

Beautiful Skin from the Inside Out!

Richard Collins, MD
Susan Buckley, RDN, CDE

Healthy Aging

- Aging is inevitable
- We cannot stop it
- We cannot reverse it
- We CAN slow it down and control the rate at which we age



Healthy Aging

- Healthy Aging is the goal, not anti-aging!
- Okinawa Centenarian Study funded by US National Institute on Aging and the Japan Ministry of Health and Welfare focused on healthy aging
- More people in Okinawa reach 100 than anywhere else on earth
- Studies show that lifestyle plays a key role in healthy aging
- No disputing genetics is important – but lifestyle accounts for GREATER part of human life span

Healthy Aging

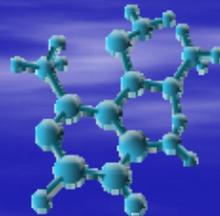
- Aging is a lifelong process
- Aging successfully doesn't mean you have to reach a magic number – 90, 100 or beyond
- Aging successfully is keeping your health and maintaining functions such as taking care of yourself, being able to drive and living on your own

Healthy Aging

- Successful aging is also looking as good as you feel!
- The lifestyle choices you make day to day have tremendous influence on your health and appearance
- Many longevity experts agree that free radicals are the main culprit involved in damaging our bodies as we age

Free Radicals

- Free radicals are oxygen molecules with one or more unpaired electrons
- Some have an extra electron or more than one extra electron without a partner
- Some are missing one or more electrons



Free Radicals

- Oxygen molecules zip around in the body trying to steal an electron from, or donate an electron to, another molecule to satisfy or neutralize its charge
- Once it does that – the other molecule becomes a free radical in turn
- Cascade of free radicals . . .
- Free radicals highly reactive – damage from this process called *oxidation or oxidative stress*
- Cause tremendous damage to the body

Free Radicals

- Free radicals damage DNA
- Experts say DNA in each cell in body can take a damaging hit from free radicals 104 times a day!
- Oxidize cholesterol – cause plaque
- Damage structure and function of tissues
- Cause everything from *wrinkles to heart disease*



Free Radicals

- Smoking –huge source of free radicals
- Radiation from sunlight
- Every day breathing and metabolism
- Young people – internal antioxidant system very effective at preventing free radical damage
- As get older – system becomes overwhelmed
- Damage accumulates faster as you age

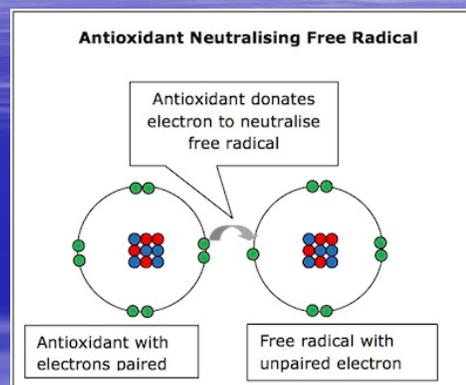
Free Radicals

- Fortunately – body has built-in system for neutralizing free radicals so they cause less damage
- Apple
- Think of cells throughout body like apple slices



Antioxidants

- Free radical damage – oxidation
- Antioxidants – “against oxidation”
- Antioxidants circulate in body and break chain reactions of free radicals robbing or donating electrons to or from other molecules



Antioxidants

- Body needs antioxidants ALL DAY LONG
- Important to take in antioxidants continually
- Antioxidants: Vitamins A, C, E, and minerals that support body's antioxidant enzymes
- Plant chemicals phytochemicals
- Important that they come from FOODS!
- Antioxidants from supplements can be pro-aging or pro-oxidant if we take too many

Antioxidants

- Supplements are supplemental to the diet
- Haven't identified everything in fruits and vegetables
- Hundreds of compounds in fruits/vegetables/whole grains
- Classic example: Large Finnish study male smokers who took beta-carotene supplements (vitamin A precursor) actually increased their risk for lung cancer

Antioxidants

- Studies also starting to show that just cutting back on calories may reduce number of free radicals that your body churns out and help you live longer

Glycation and Blood Sugar

- Free radicals not only problem
- Advanced glycation end products or AGEs
- AGE – created when **blood sugar – glucose – becomes attached to proteins**
- Becomes glycated
- Changes structure and function of protein
- Causes proteins to cross-link with each other
- Contributes to wrinkles, brown spots

Glycation and Sugar

- Aside from adding excess pounds to your body, your sweet tooth may also be adding years to your face.
- Internally, sugar molecules attach themselves to protein fibers in each of our cells
- This damaging process of glycation can result in a loss of radiance, dark circles under the eyes, loss of tone, puffiness, an increase in fine lines and wrinkles and a loss of facial contours and increased pore size.
- Pass on the sugary treats if you want to preserve your youthful glow.

AGEs

- Brown foods, such as brown cookies, brown bread crust, brown basted meats
- *Avoid/reduce processed carbohydrates and browned foods* – Food manufacturers take steps to increase caramelization and browning in their foods, directly increasing the levels of AGEs in the foods.
- *Cook meats low and slow* – Higher temperatures produce more AGEs than lower temperature, longer cooking times. Rare and medium-rare meats will have fewer AGEs than fully cooked meats, like barbeque or well-done steak.

Advanced Glycation End Products

- AGEs linked to cataracts
- Damage cartilage in joints
- Osteoarthritis
- Arteries stiffen – heart disease
- Cause cells in immune system to release chemicals that initiate inflammation



Acne

- Dairy and sugar are common culprits
- Many have suggested a diet-acne link, but until recently it has not been proven in large clinical studies.
- Instead dermatologists prescribe long-term antibiotics and Accutane, both of which may cause long-term harmful effects.
- A systematic review of 21 observational studies and six clinical trials found clear links.

Acne

- Two large controlled trials found that cow's milk increased both the number of people who got acne and its severity.
- Other large randomized prospective controlled trials (the gold standard of medical research) found that people who had **higher sugar intake** and a high glycemic load diet (more bread, rice, cereal, pasta, sugar, and flour products of all kinds) had significantly more acne.
- The good news is that chocolate (dark chocolate that is) didn't seem to cause acne.

Add Up Your Antioxidants

- Fruits and Vegetables have an ORAC score
- ORAC – Oxygen radical absorbency capacity
- Indicates a food's ability to neutralize cell-damaging free radicals in a test tube or lab measurement
- Not definitive on how this translates to role of antioxidant-rich foods in our diet
- Preliminary research indicates may act same way in our bodies

ORACs

- Federal government estimates Americans consume 4,000 to 5,000 ORAC units per day
- Equal to 2 ½ servings of fruits/vegetables
- Research estimates people need 12,000 to 13,000 daily ORAC units to effectively squelch free radicals!



ORAC Studies

- Antioxidant power of blood raised 25% after consuming 1 ½ cups strawberries, 1 ¾ cup cooked spinach
- 2 glasses red wine daily - 30% increase in total plasma antioxidant capacity
- Cardiac study – 6 oz pomegranate juice each day for 1 year – 130% increase in total antioxidant status as well as decrease in blood pressure
- 4 cups black tea for 4 weeks – increased antioxidants by 33%

ORACS

■ Beans, small red dry ¼ cup	9,378
■ Blueberry, wild ½ cup	6,314
■ Red wine 6 oz	4,585
■ Prunes ¼ cup	3,646
■ Artichoke hearts, ½ cup	3,592
■ Cloves ½ tsp	3,144
■ Green tea 1 cup	2,951
■ Turmeric ½ tsp	1,593

Eat Your Way to Beautiful Skin

- Vitamin C antioxidant: inside and out
- Involved in collagen production
- Strawberries
- Peppers: red/green/yellow
- Oranges
- Lemons
- Broccoli



Vitamin E

- Helps protect cell membranes and guard against UV radiation damage
- Research suggests Vitamins C and E **work together** to provide extra boost of anti-aging skin protection
- Best in diet, not pills
- Wheat germ fortified cereals, nuts and seeds, oils, avocado



Vitamin E

- Also used topically in skin care products
- Potent antioxidant
- Most biologically active form is alpha tocopherol
- Also anti-inflammatory



Beta Carotene/Vitamin A

- Antioxidant critical for skin health
- Beta carotene converted to vitamin A in body
- Involved in growth and repair of tissue
- My protect against sun damage
- In high doses in supplements can be toxic
- Sweet potato, pumpkin, carrots, mangos, apricots, broccoli, spinach



Vitamin A

- Vitamin A is a family of fat soluble vitamins: retinol, retinal and retinoic acid
- Also used topically
- Some plants contain beta-carotene – a pre-Vitamin A carotenoid that our bodies convert to vitamin A



Flavanoids or Bioflavanoids

- Found mostly in fruits and vegetables
- Also nuts, seeds, grains and soy products
- Tea, coffee and red wine – potent antioxidants
- Green tea especially potent



Polyphenols

- Powerful antioxidants
- Studies show that they have ability to counteract free radicals produced by sun exposure
- Green tea
- Most fruits/vegetables
- Nuts, seeds



Selenium

- Helps safeguard skin from sun damage
- Delays aging by protecting skin quality and elasticity
- Shown to reduce sun damage and even prevent some skin cancers in animals
- Brazil nuts
- Tuna
- Crab
- Wheat germ



Omega-3-Fats

- Maintain cell membranes so they are effective barriers – allow water and nutrients in and keeping toxins out
- Protect skin against sun damage
- Anti-inflammatory!
- Oily fish
- Sardines
- Flaxseed
- Walnuts



Balance of Omega 6 to Omega 3

- Body requires both – both are polyunsaturated fats
- Must be provided by the diet
- Both are related to inflammation
- Diet that minimizes inflammation will help reduce aging changes in our skin
- Should be consumed in a ratio of 4:1 Omega 6 to Omega 3 to control inflammation

Omega 6

- Pro-inflammatory in high amounts
- Plentiful in diet
- Especially in processed foods
- Corn oil, safflower oil, sunflower oil, peanut oil
- Salad dressings, bread, crackers, cookies, etc
- Need to decrease intake. Currently ratio of Omega 6 to Omega 3 is about 20:1
- Should be ratio of 4:1

Fish Oil Supplements

- Two omega-3 fatty acids – eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) found to help lower triglycerides, reduce blood clotting and decrease inflammation
- AHA: healthy people should get about 1 gram per day of EPA and DHA
- High triglycerides: 2-4 grams per day (under care of health care provider)
- Fish oil supplements – quality matters
- Omacor/Lovaza – prescription fish oils

Flaxseed

- Rich source of essential fatty acids critical for healthy skin
- Rich in protein, phytoestrogen (lignans) and fiber
- 1-2 Tbsp ground flaxseed per day



Vitamin B

- Helps conversion of calories into energy which is used for cellular metabolism - keeps skin moist and smooth
- Lean poultry, meat, fish
- Bananas
- Peanut butter and eggs



Sulfur

- Sulfur, the third most abundant mineral in the human body, is an extremely important dietary compound for both skin health and overall wellness.
- Yet we rarely hear about sulfur in mainstream nutrition, and many people do not even know which foods provide it.
- In fact, a large proportion of our population is likely eating a diet deficient in sulfur, which could be causing the initiation and progression of many inflammatory and degenerative diseases.

Sulfur

- Sulfur is necessary for collagen synthesis, which gives the skin its structure and strength.
- The breakdown of collagen or insufficient production of collagen as we age is one of the major contributors to the development of wrinkles, and dietary sulfur significantly affects the production of collagen in our skin.
- Animals fed a sulfur deficient diet produce less collagen than normal, demonstrating how a diet with inadequate sulfur can contribute to a reduction in collagen and subsequently cause an increase in skin wrinkling

- Sulfur is also required for the synthesis of glutathione, one of the most important antioxidants in the body.
- High levels of glutathione in the body can prevent damage caused by free radicals, which are thought to be the major cause of cellular aging
- Sulfur-containing amino acids are most abundant and bioavailable in animal foods such as egg yolks, meat, poultry, and fish.
- Sulfur is also found in plant foods; good sources include garlic, onions, brussels sprouts, asparagus, and kale.
- Fermentation may make this sulfur more bioavailable, so foods like sauerkraut and other fermented crucifers are excellent sources of sulfur and an important component of a diet for healthy, youthful skin.

Vitamin K 2

- Vitamin K2's role in the body includes protecting us from heart disease, forming strong bones, promoting brain function, supporting growth and development and helping to prevent cancer – to name a few.
- It performs these functions by helping to deposit calcium in appropriate locations, such as in the bones and teeth, and prevent it from depositing in locations where it does not belong, such as the soft tissues.
- One of the health benefits of vitamin K2 not often discussed is its role in ensuring healthy skin, and this vitamin is likely beneficial for preventing wrinkling and premature aging

- Adequate dietary vitamin K2 prevents calcification of our skin's elastin, the protein that gives skin the ability to spring back, smoothing out lines and wrinkles.
- This is because K2 is necessary for activation of matrix proteins that inhibit calcium from being deposited in elastin fibers and keeping these fibers from hardening and causing wrinkles.
- In fact, recent research suggests that people who cannot metabolize vitamin K end up with severe premature skin wrinkling.
- Vitamin K2 is also necessary for the proper functioning of vitamin A- and D- dependent proteins.
- Vitamin K2 is important in the treatment of acne, keratosis pillaris, and other skin symptoms of vitamin A deficiency.

- Great sources of vitamin K2 include butter and other high fat dairy products from grass-fed cows, egg yolks, liver, and natto.
- Fermented foods such as sauerkraut and cheese are also quite high in vitamin K2 due to the production of this vitamin by bacteria.
- It is important to note that commercial butter and other dairy products are not significantly high sources of vitamin K2, as most dairy cattle in our country are fed grains rather than grass.
- It is the grazing on vitamin K1-rich grasses that leads to high levels of vitamin K2 in the dairy products of animals, so be sure to look for grass-fed dairy products when trying to increase your intake of vitamin K2.

Protein

- Necessary for tissue growth and to replace and maintain cells of the body
- Skin is made up mostly of protein. But protein molecules are not absorbed through the outer layer into underlying tissues. So, you need to supply daily proteins through the foods you eat to keep your skin healthy.
- Helps produce enzymes, antibodies
- Good sources: Oily fish like salmon, mackerel, tuna. Lean fish like cod. Lean chicken, turkey. Cottage cheese, yogurt

Protein

- Damaging protein adds too much saturated fat and inflammatory compounds
- Diets high in saturated fats increase incidence of skin aging and wrinkling
- Avoid or greatly decrease ground beef (even lean unless it is organic grass-fed), sausage, bacon, high-fat pork



- **Almond oil helps** protect the skin from the sun. You can use almond oil in conjunction with an avocado mask making this great for any skin type but especially good for dry skin.
- Avocado contains the right amount of essential fatty acids, and it's good for dry skin.
- Use the meat from one half of a ripe avocado and mash it up. To this add about 6 teaspoons of sweet almond oil and mix it into the avocado mash. You can add essential oils if you wish. Add a couple of tablespoons of plain yogurt and mix until you get a good consistency. You can also add some honey which is a great moisturizer.
- Pat this onto your face with a cotton ball or sea sponge and leave it set for about 20 minutes. Finish by washing the face with lukewarm water which helps the mask give the skin youth and vitality

■ Grape Antioxidant:

- There is an antioxidant agent contained in grape juice and seeds when transformed into sugars, tannins, vitamins and fruit acids that work on the smoothness of the skin.
- They create a peel to get rid of dead cells. The substances found in grape seeds tighten the skin and also fight free radicals that affect the skin tissue.
- Recipe: To make a mask to use as an anti-wrinkle agents mash grapes with honey (cluster of black grapes, washed well) and apply the mixture on the skin and leave for 20 minutes. Then rinse with warm water before applying moisturizing cream.

Bananas



- Bananas are one of the materials that help to prevent wrinkles. Mix a banana with two tablespoons milk and after mixed well apply it to the face.
- Leave the mask on the face for 15 minutes and then finish with warm water.

Glycemic Index

- Foods high on the glycemic index raise blood sugars very quickly
- Pancreas secretes insulin to usher glucose into cells (brain cells, liver cells, muscle cells, fat cells, eye cells, etc.)
- Insulin also stops body from burning fat and protein for energy
- Promotes fat storage, increases triglycerides

Glycemic Index

- Glycemic Index ranks foods on how much your blood sugar increases 2-3 hours after eating
- To inhibit AGEs from forming, controlling the level of blood glucose is critical
- Foods low on glycemic index: apples, strawberries, beans, most vegetables
- Foods high on glycemic index: bagel, potato, corn flakes, french fries, pasta
- www.glycemicindex.com



Supplements

- CoQ10: involved in production of energy in the cell. Antioxidant – reduces free radicals. 100-200 mg day
- Fish Oil: 1-2 grams (1,000 -2,000 mg EPA/DHA) per day
- Flaxseed: Protein, fiber, omega 3 fats, lignans (phytoestrogens). 1-2 tablespoons per day

Supplements

- Evening Primrose Oil: good source of linoleic and gamma linoleic acid essential to healthy skin. 3-8 grams per day
- Borage and Black Currant Oils: Much richer in gamma linoleic acid. 2-3 grams per day
- Vitamin C: 500 mg to 1 gram per day
- Vitamin E: No more than 400 IU per day – mixed tocopherols

Hyaluronic Acid

- This substance actually occurs naturally in the skin and joints
- Declines as we age, most dramatically after age 50, leading to loss of elasticity and smoothness of skin
- Hyaluronic acid attracts and binds water within the cells of the skin and tissue underneath, literally acting like a sponge to retain a supple, firm skin tone and youthful appearance.
- Able to absorb approximately 1,000 times its own weight inside the extracellular spaces within the matrix of the skin.

Hyaluronic Acid

- As we age, the body begins to produce less and less hyaluronic acid while the cumulative environmental impact of radiation, chemicals, poor nutrition and other hazards continue to take their toll.
- Can use it topically in skin care products
- Can also take as a supplement

Beauty Bursts

- 2,000 mg Collagen
- Collagen Type 1 & 3
- Hyaluronic Acid For Skin Hydration
- Vitamin C: Collagen Enhancer
- All Natural Formula



Beauty Infusion

- **5,000mg Collagen Type 1 & 3**
- **50mg Hyaluronic Acid**
- **3,000mcg Biotin**
- **Alpha Lipoic Acid & Vitamin C**
For protection from free radical damage, & enhancement of collagen formation



BioSil



- A well-documented approach to increasing the manufacture of collagen in the skin is the use of BioSil® – a highly bioavailable form of silica (choline stabilized orthosilicic acid or ChOSA).
- Initially research focused on the ability of BioSil® to increase the levels of hydroxyproline, the key amino acid required for the production of collagen and elastin.

BioSil

- Clinical studies with BioSil® showed impressive results in women (ages 40 to 65 years) with signs of sun-damage and premature aging of the skin.
- Those receiving 10 mg of ChOSA daily experienced 30% improvements in shallow, fine lines and 55% increased skin elasticity, and a significant reduction in brittle nail and hair.

Biotin

- Biotin is a water-soluble vitamin that acts as an essential cofactor for enzymes that regulate fatty acid metabolism.
- Proper fat production is critical for the health of the skin, since skin cells are rapidly replaced and are constantly in contact with the external environment, and fatty acids in the skin protect the cells against damage and water loss.
- When biotin intake is insufficient, fat production is altered, and the skin cells are the first to develop symptoms.

Biotin

- A deficiency of biotin causes hair loss and a characteristic scaly, erythematous (red and inflamed) dermatitis around the mouth and other areas of the face and scalp.
- In infants, biotin deficiency manifests as “cradle cap”, or scaly dermatitis of the scalp.
- This condition appears as crusty yellow or white patches on the scalp, behind the ears, and around the face.
- In adults, this condition is called seborrheic dermatitis and can occur in many different areas of the skin. Biotin deficiency can also be a cause of dandruff for some people.

Biotin

- The best sources of biotin are egg yolks and liver, and other good sources include Swiss chard, romaine lettuce, almonds, and walnuts.
- Including these foods in your diet will prevent biotin deficiency and may help improve the production of fatty acids in the skin, returning moisture to dry skin.



Water

- Drink lots of water!
- Keeps skin's cells plump and firm
- Dehydration encourages dry, wrinkled skin
- Grapes – firm, smooth, fresh
- Raisins – dry, hard, wrinkled
- Water washes toxins out of body
- Brings nutrients to cells



Wear Sunscreen!

- Running errands, driving, and walking back and forth to the mailbox may do more damage to your skin than spending a day at the beach if you do it sans sunblock
- The number-one cause of nearly every sign of premature aging on the human face is ultraviolet exposure
- UV light is present even when it's cloudy or raining
- Protect your skin by wearing sunblock any time you go outdoors.
- SPF between 30 and 50 for daily use – even on cloudy days!
- Google Environmental Working Group – list of sunscreens

Moisturizing Mask

- 1 large avocado (vitamin E)
- 1 ripe banana
- 1 tsp raw honey
- 1 tsp EVOO
- Mash avocado and banana in bowl. Mix in honey and oil to make smooth paste. Apply to face, neck and decollete and leave on for 20 min. Rinse with warm water
- Positively Ageless, Cheryl Forberg, RD

Summary

- Don't smoke
- Get enough sleep
- Eat small, frequent meals (don't overeat)
- Eat antioxidant rich foods
- Include healthy fats
- Eat lean sources of protein
- Cut way back on sugars, white carbs like pasta, cookies, white rice, etc.

Summary

- Drink water, green tea, red wine (in moderation)
- LOTS of fruits/vegetables/clean protein and omega 3 fats
- No processed sugars
- Wear sunscreen



- Let's Get Cooking!