Dairy’s Role in African-American Health: Benefits Beyond Bone Health

Less than 7 percent of African-Americans meet the 2005 Dietary Guidelines for Americans recommended three servings of dairy foods per day (NHANES data, Beydoun 2008). According to a published report by the National Medical Association, all African-Americans should increase dairy consumption to three to four servings of dairy foods a day to reduce the risk of certain chronic diseases, including hypertension (high blood pressure) and obesity. Below is an overview of the latest research supporting the important role dairy’s nutrients play in African-American health.

Lactose Intolerance
Some studies found a higher prevalence of lactose intolerance among African-Americans when participants were given a much larger amount of lactose than what is typically found in a glass of milk. However, there is evidence that significantly fewer African-Americans are lactose intolerant than previously reported. According to a report by the National Medical Association, only about 24 percent of African-Americans consider themselves to be lactose intolerant.

Scientific evidence indicates that with careful management, most people with lactose intolerance can still consume three daily servings of calcium-rich dairy foods (milk, cheese, and yogurt), especially with meals, as recommended by the 2005 Dietary Guidelines for Americans.

Scientific Support
- Lactose intolerance does not fully explain low dairy food intake in many African-Americans. Even though only 24 percent of African-Americans consider themselves to be lactose intolerant, the majority of African-Americans (86 percent) get just more than half of the recommended daily amount of calcium.
- For those with lactose intolerance, the condition may be an obstacle to dairy calcium consumption. Individuals can manage their lactose intolerance through dietary approaches: drinking small amounts of milk with a meal, eating yogurt and eating some hard cheeses such as Cheddar or Swiss. A review of scientific literature found that individuals who are unable to digest lactose well can still drink an 8-ounce cup of milk without symptoms.

Lactose Intolerance and Adolescents
- When African-American adolescent girls, identified as lactose maldigesters, consumed a dairy-rich diet for 21 days, they experienced an overall improvement in indicators of lactose digestion.

Tips on how to incorporate dairy into your diet:
- Drink smaller servings of milk with food
- Consume hard cheese like Cheddar or Swiss; one serving is 1½ ounces
- Eat yogurt with live and active cultures

Hypertension, Heart Disease and Stroke
High blood pressure or hypertension is a highly prevalent risk factor for heart disease, particularly among African-Americans. In fact, 39 percent of African-American men and 41 percent of African-American women have high blood pressure compared to 29 percent of Caucasian men and 28 percent of Caucasian women. In 2004, age-adjusted death rates for heart disease were 32 percent higher among African Americans than among Caucasians.
Scientific Support

- The Dietary Approaches to Stop Hypertension (DASH) study – published in the New England Journal of Medicine – found that a low-fat diet that included 2-3 servings of dairy foods and 8-10 servings of fruits and vegetables significantly lowered blood pressure. Nearly two-thirds of the study participants were African-Americans because of a disproportionate burden of hypertension in minority populations.\textsuperscript{x}\textsuperscript{i}

- A re-analysis of data from the DASH study looked more closely at the population subgroups and found that the low-fat, dairy-rich DASH eating plan was twice as effective among hypertensive African-Americans as a diet low in dairy foods. The DASH diet lowered the BP of this group an average of 13 mm Hg, a similar response to that produced by medication. Adherence to the study protocol was more than 95 percent and lactose intolerance was not cited as a barrier to dairy consumption among the participants.\textsuperscript{x}\textsuperscript{ii}

- Experts emphasize the importance of the entire diet and nutrient package of the DASH diet. In a separate study, researchers estimated that the DASH diet – if extended to the whole U.S. population – could result in a reduction of coronary heart disease (CHD) and stroke by 15 percent and 27 percent, respectively, with a population-wide adoption of the DASH diet. Specifically for African-Americans, authors estimated a 9 percent reduction of CHD events over a 10-year universal adoption of the diet.\textsuperscript{x}\textsuperscript{iii}

- A review revealed that dairy is a beneficial component of a balanced diet as African-Americans strive for optimal health. Studies were identified that showed a 30 percent reduced risk of coronary heart disease, a 40 percent reduced risk of stroke and a 30 percent reduced risk of all-cause mortality in subjects with recommended food group intake levels.\textsuperscript{x}\textsuperscript{iv}, \textsuperscript{x}\textsuperscript{v}

Obesity

The Surgeon General estimates that more than 69 percent of African-American women and 58 percent of African-American men are overweight or obese.\textsuperscript{xvi} Studies indicate that dairy foods may exert a significantly greater effect on managing body weight and body composition compared to calcium supplements or a low-dairy food diet.\textsuperscript{xvii}, \textsuperscript{xviii} The current body of research also includes observational, animal and cellular studies conducted by leading research institutions throughout the country.

Scientific Support

- Two randomized controlled studies were conducted in otherwise healthy obese African-American adults. The first clinical study, a 24-week study of 29 obese adults, found that those who consumed three servings of dairy per day while on a balanced, modestly reduced-calorie diet, lost twice as much weight and fat while preserving lean body mass compared to participants who consumed less than one serving of dairy per day. The second clinical study, a 24-week study of 34 obese adults, found that those who consumed three servings of dairy per day on a weight-maintenance diet (consumption of adequate calories to maintain weight) lost more total body fat and trunk fat and gained lean mass compared to participants who consumed less than one serving of dairy per day. In both studies, three servings of dairy a day decreased circulating insulin levels, an important factor when assessing risk of type 2 diabetes. In addition, in the weight maintenance study, consuming three servings of dairy per day produced a significant decrease in blood pressure.\textsuperscript{x}\textsuperscript{ix}

- CARDIA, a 10-year prospective study that examined the dietary habits of more than 3,000 adults aged 18 to 30 years, indicated that increased dairy consumption may protect overweight individuals from becoming obese or developing insulin resistance syndrome (also known as metabolic syndrome), which is associated with increased abdominal fat. Obesity and insulin resistance syndrome are major risk factors for type 2 diabetes and cardiovascular disease. Increased dairy consumption was equally beneficial to African-Americans and Caucasians, and both reduced-fat and full-fat dairy products were included.\textsuperscript{xx}
A cross-sectional survey using data from NHANES (1999-2004) found that average consumption of dairy in African-Americans was less than one serving per day (0.97). According to the authors, this study showed an inverse association between some dairy foods and obesity as well as metabolic syndrome. Authors state differences in consumption of dairy foods and dairy-related nutrients among ethnic groups in the United States may account for the discrepancies in risk of obesity and other co-morbidities. The study found a statistically significant difference in body mass index (BMI) between non-Hispanic African-Americans and non-Hispanic Caucasians that may be explained by dairy-related nutrients like calcium and magnesium. xxii

Dietary intake of calcium was assessed in 50 premenopausal African-American women. Those who ate a diet rich in calcium from dairy foods had significantly lower body mass indexes (weight relative to height) than women who had lower calcium intakes. xxii

Osteoporosis
Dairy's role in reducing the risk of osteoporosis and in strengthening bones has long been established and supported by the nutrition and science community, including the U.S. Surgeon General, the American Academy of Family Physicians, the American Dietetic Association, the National Institutes of Health, the American Academy of Pediatrics, the National Hispanic Medical Association, National Institutes of Child Health and Human Development, the National Medical Association and the School Nutrition Association. African-Americans can benefit from taking steps to reduce their risk of osteoporosis, such as: participating in physical activity and increasing consumption of low-fat and fat-free dairy foods.

Consuming an adequate intake of calcium or calcium-rich foods such as milk and other dairy foods throughout life reduces the risk for osteoporosis according to the National Institutes of Health. xxiii In addition, the NIH agrees that vitamin D is necessary for calcium absorption and that this nutrient, with calcium, helps protect older adults from osteoporosis. xxiv

Between 80 and 95 percent of fractures in African-American women over age 64 are due to osteoporosis, and African-American women who sustain osteoporosis-related fractures have decreased survival rates following hip-fractures compared to Caucasian women. xxv

Scientific Support
- One review of the literature identified racial and ethnic disparities in awareness, prevention, diagnosis and treatment of osteoporosis. The author found studies that showed both lack of awareness of the risk of osteoporosis and also lack of awareness of preventive measures; while 41 percent of non-Hispanic Caucasian women reported familiarity with osteoporosis, only 25 percent of African-American women reported being closely aware of the disease. The author reviewed studies showing that minorities have a decreased likelihood of adopting bone-enhancing behaviors like dietary intake of calcium and physical activity. In addition, minority patients are two to three times less often tested for osteoporosis and also less often given drug treatment. Finally, the author found that African-American women with hip fractures are twice as likely as Caucasian women to die within the first year of the fracture. xxvi

- A review of the calcium needs of adults over 65 years of age concluded that increasing daily calcium intake (e.g., from 1,300 to 1,700 mg/day) will reduce osteoporotic fracture risk by 30 percent to 50 percent. xxvi

Osteoporosis and Adolescents
- Further support for a positive effect of calcium and dairy products on bone health in adolescents is provided by findings from a study of two groups of adolescent girls (15 to 18 years). Both calcium and dairy products improved bone mass accrual, leading to a higher peak bone mass. While calcium influenced volumetric bone density, dairy products had an additional impact on bone growth and bone expansion. xxviii

Additional resources are available at www.nationaldairycouncil.org.


Adapted from the NMA consensus paper.


EAT TO WIN

If you want to score big on tests or on the court, it’s important to choose the foods your body needs. Without top-level fuel, you won’t perform your best. What you eat – and what you drink – can make a huge difference.

Take a clue from some of your favorite athletes and reach for milk more often. It’s packed with protein for strong muscles and it’s loaded with calcium so your bones will grow long and strong.

PUMP UP THE VOLUME

Did you know that nearly half of all bone is formed during the teen years?

Your growing bones crave calcium. If you miss out on this mighty mineral in milk, your bones won’t reach their full growth potential.

Bones are kind of like a bank account. You can deposit and save calcium so you’ll have enough to draw on when you’re older. If you skimp on calcium now, you’ll have less calcium stashed away when you need it. That means in the years ahead, you may be more likely to break a hip or have a hunched-over appearance (something called osteoporosis).

So, make the investment now and bone up on calcium. You really can’t make up for it later in life.

WHERE’S YOUR MILK MUSTACHE?

TEST YOUR DAIRY IQ

Take this quick quiz to see if you can spot the mega-myths about milk. Check out the answers on the back.

1. Milk is fattening.

2. Now that I am older, I don’t need to drink milk anymore.

3. Chocolate milk contains the same amount of calcium as regular milk.

4. I can’t drink milk if I’m lactose intolerant.

5. Calcium-fortified juices are the same as milk.

CALCIUM COUNTS

Be sure you give your body some TLC (Tender Loving Calcium). Your daily goal: 1,300 milligrams of calcium or about the amount in 3 to 4 servings from the Milk Group. That means milk, yogurt or cheese. Your choice. Check out how easy (and tasty) it can be!

1 serving =

- 1 cup of milk 300 mg Calcium
- 1 cup of yogurt 300 mg Calcium
- 1½ ounces of cheese 300 mg Calcium
If you’ve only been slurping sodas or juice drinks instead of milk, you’re depriving your bones of calcium at a time they need it the most. Whether fat free or flavored, milk is one of the easiest — and tastiest — ways to get the calcium you need. If you haven’t been drinking much milk lately, it’s time to get back on track.

HERE’S WHAT YOU GET IN EVERY GLASS:

- **30% CALCIUM**
  - Builds strong bones and teeth

- **25% VITAMIN D**
  - Helps you absorb calcium

- **24% RIBOFLAVIN**
  - Helps produce energy

- **20% PHOSPHORUS**
  - Keeps your bones and teeth healthy

- **16% PROTEIN**
  - Builds strong muscles

- **13% VITAMIN B-12**
  - Promotes healthy blood

- **11% POTASSIUM**
  - Helps your blood pressure

- **10% VITAMIN A**
  - Promotes healthy eyes and skin

- **10% NIACIN** (or niacin equivalents)
  - Helps produce energy

Milk replenishes the fluids lost during your workout and provides lots of potassium — even more potassium than sports drinks. The high-quality protein in milk delivers the goods for strong muscles.

**SNEAK IN MORE CALCIUM**

- Get out the blender and whip up a cool smoothie made with a cup of milk, a handful of chopped fruit and ice.

- Satisfy your chocolate cravings by stirring a spoonful of chocolate syrup into an ice-cold glass of milk.

- Make a cup of hot cocoa with milk instead of water to warm up your insides on a chilly day.

- Kick the can of soda and chug a carton of chocolate milk.

- Instead of chips, crunch on crackers topped with cheese.

- Rather than a candy bar, choose instant pudding made with milk — it’s ready in seconds.

- Eat milk with cereal, anytime!

- Top Mexican favorites with shredded cheese: tacos, burritos, enchiladas or taco salad.

**MILK PACKS A POWERFUL PUNCH**

**CHECK IT OUT**

1. **FALSE.** That’s a big fat lie. One 8-ounce glass of fat free milk has zero fat and contains only 80 calories, which is about what you’ll find in an apple. A glass of lowfat milk has just 100 calories and 2.5 grams of fat. No matter what type of milk you choose - fat free or flavored - it’s all packed with 9 essential nutrients.

2. **FALSE.** Milk is more important than ever. Now is when your bone growth shifts into high gear, so you need to feed your bones plenty of calcium every day.

3. **TRUE.** Chocolate milk is chock full of the same amount of calcium as you’ll find in regular milk. You can find chocolate milk in grab-and-go containers or make your own with a spoonful of chocolate syrup.

4. **FALSE.** Milk may not be the problem, only your doctor will know for sure. But even if you are lactose intolerant, you can still enjoy milk. (see “Tips for Tolerance” above)

5. **FALSE.** Although other drinks may have added calcium, milk is naturally rich in calcium. In addition, it contains 8 other essential nutrients, including vitamin D which helps you absorb the calcium.

**TIPS FOR TOLERANCE**

**INSTEAD OF DITCHING DAIRY IF YOU THINK YOU MAY BE LACTOSE INTOLERANT, TRY THESE TIPS:**

- **START SMALL.** Try smaller and more frequent portions of milk and drink milk with a meal or snack instead of on an empty stomach. Most people are fine with drinking 1 cup of milk or less at a time.

- **REDUCE IT.** Look for lactose-reduced or lactose-free milk. Or buy lactase enzyme drops at the drug store that you can add to regular milk. You can also take enzyme tablets to ease dairy digestion.

- **SAY CHEESE, PLEASE.** More than half of the lactose is removed when cheese is made. Aged hard cheese like Cheddar, Colby, Swiss and Parmesan are particularly low in lactose and easier to digest.

- **GET A LITTLE “CULTURE.”** You probably won’t have any trouble with cultured dairy products like yogurt, which contain “friendly” bacteria that help your body digest lactose.

- **GO TO THE PROS.** These tips may not apply to everyone. Follow the advice of your doctor or consult a registered dietitian.
Minorities who have experienced gastrointestinal problems consuming milk are learning new strategies to enjoy milk and other dairy foods. This means that minorities (and non-minorities) with lactose intolerance may no longer need to miss out on essential nutrients provided by dairy foods.

The health consequences of avoiding dairy foods, the major source of dietary calcium, potassium, and vitamin D as well as providing other essential nutrients, may be especially serious for African Americans, Hispanics, Asians, and Native American Indians. Many minorities are at high risk of hypertension, stroke, osteoporosis, obesity, diabetes, and colon cancer – diseases in which a low intake of dairy and dairy nutrients (e.g., calcium, vitamin D, potassium) can be a contributing factor.

Here you'll learn the facts about lactose intolerance and what scientific experts say about various issues related to this subject. This information can help put the issue of lactose intolerance in minorities into perspective.
What is Lactose Intolerance?

Lactose intolerance refers to gastrointestinal symptoms experienced by some individuals who have low levels of lactase, the enzyme necessary to digest lactose. Lactose is the major carbohydrate in milk and some other dairy foods. You may also find small amounts of lactose in non-dairy processed or baked foods. If the activity of the lactase enzyme is low, undigested lactose may reach the large intestine where naturally residing gas-producing bacteria ferment it. This can lead to symptoms of lactose intolerance. Symptoms generally are nonspecific and may include: gas/flatulence, bloating, abdominal pain, or diarrhea. For the most part, if symptoms are experienced, they are mild and vary depending on the individual.

In many population groups, the activity of lactase starts to decline sometime between 3 and 5 years of age. This normal, genetically-controlled, decline in intestinal lactase activity is called lactose maldigestion (or primary lactase deficiency or lactase non-persistence). Some individuals produce lactase in sufficient amounts throughout life and have no difficulty digesting lactose. Others, however, produce the enzyme only during infancy and early childhood. As these individuals become older, they begin to lose the ability to produce lactase.

Lactose maldigestion is not the same as lactose intolerance. Many people with lactose maldigestion (i.e., low levels of the intestinal enzyme, lactase) do not experience lactose intolerance or gastrointestinal symptoms following intake of lactose or lactose-containing foods.

How Is Lactose Maldigestion Diagnosed?

Many people, minorities in particular, often assume that they can’t digest milk and other dairy foods. Yet, one can’t simply rely on symptoms to self-diagnose lactose maldigestion. Without testing, it’s impossible to know if the symptoms are caused by lactose, a learned aversion, or some other gastrointestinal problem. The symptoms that may arise from lactose maldigestion, known as lactose intolerance, is often confused with cow’s milk protein allergy, which is an immunological reaction to one or several of milk’s proteins. Cow’s milk allergy is reported in about 2% of infants and young children and tends to be outgrown by 5 years of age. Misdiagnosing lactose maldigestion could lead to unnecessary dietary restrictions, expense, and nutritional shortcomings, or failure to diagnose a gastrointestinal disorder.

Medical experts recommend an objective test, such as the breath hydrogen test, to diagnose lactose maldigestion. Undigested lactose is fermented by bacteria in the colon producing hydrogen gas, a portion of which is absorbed into the blood and exhaled in the breath. The breath hydrogen...
test, which can be performed on an outpatient basis, involves measuring baseline breath hydrogen levels after an overnight fast and again at regular intervals following intake of a dose of aqueous lactose or milk. The dose can be 50g, 25g, or in the range of usual intakes (10-12g). If breath hydrogen levels increase by 10 to 20ppm above baseline levels (a lower rise is used with a lower dose), a diagnosis of lactose maldigestion is made.

To diagnose lactose maldigestion, the breath hydrogen test generally used today employs a challenge dose of lactose equivalent to the amount in two 8-ounce glasses of milk (i.e., up to 25g). In the past, breath hydrogen tests used a challenge dose of lactose equivalent to that in about one quart of milk (i.e., 50g lactose or more than four times the amount of lactose in 1 cup of milk). Using this very large dose of lactose given in water without other foods overestimates the number of individuals who are intolerant to usual intakes of lactose, such as found in one cup of milk (i.e., 12.5g lactose).

A positive diagnosis of lactose maldigestion doesn’t mean that milk, dairy products, and other lactose-containing foods should be eliminated from the diet. As you’ll learn below, a number of factors, including the amount of lactose consumed at any one time, as well as other factors unrelated to lactose, influence whether or not an individual will be lactose intolerant. Information obtained from well controlled, double-blind studies indicates that lactose intolerance among minorities and non-minorities alike is far less prevalent than commonly believed.

**How Common is Lactose Maldigestion in Minorities?**

The estimated prevalence of lactose maldigestion (or lactase non-persistence) varies among different ethnic and racial groups in the U.S. Among Asian Americans, African Americans, Native American Indians, and Hispanics, an estimated 50% to 100% are reported to be lactose maldigesters, compared to 15% of Caucasians. In all, it is estimated that about 25% of the U.S. population and 75% of the world’s population have low lactase levels or are lactose maldigesters. These figures are based on studies conducted in the 1970s using a large challenge dose of lactose in water. As such, they tend to overestimate the practical significance of lactose intolerance as experienced by most people with lactose maldigestion.

A diagnosis of lactose maldigestion doesn’t necessarily mean that the individual will experience intolerance symptoms. Despite the estimated high prevalence of lactose maldigestion in African Americans and Hispanics, far fewer report being lactose intolerant. For example, a consumer-based survey found that only 24% of African Americans considered...
themselves to be lactose intolerant. In a survey of Hispanics, less than 10% reported avoiding dairy. In fact, Hispanics overwhelmingly said that dairy is central to their culture. Many minorities have low levels of lactase, but stereotyping all minorities as lactose intolerant is inappropriate. Why? Gastrointestinal symptoms that mimic lactose intolerance may be explained by factors unrelated to lactose such as culturally-based attitudes toward milk learned at a young age. Many people who say they have trouble digesting milk have actually never been diagnosed as lactose intolerant by a health professional. When Asian, Hispanic, and Caucasian teenage girls who self-reported milk intolerance completed a breath hydrogen test, more than half (55%) were not lactose mal digesters.

Several studies confirm that lactose intolerance is overestimated. One-third of 45 African American adolescents and adults with diagnosed lactose intolerance had some minor symptoms of intolerance after consuming both lactose-containing and lactose-hydrolyzed milk under double-blind conditions. Clearly, the symptoms in some of these African Americans were not due to lactose intolerance. Rather, the symptoms were most likely explained by culturally-determined food preferences developed early in life or learned attitudes that affected their ability to tolerate milk.

In another study, one-half of lactose mal digesters reported gastrointestinal symptoms after consuming a lactose-free milk, or more symptoms after intake of smaller rather than larger intakes of lactose. Again, the symptoms experienced by many of these individuals were due to factors unrelated to lactose intake.

Strong beliefs can contribute to lactose intolerance, according to several studies carried out by a group of Minnesota researchers. When 30 self-described lactose intolerant individuals of diverse ethnic backgrounds (Asians, African Americans, Hispanics, as well as Caucasians) received a breath hydrogen test, 30% were diagnosed as lactose digesters. When these same 30 individuals participated in a randomized, double-blind, cross-over trial in which they consumed either 1 cup of lactose-containing milk or lactose-hydrolyzed milk with breakfast for one week, gastrointestinal symptoms were minimal. In fact, there were no significant differences in symptoms when either type of milk was consumed. The researchers concluded that self-described lactose intolerant individuals “may mistakenly attribute a variety of abdominal symptoms to lactose intolerance.” In another study involving adults of varied ethnic background and designed to test tolerance to 2 cups of milk, 31% who said they were severely lactose intolerant comfortably digested lactose.
Self-described “Lactose Intolerant” (LI) Individuals and Lactose Maldigesters Can Tolerate the Amount of Lactose in a Serving or More of Milk and Other Dairy Foods

<table>
<thead>
<tr>
<th>Study</th>
<th>Subjects*</th>
<th>Lactose Dose (g)</th>
<th>Lactose Breath Hydrogen Test</th>
<th>Lactose Digesters %</th>
<th>Lactose Maldigesters %</th>
<th>Milk Products Tested</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suarez et al. 1995</td>
<td>30 self-described LI adults</td>
<td>15</td>
<td></td>
<td>30</td>
<td>70</td>
<td>1 cup milk (12 g lactose) with breakfast</td>
<td>All tolerant</td>
</tr>
<tr>
<td>Suarez et al. 1997</td>
<td>49 self-described LI adults</td>
<td>15</td>
<td></td>
<td>31</td>
<td>69</td>
<td>2 cups milk/day consumed in divided doses with breakfast and dinner</td>
<td>All tolerant</td>
</tr>
<tr>
<td>Suarez et al. 1998</td>
<td>62 female adults</td>
<td>15</td>
<td></td>
<td>50</td>
<td>50</td>
<td>1 cup milk at breakfast; 1 ounce cheese, and 8 ounces yogurt at lunch; 1 cup milk and 1 ounce cheese at dinner</td>
<td>All tolerant – increased flatulence frequency rated “trivial” in maldigesters</td>
</tr>
</tbody>
</table>

*Including minorities of varied race and ethnic backgrounds

Can Minorities include Milk and Other Dairy Foods in their Diet?

Lactose intolerance doesn’t have to be an obstacle to meeting calcium needs through milk and other dairy foods. Researchers in Minnesota found that lactose maldigesters, some of whom described themselves as lactose intolerant, could consume the amount of lactose in 2 cups of milk with food, one cup at breakfast and another at dinner, without developing symptoms.

Two cups of milk provide about 600mg calcium. This amount falls far short of the highest amount of dietary calcium intake recommended (currently 1,300mg/day). In 1998, these same researchers conducted another study to determine if lactose maldigesters could tolerate a diet providing 1,500mg calcium/day (the highest recommended calcium intake at that time) primarily from dairy products. In this double-blind cross-over study, 31 women with lactose maldigestion (more than half of whom were minorities) and 31 women who were not lactose maldigesters (all Caucasians) consumed one of two diets for one week and then switched to the other: a dairy-rich diet containing 2 cups of milk, 1 cup of yogurt, and 56g cheese daily, or an identical diet containing lactose-reduced versions of milk and yogurt.

With the exception of some mild flatulence, no differences in symptoms occurred regardless of whether the women consumed the regular or lactose-reduced dairy products.

Based on their findings, the researchers concluded that lactose maldigestion need not be a major barrier to consuming 1,500mg calcium/day from dairy products. Therefore, individuals diagnosed as lactose intolerant can

Dietary Calcium Recommendations

<table>
<thead>
<tr>
<th>Life-Stage Group</th>
<th>Adequate Intake* mg/day</th>
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</thead>
<tbody>
<tr>
<td>1-3 years</td>
<td>500</td>
</tr>
<tr>
<td>4-8 years</td>
<td>800</td>
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<tr>
<td>9-18 years</td>
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<td>19-50 years</td>
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<td>51+ years</td>
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<td>1,300</td>
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<tr>
<td>19-50 years</td>
<td>1,000</td>
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*1997 Dietary Reference Intakes, Food and Nutrition Board, Institute of Medicine, National Academy of Sciences.
meet the highest current recommendations for calcium from dairy foods. Interestingly, 66% of the women with lactose malabsorption were surprised that their symptoms following intake of dairy foods were “less than expected.”

In the landmark DASH (Dietary Approaches to Stop Hypertension) study, African Americans who consumed three servings/day of dairy foods as part of the DASH diet experienced blood pressure benefits without any symptoms of lactose intolerance. The DASH study demonstrates that a low fat diet rich in low-fat dairy foods, fruits, and vegetables can reduce blood pressure in individuals with high-normal blood pressure. Further, the blood pressure reduction is similar to that achieved with currently available blood pressure medications. In this study, 62% of the participants were African Americans. The blood pressure lowering effect of the DASH diet was twice as great in African Americans as in Caucasians. This finding is important given that African Americans suffer from hypertension in greater numbers, develop the condition earlier in life, and have more serious complications than do Caucasians.

Why Is It Important that Minorities Include Dairy Foods in their Diets?

Reducing consumption of dairy foods due to concerns about lactose intolerance can result in a lower intake of milk’s nutrients, especially calcium, which increases the risk of several chronic diseases. This is of particular concern for minorities whose intakes of several nutrients fall below recommended levels. According to a recent study, African Americans in all age groups have lower than average intakes of calcium, magnesium, and phosphorus than non-African Americans and consume fewer than three servings of low-fat and fat-free milk and milk products daily, as recommended by the 2005 Dietary Guidelines for Americans.

Avoiding or limiting consumption of dairy foods reduces intake of several key nutrients and virtually guarantees a low calcium intake. Dairy foods are a major source of calcium, providing 72% of the calcium available in the U.S. food supply. In addition to calcium, milk and other dairy foods provide appreciable amounts of other essential nutrients such as potassium, phosphorus, protein, vitamins A, D, and B₁₂, riboflavin, and niacin. Intake of a calcium-rich diet through milk and other dairy foods improves the overall nutritional quality of the diet.

Not only is the U.S. facing a calcium crisis, but many minorities are at high risk of chronic diseases in which calcium deficiency can play a contributing role.

“It’s important that minorities, particularly African Americans, include calcium-rich milk and other dairy foods in their diet to reduce their risk of high blood pressure. This was clearly shown in the DASH study. The DASH diet offers an option, without the use of medications, for lowering blood pressure and possibly preventing hypertension. For those who currently avoid dairy foods, effective and simple dietary strategies are available to help include these foods in the diet.”

Marlene Most, Ph.D., R.D., L.D.N., F.A.D.A.
Associate Professor of Research
Pennington Biomedical Research Center
Baton Rouge, LA

“Minorities in general don’t come close to meeting recommended servings of dairy foods or dietary intakes of calcium. Further, minorities tend to consume less dairy products and dairy nutrients such as calcium than Caucasians. This could increase minorities’ risk of major chronic diseases including osteoporosis, hypertension, colon cancer, stroke, and obesity.”

Connie M. Weaver, Ph.D.
Distinguished Professor and Head
Department of Foods and Nutrition
Purdue University
West Lafayette, IN
Minorities’ Risk of Calcium Deficiency-Related Diseases

- **Hypertension and Stroke.** Compared to Caucasians, African Americans develop high blood pressure at an earlier age and it is more severe at any decade of life. Consequently, African Americans have a 1.3 times greater risk of nonfatal stroke, a 1.8 times greater rate of fatal stroke, a 1.5 times greater risk of heart disease death, and 4.2 times greater risk of end-stage kidney disease than Caucasians. The prevalence of hypertension in Hispanics is similar to that in Caucasians.

- **Osteoporosis.** This disease is very common among African Americans and Hispanics, although it is less prevalent than among Caucasians and Asians. According to the National Osteoporosis Foundation, 40% of African American women, 59% of Hispanic women, and 72% of Caucasian or Asian women older than 50 have osteoporosis or low bone mass (a risk factor for osteoporosis). A similar pattern is seen among men aged 50 and older. Twenty-three percent of African American, 26% of Hispanic, and 42% of Caucasian or Asian men have osteoporosis or low bone mass. Hip fractures among Hispanics in the U.S. appear to be on the rise.

- **Overweight and Obesity.** African American and Mexican American adults have a higher prevalence of overweight and obesity than Caucasians.

- **Diabetes.** Among adults aged 20 years of age and older, the prevalence of diabetes is about twice as high among African Americans, Hispanic Americans, American Indians, and Asian Americans than among Caucasians.

- **Colon and rectum cancer (colorectal cancer).** African Americans are more likely to develop and die from colorectal cancer than any other racial and ethnic group in the U.S. Among Hispanics, the death rate from colorectal cancer is lower than among Caucasians. However, when Hispanics are diagnosed with colorectal cancer, it is likely to be at an advanced stage which carries a lower probability of survival.

An adequate intake of calcium rich dairy foods and dairy nutrients such as calcium, vitamin D, and potassium may help to reduce the risk of major chronic disorders such as hypertension, stroke, osteoporosis, obesity, diabetes, and colon cancer.
Can’t Minorities Meet Their Calcium Needs Without Consuming Dairy Foods?

Milk and other dairy foods are the preferred source of calcium. This opinion is supported by the 2005 Dietary Guidelines for Americans, the American Academy of Pediatrics, and the National Medical Association, as well as leading nutrition and medical experts.

Intake of foods such as salmon with bones, legumes, and some green leafy vegetables may help meet calcium needs. These foods generally contain less calcium/serving or in some cases the calcium may be less bioavailable than from milk and milk products. For example, a study by Dr. Connie Weaver indicated a person would need to consume 8 cups of spinach, nearly 5 cups of red beans, or 2 1/4 cups of broccoli to get the same amount of calcium absorbed from 1 cup of milk.

A number of calcium-fortified foods including juices, fruit drinks, soy beverages, breads, cereals, and snack foods are available to help meet calcium needs. Although all of these sources provide calcium, they are not nutritionally equivalent to dairy foods. In addition to calcium, dairy foods provide other essential nutrients such as potassium, phosphorus, protein, vitamins D (if fortified), A, and B12, riboflavin, and niacin equivalents. USDA’s MyPyramid (www.mypyramid.gov), a food guidance system to help people implement the 2005 Dietary Guidelines, indicates the relative amounts of food to eat from each of the five major food groups. Because each of these food groups provides some, but not all, of the nutrients needed for health, foods in one group (e.g., vegetables) can’t replace those in another group (e.g., dairy foods). Health experts regard calcium supplements as a supplement to, not a substitute for, a nutritionally adequate diet.

Do Official Health Recommendations Support Dairy’s Benefits for Minorities?

The answer is yes. Several health professional organizations support the health benefits of dairy foods for minorities. A Consensus Report of the National Medical Association (NMA), the nation’s oldest and largest organization representing African American physicians, recommends that African Americans, many of whom are lactose maldigesters, consume three to four servings a day of low-fat milk, cheese, or yogurt to improve their health. For individuals who cannot tolerate milk, the NMA recommends lactose-free milk.

“In 2004, the National Medical Association (NMA), founded in 1895 and the voice of physicians of African descent in the U.S., released a Consensus Report on dairy in the diet of African Americans. The NMA recommends that African Americans consume three to four servings a day of low-fat milk, cheese, or yogurt to reduce the risk of common chronic diseases such as hypertension, obesity, and osteoporosis. Lactose-free milk is an alternative option for those who have difficulty digesting lactose.”

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Chair, Women’s Health
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Likewise, the 2005 Dietary Guidelines for Americans states that the easiest way for those with lactose intolerance to derive the health benefits associated with consumption of milk and milk products is “to choose alternatives within the milk food group, such as yogurt or lactose-free milk, or to consume the enzyme lactase prior to the consumption of milk products.” Recognizing minorities’ and non-minorities’ low intake of dairy products, the Dietary Guidelines identifies milk and other dairy products as a food group to encourage and recommends three cups of fat-free or low-fat milk or equivalent milk products (i.e., cheese, yogurt) a day.

The American Academy of Pediatrics, in its report on lactose intolerance in infants, children, and adolescents, encourages children with lactose intolerance to still consume dairy foods in order to get enough calcium, vitamin D, protein, and other nutrients essential for bone health and overall growth. According to the report, lactose intolerance does not require avoiding dairy foods. Many children sensitive to lactose can drink small amounts of milk without discomfort, especially when consumed with other foods. The report identifies other dairy options which are often well tolerated such as hard cheese, yogurt containing live active cultures, or lactose-free or lactose-reduced milk.

Are considerations given to students who are lactose intolerant, many of whom are minorities, in schools? Yes, lactose-free milk can be offered in school cafeterias as a result of a law passed by Congress in 2004. No permission or paperwork is necessary for schools to offer this option. The year after Congress passed this law, the 2005 Dietary Guidelines for Americans recommended that people with lactose intolerance look for “alternatives within the milk food group, such as yogurt or lactose-free milk…” In some circumstances, the current law allows schools to offer a substitute beverage instead of milk. However, regulations to implement this initiative had not been finalized as of fall 2007. For a substitute beverage other than milk to be offered, either a parent’s note or a medical professional’s letter is required, and the student must have a special dietary need (e.g., lactose maldigestion) that justifies the substitution.
Offering lactose-free milk in child nutrition programs provides an excellent option for children with lactose intolerance. It is also important for children with lactose intolerance to consume some dairy products in order to get enough nutrients for bone development and overall growth. Research shows that those who have difficulty digesting lactose can still enjoy dairy foods on a daily basis, by starting with small portions of milk and increasing slowly as tolerated, or by choosing other dairy foods such as some cheeses and yogurts.”

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Manager of Nutrition Advocacy
Child Nutrition and Policy Center
School Nutrition Association
Alexandria, VA.

New regulations regarding the WIC (Special Supplemental Nutrition Program for Women, Infants and Children) food packages recommend lactose-reduced and lactose-free milk as a first choice before non-dairy options for those with lactose intolerance. Also, additional cheese is allowed for lactose intolerant individuals who obtain medical documentation. USDA’s WIC program is a supplemental feeding program that provides nutritious foods, nutrition counseling, and referrals to health and other social services for more than eight million eligible low-income pregnant, postpartum and breast-feeding women, infants and children up to age 5.

What Can Health Professionals Do to Help Minorities Include Dairy Foods in their Diets?

Health professionals can take the following steps to help minorities include dairy foods in their diets and increase their intake of dairy nutrients such as calcium:

• Understand cultural differences in how dairy foods are consumed.
• Increase minorities’ familiarity with dairy foods, beginning in the early years.
• Educate minorities about the importance of dairy foods and dairy nutrients in health and disease prevention.
• Be sensitive to clients’ concerns about lactose intolerance.
• Identify minority role models who may help encourage minorities to give dairy foods a try.

“Good medicine for lactose intolerance is a glass of milk. Drinking a little milk helps the digestive system learn to digest dairy foods without unpleasant side effects. If you only consume dairy foods once in a while, you are more likely to have symptoms from them. Here’s some advice to improve tolerance to lactose. Drink 1/4 to 1/2 cup of milk two to three times a day and gradually increase the amount. Avoid eating dairy foods in large quantities at one sitting, and eat dairy foods as part of a meal. Also, yogurt with “live, active cultures” and hard cheeses are well tolerated.”

Dennis Savaiano, Ph.D.
Professor
Department of Foods and Nutrition
Dean and Professor
School of Consumer and Family Science
Purdue University
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“It is essential to reach African Americans, Hispanics, and other minority groups about the benefits of nutrient-rich dairy foods, as well as the differences between lactose malabsorption and lactose intolerance. Strategies to reach these populations must include educational materials that are culturally sensitive and formatted to effectively connect with each group.”

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Chair, Women’s Health
University of California, San Diego
San Diego, CA
**Tips to Improve Tolerance to Dairy Foods**

In some cases, lactose intolerant individuals do not have to give up milk and other dairy foods. Here are some easy tips to help people with lactose intolerance manage their condition, include dairy foods in their diet, and meet their needs for dairy nutrients such as calcium, vitamin D, and potassium:

- **Adjust the amount of lactose consumed.** Individuals differ according to how much lactose they can consume without symptoms. To determine how much lactose is well tolerated, individuals should consume a small amount of milk (less than 1 cup) with food and gradually increase the serving size until symptoms just begin to develop. Slightly less than that amount is the starting tolerance point.

- **Train for tolerance.** Starting at the tolerance point, gradually increase the intake of milk to improve tolerance to lactose. Continued exposure to lactose enhances adaptation of colonic bacteria, thereby producing fewer intolerance symptoms.

- **Drink milk with a meal or snack.** This slows gastric emptying and/or delivery of lactose to the colon, allowing more time for any remaining lactase enzyme to digest lactose. Also, when lactose is consumed with food, relatively little undigested lactose reaches the colon at any one time.

- **Choose wisely.** Studies have shown that some dairy foods are better tolerated than others.
  - Yogurts with “live, active cultures” are well tolerated.
  - While whole milk may be better tolerated than lower fat milk, choosing lower fat milk more often is recommended.
  - Chocolate milk may be better tolerated than unflavored milk and is available in low-fat and fat-free varieties.
  - Many cheeses, especially hard cheeses like Cheddar, Colby, Swiss, and Parmesan, are low in lactose and are generally well tolerated.
  - Sweet acidophilus milk, yogurt milk, kefir, and other fermented dairy foods are tolerated at least as well as milk.

- **Try lactose-free or lactose–reduced milk products.** Lactose-hydrolyzed milk and other dairy foods contain all the same nutrients, including calcium, as their regular counterparts. Use commercial lactase preparations (capsules, chewable tablets, solutions) with the first sip or bite of lactose-containing foods. Or drops of liquid lactase can be added to milk to break down much or all of its lactose.
Many minorities avoid milk and other dairy foods because of lactose intolerance. As a result, they may be depriving themselves of milk’s nutrients, such as calcium, vitamin D, and potassium, and increasing their risk of chronic diseases such as hypertension, stroke, osteoporosis, obesity, diabetes, and colon cancer.

While individuals vary, the good news is that many people with lactose intolerance can learn new strategies to help them enjoy the taste and health benefits of consuming three servings a day of dairy foods such as milk, cheese and yogurt, as recommended by the Dietary Guidelines for Americans and MyPyramid.
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Resources

View online or download from the following websites:

**National Dairy Council**

[www.nationaldairy council.org](http://www.nationaldairy council.org)

- **Calcium Counseling Resource.** This material provides health professionals with current research linking calcium and dairy foods to reduced risk of several disorders and provides educational strategies to improve dairy food intake and calcium status.


- **The Lowdown on Lactose Intolerance: Making the Most of Milk.** This updated brochure provides tips for consumers with lactose intolerance on how to keep dairy foods in their diets.

- **Lactose Intolerance Advertorial.**

- **Lactose Intolerance And Your Child (handout).**

**The American Academy of Pediatrics**

[www.aap.org](http://www.aap.org)


- **Lactose Intolerance and Your Child (brochure).**

**The American Institute of Child Health & Human Development**

[www.nichd.nih.gov/health/topics/lactose_intolerance](http://www.nichd.nih.gov/health/topics/lactose_intolerance)

- **Lactose Intolerance**

- **Milk Matters, Lactose Intolerance: Information for Health Care Providers**
Summary of Key Findings & Recommended Strategies

A 2009 report from the National Medical Association (NMA) suggests that African Americans may be at risk for nutrient deficits as a result of under-consumption of dairy products attributed, in part, to the existence of lactose intolerance among this population. The report, Lactose Intolerance and African Americans: Implications for Consumption of Appropriate Intake Levels of Key Nutrients, recommends dairy foods as the first choice for people with lactose intolerance. The report provides recommendations on how health professionals can best address lactose intolerance with their patients.

Key Findings Cited in NMA’s Report

- While African Americans appear to be disproportionately affected by lactose intolerance, earlier estimated prevalence rates may be inflated because they were based on tests for lactose maldigestion using greater amounts of lactose (50 gm in water) than is typically consumed from a glass of milk (12 gm). However, more recent research estimates that approximately one-third to one-fifth of individuals with limited lactase activity (the enzyme needed to digest lactose) will actually have digestive symptoms after consuming dairy foods.
- Poor dairy consumption patterns among African Americans may create nutritional deficits that increase their vulnerability to chronic diseases, such as hypertension, obesity, certain cancers, and diabetes/insulin resistance syndrome.
- In a 2004 study, NMA found that of the 24 percent of African Americans who reported having symptomatic lactose intolerance, 85 percent said they would add more milk and dairy products to their diet if they could avoid the symptoms.

NMA’s Recommended Strategies

NMA’s report highlights five recommendations, summarized below, that health professionals can use to educate their patients:

- **Know and Understand the Roles and Sources of Nutrients**: Many African Americans are unaware of the number of servings recommended from the five food groups. “Thus, physicians and other health care providers may wish to disseminate dietary guides to African Americans that educate them regarding the critical role that three daily servings of dairy products – milk, yogurt, or cheese – can play in ensuring a sufficiency of calcium, riboflavin, protein, potassium, and/or other nutrients.”
**Encourage Patients to be Formally Tested for Lactose Intolerance:**
“Physicians and providers can do much to reduce dairy nutrient deficiencies by including the question of lactose tolerance as a core question when medical data for African Americans are collected. Persons who check the "yes" box can then be tested for lactose intolerance levels using the standard Lactose Tolerance Test, the Hydrogen Breath Test, the Stool Acidity Test, or one of the emerging methods of testing.”

**Gradually Increase Use of Lactose:** There is evidence from milk adaptation studies that gradually increasing regular exposure to lactose-containing foods can increase tolerance. The report encourages practitioners to also recommend other strategies documented to improve tolerance, including drinking milk with food, enjoying lactose-reduced milk and milk products, eating aged cheeses (i.e., Cheddar and Swiss) that are low in lactose, and eating yogurt with live and active cultures that help digest lactose.

**Provide Health Education Regarding the Role that Dairy Nutrients Play in Hypertension, Obesity, Diabetes, and Other Chronic Illnesses:** Since African Americans are at disproportionate risk for these chronic diseases, the report suggests that physicians and other providers disseminate information to their patients with chronic illnesses regarding these relationships. Helping clients link dairy consumption with health benefits may beneficially impact the prevalence of these conditions.

**Use Milk-Substitute Products:** To reduce the risk of nutritional deficits, providers should recommend the consumption of yogurts, lactose-reduced/free milk and other low lactose products in the milk food group – or encourage clients to use lactase enzyme supplements when consuming milk group foods.

The paper concludes, “Since dairy nutrients address important health concerns, the amelioration of lactose intolerance is an investment in health.” The authors say, “It is possible to consume dairy even in the face of a history of maldigestion or lactose intolerant issues,” and that “it is essential for physicians to communicate [these] key messages to their patients.”


Visit www.NationalDairyCouncil.org for more information, patient education materials and strategies – such as opting for lactose-free milk or trying small amounts of milk with meals – that may help people with lactose intolerance enjoy the recommended three servings of low-fat and fat-free dairy foods every day – without discomfort.

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