



Lupus Living- The Importance of Proper Nutrition

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Goals For Today

- ▶ Discuss current recommendations re: diet in general
- ▶ Discuss those dietary issues specific to systemic lupus
 - ▶ Food and lifestyle choices to minimize risk diabetes given need for steroids
 - ▶ Food and lifestyle choices to minimize risk for heart disease given SLE risk
 - ▶ Food and lifestyle choices to minimize risk hypertension/kidney disease
 - ▶ Food and lifestyle choices to maximize bone health and minimize risk for osteoporosis
 - ▶ Food and lifestyle choices to minimize risk of lung and liver disease since presence of these can complicate lupus therapy and cause morbidity

Food and Lifestyle Choices

- ▶ Includes the prescribed medications and supplements you take
- ▶ “What exactly is your patient putting in their mouth”
- ▶ Includes medications you are prescribed to treat other medical illnesses since those will affect course of SLE

Goals of Diet in SLE

- ▶ Maximize your health
- ▶ Minimize inflammation
- ▶ Minimize risk of medical problems that can complicate SLE or your ability to take the medications you need
 - ▶ eating to control diabetes,
 - ▶ avoiding cigarettes to avoid lung and heart disease
 - ▶ minimizing salt and maximizing exercise to avoid hypertension
 - ▶ adequate calcium and vitamin D to minimize osteoporosis risk
 - ▶ safe intake of alcohol to minimize risk of liver disease and increase the number of medications we can prescribe
 - ▶ dietary choices to help lower cholesterol levels and minimize heart disease risk

Anti-Inflammatory Diet and Lifestyle: Rules of Thumb for All of Us

- ▶ Eating anti-inflammatory foods
- ▶ Not smoking
- ▶ Limiting alcohol intake
- ▶ Adequate exercise and being active
- ▶ Getting enough good quality sleep
- ▶ Managing stress well
- ▶ Managing weight

Eating to Avoid Inflammation

- ▶ Diet is one of the biggest contributors to chronic inflammation
- ▶ Pro-inflammatory diet:
 - ▶ Meat
 - ▶ Dairy
 - ▶ Processed and fast foods
 - ▶ Foods high in sugar

Mediterranean Diet Considered to Be An Anti-inflammatory Diet

- ▶ Rich in fresh fruits and vegetables, whole grain cereals and legumes
- ▶ Emphasizes nuts, seeds, and olive oil as sources of fat
- ▶ Moderate consumption of fish and shellfish, white meat, eggs, and fermented dairy products (cheese and yogurt)
- ▶ Small amounts of sweets and red and processed meat

Key Aspects of the Mediterranean Diet

- ▶ Relatively high fat intake (30-50% of total daily calories)
 - ▶ Mostly from monounsaturated fatty acids
 - ▶ Saturated fat: less than 8% of calories
 - ▶ Avoid all trans-fats
 - ▶ High omega-3 fatty acid intake from fish (2 or more servings/week) and plant sources.
- ▶ High fruit and vegetable consumption
- ▶ High fiber consumption
- ▶ Avoid foods with high added sugars

Fruits and Vegetables

- ▶ The more servings eaten, the better
- ▶ At least 4 ½ cup-equivalents per day of a variety of vegetables and fruits
 - ▶ dark green, orange, yellow, red and purple, and legumes (beans and peas), is a good goal
 - ▶ light, “airy” vegetables, lettuce/raw spinach, one cup counts as ½ cup-equivalent
 - ▶ Denser vegetables like peas/ green beans, ½ cup=½ cup-equivalent
- ▶ Emphasize vegetables over fruit
- ▶ Purple and red berries: particularly rich in anti-inflammatory compounds
- ▶ Cruciferous vegetables like broccoli, kale, cabbage, and cauliflower

FATS

- ▶ Trans-fats worse than
 - ▶ Saturated fats worse than
 - ▶ Unsaturated fats
- ▶ Omega 6 worse than Omega 3 Fats

Trans-Fat Containing Foods

- ▶ Omit Trans-Fat Containing Foods
- ▶ Trans-fatty acids promote inflammation
- ▶ Sometimes called “hydrogenated oils”
 - ▶ margarine
 - ▶ deep-fried foods
 - ▶ processed foods designed to have a long shelf-life such as crackers and packaged foods

Trans Fat in Your Foods

- ▶ Stick Margarine
- ▶ Commercial baked goods, such as cakes, cookies and pies.
- ▶ Shortening.
- ▶ Microwave popcorn.
- ▶ Frozen pizza.
- ▶ Refrigerated dough, such as biscuits and rolls.
- ▶ Fried foods, including french fries, doughnuts and fried chicken.
- ▶ Nondairy coffee creamer

TRANS FAT

is found **in many foods**



Chocolates & Wafers



Shortening & Margarine



Ice-cream



Biscuits & Cookies



Cakes



Breakfast cereals



Burgers



Breads & Buns



French fries



Pastries, Pies & Puffs



Fried chicken



Pizza

Saturated Fat

- ▶ High dietary saturated fat intake in the context of an unhealthy western diet is associated with
 - ▶ increased risk of cardiovascular disease
 - ▶ increased level of inflammation, especially in overweight and obese individuals
- ▶ Goal is to eat foods with poly- and mono-unsaturated fats
- ▶ When possible goal is a diet high in omega-3 fatty acids

Fats

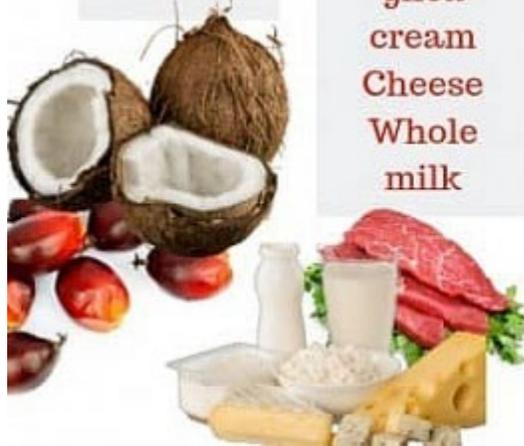
Saturated fat

Vegetable fats

Coconut oil
Palm oil

Animal fats

Fatty meat
lard
butter
ghea
cream
Cheese
Whole milk



Trans fat

STOP

Cakes
Cookies
Margarine
French fries
Fried food
Most ready Meals
Hydrogenated vegetable oils



Unsaturated fat

Polyunsaturated

Corn oil
Sunflower oil
Seeds



Monounsaturated

Olive oil
Peanut oil
Sesame oil
Avocado
Nuts



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Olive Oil: Mono-unsaturated Fatty Acids

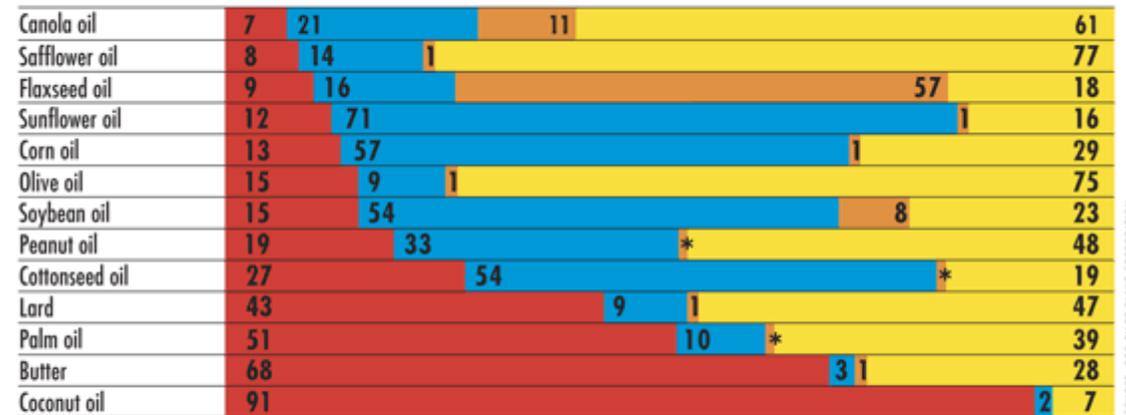
- ▶ Extra-virgin olive oil: lower blood pressure, LDL cholesterol, and markers of inflammation
- ▶ Olive oil: primarily mono-unsaturated fatty acids and comes in several “grades”
 - ▶ “pure” is the most processed, “virgin” has moderate processing, and extra-virgin olive oil minimally processed. Has “beneficial phytochemicals” as well
- ▶ “Pure” and “virgin” are good for cooking
- ▶ Cooking with EVOO can reduce the phytochemical content by about 15%-25%

Olive Oil: Mono-unsaturated Fatty Acids Prized for it's Phytochemicals

- ▶ Extra virgin olive oil can be added after cooking or used to make salad dressings.
- ▶ Canola oil is a good option as a primarily monounsaturated oil
- ▶ Other oils moderately high in monounsaturated fatty acids include
 - ▶ peanut, rice bran, and sesame oils
 - ▶ But... these also contain moderate amounts of omega-6s.

Comparison of Dietary Fats

DIETARY FAT



SOURCE: POS PILOT PLANT CORPORATION

SATURATED FAT



POLYUNSATURATED FAT



linoleic acid
(an omega-6 fatty acid)



alpha-linolenic acid
(an omega-3 fatty acid)

MONOUNSATURATED FAT



oleic acid
(an omega-9 fatty acid)

*Trace

Fatty acid content normalized to 100%

From Wikimedia

Omega-3 vs Omega -6 Fatty Acids

Maximize 3, Minimize 6

- ▶ Omega-3 Fatty Acids Foods such as cold water fish (salmon, sardines, and tuna), are especially good for decreasing inflammation
- ▶ Aim for 2-3 servings/week (3.5 ounces) of fatty fish like salmon, mackerel, herring, lake trout, sardines, and albacore tuna
- ▶ Fish oil contains preformed EPA and DHA and is a good source of these essential fatty acids. Consider supplementing diet with fish oil

Omega-6 vs 3 Fatty Acids

- ▶ Omega-6 fatty acids are abundant in the typical western diet
 - ▶ High concentration in the common seed oils and thus in many processed and packaged foods (crackers, chips, fast foods)
- ▶ High Omega 6 foods may be pro inflammatory

Red Meat

- ▶ Total red meat: greatest risk for diabetes, cardiovascular disease, and numerous cancers
- ▶ Processed red meats, like hot dogs, sausage, and lunch meats may be the biggest culprit
- ▶ Red meat is a good source of protein, iron, and other micronutrients
 - ▶ If consume red meat: grass fed, unprocessed, lean cuts, trim fat
- ▶ No more than 12 to 18 ounces, cooked weight, of red meat per week (three 6oz servings or six 3oz servings)
 - ▶ avoid processed meats such as ham, salami, hot dogs, and sausages

Dairy Intake

- ▶ Dairy may have a small effect on increasing inflammation, but overall, dairy does not seem to increase inflammation
- ▶ Fermented dairy like yogurt
 - ▶ neutral or even positive effect on both cardiovascular risk and inflammation
- ▶ Consumption of dairy, and especially yogurt in moderate amounts are an acceptable part of an anti-inflammatory way of eating

Blood Sugar, Insulin and Glycemic Index of Foods

CARBOHYDRATES

Goal: Reduce Blood Sugar

- ▶ Limit Refined Carbohydrates Foods
 - ▶ white flour, white rice, white bread, and refined sugar
- ▶ Easily broken down by the body
 - ▶ which are rapidly absorbed
 - ▶ can cause large spikes in the hormone insulin which promotes inflammation
- ▶ Best to limit or avoid these foods

Low Glycemic Load Foods

- ▶ Goal is Low-Glycemic Load (GL) foods do not result in a high spike of insulin
- ▶ Include:
 - ▶ complex carbohydrates: unprocessed whole grains, starchy vegetables, and fruits
 - ▶ protein, fats, and foods rich in fiber that help to keep blood sugar stable and reduce the inflammatory effects of insulin
- ▶ Eat those foods with high fiber, it slows down their break down and reduces the amount insulin

Glycemic Index

Low GI (<55), Medium GI (56-69) and High GI (70>)

Grains / Starchs		Vegetables		Fruits		Dairy		Proteins	
Rice Bran	27	Asparagus	15	Grapefruit	25	Low-Fat Yogurt	14	Peanuts	21
Bran Cereal	42	Broccoli	15	Apple	38	Plain Yogurt	14	Beans, Dried	40
Spaghetti	42	Celery	15	Peach	42	Whole Milk	27	Lentils	41
Corn, sweet	54	Cucumber	15	Orange	44	Soy Milk	30	Kidney Beans	41
Wild Rice	57	Lettuce	15	Grape	46	Fat-Free Milk	32	Split Peas	45
Sweet Potatoes	61	Peppers	15	Banana	54	Skim Milk	32	Lima Beans	46
White Rice	64	Spinach	15	Mango	56	Chocolate Milk	35	Chickpeas	47
Cous Cous	65	Tomatoes	15	Pineapple	66	Fruit Yogurt	36	Pinto Beans	55
Whole Wheat Bread	71	Chickpeas	33	Watermelon	72	Ice Cream	61	Black-Eyed Beans	59
Muesli	80								
Baked Potatoes	85								
Oatmeal	87								
Taco Shells	97								
White Bread	100								



Fiber

- ▶ Diets high in fiber help to decrease inflammation
 - ▶ helps to slow the digestion of carbohydrates, helping to regulate blood sugar levels and also keep you full longer
- ▶ Mechanisms by which fiber reduces inflammation are not entirely understood
- ▶ Encourages “good” bacteria in the intestines that positively affect inflammatory pathways
- ▶ Fiber goal = 30 or more grams a day

Vitamin D

Vitamin D

- ▶ Vitamin D comes from three potential sources:
 - ▶ (i) made in the skin from exposure to sunlight, (ii) nutritional sources, and (iii) supplements
- ▶ In humans, vitamin D is mainly from sun exposure, only 10% dietary
- ▶ vitamin D₂ obtained from UV irradiation
- ▶ vitamin D₃ synthesized in the skin and is present in oil-rich fish
- ▶ Both vitamin D₂ and vitamin D₃ are used for food fortification (such as dairy products) and in vitamin D supplements

Vitamin D

- ▶ Plays a role in developing lupus and in keeping lupus under control
- ▶ Patients at risk for low vitamin D:
 - ▶ low vitamin D diet
 - ▶ low exposure to sunlight
 - ▶ darker skin
- ▶ One of the first goals in SLE is check level and maintain at >35 .
- ▶ Can require high dose loading (ie 50,000 a week) and then maintenance (typically 2000 IU a day)

What Level is Deficient

- ▶ Vitamin D deficiency <20 ng/mL
- ▶ Insufficiency 21 and 29 ng/mL
- ▶ The major cause of vitamin D deficiency is inadequate exposure to sunlight
- ▶ Inverse association of serum vitamin D and body mass index (BMI), and thus, obesity is also associated with vitamin D deficiency

VITAMIN 'D' FOODS



	<i>Cereal</i>		<i>Swiss Cheese</i>
	<i>Whole Milk</i>		<i>Pork Tenderloin</i>
	<i>Oatmeal</i>		<i>Canned Salmon</i>
	<i>Beef Liver</i>		<i>Cod Liver Oil</i>
	<i>Orange Juice</i>		<i>Sardines</i>
	<i>Oysters</i>		<i>Shrimp</i>
	<i>Eggs</i>		<i>Butter,</i>
	<i>Goat Cheese</i>		<i>Chocolate Milk</i>
	<i>Mushrooms</i>		<i>Tofu</i>

Cigarettes

INCREASES RISK OF
OSTEOPOROSIS, LUNG
DISEASE, RA, PERSISTENT SLE
SKIN DISEASE, RAYANUDS,
CARDIOVASCULAR DISEASE

Calcium

NEED 1200 MG A DAY
ESPECIALLY IF ON STEROIDS
OR POST MENOPAUSAL

Alcohol

>7 A WEEK INCREASES RISK
OF LIVER DISEASE

CAN AFFECT OUR ABILITY TO
PRESCRIBE CERTAIN MEDS

Make Every Attempt to Control Diabetes

GIVEN NEED FOR STEROIDS
MINIMIZE SUGARS AND NON-
COMPLEX CARBOHYDRATES

POORLY CONTROLLED
DIABETES RISK FOR KIDNEY
DISEASE



Anti- Inflammatory Lifestyle

Anti-inflammatory Lifestyle: Exercise

- ▶ Exercise has been shown to reduce inflammation
 - ▶ People who get regular physical activity have lower levels of inflammation.
 - ▶ Goal of a minimum of 150 minutes (30 minutes 5 days per week) moderate intensity aerobic physical activity such as brisk walking or tennis
- ▶ Really any exercise is better than none

Anti-inflammatory Lifestyle: Sleep

- ▶ Centers for Disease Control estimates that as much as 35% of US adults do not get the recommended 7 hours of sleep per night
- ▶ People that do not get enough sleep or have frequent disrupted or poor quality sleep are
 - ▶ more likely to have greater inflammation and
 - ▶ type 2 diabetes and weight gain
- ▶ Sleep helps tissues in the body heal, grow, and repair
- ▶ Aim for 7-9 hours of restful sleep per night

Anti-inflammatory Lifestyle: Stress

- ▶ Try to Manage Stress
- ▶ Physical (threat of danger), mental (job/financial), emotional (isolation, relationship issues)
- ▶ If stress is overwhelming or if moderate on going stress body can lose its ability to healthfully respond, causing increased inflammation which can harm our health

Anti-inflammatory Lifestyle: Stress

- ▶ Stress and depression much more likely to discontinue medications or take intermittently
- ▶ More likely to not be compliant with MD visits (our only chance to find out how you are doing and intervene)
- ▶ Besides diet, exercise and sleep:
 - ▶ mind-body approaches like mindfulness-based stress reduction (MBSR), progressive muscle relaxation (PMR)
 - ▶ biofeedback, breathing exercises, yoga, and tai chi

Anti-inflammatory Lifestyle: Weight

- ▶ Research suggests that maintaining a healthy weight may be important for keeping inflammation under control
- ▶ If overweight or obese, or extra weight in abdominal area have increased risk for inflammation
- ▶ Fat cells in the belly area, produce and secrete compounds that can contribute to inflammation.
- ▶ Even modest weight loss of 10% of body weight can help to reduce inflammation