

Re-Think Recovery: Food is Medicine

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History

“Let food be thy medicine or medicine be thy food”. This is the famous quote of Hippocrates; who till date medical doctors and historians consider as the founder of medicine as a rational science. In his time about 400BC, advised people to prevent and treat diseases first by eating a nutrient-dense diet. Traditional medicine refers to the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness.

Traditional medicine is often termed alternative or complementary medicine in many countries. Herbal treatments are the most popular form of traditional medicine and 70% to 80% of the Region has used a form as primary health care.

One third of the population lacks access to essential medicines and the provision of safe and effective traditional and alternative remedies could become an important way of increasing access to health care services.

Tried and tested methods and products

- Acupuncture has been proven effective in relieving a variety of pain disorders, high blood pressure, depression and morning sickness. It can also alleviate postoperative pain and adverse reactions to chemotherapy.
- The Chinese herb *Artemisia annua* has been found to be effective against resistant malaria and could create a breakthrough in preventing almost 1 million deaths annually.
- In South Africa, the plant *Sutherlandia microphylla* is being studied for use in HIV patients. The plant may increase energy, appetite and body mass in people living with HIV.
- Food as medicine is another method.

Introduction

Food provides us with energy and also plays a critical role in controlling inflammation levels, balancing blood sugar, regulating cardiovascular health; blood pressure and cholesterol levels, helping the digestive organs to process and eliminate waste and much more. Therefore, we can say that good health is a product of the right food. There are natural issues that bother us as we go through life, we begin to experience decrease in our body performances. This decrease could be classified into physical, aging, environmental and lifestyle factors.

Physical/aging factors

1. Skin issues (such as dry skin, age spots, wrinkles, and saggy skin)
2. Loss of sexual desire and/or sexual function
3. Joint discomfort, stiffness, and/or swelling
4. Weakened muscles
5. Frail bones
6. Memory and other cognitive issues
7. Declining vision and auditory skills
8. Decreased energy and increased fatigue
9. A weakening immune system, leaving you sick more and more often
10. An underperforming circulatory system
11. A cardiovascular system that just can't support a truly active lifestyle any longer
12. Hormonal decline
13. Feeling blue and moody
14. Dulling, thinning hair
15. Loss of muscle tone and your youthful figure
16. Slowed metabolism and perpetual weight gain

These same despairs of aging disrupting our life, preventing us from doing the things and activities we love most. We sometimes feel sidelined due to our struggle with weakened muscles, joints and bones, reduced lung power, and/or decreased energy reserves. We are concerned about losing our freedom due to age-related vision, hearing, and seemingly inevitable mental decline.

Environmental and lifestyle factors

Worst are a host of environmental and lifestyle factors that are constantly preying on the youth of every cell of the body, such includes:

1. UV rays that damage the DNA of skin cells, leading to thinning skin, sun spots, wrinkles, exaggerated expression lines, and even pervasive dryness and itching
2. Stress, which sends the age-accelerating hormone cortisol into overdrive
3. Mood-related issues which have been linked to as much as a decade of accelerated aging
4. Lack of sleep shown to significantly shorten the length of DNA telomeres (AKA your “cellular timekeepers”).
5. Too much or too little exercise -- studies show that both the highly active and sedentary populations have similar age-related biomarkers as a result of too little or too much of a good thing.

6. Poor nutrition, leading to a lack of antioxidants and essential vitamins and minerals that fight the aging process.
7. Genetically Modified Organisms (GMOs) infiltrating our diet which have been linked to poor immune function and accelerated aging.
8. Excessive Omega-6 fatty acid intake – the most prevalent fatty acid in the diet-has been shown to accelerate aging and significantly increase inflammation.
9. Highly processed carbohydrates and sugar intake which promote the formation of AGEs (Advanced Glycation End-products). These mutated proteins significantly accelerate cellular aging.
10. Overeating in general, which produces age-accelerating free radicals.
11. Alcohol consumption, which decreases the body's antioxidant activity while at the same time increasing cell-damaging free radicals.
12. Being overweight, which by itself leads to a state of increased cell-damaging oxidative stress.
13. Over-the-counter and prescription medications, a good number of which have been linked to accelerated aging.
14. Pesticides, herbicides, pollution, and other environmental toxins all increase the appearance of skin aging and do damage to delicate skin DNA.

This devastating physical consequences of aging are the number one fear of adults over 40 years of age. Therefore, efforts are directed on how to provide the needed nourishment for the human cells. These in turn promotes the processing of organic herbs, spices and foods that contribute to the body's daily requirements and heal certain health challenges as well. Examples of areas where such efforts are to be directed include:

- Foods as vegetables, fruits, meat, oils or grains contain influential substances as antioxidants, phytonutrients, vitamins, minerals, fatty acids, fiber and more. John Hopkins University reports that some 80% of cancer patients are believed to be malnourished and that the chemotherapy treatment used to manage cancer increases the body's need for nutrients.
- Diabetes and heart diseases; number one killer in most industrialized nations, are illnesses that are highly influenced by ones' diet-same can be said for allergies, autoimmune disorders like arthritis, thyroid disorder and many more.
- Nutrigenomics (Nutritional Genomics) is studying how food influences gene expressions and contributes to either health/longevity or to disease/earlier diseases/earlier death. Nutrient deficiencies and toxic chemicals in low-quality foods have an effect on human gene expressions; each person is different in terms of how much their genes/health are impacted by their diet; a healthy- personalized diet can be used to prevent, mitigate or cure chronic diseases.

Ways medicinal foods specifically act like natural protectors against diseases and tend to slow effects of aging

Decreasing & Controlling Inflammations: Inflammation is a response from the immune system when the body perceives it's being threatened, is the root of most diseases and a major contributor to effects of aging. It affects nearly every tissue, hormone and cell in the body.

Balancing Hormones: Hormones affect every part of health, from energy, cognitive ability, body weight and sex drive. Abnormal hormonal changes contribute to accelerated aging, diabetes, obesity,

fatigue, depression, low mental capacity, reproductive problems and autoimmune diseases.

Improving absorption of nutrients: High rates of free radical damages come to play here.

Alkalizing the body: Body's ph keeps around 7.3. Studies show that processed low-quality foods make the body more acidic and allows diseases to thrive more easily. An alkaline diet (high in plant foods that are detoxifying) helps cellular renewal, might promote longevity.

Balancing blood sugar: High consumption of sugars and processed carbohydrates can lead to cravings, fatigue, neurological damage, mood disorder, hormonal imbalances and more.

Detoxifying & eliminating Toxins: Toxicity is tied to poor digestive health, hormonal changes and decreasing liver function. Chemicals from our diet and environment contributes to inflammations, autoimmune diseases, infertility, hypothyroidism, fibromyalgia and so on.

Best Medicinal Foods

Fresh/Raw Vegetables: Greens like Kale, Wheat grass, Spinach, Sea and fresh vegetable juices.

Organic Meats & Bone Broth: Organic meat includes beef or chicken liver, which is high in zinc, iron, vitamin A, B12. Bone broth is rich in Collagen.

Probiotic Foods: For optimal digestion, immune function and health. Probiotic-rich foods include; yogurt, cultured veggies, also Prebiotics as contained in Chicory, Asparagus, Artichokes.

Omega-3 Foods: As in fish- salmon, sardines, mackerel, tuna, halibut. In plant sources as nuts, walnuts, flaxseed, chia seeds. Try to avoid hydrogenated and partially hydrogenated oils, trans fat, soybeans oil, canola oil, and other oils high in omega-6.

Healthy Fats: e.g Mediterranean diets which are low-carbs and low- fat diets.

High - Antioxidant Foods: Rich in beta- carotene, resveratrol, flavonoids, and more. Obtained in berries, red wine, raw cocoa, acai, spirulina, leafy greens, fresh herbs and spices, cruciferous veggies and bright root veggies e.g carrots, beetroot.

High Fiber Foods: Fiber helps to reduce cholesterol and triglycerides, strengthens the colon walls, plays a role in regulating blood sugar levels, helps prevent insulin resistance and promotes the growth of beneficial probiotic bacteria in the gut that influence immunity. It is recommended that adults should get 25-30 grams of fiber daily. Sources include; leafy greens, cruciferous veggies, avocado, coconut, starchy veggies, berries, nuts, seeds, sprouted legumes and ancient grains.

Foods are classified into organic (when they are grown using natural fertilizers) and inorganic (when they are grown by chemically sensitized fertilizers). Organic foods contain more micro-nutrients than the inorganic.

People are encouraged to grow herbs, vegetables, spices, foods and plants with medicinal values. Some of which include beetroot, celery, coriander, marjoram, oregano, turmeric, spearmint, peppermint, curry, basil, lemongrass, rosemary, lemon, cypress, stevia, sweet potatoes, spinach, kale and more. Also encouraged is processing and packaging foods that provide daily body nutritional requirements especially in certain health conditions as diabetes, obesity, hypertension, nerve challenges etc.

Special dietary guidelines are given in different countries tailored to achieving good health. Example is the Dutch Dietary Guideline 2015 which shows shifting to the direction of more plant-based and less animal-based dietary pattern improves health. It places importance in reducing sugar based beverages and suggest that healthy alternatives are tea and filtered coffee without sugar as well as water. Another example is the Nigerian Food based dietary guideline which will be highlighted later.

The relevance of herbal remedies can also be explained by eating the right food as medicine in various health conditions like Prostrate, Diabetes, BP, Migraines, Ulcers, after stroke rehabs and more. Traditional and herbal medicine also provide the use of aromatherapy which simply means using essential oils extracted from flowers, herbs, leaves, spices and seeds for treatment. Essential oils are made either by infusion methods in a carrier oil or by distillation extraction method. In either of the methods, flowers and/or leaves are picked in the mornings, selected, washed, dried at required temperatures, and milled to required powder size before using.

Nigerian Food Based Dietary Guideline

Development of dietary guidelines in Nigeria began in the year 2000 and was published in 2001. This dietary guideline applies to all healthy Nigerians and include recommendations for different population groups. It is a food pyramid divided into five food groups and with the advice to drink plenty of water always. The group is as shown below.

- On top of the pyramid is confectioneries which is limited to rare occasions
- Oils and fats follows and should be eaten sparingly
- Eggs, fish, meat and dairy are on the third level and are to be eaten at every meal
- Vegetables and fruits are the next below in the pyramid
- At the base of the pyramid are bread, grains and tubers

The two last groups are to be eaten at every meal

Based on these, food processing is geared towards providing low carbohydrate, proteins and other required nutrients. Example is as seen with one of the processors PIC-Organics (Pharmacy Informatics Consult).

Highlight of some vegetable/herbal produced in Nigeria by Pharmacy Informatics Consult

1. Peel Power (100% dried citrus sinensis peel)

- Reduces high blood pressure and Cholesterol. Elizabeth Kurowska, Phd., vice president of research in Ontario, Canada founded that Polymethoxylated Flavones (PMF) lowers cholesterol more than many pharmaceutical drugs.
- Anti-allergic; prevents histamine release so helping in sneezing and running nose.

- Anti-inflammatory properties like Indocid® improves oral health, whitens teeth and reduces sensitivity, a natural breath fresher.
- Boost immune system by increasing concentration of vitamin C and A so keeps a cold, cough and flu away.
- Anti-cancer properties; PMF has broad range of pharmacological properties against cancer, inhabits carcinogenesis and circulation of cancer cells.
- Contains beta cryptoxanthin which reduces chances for long cancer significantly thus protecting respiratory system.
- Contains fibres and non-soluble polysaccharides, which improves digestive system and low in calories, so helps in weight loss.

2. Corlander-super herb

(100% dried cilantro) Antioxidant, cleanser for Urinary Tract Infections and Hernia, promotes heart health, stabilizes blood sugar level, mood booster and promotes sound sleep, good for bone & eye health.

3. Parsley

(100% dried *Petroselinum hortense/crispum*) Immune booster, for arthritic and rheumatic pain, prevents osteoporosis, anti-inflammatory, anti- carcinogenic, detoxifies urinary tract, for diabetics.

4. Celery-nerve tonic

(100% dried *apium graveolens*) Immune booster, arthritic/rheumatic pains, good for cataracts and eye health, detoxifies and used for Urinary Tract Infections (UTI), for diabetes, lowers Blood Pressure, good for weight loss, asthma and a cancer preventive.

5. Kale Eating kale supports healthy vision as it contains Lutein and zeaxanthine.

6. Acha Carrot (Fonio / Carrot)

A whole grain meal; rich in fiber, low-carbohydrate and no cholesterol enriched with vitamin A and beta carotenoids. Fonio has low glycemic index and also contains proteins.

7. Tamba Acha Tigernut Mix (Fingermillet/Fonio/Tigernut Mix)

Also a whole grain meal providing low-carbohydrate, fiber rich, Vitamins and zero cholesterol. Fonio is rich in s-amino acids containing a good amount of Vitamin B, Calcium, Iron and phosphorus. 12 -26% of the cereal is protein by weight. It is gluten-free.

8. Tigernut Powder

Tiger nuts are super high in resistant starch fibre giving it a weight loss property by lowering blood sugar spikes and keeping you fuller. High in magnesium, phosphorus, potassium, vitamins C and E," and have been shown to help slow down cellular aging, control blood pressure and promote a healthy digestive system. High in fibre and low in calories and fat and acts as a prebiotic.

9. Date Powder

It contains high calories, carbohydrate, fiber, proteins and other minerals and vitamins. High in Disease-Fighting Antioxidants as flavonoids, carotenoids and phenolic acids which is anti-inflammatory. Promotes Brain health. May promote natural labor. An excellent natural sweetener (substitute for white sugar).

Bone health: Dates contain several minerals, including phosphorus, potassium, calcium and magnesium. All of these have been studied for their potential to prevent bone-related conditions like osteoporosis.

Blood sugar control: Dates have the potential to help with blood sugar regulation due to their low glycaemic index, fibre and antioxidants. Thus, eating them may benefit diabetes management.

10. Cypress Tea/Oil

Lowers Blood Pressure by its diuretic properties similar to that of Moduretic®, It has hemostatic styptic properties so stops flow and contraction of vessels and as such lessens heavy menstruation, sedative; induces calming, relaxation, good effects in the mind and body, relieving nervous stress and anxiety, Vasoconstriction, anti-rheumatic, for arthritis, varicose veins, Cellulite and Asthma.

11. Tumeric Oil (curcuma longa)

For catarrh, cough, chest rub, rheumatic aches & pains, removes spots, acne, wrinkles and smoothens skin.

12. Cinnamon Oil (cinnamomum verum)

Heart health booster, Natural Aphrodisiac for impotence and erectile dysfunction like Viagra, fat burner, lowers blood sugar, sore throat & headaches.

13. Eucalyptus Leaves/Oil

Antifungal, for chest rub, catarrh, cough, aches & pains.

14. Calcium Supplement

For calcium deficiency, healthy bones, teeth & arthritic conditions.

15. Lemon Grass Tea/Oil (cymbopogon)

Antifungal/antiseptic, pimples, hair loss, insect repellent.

16. Rosemary Oil/Tea

For hair growth, improves memory, Gallbladder, Nerve function, Liver detox, heal prostrate, Rheumatic pain. All our products we try to analyze at the university for quality control and more.

Conclusion

In the beginning, the Lord God (our creator) planted the garden and placed man there with authority to dominate i.e. to eat, grow, heal, and live. Natural products, herbs, herbals, spices, devices are gifts from Him. Discovering and accessing these hidden divine gifts, is what we are doing today. Food is a gift to man for eating, growing, healing and living. Indeed, food is medicine [1-7].

References

1. Brianna Elliott (2018) 8 Proven Health Benefits of Dates. <https://www.healthline.com/nutrition/benefits-of-dates>.
2. <https://www.goodhousekeeping.com/health/diet-nutrition/a20706671/health-benefits-of-tiger-nuts/>. 30/08/2018.
3. <http://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/nigeria/en/>.
4. Health Council of the Netherlands. Guidelines for a healthy diet 2006. The Hague: Health Council of the Netherlands, 2006; publication no. 2006/21E
5. Health Council of the Netherlands. Guidelines for a healthy diet: the ecological perspective. The Hague: Health Council of the Netherland, 2011; publication no. 2011/08E.
6. <https://www.wur.nl/en/article/Food-as-medicine.htm>
7. <https://draxe.com/food-is-medicine/>

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