Providence

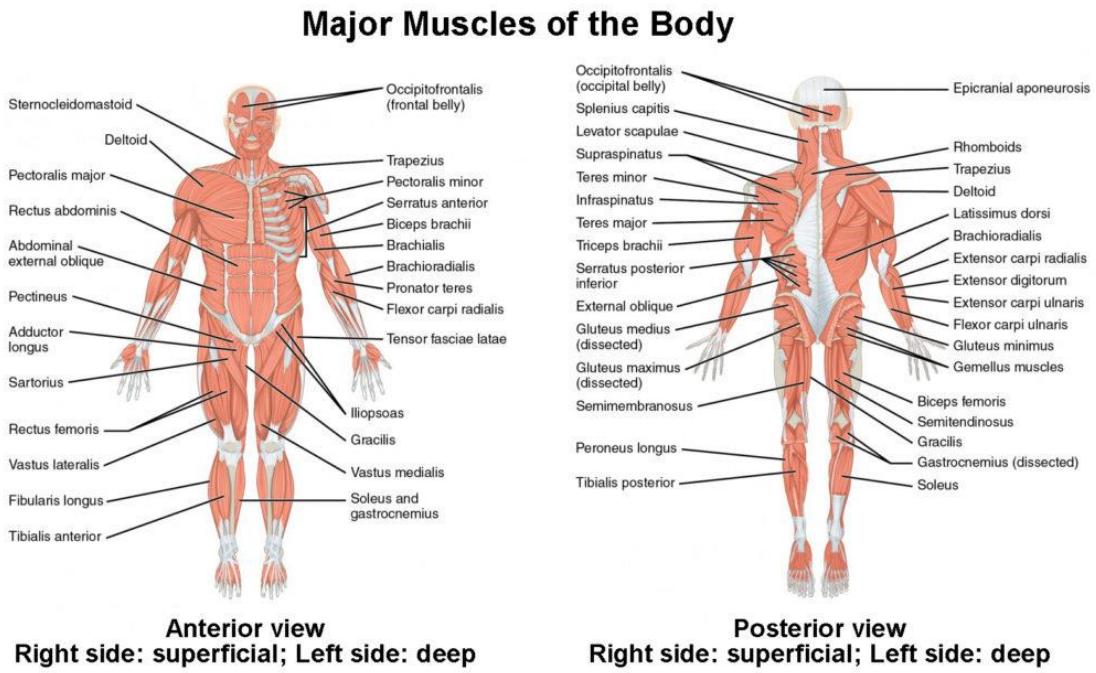
Building Muscle at Any Age

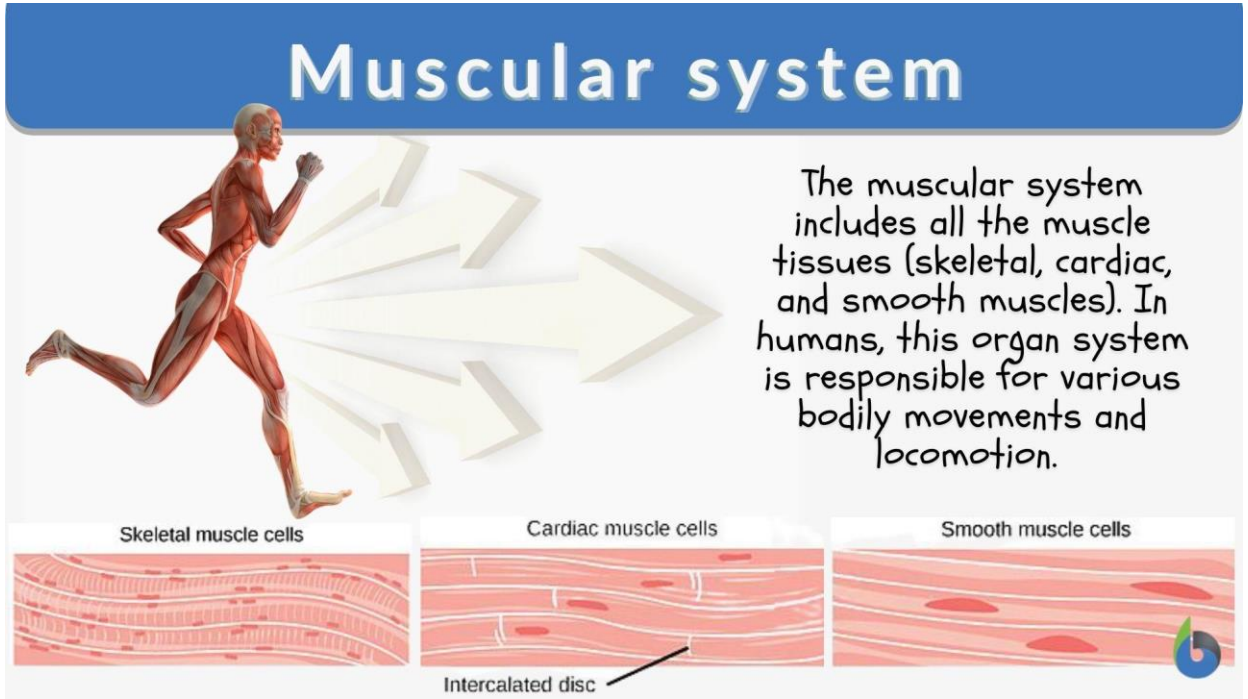
Megan Wroe, MS, RD, CNE, CLEC
Manager, St. Jude Wellness Center

Muscle 101

1. Soft tissue in the body composed of cells that relax and contract, enabling movement.

2. A functional, metabolic and endocrine organ.





Muscle Matters

Functional Benefits

- Posture
- Strength
- Balance/Fall Risk
- Bones/Osteoporosis
- Injury prevention

AKA: “ADLs”

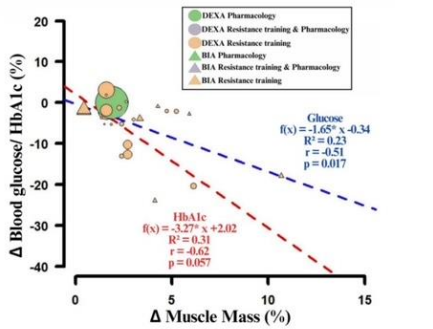
Metabolic Benefits

- Glucose & insulin regulation
- Primary source of fat oxidation
- Energy regulation/mitochondria
- Immune function/recovery
- Metabolic syndrome prevention

Endocrine Benefits

- Increase testosterone
- Mood hormones
- Ghrelin/Hunger hormone
- Triggers BDNF
- Releases myokines

MORE MUSCLE = BETTER METABOLIC HEALTH?



Data from: Havers T *et al. Sports Medicine*, 2025.

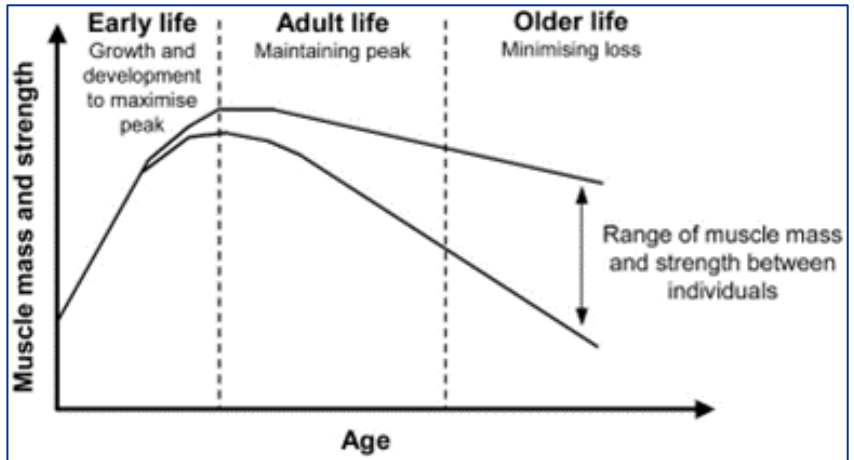
2-3% muscle gain:

- 4% lower fat mass
- 4% drop in A1C
- 5.8% drop in fasting glucose

Providence

Musclespan & Longevity

- **Sarcopenia:** Loss of muscle mass. Impacts 23% of adults over 50, 45% over 65.
  - Linked to frailty, disability and low QOL.
- **Dynapenia:** Loss of strength & power. 19% of adults over 50.
  - Linked to overall mortality.
- **Muscle Mass is Primary Risk Factor for Falls**
  - 1 in 3 adults over 60 fall every year.
  - ¼ of these falls result in fracture.
  - 50% of these fractures never recover.



Muscular Capacity by Age

30s-40s

- Start of muscular loss IF inactive.
  - 1% loss of muscle/year
  - 2-3% loss of strength/year
- Muscle starting to become less responsive to protein.
- Weight accumulation adds to metabolic syndrome risk

50s

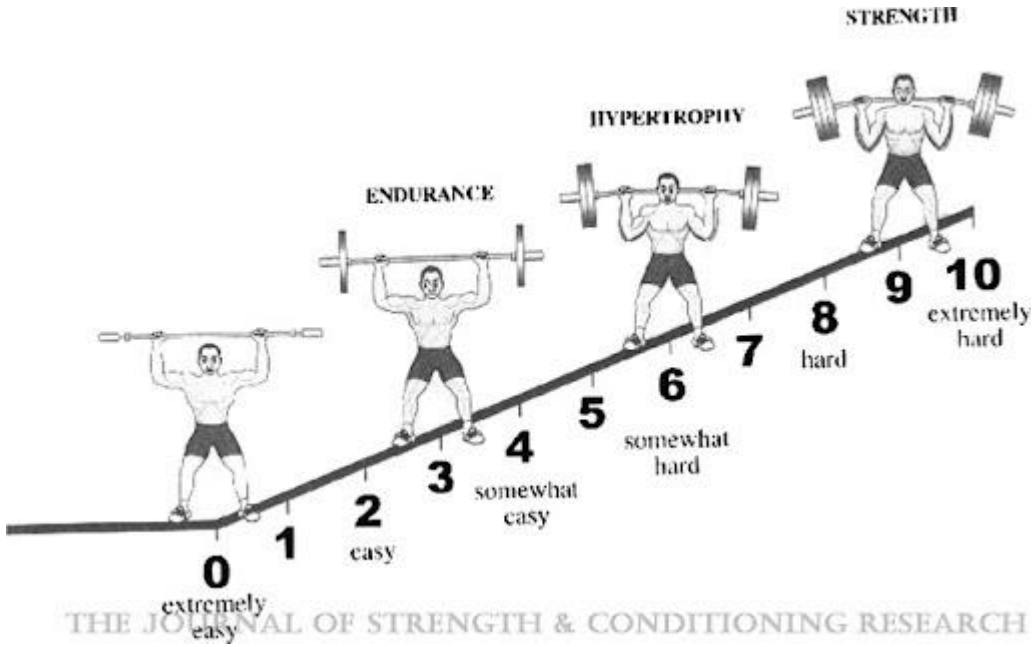
- Muscle loss increase 1-2%/yr
- Muscle begins accumulating more fat.
- Hormonal imbalances:
  - Visceral fat increase
  - Bone loss
  - Risk injury
  - Less hypertrophy

60+

- Risk of falls
- Risk of malnutrition
- Risk of inactivity
- Metabolic risk factors and fatigue may prevent exercise in a vicious cycle.

Resistance Training

Muscles respond to contraction and protein levels.



Goal: 2-4 sessions per week

- Each muscle group 1-2x per week
- Get close to “failure” in each set of 6-12 reps

What Counts

- Hand weights/bands
- Machines
- Body weight

Rotate through formats:

- Grip Strength: hangs, farmers carry, squeeze handles on weights/machines
- Push/Pull: push ups, pull ups, row machine, chest press
- Hip Hinge: squats, lunges, dead lift

Resistance Training

Out of the Box Option: Vibration Plate

- Activate up to 135% more muscle fibers
- Increase blood circulation in just 5 minutes
- Enhance bone density
- Recommendations: 5 minutes 3+ times per week
  - Or do your workout ON the vibration plate for enhanced balance

***8-12 weeks of twice weekly resistance training program for 70-80 years olds saw an average of 3% increase in muscle mass!**

***Resistance training program implemented in senior living communities preserved physical function the SAME as younger populations on same program.**

Providence

A Note on Cardio

- Recommendation of ACSM is **150 minutes per week** (only 75% adults meet this).
- Essential for cardiovascular health, weight management (especially over 50) and overall ADLs, but without significant contraction and load, there can be no MPS.
  - High muscle power is protective of sarcopenia even in presence of elevated weight.
  - Resistance can be added with rucking/weights during cardio.
- Focus on **MINIMUM 2 days resistance training** and add some resistance to cardio in between.

Protein Intake

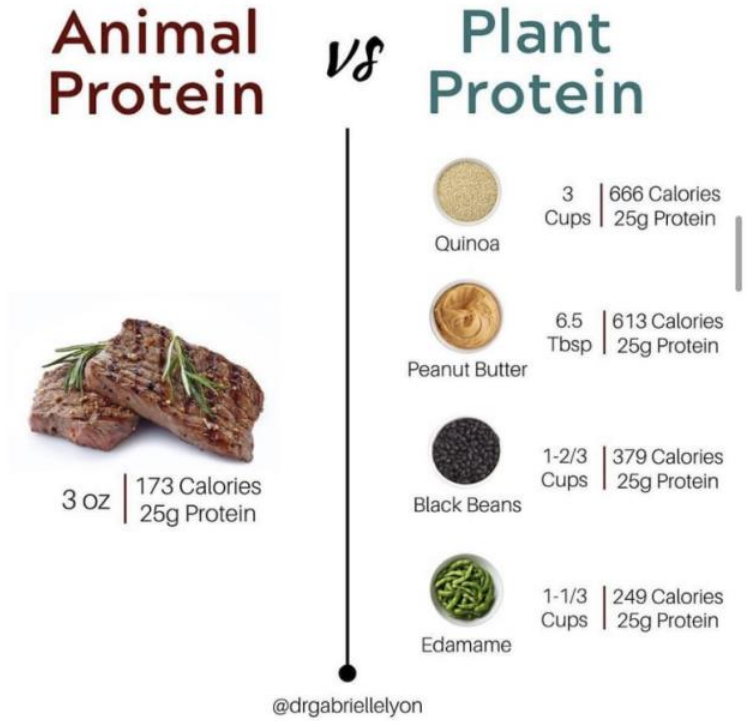
Muscles respond to contraction and protein levels.
(body is more responsive to protein than hormones for MPS with age)

Protein Goals

- Avoid deficiency: 0.8-1.0g/kg/day
- Maximize muscle: 1.2-2.2g/kg/day
  - Range depends on healthy vs. insulin resistant vs. athletic/recovery
  - **Good general guideline: 1g/lb lean mass**

Other Key Points About Protein

- Daily distribution more important than timing or large amounts at once to
- 30-50g per meal
- If having trouble gaining muscle, try 20g protein shake after resistance tr isolate shake before bed.
- If following a strict plant-based diet, likely require 10-20 more grams prot
- Essential amino acids, especially leucine, must be eaten daily.
- Lower calorie intake = greater percentage should be protein



Protein Portions

30g

5oz seafood

1 cup ground meat

4oz poultry or meat

1 cup egg whites

20g

1 cup Greek yogurt

¾ cup cottage cheese

1 cup edamame

1 serving protein powder

15g

½ block tofu

4 Tbls nuts/seeds

¾ cup beans/lentils

1.5 cups milk

2 string cheese

Quick Protein Ideas

Providence

Nutrient Intake

Macro Goals

- 90-130g carb per day is optimal range
  - 25g fiber minimum per day
- Fat = total daily calorie needs – (protein + carbs)
  - 0.7-2.2g/kg/day (30g/day minimum)
  - Emphasize monounsaturated and omega3s

Micro Goals

- Calcium (structure)
- Zinc (chemical reactions)
- Selenium (insufficiency linked with muscle loss and weakness)
- Vitamins D3, C and Bs have significant roles in muscle building and strength

Other Considerations

- Order of operations when eating meals: first fiber, then protein and then carbs.
  - Every 100g protein triggers 60ish g glucose production.
- Have 20g protein before a party or other food-based event.

Supplements Vary

- 5g/day creatine may increase muscle mass & strength, as well as bone mass, **WITH training**.
- 1000IU/day vitamin D3 for muscle metabolism
- 1500mg/day omega3s for anti-inflammatory effect
- BCAAs may be beneficial for those on a vegan diet (dosage varies, up to 12g per day)

Sample High Protein Eating Plans

120 G PROTEIN PER DAY

1 cup Greek yogurt (30 G pro) + 1/2 cup berries (1 G pro) + 1/4 cup granola (6 G pro)

Breakfast: 37 g

2 hard-boiled eggs (12 G pro) + 1/2 cup grapes (0.5 G pro)

Snack: 12.5 g

Chicken wrap (35 G pro) + Side salad (2 G pro) + Apple (0.5 G pro)

Lunch: 37.5 g

Fish tacos (26 G pro) + 1/2 cup black beans (7 G pro)

Dinner: 33 g

HOW TO HIT 120 g of Protein

@sorority.nutritionist

FALL HIGH PROTEIN MEAL PLAN

BREAKFAST - 30 grams

Pumpkin pie smoothie with pumpkin, banana, soy milk, 1 scoop vanilla protein powder & pumpkin pie spice

SNACK - 20 grams

3 oz tuna packet with multigrain crackers

LUNCH - 33 GRAMS

Sweetgreen Harvest Bowl, no toasted almonds

DINNER - 31 grams

3 tacos made with 3.5 oz chicken breast, guac, cojita, mango salsa, slaw, hot sauce

SNACK - 7 grams

1 cup red grapes & 1 string cheese

MEAL IDEAS WITH 30 GRAMS OF PROTEIN

@MARCINEVIN

1 Cup Greek Yogurt
1 T Cocoa Powder
1 T Peanut Butter

1 Scoop Protein Powder
1 T Almond Butter
1 Apple

3/4 Cup Cottage Cheese
2 Slices Ezekiel Bread
1/2 Cup Berries

3 oz Turkey Burger
5 oz Baked Sweet Potato
Lettuce, Tomato
2 oz Avocado

2 Eggs, 2 Egg Whites
1/2 Cup Black Beans
1/2 oz Shredded Cheese
1/4 Cup Salsa

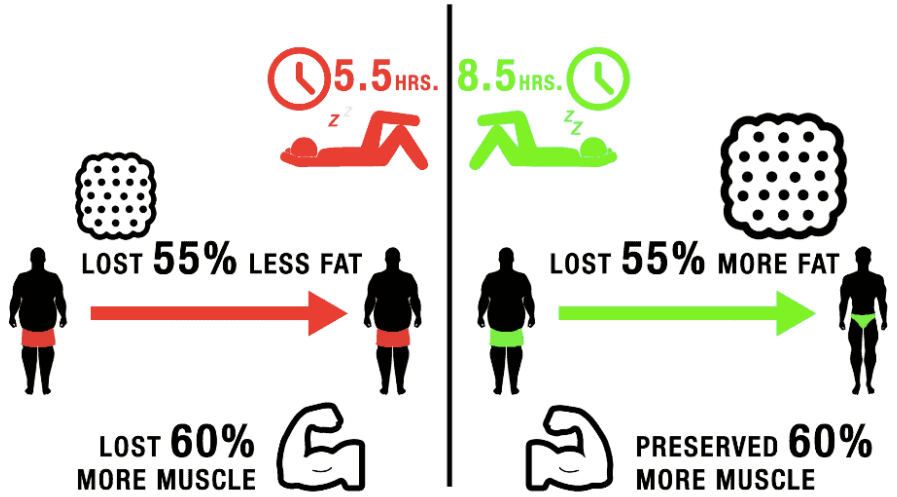
4 oz Salmon
1/2 Cup Quinoa
Roasted Asparagus

Rest

- Rest between exercise sets (1-3 minutes)
- Rest muscle groups between training sessions (1-2 days)
- Growth hormones do most of their work during sleep. The body cleans, detoxifies and processes daily stress & inflammation during sleep.
  - Sleep disorders are strongly correlated with exacerbated muscle loss, even in presence of resistance exercise.

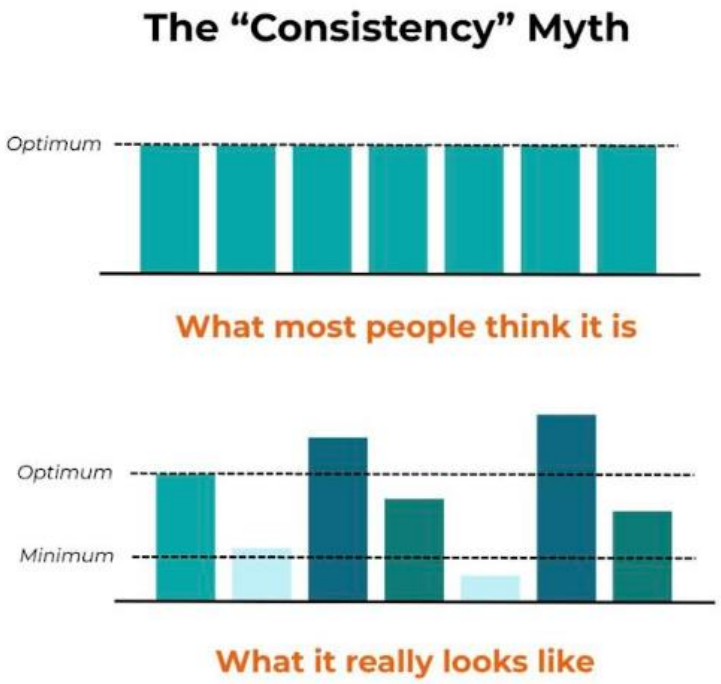
Reminder of Sleep Recommendations

- 7-9 hours high quality sleep



Takeaways for Muscle Mass & Strength

1. **Resistance Training**
   - 2-4 days per week
   - Find your unique program
2. **Protein**
   - 30g/meal
   - 1g/lb lean mass/day
3. **Rest**
   - Between sets & sessions
   - 7-9 hours sleep per night
4. **Consistency**



Coming Up at Wellness!

*__Dietitian-Approved Mini Classes:__ 7/9 & 7/30 at noon, Free
*__Myofascial Level 1:__ 8/9 at 10:30am, $25
*__Nutrition 101 Webinar:__ 8/21 at noon, Free
*__Strength & Muscle Q&A:__ send your questions!

stjudewellnesscenter.org
714-578-8770
stjudewellness@stjoe.org