



## Advanced Health & Nutrition Quiz (Ages 14–18)

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### Macronutrient Questions

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**1. Which of the following statements is true about macronutrients in a healthy diet for active individuals?**

- Protein provides amino acids needed to build and repair muscle tissue
- Carbohydrates serve as a key energy source, fueling exercise performance and aiding recovery
- Dietary fats support hormone production and help the body absorb fat-soluble vitamins
- All of the above ✓

**Correct Answer:** ✓ All three macronutrients—protein, carbohydrates, and fats—play essential roles in supporting health, muscle growth, energy, and performance.

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**2. To maximize muscle growth and recovery, which strategy regarding protein intake is most supported by current evidence?**

- Consuming a protein-rich snack before bed can support overnight muscle protein synthesis and recovery, in addition to helping improve your sleep ✓
- Eating all of your daily protein in one large meal is more effective for building muscle than spreading protein intake across the day
- Skipping protein after workouts and waiting until nighttime to eat protein leads to greater muscle gains
- The timing of protein intake doesn't influence muscle growth if total daily protein needs are met

**Correct Answer:** ✓ While overall daily protein intake matters most, strategically timing protein—especially after workouts and before sleep—can further support muscle repair and growth.



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### 3. Why is consuming carbohydrates together with protein after a workout often recommended?

- Carbohydrates help replenish muscle glycogen and trigger insulin, which assists amino acid uptake for muscle recovery and growth ✓
- Protein cannot effectively repair muscle unless insulin from accompanying carbohydrates is present
- Eating carbs with protein after exercise doubles the amount of muscle gained compared to consuming protein alone
- Combining carbs with protein after exercise slows down protein absorption and hinders muscle recovery

**Correct Answer:** ✓ Post-exercise, carbohydrates help restore glycogen levels and trigger insulin, which enhances the delivery of amino acids from protein to muscle tissue—improving recovery and supporting muscle growth.

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### 4. When it comes to carbohydrate quality in an athlete's diet, what should the focus be?

- Emphasizing complex, nutrient-dense carbohydrates (e.g. whole grains, fruits, vegetables) provides fiber, vitamins, and sustained energy for better performance ✓
- Relying primarily on simple sugars (candy, soda) for carbohydrates is just as beneficial as eating whole grains and vegetables
- Eliminating all carbohydrates is the best way to improve athletic performance and body composition
- It makes no difference where your carbs come from, as long as total calories are met

**Correct Answer:** ✓ Nutrient-dense carbohydrates supply steady energy, fiber, and micronutrients, all of which support optimal performance, recovery, and body composition.

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## 5. For someone aiming to lose body fat while preserving muscle, which post-exercise nutrition approach is most supported by research?

- Consuming protein with the right amount of carbohydrates after training helps promote recovery, protect muscle mass, and support long-term fat loss ✓
- Immediately consuming only protein after every workout, while avoiding carbohydrates, is the most effective way to stay lean
- To maximize fat loss, avoid eating anything for at least two hours after exercise to boost certain hormone responses
- Prioritize carbohydrate-rich foods and delay protein intake after workouts to enhance fat burning

**Correct Answer:** ✓ The combination of protein and carbohydrates after exercise keeps the body anabolic, restores energy, and supports fat loss by maintaining muscle mass—essential for long-term leanness and performance.

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## 6. Which statement about getting lean and building muscle is the most accurate?

- If muscle growth is a priority, during intense exercise protein consumption is most important and carbs are less essential
- You need protein and carbohydrates together to fuel muscles, especially for long sports like soccer, basketball, or endurance events (cross-country running meets) ✓
- Eating protein before bed is the optimal way to ensure muscle growth, and it is less important that you eat protein during and after exercise
- Avoiding carbs during and after exercise will promote fat (adipose) loss and a leaner body composition

**Correct Answer:** ✓ Endurance and high-intensity exercise demand both carbohydrates and protein to fuel performance, protect muscle, and support recovery—neglecting carbs can lead to muscle breakdown and hinder results.

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## 7. Why do endurance athletes and competitive teens benefit from including carbohydrates during long training sessions?

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- Carbs fuel muscles during exercise, delay fatigue, and help protect against muscle breakdown ✓
- Carbohydrates should only be consumed after workouts to avoid mid-exercise energy crashes
- Eating carbs during endurance exercise causes your body to store fat rather than burn it
- Muscle breakdown during endurance training can't be prevented with nutrition choices

**Correct Answer:** ✓ Carbohydrates during exercise supply energy, delay fatigue, and—when paired with protein—can minimize muscle breakdown (catabolism) during prolonged activity.

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## 8. What is one of the key reasons carbohydrates are essential immediately after intense training, even for teens focused on building muscle and staying lean?

- Post-workout carbs trigger an insulin response that helps shuttle nutrients into muscle cells, promoting recovery and muscle growth ✓
- Carbs post-workout slow metabolism and interfere with muscle protein synthesis
- Eating carbs after exercise is only necessary for professional athletes, not teens
- If your goal is to stay lean, it's better to delay all food for several hours after training

**Correct Answer:** ✓ Post-exercise carbs, combined with protein, help restore energy, optimize recovery, and promote muscle growth—essential for performance and a lean, strong physique.

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## 9. During long, intense exercise sessions like soccer games or endurance training, why is consuming protein alone insufficient?

- Protein alone can promote muscle growth without the need for carbohydrates
- Without carbohydrates, your body may break down muscle for energy, slowing performance and recovery ✓
- Carbohydrates consumed during exercise cause digestive upset and should be avoided
- Fats are more important than carbohydrates for fueling intense sports

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**Correct Answer:** ✓ The body prioritizes carbohydrates for energy during intense exercise. Without them, muscle tissue may be broken down for fuel, impairing both performance and muscle maintenance.

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## Advanced Meal Scenarios

**1. Which of these breakfast options provides the strongest combination to support clearer skin and reduce acne flare-ups?**

- Protein pancakes with maple syrup and a glass of milk
- Overnight oats made with coconut milk, berries, chia seeds, and walnuts ✓
- Bagel with cream cheese and Starbucks coffee
- Breakfast burrito with sausage and cheese
- Free-range farm eggs, high-quality bacon, and avocado on 7-grain sourdough toast with ghee ✓

**Correct Answer:** ✓ Both the overnight oats option and the eggs, bacon, avocado toast provide excellent nutritional support for healthier, clearer skin by combining anti-inflammatory ingredients, healthy fats, and skin-repair nutrients:

- **Overnight oats with coconut milk, berries, chia seeds, and walnuts:**  
This meal provides fiber, antioxidants, omega-3 fats, and now, thanks to coconut milk, medium-chain triglycerides (MCTs), particularly lauric acid—known for anti-inflammatory and antimicrobial properties. Using coconut milk instead of dairy reduces potential acne triggers linked to dairy sensitivity. Together, these ingredients stabilize blood sugar, reduce inflammation, and provide essential nutrients for skin health and acne prevention.
- **Free-range eggs, high-quality bacon, avocado on 7-grain sourdough with ghee:**  
This meal delivers complete protein, zinc, biotin, and healthy fats that support skin structure and barrier function. Avocado enhances absorption of fat-soluble vitamins critical for skin health, while the 7-grain sourdough provides fiber and steady energy, preventing the blood sugar fluctuations that can trigger acne. Ghee adds beneficial fats without the inflammatory proteins found in dairy.

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Both meals reduce inflammation, stabilize blood sugar, and supply critical nutrients the skin needs to repair and stay clear—making them superior choices compared to high-sugar, highly processed breakfast options.

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**2. You want to get leaner while preserving muscle. Which lunch best supports that goal through proper nutrient timing and food synergy?**

- Grilled chicken with spinach salad, quinoa, and a small serving of sweet potato ✓
- Plain protein shake with nothing else
- Turkey sandwich with chips and soda
- Cheese quesadilla with salsa

**Correct Answer:** ✓ Chicken provides protein for muscle maintenance, sweet potatoes and quinoa supply nutrient-dense carbs for energy and glycogen restoration, and spinach offers micronutrients—all essential for getting lean while protecting muscle.

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**3. Which pre-game meal offers the best combination to fuel energy, support endurance, and improve game-day performance for a soccer or basketball (or other sport) competition?**

- Pasta with marinara sauce, grilled chicken, and a side of fruit ✓
- Large steak with fries and soda
- Protein bar and energy drink
- Skip food to avoid feeling heavy

**Correct Answer:** ✓ The carbs from pasta and fruit provide quick and sustained energy, while chicken supplies protein for muscle support. This balanced approach aligns with nutrient timing principles for performance.

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**4. You've been feeling tired and moody. Which meal would likely help stabilize your energy and improve your mood?**

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- Bagel with cream cheese and juice
- Grilled salmon with quinoa, avocado, and roasted veggies ✓
- Cereal with skim milk
- Fast food burger and fries

**Correct Answer:** ✓ Salmon provides omega-3 fats shown to support brain health and mood. Quinoa and avocado offer carbs, fiber, and healthy fats for energy stabilization. Roasted veggies add antioxidants.

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**5. You want to build muscle but also support better sleep quality. Which of these dinners works with your goals?**

- Chicken breast with sweet potato, steamed spinach, and a handful of almonds ✓
- Protein bar and energy drink
- Pizza with extra cheese
- Cereal and toast

**Correct Answer:** ✓ Sweet potatoes and spinach contain magnesium, which supports relaxation. Chicken provides protein for muscle repair. Almonds contain healthy fats and additional magnesium—all of which help muscle growth and sleep.

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**6. You have a big test tomorrow and want to eat in a way that supports brain function and academic performance. Which breakfast is the best option?**

- Sugary cereal with orange juice
- Greek yogurt with berries, nuts, and a boiled egg ✓
- Energy drink and toast
- Donut and coffee

**Correct Answer:** ✓ Yogurt, berries, nuts, and eggs provide protein, healthy fats, antioxidants, and steady energy—all of which support focus, memory, and cognitive performance.

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## Food Synergy

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**1. Which of these meals would provide the BEST support for someone with iron deficiency (anemia)?**

- Scrambled eggs with toast, water, and a handful of almonds
- Grilled chicken with spinach salad topped with strawberries and bell peppers ✓
- Pasta with marinara sauce, garlic bread, and soda
- Plain oatmeal with peanut butter and black coffee

**Correct Answer:** ✓ The spinach provides iron, while strawberries and bell peppers supply vitamin C, which can double or triple iron absorption. Without vitamin C, iron from plant sources is poorly absorbed.

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**2. If someone wants to strengthen their bones by maximizing calcium absorption from food, which meal is the most strategic?**

- Yogurt with mixed berries accompanied with a black coffee
- Salmon with tzatziki sauce (yogurt-based) and a cucumber-tomato salad ✓
- Whole grain toast with butter, almond butter, and a banana
- Cottage cheese with organic rye bread and fresh squeezed orange juice

**Correct Answer:** ✓ Salmon provides vitamin D, while tzatziki (made from yogurt) supplies calcium. Vitamin D significantly enhances the body's ability to absorb and use calcium for bone health.

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**3. Someone with a family history of cancer wants to build meals that support cellular health and reduce disease risk. Which of these combinations offers the strongest food synergy for that goal?**

- Grilled chicken with rice and steamed broccoli
- Avocado toast with a Fresca-style salad (sliced red onions, fresh parsley, grape tomatoes, olive oil) ✓
- Protein shake with whey and a banana
- Cheese quesadilla with salsa and chips

**Correct Answer:** ✓ The avocado toast combined with a Fresca-style salad offers powerful anti-cancer food synergy:

- **Avocado** delivers monounsaturated fats that improve the absorption of fat-soluble vitamins (A, D, E, K), many of which play protective roles against cellular damage.
- **Red onions** are rich in quercetin, a flavonoid shown to have antioxidant and anti-inflammatory effects, supporting healthy cell function.
- **Fresh parsley** contains apigenin, a plant compound studied for its anti-cancer properties, known to inhibit abnormal cell growth pathways.
- **Grape tomatoes** supply lycopene and other antioxidants that help neutralize free radicals, reducing DNA damage.
- **Olive oil** provides polyphenols, well-researched for their role in reducing inflammation and supporting cellular protection.

This combination not only delivers essential fats and antioxidants but also enhances nutrient absorption, making it one of the most effective meal choices for reducing cancer risk through dietary strategies.

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**4. Which of these meals demonstrates a combination that enhances antioxidant and phytochemical activity in the body?**

- Cheeseburger with fries and soda
- Mixed berry smoothie with spinach and chia seeds ✓
- Plain bagel with cream cheese and orange juice
- Grilled steak with mashed potatoes

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**Correct Answer:** ✓ Berries and spinach are rich in antioxidants and phytochemicals. Chia seeds provide healthy fats, further boosting the bioavailability of certain plant compounds that help reduce oxidative stress.

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**5. For someone focused on building muscle while also protecting long-term health, which of these meals leverages food synergy effectively?**

- Grilled steak with roasted peppers and guacamole ✓
- Protein bar and a sugar-free energy drink
- Chicken and rice with hot sauce
- Turkey sandwich with cheese and chips

**Correct Answer:** ✓ Steak supplies protein and iron, roasted peppers provide carotenoids and antioxidants, and guacamole (avocados) delivers fats that help the body absorb fat-soluble vitamins—supporting muscle growth and recovery while boosting nutrient absorption.

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## FOOD SYNERGY

Sometimes superfoods need a trusty sidekick to maximize their capabilities.  
Team up these nutritional powerhouses & reap the benefits!

**VITAMIN C + IRON = TRIPLE YOUR IRON ABSORPTION**

lemon



spinach



**VITAMIN D + CALCIUM = 65% MORE CALCIUM ABSORPTION**

salmon



yogurt



**ANTIOXIDANTS + PHYTOCHEMICALS = KILL CANCER CELLS**

Tomato



Broccoli



**CAROTENOIDS + FATS = ABSORB FAT SOLUBLE VITAMINS A, D, E, K**

capsicum



avocado

