

# Lupus

Dr. John Bergman

# What is Lupus?

The immune system is designed to attack foreign substances in the body. If you have lupus, **something goes wrong with your immune system and it attacks healthy cells and tissues.** This can damage many parts of the body such as the:

- Joints
- Skin
- Kidneys
- Heart
- Lungs
- Blood vessels
- Brain

# What is Lupus?

“Lupus is a **chronic inflammatory** disease that occurs when your body's immune system attacks your own tissues and organs.

**Inflammation** caused by lupus can affect many different body systems – including your joints, skin, kidneys, blood cells, brain, heart and lungs.”

Mayo Clinic

# The Different Types of Lupus

“There are many kinds of lupus. The most common type, **systemic lupus erythematosus**, affects many parts of the body. Other types of lupus are:”

- **Discoid lupus erythematosus**—causes a skin rash that doesn't go away
- **Subacute cutaneous lupus erythematosus**—causes skin sores on parts of the body exposed to sun
- **Drug-induced lupus**—can be caused by medications
- **Neonatal lupus**—a rare type of lupus that affects newborns

# What are the Symptoms of Lupus?

“Symptoms of lupus vary, but some of the most common symptoms of lupus are:”

- Pain or swelling in joints
- Muscle pain
- Fever with no known cause
- Red rashes, most often on the face
- Chest pain when taking a deep breath
- Hair loss
- Pale or purple fingers or toes
- Sensitivity to the sun
- Swelling in legs or around eyes
- Mouth ulcers
- Swollen glands
- Feeling very tired.



# What are the Symptoms of Lupus?

Less common symptoms include:

- Anemia (a decrease in red blood cells)
- Headaches
- Dizzy spells
- Feeling sad
- Confusion
- Seizures.

“Symptoms may come and go. The times when a person is having symptoms are called flares, which can range from mild to severe. New symptoms may appear at any time.”

# Who Gets Lupus?

**“1.5 million Americans, and at least five million people worldwide, have a form of lupus”**

**“90 percent of individuals diagnosed with the disease are women.**

**Most people will develop lupus between the ages of 15-44.”**

**Lupus Foundation**

# What Causes Lupus?

**“The cause of lupus is not known. Research suggests that genes play an important role, but genes alone do not determine who gets lupus. It is likely that many factors trigger the disease.”**

National Institute of Health



# What Causes Lupus?

“It's likely that lupus results from a combination of your genetics and your environment. It appears that people with an inherited predisposition for lupus may develop the disease when they come into contact with something in the environment that can trigger lupus. Some potential triggers include:”

- Sunlight. Exposure to the sun may bring on lupus skin lesions or trigger an internal response in susceptible people.
- Infections. Having an infection can initiate lupus or cause a relapse in some people.
- Medications. Lupus can be triggered by certain types of anti-seizure medications, blood pressure medications and antibiotics. People who have drug-induced lupus usually see their symptoms go away when they stop taking the medication.

# Is Lupus Really Genetic?

## What is a Biomarker?

“Some of the controversy surrounding the use of biomarkers reflects a lack of familiarity by rheumatologists concerning the terminology. Commonly, the terms “biomarker” and “surrogate end point” are used interchangeably in rheumatology, although they are quite different entities. Biomarker can be defined as a physical sign or cellular, biochemical, molecular, or genetic alteration by which a normal or abnormal biologic process can be recognized and/or monitored and that may have diagnostic or prognostic utility.”

American College of Rheumatology

# Is Lupus Really Genetic?

“A large number of potential biomarkers may be useful to assess different aspects of lupus. However, it is important to realize that each of those potential biomarkers was described in reports from studies designed to understand pathophysiologic derangements in lupus, and none was initially investigated specifically as a biomarker.

Some are more promising than others, but none fulfills the criteria for a true validated biomarker. The studies on genetic markers of lupus susceptibility have yielded inconclusive results.”

American College of Rheumatology

# Conclusion: Is Lupus Really Genetic?

“There are a few genetic markers that show promise for predicting susceptibility or organ involvement in SLE, but all of these require further validation.

Individual genetic polymorphisms may account for only a small proportion of the overall risk, but there are accumulating data suggesting that there may be synergistic effects among genetic variants that do not confer a clinically significant risk individually.”

American College of Rheumatology

# Let's Medicate Anyways

## Common Medications used to Treat Lupus:

- Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Antimalarial drugs like hydroxychloroquine
- Corticosteroids like Prednisone
- Immunosuppressants like Methotrexate

# Some of the Side Effects of NSAIDs

- black, bloody, or tarry stools;
- coughing up blood or vomit that looks like coffee grounds;
- severe nausea, vomiting, or stomach pain;
- fever lasting longer than 3 days;
- swelling, or pain lasting longer than 10 days; or
- chest pain, weakness, shortness of breath, slurred speech, problems with vision or balance;
- severe headache, neck stiffness, chills, increased sensitivity to light, and/or seizure (convulsions)
- hearing problems, ringing in your ears

# Warnings for NSAIDs

## Kidneys

“Long-term administration of NSAIDs has resulted in **renal papillary necrosis and other renal injury.**”

## Skin

“NSAIDs, including MOTRIN (ibuprofen) tablets, can cause serious skin adverse events such as **exfoliative dermatitis, Stevens-Johnson Syndrome (SJS), and toxic epidermal necrolysis (TEN), which can be fatal.** These serious events may occur without warning”

# Warnings for NSAIDs

## Cardiovascular

“NSAIDs may cause an **increased risk of serious cardiovascular thrombotic events, myocardial infarction, and stroke**, which can be fatal. This risk may increase with duration of use.”

## Gastrointestinal

“Gastrointestinal (GI) adverse events including inflammation, bleeding, ulceration, and perforation of the stomach, small intestine, or large intestine, which can be fatal. **These serious adverse events can occur at any time, with or without warning symptoms, in patients treated with NSAIDs.**”



# Some of the Side Effects of Antimalarial drugs

- fever, chills, confusion, weakness, sweating
- problems with vision or hearing
- chest pain, trouble breathing, severe dizziness, fainting, fast or pounding heartbeats
- easy bruising, unusual bleeding (nose, mouth, vagina, or rectum), purple or red pinpoint spots under your skin
- loss of appetite, dark urine, clay-colored stools, jaundice
- depressed mood, feeling restless or anxious
- confusion, extreme fear, hallucinations, unusual thoughts or behavior
- severe or uncontrolled vomiting or diarrhea
- Ringing in the ears, dizziness, spinning sensation (vertigo), loss of balance

# Side Effects of Corticosteroids

## **Fluid and Electrolyte Disturbances**

- Sodium retention
- Fluid retention
- Congestive heart failure in susceptible patients
- Potassium loss
- Hypokalemic alkalosis
- Hypertension

# Side Effects of Corticosteroids

## **Musculoskeletal**

- Muscle weakness
- Steroid myopathy
- Loss of muscle mass
- Osteoporosis
- Tendon rupture, particularly of the Achilles tendon
- Vertebral compression fractures
- Aseptic necrosis of femoral and humeral heads
- Pathologic fracture of long bones

# Side Effects of Corticosteroids

- **Gastrointestinal**
- Peptic ulcer with possible perforation and hemorrhage
- Pancreatitis
- Abdominal distention
- Ulcerative esophagitis

# Side Effects of Corticosteroids

## **Dermatologic**

- Impaired wound healing
- Thin fragile skin
- Petechiae and ecchymoses
- Facial erythema
- Increased sweating
- May suppress reactions to skin tests

# Side Effects of Corticosteroids

## Neurological

- Increased intracranial pressure with papilledema (pseudo-tumor cerebri) usually after treatment
- Convulsions
- Vertigo
- Headache

**And that's not even all of the Side Effects!**

# Some of the Side Effects of Immunosuppressants

- dry cough, shortness of breath;
- diarrhea, vomiting, white patches or sores inside your mouth or on your lips;
- blood in your urine or stools;urinating less than usual or not at all;
- fever, chills, body aches, flu symptoms;
- sore throat and headache with a severe blistering, peeling, and red skin rash;
- pale skin, easy bruising or bleeding, weakness; or
- nausea, stomach pain, low fever, loss of appetite, dark urine, clay-colored stools, jaundice (yellowing of the skin or eyes).
- nausea, vomiting, upset stomach;
- dizziness, tired feeling, headache, blurred vision.

**Methotrexate can cause serious or life-threatening side effects on your liver, lungs, kidneys, and bone marrow**

# What really Causes Lupus?

“Environmental (or non-genetic) exposures could include infectious agents, chemicals or other compounds capable of modulating immune responses such as occupational/environmental pollutants or drugs, and behavioral factors such as smoking and diet.”

“The amount and timing of exposure to different environmental factors may play a significant and complex role in the pathogenesis of SLE and other autoimmune diseases.



# Vaccines and Lupus

“Vaccination has been perhaps the most important achievement in medicine of the last century. A hoard of infectious diseases that used to claim the lives of many, especially children, have been prevented and some even eradicated. However, it is possible that within this gift there is hidden a ‘Trojan Horse’.

During the last decade increasing numbers of reports regarding possible autoimmune side effects of vaccination, have been published. The existing data does not link the vaccines and the autoimmune phenomena observed in a causal relationship, nevertheless a temporal connection has been described.”

# Vaccines and Lupus

“Vaccines have been used for over 200 years and are the most effective way of preventing the morbidity and mortality associated with infections. Like other drugs, vaccines can cause adverse events, but unlike conventional medicines, which are prescribed to people who are ill, vaccines are administered to healthy individuals, thus increasing the concern over adverse reactions.”

Nature Reviews Rheumatology

# Vaccines and Lupus

“Most side effects attributed to vaccines are mild, acute and transient; **however, rare reactions such as hypersensitivity, induction of infection, and autoimmunity do occur and can be severe and even fatal.**

The rarity and subacute presentation of post-vaccination autoimmune phenomena means that ascertaining causality between these events can be difficult. Moreover, the latency period between vaccination and autoimmunity ranges from days to years.”

# The Controversy

**“The question of a connection between vaccination and autoimmune illness (or phenomena) is surrounded by controversy.** A heated debate is going on regarding the causality between vaccines, such as measles and anti-hepatitis B virus (HBV), and multiple sclerosis (MS). Brain antibodies as well as clinical symptoms have been found in patients vaccinated against those diseases. Other autoimmune illnesses have been associated with vaccinations.”

Journal of Autoimmunity

# The Mechanism

“The mechanism (or mechanisms) of autoimmune reactions following immunization has not yet been elucidated. One of the possibilities is molecular mimicry; when a structural similarity exists between some viral antigen (or other component of the vaccine) and a self-antigen. This similarity may be the trigger to the autoimmune reaction. Other possible mechanisms are discussed.

**Even though the data regarding the relation between vaccination and autoimmune disease is conflicting, it seems that some autoimmune phenomena are clearly related to immunization.**

The issue of the risk of vaccination remains a philosophical one, since to date the advantages of this policy have not been refuted, while the risk for autoimmune disease has not been irrevocably proved.”

Journal of Autoimmunity

Vaccines are beneficial but they cause autoimmune disorders?

“The relationship between vaccinations and autoimmunity is bi-directional. On the one hand, vaccinations prevent infectious diseases.”

“On the other hand the case reports and series that describe various autoimmune diseases post-vaccination strongly suggest that vaccinations can trigger autoimmunity.”

Clinical and Experimental Rheumatology

# The Hepatitis B Vaccination

## **The Journal of Autoimmunity**

**“During the 1980s, genetically engineered hepatitis B vaccines (HBVs) were introduced in the United States. A large-series of serious autoimmune conditions have been reported following HBVs, despite the fact that HBVs have been reported to be "generally well-tolerated.”**



# The Hepatitis B Vaccination

Adults receiving HBV had significantly increased odds ratios for:

- Multiple Sclerosis
- Optic Neuritis
- Vasculitis
- Arthritis
- Alopecia
- **Lupus Erythematosus**
- Thrombocytopenia
- Rheumatoid arthritis

The Journal of Autoimmunity





# Aluminum adjuvants and Autoimmune Disorders

“Despite almost 90 years of widespread use of aluminum adjuvants, medical science’s understanding about their mechanisms of action is still remarkably poor. There is also a concerning scarcity of data on toxicology and pharmacokinetics of these compounds. In spite of this, the notion that aluminum in vaccines is safe appears to be widely accepted.”

Current Medicinal Chemistry

# Aluminum adjuvants and Autoimmune Disorders

“Experimental research, however, clearly shows that aluminum adjuvants have a potential to induce serious immunological disorders in humans. In particular, aluminum in adjuvant form carries a risk for autoimmunity, long-term brain inflammation and associated neurological complications and thus may have profound and widespread adverse health consequences.

**In our opinion, the possibility that vaccine benefits may have been overrated and the risk of potential adverse effects underestimated, has not been rigorously evaluated in the medical and scientific community.”**

Current Medicinal Chemistry

# 49 DOSES OF 14 VACCINES BEFORE AGE 6? 69 DOSES OF 16 VACCINES BY AGE 18?

*Before you take the risk, find out what it is.*

<b>BIRTH (12 hours)</b>	<b>2 MONTHS</b>	<b>4 MONTHS</b>	<b>6 MONTHS</b>	<b>7 MONTHS</b>	<b>12 - 18 MONTHS</b>	<b>2 - 6 YEARS</b>	<b>7-18 YEARS</b>
Hepatitis B	Diphtheria Tetanus Pertussis Polio HIB Rotavirus Hepatitis B PCV	Diphtheria Tetanus Pertussis Polio HIB Rotavirus PCV	Diphtheria Tetanus Pertussis Polio Rotavirus Hepatitis B PCV Influenza	Influenza	Diphtheria Tetanus Pertussis Measles Mumps Rubella HIB PCV Varicella Hepatitis A (2)	Diphtheria Tetanus Pertussis Polio Measles Mumps Rubella Varicella Influenza (5)	Diphtheria Tetanus Pertussis Influenza (12) HPV (3) Meningococcal (2)



# The Body's Response to Vaccinations

## Th1 immunity

- Is responsible for normal reactions to anything in your environment, from pollen to animal dandruff, dust mites, chemicals, food.
- **Th1 is kept robust and healthy by your gut flora.**
- **TH1- cell mediated response from mucus membranes**
- **If your gut flora is abnormal, your Th1 become increasingly disabled**

## Th2 immunity

- **TH2-vaccines (puncture wound so the body needs an immediate response this is why there is no lifetime immunity from vaccinations, because the proper immune system cells are not built)**
- **inflammatory reaction = inflammatory cytokines**
- **Causes allergies and intolerances**

What other factors are involved with Autoimmune Disorders?

- **Chronic Stress: Chemical, Physical, Emotional**
- **Antibiotics**
- **Medications**
- **Environmental Toxins**
- **Toxic, Processed Food**
- **A Sedentary Lifestyle**

# Chronic Stress



# Effects of Chronically Elevated Cortisol Levels

- Diminishes cellular utilization of glucose
- Increases **blood sugar levels**
- Decreases **protein synthesis**
- Increases protein breakdown that can lead to **muscle wasting**
- Causes demineralization of bone that can lead to **osteoporosis**
- Interferes with **skin regeneration** and healing
- Causes shrinking of **lymphatic tissue**
- Diminishes **lymphocyte** numbers and functions

# Stress and the Adrenals: Adrenal Fatigue

If the Adrenals are depleted from chronic stress these are the consequences:

- Low body temperature
- Nervousness
- Depression
- Hypoglycemia
- Memory loss
- Osteoporosis
- **Weak Immune system**
- **Inflammatory conditions**
- **Vertigo and dizziness**
- Dry and thin skin
- **Weakness**
- **Chronic fatigue**

- Difficulty gaining weight
- Difficulty building muscle
- Irritability
- **Confusion and Cognitive Impairment**
- **Autoimmune hepatitis**
- Palpitations
- Low blood pressure
- PMS
- Headaches
- Unexplained hair loss
- Excessive hunger
- Indigestion
- Alternating diarrhea and constipation
- **Autoimmune diseases**
- Insomnia

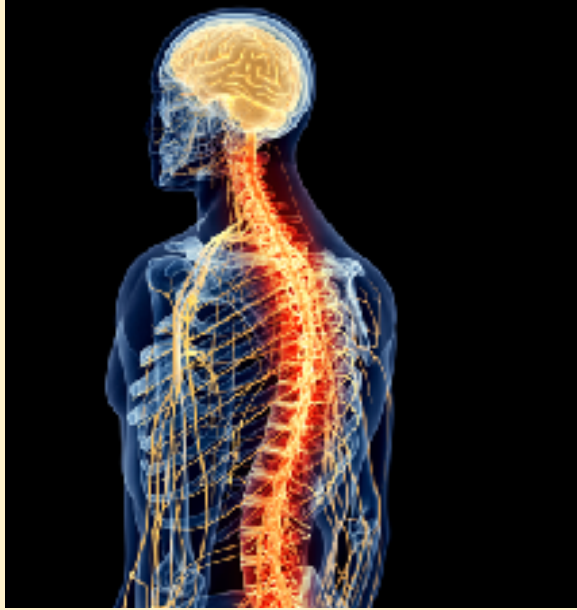


# Stress and the Thyroid

- Depression
- Heart disease
- **Chronic fatigue**
- **Fibromyalgia**
- PMS (premenstrual syndrome)
- Menopausal symptoms
- **Muscle and joint pains**
- Irritable bowel syndrome
- **Autoimmune disease**
- High cholesterol
- Irregular Menstruation

- Low Libido
- Infertility
- Gum Disease
- Fluid retention
- Skin conditions such as acne and eczema
- **Memory problems**
- Poor stamina
- Weight gain
- **Lethargy**
- Poor quality hair and nails
- Hair loss
- Cold hands and feet
- Constipation

# The 5 Keys to Health and Healing



Proper nerve supply



Regular Exercise



Proper Nutrition



Sufficient Rest



Prayer and Meditation

# DHEA (dehydroepiandrosterone)

This hormone is made from cholesterol by the adrenal glands and is a precursor to 18 steroid hormones including the commonly known sex hormones estrogen and testosterone.

“DHEA shows promise as a new therapeutic agent for the treatment of mild to moderate SLE.”

Journal of Arthritis and Rheumatology

“DHEA was well tolerated and appeared clinically beneficial, with the benefits sustained for at least one year in those patients who maintained therapy.”

Journal of Agricultural and Food Chemistry

# Factors that contribute to low DHEA levels:

- Statins (cholesterol lowering medications)
- High Sugar and high carbohydrate diet (elevated insulin causes a decreased production of DHEA in the adrenals)
- Alcohol and caffeine consumption
- High stress lifestyle
- Poor sleeping habits
- Digestive disorders (leaky gut)
- Nutrient deficiencies

# Factors that Boost your DHEA levels:

- Low sugar and carbohydrate diet
- Diet rich in phytonutrients and trace minerals
- Raw or lightly steamed vegetables
- Anti-inflammatory herbs (turmeric, ginger, rosemary, thyme, cinnamon)
- Healthy Fats (coconuts, avocados, olive oil, Omega 3 fish oil)
- Healthy Protein (wild caught fish, grass-fed meats, free range chicken, organic eggs)
- Regular sun exposure or vitamin D supplementation
- Regular high intensity exercise

# Omega 3 and Autoimmune Diseases

“Western diets are deficient in omega-3 fatty acids, and have excessive amounts of omega-6 fatty acids compared with the diet on which human beings evolved and their genetic patterns were established.

Excessive amounts of omega-6 polyunsaturated fatty acids (PUFA) and a very high omega-6/omega-3 ratio, as is found in today’s Western diets, promote the pathogenesis of many diseases, including cardiovascular disease, cancer, and **inflammatory and autoimmune diseases**, whereas increased levels of omega-3 PUFA (a low omega-6/omega-3 ratio) exert suppressive effects.”

(Journal of Biomedicine and Pharmacotherapy)

# Omega 3 and Lupus

“These results suggest that oxidant stress, nitric oxide, and anti-oxidants play a significant role in SLE and that EPA/DHA can modulate oxidant stress and nitric oxide synthesis and may have a regulator role in the synthesis of anti-oxidant enzymes such as superoxide dismutase (SOD) and glutathione peroxidase.”

“Oral supplementation of EPA and DHA induced prolonged remission of SLE. These results suggest that n-3 fatty acids, EPA and DHA, are useful in the management of SLE and possibly, other similar collagen vascular diseases.”

Journal of Prostaglandins, Leukotrienes and Essential Fatty Acids (PLEFA)

# Omega 3 and Lupus

**“Low-dose dietary supplementation with omega-3 fish oils in systemic lupus erythematosus not only has a therapeutic effect on disease activity but also improves endothelial function and reduces oxidative stress and may therefore confer cardiovascular benefits.”**

Annals of the Rheumatic Diseases

**“In the management of SLE, dietary supplementation with fish oil may be beneficial in modifying symptomatic disease activity.”**

Journal of Rheumatology



# Vitamin D and Lupus

“In patients with systemic lupus erythematosus low vitamin D was associated with a higher disease activity and an increase in serum vitamin D was associated with reduced disease activity over time.”

Lupus Science and Medicine

“Several reports have indicated an association between systemic lupus erythematosus (SLE) and low levels of vitamin D.”

Journal of Rheumatology

“Vitamin D deficiency is highly prevalent in patients with SLE. Severe deficiency increases the risk for moderate to severe disease activity”

Journal of Lupus

# Why is Vitamin D so Beneficial?

“Vitamin D plays key roles as a natural immune modulator and has been implicated in the pathophysiology of autoimmune diseases, including systemic lupus erythematosus (SLE).

“Vitamin D exerts important regulatory functions on cells from the innate as well as from the adaptive immune response. Indeed, accumulating evidence has shown that insufficient vitamin D levels may lead to dysregulation of immune responses, and thus contribute to autoimmune diseases.”

# Vitamin D

**Vitamin D Deficiency is linked to:**

- Digestive disorders
- Skeletal disorders including osteoporosis
- Depression, mental disorders
- Neurodevelopmental disorders (Autism)
- Brain Dysfunction, dementia and Alzheimer
- Chronic infections
- Cardiovascular disease
- All types of Cancer
- Autoimmune Diseases
- Premature Aging



# Optimize Your Vitamin D levels

- **UVB exposure** from the Sun is the best way to optimize your vitamin D levels
  - At least 20 minutes of **sun exposure daily** during mid day
  - Your shadow shouldn't be longer than your height
- Most regions of the planet don't get proper sunlight for **6 months** out of the year
- Vitamin D3 supplementation during the winter
- Adults required about **8,000 IUs per day**



# Vitamin D and Vitamin K2

- Vitamin K2 is essential for proper utilization of vitamin D

## Sources of Vitamin K2

- Grass-fed organic animal products (eggs, butter, dairy)
- Fermented foods
- Certain cheeses (Brie, Gouda)



# The Microflora and Lupus

“Our group has recently shown the existence of a gut microbial dysbiosis in systemic lupus erythematosus (SLE), supporting previous evidence involving intestinal bacteria in the initiation and amplification of autoimmune diseases.”

“The association between common foods, such as oranges and apples with specific microorganisms reported to be decreased in SLE, could be of great importance for these patients.”

# Optimize Your Gut Flora

- Organic plant based diet (Locally grown, seasonal foods)
- Healthy fats such as coconut oil and olive oil
- Fermented Vegetables
- Probiotic Supplements
- Juice Vegetables
- Blend Fruits
- Raw Dairy
- Reduce Omega 6 and Increase Animal based Omega 3



# Functions of your Gut Flora

- Digestion and absorption of carbohydrates
- Production of vitamins
- Absorption of minerals
- Elimination of toxins
- Distinguish between pathogens and non-harmful antigens
- Keep harmful bacteria under control
- Aid in production of antibodies to pathogens
- Provide support to the Immune System



# Vitamin E and Lupus

“The hypothesis that reactive oxygen species (ROS) modification of DNA is involved in the development of autoantibodies in systemic lupus erythematosus (SLE) is supported by the enhanced reactivity of anti-DNA antibodies to ROS-denatured DNA.”

**“The present study suggests that vitamin E can suppress autoantibody production via a mechanism independent of antioxidant activity.”**

Natural Product Research Journal

# Vitamin E and Lupus

Since vitamin E is a physiologic stabilizer of cellular and lysosomal membranes, and since some autoimmune diseases respond to vitamin E, we suggest that a relative deficiency of vitamin E damages lysosomal membranes, thus initiating the autoimmune process.”

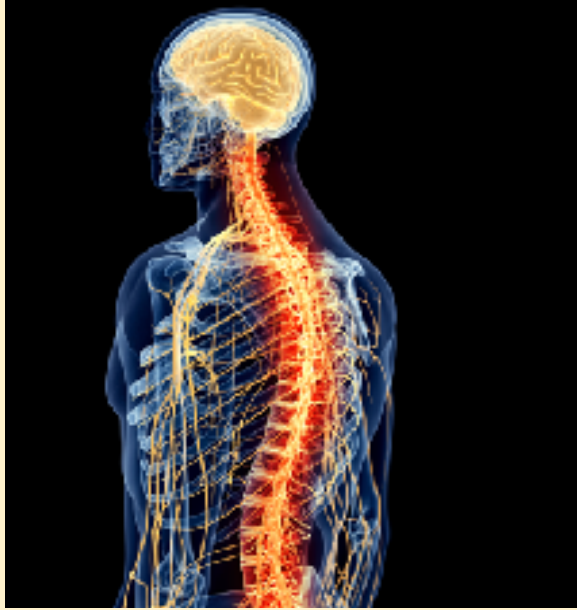
Cutis Journal

# Natural Sources of Vitamin E

- Almonds
- Spinach
- Sweet Potato
- Avocado
- Wheat germ
- Sunflower seeds
- Palm oil
- Butternut squash
- Trout
- Olive Oil



# The 5 Keys to Health and Healing



Proper nerve supply



Regular Exercise



Proper Nutrition



Sufficient Rest



Prayer and Meditation

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