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| What is the most important factor in determining daily energy expenditure? | BMR (Basal metabolic rate) |
| BMR:<br><br>relates to hypothyroidism? hyperthyroidisim? | ↓ hypothyroidism<br>↑ hyperthyroidisim |
| Carbohydrate digestion begins ? | in the mouth 4 kcal/g |
| Disaccharidase<br><br>produce? | glucose, galacose, fructose |
| Amino acids are substrates for _____? | gluconeogenesis |
| Protein digestion begins? | begins in the stomach; pepsin and acid |

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| Essential FAs (Fatty Acids) =? | linolenic, linoleic acids |
| Fat digestion<br><br>begins where? | small intestine |
| Fat digestion = ? | pancreas → bile salts/acids → intestinal cells |
| Kwashiorkor = ? | inadequate protein intake |
| what is a characterisitic of kwashiorkor? | pitting edema |
| Sunlight is a major source of? | vitamin D |
| Vitamin D<br>relates to metabolism? | liver and kidney hydroxylation |

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| Funcitons of Vitamin D? | bone mineralization; maintain serum calcium and phosphorus |
| What is the most common cause of vitamin D deficiency | Renal failure |
| Vitamin E<br>serves as an _____? | cell membrane antioxidant |
| Vitamin E toxicity | ↓ synthesis vitamin K-depentant coagulation factors |
| Vitamin K<br><br>how is it produced? | majority synthesized by colonic bacteria |
| Vitamin K function | y-carboxylates II, VII, IX, X |
| what is the most common cause of vitamin K deficiency in a hospital? | broad-spectrum antibiotics |

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| Newborns require vitamin __ at birth. | vitamin K |
| Rat poison contains coumarin derivatives that decrease _____ of vitamin K | decreases epoxide reductase activation of vitamin K |
| Thiamine sources? | present in outer shell and seed of grain |
| Thiamin funciton? | important in ATP synthesis |
| what is the most common cause of thiamin deficiency in the United States? | Chronic alcoholism |
| Riboflavin sources? | FAD (flavin adenine dinucleotide)and FMN (flavin mononucleotide) |
| Niacin<br><br>Functions? | NAD (nicotinamide adenine dinucleotide)<br>NADP (nicotinamide adenine dinucleotide phosphate) |

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| Corn-based diets<br><br>causes of deficiency? | deficient in tryptophan and niacin |
| tryptophan is used to synthesize? | used to synthesize niacin |
| Tryophan deficiency<br><br>causes? | Hartnup disease, carcinoid syndrome |
| Three Ds of pellagra? | dermatitis, diarrhea, dementia |
| Pyridoxine<br><br>funcions? | synthesis, transamination, neurotransmitters |
| most common cause pyridoxine deficiency? | Isoniazid therapy |
| Vitamin B12<br><br>found where? | only in animal products |

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| Vitamin B12<br><br>function? | DNA synthesis; odd-chain fatty acid synthesis |
| most common cause of vitamin B12 deficiency? | Pernicious anemia |
| Folic acid<br><br>function? | DNA synthesis |
| Causes of folic acid deficiency? | elderly individuals,<br>goat milk (lacks folate and pyridoxine) |
| most common cause of folate deficiency? | Alcohol excess |
| Biotin deficiency<br><br>causes? | eating raw eggs |
| Ascorbic acid<br><br>functions? | collagen synthesis,<br>antioxidant,<br>reducing agent |

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| what is the cofactor conversion dopamine to norepinephrine? | ascorbic acid |
| Scurvy<br><br>caused by? | deficiency of ascorbic acid (vitamin C) |
| Zinc deficiency<br><br>clinical findings? | poor wound healing, dysgeusia, perioral rash |
| Copper excess<br><br>_____ disease? | wilson's disease |
| Iodide deficiency<br><br>effects? | multinodular goiter |
| Chromium<br><br>funcions? | useful in diabetics |
| Selenium<br><br>acts as? | antioxidant |

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| Fluoride<br><br>function? | component of calcium hydroxyapatite |
| Fluoride deficiency<br><br>clinical findings? | dental caries |
| Fiber types? (2) | insoluble, soluble |
| Soluble fiber | lowers cholestrol |
| Fiber<br><br>benefits? | ↓ risk for sigmoid diverticulosis, certain cancers, heart disease |
| sodium restriction<br><br>nonpharmacologic treatment | hypertension, heart failure, chronic liver/ kidney disease |
| Protein-restricted diet<br><br>benefits? | chronic renal failure, cirrhosis |

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| What amino acids stimulate Growth Hormone (GH)? | Arganine and Histidine(Ornithine) |
| Symptoms of hypocortisolism? | fasting hypoglycemia and fatigue<br>ACTH low<br>Corisol Low |
| Central Diabetes Insipidus Causes? | Car accident |
| Where is it made? | Superoptic/Paraventricular Nucleus of hypothalamus |
| Where is ADH stored? | Vassopressin (ADH) is stored in the posterior hypofisis |
| Signs and Symptoms of SIADH? | -Thrist (polydypsia)<br>- polyuria |
| Mechanisms of polyuria in DM? | Osmotic Diuresis |

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| Where does calcitonin work? | Osteoclast inhibits bone reabsorption |
| What receptor does PTH hook on? | Osteoblast |
| What does PTH releases? | IL-1 Osteoclast activating factor |
| What keeps a check on IL-1? | Testosteron and Estrogen |
| Why do women get osteoporosis? | Menopausal Women, breaking bone down since IL-1 is not checked |
| What enzyme is in the S.E.R. when you have increase P-450? | Gamma-glutamyl transferase<br><br>- key tests for alcoholics |
| Why does renal dz causes vitamin D deficiency? Caused by Diabetes Mellitus | no alpha-1-hydroxylase |

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| Vitamin D from the store, what happens to it before it becomes activate? | 25-OH D activated in the liver<br>- 1,25 OH D in kidneys by alpha-hydroxylase |
| Hypervitaminosis D? What happens? | Increase Calcium (hypercalcemia), more Calcium in urine causing Stones. |
| Type I Vitamin D is what? | Missing alpah-1-hydroxylase |
| What is wrong with Type II Vitamin D deficiency? | Bad receptors |
| What is vitamin E main fuction? | - Prevent lipid peroxidation of cell membranes<br>- protect membrane from breaking down by phospholipid A<br>- neutralizes oxidis LDL (makes it less injurious), i.e. cardioprotective |
| Who gets Vitamine E deficiency? | Cystic Fibrosis Patients |
| Does vitamin E deficiency cause hemolytic anemia? | Yes! Susceptible to membrane damage (radical) |

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| Does vitamin E help myelin? | Yes! Problems neurologicly since they disrupt the membranes in the brain. Spinalcerebellar Dz |
| What vitamin enhances the activity of warfarin? | Vitamin E excess! |
| What changes k2(inactive) to k1? | epoxide reductase<br>k1 gamma carboxylates activates factors II, VII, IX, X<br>hydroxylates proline and lisine activates them so they are fucntional |
| Warfarin does what? | Blocks epoxide reductase, all vitamin K is K2 (inactive) |
| Vitamine K deficiency? | Prolong Antibiotics<br>Poor Diets<br>New Borns |
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