate that social support is an important contributor to the health of patients managing complex chronic diseases like T2DM. Research shows that social support is a major component of self-management, though the mechanism is not well understood. A systematic review from 2012 showed that higher levels of social support are often associated

with better glycemic control, increased knowledge, enhanced treatment adherence, and improved quality of life. Social support is a critical aspect of disease prevention and awareness. A 2017 systematic review and meta-analysis of 28 studies involving 5,242 patients with diabetes found that there was a statistically significant association between the presence of social support and engagement with self-care activities. The strongest effect was found for consistency in glucose monitoring.<sup>39</sup> Furthermore, social support is beneficial in diagnosis acceptance, emotional adjustment, and decreasing stress. Conversely, lack of social support has been associated with increased mortality and diabetes-related complications.<sup>40</sup>

## Mind and Emotions

The National Health Interview Survey (NHIS) estimated that 19.2% of adults in the United States used at least one mind-body modality in 2007.<sup>41</sup> Biofeedback, yoga, meditation, qi gong, and tai chi (a movement form of qi gong) are the best-studied for diabetes care. These practices have relevance in many aspects of diabetes management, not the least of which is supporting people experiencing chronic stress, which shows to have long-lasting maladaptive effects on multiple body systems including the nervous, immune, and endocrine systems.<sup>42</sup>

### Biofeedback

A RCT involving 30 patients with T2DM compared biofeedback-assisted relaxation training with education alone and demonstrated a significant improvement in average HbA1c levels (from 7.4 to 6.8) and reduced average blood glucose values in the biofeedback group that persisted at the three-month follow-up.<sup>43</sup>

Biofeedback can also produce clinically significant toe temperature elevations. Volitional warming has been associated with increased circulation, improvement/elimination of intermittent claudication pain, increased physical activity, more rapid healing of diabetic ulcers, and improved functional status.<sup>44</sup>

### Meditation

The regular practice of transcendental meditation (TM) is associated with a reduction of catecholamine levels compared to those of a control group of non-meditators.<sup>45</sup> A study examining the relationship between depression and diabetes shows compelling evidence for an association between mental stress and hypothalamic-pituitary-adrenal axis hyperactivity. Increased catecholamine levels affect glucose transport and insulin resistance, suggesting a mechanism by which reduced stress levels might improve diabetes control.<sup>46,47</sup>

One RCT of 108 patients with diabetes mellitus (DM), 72 of whom finished the study compared diabetes education with education plus stress management (progressive muscle relaxation, deep breathing, and mental imagery). Researchers found that HbA1c levels decreased by 0.5% in the latter group at one year.<sup>48</sup> In another single-blinded randomized study involving 103 subjects, the TM group had a significant reduction in mean arterial blood pressure, insulin resistance, and insulin levels, compared to those receiving health education.<sup>49</sup>

### Qi gong and tai chi

Effectiveness of qi gong and tai chi is difficult to determine because of methodological challenges in design and variability in the style practiced from study to study. Authors of a systematic review of tai chi and diabetes found only two RCTs and three nonrandomized clinical



trials and concluded that there was no convincing evidence that it is helpful for glucose control.<sup>50</sup> Two other systematic reviews of qi gong for T2DM reported some improvements in glucose control, but limited study quality prevented definite conclusions.<sup>51,52</sup>

## Yoga

Two systematic reviews concluded that yoga likely benefits patients with T2DM by lowering blood sugars, LDL, triglycerides, body weight, waist-to-hip ratio, HbA1c, and higher HDL.<sup>53,54</sup> Additionally, there appear to be beneficial effects on blood pressure, heart rate, oxidative stress, sympathetic activation, catecholamine levels, coronary stenosis, coagulation profiles, and pulmonary function, as well as reductions in the amount of medication needed and psychosocial risk factors. Because of the heterogeneous nature of the studies reviewed, no statistical analyses were reported. A third systematic review, which included only five studies, found benefit only in the short-term for fasting blood sugars and lipids but no statistically significant improvement in long-term outcomes of BMI, body weight, or HbA1c.<sup>55</sup> Reviews noted methodological problems and uncertainty about the generalizability of the findings to Western culture.

## Complementary Approaches

An integrative approach to health also includes acupuncture, acupressure, massage, and energy medicine, as well as chiropractic and other manipulative therapies. Evidence on these modalities for the treatment of diabetes and diabetic complications is limited.

Note that conventional approaches, particularly the use of medications, are a mainstay of diabetes care. Consider the therapies listed here primarily as potential adjuncts to mainstream therapies. A focus on conventional therapies is beyond the scope of this overview, given that they are reviewed in many other sources.

## Acupuncture

Acupuncture to improve glycemic control in diabetes and prediabetic states has been reported in the literature for over half a century, but the evidence is limited and of poor quality.<sup>56,57</sup> However, there is some evidence that acupuncture reduces symptoms of diabetic complications. Two small RCTs have shown reduced pain in patients with diabetic peripheral neuropathy (DPN) versus sham acupuncture or oral inositol.<sup>58,59</sup> In the latter study, 87.5% of participants randomized to acupuncture had symptom improvement compared to 63.6% in the inositol group, and full relief of symptoms with normalization of exam was reported in more patients receiving acupuncture (50% versus 21%, respectively).

Patients randomized to acupuncture versus sham acupuncture for diabetic bladder dysfunction showed statistically significant improvements in subjective symptoms and urodynamic measurements in a small, two-week RCT.<sup>60</sup> Electroacupuncture versus sham showed non-statistically significant improvements for symptomatic gastroparesis.<sup>61</sup>

## Massage and Energy Medicine

There is some evidence that massage can reduce glucose levels, perhaps through stress-reduction.<sup>62-64</sup> However, glucose reductions were not seen in one small RCT.<sup>65</sup> Connective tissue reflex massage led to improved lower-limb blood flow in patients with diabetes and

peripheral artery disease in one RCT, but the clinical significance is uncertain.<sup>66</sup> Studies of reflexology and acupressure are similarly limited to small experimental and observational studies.<sup>67</sup> A small 2017 RCT (n=46) showed that aromatherapy massage—3 times per week for 4 weeks—improved neuropathic pain and quality of life in people with T2DM.<sup>68</sup>

## Dietary Supplements

Dietary supplements for glucose control are discussed in the “[Supplements to Lower Blood Sugars](#)” Integrative Health tool.

**Table 2. Provides a summary of integrative medicine therapies and their glycemic effects in Type 2 Diabetes.**

Therapy	Glycemic Effect
<b>Weight Loss</b>	7% weight loss=58% reduction diabetes onset; 0.36% reduction in HbA1c <sup>69,70</sup>
<b>Low Glycemic Index Diet</b>	0.4 to 0.5% reduction in HbA1c <sup>8,9</sup>
<b>Mediterranean Diet</b>	83% reduction diabetes incidence; 0.1 to 0.6% reduction in HbA1c <sup>13</sup>
<b>Vegetarian Diet</b>	1.23% reduction in HbA1c (based on 1 RCT) <sup>17</sup>
<b>Exercise, Structured, Aerobic Alone</b>	0.73% reduction in HbA1c <sup>32</sup>
<b>Exercise, Structured, Resistance Alone</b>	0.57% reduction in HbA1c <sup>32</sup>
<b>Exercise &gt;150 min/wk vs. Exercise ≤ 150 min/wk</b>	0.89% vs. 0.36% reduction in HbA1c <sup>32</sup>
<b>Physical Activity Advice with Dietary Advice</b>	0.58% reduction in HbA1c <sup>32</sup>
<b>Biofeedback</b>	0.6% reduction in HbA1c (1 RCT) <sup>43</sup>
<b>Meditation</b>	0.5% reduction HbA1c (1 RCT) <sup>48,49</sup>
<b>Qi Gong/Tai Chi</b>	Inconclusive <sup>50-52</sup>
<b>Yoga</b>	Inconclusive <sup>53-55</sup>
<b>Acupuncture</b>	Inconclusive for glycemic control <sup>56,57</sup> ; statistically significant symptom improvement for diabetic peripheral neuropathy <sup>58,59,71</sup> and bladder dysfunction <sup>60</sup> ; non-statistically significant improvement in gastroparesis <sup>61</sup>

Therapy	Glycemic Effect
Massage	Inconclusive <sup>62-65</sup>
Reflexology	Inconclusive glycemic control <sup>67</sup> ; improvement in PAD (1 RCT) <sup>66</sup>
Energy Medicine	Inconclusive
Chiropractic	Inconclusive

## Community

To completely review the Circle of Health as it relates to endocrine health, it is important to acknowledge the essential role that community plays in supporting people's health. Here, community refers to an individual clinic, a health care system, a family, a neighborhood, a town or city, or a culture. Without an understanding of the social circumstances in which a person lives and the culture(s) with which they identify, the likelihood of partnering with our patients to optimize health is low.

A 2017 systematic review assessed a range of interventions to support people with poorly controlled diabetes (hgba1c >7.5%), with the predominant type of interventions included in the review being patient-oriented and organizational. This review of over 11,000 patients suggested that organizational interventions are more effective, as are interventions targeted for people with an A1c greater than 9.5% .<sup>72</sup>

## Personal Health Plan

**Name:** Richard

**Date:** xx/xx/xxxx

### Meaning, Aspiration, Purpose (MAP):

My meaning, aspiration or purpose in life is staying as healthy as possible for as long as possible to continue to enjoy spending time with family and participating in the outdoor activities. Avoid or minimize pharmaceutical medications and their side effects.

### My Goals:

- Improve blood sugar control to avoid going on medications.
- Spend more time outdoors.
- Increase physical activity.
- Lose weight.
- Refocus diet to eat healthier foods.
- Find ways to better deal with stress.

## Strengths (what's going right already)/Challenges:

I feel fortunate to have family connections and support. I have worked hard and endured difficult times in my life. I know how to set goals and follow through with them.

## Areas of Self-Care:

- Physical Activity
  - Start by setting small goals and sticking to it. Begin with brisk walking or other aerobic activities for 30 minutes, five days a week. Try to blend exercise with excitement. Take time to get outside and do the sporting activities I enjoy.
- Personal Development
  - Meet with a diabetes educator to better understand the diabetes disease process and what this means for health in the future.
- Nutrition
  - Begin keeping a food and drink diary, check out the food diary on [Food, Drink, Activity, and Symptom Log](#) and meet with a dietitian to review it. The Mediterranean and low-glycemic index diets are recommended to moderate blood sugar and improve the quality of my food. A 10% weight loss is recommended to improve insulin resistance and cardiovascular risk factors.
- Recharge
  - Aim for 7-8 hours of sleep per night and include some relaxation activity before bed. Follow a sleep hygiene routine. Avoid caffeine after noon.
- Mind and Emotions
  - Start with daily deep abdominal breathing for 5-10 minutes. Consider experiencing a mindfulness practice at home using the mindfulness CD given at the clinic visit or joining a local Mindfulness-Based Stress reduction (MBSR) group.

## Professional Care: Conventional and Complementary

- Prevention/Screening
  - Up-to-date
- Treatment (e.g., conventional and complementary approaches, medications, and supplements)
  - MBSR
  - Supplements: vitamin D during winter months, 4 gm of daily fish oil supplementation is recommended for treatment of high TG, chromium supplementation for improved blood sugar control
- Skill building and education
  - Nutrition
  - Physical activity
  - Breathwork

## Referrals/Consults

- Dietician

- Diabetes educator

## Community

## Resources

## My Support Team

- Primary Care Team
- Integrative Health coach
- Dietician/diabetes educator
- Wife
- Children
- Hunting/fishing friends

## Next Steps

## Conclusion

As with many chronic diseases, diabetes is a complex disease requiring a multi-faceted treatment approach. Conventional therapies such as medications are an important aspect of treatment, but patients with T2DM are increasingly interested in pursuing complementary therapies with glycemic-lowering effects. Clinicians should be able to advise them about the research regarding other approaches. Many people are motivated to make lifestyle changes to avoid or limit the number of medications they are taking. Additionally, several of the comorbidities of diabetes are only partially alleviated with conventional treatment, making exploration of other modalities an attractive option for patients. Evidence supports use of exercise, specific diets, some supplements, and some mind-body modalities for improving glucose control and acupuncture for treatment of or prevention of diabetes complications.

## Online Resources

- [Type 2 Diabetes Mellitus](#)
- [Achieving a Healthy Weight](#)
- [Hypothyroidism](#)
- [Glycemic Index](#)
- [Supplements to Lower Blood Sugar](#)
- [Understanding Sweeteners](#)
- [Adrenals](#)

## Author(s)

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