dotFIT Masterclass

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Part 2 –Maximizing Muscle Growth While Minimizing Fat Gain

dotFIT GROW STRONG.

Content to be Presented

- Expected Rates of Muscle Gain
- Nutritional Strategies
  - Calories
  - Macronutrients
  - Nutrient Timing
  - Pre-Sleep Protein
  - Intermittent Fasting
  - Anabolic Resistance of Aging
- Evidence Based Supplements
  - Acute vs Chronic
- Monitoring & Adjustments

Expected Rates of Muscle Gain

- Influenced by:
  - Age
  - Training status
  - Training frequency, volume, intensity
- Beginner and younger lifters gain muscle at a faster rate than advanced lifters
  - Males ½ to 1 pound per week
  - Females ¼ to ½ pound per week
- Advanced lifters
  - 0.25% of body weight per week

The Gainz Ceiling

The “Age Experience Intersection” is the Final Plateau

The final muscle gain/performance plateau is the inevitable age-related performance and size decline that depends on when you started serious training and how long you’ve been doing everything “perfect”

Once you have approached the "age experience" intersection* of training, the only thing you can do is slow the inevitable size/performance decline by doing all the right things (e.g. diet, supplements, training, rest, etc.).

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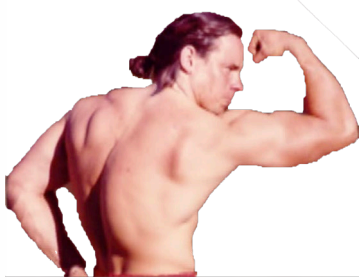


30

40

50

68+

Novices at any age can put on muscle relatively quick but combination of age and experience significantly slows the pace over time – proper nutrition can fast track (greater gains in each decade) and extend the gains (longer competitive potential), prolonging the inevitable

20 → 40

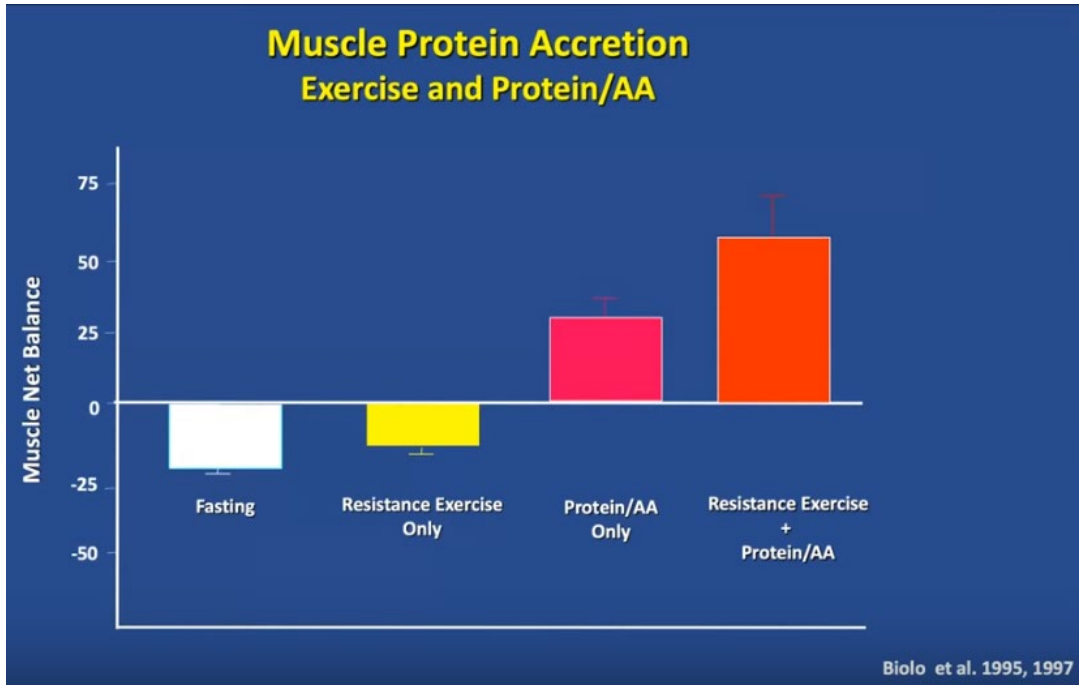
55

60+

By the way – the brain is different – it has the potential to keep going

Components of an Ideal Gainz Program

- Progressive Resistance Training
  - Specific to your experience, ability, anatomy and movement patterns
  - Sets the stage for growth
- Tailored Nutrition Plan
  - Appropriate calories, optimal protein, adequate fats and carbs, ideal timing and frequency of meals, proven supplement strategies
  - Makes the movie
- Regular monitoring + adjustments
- Adequate sleep + stress management



Calories

Surplus is needed to optimize gainz

- Males: 250-500 calories
- Females: 125-250 calories

Adjust weekly based on measurements

- Enter measurements in dotFIT Program to get options for adjustments

Protein Amount & Timing

To Optimize Muscle Gain:

- 1 gram per pound of lean body mass per day OR body weight if not overweight
- Spread evenly across 4-6 meals
- Pre and post exercise within 1-2 hours

  Iraki et al., 2019

- Greater amounts up to 2.0 g/lb. of body weight did not contribute to greater gains in lean body mass but did enhance fat loss

  Antonio et al., 2014

Example: 170 lb. male, 12% body fat

- 150 – 170 grams of protein per day
- Low end: 4 meals, 38 grams
- High end: 6 meals, 28 grams

Protein Timing: Pre-sleep?

Two Research Studies Have Been Conducted:

- Nighttime casein group vs. daytime casein group
- Total daily protein intakes were matched
- Resistance trained during the day
- No differences in strength or muscle gain
  - Joy et al., 2018 (10 weeks, 13 males, protein 0.8 g/lb/d)
  - Antonio et al., 2019 (8 weeks, 26 males and females, protein 1.1 g/lb/d)

Protein Quality

- Higher quality sources with all essential amino acids (EAA) + adequate leucine are ideal
  - Required to stimulate Muscle Protein Synthesis (MPS)
- Animal sources have all 9 EAA
- Plant sources (except soy) lack at least one EAA; need a variety

Protein Source	PDCAA	PER
Whey	1.0	3.0-3.2
Casein	1.0	2.9
Milk	1.0	2.8
Egg	1.0	2.8
Soy	1.0	1.8-2.3
Beef, Poultry, Fish	0.8-0.92	2.0-2.3
Pea	0.8-0.9	1.5
Wheat	0.43	1.5
Gelatin (Collagen)	0.08	-

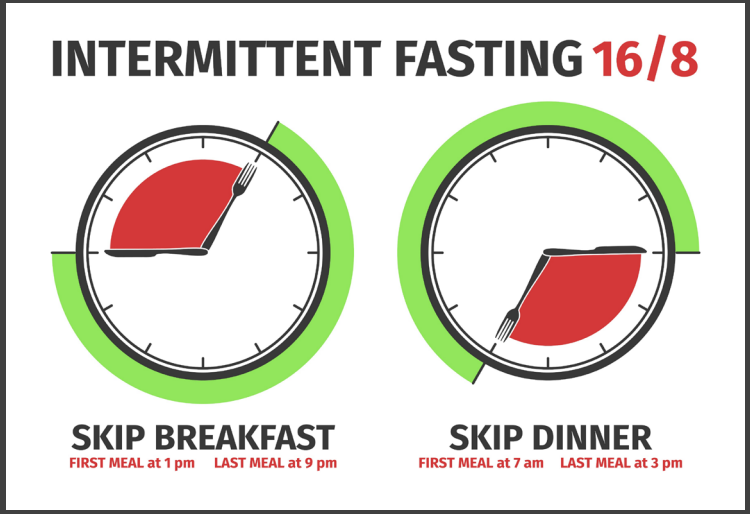
Macronutrients - Fats

- Daily Amounts:
  - 0.2 to 0.7g /lb of body weight
  - 20-35% of total calories
- Lower amounts have been shown to modestly reduce testosterone levels
- Include sufficient marine sources of omega-3 fats (EPA+DHA)
  - Fatty fish (at least 8 ounces/week)
  - Algae for vegans

Macronutrients - Carbohydrates

- Main muscle fuel source for training hard
  - <25% of calories significantly reduces exercise performance due to low glycogen stores
    - Lima-Silva et al., 2013
  - Long term negative effects on muscle mass observed with ketogenic diets
    - Varga et al., 2018; Greene et al., 2018
- Delivers micronutrients, fiber; regulates thyroid hormones
- Daily Amounts:
  - ~1.4-2.3 g/lb of body weight
  - Mostly minimally processed foods

Intermittent Fasting & Impact on Lean Body Mass



- Systematic Review & Meta-Analysis of 8 Human Trials
  - Intermittent fasting + resistance training in sedentary and trained individuals on lean body mass
  - 4-8 weeks long
  - Ramadan or Time Restricted Feeding
  - No control group to compare regular, spread out meals to
  - 4 studies showed increase in LBM

- Conclusion:
  - Time restricted eating + resistance training does not impair lean body mass
- Considerations:
  - Preserving muscle vs. optimizing gainz
  - Other fasting protocols weren't studied
  - Long term impact?

Keenan, *Nutrients* 2020

Dietary Support

Table 3 Summary of categorization of dietary supplements based on available literature

Category	Muscle building supplements	Performance enhancement
I. Strong Evidence to Support Efficacy and Apparently Safe	• HMB • Creatine monohydrate • Essential amino acids (EAA) • Protein	• β-alanine • Caffeine • Carbohydrate • Creatine Monohydrate • Sodium Bicarbonate • Sodium Phosphate • Water and Sports Drinks
II. Limited or Mixed Evidence to Support Efficacy	• Adenosine-5′-Triphosphate (ATP) • Branched-chain amino acids (BCAA) • Phosphatidic acid	• L-Alanyl-L-Glutamate • Arachidonic acid • Branched-chain amino acids (BCAA) • Citrulline • Essential amino acids (EAA) • Glycerol • HMB • Nitrates • Post-exercise carbohydrate and protein • Quercetin • Taurine
III. Little to No Evidence to Support Efficacy and/or Safety	• Agmatine sulfate • Alpha-ketoglutarate • Arginine • Boron • Chromium • Conjugated linoleic acids (CLA) • D-Aspartic acid • Ecdysterones • Fenugreek extract	• Arginine • Carnitine • Glutamine • Inosine • Medium-chain triglycerides (MCT) • Ribose

Kerksick et al., International Society of Sports Nutrition, 2018

Use Evidence Based Supplements Shown to be Safe and Effective

www.dotFIT.com/PDSRG

Dietary Support

Use third party tested products

www.dotFIT.com/NSF

Consumers Unknowingly Buy Ineffective & Harmful Products

- Food & Drug Administration (FDA) inspected 598 supplement manufacturing facilities in Fiscal Year 2019
  - Over 50% issued violations of current Good Manufacturing Practices
  - Most common issue was related to quality control
- FDA maintains a database of 965+ dietary supplements with “hidden ingredients” including:
  - steroids, prescription medications and illegal drugs

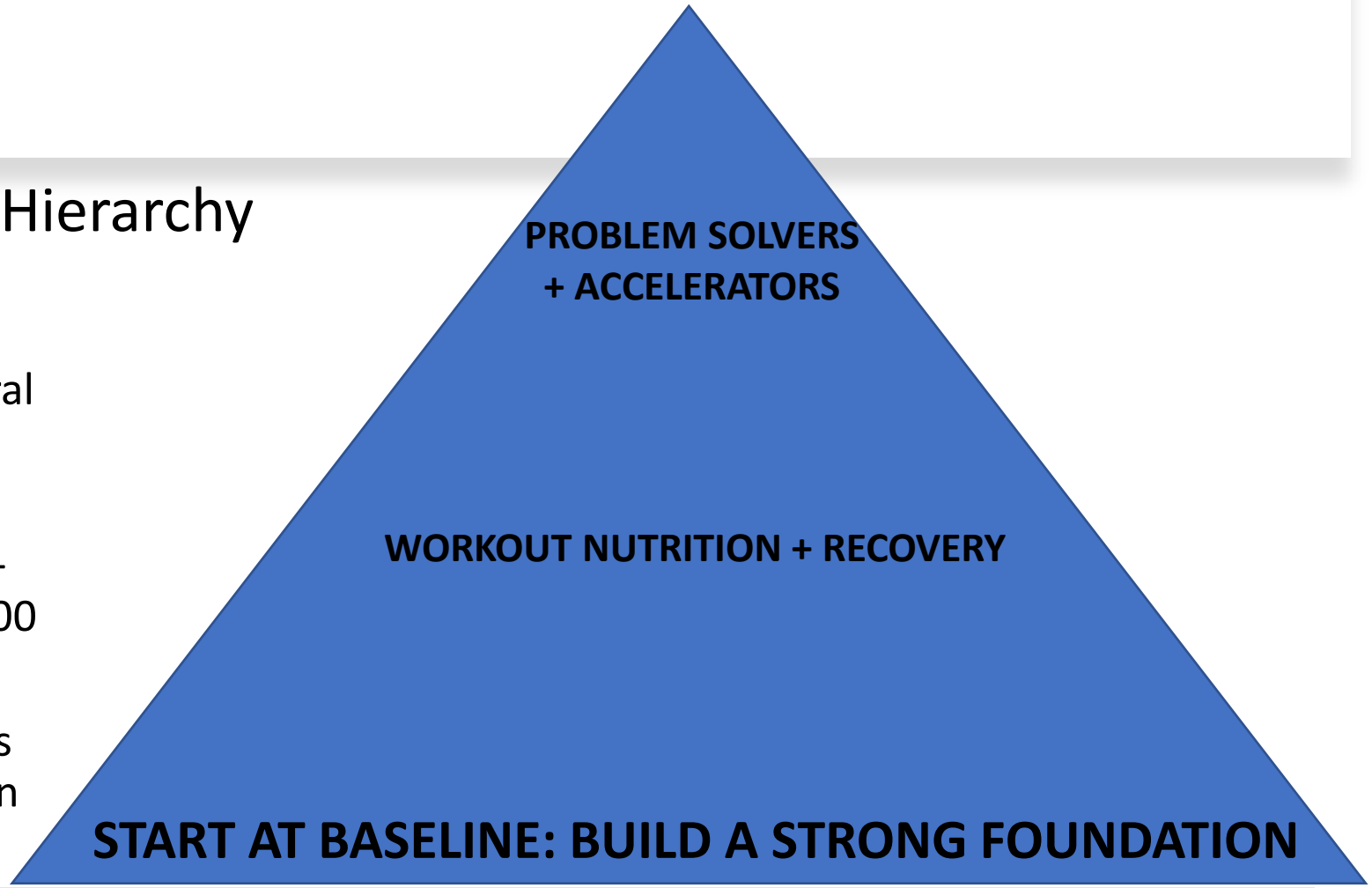
Source: Natural Products Insider, 2019

Guidelines for Proper Supplementation

Follow the Supplement Hierarchy

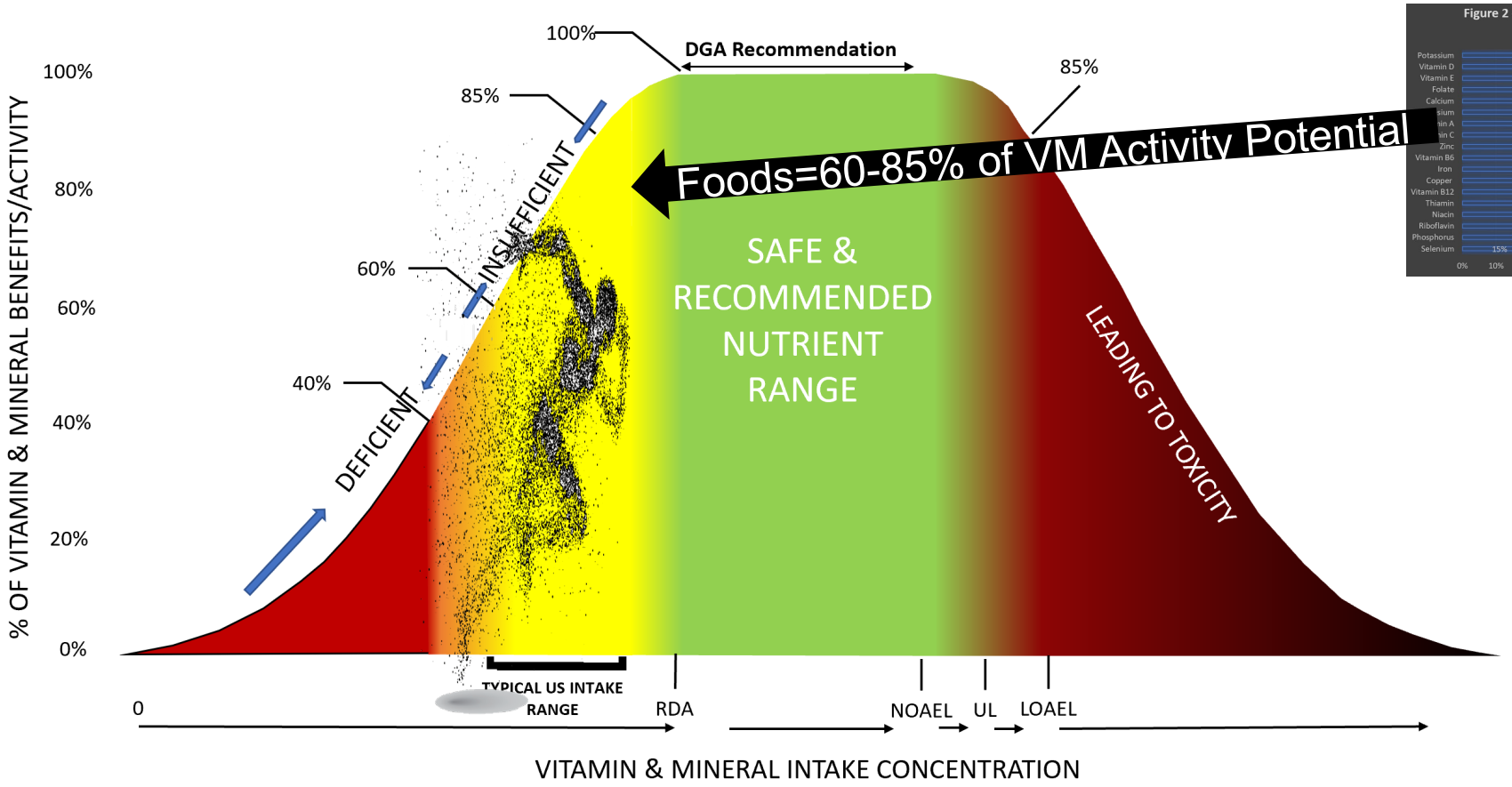
Baseline Supplements:

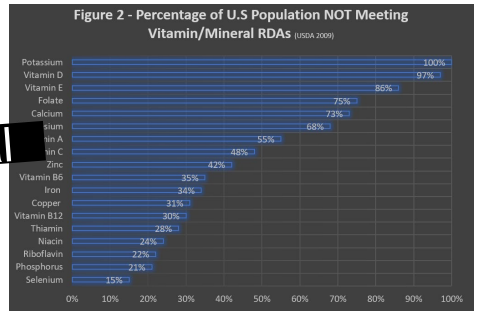
- Targeted Multivitamin & Mineral with Vitamin D to fill micronutrient gaps
- Omega-3 Fish Oils (DHA+EPA) + Calcium if diet falls short (<1,000 mg/d)
- Protein to meet optimal targets and ideal timing for muscle gain



No One Knows if They're Near a Deficiency & Most Are in or Have Been in an Insufficiency:

WHY: ***Undetectable starting point with an insidious progression that physically manifests as sickness/injury later in life/career or early aging***





Vitamins and minerals (VM) from food is what the body gets - GAP - VM RDAs is what it can use to maximize short & long-term health

GOAL: CORRECT FOOD VM CONTENT TO ACHIEVE RDAs

Prevention Before Cure Or Fix Approach

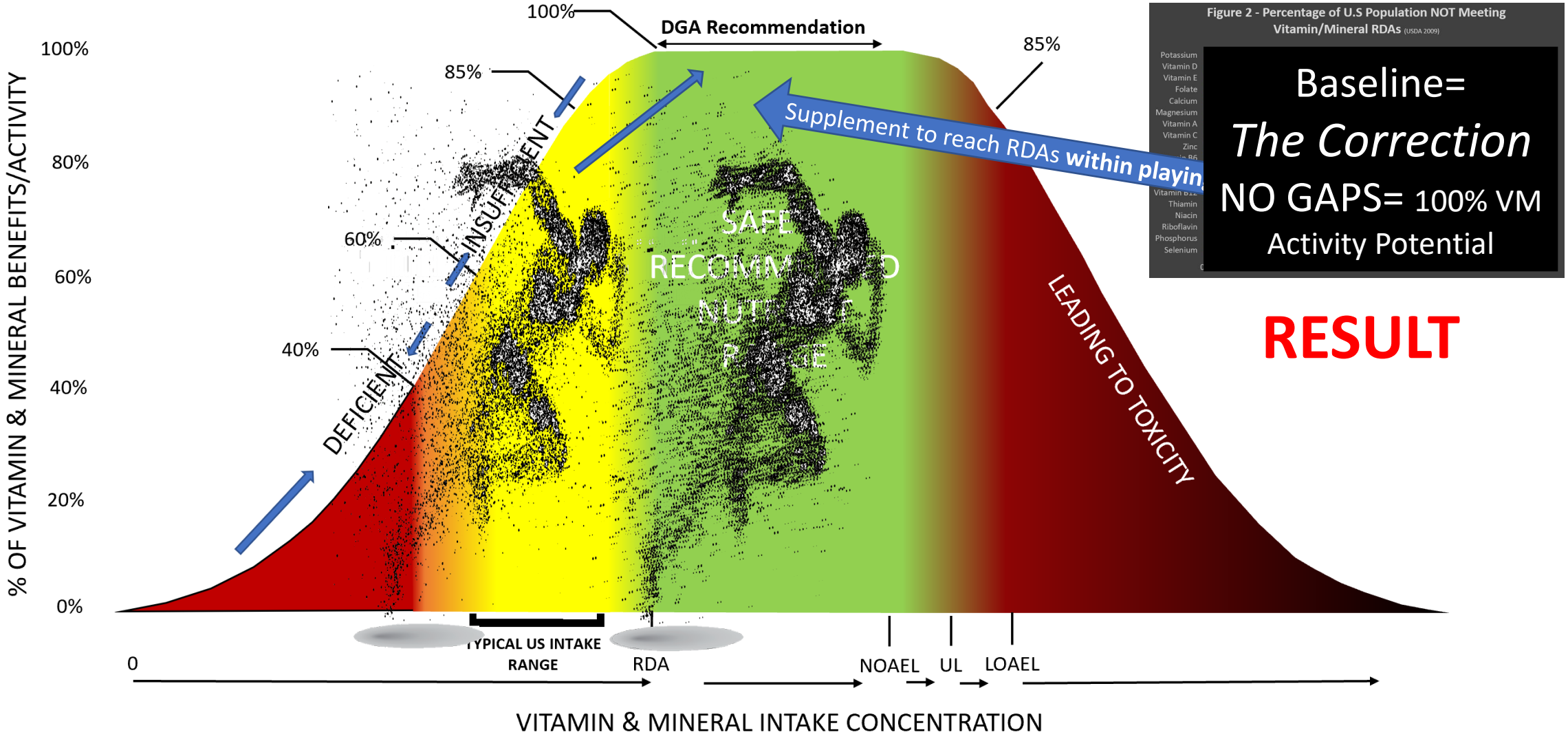


Figure 2 - Percentage of U.S Population NOT Meeting Vitamin/Mineral RDAs (USDA 2009)

Potassium
Vitamin D
Vitamin E
Folate
Calcium
Magnesium
Vitamin A
Vitamin C
Zinc
Thiamin
Niacin
Riboflavin
Phosphorus
Selenium

Baseline=

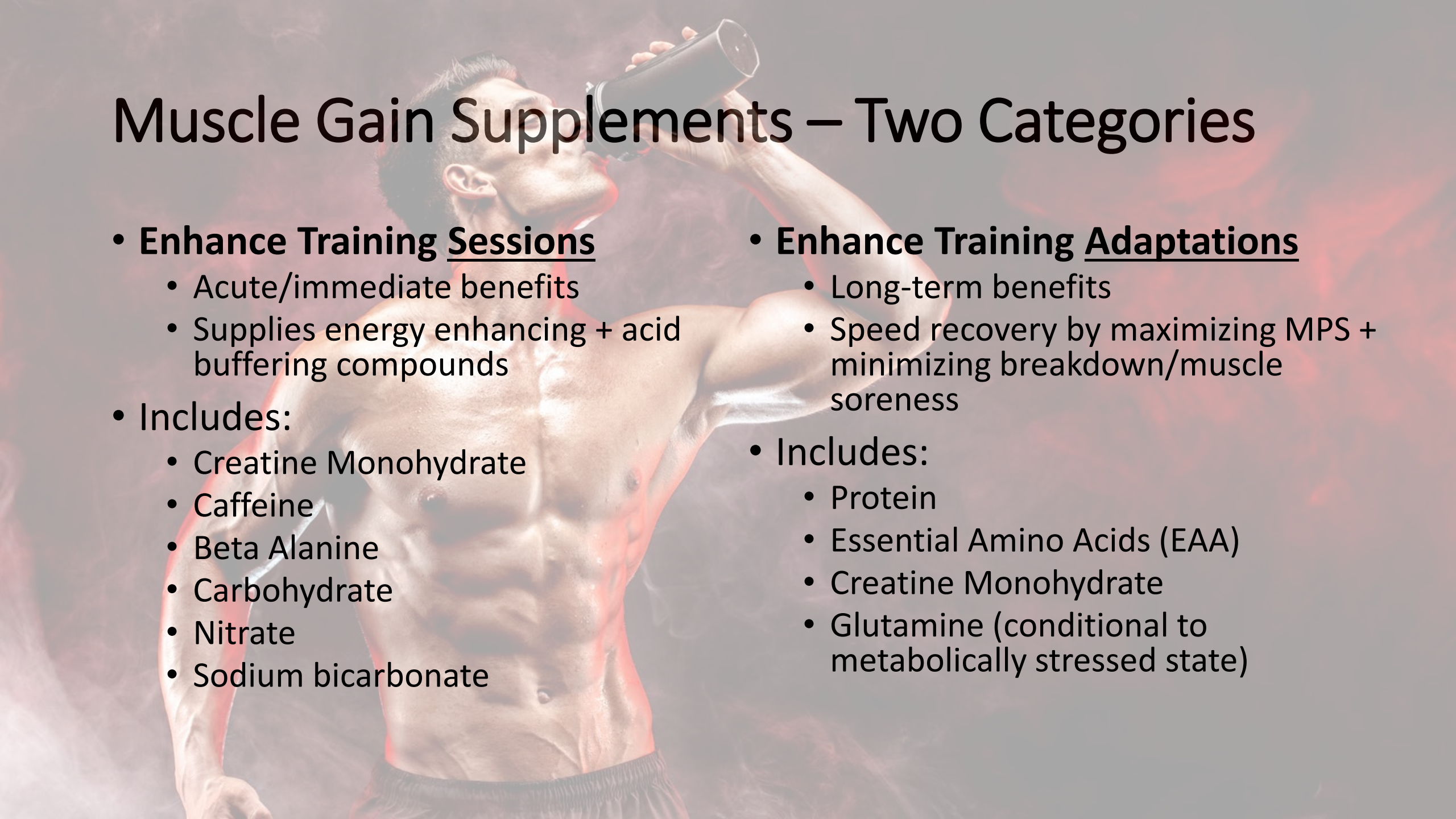
The Correction

NO GAPS= 100% VM Activity Potential

RESULT

The function of lifelong inexpensive low dose COMPLETE MVM (~20 vitamins and minerals) is to offer the potential for all VM dependent systems to operate at full capacity in the creation & maintenance of human structure, function, health & recovery

Muscle Gain Supplements – Two Categories



- **Enhance Training <u>Sessions</u>**
  - Acute/immediate benefits
  - Supplies energy enhancing + acid buffering compounds
- Includes:
  - Creatine Monohydrate
  - Caffeine
  - Beta Alanine
  - Carbohydrate
  - Nitrate
  - Sodium bicarbonate

- **Enhance Training <u>Adaptations</u>**
  - Long-term benefits
  - Speed recovery by maximizing MPS + minimizing breakdown/muscle soreness
- Includes:
  - Protein
  - Essential Amino Acids (EAA)
  - Creatine Monohydrate
  - Glutamine (conditional to metabolically stressed state)

Creatine Monohydrate

- Naturally occurring compound. Made in the body from amino acids. Stored in muscle, brain
- Very well studied in a wide range of age groups + clinical populations
- Most effective strength, performance and muscle building supplement to date
- Safe and cost effective
- Facilitates recovery

How to take:

- Slow loading: 3-5 g/day for 28 days + ~5-10 g/day maintenance dose (loading by weight: 0.14 g per pound/day + maintenance by weight: .014-.04 g/lb./day)
- Fast loading: 5 g, 4 times/day for 5 days + ~5-10 g/day maintenance dose (by weight: .014-.04 g/day)

Example: 170 lb. athlete @ 2 mg/lb. – 340 mg dose

Supplements to Train Harder - Caffeine

Response varies but well researched:

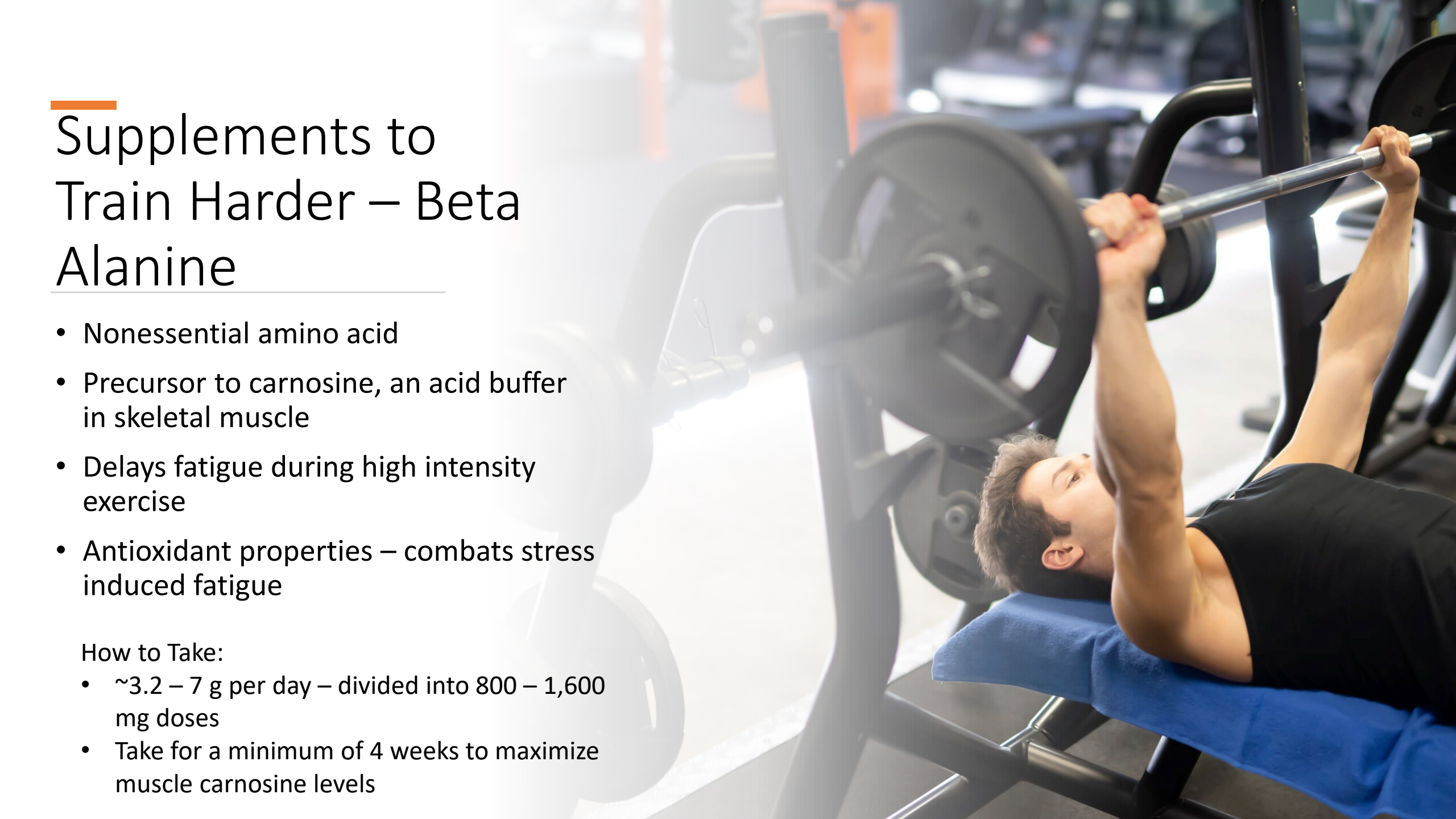
- Improves high intensity performance – power lifting, strength training, bodybuilding
  - Boosts mental alertness
  - Combats fatigue
  - Reduces perceived effort level of exercise
  - Increases fat utilization during exercise; spares muscle glycogen
  - Does not cause dehydration
- Greater performance benefit in the anhydrous state vs. coffee
  - 1.4-2.7 mg/lb. of body weight

Supplements to Train Harder – Beta Alanine

- Nonessential amino acid
- Precursor to carnosine, an acid buffer in skeletal muscle
- Delays fatigue during high intensity exercise
- Antioxidant properties – combats stress induced fatigue

How to Take:

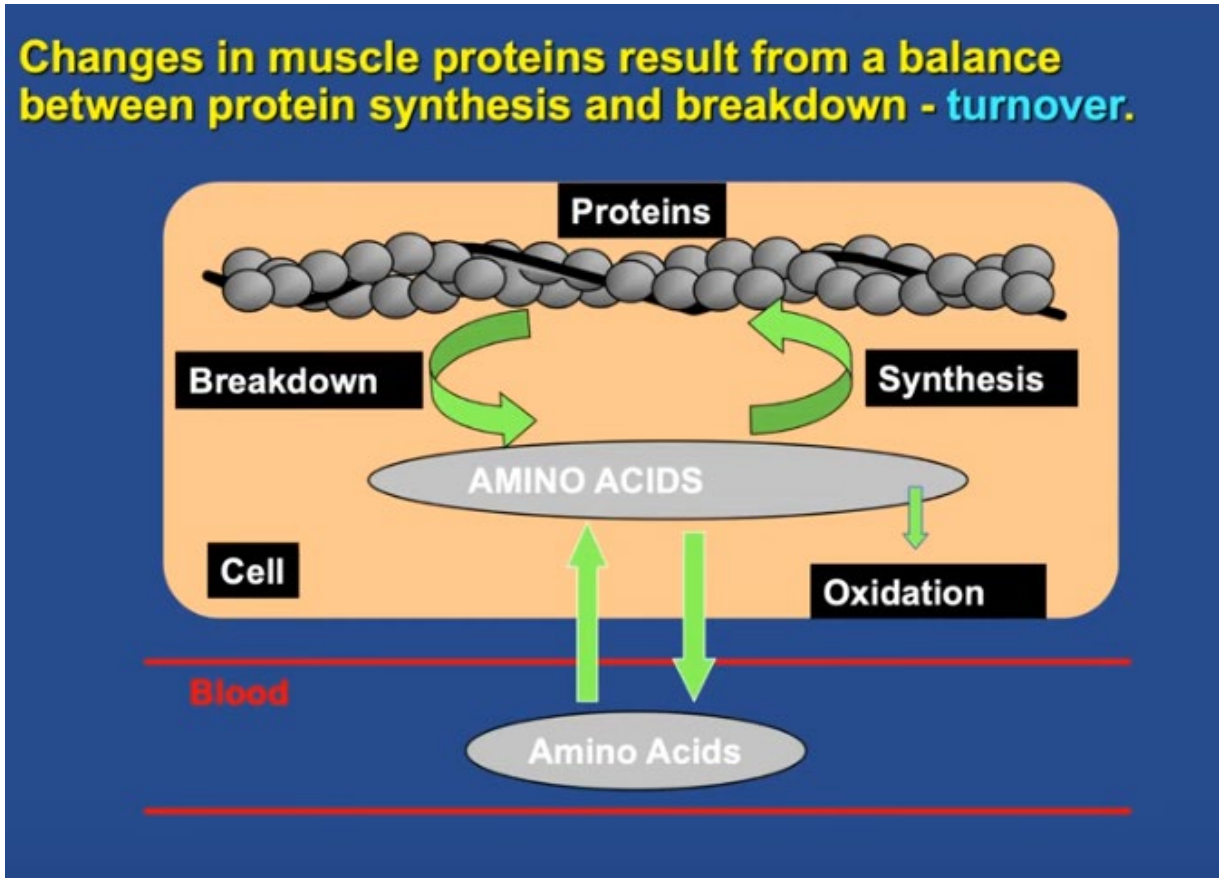
- ~3.2 – 7 g per day – divided into 800 – 1,600 mg doses
- Take for a minimum of 4 weeks to maximize muscle carnosine levels



Supplements for Maximizing Training Adaptations

Essential Amino Acids (EAA)

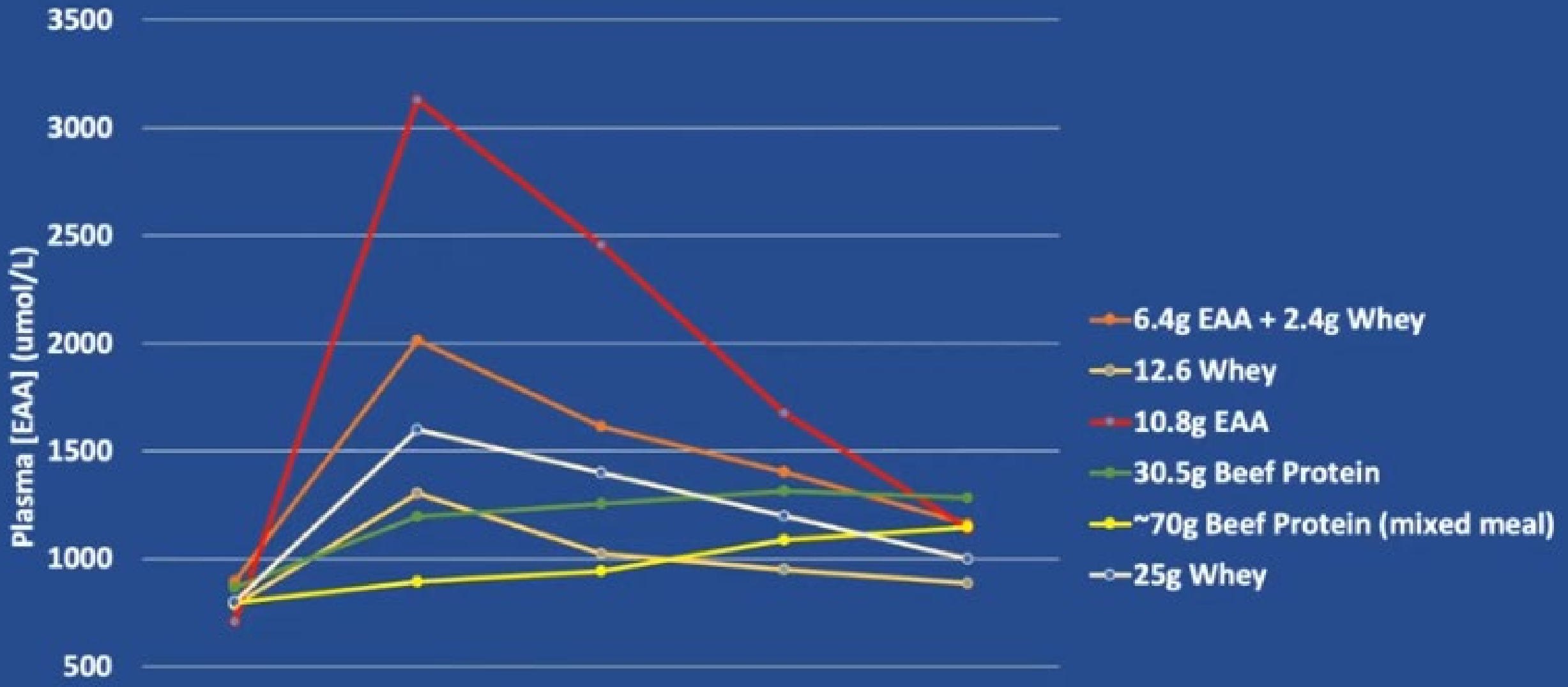
- 10-12 grams maximizes muscle protein synthesis (MPS)
- Activates new muscle growth
- Decreases soreness and markers of muscle damage
- Maintenance of high-quality training bouts



Muscle Protein Synthesis /Turnover

- Gainz occur when muscle protein synthesis (MPS) is greater than muscle breakdown
- Stimulated by essential amino acids in the blood + adequate leucine

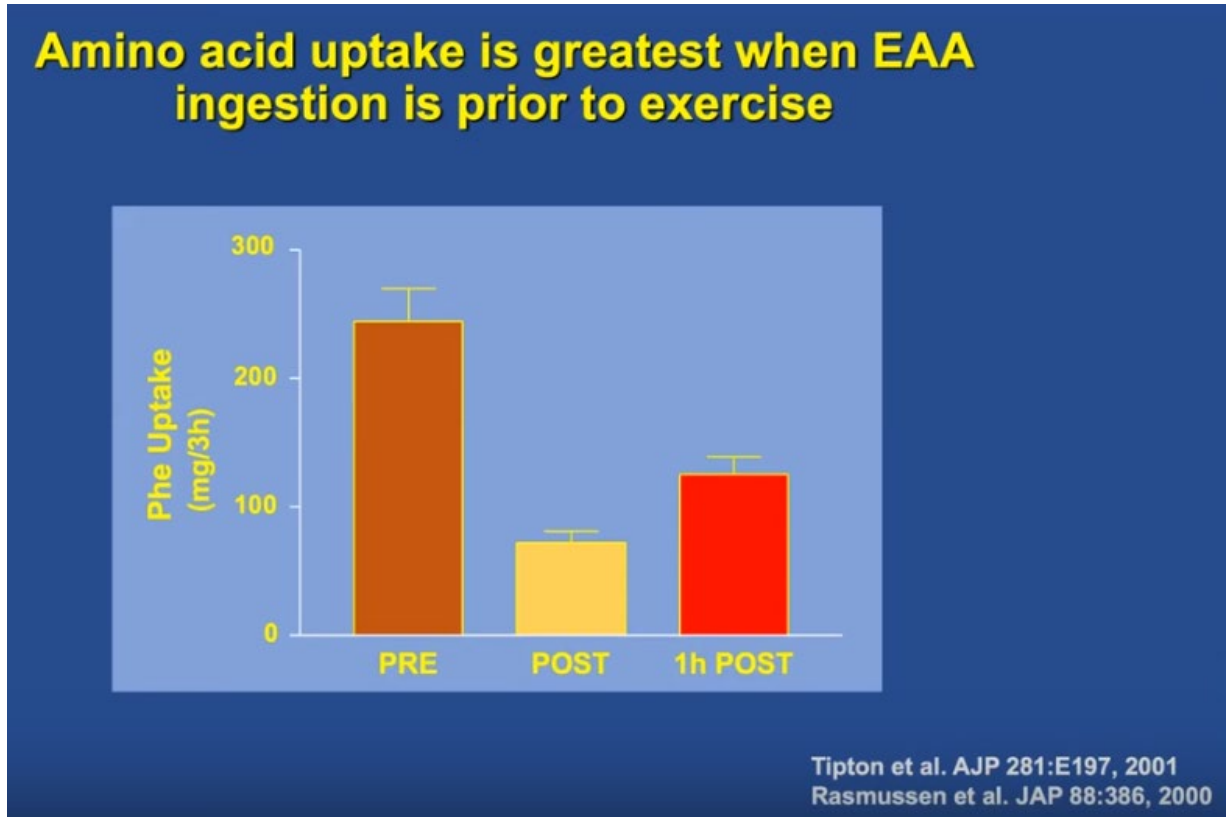
EAA Peripheral Response to Various Intake Sources

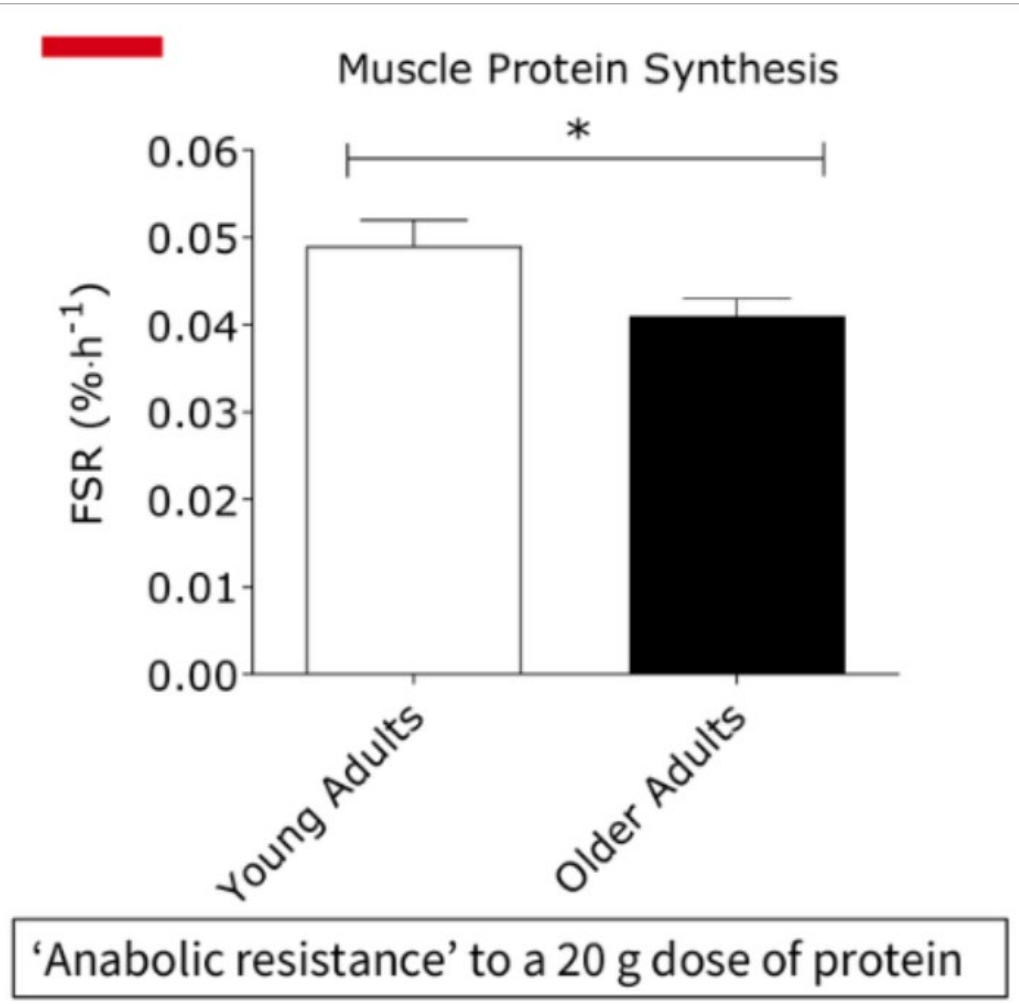


Ferrando, A. ISSN Conference 2020

Supplements for Training Adaptions - Essential Amino Acids (EAA)

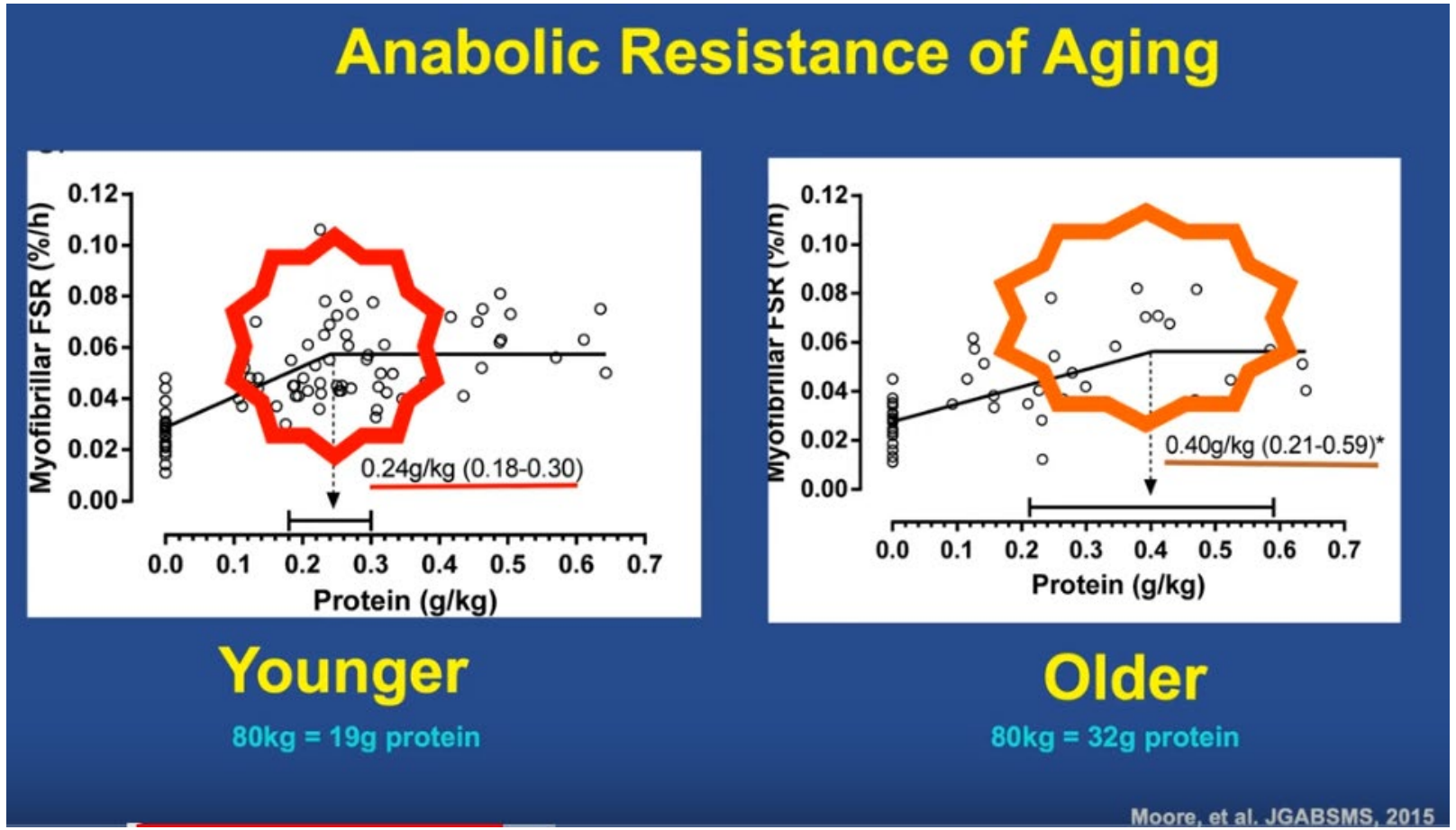
- Free form amino acids require very little digestion
- The more rapid the rise in EAA in the blood, the greater the MPS response





Anabolic Resistance of Aging

- Older adults do not respond similarly to equal amounts of protein when compared to younger adults



Aging Increases Protein Requirements for Gainz

- Older adults required 13 more grams of protein to get the same MPS response.
- EAAs lessens the gastric load for older people and are more rapidly absorbed

Adult Gainz & Performance Stack 1: AminoBoostXXL + Creatine Monohydrate + ExtremeCreatineXXXL

Week	AminoBoostXXL (workout days only)	CreatineMonohydrate*	ExtremeCreatineXXXL**
1	• 1.5 scoops 10 minutes before workout • 1 scoop immediately after workout		
2	• 1.5 scoops 10 minutes before workout • 1 scoop immediately after workout	Loading phase: • 1 scoop with 4-8 oz. of fluid and carbohydrate containing meal/drink 4 times a day for first 5 days (20 g/day total) • 2 of the servings to be taken before and after workouts After first 5 days: • 1 scoop daily with post workout shake (FirstString or Pre/Post Workout shake) • 1 scoop with a meal on non-workout days	Begin on 6th day: • Workout days o 1 scoop with pre-workout meal (~2-3 hours prior to workout) or with shake for early morning workouts o 1 scoop with any other meal or shake when not taking CreatineMonohydrate • Non-workout days o 1 scoop with morning meal or shake and 1 scoop with evening meal or shake, separate from meals with CreatineMonohydrate for even distribution
3 and beyond	• 1.5 scoops 10 minutes before workout • 1 scoop immediately after workout	Workout days: • 1 scoop with post-workout shake Non-workout days to maintain stores: • 1 scoop with a meal on non-training days	• Workout days o 1 scoop with pre-workout meal (~2-3 hours prior to workout) or shake for early morning workouts o 1 scoop with any other meal or shake when not taking CreatineMonohydrate • Non-workout days o 1 scoop with morning meal or shake and 1 scoop with evening meal separate from meals with CreatineMonohydrate

Supplement Resources

Muscle Gain Stacks at www.dotFIT.com/stacks

Component 4 – Monitoring + Adjustments

- Weigh/measure in the same clothing, same time of day, same scale using the same methods (skin calipers preferred).
- If necessary, only adjust calories in or out every seven days

Summary – Ideal Nutrition Gainz Program

Nutrition Plan - Set up Your dotFIT Program for Muscle Gain and See Sample Menus	
Calories	5-20% above maintenance Adjust every 7 days if needed based on measurements
Protein	1.0 gram per pound of LBM or body weight split evenly across 4-6 meals + pre/post within 1-2 hours of exercise
Fat	~0.2 to 0.7g /lb. of body weight per day (20-35% of total calories)
Carbs	~1.4-2.3 g/lb. of body weight per day
Baseline/Foundational Supplements	• Targeted Multivitamin & Mineral with Vitamin D • Omega-3 Fish Oils (EPA+DHA) if diet falls short of 8.5 ounces of fatty fish/week • Calcium if diet falls short of 1,000-1,300 mg/day • Protein to help meet daily targets + optimize timing
Supplements to Enhance Training Sessions	• Creatine Monohydrate (loading by weight: 0.14 g/lb./day 4 times per day for 5 days + maintenance by weight: .014-.04 g/lb./day) • Caffeine (1.4-2.7 mg/lb of body weight) • Beta Alanine (~3.2–7 g per day, divided into 800–1,600 mg doses for 4 weeks minimum)
Supplements to Enhance Training Adaptations	• Protein (full spectrum of EAAs with ~2.5 g of leucine) • Essential Amino Acids (10-12 g) • Creatine Monohydrate (see above for doses by weight)

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