

WORKOUT RECOVERY & PROTEIN RECOMMENDATIONS

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Who am I?

- Doctor of Chiropractic -NYCC
- MS in Exercise Science w/ Concentration in Human Performance-Ithaca College
- BS in Psychology & Health and Wellness from SUNY Buffalo
- Former Strength and Conditioning Coach
- 10+ years of Academic Research
 - Psychology/Sport Psychology
 - Exercise Science/Human Performanc
 - Biomechanics
- Certifications in Whole Foods Nutrition



What are we dealing with when it comes to workout recovery?



DOMS!



DELAYED ONSET MUSCLE SORENESS (DOMS)

❖ INCLUDES

- ❖ Decreased muscle strength
- ❖ Reduced Range of Motion (ROM)
- ❖ Limb Swelling
- ❖ Increase of proteins in muscle from muscle breakdown
- ❖ Increased muscle soreness



DELAYED ONSET MUSCLE SORENESS (DOMS)

- ❖ WORSE AFTER 48 HOURS
- ❖ Can take a few days to subside
- ❖ Prevention is possible!



<http://mindandmuscle.net/articles/wp-content/uploads/2017/01/musclesoreness1.jpg>



TWO PHASES

- ❖ 1. Initial phase or Primary:
 - ❖ Chemical changes resulting from reduced blood flow during workout
 - ❖ Mechanical: Physical damage from working out-actual structural damage to muscle



TWO PHASES

❖SECONDARY

❖Sequence of chemical events that lead to oxidative damage

❖FREE RADICALS

❖Cause inflammation and PAIN



GOALS OF RECOVERY:

- ❖ Reduce Muscle Soreness (Obviously)
- ❖ Repair damaged tissue quicker
- ❖ Maintain and improve Range of Motion
- ❖ Help build More healthier and stronger muscle



STRATEGIES FOR RECOVERING QUICKER

- ❖ 1. Increase blood flow: more nutrients in/garbage out
- ❖ 2. Amino Acids/Protein for energy and repair
- ❖ 3. Clear damaging and inflammatory Free radicals
- ❖ 4. Adequate rest: sleep
- ❖ 5. Stretching to preserve Range of Motion

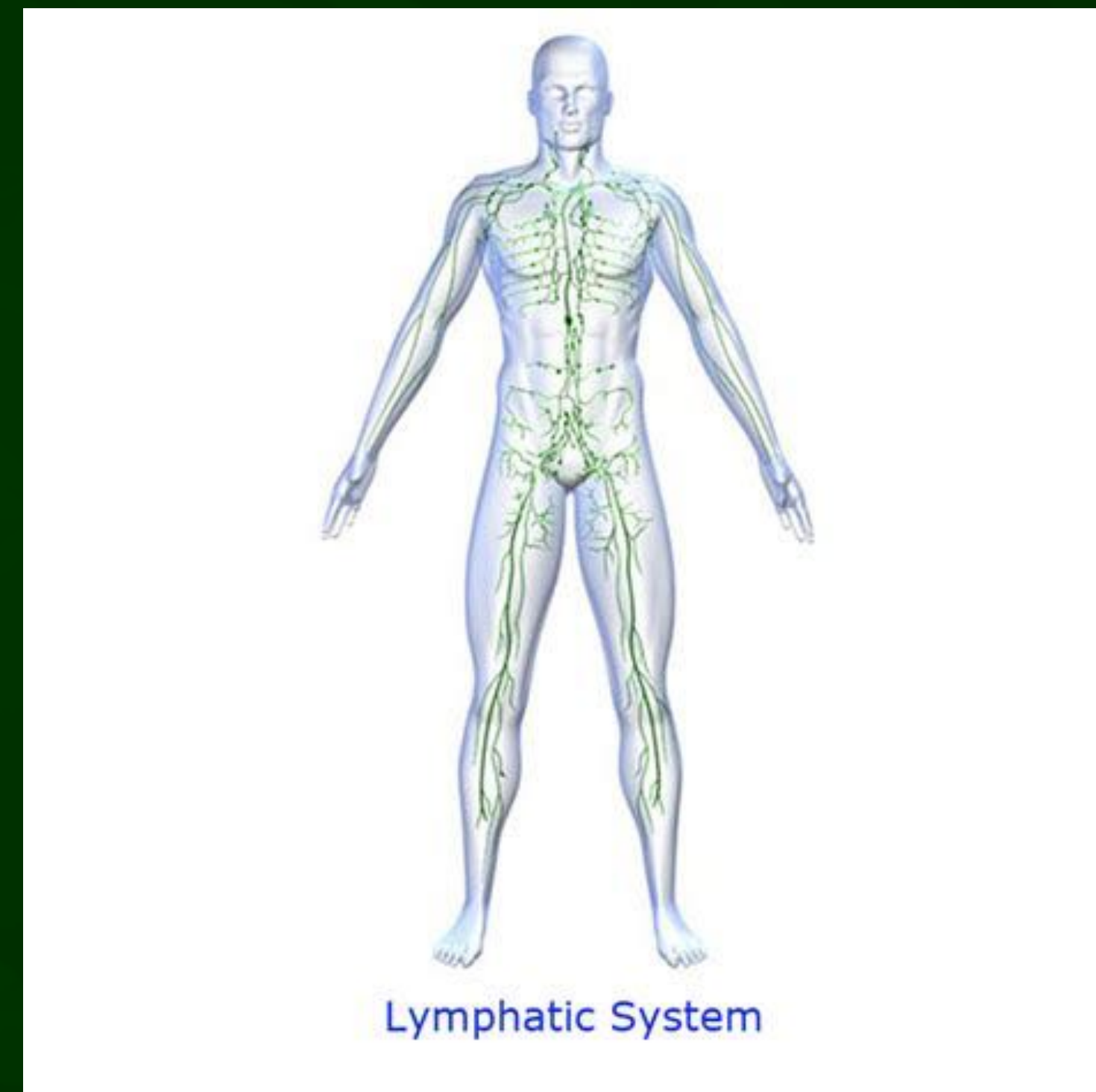


1. Increase blood flow



WATER AND MOVEMENT

- ❖ Lymphatic system clears waste
- ❖ BUT-has no pumping mechanism of its own
- ❖ Requires Muscle contraction to move lymph fluid through body
- ❖ EXTRA FLUIDS and light movement and activity can help!
- ❖ Start right away after exercise



<http://image.made-in-china.com/6f3j00YCnaiJEcvTgU/lymphatic-system-of-Human-Body.jpg>



INCREASE BLOOD FLOW

- ❖ Drink Plenty of fluids before a workout
- ❖ AMPLE warm up so blood is already flowing
- ❖ Supplemental Aids like Ningxia Nitro that has Green Tea Extract and other ingredients that help to increase blood flow to brain and muscles



Supplements

- ❖ You have to be careful with performance supplements.
- ❖ They are filled with additives that can cause more stress on the body than help
- ❖ Ningxia NITRO is All natural and loaded with antioxidants



2. PROTEIN/BUILDING BLOCKS



EXTRA PROTEIN CAN HELP WITH DOMS:

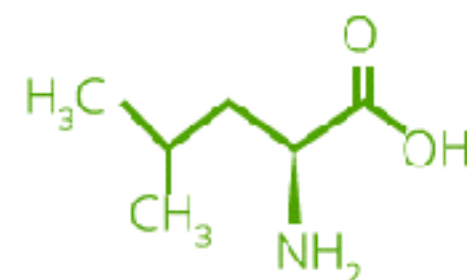
PROTEIN REQUIREMENTS WILL BE DISCUSSED LAST!



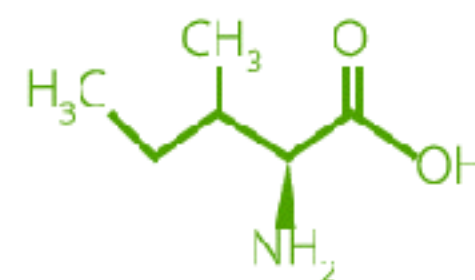
Branched Chain Amino Acids & PROTEIN

BRANCHED CHAIN AMINO ACIDS

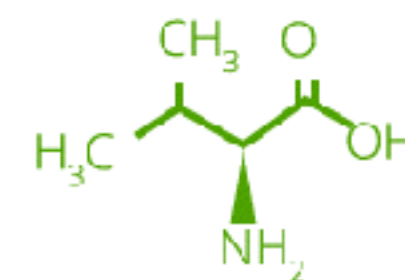
Leucine



Isoleucine



Valine



<https://www.dietspotlight.com/wp-content/uploads/it-works-shake-branched-chain-amino-acids.png>

- ❖ 3 Essential Amino Acids
- ❖ CAN USE DURING AND AFTER!
- ❖ Helps recovery during intervals since they are readily available in the system



Branched Chain Amino Acids & PROTEIN

- ❖BCAA drink can help clear waste build up and free radicals
- ❖Helps contribute to more energy in the muscle to prolong endurance and recovery faster

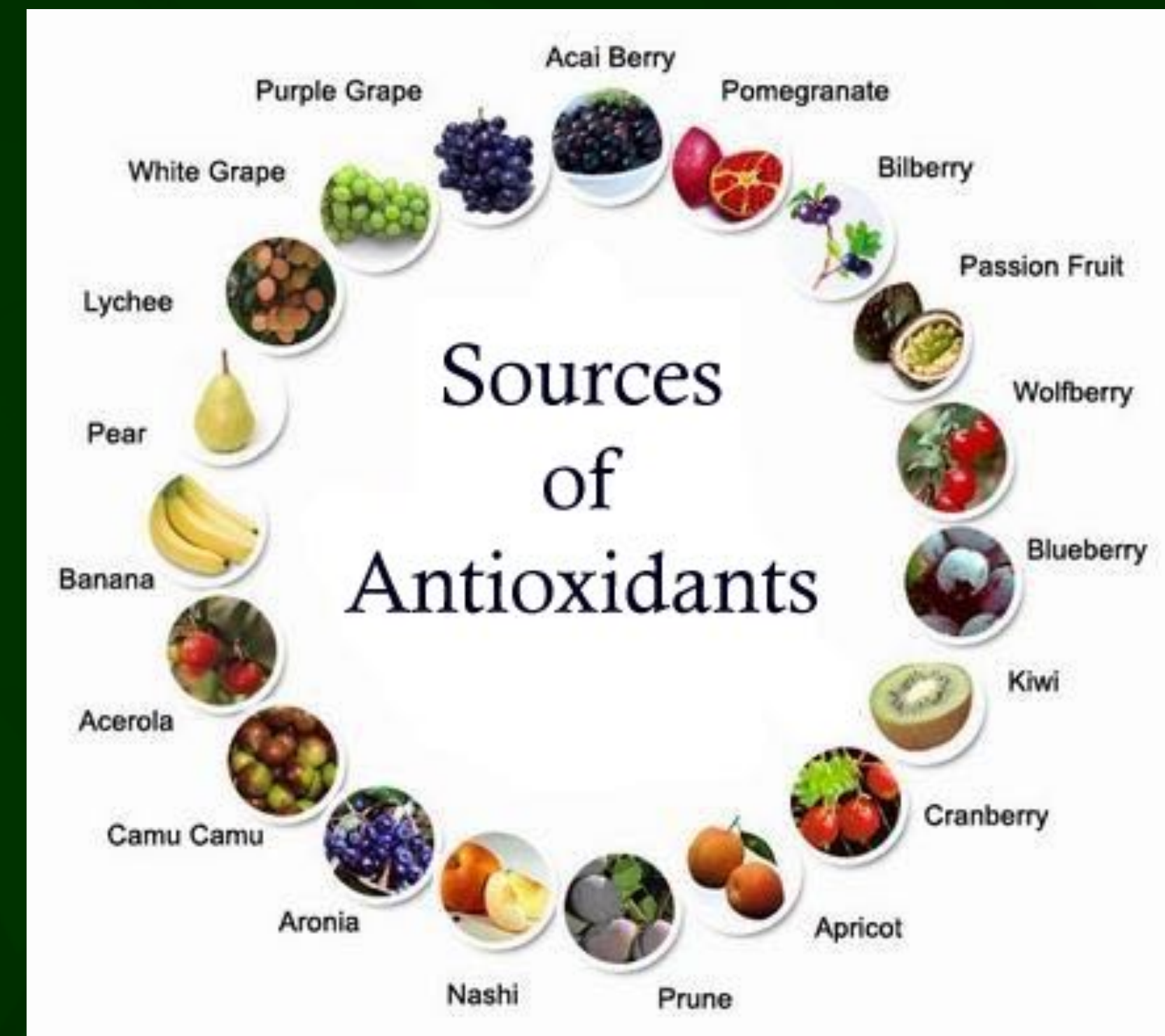


3. CLEAR DAMAGING FREE RADICALS AND OTHER INFLAMMATORY CHEMICALS



Antioxidants

- ❖ Daily antioxidant therapy can help minimize free radical production which can minimize soreness during activity
- ❖ Important to get multiple sources of antioxidants***
- ❖ May even help body burn more fat



You are Already sore!

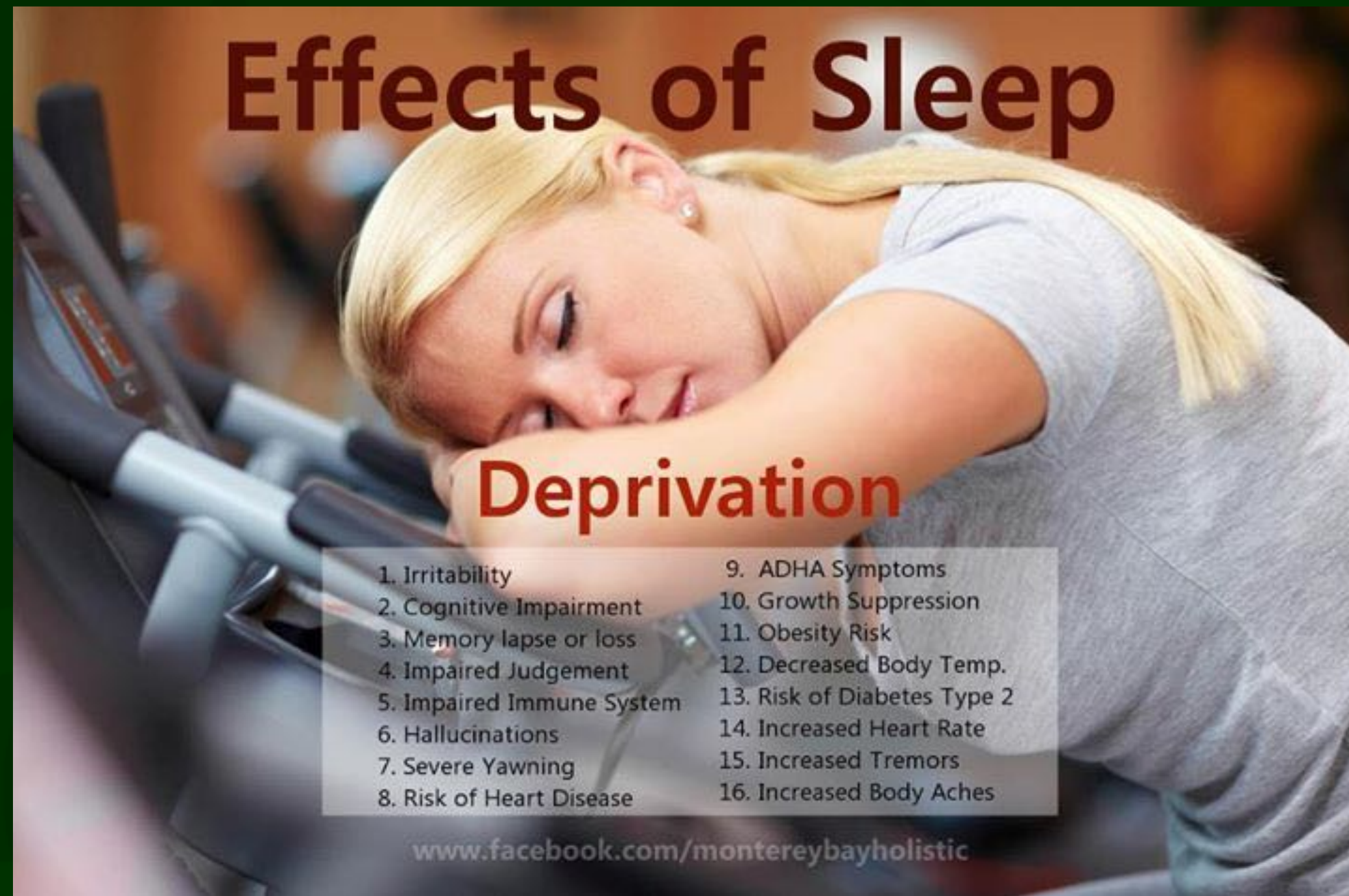
- ❖ Antioxidants
- ❖ There it is again!
- ❖ Antioxidants will continue to clear free radicals and inflammatory chemicals even after you are already sore



4. SLEEP



SLEEP



- ❖ A single night of sleep deprivation and impair immune function and the body's repair mechanisms
- ❖ Enough quality sleep is important for recovery and minimizing inflammation and therefore muscle soreness.



Improve sleep...

- ❖ Lavender is commonly used to help achieve a restful nights sleep
- ❖ Blue light blocking Glasses
- ❖ Meditation or breathing exercises
- ❖ Consistency



<https://i.ytimg.com/vi/J5WuixVnIDE/maxresdefault.jpg>



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Living

5. STRETCHING



Stretching-

www.hesterhealth.com/recommendations



OTHER STRATEGIES TO SOOTHE SORE MUSCLES



You are Already sore!

- ❖ Epsom Salt Baths
- ❖ Essential Oils
- ❖ Active recovery/walking
(may alleviate during but not after)
- ❖ Herbal Anti-inflammatory (i.e. Turmeric)



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PROTEIN-AMINO ACIDS

❖ 20 amino acids

❖ 9 Essential

❖ 11 Non-essential



PROTEIN DIGESTION

- NEED HEALTHY STOMACH ACID, ample pepsin levels, AND pancreatic enzymes for proper protein digestion!



<https://tse1.mm.bing.net/th?id=OIP2EpEp-mOC0oQWWYDsBe1-gHaE8&pid=Api>



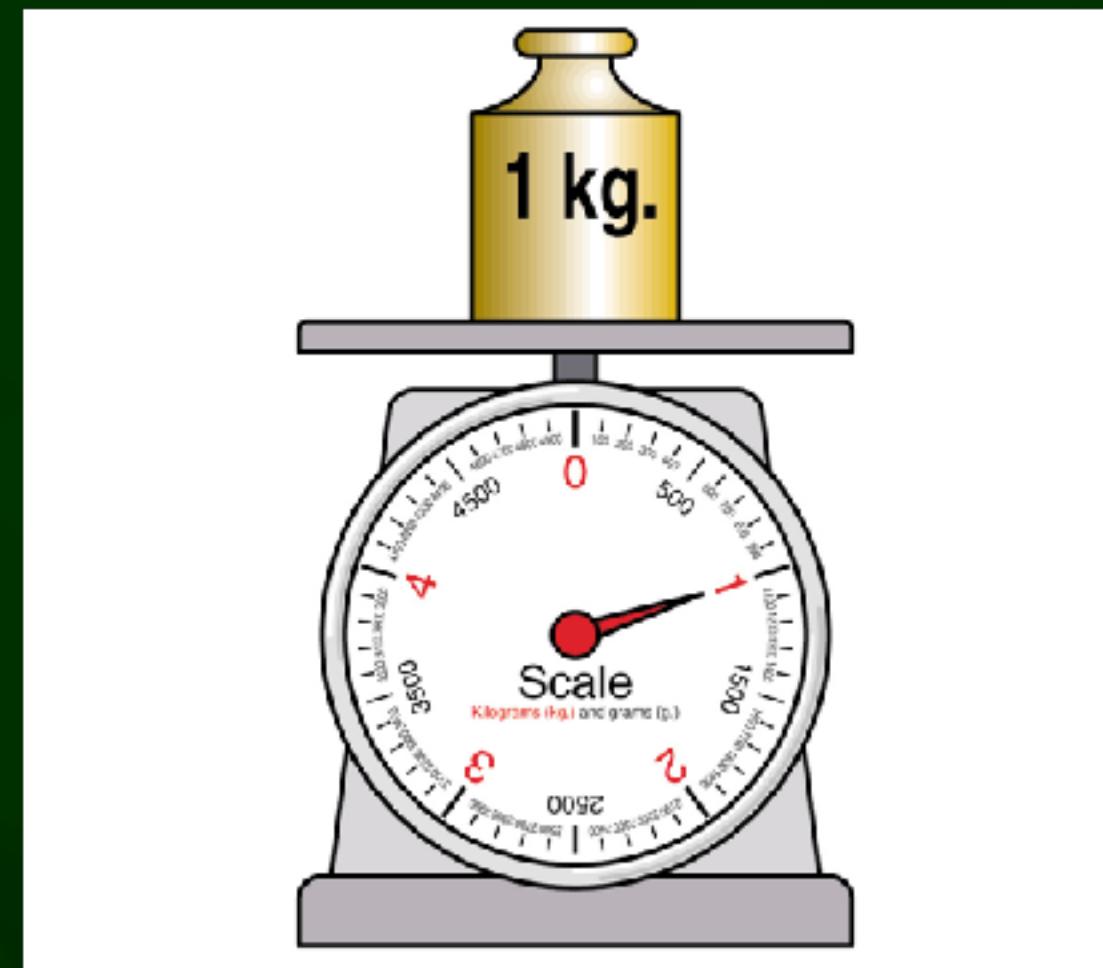
PROTEIN DIGESTION

- Not all the protein we eat turns into building blocks for muscle
- Many AA are used to make energy, neurotransmitters, and Urea (urine)



DAILY RECOMMENDATIONS

♣ BASED ON WEIGHT-in Kg (sorry!, but you will have to convert your weight)



<http://3.bp.blogspot.com/-pVC5oDNhafE/UKe8TrutEpI/AAAAAAAfIk/Y7It-P8nCU/s1600/kilogram.jpg.png>

Weight x 0.45= Kg



HOW MUCH PROTEIN REQUIRED
DEPENDS ON A NUMBER OF FACTORS



DAILY RECOMMENDATION

♣ GENERAL RANGE: 1.4-2.0 g/kg per day

♣ Age ↑

♣ Exercise ↑

♣ Body composition ↑

♣ Total energy intake ↑

♣ Training status (already fit-go higher) ↑



PER MEAL RECOMMENDATIONS

- ❖ TOTAL protein more important than how its spaced
- ❖ EITHER do higher doses less frequent OR
- ❖ Lower doses MORE frequent



WHOLE BODY WORKOUTS

- ❖ A workout like Orange Theory will require a little more because its whole body, HIIT, and resistance training
- ❖ 30-40g protein after exercise session



OTHER CONSIDERATIONS



CALORIE DEFICIT-DIETING

♣ IF YOU ARE RESTRICTING CALORIES

♣ You may need more protein to prevent muscle wasting



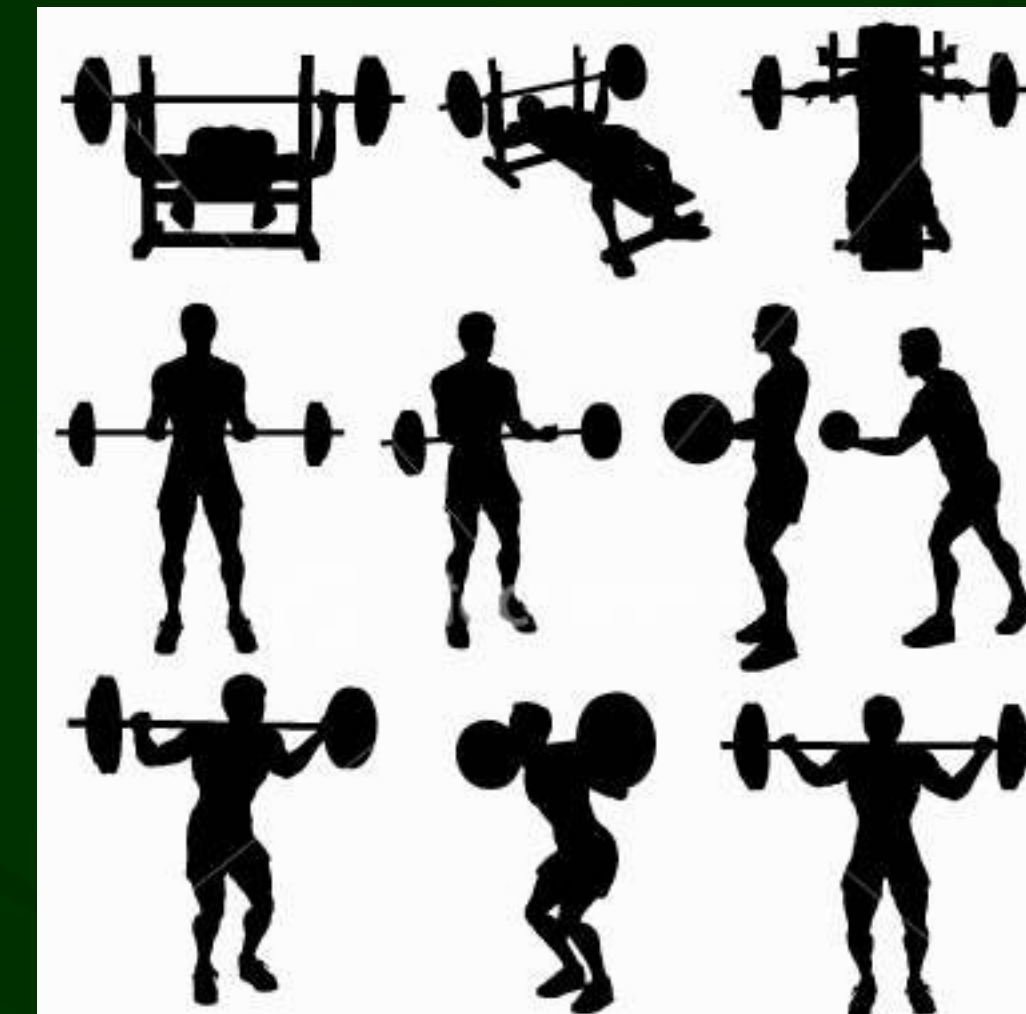
<http://www.fitnessenhancement.com/wp-content/uploads/2017/06/healthy-protein.jpg>



CALORIE DEFICIT

♣ 3 g/kg per day if DIETING

- Continuing resistance training throughout restriction will help not lose mass too



http://www.mirrorfriendly.com/wp-content/uploads/2013/12/resistance_training.jpg



TIMING



<https://tctechcrunch2011.files.wordpress.com/2015/01/timing.jpg>



TIMING OF PROTEIN INGESTION

- ❖ Timing not as important as total overall intake for the day as far as muscle building goes
- ❖ for RECOVERY, and minimizing soreness, try to take in within 2 hours of exercise, ideally within a half an hour
- ❖ Have a little extra before bed if you had a heavy workout for the day



RECOMMENDATION

- ♣ Best recommendation for timing:
- ♣ 0.3g/kg/meal every three hours until you've met daily requirement between MOST OT members would be around 2-3g/kg



WHAT KIND??



<https://tse3.mm.bing.net/th?id=OIP.KDV2i-LojwUxtjnRhyiocQHAE&pid=Api>

The logo for 'Wellthy Living' features the brand name in a black, elegant script font. A green leafy branch graphic is positioned above the word 'Wellthy'. The logo is set against a background of two overlapping circles, one light blue and one light green.

WHAT KIND?

♣BEST OF THE BEST according to RESEARCH

♣Complete/Whole Food form: Meat, Eggs, Milk

♣Must be HIGH quality

♣Rice protein is good stand alone but BEST plant sources are BLENDS to get all essential amino acids



WHAT KIND?

♣MILK

- ♣Hydrating
- ♣Accelerates recovery
- ♣restores sugar levels to muscle for recovery
- ♣assists with neurological adaptations to exercise
- ♣Contains highest amount of Leucine
- ♣MUST BE HIGH QUALITY: A2 BEST



<http://www.cravebits.com/wp-content/uploads/2014/07/Milk-enriched-with-nutrients.jpg>



WHAT KIND?

♣EGGS

- ♣Gold standard for protein
- ♣Contains all essential Amino Acids
- ♣1 egg has 6 grams of protein
- ♣Considered a functional food: meaning it provides additional health benefits beyond basic nutrition



WHAT KIND?

♣ MEAT

- ♣ Complete protein as well
- ♣ also has other micronutrients
- ♣ Meat based diets can help muscle wasting in older individuals



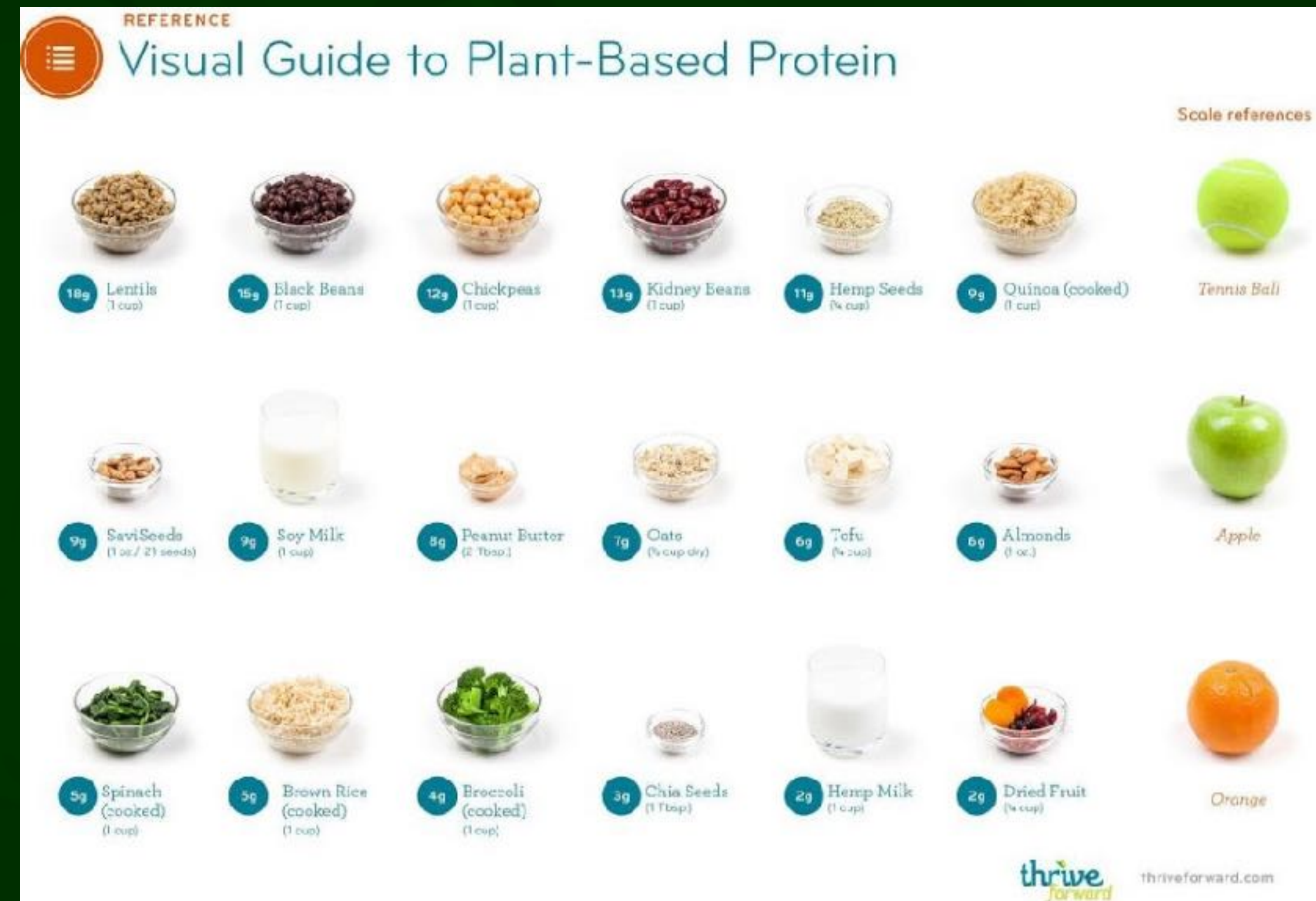
http://4.bp.blogspot.com/-GECizTQ1DYs/T6f2lIdbg9I/AAAAAAAAAJM/cjQC_gjleLk/s1600/Meat58.jpg

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WHAT KIND?

♣️ PLANT BASED

- ♣️ Not as much research on this
- ♣️ Rice protein studied, has ample leucine so will help with muscle building
- ♣️ SOY IS THE WORST, inhibits growth factors that signal muscle building despite protein content



<https://realfoodsmom.files.wordpress.com/2014/08/visual-guide-to-plant-based-protein.jpg>



WHEY

♣️REAL WHEY

- ♣️Whey is natural but has been adulterated over the years
- ♣️The real stuff has extra health benefits including immune system support and improving mental function
- ♣️Also has antibacterial, antiviral, and may even help absorb iron (Hello Ladies!)



<https://images-na.ssl-images-amazon.com/images/I/81B%2BV2EWkeL.jpg>



WHEY

♣ HUNDREDS OF STUDIES

♣ Most effective at helping with muscle recovery, protein synthesis, and even helps with appetite



WHEY

- ♣ HYDROLYZED-Predigested
- ♣ You can also get non-hydrolyzed that also contains digestive enzymes



WHEY

- ♣ WHEY PROTEIN SELECTION
- ♣ GRASS FED-non pasteurized!
- ♣ Otherwise kills all the immune boosting properties and just becomes a burden to the body and causes inflammation
- ♣ Cold Pressed*



PLANT PROTEINS

- ❖ Not as much Research
- ❖ Rice seems to be a good option
- ❖ Blending Protein sources is best!
- ❖ Stay away from Soy!
- ❖ Only high quality sources!



WANT MORE?

♣ Join the Wellthy
Livin' Group on
Facebook



Thank you for listening

Questions??

