

Cardiovascular & Immune System Revisited

THE REAL CULPRIT #2

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THE CURRENT STATE OF AFFAIRS ON CARDIO & IMMUNE

REPETITIO MATER STUDIORUM

▶ REPETITION IS THE MOTHER OF ALL LEARNING

- ▶ But what if wrong information is being repeated?
- ▶ Even in FM world, we see often misinformation or half information being repeated
- ▶ When something is being repeated many times, we tend to believe it.

▶ WE CANNOT FIND SOLUTION, UNLESS WE UNDERSTAND THE ESSENCE OF THE PROBLEM

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EXAMPLE #1

POPULAR CLAIM:

- ▶ Arginine or Citrulline are the best ways to increase NO
- ▶ Nobel Prize 1998 for Nitric Oxide
- ▶ Robert Furchgott, Louis Ignarro and Ferid Murad independently discovered that nitric oxide, NO, was endogenously produced – acted as a signaling molecule between cells
- ▶ Louis Ignarro for Arginine (father of Viagra)
- ▶ VIRTUALLY ALL formulas I have seen include Arginine or Citrulline as a result

BEHIND THE SCENES:

- ▶ Relation of arginine–lysine antagonism to herpes simplex growth in tissue culture
- ▶ <https://pubmed.ncbi.nlm.nih.gov/6262023/>

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EXAMPLE #2

POPULAR CLAIM:

- ▶ Most recent popular voices in FM, Dr. Peter Attia: “There is no ambiguity; LDL and ApoB are CAUSALLY related to atherosclerosis.”

BEHIND THE SCENES:

- ▶ LDL, APO B do not cause atherosclerosis, they are sent there as **repair mechanism**.

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EXAMPLE #3

POPULAR CLAIM;

- ▶ **ASHWAGANDHA** is not good for autoimmune conditions especially for Hashimoto's Thyroiditis.

BEHIND THE SCENES:

- ▶ Dr. Gupta examined all the evidence and not a single study supports this claim, only rare anecdotal evidence, mainly from 73 year old woman having a random episode.
- ▶ Many studies show immune modulatory effect
- ▶ **Ashwagandha – The Most Preferred Natural Treatment for Hashimoto's Disease**
- ▶ <https://www.anshulguptamd.com/ashwagandha-the-most-preferred-natural-treatment-for-hashimoto-s-disease/>

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MEDICAL DISCLAIMER

- ▶ The information in this webinar is provided for educational and informational purposes only and does not constitute providing medical advice or professional services. The information provided should not be used for diagnosing or treating a health problem or disease, and those seeking personal medical advice should consult with a licensed physician. Always seek the advice of your doctor or other qualified health provider regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read or heard through this webinar or anything provided by the speaker or business and entities involved in organizing it. If you think you may have a medical emergency, call 911 or go to the nearest emergency room immediately. No physician-patient relationship is created by the information provided here.

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CAUSATION

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CAUSATION

- ▶ WE CANNOT FIND SOLUTION, UNLESS WE UNDERSTAND THE ESSENCE OF THE PROBLEM

- ▶ Were you ever mesmerized by crime movies or novels?

- ▶ **Who Done It?**
- ▶ We love SUSPENSE!
- ▶ 25 best WhoDunIt movies! "Clue," "Blow Out"
- ▶ Alfred Hitchcock movies
- ▶ Escape Rooms
- ▶ We all want to know, who is the killer?

REAL LIFE:

- ▶ **#1 killer is cardiovascular disease!**
- ▶ **#2 problem – IMMUNE SYSTEM! COVID.**
- ▶ Would it be pertinent to know **WhoDunIt?**

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CAUSATION?

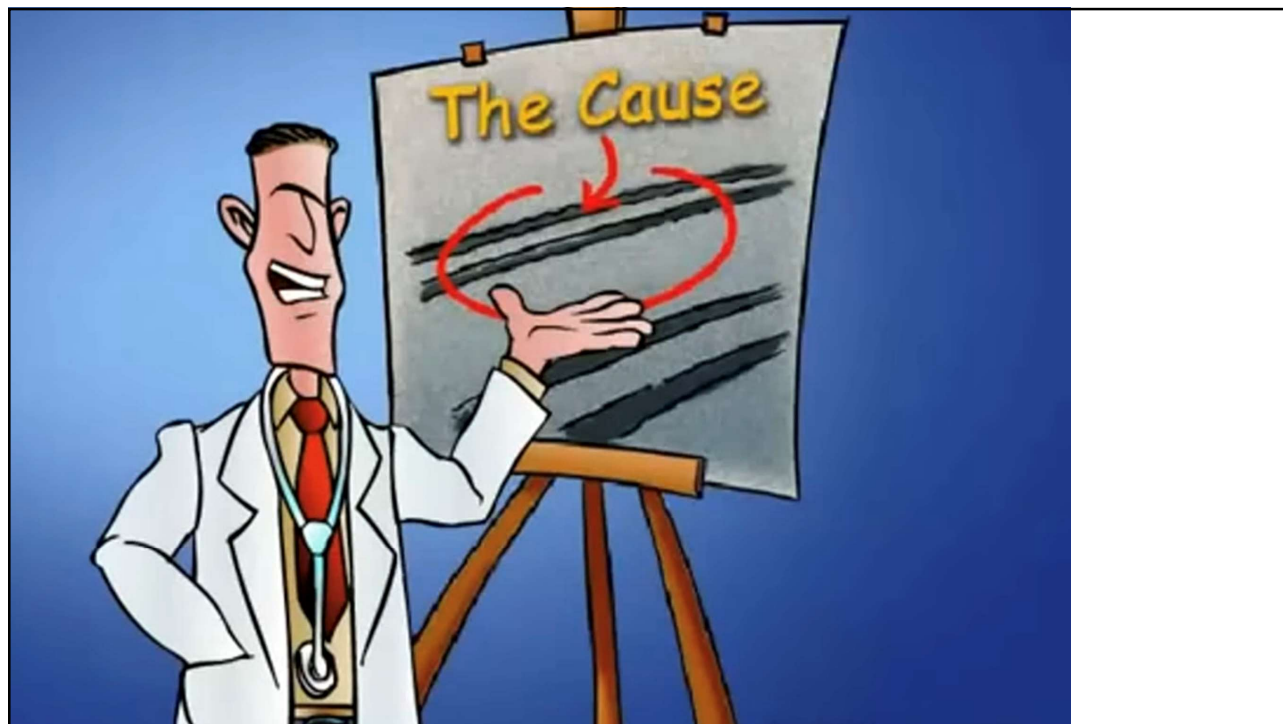


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“SKID MARKS” DISEASE

- ▶ Once upon a time, there was a town of Alopath. The town was growing and eventually had many automobiles.
- ▶ As inevitable car accidents started to rise, the town officials hired an expert, Dr West MD (Doctor of MOTOR DIVISION) to investigate to cause.
- ▶ After months of investigation, he came to conclusion that the SKID MARKS are the cause of accidents, and ordered regular chemical cleaning of skid marks.

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“SKID MARKS” DISEASE

- ▶ People were confused with his findings, but who were they to argue with incredible scholarship and expertise of this MD, Motor Division doctor, and sheepishly accepted his authority.
- ▶ Accidents didn't stop at all, but actually increased.
- ▶ One day an old sage came from the mountains and presented at the Town Hall meeting that the solution is SIMPLE, if they just put a STOP SIGN at the intersections, accidents would diminish or stop.
- ▶ But the City Council realized businesses like hospitals, repair shops, road chemical maintenance etc., would lose a lot of money, and decided to declare that this man is a QUACK, without any diploma or known expertise not worth listening.

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FDA: FREQUENT DRIVERS ASSOCIATION

- ▶ As a result, they formed an organization named FDA (**FREQUENT DRIVERS ASSOCIATION**) to maintain integrity and not allow uneducated quacks to influence people's thinking.
- ▶ Of course, Dr. West MD, Motor Division doctor, was put as a leader of FDA, and received many accolades for discovery of SKID MARKS DISEASE and proper scientific solution for it.
- ▶ Accidents kept increasing, people were sicker every day, but no one dared to challenge authority of such a wise organization as FDA and brilliant Dr. West.

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REAL LIFE EXAMPLE: MULTIPLE SCLEROSIS

- ▶ WEBSITE describing in a succinct manner mechanism of MS... I WAS PLEASED
- ▶ Then they presented very properly how T CELLS are attacking MYELIN SHEATH... OK... go on.
- ▶ **PROPOSING DRUGS THAT WILL SUPPRESS T & B CELLS**
- SIDE EFFECTS:
 - ▶ CANCER, Upper respiratory tract infections, Hepatitis B, Rare life threatening brain infection: Progressive Multifocal Leukoencephalopathy (PML), Fatigue, Eyesight damage etc.
 - ▶ **WOW! Is this a Skid Mark Disease?**

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SCIENCE – DOGMA OR SKEPTICISM?

NASA CSI OFFICIAL PAGE

Why Must Scientists Be Skeptics?

- ▶ Skepticism is the act of suspending judgment (the opposite of jumping to conclusions) when evaluating an explanation or claims. It allows scientists to consider all possibilities and systematically question all information in the course of an investigation.
- ▶ Why is maintaining a skeptical outlook so important? Skepticism helps scientists to remain objective when performing scientific inquiry and research. It forces them to examine claims (their own and those of others) to be certain that there is sufficient evidence to back them up. Skeptics do not doubt every claim, only those backed by insufficient evidence or by data that have been improperly collected, are not relevant or cannot support the rationale being made.

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THE REAL CULPRIT?

- **STRUCTURAL DAMAGE**
- **NITRIC OXIDE**

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THE REAL CULPRIT? CARDIO & IMMUNE Connecting the dots!

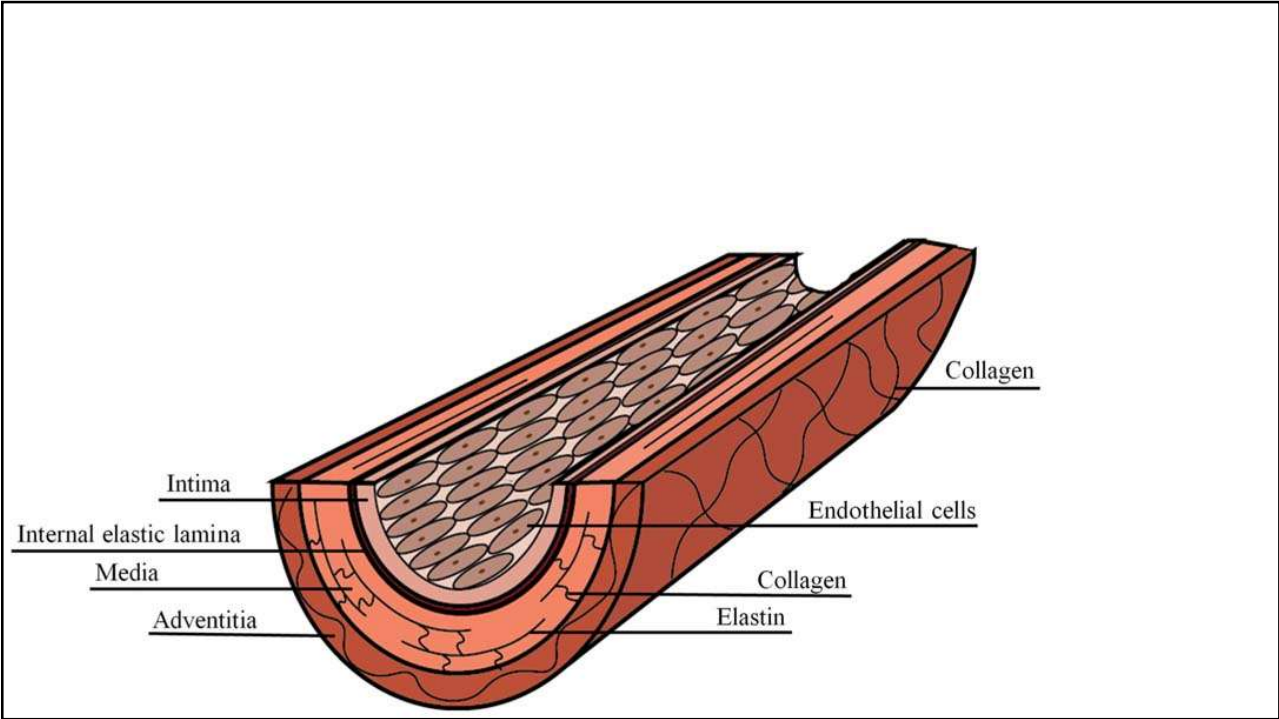
1. STRUCTURAL DAMAGE
2. NITRIC OXIDE
3. GLYCOBIOLOGY & GLYCOCALYX

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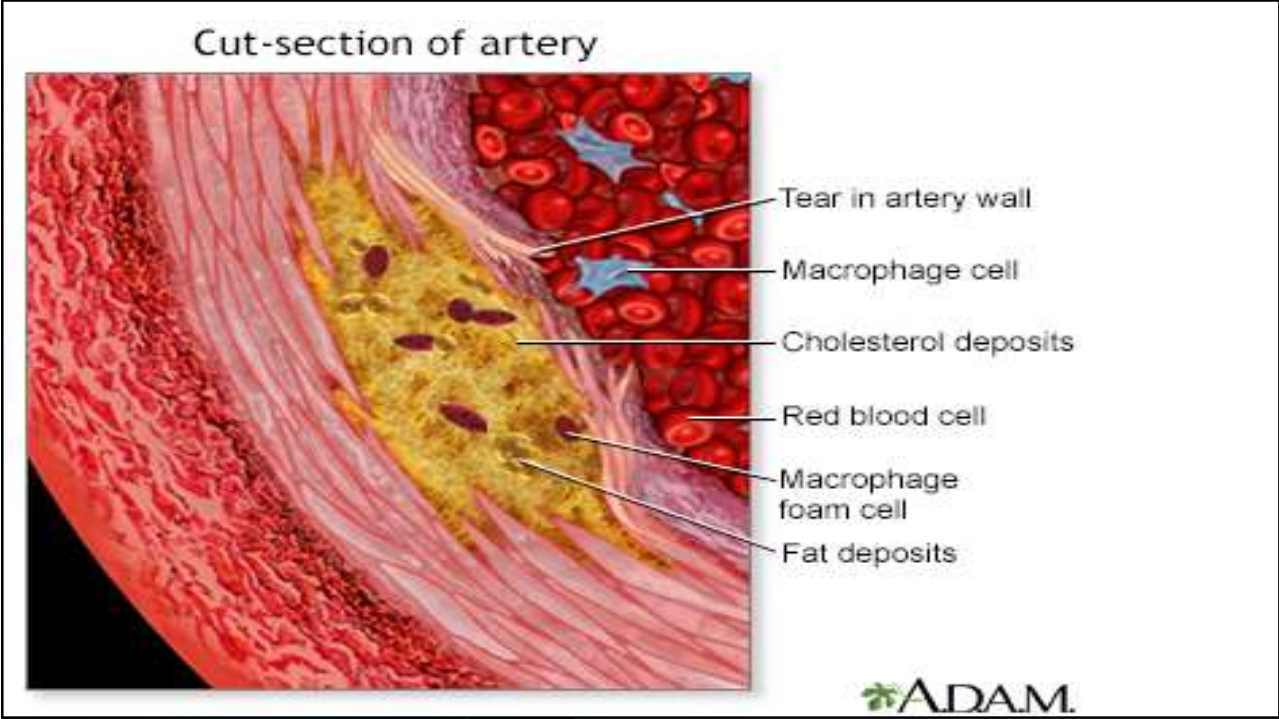
VITAMIN C – ESSENTIAL FOR COLLAGEN IS IT A VITAMIN?

- ▶ MISSING ENDOGENOUS FACTOR
 - ▶ Why did humans stop producing vitamin C?
 - ▶ In all cases so far studied, the inability to synthesize vitamin C is due to mutations in the **L-gulono-γ-lactone oxidase (GLO) gene** which codes for the enzyme responsible for catalyzing the last step of vitamin C biosynthesis.
 - ▶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3145266/#:~:text=In%20all%20cases%20so%20far,step%20of%20vitamin%20C%20bio%20synthesis.>

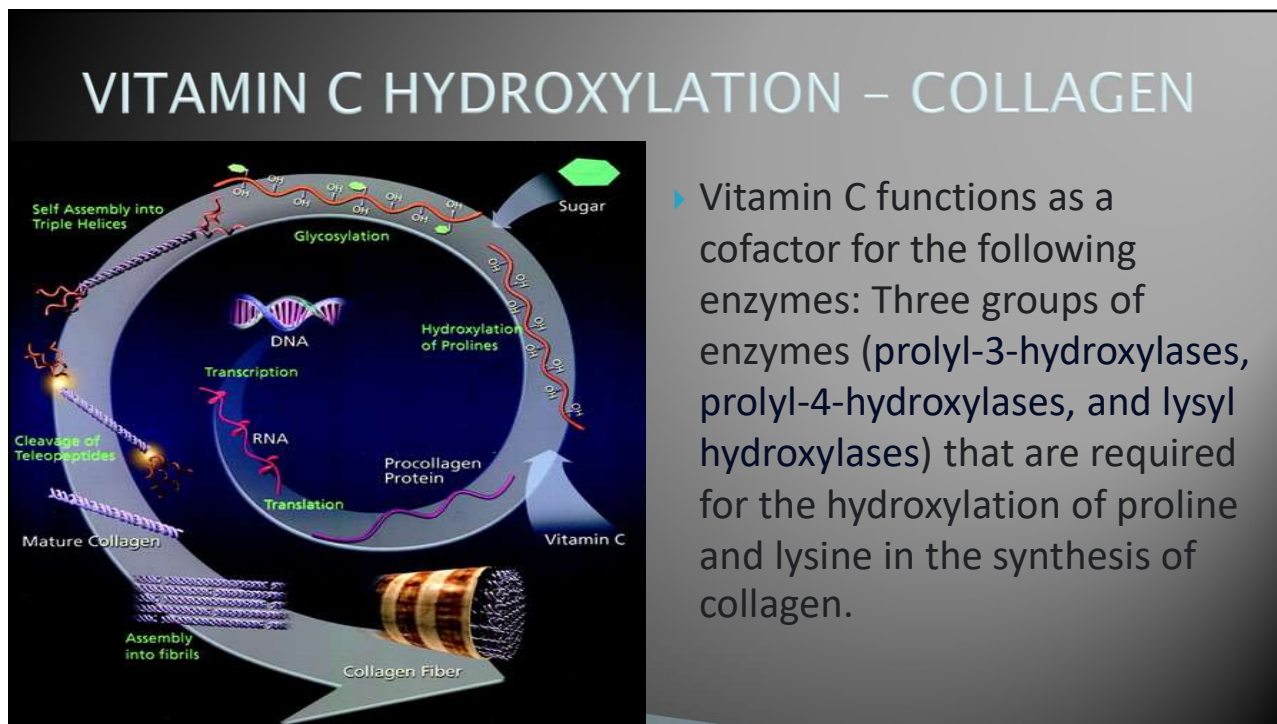
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The role of Vitamin C in fibrosis as illustrated for collagen synthesis and epigenetics

D. A. Seijkens, R.A. Bank
University of Groningen, Groningen, June 2015

Abstract

In this review, the role of vitamin C in fibrosis is reviewed, illustrated for collagen synthesis and epigenetics. Vitamin C is essential for the human diet to prevent scurvy. This due to impairment of several collagen-associated enzymes in absence of vitamin C. Fibrosis is a disease known for excessive collagen accumulation, but in order to effectively synthesize collagen, vitamin C is needed. Recent studies have also elucidated an important new role for vitamin C. It enhances specific epigenetics modifying enzymes and has also been reported to play a role in the induction and enhancement of pluripotent stem cells. Because of all these roles vitamin C has, it should be considered to be added to culture media when studying fibrosis. Researchers should consider the concentration of vitamin C in the investigated tissue in vivo. Vitamin C could also have several possible therapeutic purposes in the future, these should however be further investigated, especially for fibrosis.

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COLLAGEN – YOUNG vs OLD/DAMAGED



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STUDIES

- ▶ Normal large arteries also contain collagen, elastin, fibronectin, and small amounts of osteopontin, thrombospondin, and tenascin.
- ▶ **6-year follow-up indicated that Vitamin C supplementation reduced the slope of the mean carotid artery intima-media thickness progression.**
- ▶ Most studies, no amounts or small 500mg
- ▶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7761826/> 2020
- ▶ Vitamin C - evidence suggests it may help protect arteries against damage. Some studies suggest that vitamin C can slow down the progression of atherosclerosis (hardening of the arteries).
[https://www.mountsinai.org/health-library/supplement/vitamin-c-ascorbic-acid#:~:text=Vitamin%20C%20doesn't%20lower,\(hardening%20of%20the%20arteries\).](https://www.mountsinai.org/health-library/supplement/vitamin-c-ascorbic-acid#:~:text=Vitamin%20C%20doesn't%20lower,(hardening%20of%20the%20arteries).)
- ▶ Vitamin C **inhibits the calcification** process in human vascular smooth muscle cells. Am. J Cardiovascular Dis 2020
- ▶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7364280/>

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VITAMIN C

- ▶ **Vitamin C. Biosynthesis, recycling and degradation in mammals**
- ▶ Federation of European Biochemical Societies journal, 2007 Jan

High-Dose Vitamin C for Cancer Therapy

Finally, high-dose Vit-C has the definite potential to provide beneficial and cost-effective anti-cancer treatment options that should be investigated further. Ascorbic acid may become a significant treatment option in the fight against cancer, due to its widespread availability in nature, minimal toxicity, and low cost.

There is no benefit to intravenous delivery of Vit-C over oral treatment. However, more clinical trials evaluating the optimal method of high-dose Vit-C delivery are urgently required.

[Pharmaceuticals \(Basel\)](#). 2022 Jun

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9231292/>

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PIONEERS IN VITAMIN C RESEARCH

- ▶ Dr. Linus Pauling
- ▶ Dr. Matthias Rath ‘Why Animals Don’t get Heart Attack’

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VITAMIN C

▶ Ascorbic Acid Metabolism

- ▶ LINUS PAULING, in *Search and Discovery*, 1977
- ▶ <https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/ascorbic-acid-metabolism>
- ▶ The Canadian physician W. J. McCormick (1954, 1959, 1963), on the basis of the literature and his own observations, developed the hypothesis that **cancer** is a preventable collagen disease that results from a deficiency of ascorbic acid.
- ▶ Stocks and Karn (1933) study of the diet of 462 patients with cancer and 435 control patients in England found a consistent negative correlation between the occurrence of cancer. Increased intake of vitamin C... decreases the incidence of cancer.

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VITAMIN C

- ▶ Bjelke (1974). In extensive epidemiological studies in Norway and Minnesota of cancer of the stomach, colon, and rectum in relation to diet, involving about 40,000 persons, has reported finding a negative correlation between these types of cancer and the intake of fruits, vegetables, and vitamin C.
- ▶ The most extensive [clinical trial](#) of ascorbic acid in human cancer is that of Cameron and Campbell (1974), who reported on 50 patients with advanced human cancer who received no treatment other than ascorbic acid, usually 10 g/day. They concluded that “this simple and safe form of medication is of definite value in the palliation of terminal cancer.” The findings suggest that it should be employed as a standard supportive measure

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1. STRUCTURE

- ▶ BIOFLAVONOIDS
 - ▶ BIOFLANOVOLS
 - ▶ POLYPHENOLIC COMPOUDS
 - ▶ SULFUR COMPOUNDS LIKE MSM
- ▶ The sulfur compounds contained in food are amino acids or vitamins including methionine (Met), cysteine (Cys), homocysteine (HCy), cystine (Cys-Cys), taurine (Tau), lipoic acid, thiamine, and biotin as well as the glucosinolates and allylic sulfur compounds that are contained in cabbage and cauliflower
- ▶ [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7545470/#:~:text=The%20sulfur%20compounds%20contained%20in,in%20cabbage%20and%20cauliflower%20\(cruciferous](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7545470/#:~:text=The%20sulfur%20compounds%20contained%20in,in%20cabbage%20and%20cauliflower%20(cruciferous)

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MSM – major structural support

- ▶ **The effect of a 12-week dietary intake of food supplements containing collagen and MSM on dermis density and other skin parameters: A double-blind, placebo-controlled, randomised four-way study comparing the efficacy of three test products**
- ▶ **Highlights**
 - 12-week supplementation with collagen improved skin density, texture and wrinkles.
 - Addition of MSM proved beneficial for improvement in skin texture and thickness.
 - 5 g of collagen with MSM was sufficient to improve the majority of the parameters.
 - Interventions did not result in significant effects on TEWL and viscoelasticity.
 - <https://www.sciencedirect.com/science/article/pii/S1756464623004383>

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MSM

- ▶ Expression of inducible NOS (iNOS) occurs in conditions of inflammation, and produces large amounts of NO. In pathological conditions iNOS is regarded as a harmful enzyme and is proposed to be a major contributor to diseases of the cardiovascular system such as atherosclerosis.
- ▶ MSM can also diminish the expression of inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2) through suppression of NF-κB; thus lessening the production of vasodilating agents such as nitric oxide (NO) and prostanoids [86]. NO not only modulates vascular tone [92] but also regulates mast cell activation [93]; therefore, MSM may indirectly have an inhibitory role on mast cell mediation of inflammation. With the reduction in cytokines and vasodilating agents, flux and recruitment of immune cells to sites of local inflammation are inhibited.
- ▶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5372953/>
- ▶ INDUCIBLE NO SYNTHASE, GOOD OR BAD
- ▶ <https://pubmed.ncbi.nlm.nih.gov/28651238/>

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2. NITRIC OXIDE – UNIFIED THEORY OF AGING

- ▶ 3 ELEMENTS HOW WE AGE
 1. **TELOMERES** – strands at the end of the DNA, as these structures shorten, eventually erode away to almost nothing, errors creep in during cellular replication. Each new generation of our cell is somewhat faulty copy of its progenitor, leading to degraded functioning of tissues, and eventually cell death.
 2. **MITOCHONDRIAL METABOLISM** Start to not work as well. The cells themselves do not get as much energy as they need.
 3. **STEM CELLS** – bodies ability to repair damage.”

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2. NITRIC OXIDE

- ▶ NO - gas, signaling molecule,
- ▶ NO diminishes with age, making blood vessels BRITTLE... Erosion of arterial structure
- ▶ The first sign and symptom is usually erectile dysfunction
- ▶ VASODILATION
- ▶ Smooth muscle relaxation, controls blood flow, circulation to every organ and cell.
- ▶ Diabetes, hypertension
- ▶ Cognitive Decline, Alzheimer's

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NITRIC OXIDE SOLUTION?

MOUTH

- ▶ HUMMING
- ▶ Avoid Flouride
- ▶ Avoid antiseptic MOUTHWASH
- ▶ Add Oral microbiome

- ▶ ADULT ENT Pro
- ▶ CHILDREN's ENT-Pro

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NITRIC OXIDE SOLUTION?

- ▶ NITRITES AND NITRATES IN FOOD
- ▶ Used as additives to improve food quality and protect against microbial contamination and chemical changes.
- ▶ Extracts from cruciferous vegetables is an interesting strategy to overcome this challenge due to their high nitrate content.
- ▶ <https://www.sciencedirect.com/science/article/abs/pii/S2214799320301119>

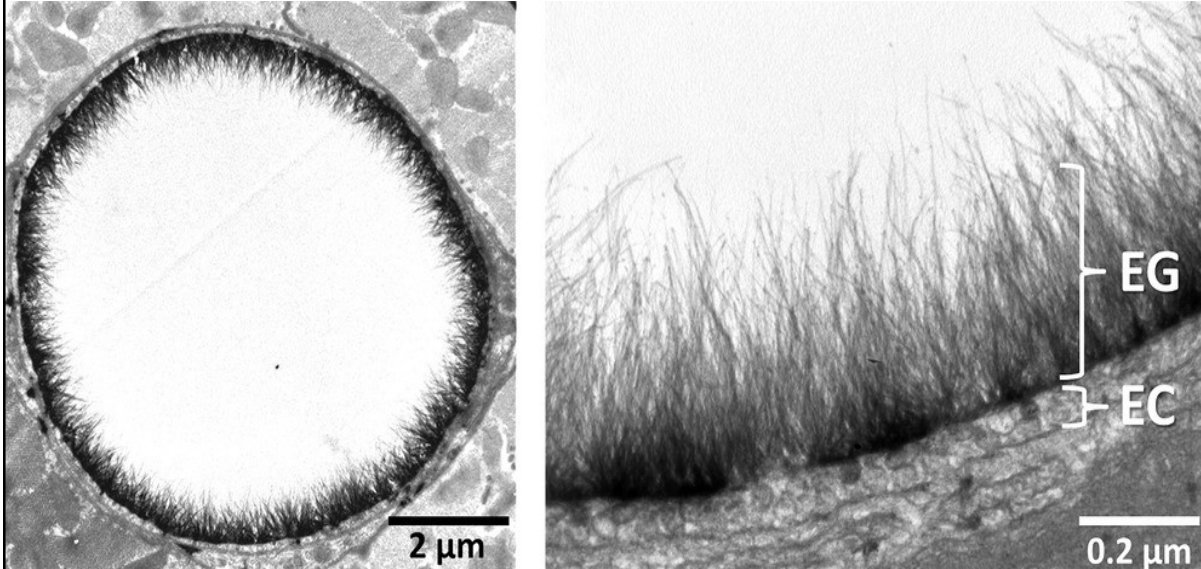
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NITRIC OXIDE SOLUTION?

- ▶ NO half life only 1.8 ms
- ▶ SULPHURIC COMPONENTS can extend it by hours
- ▶ CoQ Zyme 100 Plus
- ▶ NAC
- ▶ Taurine
- ▶ NitroGreens
- ▶ MSM

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3. GLYCONUTRIENTS & GLYCOCALYX



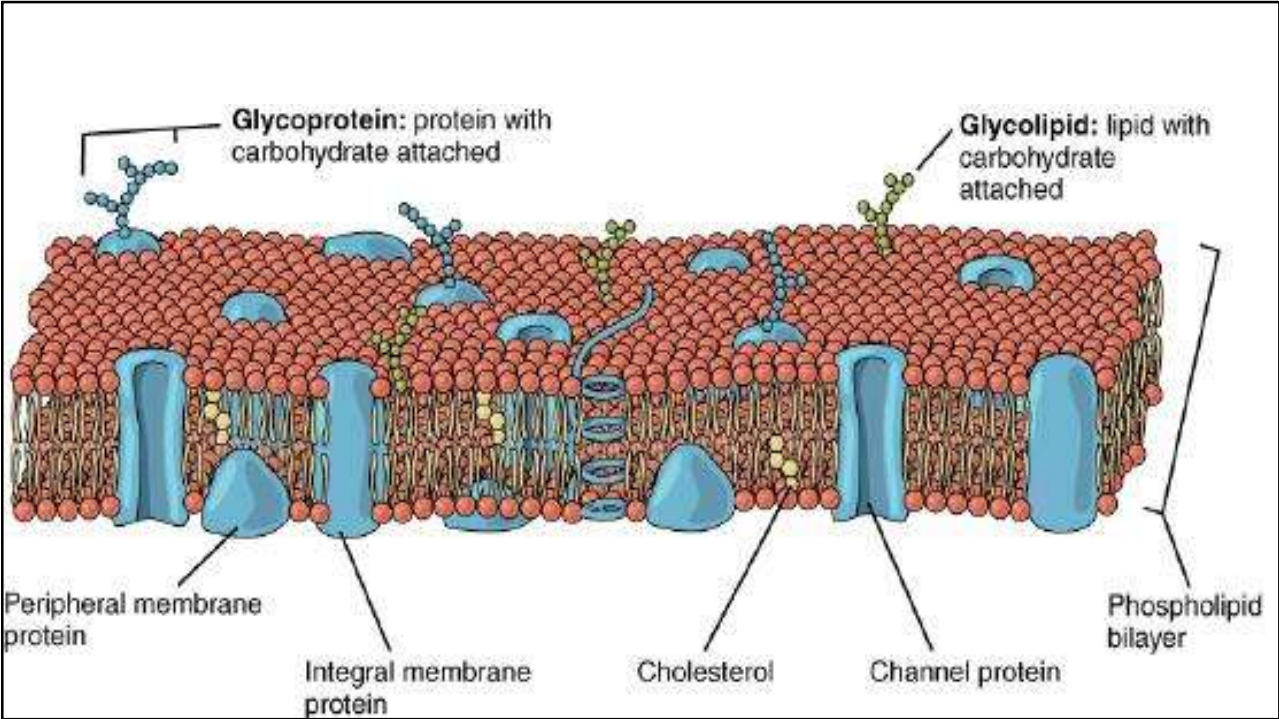
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ARABINO GALACTANS POLYSACCHARIDES

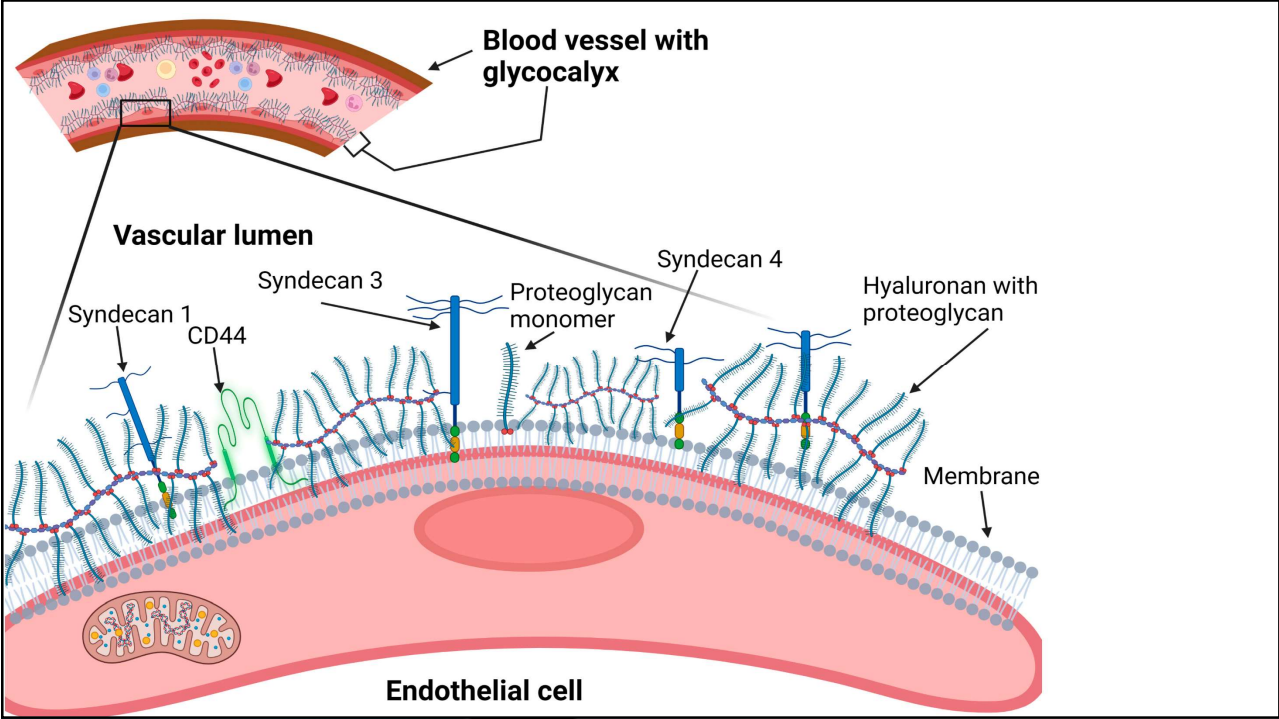
3 TYPES OF CARBOHYDRATES

1. Sugars
2. Starches (also known as complex carbohydrates)
3. Fiber – **COMPLEX POLYSACCHARIDES**
 - Arabinogalactan-proteins (AGPs) are highly glycosylated proteins (glycoproteins) found in the cell walls of plants.

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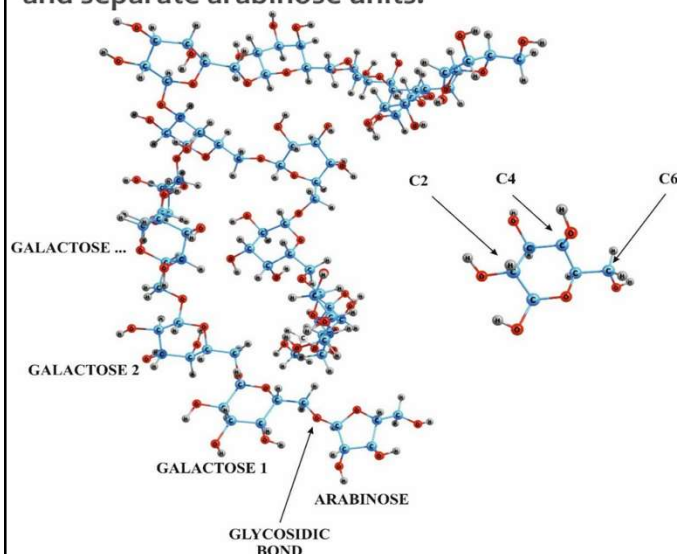
- ▶ **Glycocalyx Structure and Function**
- ▶ The eGCx is a protective barrier on the luminal surface of all blood vessels that serves many functions. The tertiary branching of [hyalurona](#) creates a selectively permeable interface allowing only small molecules, like water, electrolytes and nutrients, to pass through the endothelium.⁴ The strong negative charge of the glycoprotein and proteoglycan extensions repels larger molecules, like albumin and cholesterol, and prevents them from penetrating the endothelium.¹
- ▶ **Glycocalyx Damage and Cardiovascular Consequences**
- ▶ With so many functions for vascular health, it probably comes as no surprise that a compromised eGCx can have serious health consequences. In fact, “endothelial glycocalyx deterioration is considered an early step in the onset of basically all chronic vascular complications.”²

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FRAGMENT of the arabinogalactan molecule with marked hydroxyl groups responsible for the occurrence of predominant sulphation. The main chain consists of galactose units linked by glycosidic bonds, and the side chains consist of galactose and arabinose units and separate arabinose units.



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ARABINO GALACTANS

- ▶ Arabinogalactan exhibits a wide range of biological properties: the **immunobiological, hepatoprotective, antimutagenic, mitogenic, gastroprotective, and membranotropic activity; the probiotic, mycogenic, hypolipidemic, and immunomodulatory** characteristics; the dispersing effect; etc. [27,29,30,31]. The macromolecule of arabinogalactan isolated from Siberian larch wood has a branched structure and a molecular weight of 15–20 kDa

Nutrition & Metabolism April 2016

<https://www.mdpi.com/1420-3049/26/17/5364>

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Larch arabinogalactan effects on reducing incidence of upper respiratory infections Curr Med Res Opin 2013 Mar;

- ▶ Increase resistance to infections. Larch arabinogalactan seems to positively influence **NK cells, macrophage** activities and pro-inflammatory cytokine production. A clinical study demonstrated that larch arabinogalactan supplementation **reduced the incidence of common cold infections.**

<https://pubmed.ncbi.nlm.nih.gov/23339578/>

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ARABINO GALACTANS

- ▶ **Synthesis of branched arabinogalactans up to a 140-mer from *Panax notoginseng* and their anti-pancreatic-cancer activity**
 - ▶ Nature Synthesis volume 3, pages 245–255 (2024)
- ▶ **Combination of arabinogalactan and curcumin induces apoptosis in breast cancer cells in vitro and inhibits tumor growth via overexpression of p53 level in vivo**
- ▶ **Conclusion: Our findings suggest that the combination of AG and Cur is of great potential to induce apoptosis in breast cancer cells in vitro and in vivo.**
 - ▶ Biomedicine & Pharmacotherapy 2017 AprIL
 - ▶ <https://pubmed.ncbi.nlm.nih.gov/28152473/>

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GRAND SUPPORTING NUTRIENTS

1. STRUCTURE

- ▶ BIO C PLUS 3 tid with food
- ▶ CoQ Zyme 100 Plus 1-2 daily with food
- ▶ Bio Cyanidins 2 bid any time
- ▶ MSM
- ▶ Mo Zyme Forte 1 tablet, helps activate sulfur enzymes
- ▶ SULFUR NUTRIENTS in general (NAC, Taurine etc.)

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GRAND SUPPORTING NUTRIENTS

2. NITRIC OXIDE

- ▶ CoQ Zyme 100 Plus 1-2 daily with food
- ▶ NitroGreens 1-2 scoops a day
- ▶ ADULT ENT PRO 1-2 daily
- ▶ NAC 1 bid empty stomach
- ▶ Taurine 1-2 before bedtime
- ▶ MSM
- ▶ Mo Zyme Forte 1 tablet, helps activate sulfur enzymes
- ▶ SULFUR NUTRIENTS in general (NAC, Taurine etc.)

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GRAND SUPPORTING NUTRIENTS

3. GLYCONUTRIENTS & GLYCOCALYX

- ▶ IAG, MEDICINAL MUSHROOMS

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GRAND SUPPORTING NUTRIENTS SUMMARY

- ▶ BIO C PLUS 3 tid with food
- ▶ CoQ Zyme 100 Plus 1-2 daily with food
- ▶ Bio Cyanidins 2 bid any time
- ▶ NitroGreens 1-2 scoops a day
- ▶ IAG 1-2 TBSP
- ▶ MSM 5-10 capsules daily
- ▶ Mo Zyme Forte 1 tablet, helps activate sulfur enzymes
- ▶ ADULT ENT PRO 1-2 daily
- ▶ GlucoResolve 1 tid with food
- ▶ NAC 1 bid empty stomach
- ▶ Taurine 1-2 before bedtime
- ▶ HYDROLYZED COLLAGEN PROTEIN 2 scoops daily
- ▶ Kapparest 2 bid anytime

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PERSONAL CHALLENGE FOR 9–12 MONTHS

Ideally, the full protocol should be followed, but if you want to try the most ESSENTIAL program:

1. BIO C PLUS 3 bid with food
2. CoQ Zyme 100 Plus 1–2 daily with food
3. IAG 1–2 tbsp
4. MSM 5–10 capsules
5. NITROGREENS 1–2 scoops

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Immune System

1. GRATITUDE
2. HUMOR
3. SUNLIGHT
4. MOVEMENT
5. SLEEP
6. COMMUNITY
7. HEALTHY EATING & DRINKING

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