

“Reverse Diabetes Today” – Quick Start

Go to: HealthyLivingforBusyPeople.com → Click on: “Diabetes Reversal”

**WATCH – LISTEN & READ Former NYPD Officer and Current Brooklyn Borough President
Eric Adams REVERSE His Diabetes and Neuropathy in Months With A Whole Food Plant-Based Diet**

EDUCATE

Read:

[Mastering Diabetes - The Revolutionary Method to Reverse Insulin Resistance Permanently in Type 1, Type 1.5, Type 2, Prediabetes, and Gestational Diabetes by Cyrus Khambatta, PhD and Robby Barbaro, MPH](#)

[“Dr. Neal Barnard’s Program for Reversing Diabetes” by Neal Barnard, MD](#) (has recipe section)

[“The End of Diabetes” Joel Fuhrman, MD](#) (has recipe section)

Watch: [Mastering Diabetes with a Plant Based Diet](#) (5:29 min)

Use:

[“The China Study Cookbook: Over 120 Whole Food, Plant-Based Recipes” by LeAnne Campbell, PhD](#)

[“Forks Over Knives - The Cookbook: Over 300 Recipes for Plant-Based Eating All Through the Year” by Del Sroufe et al.](#)

DIET

Foods Allowed: Eat Only UNPROCESSED Whole Plant Foods

Unlimited: Vegetables - non-starchy & starchy vegetables, whole “intact” grains, legumes/beans, lentils, peas, squash, yams, sweet potatoes, potatoes, whole fruits, herbs (salt may be used when eating a whole food plant-based diet if no high blood pressure exists), water

Limited: Chia seeds or flaxseed (ground) 1-2 tablespoons per day, 2-3 cups of tea (green or black), decaffeinated coffee, 1 palm full or less of raw nuts daily

Foods to Avoid: No free oils, meat, poultry, fish, eggs, dairy products, raw nuts no more than a palm full per day, caffeinated beverages, including caffeinated coffee, alcohol

Quick Start – Diabetes Reversal “Sample” Diet

- **BREAKFAST** - Cooked whole grain (or soaked in a nut milk over night) for breakfast with unsweetened nut milk, berries, 1-2 tbs ground flaxseed, 3-4 walnuts (i.e. steel cut oats, rolled oats, quinoa, brown rice, barely, etc) OR big bowl of chopped mixed fruit, including berries with 1-2 tablespoons of ground flax seed, 3-4 walnuts
- **LUNCH** – Large vegetable salad – greens, vegetables, beans, oil-free dressing OR vegetable soup with beans, lentils, peas and/or whole grains
- **DINNER** – Half plate vegetables, mostly green, steamed, water stir-fried, “quick” boiled or roasted; ½ plate any mix of cooked whole grains, beans/legumes and/or yam, sweet potato, potato, squash
- **SNACKS:** whole fruit, oil-free bean dip, raw vegetables, < 1 palm full of raw nuts daily
- **DRINK:** Water, green or black tea, unsweetened nut milks, decaffeinated coffee

Key ‘Quick Start’ “Aids” for **Diabetes Reversal**

Go To: HealthyLivingForBusyPeople.com →

Click On: [Diabetes Reversal](#) (Menu Bar) →

Scroll Down Page for **Educational Links of Interest to You:**

- Sign-Up for “[Kirk’s Healthy Living Tips](#)” on any of Kirk’s websites
- [Happy Cow App](#) for your phone – plant-based restaurants & stores
- FREE whole food plant-based recipes and cooking instructions ([more than 200 available on line](#))
- [PlantPure “Quick Start” Resources](#) – Meal delivery, online programs, support groups, DVDs, books, etc.
- Whole food plant-based companies shipped to your door-step ([halfway down the page](#))
- Skim through “The Plant-Based Diet – A Healthier Way to Eat” (Kaiser Permanente)
- Consider whole-food-plant-based immersion programs 3-18 days – [McDougall Programs](#), [NewStart](#) & [2Forks](#) (same diet principles apply to heart disease reversal)
- Online plant-based cooking courses if desired: “[Culinary-Rx.com](#)” or “[Forks Over Knives Online Cooking Course](#)”
- Books and cookbooks providing the scientific proof and recipes on reversing diabetes
- Podcasts with plant-based physicians, cardiologists, internists, surgeons & PhDs describe patient successes
- FREE transition program to a whole food plant based diet by following “[Kirk’s 21 Day Healthy Living Program](#)” – for 1 month (23 videos on right side of home page) then switch to a whole food plant based diet (no animal food) with no added oils as your Diabetes Reversal Diet
- Coaching with Kirk Hamilton PA-C if you feel you need individual help

Please Also Visit

- Masteringdiabetes.org
- StayingHealthyToday.com
- KwikerMedical.com

Educational Resources

- [Staying Healthy Today Show podcasts](#) (iTunes/Website)
- <https://www.youtube.com/user/StayHealthyTodayShow>
- <https://www.youtube.com/user/TheSloppyVegan/>

Social Media

- <https://www.facebook.com/kirkhamilton.author>

SUPPLEMENTS SUPPORTIVE OF DIABETES HEALTH & BLOOD SUGAR CONTROL

- Aged garlic extract 600 mg 1-2 2 x day (reverse soft plaque – diabetics ↑ CVD risk)
- Alpha lipoic acid 100-300 mg/d (↓BG)
- Berberine 150-300 mg 2 x daily (↓BG)
- Carnitine 1000-3000 mg/d (↓BG) (check TMAO levels)
- Chromium 400-800 mcg/d (↓BG, ↓ insulin)
- CoQ10 (Ubiquinol) 100-200 mg/d (↓ insulin, ↓blood sugar, ↓oxidative stress)
- Culturelle 1-2/d (↑ good gut bacteria)
- EPA/DHA (algae) 2-4 gm/d (↓= insulin, HbAc1, TC, TG, and BMI)
- Magnesium 200-600 mg/d (↓ diabetics)
- Multivitamin/Mineral 2-4/d
- Ribose 5 gm 3 x daily (↓BG)
- B complex (50-100 mg/d) (CHO →Glucose)
- Vitamin B1 50-100 mg (CHO →Glucose)
- Folic acid – 5MTHF 1 mg (↓ homocys, ↓ by metformin)
- Vitamin B6 25-50 mg (↓ homo, ↓BG)
- Vitamin B12 1000 mcg (↓ by metformin, ↓ homo)
- Vitamin C 1000 mg (↓BG, A1c)
- Vitamin D 5000-10,000 IU (↓BG, ↑ insulin sensitivity)
- VSL#3 1-2/d (↑ good gut bacteria)
- Zinc 30-50 mg/d (↑ insulin, ↓BG, ↓A1c)

Kirk's 21 Day "Healthy Living" Program For Busy People

➤ Read "Staying Healthy in the *Fast Lane*" *TRIAD Wellness Program* pages 133-193 (1-3/wks)

Week 1

Add: Week 2

Add: Week 3

- **1 large salad daily** – as the meal (oil free dressings only) (81-88, 135-7, 140, 144-148)
- **No dairy products AT ALL** (10, 89-94, 115-117)
- **Greens/Fruit (75/25) Smoothie with ¼ cup flax or chia seeds** 64 oz in day or **2-3 whole fruits daily.** (140, 142, 144-145, 153)
- **Walks 15-30 minutes daily** (39, 159-167)
- **½ - 1 cup cooked beans daily** (145-146)
- **No Oils** (4, 5, 9, 12, 139, 143, 149)
- **No processed carbohydrates** (only whole or sprouted grains, starchy vegetables, fruit & no added sugars) (6,11,12, 24, 37-38, 94-100, 106-114, 116, 136, 140-142,148)
- **Sit still for 15-30 minutes daily** (188-193)
- **Eat off BED Diet food list x 2 weeks** (118,119, 135, 201-204)
- **No more than a palmful or 'deck of cards' of animal food daily (Preferably None)** (xvii-xviii, 5, 6, 9, 38, 67-88,135)
- **1-2 palmfuls of raw nuts or seeds daily** (142, 147-148)
- **Strength training 3-4 days weekly 15-30 minutes** (167-177)

Super Salad: Commit to eating one **LARGE** salad every day for 21 days (even if it takes all day). Use Tupperware type container 3 inches deep and 8 X 8 inches square.

Leafy Greens - Mix 1 to 3 different kinds of organic greens – Romaine, mixed or spring greens, spinach, kale, arugula, etc. into container (above).

Vegetables – add at least 4-5 different vegetables – bell peppers, carrots, celery, cucumber, parsley, snap peas, green onions, leeks, tomatoes, Jicama, olives (actually a fruit), etc..

Fruit – add 1-2 fruits to the salad - berries (blue, black, raspberries, pomegranate, grapes, etc) and whole fruit sliced (apples, pears, nectarines, peaches, orange, tangerine, grapefruit , etc).

Legumes/Beans – ½ - 1 cup organic beans (garbanzo, black, kidney, pinto, edamame, canned are acceptable). Rinse beans off in strainer before use.

Nuts/Seeds – 1-2 tablespoons of raw nuts or seeds (1 tablespoon flax or chi seeds always) are optional in salad.

Dressing - Cut up wedges of oranges, lime, lemons or grapefruit – 4-6 wedges per salad. Can freshly squeezed juice directly onto salad – or - add to these juices that are freshly squeezed – dill, sea salt, garlic pepper, curry powder, bay leaves, sesame seeds. Vinegars may be used.

Super Green "Hyper-Nourishing" Smoothie (in strong blender) – (For healing, energy, weight loss and increased metabolism) - 75% compressed greens / 25% raw or frozen berries, banana, mango, pineapple; 1 palm full (1/4 – 1/2 cup) raw flax or chia seeds (start at 1 tblspn daily till ¼-1/2 cup total; water to fruit line – **64 oz to be consumed in a day.** If muscle building can add tofu, edamame, almond butter, non-soy vegan plant protein, organic nut milks (almond, oat, rice) – water total (including smoothie) 96 oz per day.

Super Simple Soup - 2-4 quarts of organic vegetable broth; chop up 3-5 different kinds of vegetables; ½ -1 cup of beans; herbs and spices (garlic, sea salt, dill, basil, etc.); simmer 10-20 minutes; add 5 minutes before serving a palmful of cooked brown rice, quinoa or other non-glutinous grain. The grains may be precooked. Simmer for 5 minutes and serve.

Super Simple "Lifesaver" Bean Dip to Smooth Your Blood Sugar, Reduce Cravings and Provide Good Carbs, Protein and Fats – 1 – 2 cans of organic cooked beans (pinto, black, kidney, garbonza, etc.) poured in Quisnart (food processor). Add juice from lemon, lime or orange (or vinegar) to taste with garlic powder (or real garlic), dill, and any other herbs and spiced to taste. Can add avocado if weight is under control, or any other juicy vegetable (tomatoes, etc.) for texture. **Blend to desired smoothness.** Use for vegetable dips, sandwich spreads, finger food, between meal hunger! (No added oils!). **NO MORE CREAMY, CHEESEY, FATTY, GOOEY DIPS!**

It is also recommended that you:

Use the **Diet-Exercise-Symptom Diary** BELOW to log your progress.

- **Weigh yourself daily** in the morning and evening and log weight on your **Food-Diary.**
- Do some form of **aerobic exercise** daily for a minimum of 15-30 minutes (pgs. 166-167).
- **Sit physically still** 15-30 minutes twice daily (pg. 188).
- Do some form of **strength training** (i.e. circuit training) 3-4 days per week (pgs. 167-177).

Basic Elimination Diet (BED)

(Shopping List)

Vegetables (75% raw/greens)

Alfalfa Sprouts
Artichoke
Asparagus
Avocado
Beans (string)
Beets
Bok Choy
Broccoli
Brussels Sprout
Cabbage
Carrots
Cauliflower
Celery
Chard
Collard Greens
Cucumber
Daikon Radish
Endive
Escarole
Jicama
Kale
Kelp
Kohlrabi
Leeks
Lettuce
Mushrooms
Mustard Greens
Okra
Onions
Parsnips
Radishes
Rutabaga
Seaweed
Snow Peas
Spinach
Squash
Sweet Potato
Swiss Chard

Turnips
Water Chestnuts
Yams
Zucchini
(add night shades back in 2 weeks –
tomato, eggplant, peppers, potatoes)

Fruit (add citrus back in 2 weeks)

Apples
Apricots
Banana
Blackberries
Blueberries
Grapes
Kiwi
Mango
Melon
Nectarine
Papaya
Peaches
Pears
Pineapple
Plums
Pomegranate
Prunes
Raspberries
Strawberries
Watermelon

Grains

Amaranth
Buckwheat
Corn (cob & tortilla)
Millet
Oat Groats, Steel-Cut or
Rolled Oats
Rice Brown or White
Rice Cakes/Cereal (plain)
Rice Milk
Rice Pasta

Quinoa

Beans/Legumes

Dried Beans
Dried Peas
Edamame
Lentils
Miso
Soy Milk
Tempeh
Tofu (Soy Bean)

Nuts and Seeds

Almonds (& almond milk)
Cashews
Chia seeds
Flax seeds
Hazelnuts
Pecans
Pumpkin Seeds
Sesame Seeds
Sunflower Seeds
Walnuts

Animal Foods (optional)

Beef
Chicken
Lamb
Pork
Poultry
Turkey
Wild Game
Cod
Halibut
Mackerel
Salmon
Sole
Trout
Tuna

Grocery Shopping in the *Fast Lane*

To shop healthfully is very simple and, in the right store, can be easily done in less than a half-hour with some very basic principles. While I am a big supporter of organic foods and eating seasonally and locally, I think it is incorrect to say America can't improve its health *dramatically* by shopping for non-organic whole food in the basic grocery store. To improve health, you first have to stop eating processed foods that do you no good, and even harm you, then eat quality foods that are good for you.

Principles of Grocery Shopping in the *Fast Lane*

1. Shop the outside, or “perimeter,” of the grocery store where the whole, unprocessed foods are (fruit, vegetables, lean meats, etc.). Eat whole foods only (organic if possible). Buy the basics: vegetables (raw/frozen); fruit (raw/frozen); raw nuts and seeds; beans (canned/packaged); whole grains and sprouted whole grain (try non-glutinous whole grains such as brown rice, quinoa, millet, amaranth, buckwheat); water, mineral water, teas, and *real juices* (100 percent juice); animal foods (optional): eggs, fish, lean fowl, and meat (free-range or grass-fed if possible).
2. If you buy oils, get extra-virgin olive oil, avocado oil and/or cold-pressed canola oil for cooking and ground flaxseed or cold-pressed vegetable oils for salads and for cold sauces. *Keep oils to a minimum.*
3. Do not buy dairy products at all (not from a cow, goat, or sheep; not milk, cheese, yogurt, ice cream, cottage cheese, kefir, butter, etc.) for at the very least one month completely. For your whole family. **Please don't give a child under two years of age any cow's milk products at all on a regular basis.* Aside from food intolerance leading to chronic upper respiratory infections and gastrointestinal problems, of equal concern is that the early introduction of cow's milk products in children may increase the risk of type 1 diabetes, which is not reversible. After the child is weaned, ideally from the mother's breast, rotate in organic almond, soy, rice, or other grain milks, fortified with calcium and vitamin D if you are concerned, *and watch* for reactions.
4. If you want a sweet, refined grain or fatty food, don't put it in your shopping cart. Go out intentionally and buy it later by itself. Only shop for whole foods and only have whole foods in your house. Build that habit and that base. Then when you choose to eat “junk,” enjoy it—but not too much, and only when you are in control of your health!

Stocking Your Refrigerator and Cupboards: The Basics

Let's go to the fridge first. When you open the refrigerator, the vegetable bin should be filled with vegetables, pre-washed or fresh salad greens, spinach, chard, kale, collards—as much green, leafy vegetables as possible. Green, leafy vegetables are not only nutrient packed, but they are also 100 percent non-fattening. You are getting the most nutrients per calorie when you are eating leafy greens. Frozen vegetables are fine to have in your freezer as well.

Next, your fruit bin should always be full. I keep blackberries, blueberries, raspberries, or strawberries on one of my upper shelves, and the fruit bin is filled with whatever fruits are in season (or in the produce section), which could be apples, kiwis, nectarines, peaches, plums, oranges, grapefruit, and tangerines. I might have some bananas outside the refrigerator. For smoothies and things of that nature, it is easier to keep frozen fruit in your freezer section. Frozen is usually cheaper and you can get organic versions as well.

I keep raw nuts or seeds in the freezer. I will usually have some almonds, walnuts, pecans, and sunflower seeds. Pumpkin seeds are a very nutritious food, but for some reason don't resonate with me. Generally, I don't eat a lot of cashews and pistachios because I tend to be sensitive to them as well.

In my cupboards I always have cans of cooked beans (mostly organic) and also whole-food, organic types of soups such as minestrone, lentils, split pea, Cuban black bean, and other vegetarian things like chili. My canned products are meatless. I encourage you to do this as well. You can always add meat to them later if you must. I buy several quarts of an organic vegetarian broth to be used in soups, to stir fry, to "quick cook" my greens, or sometimes cook my pastas or grains in. (The organic vegetable broths in the quart containers have really been a lifesaver for me and revolutionized my cooking!) It is also good to have a few quarts of marinara sauce on hand (organic is easily available). Your cooking grains can be in the cupboard or freezer, and remember that the first ingredient for any grain or flour product ideally should be "whole grain" or "sprouted grain." I usually have a loaf of sprouted, whole-grain bread in my freezer and one on the shelf in my refrigerator.

I do use, sparingly, extra-virgin olive oil (monounsaturated fat) for cooking sometimes. I have been more oil-calorie conscious lately, since really becoming aware that added oils are one of the biggest reasons for excess calories in our diet. I try to get most of my oils from nuts and seeds and avocados. If you are lean having a small amount of cold-pressed oil or spread or extra-virgin olive oil is probably fine. If you have never gone oil, nut, seed and avocado free, try it for two weeks. It is an interesting experiment. I dropped five pounds without even trying.

Have herbal teas around, especially green, black, and white teas. Mineral water can be used along with bottled or filtered water. The goal is to drink five or six glasses of water a day. If you feel you have to have some type of milky substance, there are soy, almond, and other different types of "milks," including hemp, hazelnut, oat, multigrain, and rice milks. These can all come fortified with calcium and vitamin D. Buy a variety of them and see which ones resonate with you. *When you add a new food, always ask yourself how you feel.* Even if on paper it looks good nutritionally but you don't feel well, trust that. There is always an alternative that is nutritious. Always.

If you get fish, poultry, or beef, ideally it should be wild fish and/or poultry or red meat that is grass-fed, free-ranged, and without hormones and antibiotics, or hunted game. These would round out the refrigerator.

I realize some whole-food purists, whom I respect, might look down on eating canned goods or pre-packaged, pre-washed vegetables. Ideally I'd grow my own vegetables, eat totally from my fruit trees, cook all my beans, and wash my own lettuce and greens every day, but it is not practical for me time-wise. One good thing about modern urbanization is that some businesses have done some smart things to make eating healthy in a busy world easier. By shopping and eating in this way, we can not only be healthy, but we can also help create a new, sustainable economy and jobs centered around producing whole, healthy foods that are convenient for people in the busy, modern world.

Eating out in the *Fast Lane*

Whether you eat at a fast-food restaurant or a high-end establishment, these simple guidelines can help you reduce your calories, increase your nutrient intake, and do more good than harm with meals eaten away from home.

- Avoid all creamy, cheesy sauces and dressings, and dips on any dish.
- Avoid all dairy products (cheeses, ice cream, milk, cottage cheese, sour cream, etc.). You have to ask to have dairy, especially cheese and sour cream, removed from many dishes. Presently most restaurants just add cheese and sour cream as normal fare to many foods.
- Don't order bread or chips before your meal or have them come with your meal.
- Order your salad with a dairy-free dressing on the side (vinaigrette, olive oil, etc.).
- Order plant-based appetizers if you are starved (grilled mushrooms, garlic sautéed spinach, salad rolls, lettuce cups, seaweed or cucumber salad, edamame, miso or minestrone soup, grilled vegetables, etc.).
- If you want to go completely vegetarian and there is nothing on the menu, you can just have *multiple* vegetarian appetizers, side dishes, and salads. I do this frequently.
- Ask the chef to make you a big plate full of sautéed or grilled vegetables—whatever they have available. They'll generally do it happily!
- Avoid having your food fried. Request it baked, broiled, steamed, or stir-fried. Have it light on oil, even olive oil.
- Order quick foods without added oils, salt, cheeses, mayonnaise, or sauces.
- Ask for whole-grain breads, but most restaurants don't have them.
- Replace meat with beans in fast foods when possible (on tacos, burritos, etc.). Have as many animal-free meals as possible. Leave the animal meats and products out of fast food if you can. Just ask. I do this with beans instead of meats. And of course no sour cream, cheese, mayonnaise, or creamy sauces!
- Have water instead of soda. Or have a small-sized soda with a cup of water.
- Have a pizza with the crust, tomato sauce only, and all the vegetables they want to throw on it. The goal of eating out healthy, or doing the least amount of harm, is to keep excess calories to a minimum and eat as many unprocessed foods as possible. That is achieved by keeping creamy sauces and added oils off your basic foods; not eating lots of pre- main course snack foods; keeping high-calorie foods out of your main courses (cheeses, creamy sauces, and oils); avoiding deep fried food; avoiding alcohol; and eating as many vegetables in salads, appetizers, or in your main course, as possible.

Controlling Food Cravings

The key to controlling food cravings is to eat lots of good, whole food that gives you an even blood sugar from time-released carbohydrates and adequate protein, and has lots of fiber or natural bulk from water content. In addition, these whole foods should be *nutrient dense*, packed with lots of vitamins, minerals, antioxidants, and phytochemicals. Dr. Joel Fuhrman (*Eat to Live*, 2011) and colleagues recently showed in a study in the *Nutrition Journal* that the higher the micronutrient density of the diet, the less hunger people had while consuming fewer calories. You should also keep to a minimum or eliminate foods that increase the risk of blood sugar swings (e.g., excess caffeine, simple sugars, etc.).

- Eat whole, unprocessed foods only.
- Have whole, unprocessed snacks between meals (fruit, nuts, seeds, bean spreads, whole-grain snacks).
- Eat only good, unrefined carbohydrates (beans, whole grains, fruit, starchy vegetables).
- Keep only whole foods in your house (refrigerator, cupboards).
- Go out and buy the craved food if you must. Don't have it lying around in your house.
- If you must satisfy a food craving, have it with or after a whole-food meal, not as a separate snack.
- Exercise regularly. Many times this will subdue your food cravings.
- Bring whole-food snacks to work, recreational activities, and have them in your car.
- Realize that many foods are addictive, especially ones containing simple sugars, caffeine, chocolate, dairy products, and refined grains (e.g., wheat). Avoid completely or at least take breaks from them every few days.

Revised 03-02-20

“Reversing Diabetes & Obesity by Returning to Their Traditional Fiber Rich Diets...” The Story of the Pima Indians of Arizona...It’s their Lifestyle Not Their Genes!

To Preserve Their Health and Heritage, Arizona Indians Reclaim Ancient Foods

(The New York Times, 1991 Archives by Jane Brody) [Also read about the Pima’s traditional high carbohydrate, low fat diet when they had virtually NO diabetes;](#) [Diabetes Care 1993 Jan;16\(1\):369-371](#) [Proceedings of the Nutrition Society \(1998\), 57, 175-181](#) [J Clin Endocrinol Metab,73\(1\):56-65 Jul 1991](#) and [Am J Clin Nutr. 1990 Mar;51\(3\):416-20.](#)

GOING back to one's roots could soon take on a more literal meaning for the Indians of the American Southwest, **as well as for peoples elsewhere in the world** who are poorly adapted to rich, refined foods.

For the sake of their health, as well as their cultural heritage, the Pima and Tohono O'odham tribes of Arizona are being urged to rediscover the desert foods their people traditionally consumed until as recently as the 1940's.

Studies strongly indicate that people who evolved in these arid lands are metabolically best suited to the feast-and-famine cycles of their forebears who survived on the desert's unpredictable bounty, both wild and cultivated.

By contrast, the modern North American diet is making them sick. With rich food perpetually available, weights in the high 200's and 300's are not uncommon among these once-lean people. As many as half the Pima and Tohono O'odham (formerly Papago) Indians now develop diabetes by the age of 35, an incidence 15 times higher than for Americans as a whole. Yet before World War II, diabetes was rare in this population.

Similar problems have been found among Australian aborigines, Pacific Islanders and other peoples whose survival historically depended on their ability to stash away calories in times of plenty to sustain them during droughts and crop failures. The Pima and Tohono O'odham Indians seem unusually efficient at turning calories to body fat; nutritionists say they gain weight readily on the kinds and amounts of foods people of European descent can eat with no problem.

Preliminary studies have indicated that a **change in the Indian diet back to the beans, corn, grains, greens and other low-fat, high-fiber plant foods that their ancestors depended upon can normalize blood sugar, suppress between-meal hunger and probably also foster weight loss.**

These findings may also prove valuable to non-Indians who are susceptible to overweight and diabetes, and perhaps also those prone to high blood pressure and heart disease. The benefits, which are also found in a few more familiar foods like oat bran and okra, stem primarily from two characteristics of the native foods: their high content of soluble fibers that form edible gels, gums and mucilages, and a type of starch called amylose that is digested very slowly. The combined effect is to prevent wide swings in blood sugar, slow down the digestive process and delay the return of hunger.

Peaks in blood sugar increase the body's need for insulin and dips in blood sugar can trigger feelings of hunger. In the form of diabetes that strikes these Indians the overweight body becomes insensitive to insulin. Weight loss increases the body's sensitivity to insulin and slow digestion diminishes the need for insulin.

On the Arizona desert, the desirable food ingredients are found in edible parts of such indigenous plants as the mesquite (mes-KEET) tree, cholla (CHOY-a) and prickly pear cactus, as well as in tepary (TEP-a-ree) beans, chia (CHEE-a) seeds and acorns from live oaks. Tribal elders speak fondly of these one-time favorites, which in recent decades have been all but forgotten as hamburgers, fries, soft drinks and other fatty, sugary, overly refined fast and packaged foods gained favor.

Even those Indians who still rely heavily on beans and corn are today consuming varieties that have little or none of the nutritive advantages found in the staples of their historic diet. For example, the sweet corn familiar to Americans contains rapidly digested starches and sugars, which raise sugar levels in the blood, while the hominy-type corn of the traditional Indian diet has little sugar and mostly starch that is slowly digested.

Similarly, the pinto beans that the Federal Government now gives to the Indians (along with lard, refined wheat flour, sugar, coffee and processed cereals) are far more rapidly digested than the tepary beans the Tohon O'odham once depended upon. **Indeed, their former tribal name is a distorted version of the Indian word meaning "the Bean People."**

When Earl Ray, a Pima Indian who lives near Phoenix, **switched to a more traditional native diet of mesquite meal, tepary beans, cholla buds and chaparral tea, he dropped from 239 pounds to less than 150 and brought his severe diabetes under control without medication.** In a federally financed study of 11 Indian volunteers predisposed to diabetes, a diet of native foods rich in fiber and complex carbohydrates kept blood sugar levels on an even keel and increased the effectiveness of insulin. When switched back to a low-fiber "convenience-market diet" containing the same number of calories, the volunteers' blood sugar skyrocketed and their sensitivity to insulin declined. Much Foliage, Few Beans

In addition to the potential health benefits of traditional desert foods, agricultural and economic factors strongly favor their production. Marty Eberhardt, the director of the Tucson Botanical Gardens, pointed out that the plants that produce these foods are naturally adapted to growing under conditions of high heat and little water.

Martha Burgess, education director of Native Seeds/Search, a seed bank and research and education organization here that studies and promotes the use of native desert plant foods, said, for example, that "if tepary bean plants are given lots of water, they produce tons of foliage and few beans," adding, **"But if the plants are starved of water, they put their effort into flowers and seeds and produce beans that can have as much protein as soybeans."**

Under the direction of Dr. Gary Paul Nabhan, Native Seeds/Search, the (the acronym stands for Southwestern Endangered Aridlands Resource Clearing House) is studying the value of native desert foods for controlling diabetes among Indians and Hispanic Americans of the border region. Dr. Nabhan, an ethnobotanist, was recently named a recipient of a MacArthur Foundation grant to pursue his studies of the agronomic characteristics and health value of desert food plants.

The group, which is housed on the grounds of the Tucson Botanical Gardens, teaches health professionals about native foods and promotes their use through school and community programs, seed distribution and cooking instruction.

"We should be eating the foods that grow here naturally instead of spending so much to bring in packaged foods," Ms. Eberhardt said. "People find themselves shin-deep in mesquite beans they don't know what to do with, and some of us feel guilty throwing them into the landfill."

Although most Arizonans consider **mesquite, which occupies 70 million acres in the American Southwest, a pesky weed, it is loaded with nutritious pods that have a natural caramel-like sweetness.** Carolyn J. Niethammer, the author of "American Indian Food and Lore" and "The Tumbleweed Gourmet," a cookbook published by the University of Arizona Press that features desert plants, said that **mesquite pods were good sources of calcium, manganese, iron and zinc. The seeds within them are about 40 percent protein, almost double the protein content of common legumes.** Even during a drought, mesquite is a prolific producer of seed-filled pods. The Value of Mesquite Carlos Nagel, who heads Friends of Pronatura, an American affiliate of a Mexican conservation agency, remarked that **"a healthy stand of mesquite produces as much food value through its pods as does a wheat field under cultivation, and the mesquite does it without capitalization, pesticides, fertilizer or irrigation and with minimal cultivation."**

Dr. Nabhan, who has participated in medical studies of mesquite and other desert foods, said that **despite its sweetness, mesquite flour (made by grinding whole pods) "is extremely effective in controlling blood sugar levels" in people with diabetes. The sweetness comes from fructose, which the body can process without insulin. In addition, soluble fibers, such as galactomannan gum, in the seeds and pods slow absorption of nutrients, resulting in a flattened blood sugar curve, unlike the peaks that follow consumption of wheat flour, corn meal and other common staples.**

"The gel-forming fiber allows foods to be slowly digested and absorbed over a four- to six-hour period, rather than in one or two hours, which produces a rapid rise in blood sugar," Dr. Nabhan explained. He likened this "slow-release" New

World food to two Old World legumes, guar and carob, that are being used in Europe to help control blood sugar levels in people with diabetes.

Dr. Nabhan, who has scoured the Southwest for remnants of nutritious wild and once-cultivated plants, said: "Prior to World War II, mesquite was the single most important wild food staple for the native desert peoples and probably protected them from developing diabetes. However, such wild foods were discouraged by the forces of 'civilization' and they dropped out of native diets."

Mesquite pods and acorns from the Emory Oak, a non-deciduous oak of the arid Southwest, are among the 10 best foods ever tested in terms of maintaining stable blood sugar levels, Dr. Nabhan said. After falling from the trees, these small, tasty, oval nuts are naturally toasted by the hot desert sun. They can be shelled and eaten whole as a snack or ground into meal to make burgers and muffins.

Also rich in health-promoting fiber are the drought-hardy tepary beans, the only cultivated beans with heat-resistant enzymes that can withstand the 100-plus degrees of the Sonoran Desert, Mr. Burgess said. Teparies, rich in protein, iron and calcium, once sustained many Indians of the Southwest, as well as the famed Tarahumara Indian runners of Mexico. But when post-war Government welfare programs began giving pintos to the Tohono O'odham and Pima Indians, they lost their incentive to grow teparies, which are better for them because they are digested more slowly. 'Jell-O of the Desert'

Today Mr. Nagel is trying to reverse the trend. In a cooperative program with Mexican farmers, he is fostering cultivation of a variety of tepary beans, which are already being grown commercially by Pima Indians in Sacaton, Ariz.

Amaranth, known to some gardeners as pigweed, is another nutritious, drought-tolerant plant that thrives in the desert, producing both greens and seeds that once nourished the Indians. The seeds are rich in high-quality protein, and both the seeds and greens are loaded with calcium. Mrs. Burgess said that amaranth is but one of many edible weeds commonly discarded by home gardeners, who fail to appreciate their nutritive and culinary value.

Mrs. Burgess is also enthusiastic about protein-rich chia seeds from a salvia plant that produces two seed crops a year. When mixed with water, the fiber in chia forms a gel that lowers cholesterol and keeps blood sugar stable. She tells Native American children that chia is "the Jell-O of the desert."

Cactus, the signature plants of the desert landscape, round out the nutritious native-foods diet. Buds from the cholla are rich in calcium: one tablespoon has the calcium equivalent of eight ounces of milk. Cholla buds and the fruits and pods of the prickly pear are also rich in soluble fibers that help to normalize blood sugar.

Dr. Nabhan said that 20 other native desert foods were now being analyzed for their fiber and starch content, and he predicted the availability of an ever-widening menu of nutritious ingredients.

Among the main remaining hurdles is the need to develop commercial sources of foods like mesquite meal and to convince diabetes-prone Indians that it is worth the trouble to prepare and consume their traditional foods. Native American interns are assisting in the effort, which is being pursued in school lunchrooms and classrooms and at reservation clinics and health fairs.

Still, Mrs. Burgess said, habits are hard to change. "The most frequent question from potential consumers is, 'If I eat these foods can I then eat all the hamburgers and ice cream I want?'" she said. "Everyone is looking for a quick fix." The TimesMachine archive viewer is a subscriber-only feature. Please send feedback, error reports, and suggestions to archive_feedback@nytimes.com.

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