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#WCC2018VEGAS



CURRENT TRENDS IN ANTI-AGING

Dr. Allana Polo, ND

HOUSEKEEPING



Cell Phones



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Questions



No photography, audio, or video recordings



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ACCREDITATION

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DR. ALLANA POLO, ND



- Owner of Polo Health + Longevity Centre, an integrated health clinic in New Westminster, British Columbia.
- Sought-after expert in healthy weight loss, nutrition, hormone imbalance and the effects of stress on the body, in particular the connection between stress and weight gain.
- Board certified Anti-Aging Medicine health practitioner by the American Board of Anti-Aging Medicine.



DISCLOSURES

I have no potential conflict of interest to report regarding this presentation.



LEARNING OBJECTIVES

- 1. Understand the aging process and relevant mechanisms involved in aging.
- 2. Investigate the current anti-aging market and consumer trends.
- 3. Understand the role of diet and nutrition in promoting beauty from within.
- 4. Explore nutraceuticals and their potential in anti-aging.
- 5. Review epigenetic mechanisms and the influence of environmental factors in modulating gene expression, as they relate to aging.
- 6. Explore anti-aging opportunities in hormone therapy.
- 7. Identify lifestyle factors that contribute to health and the preservation of youth.



Outline

- AGING OVERVIEW
- **ANTI-AGING MARKET**
- **ANTI-AGING SOLUTIONS**
 - DIETS
 - **NUTRACEUTICALS**
 - **EPIGENETICS**
 - HORMONE THERAPY
 - LIFESTYLE CHANGES



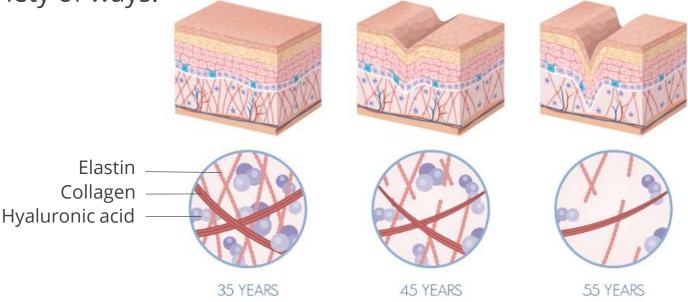
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What is Aging?

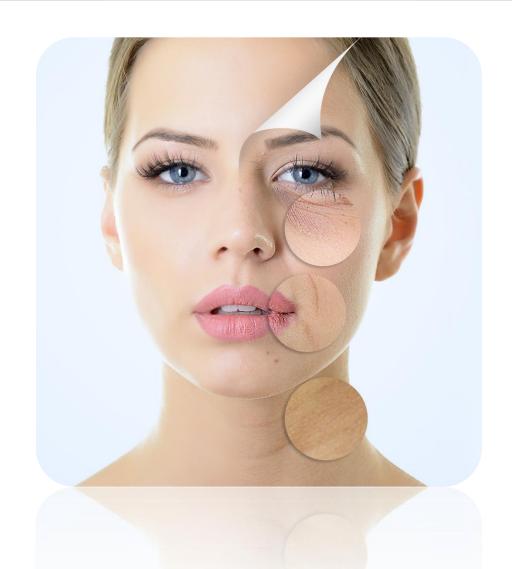
- Aging is a complex process that affects biological structures and functions.
- Aging affects skin structure in a variety of ways:
 - Reduced collagen production
 - Break down of elastin fibers
 - Loss of hyaluronic acid
 - Cell turnover slows down





Signs of Aging

- Lines and wrinkles
- Dark spots and uneven skin tone
- Loss of skin elasticity / sagging skin
- Dry skin
- Visible pores





Mechanisms of Aging

- Aging is influenced by both genetic and environmental factors.
 - Heredity
 - Diet
 - Lifestyle habits
- Chronic exposure to certain dietary patterns and lifestyle habits can accelerate the aging process and incidence of chronic diseases.



Mechanisms of Aging

Oxidative damage

Imbalance between the production of reactive oxygen species (ROS) and antioxidant defenses, and it's possible role in tissue damage.

Chronic inflammation

Low grade, chronic inflammation, leaving the body in a constant state of stress.





Mechanisms of Aging

Poor nutrition / poor lifestyle habits / stress



Accumulation of ROS



Increase production of inflammatory cytokines



Cellular damage



Degradation of extracellular matrix proteins (collagen, elastin, etc.)





- Accelerated skin aging
- Increased risk of chronic diseases



Mechanisms of Aging

Infection / Injury



Classical Inflammation:

Strong, short-term inflammatory response



Disease resolution

Poor nutrition / poor lifestyle habits / stress



Chronic Inflammation:

Low grade, long-term inflammatory response



Disease maintenance



- Accelerated skin aging
- Increased risk of chronic diseases



Mechanisms of Aging

Oxidative damage

Imbalance between the production of reactive oxygen species (ROS) and antioxidant defenses, and it's possible role in tissue damage.

Chronic inflammation

Low grade, chronic inflammation, leaving the body in a constant state of stress.

INTERVENTIONS?



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Products / Therapies

- Creams
- Moisturizers
- Gels
- Oils
- Serums
- Masks

- Soaps
- Cosmeceuticals
- **Nutraceuticals**
- Hormones
- Procedures
- Etc.





Consumer Trends

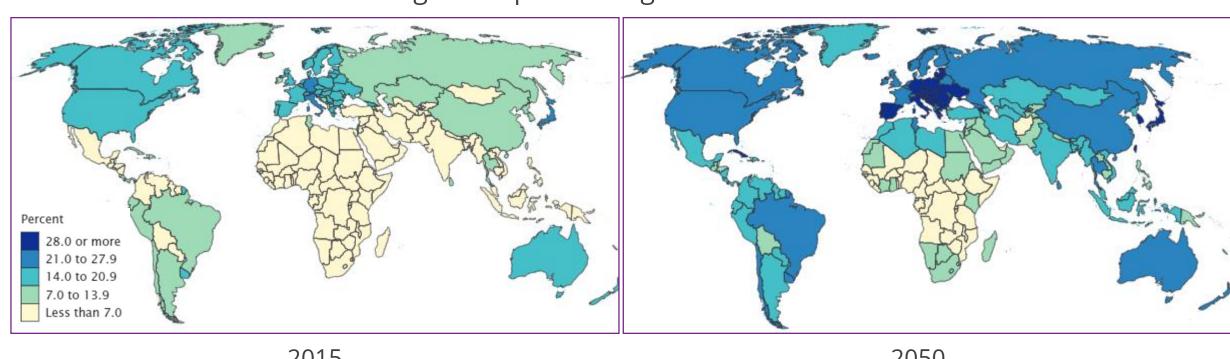
- Changes in the gender divide
- Shifting perceptions regarding aging
- Aging population





Consumer Trends

Percentage of Population Aged 65 Years and Over





2015 2050



There is an increasing demand for <u>customized</u> anti-aging solutions.



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Diets

Biological functioning and appearance depend on proper nutrition.





Anti-Inflammatory Diet

A diet rich in antioxidants and anti-inflammatory foods to help ease chronic inflammation.



Anti-Inflammatory Diet



FRUITS Strawberries, blueberries, lemons and cherries



NUTS Almonds, walnuts, and other nuts



LEAFY GREENS Spinach, kale, collards, and more.

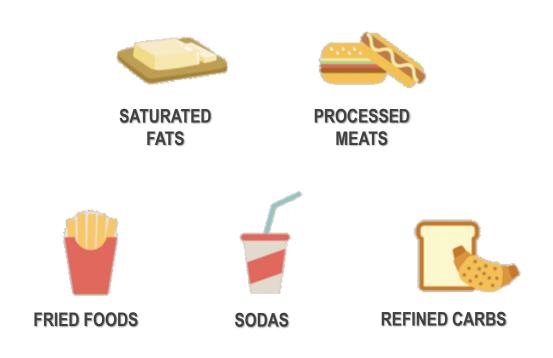


FATTY FISH Salmon, mackerel, tuna, and sardines.

THE DO'S

- Whole, nutrient-rich foods
- ✓ Foods rich in antioxidants
- Fiber
- Herbs and spices
- ✓ Omega fatty-acids

Anti-Inflammatory Diet



THE DONT'S

- X Processed foods
- X Refined sugars
- X Saturated and trans fats
- X Nightshade vegetables

Ketogenic Diet

A diet full of lean meats, healthy fats and leafy greens that can help improve antioxidant levels and optimize collagen production.



Ketogenic Diet

- Improves antioxidant levels to fight reactive oxygen species (ROS).
- Contains foods rich in collagen, which may help improve tissue function and the body's natural collagen production.





Ketogenic Diet

Fasting or intermittent fasting that limits food intake for certain periods of time.



Anti-Inflammatory Diet

During fasting, the body has time to eliminate waste and toxins from cells and tissues.

This also helps reduce chronic inflammation.





Important Dietary Changes

- Eliminate refined sugar
 - Eliminate trans fatty acids
 - Eat whole foods
 - Drink more water
 - Eliminate artificial sweeteners
 - Eat a balanced diet



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Nutraceuticals

Modern **sedentary lifestyles** and **processed food diets** render many individuals deficient in a number of nutrients, making nutraceuticals an appealing complementary therapy to provide individuals with the nutrients necessary for optimal skin health.





Nutraceuticals

- Nutraceuticals describe any bioactive substance that is isolated or purified from food to provide physiological health benefits.
- They can be delivered in the form of supplements.





Nutraceuticals

- Interventional studies indicate that select nutritional supplements can help delay skin aging and improve skin conditions.
- Nutritional antioxidants appear to be especially effective through their activity as free radical scavengers where they¹:
 - Neutralize free radicals
 - Reduce the peroxide concentrations and repair oxidized membranes
 - Help decrease ROS production



Nutraceuticals



Vitamin A

- Stimulates the production of collagen and elastin fibers¹.
- Sources include liver and fish oils, eggs, leafy green vegetables, and orange and yellow vegetables.



Vitamin C

- Necessary in the production of collagen and helps eliminate free radicals.
- Sources include citrus fruits, broccoli, and strawberries.



Vitamin E

- Helps prevent UV damage to cells, protect cell membranes and counteract free radicals.
- Sources include nuts, seeds, and vegetable oils.



Vitamin B

- Helps promote collagen and elastin production, thereby improving the appearance of wrinkles.
- Sources include meat, eggs, dairy, legumes, avocados, and bananas.



Nutraceuticals



Vitamin D

- Evidence suggests that low levels may contribute to the progression of aging¹.
- Sources include fatty fish, dairy, and eggs.



Omega 3 Fatty Acids

- Helps reduce oxidative stress and nourishes the skin.
- Sources include fish products, oils, and nuts.



Fiber

- Reduces cholesterol and boosts 'good' bacteria in the gut to help reduce chronic inflammation.
- Sources include grains, cereal, legumes, and green vegetables.



Nutraceuticals

Bovine Collagen

- Rich in types I and III collagen
- Sources include cow hides

Marine Collagen

- Rich in types III collagen
- Sources include coldwater fish skins



Helps promote collagen synthesis, skin elasticity, and hydration.



Nutraceuticals

Compounding provides the means for customized, personalized patient care:

- Prescription required: Each preparation is tailored to the patient's needs based on professional practitioner recommendations.
- Adjust the dose of the nutraceutical.
- Adjust the dosage form of the nutraceutical.
- Combine multiple nutraceuticals (simplify dosing regimens).
- Exclude certain ingredients (minimize side effects).



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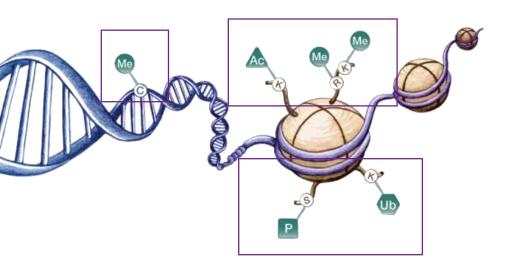
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Epigenetics

 A growing field of research associated with the effects of environmental factors and chemical modifications that influence gene expression and cellular phenotype.



- Epigenetic modifications include:
 - DNA methylation
 - Histone modification
 (e.g., acetylation, methylation, etc.)
- Reduction of DNA methylation is associated with aging.

Epigenetics

Environmental effectors of epigenetic changes include:

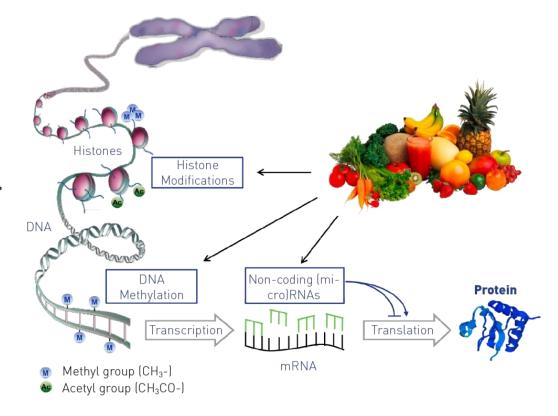
- Tobacco use
- Drug use
- Exercise
- Stress
- Nutrients You are what you eat!
- Etc.



Epigenetics

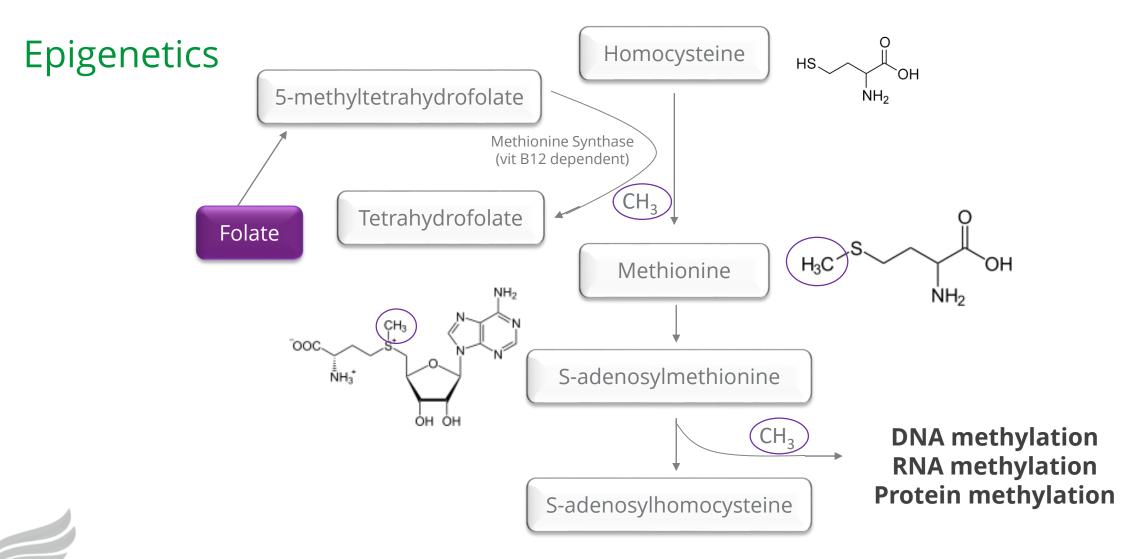
Nutrients and bioactive food components affect epigenetic modifications by¹:

- Acting as a source of methyl groups or as coenzymes in the regulation of methyl transfers.
- Influencing enzymes involved in DNA methylation and histone modifications.





^{1.} Park, L.K., et al. (2012). Nutritional influences on epigenetics and age-related disease, Proceedings of the Nutrition Society, 71(1), 75-83.

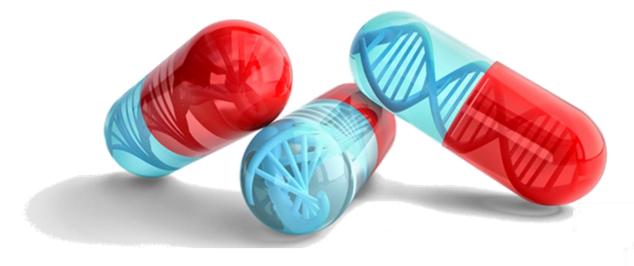




Epigenetics

<u>Understanding the role nutraceuticals play in regulating epigenetic processes:</u>

- Offers a new paradigm for disease prevention and anti-aging interventions.
- Opens the door to personalized medicine.



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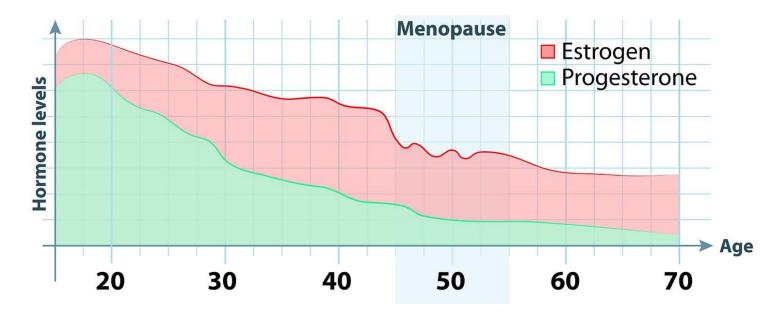
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Hormone Production and Age

- Estrogen and progesterone levels progressively decrease in women with age
- Commonly associated with menopause





Menopause and Skin Aging

<u>During menopause</u>, skin undergoes major changes¹:

- ↓ Epidermal and dermal thickness
- ↓ Collagen content
- ↓ Elasticity
- ↓ Hydration

...CAN HORMONE THERAPY HELP REVERSE THIS?



Hormone Therapy

Estrogen

 Cutaneous changes with postmenopausal estrogen replacement include increased epidermal and dermal thickness, increased collagen and elastin content, increased moisture content, and fewer wrinkles.¹

Progesterone

Wrinkles became more shallow and skin elasticity and firmness improved with topical administration of progesterone in peri- and postmenopausal women.²



^{1.} Emmerson, E. & Hardman, M. J. (2012). The role of estrogen deficiency in skin ageing and wound healing. Biogerontology, 13, 3-20.

Hormone Therapy

DHEA

Improved skin hydration and pigmentation, and reduced skin atrophy were observed with oral administration of DHEA.3

Testosterone

- Testosterone insufficiency in male adults has been associated with skin aging.
- Testosterone therapy may provide beneficial anti-aging effects.



Hormone Therapy

Hormonal systems *vary greatly* from person-to-person.

Anti-aging protocols need to be formulated on a **PATIENT-SPECIFIC-BASIS = PERSONALIZED MEDICINE**





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Lifestyle

- Smoking
- Pollution
- **UV** radiation
- Stress
- Physical inactivity
- Etc.

INFLUENCE AGING



Lifestyle

Exposure to UV radiation

Smoking

Exposure to air pollution



Accumulation of ROS



Skin aging





Lifestyle

Possible influence of stress on skin aging.

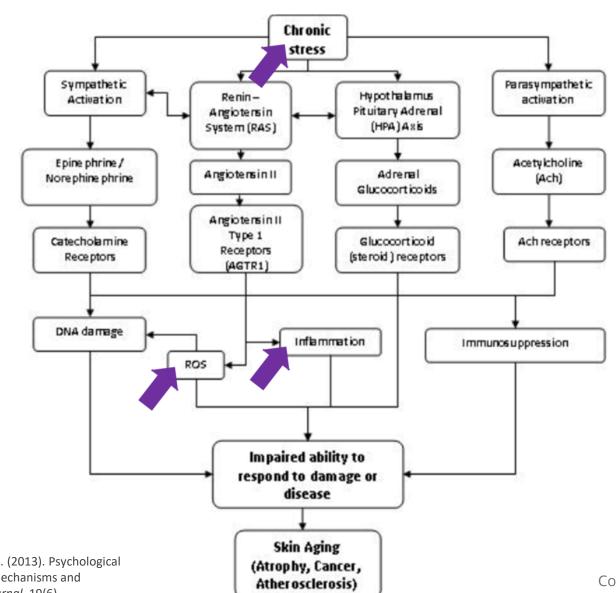




Image retrieved from: Jeffrey, D. H. & Koo, J. (2013). Psychological stress and skin aging: a review of possible mechanisms and potential therapies. Dermatology Online Journal, 19(6).

Lifestyle



- ✓ Remove cause of stress
- Implement effective relaxation techniques
- Make changes in your diet / decrease toxic load
- ✓ Regulate sleep
- Engage in regular, moderate exercise
- ✓ Avoid the sun / use daily sun protection
- Drink water

TRACKING CODE

WCC2018AGE



