The Protein Needs of Older Adults

Date: Thursday, June 6, 2013
Time: 2-3 pm Eastern Time (EDT)
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New evidence suggests that the current RDA for protein intake may be inadequate for older adults.

Presented by Sharon Palmer, RD, a contributing editor at ***Today's Dietitian*** and author of ***The Plant-Powered Diet*** and expert Jeannette Beasley, PhD, MPH, RD, assistant professor, department of epidemiology and population health at Albert Einstein College of Medicine in the Bronx, NY, this complimentary one-hour continuing education webinar will discuss the latest on protein requirements, so that you can help your patients stay healthy and fit as they age.

Learning Objectives

At the conclusion of this CE webinar, participating professionals should be able to:

1. To identify the current protein recommendations for older adults.
2. To list 3 physical considerations associated with muscle mass in older adults.
3. To provide 2 assessment criteria related to estimating protein needs in older adults.
4. To create 3 strategies for meeting protein needs for older adults.

Suggested CDR Learning Codes: 2070, 2110, 3005, 3010, 3020, 3030, 3040, 4010, 4030, 4040, 4050, 4060, 4120, 4190, 5010, 5020, 5030, 5040, 5050, 5090, 5100

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But don't worry if you're not among the first 1,000 because ***there's no limit on the number of participants who can listen via telephone*** and follow along with the presentation handouts! Plus, we'll post a **free recorded version** of the presentation as soon as possible to make all the great information presented and the continuing education credit available to all professionals.

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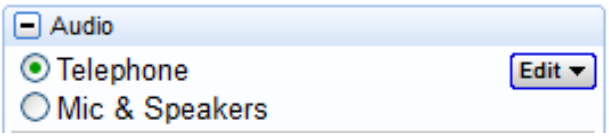

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Sharon Palmer, RD

Jeannette Beasley, PhD, MPH, RD

The Protein Needs of Older Adults

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Learning Library TODAY'S DIETITIAN

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Ripped From The Headlines

Baby boomers don't want to live in older people's homes

Sarcopenia: Are We Doomed to Age-Related Muscle Loss?

Older Athletes Rock

Fitness Stories and Advice from the Masters

Power Play

The search for ways to prevent muscle loss as we age goes to the very fiber of the problem

Image Sources

Center: olderathletesrock.com
Top left: guardian.co.uk
Top right: now.tufts.edu
Bottom left: myathleticlife.com

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"The Graying of America"

- The older population (65+) numbered 41.4 million in 2011, up 18% since 2000.
- One in every eight people in the country is an older American.
- By 65, an average life expectancy of an additional 19.2 years (20.4 for females and 17.8 for males) (US Dept of Health and Human Services Administration on Aging 2012).

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It's a Different World for Older Adults



- Live in a variety of living settings
- Diverse socio-economic backgrounds
- Wide range of health conditions

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Healthy and Active



- Many older adults are active, healthy and productive.
- 40% of non-institutionalized older persons assess their health as excellent or very good.

7

Quality of Life

- Greater focus on good quality of life for older adults
- Goal is to get them back into the community leading full, rich lives

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Nutrition's Role

- Nutrition plays a huge role in maintaining high quality of life for older adults.
- Huge potential for RDs to make a difference.
- In particular, protein plays important role in helping older adults stay active and functional.

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Enter Sarcopenia

- Loss of muscle mass and strength can be part of normal aging, making defining sarcopenia more difficult.
- Growing concern as population of older adults increases.
- Sarcopenia can be a part of normal aging and even occurs in athletes.
- Condition can lead to disability, reduced ability to cope with the stress of a major illness, and even mortality in elderly (Roubenoff 2000).

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What's Sarcopenia?

- Affects 30% of individuals older than 60 and more than 50% of people older than 80 (Alliance for Aging Research 2011).
- Muscle changes start in 30s.
- Defined based on measures of muscle mass, strength, and physical performance.
- Studies indicate muscle mass loss averages 1% to 2% per year in 50 year olds; by 70, an estimated 20% to 40% percent of muscle strength lost (Nair 2005).

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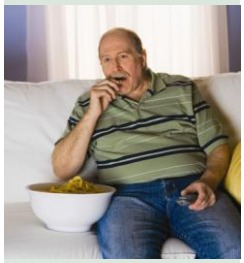
Sarcopenia—A Closer Look



- Sarcopenia is derived from the Greek roots of "sarx" for flesh and "penia" for lack.
- Risk factors for sarcopenia include age, malnutrition, and physical inactivity.
- Definitions of sarcopenia used in research rely on gender-specific cut-off points based on the underlying reference population.

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Sarcopenia—A Closer Look

When applying seven definitions using handgrip strength to assess strength and bioimpedance analysis to assess body composition within a cohort of 674 middle aged participants in the Netherlands, prevalence estimates for sarcopenia ranged from 0-45.2% in men and 0%-25.8% in women (Bijlsma et al 2012).

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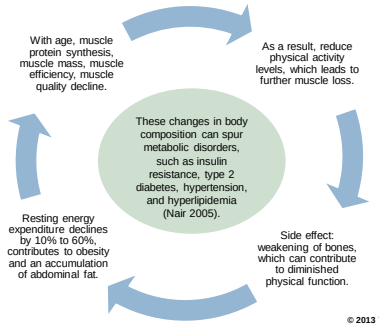
Sarcopenia—a Bitter Cycle



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Sarcopenia—What Can Be Done?

- Aging is associated with a physiological anorexia, decreased protein and energy intake, and weight loss. This is associated with a decline in muscle mass and increased mortality.
- The metabolic efficiency in older persons is decreasing, requiring a higher protein intake for protein synthesis (Morley et al 2010).

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Protein Plays Important Role in Muscle Preservation

- Protein is a macronutrient essential for muscle function; suboptimal intake can result in loss of skeletal muscle mass, impaired physical function, and poor overall health in older adults.
- Recommended Dietary Allowance for protein intake (.8 g protein/kg body weight/day) may not be adequate to support optimal health for older adults (Bernstein et al 2012).

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Position Food & Nutrition for Older Adults, August 2012 Highlights:

Academy of Nutrition and Dietetics

- Physiologic changes and reduced lean body mass during aging leads to decreases in total body protein (functional muscle mass) and contributes to increased frailty, impaired wound healing, decreased immune function with age.
- Short-term nitrogen balance studies indicate protein requirement no different for healthy older adult than for young adult, but moderately greater protein intake may be beneficial to enhance muscle protein anabolism and reduce progressive muscle loss.
- Some experts suggest protein intake of 1.0 to 1.6 g protein/kg of body weight/day safe and adequate to meet needs of healthy older adults.

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Protein Study at University of Arkansas

UNIVERSITY OF ARKANSAS

- 14-week controlled diet study, ten healthy, ambulatory men and women ages 55 to 77 years provided diets containing .8 g protein/kg of body weight per day.
- Mean urinary nitrogen excretion decreased over time during study period. While whole body composition did not change, mid-thigh muscle area decreased by week 14, associated with a decrease in urinary nitrogen excretion, which indicates that protein intake was inadequate.
- The study results suggest that the RDA for protein may not be adequate to meet the metabolic physiological needs of all older adults (Campbell et al 2001).

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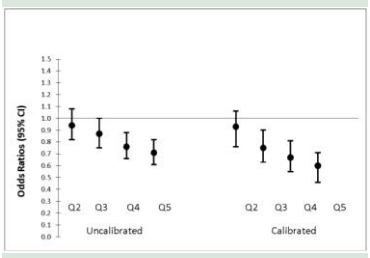
Protein and Frailty



Our study examined the range of protein intake among participants in the Women's Health Initiative (WHI), including ~24,000 postmenopausal women. A 20% increase in calibrated protein intake was associated with a 32% lower risk (Beasley et al 2010).

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How Much Protein is Enough?

- Individual protein needs are highly variable.
- Depend upon body size, health status, and activity levels.
- Research suggests 1.0 to 1.3 g per kg body weight should adequately and safely meet the needs of older adults engaged in resistance training, provided that their energy needs are met (Lucas 2005).

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How Much Protein is Enough?

One of the problems experts face is the lack of consensus on a definition and criteria for sarcopenia, which makes it difficult to create more precise protein recommendations based on observed improvements in muscle mass.

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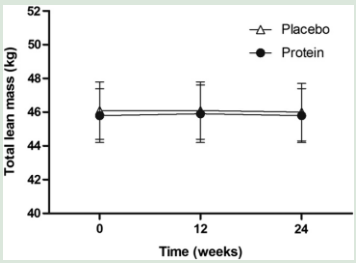
Protein Supplementation vs. Placebo



Source: Tieland, van de Rest et al 2012

30 grams of daily protein supplementation had no significant effects on lean mass.

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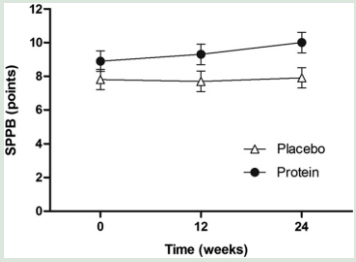
Protein Supplementation vs. Placebo



However, physical function improved in the protein supplementation group, but not the placebo.

Source: Tieland, van de Rest et al 2012

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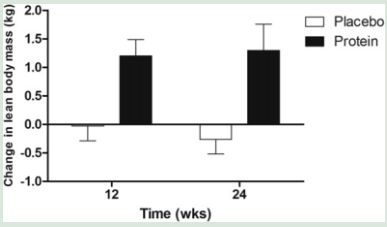
Protein Intake vs. Protein Intake + Exercise



Source: Tieland, Dirks et al 2012

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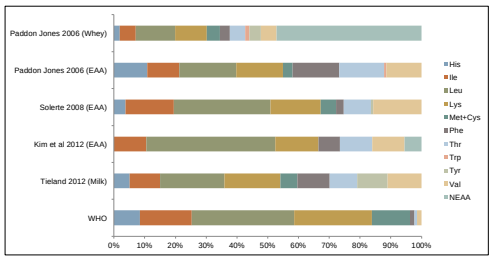
Comparison of Amino Acid Composition of Supplements Demonstrating Positive Effects on Muscle Protein Synthesis and/or Physical Performance



Abbreviations: WHO=World Health Organization; His=histidine; Ile=isoleucine; Leu=leucine; Lys=lysine; Met+Cys = methionine and cysteine; Phe=phenylalanine; Thr=threonine; Trp=tryptophan; Tyr=tyrosine; Val=valine; NEAA=non-essential amino acids

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Adequate Protein Intake Can be Challenging

- Data suggests that protein intake declines as people age.
- Possibly due to financial status, changes in taste, the desire to go meatless, difficulty purchasing or preparing foods, or difficulty chewing.
- While frail, institutionalized elders may demonstrate poor protein intake, on the other end of the spectrum are robust, community-dwelling older adults battling obesity and exceeding calorie and protein needs.

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Protein Supplements

- Studies suggest that a balanced protein and energy supplement may be useful in preventing and reversing sarcopenia as part of a multimodal therapeutic approach (Morley et al 2010).
- May want to consider adding a protein-rich medical nutritional supplement, or protein-rich beverage to the meal plan, depending on the client's needs and intake.

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Protein Choices for Older Adults

- Is there evidence that plant proteins—which may be low in one or more of the essential amino acids—can't support protein needs during aging?
- A variety of lean animal proteins, eggs, dairy, and plant-based alternatives, such as lentils, beans, nuts and seeds for optimal muscle mass.

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Protein Considerations

- Need to factor in other health conditions, heart health, renal function and liver function in relation to protein intake.
- Excessive high-fat, animal proteins may increase saturated fat.
- Excessive levels of protein intake may put older adults at risk of impaired renal function.

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Plant-based Proteins

- Plant proteins may be low in one or more essential amino acids.
- However, with a balance of diverse food sources, adequate amounts of essential amino acids can be consumed.
- Vegetarian meal plans comprised of complementary protein sources should not be of concern.

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Dairy Protein Choices

Dairy foods (milk, yogurt, cottage cheese, cheese) benefits:

- High quality proteins (i.e. rich source of essential amino acids)
- Economincal
- Easy to serve, chew, and swallow

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Protein-rich Foods

Meat, Poultry, Eggs

Food (Cooked)	Serving Size	Calories	Protein (g)
Chicken, skinless	3 oz	141	28
Steak	3 oz	158	26
Turkey, roasted	3 oz	135	25
Lamb	3 oz	172	23
Pork	3 oz	122	22
Ham	3 oz	139	14
Egg, large	1 egg	71	6

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Protein-rich Foods

Seafood

Food (Cooked)	Serving Size (oz)	Calories	Protein (g)
Salmon	3	155	22
Tuna	3	99	22
Shrimp	3	101	20
Lobster	3	76	16
Scallops	3	75	14

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Protein-rich Foods

Legumes, Grains, Vegetables

Name of Food (Cooked)	Serving Size (cup)	Calories	Protein (g)
Pinto Beans	1/2	197	11
Adzuki Beans	1/2	147	9
Lentils	1/2	101	9
Edamame	1/2	95	9
Black Beans	1/2	114	8
Red Kidney Beans	1/2	112	8
Chickpeas	1/2	134	7
Black-eyed Peas	1/2	100	7
Fava Beans	1/2	94	7
Wheat Berries	1/2	151	6
Kamut	1/2	126	6
Lima Beans	1/2	105	6
Quinoa	1/2	111	4
Peas, Green	1/2	59	4
Spinach, cooked	1/2	41	3

Protein-rich Foods

Nuts and Seeds

Food	Serving Size	Calories	Protein (g)
Soy Nuts	1 oz	120	12
Pumpkin Seeds	1 oz	159	9
Peanuts	1 oz	166	7
Peanut Butter	1 Tbsp	188	7
Almonds	1 oz	163	6
Pistachios	1 oz	161	6
Flax Seeds	1 oz	140	6
Sunflower Seeds	1 oz	140	6
Chia Seeds	1 oz	138	5
Walnuts	1 oz	185	4
Cashews	1 oz	162	4

Protein-rich Foods

Dairy Products

Food	Serving Size	Calories	Protein (g)
Greek Yogurt	6 oz	100	18
Cottage Cheese (1% fat)	4 oz	81	14
Regular Yogurt (nonfat)	1 cup	100	11
Milk, Skim	1 cup	86	8
Soy milk	1 cup	132	8
Mozzarella (part skim)	1 oz	72	7
String Cheese (nonfat)	1 piece (0.75 oz)	50	6

Resistance Training to Prevent Sarcopenia

Benefits of Resistance Training in the Elderly

- Fall prevention
- Improved bone density and reduced symptoms of osteoarthritis
- Increased protein synthesis in the muscle
- Increased lean body mass
- Improved endurance
- Increased strength
- Base in activities of daily living

Resistance training is the most effective training mode to increase muscle mass. Studies have linked higher overall activity levels to reduced sarcopenia risk (Western Washington University).

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Resistance Training to Prevent Sarcopenia

Recommendations for Resistance Training (Western Washington University)

Frequency	• ACSM recommends 2-3 days per week of resistance training • 1-2 sets of 8-15 repetitions per muscle group/exercise • Program may need to last at least 12 weeks to see significant improvement in the older population
Intensity	• Use an intensity scale (modified Borg scale) of 1-10, with 1 being no effort and 10 being extremely difficult, almost painful • Try to target 7-8 on the intensity scale, meaning hard but not excruciating • Increase the load when more than 12 repetitions of the exercise can be performed with perfect form
Equipment	• Gym membership (this will get access to any equipment needed) • Circuit machines (at the gym, these are the easiest to learn and are fairly safe) • Light free weights • Stability ball • Exercise bands • Body weight (learn to use this at the gym or in a Pilates or yoga class)

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Protein Timing

- Timing may be a critical component.
- Evidence suggests that for older adults (as well as young adults) there is an upper limit on how much protein can be used for muscle synthesis at a time—30g.
- Academy position paper recognized that experts suggest that older adults should split their protein intake to 25 to 30g at each meal.
- Older adults should choose a high-quality, protein-rich source at each meal to meet this goal.

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Putting it into Practice

- Translating the science on optimal protein intake takes great personalization and finesse.
- All older adults have different needs, based on their health conditions, physical activity, weight status, and dietary preferences.
- Estimating protein needs should be customized to the particular individuals, whether they are sick and confined to long-term care or healthy and active.

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Look at the Individual

- What is their socio-economic status and how does this affect access to food?
- What makes up a typical day's food intake?
- Is there a pattern that indicates poor calorie and/or protein intake?
- Do they have difficulty purchasing or preparing foods?
- Do they have difficulty chewing?
- Are there any food aversions/intolerances?

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Practice Considerations:

- Help identify sources of protein.
- Ensure adequate calories and protein needs met.
- Aid in provision of meals.
- Consider cultural, ethnic, religious preferences.
- Evaluate need for supplementation.
- Keep in mind other health conditions.
- Factor in the whole diet—don't just advise to "eat more protein."
- Avoid undesirable weight gain.

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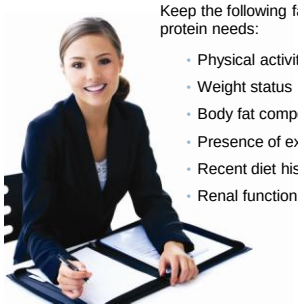
Considerations When Estimating Protein Requirements for Older Adults



Keep the following factors in mind when estimating protein needs:

- Physical activity, including resistance training
- Weight status
- Body fat composition
- Presence of existing sarcopenia
- Recent diet history and protein intake
- Renal function

Today's Dietitian's Results Are In!

RDs gave us their best tips for helping older patients meet their protein requirements.

I often recommend putting peanut butter (I suggest "crunchy" peanut butter for texture if the patient has good dentition) in oatmeal. For additional protein, I suggest they cook the oatmeal in milk and add additional milk after it's been cooked if they like their oatmeal to be thinner. My favorite combination is peanut butter, bananas, and ground flax seed in my oatmeal in the morning!

Kathleen Weber, RD
Freemont, MI

One important thing to remember with older adults is that they may have chewing problems but won't mention that they do. Even without knowing this info, offer ways of consuming proteins in softer forms such as soups, blended soups, smoothies, and softer solid foods (such as meatloaf, yogurt, cottage cheese, etc.). Often "protein" brings up thoughts of hunks of meat like steak, pork chops, or a quarter of a chicken, both to the older person and the counselor. Or, people jump directly to commercial supplement drinks like Ensure, etc. There is a happy medium!

Sheila Ginsberg, MS, RD, CDE
San Luis Obispo, CA

I always encourage my older patients to include a source of easy-to-chew protein with every meal or snack: smooth peanut butter with crackers, yogurt or cottage cheese with fruit, and hardboiled eggs make an easy snack that can be prepared in advance by caregiver if necessary.

Karen Jumisko, RD
Rochester, NY

Cottage cheese packs a nutritional punch! Eaten with fruit and nuts, with veggies, or blended and used as a substitute for cream cheese or a dip, it can be eaten at any meal or as a snack adding 26 g of protein per cup!

Beth Fishman, MS, RDN, LD
Centerville, OH

Eat more beans at lunch or dinner. Try to include them in salads, soups, or make your own hummus. Hummus could easily be used as a high fiber, quick-fix hors d'oeuvre.

Vadel Y. Shivers, MS, RD, CSO
Baton Rouge, LA

Supplemental Materials

Click the "Reference" tab on CE.TodaysDietitian.com for supplemental materials associated with this webinar including:

- Slideshow PDF
- Protein Boosters
- Protein Content of Foods
- Tips to Increase Daily Protein Intake
- RD Tips for Meeting Protein Requirements
- Oral Nutrition Supplements Chart
- Easy Tips to Increase Protein Intake with Cottage Cheese
- References

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