



FROM PILLS TO PLANTS

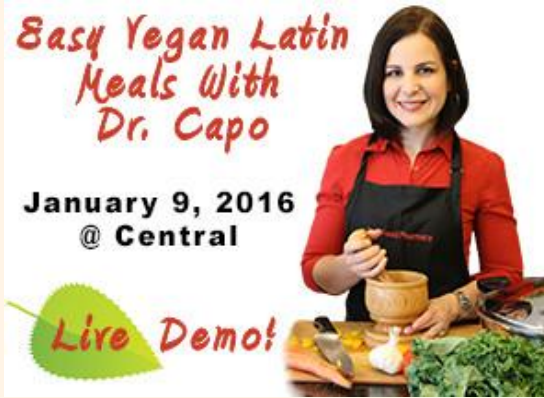
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Culinary Medicine



Culinary Medicine



Prevention/Reversal vs Disease Management



Modern medical procedures and treatments address symptoms NOT causes of disease.



PILL MENTALITY



A collage of medical supplies and US dollar bills. In the foreground, there are several US dollar bills, including a prominent one hundred dollar bill with the serial number 05567820 B. Scattered around the bills are various medical items: a syringe with a needle, several pills in different colors (pink, yellow, blue, white), and a small vial with a red cap. The background is slightly blurred, showing more of the same items, creating a sense of depth and abundance. The overall theme is the high cost of healthcare.

The Price We Pay!

Getting sick is **EXPENSIVE**

Reductionism vs Wholism



Wholism (a term adopted by Professor T Colin Campbell) deals with **whole diet** and its effects on the whole person; whereas reductionism looks at specific elements of diet and their effect on specific parts of the person.

Reductionism vs Wholism



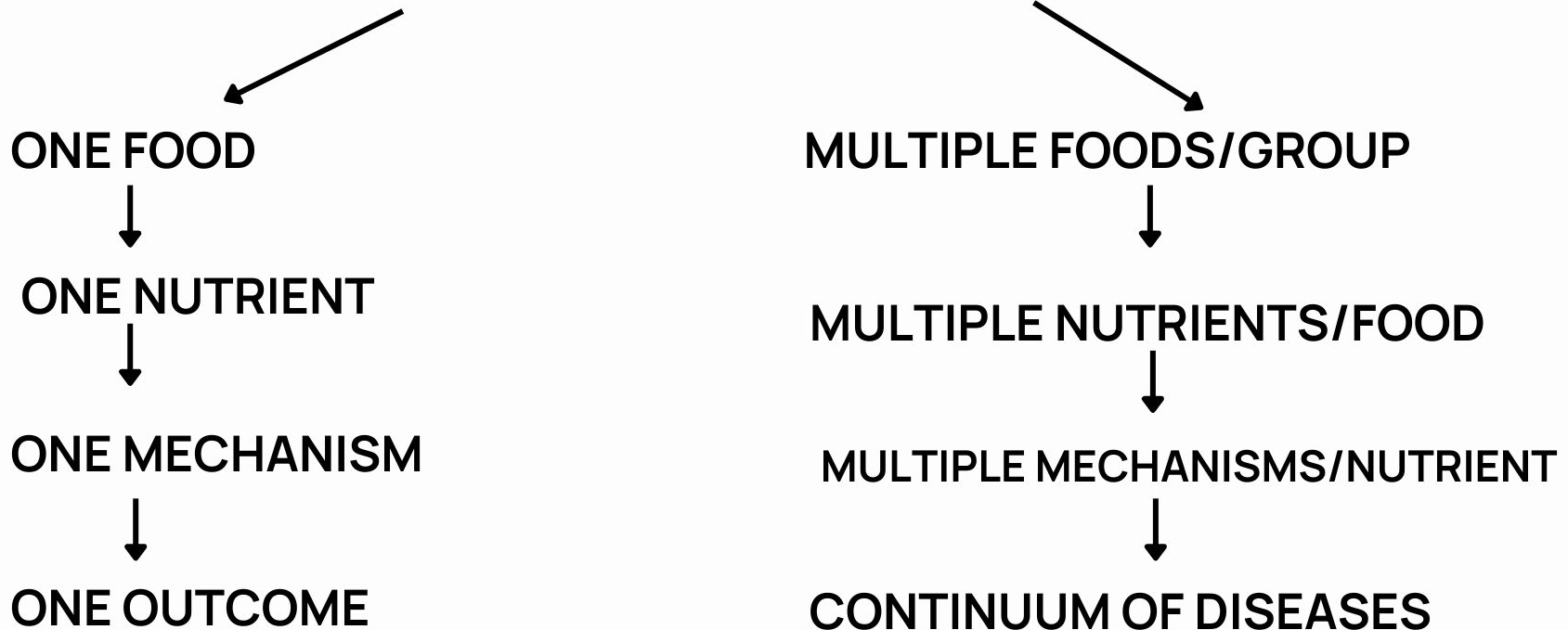
The increase in diet-related chronic diseases, such as type 2 diabetes and obesity, is simply not being addressed by the ever more precise research being undertaken by scientists.

Whether they are chemists looking at a specific chemical that can target particular cellular behaviour or a geneticist looking at which gene is responsible for the onset of a particular disease.

It's necessary to narrow one's visual field to a specific area of investigation when it is appropriate; but there is a general tendency nowadays within nutritional science to exclusively apply the microscope to every public health issue.

FUTURE (WHOLIST) NUTRITION

BEYOND SINGLE FOODS, NUTRIENTS,
MECHANISMS, OUTCOMES



History of Pharmacy - Ancient Mesopotamian Medicine

PLANT-BASED MEDICINE

When the first person expressed juice from a succulent leaf to apply to a wound, this art was being practiced.



Pharmaceutical Reductionism



The drug industry has followed an assumption that a single drug hitting a single target was the “rational” way to design drugs.

Strategies for targeting single genes or proteins ignore a very important fact that most, if not all diseases, involve a sophisticated network system.

A whole list of agents has been developed to target a specific molecule for the treatment of inflammatory bowel disease, for example, but they have all flopped. That’s why drug companies are now working on so-called “promiscuous” drugs that try to affect multiple pathways simultaneously.



Mencher SK, Wang LG. Promiscuous drugs compared to selective drugs (promiscuity can be a virtue). BMC Clin Pharmacol. 2005 Apr 26;5:3. doi: 10.1186/1472-6904-5-3. PMID: 15854222; PMCID: PMC1090568.



Plant-Based Medicine



Meanwhile, since ancient times, natural agents derived from plants such as:

Fruits, vegetables, spices, beans, and grains—have been preferred as potential therapeutics for most chronic diseases, not only because of their safety, affordability, and long-term use, but also **for their ability to target multiple cell signaling pathways, a therapeutic virtue.**

Aspirin in Plants



Aspirin is a plant-based drug.

Aspirin is an extract of the willow tree bark and is present in other fruits and vegetables.

Targets inflammation, offers pain relief, and acts as a blood thinner.

Inflammation plays a key role in a number of disease processes including heart disease, cancer, and dementia.

Aspirin in Plants



What about the blood levels of those eating plant-based diets?

People that follow a plant-based diet naturally have low levels of aspirin coursing through their systems, because they eat more plants—as much as some people who take aspirin as a drug.

The problem with taking the drug → it increases our risk of bleeding → like hemorrhagic stroke.

Some studies find vegetarians have a lower risk of bleeding into their brain.

Eating a plant-based diet, one might be able to get some of the benefits of taking aspirin, without some of the risks.

J.R. Paterson, G. Baxter, J.S. Dreyer, J.M. Halket, R. Flynn, & J.R. Lawrence. Salicylic acid sans aspirin in animals and man: persistence in fasting and biosynthesis from benzoic acid. *J Agric Food Chem*, 56(24):11648-11652, 2008.



Curcumin



Curcumin is an extract from the turmeric root

It's considered so anti-inflammatory that it may even work through the skin.

A traditional use was to wrap strains and injuries with turmeric soaked poultices - a use that still continues to this day!

It is so anti-inflammatory that it can counter the effects of mustard gas!

Potent bronchodilator to open airways in conditions like asthma

Many of the “adrenaline like drugs” can raise blood pressure

Turmeric has different components with opposing activities like calcium channel blockers

Phytonutrients



- Plant foods contain thousands of phytonutrients (phytochemicals)
- Phyto = Greek for plant
- These chemicals help protect the plant from germs, fungi, bugs, and other threats.
- Many phytonutrients are classified as antioxidants.
- Carotenoids, ellagic acid, flavonoids, resveratrol, glucosinolates, phytoestrogens

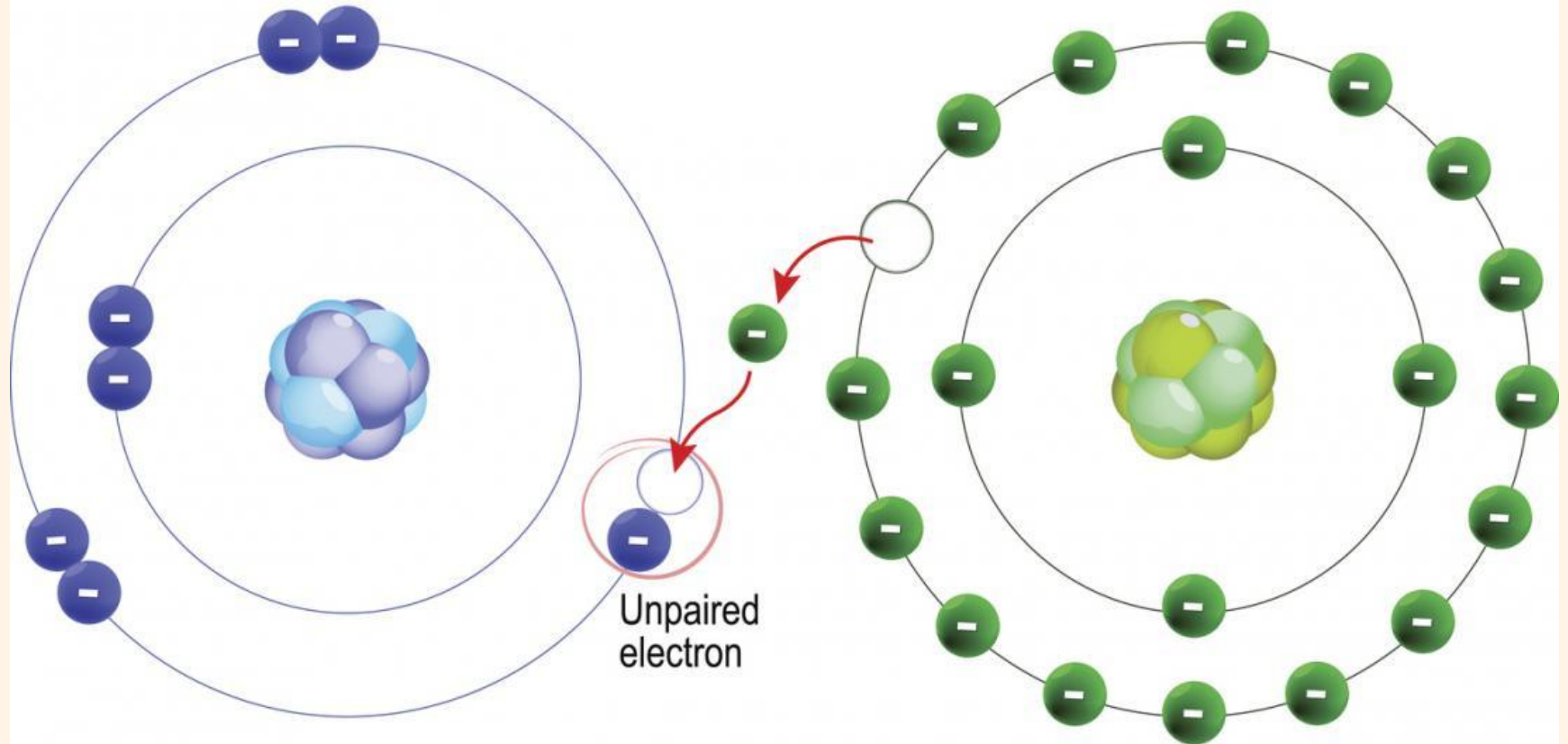
Antioxidants



- Antioxidants are substances that prevent or delay cell damage
- Free radicals are highly unstable molecules that are naturally formed when you exercise and when your body converts food into energy
- Your body can also be exposed to free radicals from a variety of environmental sources, such as cigarette smoke, air pollution, and sunlight
- Free radicals can cause “oxidative stress,” a process that can trigger cell damage

Free radical

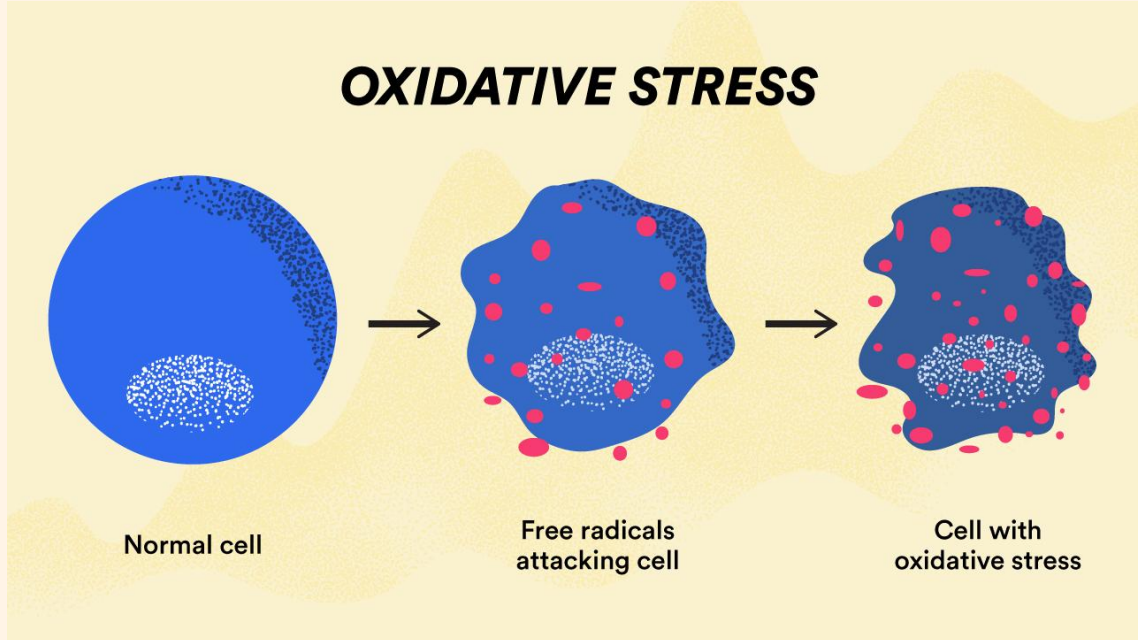
Antioxidant



Oxidative Stress



- Oxidative stress is thought to play a role in a variety of diseases including cancer, cardiovascular diseases, diabetes, Alzheimer's disease, Parkinson's disease, and eye diseases such as cataracts and age-related macular degeneration.



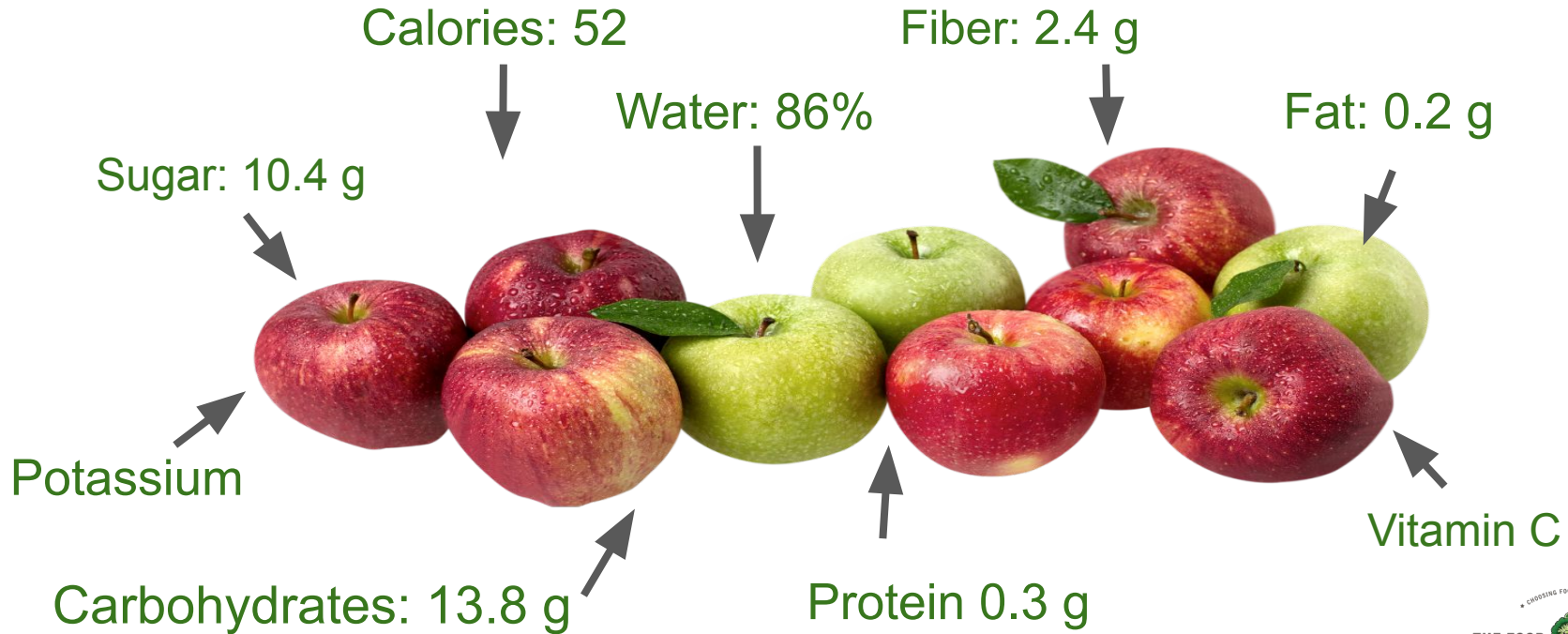
Antioxidants



- Antioxidant molecules have been shown to counteract oxidative stress.
- Vegetables and fruits are rich sources of antioxidants.
- Research **has not shown** antioxidant supplements to be beneficial in preventing diseases.
- There is concern that antioxidants in supplement form in excessive doses may be harmful.

The Humble Apple

Medium apple with peel (100 grams):



Vitamin C-like Activity

100 grams of fresh apples (about four ounces, or half a cup) had an antioxidant, vitamin C–like activity equivalent to



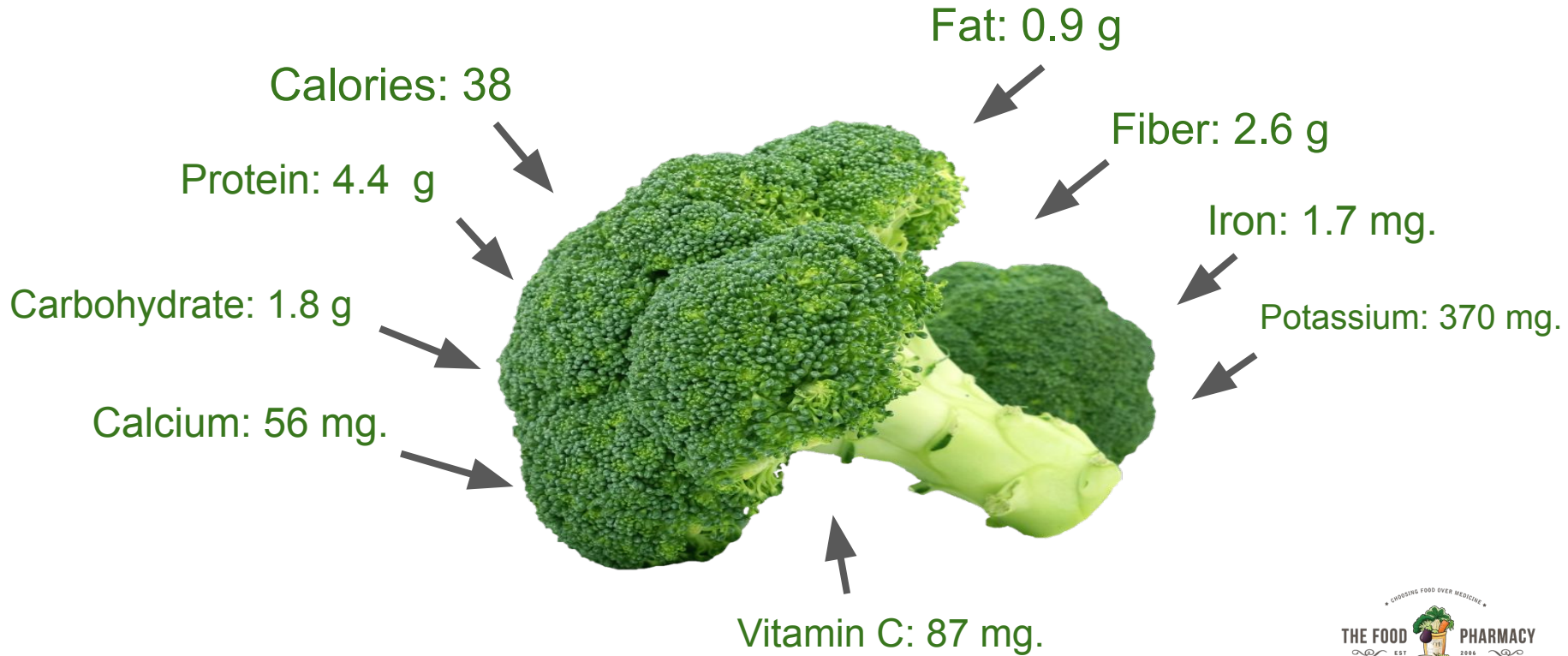
1,500 milligrams of vitamin C (about three times the amount of a typical vitamin C supplement)



The vitamin C–like activity from 100 grams of whole apple was an astounding 263 times as potent as the same amount of the isolated chemical!



Powerful Broccoli



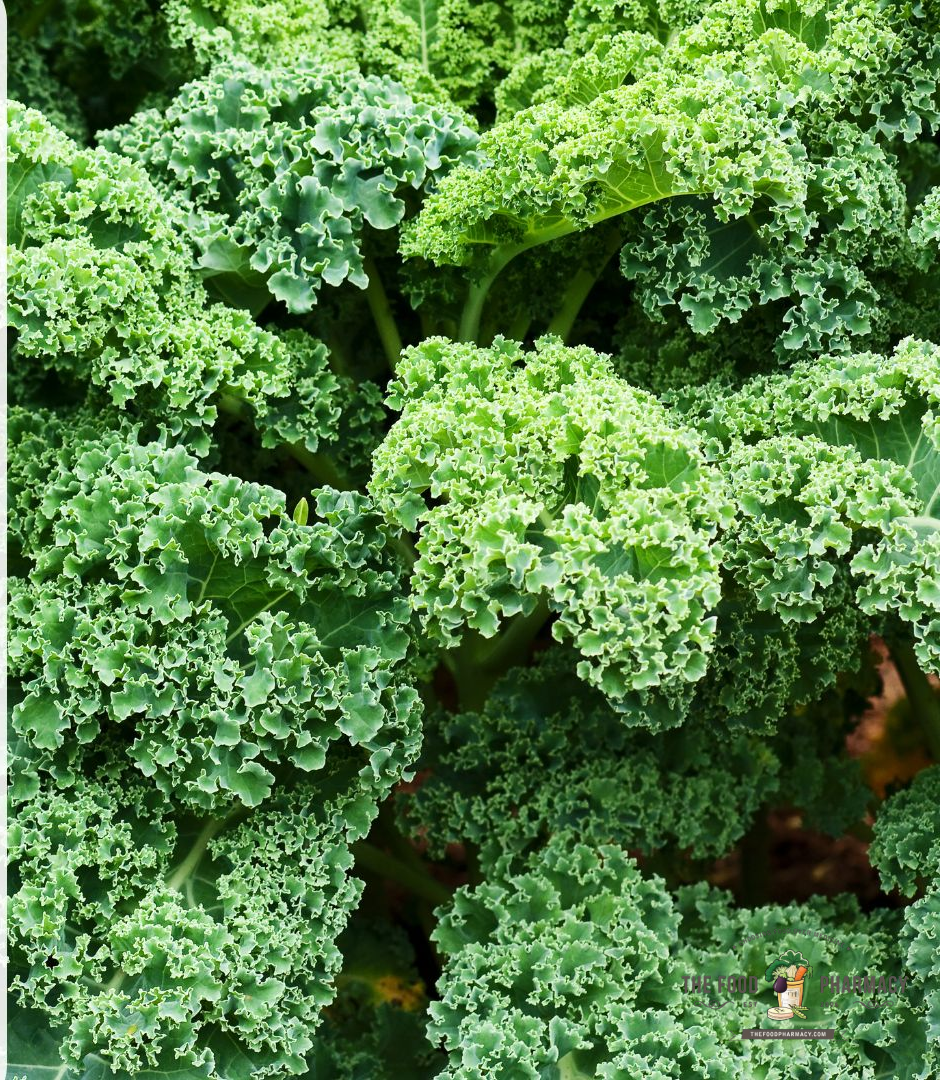
Broccoli

- Diuretic properties - high levels of potassium and water
 - Helps eliminate excess fluids from the body
 - Hypertension, fluid retention, oliguria (low urine production)
 - Helps eliminate H. Pylori (cause of ulcers and gastritis)
- Sulforaphane - sulfur-rich phytonutrient
 - Neutralizes toxins - antioxidant that cancel out free radicals
 - Reduces inflammation
 - Protects DNA - blocks mutations
 - May slow tumor growth



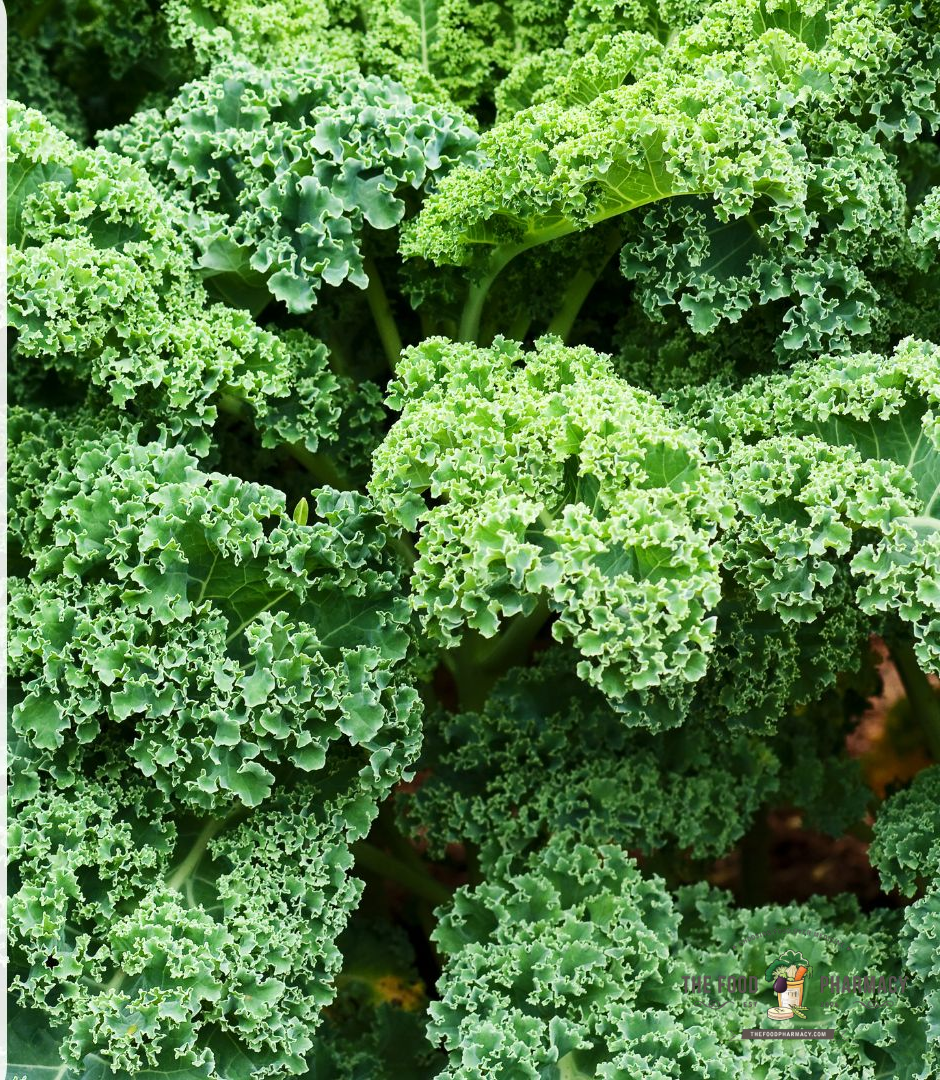
Greens

- Raw leafy greens contain only 100 calories/pound
- The majority of calories in greens come from plant protein which is packed with PHYTONUTRIENTS



Greens

- Rich in folate, calcium, and small amounts of omega 3 fatty acids
- The MOST nutrient dense of all foods
- Rich in antioxidants called carotenoids, specifically lutein and zeaxanthin, known to promote healthy vision



Beans

- Powerhouse of nutrition → the most nutrient-dense carbohydrate source
- Beans act as an anti-diabetes and weight-loss food
 - Digested slowly
 - Stabilizing effect on blood sugar, which promotes satiety and helps to prevent food cravings.



Beans

- Soluble fiber → which lowers cholesterol levels.
- High levels of resistant starch,
 - Carbohydrates that are not broken down by digestive enzymes
 - Reduce the total number of calories absorbed from beans,
 - Fermented by intestinal bacteria into fatty acids that help to prevent colon cancer



Beans

- Eating beans, peas or lentils at least twice a week decreases colon cancer risk by 50%
- Legume intake also provides significant protection against oral, larynx, pharynx, stomach, and kidney cancers



Onions

- Allium family of vegetables -
ALLICIN
 - Onions, leeks, garlic, chives, shallots, and scallions
- Beneficial effects on the cardiovascular and immune systems
- Anti-diabetic and Anti-cancer effects



Onions

- Lower risk of gastric and prostate cancers.
 - Contain compounds that help detoxify carcinogens, halting cancer cell growth, and blocking angiogenesis.
- High concentrations of flavonoid antioxidants
 - Quercetin
 - Red onions → at least 25 different anthocyanins



Mushrooms

- Consuming mushrooms regularly is associated with decreased risk of breast, stomach, and colorectal cancers.
- In one recent Chinese study, women who ate at least 10 g of fresh mushrooms each day (about one mushroom per day)
 - 64% decreased risk of breast cancer
 - Even more dramatic protection gained by women who ate 10 g of mushrooms and drank green tea daily—an 89% decrease in risk for premenopausal women & 82% for postmenopausal women.



Mushrooms

- White, cremini, Portobello, oyster, shiitake, maitake, and reishi mushrooms → anti-cancer properties
- Anti-inflammatory
- Stimulate the immune system
- Prevent DNA damage,
- Slow cancer cell growth
- Cause programmed cancer cell death, and inhibit angiogenesis



Berries

- Blueberries, strawberries, and blackberries are true **SUPERFOODS**
- Low in sugar and high in nutrients
- Full of antioxidants & flavonoids
- Berries are some of the highest antioxidant foods in existence



Berries

- Cardio-protective and anti-cancer effects
- Reduce blood pressure
- Reduce inflammation
- Preventing DNA damage
- Inhibit tumor angiogenesis



Berries

- Stimulate body's own antioxidant enzymes
- Reduced risk of diabetes, cancers and cognitive decline
- Berries are an excellent food for the brain
 - Improves both motor coordination and memory



Seeds

- Chia and Flax Seeds
- Extremely rich sources of omega-3 fats
- Flaxseeds are rich in fiber and lignans
- Heart healthy and help prevent diabetes



Pomegranates

- Pomegranates contain high levels of antioxidants called flavonoids
- Superfruit
- Great source of soluble and insoluble dietary fibers
- Phytonutrients such as **Granatin B**, and **Punicalagin**
 - Effective in reducing heart-disease risk factors by scavenging harmful free radicals from the human body



Pomegranates

- Vitamin C
- Regular consumption of pomegranate has also been found to be effective against prostate cancer, benign prostatic hyperplasia (BPH), diabetes, and lymphoma



Beets

- Rich in nitrates, which the body converts to nitric oxide
 - NO - Compound that relaxes and dilates blood vessels, turning them into superhighways for your nutrient- and oxygen-rich blood.
 - That means better circulation, and possibly lower blood pressure.



Beets

- Rich in a plant alkaloid called [betaine](#),
- B-vitamin [folate](#)
- Betaine and Folate together deliver a one-two punch for [lowering blood levels of homocysteine](#)
 - In high levels increases your risk for artery damage and heart disease



Moringa

- The Miracle Tree - used in arid areas of the world.
- Huge amounts of → Vitamin C
- Vitamin A - more than carrots
- Calcium
- Potassium
- Protein
- Seeds can be used to clean water



Hibiscus Tea

- Helps to lower blood pressure
- Helps relieve digestive, immune, and inflammatory problems
- Helps reduce cholesterol
- Full of antioxidants that help reduce radical damage
- Possible anti-cancer properties
 - in the lab, causes cell death of leukemia cells



Black Cumin

- Meta analysis shows
 - Significant weight loss
 - Reduction in total cholesterol
 - LDL cholesterol
 - Triglycerides
 - Lowers blood pressure
 - Better glucose control
 - Antiviral properties

Dose: ¼ teaspoon per day



Black Cumin vs Orlistat



- ½ tsp twice daily for 3 months lost 4 pounds and one inch off waist
- Comparable results to obesity drug **Orlistat** without the side effects.
 - Bladder pain, body aches, difficulty breathing, ear congestion, nasal congestion, muscle aches and pains.
 - The most common side effect **oily spotting**, flatus with discharge, fecal urgency fatty/oily stool, oily evacuation, increased defecation and fecal incontinence

Ginger and COVID-19



- Ginger was used widely for thousands of years as a spice as well as a traditional medicine for treating various disorders.
- Fresh ginger exerts potent antiviral effects against human respiratory syncytial virus (HRSV) and rhinovirus, supporting its usefulness for the treatment of airway viral infections.
- Ginger exhibited strong anti-inflammatory and anti-oxidative properties.
- Can potentiate antiviral innate immunity

Ginger and COVID-19




Conclusion:

“Altogether, ginger and its compounds are able to decrease the oxidative elements and act as potent stimulators for the OS-attenuating proteins. Therefore, the antioxidant activity of ginger can have beneficial effects in COVID-19 patients”

Jafarzadeh A, Jafarzadeh S, Nemati M. Therapeutic potential of ginger against COVID-19: Is there enough evidence? Journal of Traditional Chinese Medical Sciences. 2021 Oct;8(4):267–79. doi: 10.1016/j.jtcms.2021.10.001. Epub 2021 Oct 6. PMID: PMC8492833.

Goal → 30 + Different Plants

- **Eat the rainbow in polyphenols**
 - **Decrease processed foods, oils, and processed sugars**
-
- Fruits
 - Vegetables
 - Whole grains
 - Legumes
 - Mushrooms
 - Nuts
 - Seeds
 - Spices
 - Probiotic foods



American Gut Study - largest published study on the human microbiome → Diverse microbiome

In Conclusion

Ultimately, it is a win-win situation—for patients, and for health care practitioners—to have plant-based eating as a powerful tool in the toolbox.

Pharmaceuticals are an important tool, particularly in treating acute illnesses, but lifestyle changes and whole foods plant-based diet is important and powerful tool in treating chronic illness. It should be the first line of therapy.

To facilitate lower health care costs and better health outcomes, let food be medicine and the route of true healthcare for a brighter future!







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