

Supplementation for Masters Rowers

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Basic Needs – true for all, but especially true for master athletes

- NUTRITION

- “Food is fuel”
- 3 nutrients – Proteins, Carbohydrates, Fats
- Raw materials / “building blocks” for sustainment, repair, and new construction

- FITNESS

- Strength – ability to exert force against an external object, “neuro-muscular”
- Power – exerting that force effectively and efficiently in time
- Endurance – how well conditioned is the system to sustain force output

- RECOVERY

- Repairing the daily damage, both accidental and intentionally caused
- Sleep (where the majority of that repair function occurs)

The Evolving Picture of Rowing (Masters, too!)

- CHANGING VIEW of the Sport

- OLD: Primarily an endurance sport, like long-distance cycling or running
- NEWER: Growing recognition of rowing as a “hybrid” activity –
 - Needs for strength and power
 - Needs for endurance

- TRAINING and PRACTICE APPROACHES

- Periodization modes for Programming
 - Phased over the year into season and off-season components
 - Increased inclusion of basic strength training through weightlifting and “Olympic” power lifting in the off-season
 - Tapering to incorporate a gradual transition to more conditioning-based training and rowing practice as the on-water season gets closer

- ADAPTATIONS for AGING MASTERS

- Diet / “Eating Plan” – Exercise (training and practice) -- Recovery
- Slowing / Preventing “age-related” Decline
- Protecting Against Injury

“Diet” / Eating Plan

- “Authorities” (generally, government agencies) establish “RDA” for Nutrition
 - In the US, Dietary Reference Intakes (DRIs) are established by the Food and Nutrition Board (FNB)
 - Average daily intake “sufficient to meet the nutrient requirements of nearly all (97–98%) healthy individuals”
- 2005 – Report from FNB with most recent DRI’s
 - Carbohydrates:
 - At minimum, 130 grams per day
 - Males and Females age 18+ (but no other age group differentiation)
 - Aim for between 40% and 65% of kilocalories intake
 - Fats:
 - “No Determination” for any age group older than 12 months
 - (But not to exceed 15% of the day’s kilocalorie intake)
 - Protein
 - 0.8 grams per kilogram of body-weight per day
 - Males and Females, no age group differentiation
 - Lactating females increased to 1.1 grams to 1.3 grams per kilogram per day
 - Aim for between 10% and 35% of kilocalories intake

Supplementation (1): Protein, the First Need

- DRI for Protein (0.8g/kg) is **way too little**; need **1.6g/kg** for active master rower
- OPTIONS –
 - Eat more protein-rich foods (meat, fish, eggs, dairy)
 - Boost protein intake with supplemental protein shakes (commercially available)
 - Mostly dairy-derived – milk, whey, and casein; some from eggs – well established in research
 - Some companies offer protein powder derived from meat – research unclear for effectiveness
 - Some companies offer protein powder derived from plants – plant proteins are incomplete
 - Use the “next step” with Branch-chain Amino Acids (BCAAs)
 - As complete protein chains are digested, they get broken down into amino acids (21)
 - Some of these amino acids are called “essential” (9 of the 21) in that the body does not produce them and they must be obtained by diet
 - Some of these essential aminos (3 of the 9) have a structure that is referred to as “branch-chain”
 - Making the direct connection between “calories of protein to be eaten” to grams of BCAAs to take is not well-researched and difficult to establish
 - However, one of the BCAAs (leucine) is absolutely critical to the metabolic processes that signal the body to use protein for MPS (building muscle tissue)
 - Take advantage of another protein-derived supplement -- Collagen
 - Distribute intake throughout the day -- 4 “meals” – to ensure a continuous supply being available
 - Especially for Masters, to avoid “spikes” and “lulls” in MPS

Supplementation(2): Creatine

- Daily protein intake supports synthesis of creatine
 - Primarily protein obtained from red meat (beef, pork) or fish
 - Beef yields about 4.5 grams per kg
 - Pork yields about 5.0 grams per kg
 - Fish is less and depends on type of fish
 - Poultry is much less
 - Typical diet obtains 1 – 2 grams per day (because no one, not even me, eats 2 pounds of beef a day!)
 - 3 amino acids from digested protein are transformed into creatine in the liver and kidneys
 - Creatine transported and stored in Skeletal Muscles (~95%) and Brain (~5%)
 - Another enzyme attaches a phosphorus ion to the molecule == “phosphocreatine” (referred to as “PCr”)
 - Drives the high-intensity PCr energy system (replenishes ADP into ATP for cellular energy)
 - All cells use ATP for energy
 - Recommended daily intake for an active Masters Athlete is 3 to 5 grams per day

Supplementation(3): Creatine

- Supplemental forms and dosage
 - Creatine Monohydrate – most common form, also most commercially available
 - 5 grams per day suggested, skeletal muscles achieve optimal saturation at about 28 days
 - Becomes the “routine” dosage for Masters Athlete to maintain optimal levels
 - Creatine Hydrochloride – a good option, but more expensive
 - 3.5 grams per day suggested, no research available on when the optimal amount is reached
- Newer Research showing a strong connection to improved cognitive/brain activity
 - Creatine not just for muscles anymore!

Summary

- Research vs. Marketing
 - Proven capabilities vs. the “Next Big Thing”
- Protein, Creatine, and Recovery
 - A well-maintained supply of protein – in whatever form (meat, BCAAs, collagen) for MPS
 - A well-maintained supply of creatine for supporting the 3 energy systems (especially PCr)
 - Both continue after the day’s activities to support the rebuilding/recovery of the body
- Meals vs. Calories
 - The “4 meals” eating plan doesn’t necessarily mean a lot of calories being eaten
 - “Spread throughout the day”, however, means that eating plans involving IF won’t work
- My Eating Plan
 - 7-day average calories in = 2,111 (so far, today is not yet done eating); target is 2,300
 - Protein intake = 129 grams/day (target is 136 g/d; I’ll get another 80 grams or so today)
 - Carbs = 197 g/d (target is 260 g/d, I’ve been a bit light this week)
 - Fats = 84 g/d (target is 55 g/d, but I go higher to support my weightlifting)
 - If I hit all targets (except for fats, where I’ll go higher), that’s about 2,340 cals
 - Where I am on this 7-day average = 2,060 (but still have 2 meals to consume)

Wrap-up (1)

- My Eating Plan

- 7-day average calories in = 2,287 (so far, today is not yet done eating); target is 2,300
 - Protein intake = 136 grams/day (target is 136 g/d; this has been a good week!)
 - Carbs = 220 g/d (target is 260 g/d, I've been a bit light this week)
 - Fats = 93 g/d (target is 55 g/d based on that DRI ~15%, but I go higher to support my weightlifting / joints)
 - If I hit all targets (except for fats, where I'll go higher), that's about 2,340 cal
- "Lifting" days start with a large mug of coffee and adds 5 grams of creatine monohydrate and 20 grams of collagen peptide powder (good for 18 grams of protein)
- "Breakfast" generally about 45 minutes later, typically 3 eggs scrambled, some whole wheat toast and butter, and a cup of fresh orange juice (20g protein, 60g carbs, and 40g fat)
- Mid-morning, a "meal" composed of my pre-workout drink, another drink during the lifting session, and a post-workout/recovery drink composed of BCAA's, creatine, and other supplements (see comments re: "marketing") (40g protein (could be more, but this is the best BCAA model equivalent), 14g carbs, and no fat)
- Afternoon "lunch" will be a chef's salad and a protein shake (50g protein, 20g carbs, 6.3g fat)
- Supper is some meat entrée, veggies, some rice or potato, dessert (*I must have chocolate*) (40g protein, 67g carbs, 62g fat)

Wrap-up (2)

- On-water Training days start the same - large mug of coffee and adds 5 grams of creatine monohydrate and 20 grams of collagen peptide powder (18g protein)
 - If rowing in the morning, I'll make an electrolyte shake with a protein powder to take to the boathouse (60g protein, 15g carbs, no fat)
 - "Breakfast" goes light and is taken late, typically a cup of granola raisin bran, whole milk, and a cup of fresh orange juice (11g protein, 69g carbs, and 10g fat)
 - Supper is some meat entrée, veggies, some rice or potato, dessert (*I must have chocolate*) (40g protein, 67g carbs, 62g fat)

 - If rowing in the afternoon, "breakfast" looks more like a "lifting day" meal, the electrolyte/protein shake goes with me to the boathouse, no lunch but maybe a light snack of cheese and crackers after rowing, and then a late supper where I'll skip the starchy carb.
 - I am typically light on calories intake and short on macros on these days, mostly due to being very tired and not hungry from rowing in the heat (usually around 1800 cals, 115g protein, 200g carbs, 50g fat)
- These "meals" support my lifting and rowing, aid in recovery, keep me working on becoming a Masters Rowing Athlete!