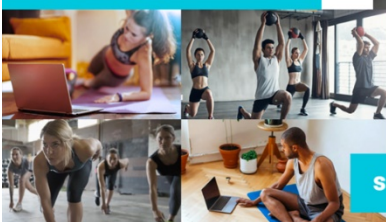


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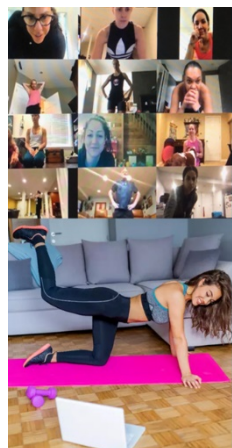


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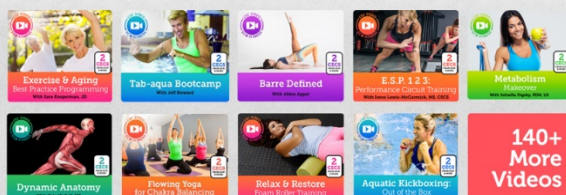
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Dietary Diversity

Melissa Layne
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Close

Why Diversity?

- Defined as a key component of healthy diets
 - Lacking a correct measurement form
- Obviously, the correct ratio of carbs, protein and fat
- The minimal amount of vitamins and minerals
- Breakup routine and mundane
 - Especially in seniors who are losing the sense of taste
- The inclusion of antioxidants
- Not so obviously, the diversity of bioactive compounds makes regulations of gene expressions
 - Keeping some genes active while making others dormant
 - Epigenetics- control above genetics
 - Nutrigenetics- examines how a person's individual genetic code affects the responses to different nutrients
 - Research shows that genes are not the only cause of pathological states

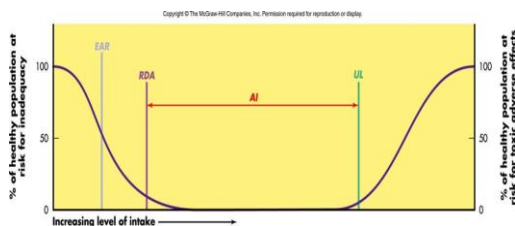
Nutrigenics

- Helps people optimize diets based on DNA
- Each being has variations in genetic DNA
 - Known as polymorphisms
 - Changes the production and function of proteins in the body
 - DNA methylation - a gene-regulating mechanism affected by food consumption

DNA Methylation

- Changing a molecule by adding a methyl group
- Used in research with Agouti mice
- Bioactive compounds in food goes through pathways to alter substrates and influence enzyme activity and silence gene expression
- Critical in aging process, inflammation and the cancer process

DRIs – Dietary Reference Intakes



Acceptable Macronutrient Distribution Range - AMDRs



How Is America Doing?

- Poor, Obese but Malnourished: Troubling
- Healthy People 2020
 - Increase the proportion of adults who are at a healthy weight
 - Reduce the proportion of adults who are obese
 - Reduce the proportion of children and adolescents who are obese
 - Increase the contribution of fats to the diet
 - Increase the variety and contribution of vegetables to the diets of the population age 2 years and older

American Calories

- The average American takes in 2031 cal/day
- The average American male (age 20+) takes in 2512
- The average American female takes in 1773
- Caloric intake peaks between ages 30 & 40
- Determine your caloric needs by utilizing a Harris-Benedict calculator online

Helpful Parts of Fruits and Veggies

- Phytonutrients
 - Plant based health-promoting compounds that affect gene transcription
 - Colors of plants contain anti-inflammatory and anti-oxidant properties that promote gene expression of immunity and protect against oxidative stress (antioxidants) lowering CRP.
 - Antioxidants protect body from free radicals which kill stem cells
 - As we age, bone releases less stem cells so less chance for repair.

Physiological Reasoning

- Addiction to serotonin
 - Neurotransmitter in the brain
 - Feel good – emotional neurotransmitter
 - Released with comfort carb ingestion
 - Can be addictive just like dopamine
- Better options to release serotonin
 - Bananas
 - Dark chocolate
 - Walk in the sunshine

Superfoods

- Olive oil/hemp oil
- Potatoes/sunchokes
- Quinoa/kaniwa/amarint
- Salmon/mackeral
- Kale/kalettes
- Red/tangerine tomatoes
- Kidney beans/adzuki
- Red bell/peppadew peppers
- Cottage cheese/quark

Carbohydrates

- Eating TOO MANY refined, not enough natural
 - Man takes in 296 grams = 1184 cal = 58%
- More sugar and less fiber than needed
 - Average American takes in 476 cal from sugar which is 119 grams
 - AHA recommends 100 calories for women, 150 for men
 - The average American takes in 16 grams fiber while women need 25 and men need 38

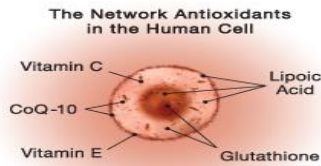
Rainbow Diet



Phytonutrients

- Glucosinolate
- B vitamins
- Selenium, zinc and manganese
- Butyrate
- Curcumin
- Anethole oil
- Quercetin
- Allicin
- Sulforaphane
- Resveratrol

Antioxidant Network System



Glucosinolate

- Suppresses cancer cell growth
 - Arugula
 - Kale
 - In place of kale, try kallettes – a cross with Brussels sprouts
 - Non GMO seed hybrid
 - Nutty, not bitter
 - Vitamin K and antioxidants
 - Raw, blanched, roasted, grilled
 - watercress

Vitamin K

- Blood clotting
 - Kale
 - Asparagus
 - Okra
 - Scallions
 - watercress,
 - Green cabbage
 - Prunes
 - Blueberries
 - Grapes
 - Green apples
 - Cashews
 - Pine nuts
 - Pomegranate juice
 - Fermented soybeans
 - Spinach
 - Salmon
 - Shrimp
 - Tuna
 - Frozen veggies - lose water content so vitamin concentration

B vitamins

- Water-soluble
- Change food into energy
- Essential to synthesis and repair of DNA
- Deficiency causes blood vessel deterioration and brain health
 - Spinach
 - Asparagus
 - Beets
 - Also extremely high in Betacyanin, which fights cancer, heart disease and birth defects
 - Lentils
 - Fish

Selenium, Zinc and Manganese

- Trace mineral
- Spares Vitamin E as an antioxidant
 - Toasted sesame seeds
- Component of glutathione peroxidase, which protects DNA from oxidative damage of free radicals
 - Seafood
 - mushrooms
 - Also contain zinc and manganese to strengthen immunity
 - Sunflower seeds

Butyrate and Inulin

- Butyrate is a short-chain FA that fights GI inflammation
 - Raw unpasteurized sauerkraut, kimchi, pickled beets
 - Raw milk has more enzymes to support microbiome
 - Goat's milk is extremely high in calcium, potassium, selenium, phosphorus, magnesium and Omega 3s
- Inulin is a fibrous carb that feeds probiotics (prebiotic)
 - Jerusalem artichokes (sunflower family) can be used similar to potatoes but has much more iron
 - May improve blood glucose and cholesterol levels
 - Treat like baked fried
 - Introduce slowly due to high fiber content

Spices

- Curcumin – found in turmeric and inhibits inflammation
 - Enhanced by the presence of black pepper, which contains piperine
 - Black pepper also improves absorption of beta-carotene
 - Ginger and capsaicin also increase absorption of beta-carotene

More Spices

- Anethole
 - Found in star anise and fennel seeds
 - Bioactive oil prevents gene-altering and inflammation

Protein - American's Favorite

- The average American man takes in 100 grams or 400 calories per day
- The average woman takes in 68 grams which is 272 calories
- The IOM recommends 46 grams for women and 56 for men
- The animal choices, especially red meat, dairy and eggs are high in fat and cholesterol

Different Types of Protein

- 10-35% of diet
- Animal protein products may change pH
 - Fish
 - eggs
- Plant options
 - Beans
 - nuts

Plant Based Diets Also Include

- Quercetin in berries
- Allicin in garlic
- Sulforaphane in broccoli
- Resveratrol in grapes
- Pea protein
- Capsaicin in peppers
 - Try peppadews – cherry tomato size from South Africa, sweet but spicy and often pickled, high in Vitamin C
- Soy
 - Take in moderation or smaller amounts if cancers run in family due to estrogen-like isoflavones

Plant Protein Powders

- Not as bioavailable
- Good source of protein for lactose intolerant
- No saturated fat or cholesterol
- Pea protein is from yellow peas with all the carbs removed.

isoflavone genistein

Soy

- One ounce of soy has more protein than 3 ounces of beef or chicken
- Typical makeup
 - 30-45% protein
 - 30% carbs
 - fiber
 - 15-20% fat
 - linolenic
- Contains Isoflavones bind to estrogen, thereby inhibiting estrogen, acting as antiestrogens
 - May inhibit bone breakdown, increasing density
- Plant form of Omega 3

Testosterone Levels

- Deficiencies in zinc and in Vitamin D may hinder testosterone.
- Zinc acts directly on the testes and ovaries to stimulate the production of luteinizing hormone, the main trigger for testosterone.
- Alcohol can reduce zinc stores. Grains and beans contain phytates, which bind to minerals and make them more difficult to absorb.
- Vitamin D is a prohormone to testosterone production.

Fat Favorites

- Fat should constitute 20-35% of daily calories
- The average male takes in 93 grams (837 calories) and the female – 66 grams or 594 calories
 - Unfortunately, saturated fat represents over 1/3 of the fat intake of Americans

Eating for Immune Boosts

- Vitamin B6
 - Chicken, cereals, bananas, pork loin, potatoes with skin
- Vitamin C
 - Tomatoes, citrus, sweet peppers, broccoli, kiwi
- Vitamin E
 - Sunflower seeds, almonds, safflower oil, peanut butter
- Magnesium
 - Whole wheat, legumes, nuts and seeds
- Zinc
 - Oysters, beef shank, Alaskan king crab and dark meat turkey

Best Superfoods of All Time!

- Berries
- Eggs – majority of egg whites
- Beans – plant-based iron
- Nuts – Omega 3 and plant proteins
- Oranges – second only to strawberries in Vit C
- Sweet potatoes – antioxidants and Vit A
- Broccoli – full of sulforaphane and A, C and K
- Tea – full of flavonoids
- Spinach – unbelievable load of vitamins and minerals
- Yogurt – probiotics
- Seafood – extremely high in selenium
- Tomatoes – extremely high in lycopene

Things to AVOID

- Sodium
- Alcohol
- Sodas

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