The End of Dieting

Second Edition

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Featured chapter on a clinical trial utilizing the Lower6 App!

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by

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Lower6 Next™

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CHAPTER 1 FOUNDATION PRINCIPLES FOR GLYCEMIC CONTROL

Introduction

For years, we've been told that getting healthy is a battle. It's a war waged against our cravings, a miserable campaign of restriction, deprivation, and guilt. We are told to abandon the foods we love, to count every calorie with robotic precision, and to treat our plates like a minefield of potential mistakes.

It's no wonder that diets fail. They are built on a foundation of negativity.

The management of blood glucose through dietary choices represents one of the most powerful tools for preventing and managing metabolic disease. Unlike medication compliance—where patients often struggle with adherence—people consistently eat three meals per day. This presents a unique opportunity: if we can optimize *what* people eat during these inevitable eating occasions, we can transform routine meals into therapeutic interventions.

This chapter establishes the foundational dietary principles that form the basis of the Lower 6 approach, each grounded in metabolic science and clinical observation.

1. The First Rule: Never Skip Breakfast

The single most common mistake people make when trying to improve their health is skipping the day's most important meal. The logic seems simple—fewer calories in, better results out—but your body's metabolism is far more complex.

Think of your metabolism as an engine. When you wake up, it's idling. Eating breakfast is like turning the key and hitting the gas—it fires up the engine for the day, ensuring it burns fuel efficiently. When you habitually skip breakfast, you send your body a panic signal. It thinks resources are scarce and switches into conservation mode, slowing your metabolism down to save energy. Furthermore, take your time with it. Rushing a meal in five minutes leads to indigestion and poor nutrient absorption.

The Principle: Eat breakfast every day, within 90 minutes of waking. Give yourself 30-45 minutes to enjoy it. You will start your day with a faster metabolism, better energy, and a foundation for smarter choices to come.

2. The 4-Ounce Fix and the Power of Water

Sugar-sweetened beverages are the silent saboteurs of metabolic health. We drink hundreds of calories without ever feeling full, causing our blood sugar to spike and crash. Going cold turkey is hard, but a strategic approach works wonders.

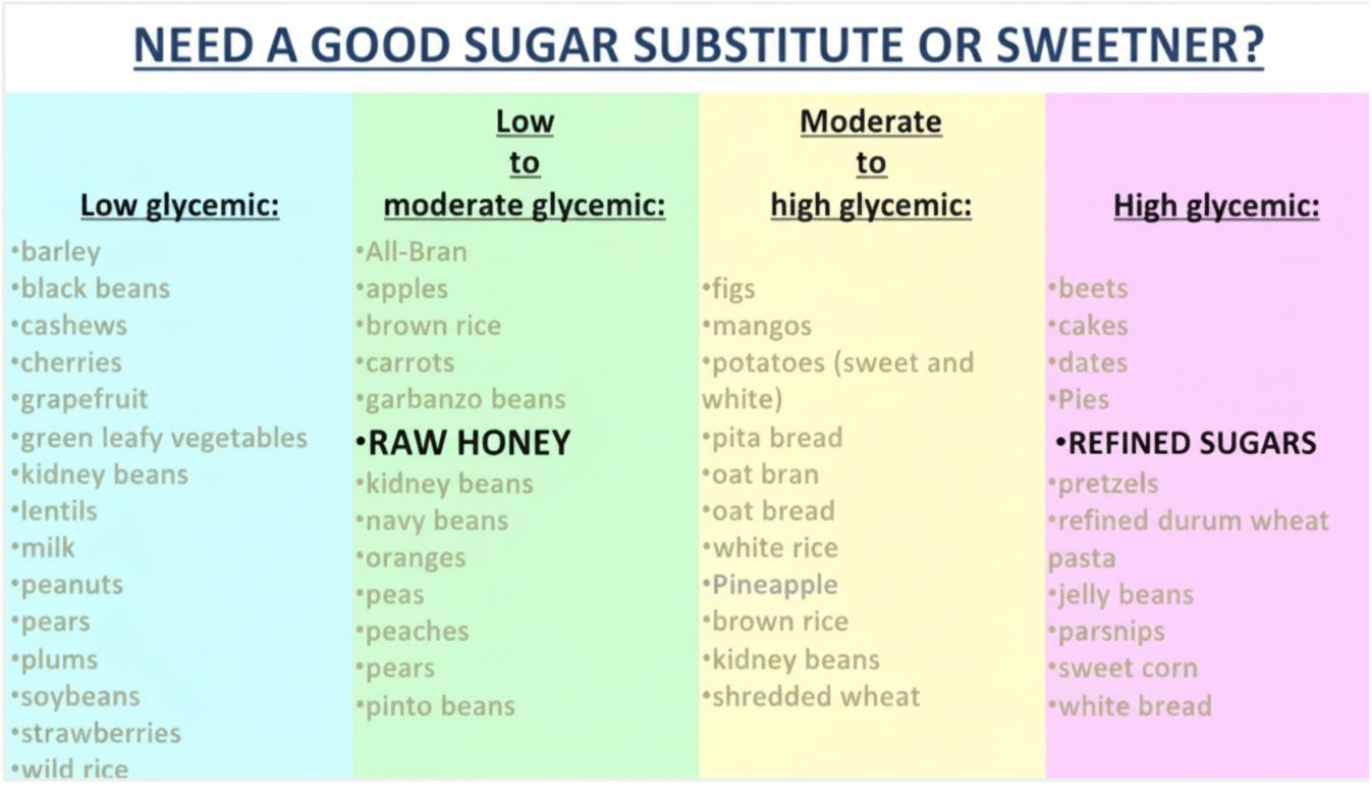
Your metabolism is at its peak in the morning. This gives you a window of opportunity. Allow yourself four ounces—just half a cup—of any drink you crave with your breakfast. A little juice, a sweet coffee, a soda. This gives your brain the "fix" it's looking for, satisfying the craving before it can derail your day.

The Principle: After your four ounces at breakfast, drink only water for the rest of the day. This simple change can eliminate over 1,000 calories from your diet each week and keeps your body hydrated, which is essential for every metabolic process.

3. The Honey Rule: Nature's Perfect Sweetener

If you must sweeten your food or drinks, make one simple swap: from processed sugar to natural, raw honey. While sugar is just empty calories that spike your blood sugar, honey is a complex food. It contains fiber, antioxidants, and has a lower glycemic index, meaning it causes a gentler rise in blood glucose. A little goes a long way, and its rich flavor can even make a glass of water more appealing.

The Principle: Replace all refined sugar and artificial sweeteners with a small amount of raw honey. You'll satisfy your sweet tooth while giving your body something it can actually use.



4. The "One-a-Day" Rule for Carbs

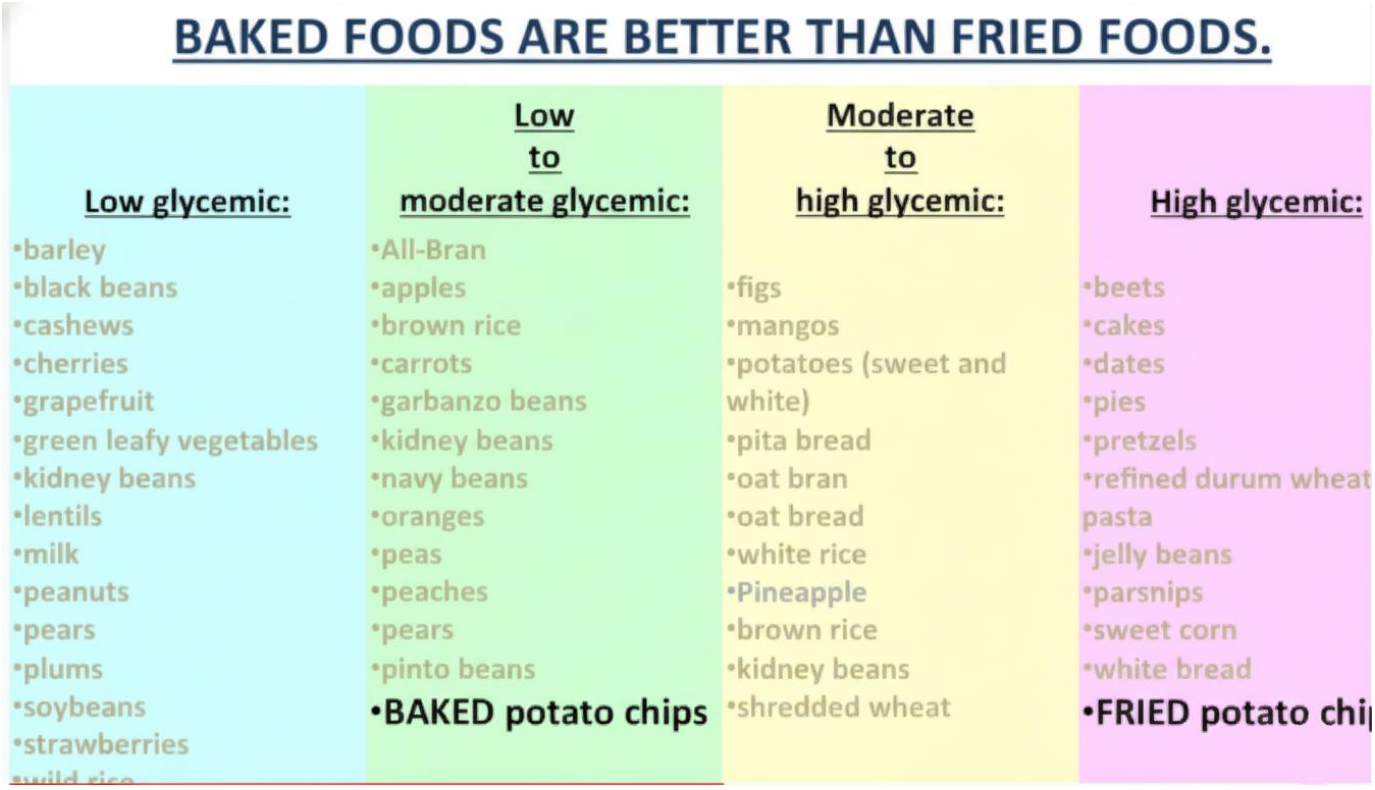
Rice, pasta, and bread are staples in many diets, but consuming all three on the same day is a recipe for metabolic overload. This “carbohydrate stacking” forces your body to produce a massive amount of insulin to manage the flood of sugar, promoting fat storage and insulin resistance over time. To burn off the energy from a day of eating bread, rice, *and* pasta, you would need to jog for a full hour.

The Principle: Choose only ONE of these three foods per day: rice, pasta, or bread. If you have toast for breakfast, that’s your choice for the day. If you want pasta for dinner, skip the bread basket. This prevents metabolic overload while still allowing you to enjoy your favorite foods.

5. The Preparation Principle: Boil, Bake, Don’t Fry

The same food can have a radically different effect on your body depending on how it’s cooked. Frying a food, for example, not only adds unhealthy fats but also increases its glycemic index, meaning it will spike your blood sugar faster than its boiled or baked counterpart. A baked potato is good; a French fry is a metabolic challenge.

The Principle: Whenever possible, choose foods that are boiled, steamed, or baked. These methods preserve the food's integrity without adding inflammatory oils or creating the blood sugar spikes associated with fried foods.



6. The Snacking Strategy

Unplanned snacking, driven by ravenous hunger, is where good intentions go to die. The key is not to eliminate snacks, but to make them strategic. By eating a small, healthy snack at mid-morning and mid-afternoon, you stabilize your blood sugar and prevent the desperate hunger

that leads to bad choices at lunch and dinner.

The Principle: Eat two planned snacks a day, around 10 a.m. and 3 p.m. Make at least one of them a small green or fruit salad. For the other, a handful of nuts or a cup of yogurt is perfect. This strategy allows you to arrive at your main meals calm and in control, ready to enjoy the social pleasure of eating without overdoing it.

7. The Flavor-Matching Principle

The feeling of deprivation is the number one reason diets fail. The moment you believe you can never again have the chocolate or pasta you crave, you've already started the countdown to failure. The secret isn't elimination; it's intelligent substitution.

The Principle: Use the Lower 6 app to find a healthier version of the flavor you crave. Instead of a piece of milk chocolate cake (a five-alarm fire for your blood sugar), the app can guide you to a piece of rich, 85% dark chocolate with strawberries (a gentle, low-impact delight). You satisfy the craving, stabilize your blood sugar, and stay on track.

8. The "Three Songs" Method for Exercise

You don't need to spend hours at the gym to get results. In fact, research shows that interval training—alternating between moderate and high intensity—burns twice the fat in half the time. The easiest way to do this is with music.

The Principle: Pick three of your favorite songs. Start walking at a normal pace for the first song. When the second song kicks in, pick up the pace to a brisk walk—fast enough to make you breathe a little harder. For the third song, return to your normal, comfortable pace. This slow-fast-slow pattern creates a powerful "afterburn effect," where your metabolism stays elevated for hours after you're done. As you get stronger, just add more songs.

9. The Final Principle: Eat Closer to the Earth

The more processed a food is, the more its natural health benefits have been stripped away. The fiber is removed, the sugar is concentrated, and chemicals are added. A whole apple, with all its fiber, is a low-glycemic food that makes you feel full. The same apple turned into apple juice is a high-glycemic drink that will leave you hungry for more.

The Principle: In every food choice, ask yourself: "How many steps did this take to get from the farm to my plate?" The fewer the steps, the better it is for your body. Choose whole, natural foods whenever you can.

These nine principles are your starting point. They are simple, science-backed, and sustainable. Implement them one at a time, week by week, until they become second nature. This is not a diet. It is the foundation for a new, healthier, and more enjoyable way of life. In the chapters that follow, we will show you the powerful clinical evidence that proves it works.

CHAPTER 2: LOWER 6 APPLICATION - THE CLINICAL TRIAL

Clinical trial utilizes the Lower 6 phone application to measure the effects of the App.

There is a frustrating, tragic paradox at the heart of modern medicine. We live in an age of pharmacological marvels, with pills and treatments capable of managing diseases that once condemned millions to an early grave. Yet these preventable diseases continue to claim lives, not because the science is flawed, but because human behavior is. We have solved for the molecule but not for the man. The fundamental problem remains a stubborn constant: patients are consistently non-compliant with their medications, but they never, ever miss a meal.

This simple, powerful observation became the foundation for a question that would drive our research for years: What if we could harness the one behavior people perform with unwavering consistency—eating—to prevent and manage disease? What if the prescription wasn't in a bottle, but on a plate?

To answer this, we journeyed to Colombia. Between January 2017 and March 2018, we conducted a 15-month clinical trial with one hundred men and women across the vibrant cities of Barranquilla and Cali. Our central question was direct: Can using a simple smartphone application to guide daily food choices produce real, measurable improvements in a person's health?

The answer, we discovered, was an unequivocal yes.

This chapter presents the results of that study, a body of evidence demonstrating that a diet guided by the glycemic index is not a theoretical wellness trend, but a powerful clinical tool. The findings that follow are a testament to the idea that small choices, made consistently, can fundamentally alter our metabolic destiny.

This work, and the hope it represents, is dedicated to the memory of Dr. Vicente Jiménez of Cali. We were scheduled to meet and advance this research together, but he passed away just two days before our appointment. His spirit and his profound commitment to preventive medicine live on in these results.

The Architecture of the Study

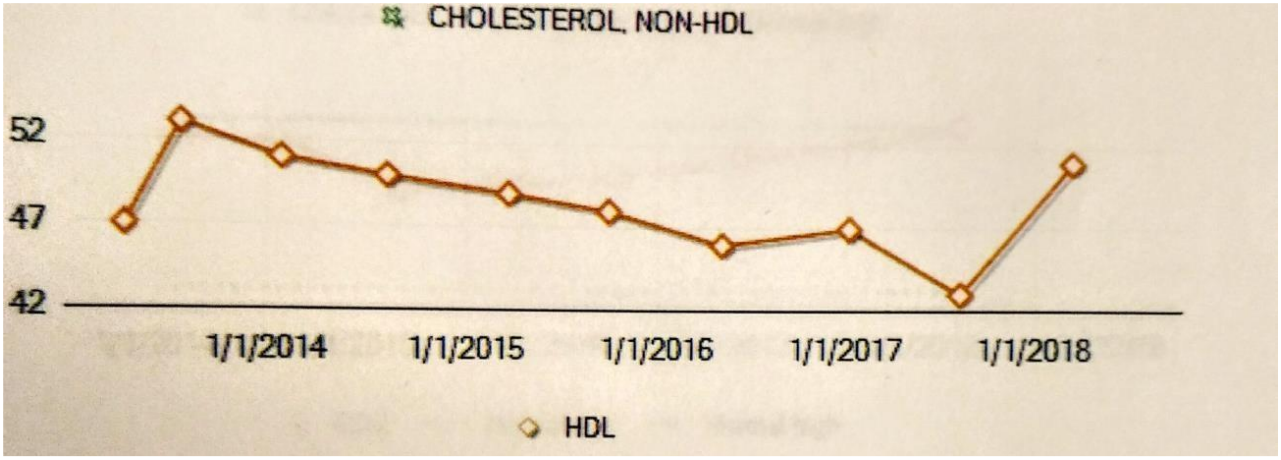
Our experiment was designed for the real world. We enrolled one hundred adults and asked them not to adopt a radical new diet, but to simply integrate a digital tool—the Lower 6 smartphone application—into their existing lives. For fifteen months, these participants used the app as a guide. Before a meal, they could identify a food and receive instant feedback on its glycemic impact. The app didn't forbid; it informed. It would offer alternatives, suggesting a similar food with a lower glycemic load, empowering users to make a better choice in the moment without feeling deprived.
We focused our investigation on four critical areas of health, markers that serve as bellwethers for some of the most prevalent chronic diseases of our time:

1. **HDL Cholesterol:** The "good" cholesterol that acts as a scavenger, removing harmful cholesterol from arteries and protecting against heart disease.
2. **Triglycerides:** Fats in the blood that, when elevated, are a key risk factor for cardiovascular events.
3. **Prostate Health:** Specifically, markers related to benign prostatic hyperplasia (BPH) and early-stage prostate cancer in our male participants.
4. **Glycemic Control:** The body's ability to manage blood sugar, measured by the gold-standard Hemoglobin A1C test, which reflects a three-month average and is used to diagnose and manage pre-diabetes and Type 2 diabetes.

The intervention was not a diet; it was a guidance system. Participants ate the foods they were accustomed to, but with a new layer of information. The results of this subtle but profound shift in behavior were remarkable.

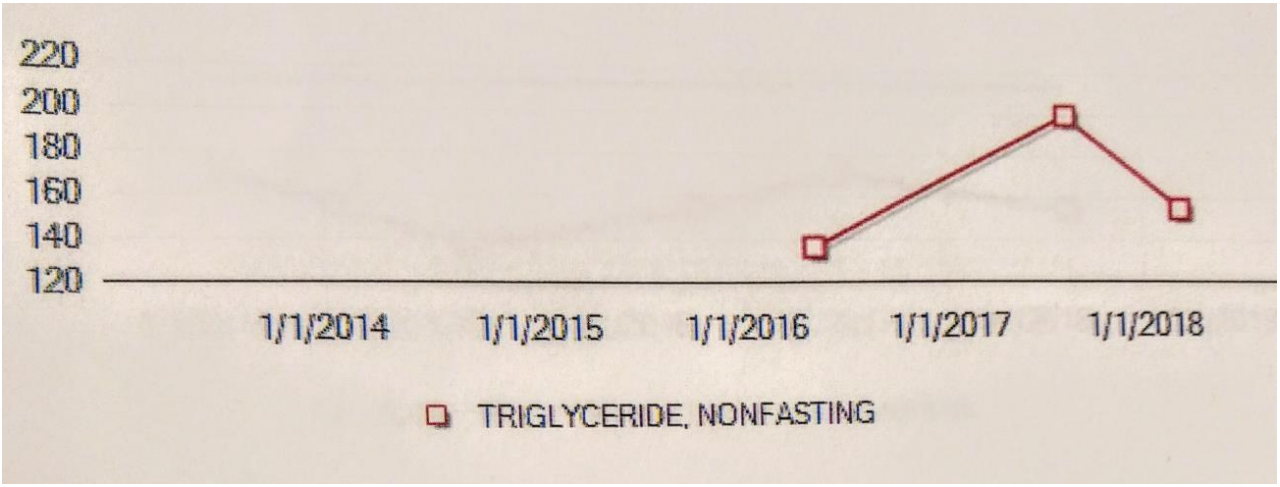
Finding 1: The Rebalancing of the Blood

For decades, clinicians have sought effective ways to manage the delicate balance of lipids in the bloodstream. Two of the most important players in this drama are HDL cholesterol and triglycerides. They exist in a metabolic seesaw: when one goes up, the other tends to go down. An ideal profile—high HDL and low triglycerides—is strongly protective against heart attack, stroke, and even the progression of Alzheimer's disease.



Traditionally, raising HDL has been notoriously difficult. It requires interventions like vigorous, sustained aerobic exercise, high-dose omega-3 supplementation, or, in women, the presence of estrogen. Lowering triglycerides often involves strict diets and medication. Our study posed a different question: Could simply changing the *type* of carbohydrates one eats affect this critical ratio?

The data came back with stunning clarity. As participants consistently used the app to select foods with a lower glycemic index and load, their triglyceride levels began a steady, consistent decline. The metabolic noise generated by high-sugar, high-impact carbohydrates subsided. And as this happened, the other side of the seesaw responded. Without any new exercise regimens, supplements, or medications, their HDL cholesterol—the protective kind—began to rise.



This dual effect is the holy grail of lipid management. Lowering triglycerides reduces the immediate cardiovascular burden, while raising HDL actively fortifies the body's defenses against arterial plaque. Through choices made at the dinner table, guided by a simple app, our participants were fundamentally reducing their risk of heart disease, stroke, and

neurodegenerative decline.

Finding 2: An Unexpected Clue in Prostate Health

While the link between diet and cardiovascular health is well-established, the connection to cancer is more complex. Our hypothesis centered on a cellular mechanism known as **tyrosine kinase activity**. In simple terms, tyrosine kinases are enzymes that act like a gas pedal for cell growth, signaling cells to divide and multiply. While this is a normal biological process, cancer cells are uniquely positioned to exploit it.

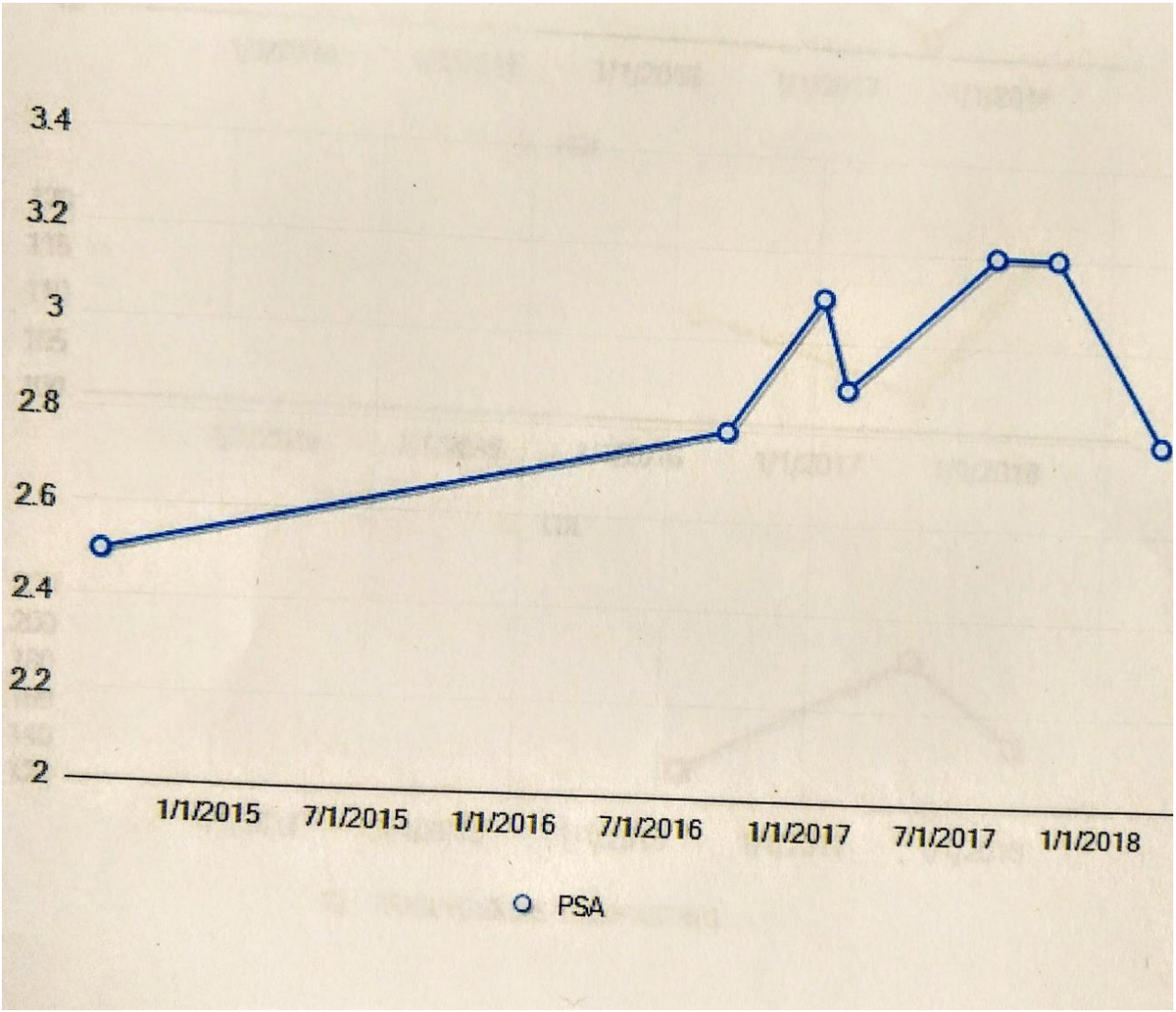
Imagine that high-glycemic foods—which flood the body with sugar and provoke a strong insulin response—create a sustained “grow, grow, grow” signal throughout the body. Healthy, normal cells might respond to this signal, but they are constrained by their natural lifecycle, which is already programmed for eventual cell death (apoptosis). Cancer cells, however, have no such constraints. They are immortal, rogue cells, and they respond to this constant growth signal with aggressive proliferation. A high-glycemic diet, we theorized, may be the fuel that fans the flames of certain cancers.

Use of the Lower6 app helped participants improve their A1C profile. For participants already on diabetic therapy we followed this "physiology" based guideline when selecting medications to help treat DBM type 2;

1) Basal insulin, Bolus Insulin and meal transmission time are crucial for DBM2 management.
2) Metformin/Rapid acting insulin, help control Bolus sugar spikes.
3) Sulfonylureas/Long-acting insulin, help control Basal sugar levels.

3) Use Metformin (First) = Bolus sugar control. When this starts to fail then #4 4) Metformin/Sulfonylureas = Bolus/Basal sugar control. When this starts to fail then #5
5) Metformin/Long-acting insulin = Bolus/Basal sugar control. When this starts to fail then #6
6) Rapid acting insulin/Long-acting insulin = Bolus/Basal sugar control.

My research demonstrated dark colored beans slow gastric emptying similar to the DBM2 medication Byetta. Slow gastric emptying helps a person feel full faster which stops them from over eating.



In the male participants of our study who had been diagnosed with benign prostatic hyperplasia or early-stage prostate cancer, we observed a promising trend. Those who adhered to the low-glycemic guidance showed measurable improvements in markers associated with prostate health.

While this research is preliminary, it points toward a powerful, multi-pronged strategy for cancer prevention and management. The first prong is dietary: identifying and avoiding high-glycemic foods that send these problematic growth signals. The second is pharmacological: using existing tyrosine kinase inhibitor (TKI) drugs to block these signals in patients with advanced disease. The third is environmental: investigating toxins that may mimic these signals, independent of diet. This finding opens a new and vital avenue of research, one where food is not just nourishment, but a form of biological signaling that can either promote or discourage disease.

Finding 3: Taming the Sugar Beast

For the millions living with Type 2 diabetes or the precipice of pre-diabetes, life is a constant battle to manage blood sugar. The Hemoglobin A1C test tells the story of that battle, offering a three-month snapshot of glucose control. A level below 5.7% is normal; above 6.5% is diabetic. The goal for those with diabetes is to stay below 7.0%.

The results from our Colombian participants were nothing short of life-changing. Individuals with pre-diabetes saw their A1C levels fall, many moving back into the normal, healthy range. For those already diagnosed with Type 2 diabetes, their A1C values decreased significantly, indicating a level of control that many had struggled for years to achieve with medication alone.

This success was so profound that it began to alter their reliance on medication. In modern diabetes care, treatment often follows a predictable ladder of escalation. It begins with Metformin, a drug that helps control the spike of blood sugar after a meal. When that is no longer enough, a sulfonylurea is added to manage the background (basal) glucose levels. From there, patients progress to long-acting insulin, and finally to a full regimen of both long-acting and rapid-acting insulin.

Many participants in our trial were able to halt their progression up this ladder. Some even took a step back down, reducing their medication under their doctor's supervision. By controlling their blood sugar through food, they were lessening the need for pharmacological intervention. They were, in effect, treating their disease with their diet.
During this part of the study, we also stumbled upon a fascinating discovery: dark-colored legumes, like black and kidney beans, were found to slow the rate of gastric emptying. This mechanism, which helps people feel full faster and longer, is the same principle behind the popular diabetes drug Byetta. Here was a natural, whole-food solution that could provide appetite control, reduce overall food intake, and complement the glycemic benefits of their new eating pattern.

A New Paradigm for Health

The message from the Colombia trial was unified and clear. Across cardiovascular, metabolic, and even oncological markers, guiding food choices toward lower-glycemic options produced concrete, positive health outcomes.

This approach succeeds where so many diets fail because it rejects the dogma of restriction and embraces the power of information. It does not demand complex meal planning, tedious calorie counting, or the elimination of entire food groups. It meets people in the aisle of the grocery store and at the restaurant table, offering a simple, actionable choice: *this, instead of that*.

By doing so, it solves the compliance paradox that opened this chapter. It weaves a therapeutic intervention into the very fabric of daily life, into the non-negotiable ritual of eating. The results speak for themselves: in a world where medication adherence hovers around 50 percent, the adherence to this form of guided eating was remarkably high, sustained over fifteen months.

Of course, this study is a beginning, not an end. The findings from our one hundred brave participants in Colombia must be replicated in larger, more diverse populations. But it serves as a powerful proof of concept, a clinical foundation for a new way of thinking about health.

For too long, we have outsourced the management of our bodies to the pharmacy. The Colombia trial reminds us that the most powerful tool for health is, and has always been, within our own hands. The prescription is on our plate. We simply needed a better way to read it.

CHAPTER 3: TELEMEDICINE AND DIABETES MANAGEMENT

A Lifeline in a Text Message: How a Simple Experiment in Rural California is Redefining Diabetes Care

Imagine a teenager in a small town, sitting in third-period history class. Her name is hypothetical, but her situation is real for thousands. She has Type 1 diabetes, and she feels the familiar, dreaded shakiness begin—a sign her blood sugar is plummeting. In the old model of care, this meant a trip to the nurse, a call home, and a lost day of school. Her doctor, the specialist she sees every three months, wouldn't hear about this scare until long after the fact.

But what if help wasn't a hundred miles and three months away? What if it was in her pocket? What if she could send a quick text message to a health provider, get immediate guidance, and stabilize her glucose levels without ever leaving her desk?

This isn't a futuristic vision; it's the reality we tested in a groundbreaking study. For people with diabetes, life is a constant tightrope walk between insulin doses, food choices, and unpredictable blood sugar swings. The traditional healthcare system, with its periodic appointments, is like a safety net with enormous holes. We wanted to see if technology could weave that net tighter, providing real-time support that could prevent falls before they happen. Our research shows that it can, offering compelling evidence that a simple text message can bridge the vast distances—both geographic and temporal—that separate patients from the care they need.

The Daily Tightrope of Type 1 Diabetes

To understand the impact of our study, one must first understand the relentless reality of living with Type 1 diabetes. It is not a disease of occasional inconvenience; it is a 24/7 job of self-management. Unlike Type 2 diabetes, which can sometimes be managed with diet and oral medication, Type 1 is an autoimmune condition that demands lifelong insulin

therapy.

The daily routine is a masterclass in vigilance: multiple insulin injections, frequent finger pricks to monitor blood glucose, and the constant mental calculus of matching insulin to every carbohydrate consumed. A miscalculation, a stressful day, or an unplanned walk can send blood sugar soaring into hyperglycemia (above 150 mg/dL) or crashing into hypoglycemia (below 70 mg/dL).

The stakes are terrifyingly high. In the short term, a crash can lead to confusion, loss of consciousness, or a seizure. In the long term, chronically high blood sugar quietly ravages the body, leading to heart disease, kidney failure, vision loss, and nerve damage.

The metric for this battle is Hemoglobin A1C, a blood test that acts as a three-month report card of a person's average glucose control. For someone with Type 1 diabetes, the target is below 7.0%. An A1C above 8.0% signals poor control and a significantly higher risk for devastating complications.

A Simple Experiment with a Powerful Idea

Our research began with a question: to what extent could personalized dietary instructions, delivered instantly via text message, help people who were struggling the most?

We recruited forty people from rural California who were living this reality every day. They were all diagnosed with Type 1 diabetes, were already taking insulin multiple times a day, and yet their A1C levels were dangerously high, ranging from 8.0% to 11.0%. These were individuals who had missed school or work because of their condition and lived in areas where a visit to a specialist endocrinologist was a significant undertaking. They were the very people the traditional system was failing.

The design was elegant in its simplicity. Each person served as their own control group. We measured their A1C at the beginning, then for three months, we implemented our text-messaging intervention. Afterward, we measured it again.

Here’s how it worked. Participants used a free app, Glucose Buddy, to log their blood sugar readings, meals, and insulin doses. Whenever a reading fell outside the safe range—too high or too low—they would send a text to a healthcare provider.

The exchange was immediate and specific:

Patient (2:15 PM): "BS is 210. Had a sandwich and chips for lunch an hour ago. Took 6 units of Humalog."
Provider (2:18 PM): "The white bread and chips caused that spike—both are high on the glycemic index. For a correction, take 2 additional units now. Next time, try that sandwich on whole-grain bread and swap the chips for a handful of nuts. You'll see a

much smaller spike and will need less insulin."
This wasn't generic advice to "eat healthier." It was timely, personalized, and educational. It connected the abstract number on their glucose meter to the concrete food on their plate, forging a powerful link between cause and effect that is often lost by the time a patient gets to a doctor's office weeks later.

The Verdict: A Meaningful Leap Forward

After three months, the results were striking. The average A1C for the group plummeted from **9.8% to 8.3%**—a massive 1.5-point drop. In fact, 97% of the people who completed the study saw their A1C improve. Statistically, the results were irrefutable; the probability of this improvement happening by chance was less than one in a thousand.

The greatest improvements were seen in those who started with the highest A1C levels and engaged most frequently with the guidance. They were learning, in real-time, how to navigate their dietary landscape.

It's important to frame this result with honesty. Was it a complete victory? Not entirely. An A1C of 8.3% is still higher than the clinical target of 7.0%. This intervention alone didn't bring most participants to a level of "optimal" control. But that distinction misses the bigger picture. In the world of chronic disease, progress is not about finding a single magic bullet; it's about adding effective tools to the arsenal. A 1.5-point reduction in A1C represents a substantial decrease in daily symptoms and a dramatic reduction in the long-term risk of complications. We had shown that dietary guidance, delivered at the right moment, could be a powerful tool alongside insulin therapy.

Why It Worked: The Power of 'Right Now'

The success of this study hinges on one critical factor: timeliness. The traditional model of diabetes care is retrospective. A doctor looks at weeks of data and tries to find patterns. But for the patient, the memory of what they ate three Tuesdays ago is foggy at best.

Our telemedicine approach made the feedback loop instantaneous. It transformed a moment of frustration—a high blood sugar reading—into a teachable moment. This real-time coaching empowers patients, helping them develop the intuition and knowledge to make better choices on their own over time. It shifts the focus of care from the clinic to the kitchen, where the most impactful decisions are made every day.

This principle was reinforced by our earlier work in Colombia. There, individuals with Type 2 diabetes used the Lower 6 app, an automated tool providing glycemic guidance. Without any human interaction, their A1C levels also improved. Whether delivered by a human via text or an algorithm via an app, the core lesson is the same: providing specific, actionable information at the moment of decision-making changes behavior and improves health.

The Future of Care is a Conversation

This study is more than just data; it's a proof of concept for a new era of chronic disease management. It shows that we can use simple, accessible technology to overcome the geographic barriers that leave rural populations underserved. A single specialist can support dozens of patients across a wide area, turning a smartphone into a virtual clinic.

For healthcare systems, the implications are profound. This high-impact, low-cost intervention can reduce emergency room visits, prevent missed days of work, and lower the staggering long-term costs of diabetic complications.

The future of diabetes care is not a series of appointments; it’s a continuous conversation. By meeting people where they are—in their lives, on their phones—we can transform a disease defined by constant vigilance into one managed with constant support. Our study shows that sometimes, the most powerful prescription a provider can offer isn't a pill, but a piece of advice, delivered at exactly the right time.

The principles and results detailed in this chapter are a synthesis of the formal research conducted by the author. For a comprehensive review of the study's design, statistical analysis, and primary data, readers are directed to ***Appendix A****, which contains the original publication.*

CHAPTER 4: THE HORMONE OF HOPE: ESTROGEN, BRAIN FOG, AND THE FIGHT FOR YOUR MIND

For millions of women, it begins subtly. A forgotten name here, a lost word there. A persistent feeling of mental slowness that gets chalked up to stress or a bad night's sleep. They call it "brain fog," and for decades, it has been dismissed as a minor, unfortunate symptom of menopause. But what if it's not minor at all? What if that fog is the first sign of a gathering storm—a warning of a profound metabolic shift in the brain that leaves it vulnerable to cognitive decline and, ultimately, Alzheimer's disease?

This chapter might seem like a departure from our discussion of diet and blood sugar, but it is deeply connected. We are about to explore the powerful, and often misunderstood, role of estrogen in protecting the female brain. It's a story of a scientific bombshell that terrified a generation of women, the careful detective work that followed, and the new, hopeful understanding that is emerging today—an understanding that places hormonal health right alongside nutritional health in the battle for a long and vibrant life.

The Bombshell that Changed Everything

For a long time, doctors believed hormone therapy (HT) was something of a miracle for menopausal women. It eased symptoms and was thought to protect everything from bones to the heart. Then, in 2002, a massive study called the Women's Health Initiative (WHI) dropped a bombshell on the medical world. The results seemed to show that hormone therapy, far from being a protector, was actually dangerous. Most terrifying of all, the study suggested it *increased* a woman's risk of developing dementia.

The fallout was immediate and catastrophic. Prescriptions for hormone therapy plummeted. Doctors became fearful of recommending it, and an entire generation of women was taught to view menopause as something to be endured without help. The

message was clear: hormones were the enemy.

A Second Look: What the Study Got Wrong

But as the panic subsided, scientists began to look closer at the WHI study, and they noticed some critical flaws. It was like re-examining the evidence from a crime scene and realizing the initial conclusions were based on a misunderstanding. They discovered two major problems:

1. **The Timing Was Wrong:** The WHI study gave hormones to many women who were in their 60s and 70s, a full decade or more past the onset of menopause. This is like trying to prevent a house from flooding by fixing the roof *after* the storm has already passed and the damage is done.
2. **The Tools Were Wrong:** The study used a combination of synthetic hormones, including estrogens derived from horses (conjugated equine estrogens, or CEE), not the bioidentical estrogen the human female body produces naturally.

These two factors changed everything. It wasn't that hormones were inherently bad; it was that the *wrong kind* of hormones, given at the *wrong time*, could have negative consequences.

The Critical Window and the Brain's Energy Crisis

This new understanding gave rise to a powerful idea: the "critical window" theory. Newer research from pivotal studies like KEEPS and ELITE began to show that if you give the *right kind* of estrogen to women *at the right time*—during the perimenopausal transition or in the first few years after menopause—the effect isn't just safe; it can be profoundly protective for the brain.

So how does this work? And what does it have to do with diet and blood sugar?

The connection is **brain energy**. Your brain is an energy hog, and its primary fuel source is glucose. Estrogen acts like a master key, helping your brain cells efficiently unlock and use that glucose to power everything you think, feel, and remember.

When a woman enters menopause, her estrogen levels plummet. Suddenly, the brain loses its master key. The brain cells struggle to get the fuel they need, triggering a kind of metabolic crisis. This is the biological reality behind "brain fog"—your brain is literally struggling for energy. This state of low energy makes the brain vulnerable. It becomes inflamed and less able to clear out the cellular waste—the toxic amyloid plaques and tau tangles that are the physical hallmarks of Alzheimer’s disease. In fact, some scientists now refer to Alzheimer's as **"Type 3 Diabetes"** because it is, at its core, a problem of impaired glucose metabolism in the brain.

A New Conversation, A New Hope

This research changes the conversation entirely. The question is no longer "Is hormone therapy good or bad?" The question is, "For *whom* and *when* is it a powerful tool for preventive health?"

For women entering the menopausal transition, especially those with a family history of Alzheimer's, this information is vital. It suggests that replenishing estrogen during that critical window isn't just about managing hot flashes; it's about protecting the very energy supply of your brain for decades to come. It’s a proactive strategy to guard against cognitive decline, turning what was once a source of fear into a source of hope and empowerment.

Protecting your metabolic health isn't just about what's on your plate. It's about understanding and supporting the complex hormonal symphony that keeps your body—and your brain—running beautifully. This is a conversation every woman deserves to have with her doctor, armed with this new, life-changing knowledge.

CHAPTER 5: YOUR PERSONAL ACTION PLAN

We have come to the end of this book, but we are at the beginning of a far more important journey: yours.

If you have read this far, you have armed yourself with a profound and powerful truth: that food, chosen wisely, is the most effective medicine on the planet. You have seen the clinical evidence from real people in Colombia and California whose lives were changed not by a new pill, but by a new understanding. You know that by working *with* your body's metabolism instead of against it, you can take back control of your health.

But knowledge, on its own, is not enough. The space between knowing what to do and actually doing it is where most health transformations fail. It is a space often filled with overwhelm, confusion, and the paralyzing fear of not being perfect.

This final chapter is our bridge across that gap. It is not about more information. It is about your first step. And your next. It is your personal action plan, and it is simpler than you think.

The First Step: Your Commitment for the Next 72 Hours

Forget everything else for a moment. Forget the nine principles, the app, the glycemic index charts, and the exercise routines. Trying to change everything at once is a recipe for failure. True, lasting change begins with a single, achievable victory.
Here is your first and only task:

For the next three days, your sole focus is to eat breakfast.

That's it. Within 90 minutes of waking, you will sit down and eat a real meal. You will give yourself at least 30 minutes to do it, without rushing. You are not to worry about what you eat, how many carbs it has, or whether it's "perfect." Your only goal is to show up and break

your overnight fast.

Why this one act? Because breakfast is the metabolic key that starts your body's engine. It stabilizes the very blood sugar roller coaster that drives cravings and fatigue for the rest of the day. But more importantly, it is an act of profound self-respect. It is a declaration that your health is worth the time, first thing in the morning.

For three days, you will do this. You will build a foundation of success. You will prove to yourself that you can make a commitment and keep it. And you will feel the difference. That feeling—that small, powerful shift in your energy and control—is the fuel for everything that comes next.

Building Your Foundation, Brick by Brick

Once that first victory is won, once eating breakfast begins to feel like a non-negotiable part of your day, you can begin to lay the next brick. This is not a race. This is the careful, deliberate construction of a new, healthier life.

I suggest you introduce a new principle from Chapter 1 every week or two, in whatever order feels most natural to you. Perhaps you'll tackle the beverage rule next, replacing sugary drinks with water. Then, you might move to the "one-a-day" carb rule.

With each new brick you lay, the foundation becomes stronger. By the time you decide to focus on strategic snacking, the breakfast habit is already on autopilot. You are not juggling nine new habits; you are simply adding one new, conscious choice to a growing bedrock of unconscious competence. This gradual, patient process is the secret to change that lasts a lifetime.

The Power Tool: Integrating the Lower 6 App

There will come a point in your journey, perhaps a month or two in, when you are ready to accelerate your progress. You have the foundational habits in place, and now you want to make smarter choices with less effort. This is the moment to pick up your power tool: **the Lower 6 app.**

Think of it this way: the principles in this book are your map. They show you the destination and the main roads to get there. The Lower 6 app is your personal GPS. It provides real-time, turn-by-turn guidance. Standing in the grocery aisle? Wondering what to order at a restaurant? The app removes the guesswork. You can search for a food you crave—"chocolate," "pasta," "pizza"—and it will instantly show you the best available options, ranked by their metabolic impact.

It is not a tool of restriction; it is a tool of discovery. It will not tell you that you can't have pasta. It will show you the whole-grain or legume-based pasta that will satisfy your craving without sabotaging your blood sugar. It is the key to making this a sustainable lifestyle, not

a temporary diet.

The Partnership: Bringing Your Doctor on Board

As you begin to feel better and see changes, it is time to bring a crucial ally onto your team: your physician. This is not about asking for permission; it is about forming a partnership. Your body is about to change in measurable ways. If you have pre-diabetes or diabetes, your A1C levels will likely improve. Your "good" HDL cholesterol may rise, while your triglycerides fall. As this happens, your need for medication may decrease. These are critical adjustments that must be made under a doctor's supervision.

Schedule an appointment. You can say something as simple as:

"Doctor, I've been making significant changes to my diet based on the principles of glycemic control. I'd like to partner with you to track my progress. Can we check my A1C and lipid panel now, and then again in three months?"

Show them this book. Point them to the clinical trials in the appendices. The data speaks for itself. A good physician will respect a patient who is educated, proactive, and invested in their own health. The numbers on your lab reports will do the rest of the convincing.

A Final Thought: Welcome to Your New Life

The journey you are about to begin is not about chasing a number on a scale. It is about reclaiming your energy, your clarity, and your future. It is about the freedom that comes from understanding your body, not fighting it. It is about preventing the diseases that steal years of life and vitality from so many.

The clinical trials in this book prove that this approach works. But the only trial that truly matters now is your own. Your experiment of one.

You have the map. You have the tools. You have the first step.

The end of dieting is not a finish line. It is a starting gate. Welcome to the first day of the rest of your vibrant, healthy life. I'll see you at breakfast.

What follows is not a rigid meal plan you must follow. Think of it instead as a blueprint, a sample of what your first few weeks could look like as you begin to integrate these principles. Your own days will look different, and that's perfect. Use this as a source of inspiration, not a set of rules.

Your First Week: A Sample Blueprint

Week 1: The Foundation

- **Your Only Goal:** Eat breakfast every day.
- **Monday:** Breakfast: Greek yogurt with berries and a drizzle of honey. Lunch/Dinner: Whatever you normally eat.
- **Tuesday:** Breakfast: Two scrambled eggs with a slice of whole-grain toast.
- ...and so on for the week, showing variety in breakfast but emphasizing that's the *only* change.

Week 2: Adding a Layer

- **Your Goals:** Continue breakfast + implement the Beverage Rule.
- **Monday:** Breakfast: Oatmeal with nuts. Beverage: 4oz of orange juice. *Rest of the day: Water only.*
- **Tuesday:** Breakfast: Protein smoothie. Beverage: 4oz of coffee with honey. *Rest of the day: Water only.*
- ...and so on.

Week 3: The "Full Implementation" Daily View: After showing the weekly build-up, give them a detailed snapshot of a single day where all the principles are working together.

A Day in the Life: Putting It All Together

- **7:30 AM (Breakfast):** Two scrambled eggs with spinach and a side of avocado. 4oz of coffee with honey. (Principles: Breakfast, Sweetener)
- **10:00 AM (Snack):** A handful of almonds and an apple. (Principle: Strategic Snacking)
- **1:00 PM (Lunch):** Large green salad topped with grilled chicken, chickpeas, and an olive oil vinaigrette. A large glass of water. (Principles: Whole Foods, Beverage Rule)
- **3:30 PM (Snack):** A small bowl of mixed berries. (Principle: Strategic Snacking)
- **5:30 PM (Exercise):** A brisk 12-minute walk listening to your three favorite songs. (Principle: Interval Exercise)
- **7:00 PM (Dinner):** Baked salmon with a side of steamed broccoli and a small portion of quinoa. (Principles: Food Prep, Carb Rotation - choosing quinoa instead of rice/pasta/bread for the day)
- **Throughout the Day:** Using the Lower 6 app to confirm the quinoa and salmon are great choices. (Principle: Flavor Matching/Tech)

This structure accomplishes everything: it provides the concrete schedule readers crave, reinforces the gradual habit-building method, and gives them a clear, inspiring vision of what a successful day looks like.

APPENDIX A

Improved A1C Readings for Diabetic Patients through Telemedicine

Colin Ross, M.D. Ph.D. M.P.H.

Abstract

Background: Telemedicine has greatly affected healthcare service delivery in terms of reducing pharmaceutical errors, decreasing medical malpractice rates, and improving patient wait times during clinical visits. Telemedicine technologies are defined as electronic interfaces and information technologies that provide or support clinical healthcare at a distance. This study examined the influence of personalized mobile phone text messaging containing specific feedback based on patients' blood glucose levels and dietary choices on hemoglobin A1C levels for patients with type 1 diabetes living in rural areas.

Method: This study involved a quasi-experimental design. The dependent variables were the receipt of dietary instructions via text messaging and the subsequent lowering of hemoglobin A1C levels over a 3-month period of time. The sample consisted of 40 patients who were 18 years or older, suffering from type 1 diabetes, receiving bolus insulin therapy 3 times daily with suboptimal or poor glycemic control and having an HbA1C level ranging from 8.0% to 11.0%.

Results: The results illustrated that a majority of study participants experienced statistically-significant changes in their hemoglobin A1C levels over the 3-month period of the study in response to patient-provider text message intervention.

Conclusions: These results indicated that personalized distance-care attended by chronic disease experts can facilitate general care and treatment of patients with diabetes and their needs that require timely intervention. 0.5 decrease in A1C also reduces the risk of developing chronic complications in patients with diabetes [4]. The most common strategy for diabetes management is pharmacological, wherein the patient administers insulin [5]; however, although the effect of insulin on erratic blood glucose levels is important, this effect is temporary and secondary to that of improved dietary sugar intake [6].

Introduction

Glycemic control is a focal matter for management of patients with diabetes. Erratic blood glucose fluctuations can occur in patients whose blood glucose level falls below 70 mg/dl or above 150 mg/dl, often due to the consumption of either high or low glycemic indexed or glycemic loaded foods [1]. A patient with diabetes who experiences continued erratic blood glucose fluctuations for time periods greater than 2 months could suffer from increased

morbidity, disease burden, disease outcomes, or mortality [2]. Controlling carbohydrate intake (e.g. consumption of low glycemic foods) independent of body mass index (BMI) is crucial for diabetes management [3]. A 0.5 reduction of hemoglobin A1C (A1C) levels decreases the burden of disease for patients with diabetes in terms of days lost from work or school, as well as the physical strains associated with the disease such as feeling weak or tired [4]. Each Mobile phone applications for diabetes can record and save a patient's food intake and blood glucose levels [7]. In cases of erratic blood sugar fluctuation, the patient can use the application and send a text message to the healthcare provider from any location. The healthcare provider can then send detailed instructions for dietary adjustments based on glycemic index or glycemic loading through text message. Such telemedicine interventions involving exchanges of messages through mobile phone applications are approved by the Health Insurance Portability and Accountability Act (HIPPA) [7].

With rapid feedback provided via text messaging, there may be reduced occurrences of patients seeking treatment at medical facilities or missing school or work because of erratic blood glucose levels. Additionally, mobile applications for diabetes self-management have become popular, with features such as healthy eating and self-monitoring [8]. As the increasing number of patients with diabetes poses significant challenges for health providers, telemedicine may serve as an effective way to alleviate these challenges and reduce treatment costs [9].

Despite the benefits of telemedicine in managing diabetes, there is scant published research supporting its effectiveness [10]. [11] indicated that, because telemedicine leads to increased patient empowerment, it can help reduce A1C; however, [11] provided no specific strategies to achieve this goal. Existing systematic review data have shown little to no improvement of A1C in patients with type 1 diabetes who use mobile phone text or e-mail messages [12]. The missing component of such interventions has been the behavioral component, which could produce changes in dietary behaviors of patients with diabetes. When patients with diabetes have no expert guidance on nutritional choices, they may not adhere to dietary routines, resulting in harmful erratic blood glucose fluctuations [13].

The purpose of the present study was to test the efficacy of a mobile phone feedback mechanism to achieve tight glycemic control (i.e. maintaining blood glucose levels between 70 to 150 mg/dl). The goals of the present study were to test the impact of telemedicine via text messaging and the ability of patients with diabetes to positively follow instructions to maintain healthy blood glucose levels through dietary adjustments. Based on the purpose and goals, the research question that was used to guide this study was: To what extent will the receipt of personalized instructions via text messaging reduce A1C levels over a three-month time period?

Methods

Study Design

The present study involved a within-subject pre-post quasi-experimental design, with supplementary evidence from another study conducted by the researcher. A dependent *t* test was used to compare random blood glucose levels of participants before and after telemedicine intervention. By having a single group of patients and taking repeated samples from them throughout the study, the researcher was able to eliminate between-subject variability and enhance the likelihood that changes seen were due to the intervention rather than other uncontrollable variables [14].

Population/Sample

The population for this study included patients diagnosed with type 1 diabetes. The sample included 40 participants who met the following inclusion criteria: (a) aged 18 and above; (b) had a diagnosis of type 1 diabetes; (c) was a patient undergoing daily bolus insulin therapy three times daily, with suboptimal or poor glycemic control based upon their A1C level; (d) had an A1C level

1. Three daily random blood glucose/3 = average daily random blood glucose.
2. The addition of average daily random blood glucose for 90 days/90 = three-month average daily random blood glucose.
3. Three-month average random blood glucose + 86/35 = calculated A1C over the 3-month period [15].

between 8.0% and 11.0%; (e) had missed time from school or work within a 3- month period because of erratic blood sugar fluctuation; and (f) lived in rural California, the designated area for this study.

Instruments/Measures

Participants were used the Glucose Buddy free mobile phone application by Azumio to record blood glucose levels and foods consumed, and their own glucometers to measure blood glucose levels. Participants also recorded their insulin dose, food intake, and activity levels in the electronic patient diary within the application. Random blood sugar levels were identified as readings less than 70 mg/dl or greater than 150 mg/dl. The A1C levels of participants were taken at the beginning of the study and 3 months after the study.

Data Collection

The researcher organized the raw data composed of random blood glucose readings and text messages exchanged between the healthcare provider and patient using the Glucose Buddy application. At the end of 3 months, the researcher calculated the hemoglobin A1C using the following formulas:

1. Three daily random blood glucose/3 = average daily random blood glucose.
2. The addition of average daily random blood glucose for 90 days/90 = three-month average daily random blood glucose.
3. Three-month average random blood glucose + 86/35 = calculated A1C over the 3-month period [15].

Data Analysis

Based on the results of the a priori power analysis conducted, the research required a minimum sample size of 35 patients. The power analysis was conducted based on several considerations, namely, the type of statistical analysis to be conducted (dependent samples *to* test) and a confidence interval of 95%. The
following formula was used [16]:

$$N = \frac{Z^2 + S^2}{\text{D x } 2}$$

Where:

N is the size of sample;

Z is the *z*-statistics for the desired level of confidence (1.96 for 95% confidence level);

S is the population standard deviation; and
D is the half width of the desired interval.

The precision of sample estimates was denoted by *D* [16], and based on the narrow A1C interval of 8.0 to 11, *D* was selected as 10. Based on the estimates, 30 was determined to be the appropriate *S* for the present study. For a 95% confidence level, the *Z* value was set at 1.96. A narrow A1C interval of 8.00 to 11 with a mean of 9.5, is more precise than a wider one. In this study, the researcher chose *D* = 10, or the A1C of 9.5 rounded up. As such, the required sample size was:

$$N = \frac{1.96(2) \text{ x } 30(2)}{34.6\ 10\ x\ 2}$$

Rounding the number of 34.6, the researcher needed a sample size of 35 patients to be 95% confident that the true mean of the study was reflective of the majority of patients with type 1 diabetes in the general population [16]. To test the hypotheses, dependent (paired sample) *t* tests of the preintervention and postintervention A1C levels were conducted. The *t* tests were conducted using IBM SPSS 22. The goal of the intensive feedback was to reduce the A1C calculation by 0.5 over 3 months, which is considered significant for the reduction of morbidity and mortality [17].

Ethical Considerations

Participants were examined by nursing staff to verify that they met the inclusion criteria for this study. The nurse informed patients of their rights as study participants including the voluntary nature of participation, their right to leave the trial at any time, what to do in case of emergencies, and how to download the Glucose Buddy application. Patients then signed an informed consent form while in the vitals processing room before meeting with the healthcare provider.

Patients who qualified for the study were assigned a random number that identified where they were placed on the data collection list. No value was associated with these hidden nominal variables, which served only to keep the pre-post measurements together during the statistical data analysis. The researcher is a clinical staff member certified by the federal government to abide by HIPPA regulations to keep patient information private. Informed consent and release of information forms were reviewed by the researcher for each of the participants.

Participants' clinical records were not needed, so these records were not obtained. Transparency characterized every level of this research in such a way that the participants' information did not end up in the databases of third-party organizations. The nurse in charge of quality assurance authorized the site and the participant group in this study.

Results

Assumption Testing

Prior to conducting inferential statistics to address the research questions, the researcher conducted assumption tests required for a paired or dependent samples *t* test. For this study, the sample was derived from patients living in a rural, California area, which comprised the population. Thus, the assumption that a random sample must be collected from a defined population was met [18]. The dependent variable was the difference in A1C level scale from baseline to posttreatment measurement. This variable was operationalized as a continuous variable, which satisfied the second assumption of having a continuous dependent variable. The results of the outliers test for the third assumption are shown in Figure 1 and Table 1 below.

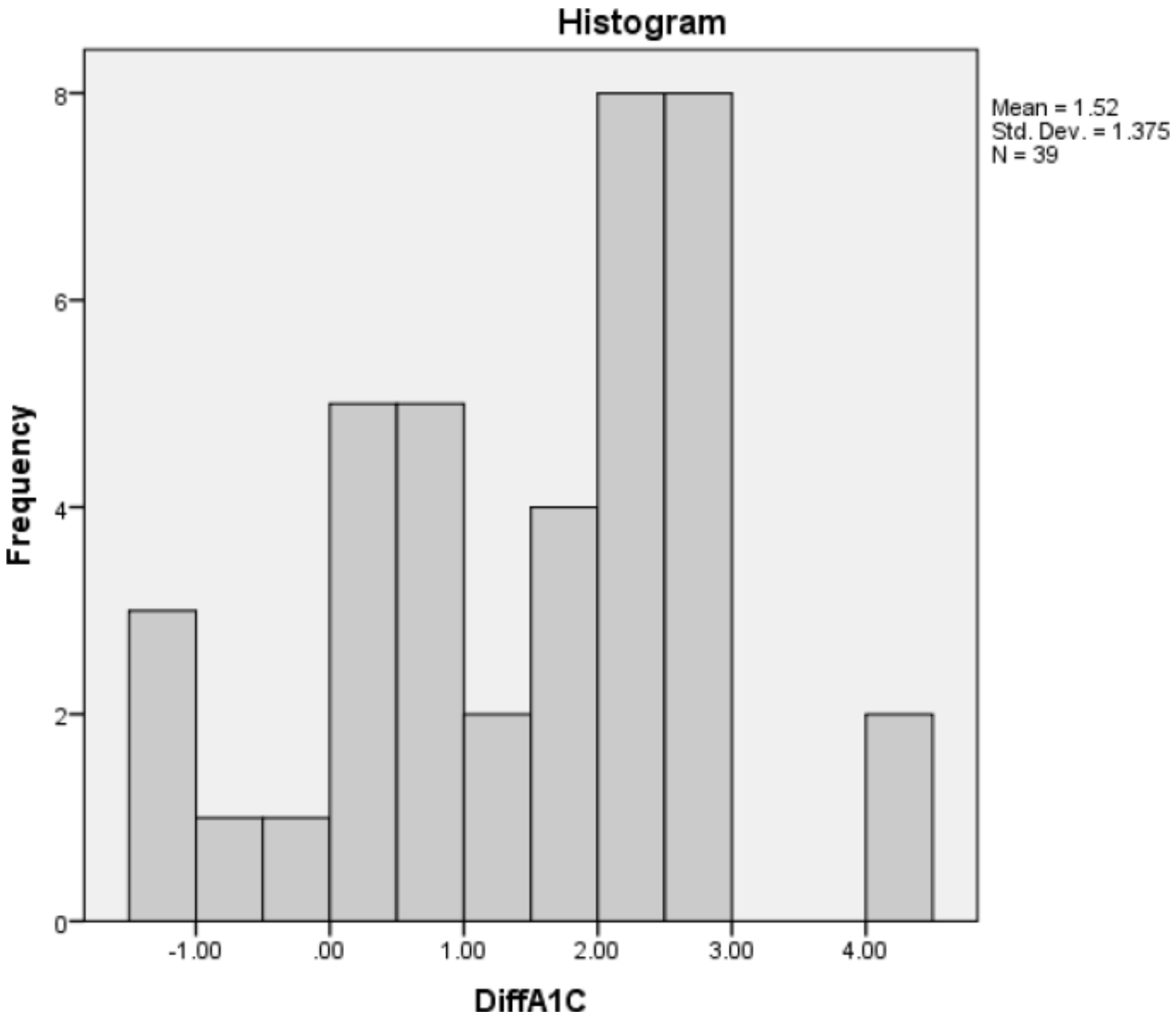


Figure 1. Histogram of DiffA1C

Table 1

Results of Outliers Test

		Case number	Value
Diff A1C	Highest	13	4.10
		25	4.10
		10	2.90
		11	2.90
		22	2.90
	Lowest	29	-1.10
		17	-1.10
		3	-1.10
		7	-.80
		37	-.10

Mean differences of the dependent variable must be normally distributed within the sample. In the present study's case, the dependent variable was the difference between the post- and preintervention scores, calculated by subtracting the post- from the preintervention scores. To determine whether the assumption of normality was met, a Shapiro-Wilk test was run in SPSS, using the reduced sample set of 35 participants. The results of the Shapiro-Wilk test are shown below in Table 2; with a *p*-value of .058, the sample is normally distributed.

Table 2

Results of Normality Testing

	Kolmogorov-Smirnov[a] Statistic	*df*	Sig.	Shapiro-Wilk Statistic	*df*	Sig.
Pre-post A1C	.175	38	.004	.946	39	.058

[a]Lilliefors significance correction.

Description of Blood Glucose Changes

The data was also tested for visual analysis of changes in A1C levels from pre- to postintervention. Figure 2 shows changes in the A1C levels of each participant while Figure 3 shows changes in A1C levels for the entire sample. Table 3 shows the groupings of the participants with regard to the degree of changes in their A1C levels. The degree of change was determined based on the following ranges: minimal (< 1), moderate (1.1 - 2.5), and maximal (2.5 and above).

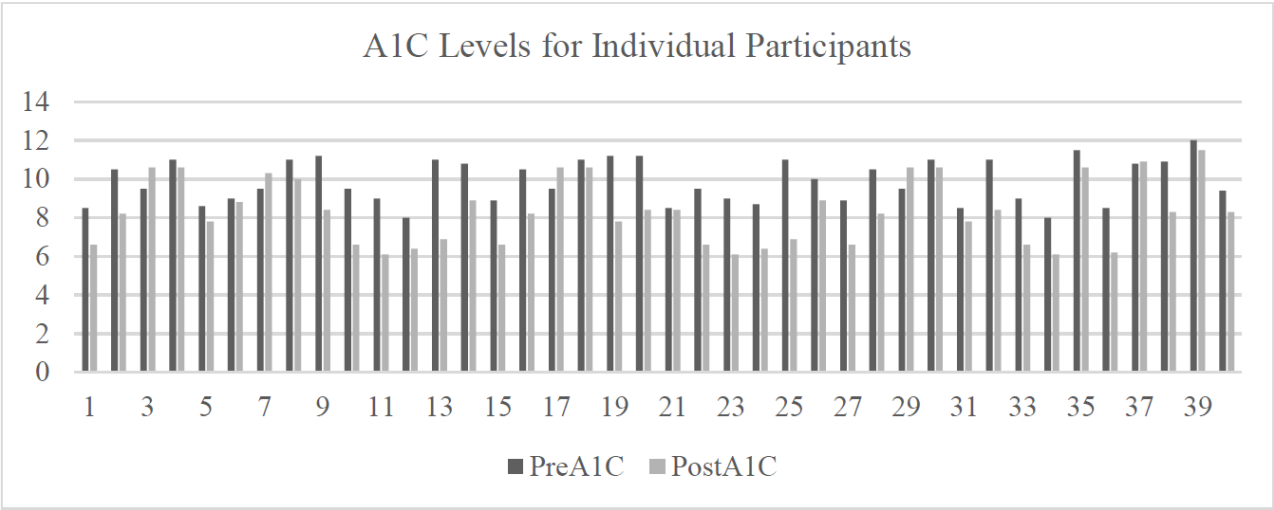


Figure 2. A1C Levels for Individual Participants

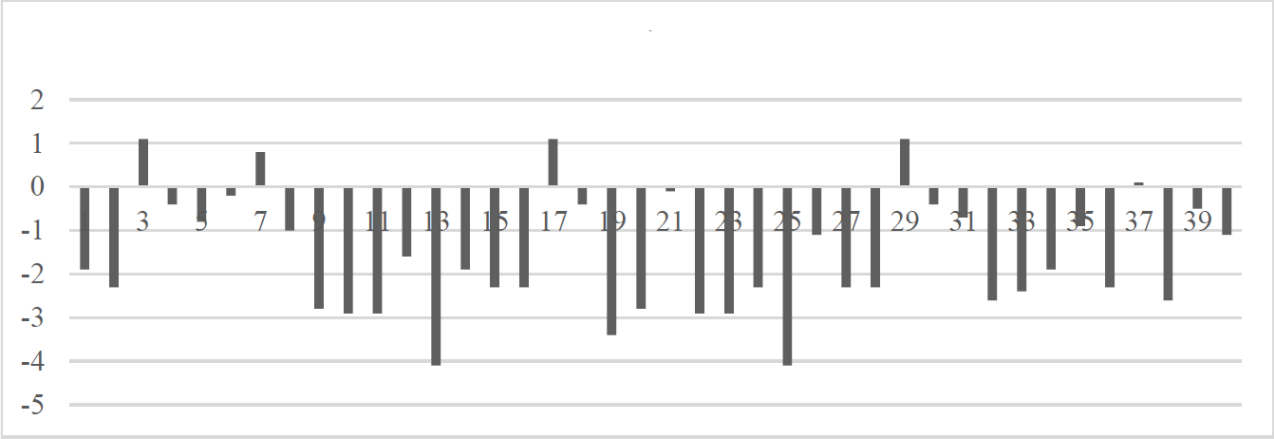


Figure 3. Changes in A1C Levels for Individual Participants

Table 3

Distribution of Participants (A1C Change Achieved) see next page

Change	Patient	Preintervention A1C	Postintervention A1C	A1C Change
Positive	3	9.5	10.6	1.1
	17	9.5	10.6	1.1
	29	9.5	10.6	1.1
	7	9.5	10.3	0.8
	37	10.8	10.9	0.1
Minimal	21	8.5	8.4	-0.1
	6	9.0	8.8	-0.2
	4	11.0	10.6	-0.4
	18	11.0	10.6	-0.4
	30	11.0	10.6	-0.4
	39	12.0	11.5	-0.5
	31	8.5	7.8	-0.7
	5	8.6	7.8	-0.8
	35	11.5	10.6	-0.9
	8	11.0	10.0	-1.0
Moderate	26	10	8.9	-1.1
	40	9.4	8.3	-1.1
	12	8.0	6.4	-1.6
	1	8.5	6.6	-1.9
	14	10.8	8.9	-1.9
	34	8.0	6.1	-1.9
	24	8.7	6.4	-2.3
	36	8.5	6.2	-2.3
	2	10.5	8.2	-2.3
	15	8.9	6.6	-2.3
	16	10.5	8.2	-2.3
	27	8.9	6.6	-2.3
	28	10.5	8.2	-2.3
	33	9.0	6.6	-2.4
Maximal	32	11.0	8.4	-2.6
	38	10.9	8.3	-2.6
	9	11.2	8.4	-2.8
	20	11.2	8.4	-2.8
	10	9.5	6.6	-2.9
	11	9.0	6.1	-2.9
	22	9.5	6.6	-2.9
	23	9.0	6.1	-2.9
	19	11.2	7.8	-3.4
	13	11.0	6.9	-4.1
	25	11	6.9	-4.1

Data Analysis Results

The researcher then proceeded with the inferential statistical analysis to address the research questions. As shown in Table 4, there was a decrease in the mean scores from the preintervention A1C (M = 9.8225, SD = 1.11964) to the postintervention A1C (M = 8.3100, SD = 1.68032). Table 5 contains the results of the paired samples t test, which indicate that the decrease between pre- and postintervention A1C is statistically significant ($t(34)$ = 7.038, p < .001). Based on these results, the null hypothesis was rejected and the alternative hypothesis, which stated "The receipt of personalized instructions will significantly reduce the level of hemoglobin A1C over a 3-month time period" was accepted.

Table 4

Results of Paired Samples t test – Descriptive Statistics

		M	*N*	*SD*	*SEM*
Pair 1	Pre-A1C	9.8225	35	1.11964	.17703
	Post-A1C	8.3100	35	1.68032	.26568

Table 5

Results of Paired Samples t test

			Paired Differences					
				95% Confidence Interval				
	Mean	SD	Std. Error Mean	Lower	Upper	*t*	df	Sig. (2-tailed)
Pair 1	Pre-A1C – Post A1C	1.51250	1.35915	.21490	1.07782	1.94718	7.038	34

Clinical significance, which pertains to whether the differences identified in the study are critical enough to result in changes in practice [19], should also be considered for the clinical treatment of type 1 diabetes. While change in A1C levels was statistically significant, it does not necessarily equate to clinical significance.

Supplementary Evidence

To provide supplementary evidence, the researcher presented results from a separate

within-subject trial conducted in Barranquilla and Cali in Colombia. A group of 100 individuals with early onset type 2 diabetes or pre-diabetes were enrolled in a t-dependent trial using the Lower 6 phone application developed by the researcher to measure how use of the application would affect their A1C levels between 2017 and 2018. The Lower 6 application provides information regarding the glycemic index and glycemic load of foods and recipes. Participants were tested biannually for A1C.

Results of this trial showed that the Lower 6 application helped participants improve their A1C profile. Figure 4 displays the mean A1C levels of the participants, showing a decline from 2017 when the trial was started to 2018. This supplementary evidence provides additional support for the use of telemedicine for patients with type 1 or type 2, as well as pre-diabetes.

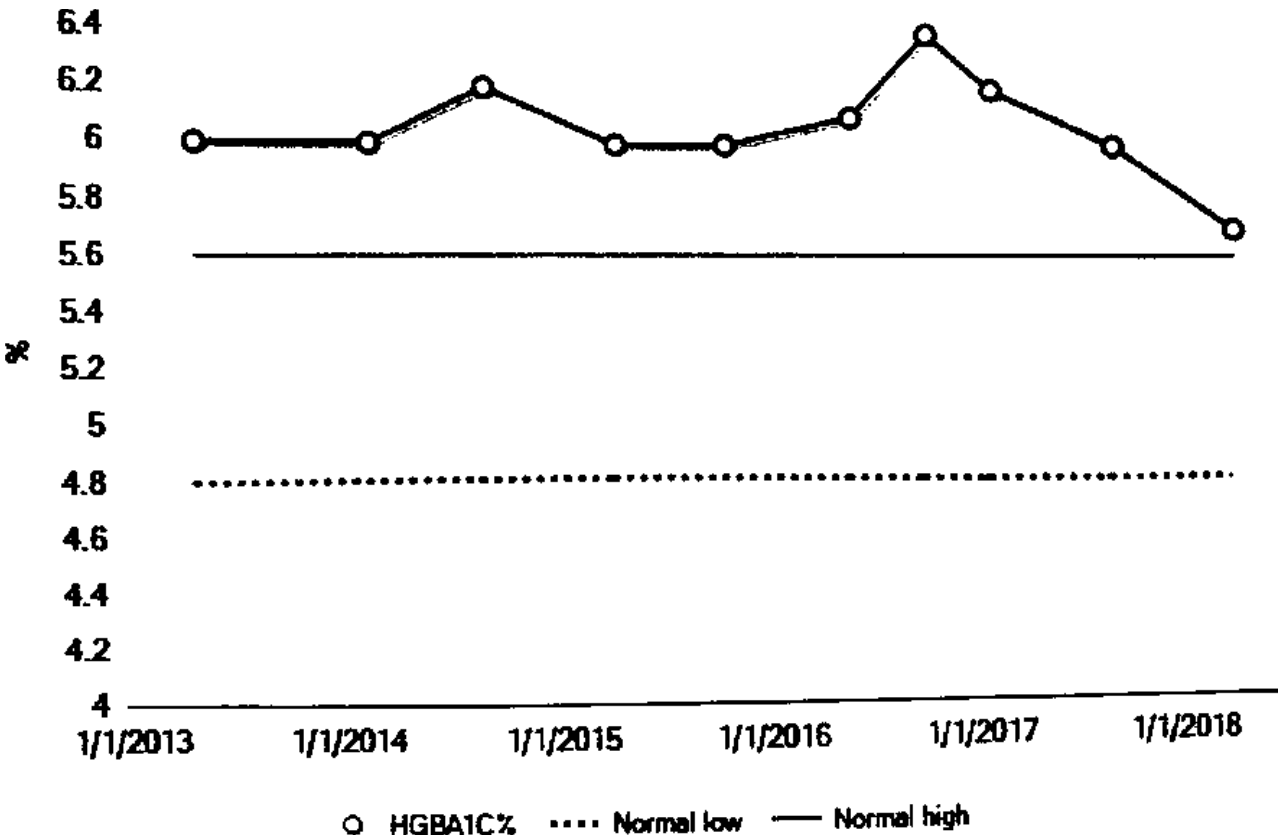


Figure 4. Changes in Mean A1C Levels of Participants

Discussion

The efficacy of a cell phone application that could help patients with diabetes improve their diets was tested in this study. The researcher hypothesized that using a mobile phone application to communicate personalized dietary instructions to patients with type 1 diabetes who live in rural California over a 3- month time period would reduce A1C levels. Ninety-seven percent of all participants experienced a decline from pre- to postintervention

A1C levels.

Based on the collected data, the average preintervention A1C was at 9.8, while average postintervention A1C was at 8.3. The results of the paired samples *t* test indicated that there was a statistically significant decrease from pre- to postintervention A1C levels.

The decrease in the A1C levels may be attributed to the fact that lifestyle- related dietary management or nutrition medical therapy is considered a major factor for controlling type 1 and type 2 diabetes [20]. As part of the intervention, participants were given specific advice on how to improve blood glucose control through eating smaller portion sizes, eating fewer servings of specific types of food, or completely eliminating specific types of food from their diet. These dietary changes may have accounted for the statistically significant changes in the A1C levels. Thus, this provides support for the findings from previous researchers indicated that changes in the diet would have an effect on A1C levels of patients with diabetes [20,21]. The supplementary evidence regarding the use of Lower 6 application further supported this notion with the decrease in mean A1C levels of participants after receiving dietary information from the mobile phone application.

As shown by the results of this study, changes in diet alone had a statistically significant, although not clinically significant, effect on the A1C levels of the study participants. To be clinically significant, an A1C level within the range of 6-8 indicates the patient has maintained optimal blood glucose control for the period immediately preceding the measure [22]. Although the decrease in A1C levels of the participants from 9.8 to 8.3 was statistically significant, it was not clinically significant. These results suggest that this method of telemedicine, despite improving access to healthcare providers, providing personalized dietary advice, and reducing A1C levels, does not by itself improve medical outcomes for patients with type 1 diabetes.

It should also be noted that statistical significance relates only to the likelihood that the results were not due to chance [19]. Clinical significance, which pertains to whether differences identified in the study are critical enough to result in changes in practice [19], is what determines the use of an intervention in actual treatment. Thus, despite its effectiveness in reducing A1C levels among participants, the decision to use such telemedicine interventions for clinical treatment cannot be based solely on the results of this study. Further research is recommended including lifestyle changes in general and insulin bolusing, which may result in changes that are more clinically significant.

Conclusions

This study supports findings from previous research that found merit in the use of telemedicine intervention to support self-management and adherence to treatment regimens in patients with chronic diseases [23,24]. A majority of the participants in this study achieved statistically significant reductions in their A1C change score; however, the decrease was not great enough to be considered clinically significant. The attention given to patients with chronic diseases in rural settings has proved to be a viable avenue to resource

stewardship; the cost to operate a program that utilizes smartphone technology is lower than the alternative of a patient hospitalization or in-person check-ups. Face-to-face medical care is important in treatment plans for people with long-term care conditions. That said, there is indication that the interspersed distance-care, when personalized to the idiosyncratic needs of individual patients, and when attended by experts in chronic disease, can facilitate the overall care and treatment of people with chronic healthcare needs that require timely, if not intense, intervention.
To find out about a cell phone application created as a result of this study go to;

www.lower6app.com

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