



## Dole Diet Center

### Tubers Vs. Tuberculosis

Sweet Potatoes among Top Sources of Anti-TB Nutrition



The root of the word “tuberculosis” is, in fact, “root”—or “tuber,” the Latin term for the underground structure which stores and supplies the plant with nutrients it needs to survive. One nutrient—vitamin A—supplied lavishly by the root tuber sweet potato, is receiving attention as a potentially powerful weapon in the fight against tuberculosis itself.

Every year, roughly two million people die from tuberculosis (or TB)—an infectious disease typically affecting the lungs. Classic symptoms include chronic cough, fever, and weight loss (which is why sufferers were historically said to be afflicted with “consumption”). While new cases of TB were thought to be in decline, recent high profile outbreaks in Los Angeles and London have once again raised concerns of a potential epidemiological “ticking time bomb” of a drug-resistant strain of the disease. This prospect underlines the need—not just for new treatment options—but for preventive measures as well.

Diet, of course, is the best prevention particularly when it comes to strengthening the first line of immune defense. In a recent issue of the *Journal of Immunology*, UCLA researchers exploring the role of nutrition in bolstering the body’s natural immunity found that all-trans retinoic acid, a metabolite of vitamin A, possesses unique potential in fighting TB. How? By attaching to the TB supply chain, in a sense. These bacteria rely on cholesterol for nutrition and other needs. “If we can reduce the amount of cholesterol in a cell infected with tuberculosis,” observed the study’s senior author, Philip Liu, PhD, “We may be able to aid the immune system in better responding to the infection.”

The research team looked at metabolites of both vitamin A (i.e., all-trans retinoic acid) and vitamin D (i.e., 1,25-dihydroxyvitamin D3), believing both metabolites might leverage the same metabolic mechanisms to aid the immune response, but only all-trans retinoic acid decreased cholesterol levels of infected human blood cells. One important caveat: The effect relied upon expression of a particular gene (NPC2). While more research will help clarify the interplay of genetic influences and nutrition, an overwhelming body of evidence points to the benefits of vitamin A, including healthy vision, embryonic development and reproductive health.

Where to get your vitamin A? The aforementioned sweet potatoes supply 770% of vitamin A per one cup cooked; other sources include butternut squash (460%), carrots (430%), kale (350%), cantaloupe (110%) and mango (25%). For a delicious way to get your vitamin A, try our featured recipe, “Sweet Potato and Spinach Soup.”

### Hot News



CREATIVE CRUDITES

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SWEET POTATO AND SPINACH SOUP

## Bone Deep Fat

Fatty Marrow & Fracture Risk—How Exercise Can Protect You



When it comes to fretting over fat, we tend to start from the outside—focusing first on visible bulges, then the visceral fat around our organs, then the fat within organs and bloodstream. But there's a deeper fat with dangerous consequences, within the marrow of our bones...fortunately new research shows how effective exercise can be in controlling it.

Our bodies are comprised of 4% marrow—the soft tissue where red blood cells and immune cells are produced. Too much fat in our marrow may play a role in increased risk of bone fractures among the elderly. Age—and certain kinds of medication—can prompt our body's stem cells to start producing more fat than bone. Researchers at the University of North Carolina School of Medicine wanted to see how exercise might affect this process.

The study, published recently in the journal *Bone*, found that when mice ran on a wheel as much as they wanted, the amount of fat inside their bones decreased. When the same animals were fed the equivalent of a fast food diet—but were allowed to exercise as much as they liked—their bone fat increased only marginally more than non-exercising mice on a normal diet. Now, for humankind, free access to an exercise wheel and permission to “exercise as much as we like” might not prompt the same industrious and hence productive activity observed in this study. How much would we humans need to exercise to reap bone-fat-busting rewards? Researchers turn next to answering this question, which could prove particularly relevant for demographics at increased risk of fractures—diabetics, anorexics, the elderly, and those using steroids.

Meanwhile, there's ample evidence that regular exercise—and a healthy diet—can help bolster bone health. Get calcium from healthy sources such as sardines, canned salmon, and hardy greens including turnip, collard and dandelion. Hold on to the calcium you consume by upping your intake of potassium from bananas, broccoli, spinach and lima beans. Key to bone health is vitamin K, top sources of which include kale, spinach, Brussels sprouts and Romaine lettuce. Not to be neglected is vitamin C, linked to increased collagen production, and supplied abundantly by strawberries, pineapple and kiwi. Why not toss up a salad drawing upon such colorful ingredients, such as “Wheatberry, Beans and Kale Chopped Salad” (Recipe found on dolesalads.com).

## Heights Of Health

The Taller They Come...the Shorter They Live?



While often envied for their stature, the tall do have their challenges. Less legroom, low doorways...though these seem quite trivial compared to the length of life. Is longevity the ultimate trade off, where the taller you are, the shorter you live?

Not necessarily, though a new study suggests that shorter men might be more likely to have a protective version of a gene that contributes to regulating insulin, suppressing tumors, and neutralizing free radical damage—all of which may help explain why those who were short on inches were long on years. These were the results of analyses run by researchers at the University of Sydney, Australia, Instituto Tecnológico de Monterrey, Mexico, Okinawa University, Japan, Kuakini Medical Center in Hawaii, University of Hawaii and the U.S. Veteran Affairs on over 8,000 Japanese-American men born between 1900 and 1919 and were followed for an average of 40 years. Height was also positively correlated to all cancer mortality unrelated to smoking. Of the study's original subjects, 250 are still alive today.

Previous animal models of aging demonstrated a longevity advantage associated with

smaller body size—but this is one of the first solid research investigations to point to similar patterns among humans. This study found that those who lived a long time vs. average longevity were far more likely to have a certain version of a gene which doubled the odds of living to 100 (or tripled the odds for those lucky enough to inherit the gene from both mother and father).

Why might small stature translate into a longer life? One theory holds that being larger means you've used up more cells during the growth process, and hence have fewer "reserved" to triage DNA repair and other anti-aging trouble-shooting in later years. But if you're of compact build, and gloating over finally having an advantage over your taller peers, keep in mind that having a healthy lifestyle—which first and foremost means eating plenty of fruit and vegetables—is the best way to get a leg up on healthy aging. Previous research suggests that 75% of your longevity potential comes from choices which affect not just the length of your life but its quality as well. For example, eating two cups of vegetables each day yielded a nearly 40% decrease in the rate of cognitive decline, one study found.

## Nutrition News Desk

### Creative Crudités

Raw-some Ideas for Your Veggie Platter



Carrots, celery...celery and carrots. Maybe a few cherry tomatoes and raw broccoli florets thrown in for good measure. There's no wonder the crudité platter is so often left to languish on the party buffet while the other appetizers disappear. Yet with just a little bit of planning and not a lot of extra effort, you can create a veggie platter that will amaze guests, delight the eyes, and nourish the body. Here are some "raw-some" ideas for upping your produce platter prowess:

- 1) **Crudité "Shots"**: Bring your veggies and dip together in individual portions by filling the bottom of shot glasses with dip or hummus and nesting a few carrot sticks, celery stalks, cucumber spears etc. in each. Visually appealing, this approach offers added benefits of saving guests from having to juggle food and cuts down on worries about germs spread from communal dip.
- 2) **Stuffed crudités**: Instead of placing your veggies into a dollop of dip, place a dollop of dip inside your veggies. Slice a crisscross into the top of a grape or cherry tomato and stuff. Tomatoes are loaded with lycopene whose many potential benefits include lower risk of osteoporosis, lower risk of prostate cancer, and even sunburn protection. The healthy fat in dip makes this carotenoid and other nutrients easier to absorb.
- 3) **Crudité-kabobs**: Simple wooden skewers can also help grazers get a handle on how to eat crudités. Cherry tomatoes, broccoli florets, button mushrooms, interspersed with rounds of cucumber, golden squash...the options are as limitless as your imagination. For added ease and visual interest you can anchor skewers into a base made from the overturned top of a cabbage or even half a melon.
- 4) **Be a Cut Up**: Use smaller-size cookie cutters on bell peppers, carrots, and zucchini to create fun shapes that can then be arranged in patterns, or interspersed with stalks or florets for variety. Turn your yellow peppers into stars, red peppers into hearts, and carrots into flowers which can then be popped into celery stems with parsley leaves.
- 5) **Fill in the Blanks**: To create a look of abundance, use red cabbage leaves, kale or

other leafy green to cover empty holes. If you run out of vegetables and filler, don't be afraid to add fruit—a bunch of grapes, figs or kumquats. This is not an either-or equation—the best way to make a memorable platter is to mix it up!

- 6) **Tap into your artistic inspiration:** Create “Trees in a Broccoli Forest” by putting carrots side-by-side to create the trunks. Then cluster broccoli florets around tops of the carrots like tree tops. Add cherry tomatoes as sunshine near the top of the plate. Or turn asparagus spears into magic wands, as our young chef does in this children's cooking video: [CLICK HERE](#).

Don't put all your effort into creating a wow-worthy veggie platter only to lose steam on the dip—too often you'll see a beautiful display that's sadly centered around a plastic cup of pre-fab, gelatinous goop that looks anything but healthy or appetizing. For something with a bit more pizzazz and nutritional punch, try our “Magical Pink Dip” (made with beets), or “Smoky Cauliflower and White Bean Dip,” “Avocado Pesto,” or “Broccoli Hummus” from Gena Hamshaw of *Choosing Raw* (recipes found on [choosingraw.com](#)).

## Kiwi Energy

Feeling Weary? Eat Two Kiwis!



Feeling depressed, lethargic, anxious? Don't fret—eat fruit! Specifically, consuming two kiwifruit could yield a significant mood boost, plus increased energy (not to mention the myriad of health benefits from all that tropical nutrition).

Such are the implications of a study conducted by the University of Otago, in New Zealand, in which 35 male university students (ages 18 to 35 years) were assigned to a six week kiwi regimen of either half a kiwi or two kiwis per day. Emotional scores were monitored based on a mood scale state questionnaire, while blood values were also assessed for various nutrients, including vitamins C, E, D, iron and carotenoids. The results, published in the *Journal of Nutritional Science*, found that the two kiwi cohort enjoyed a 31% increase in energy, a 38% decline in fatigue and a 34% decrease in depression. By contrast the half kiwi group reported no overall improvement in mood or energy.

As reported in this space previously, kiwis provide a host of unexpected health benefits. Indeed, the fuzzy little tropical fruit wonders were found to significantly lower blood clot risk, according to the University of Oslo. Two kiwis per day also improved regularity and reduced discomfort among those suffering from constipation. Eating two kiwis before bedtime helped volunteers sleep up to 15% longer and fall asleep 41% faster in one study. And kiwis just might help you breathe easier: In one study, kiwi-fed mice enjoyed a 47% decline in asthmatic symptoms, plus a 48% reduction in white blood cell counts (which marshal in excess among asthmatics and allergy patients). Kiwi's powerful enzyme—actinidin—may play a role (Dole Nutrition Lab researchers found the enzyme to be concentrated in the fruit's tangy green flesh).

Kiwis' high levels of vitamin C also deserve some credit. According to a study published in the journal *Nutrition*, rising levels of vitamin C correlated with a 34% drop in mood disturbances. In addition to moderating the mopes, vitamin C yields an encouraging array of other benefits, including better skin condition, stronger bones, reduced inflammation, enhanced fat burning and improved brain performance. Happily, getting your vitamin C needs met is easily, and deliciously accomplished by adding any of the following to your diet (values indicated are per cup reflecting RDIs): Red bell pepper **320%**, oranges **160%**, pineapple **130%**, papaya **140%**, guava **630%** and of course kiwis **280%**. You'll also get plenty of vitamin C from broccoli **170%** and Brussels sprouts **160%** (per cup cooked).

Enjoy kiwis' health benefits in our featured recipe, "Fruit Salad Parfaits" (recipe found on dolesalads.com).

## Meaning Vs. Mortality

A "Reason to Live" Could Mean Living Longer



In Man's Search for Meaning, Viktor Frankl recounts his experience surviving Nazi concentration camps and how the experience helped him formulate "logotherapy"—which emphasizes the importance of finding meaning in all forms of existence, even the most painful ones. He teaches: Finding a "why" in life is crucial to dealing with any "how." And not just "how," but according to new research, "how long," i.e., a meaningful life may mean a longer one as well.

A study published recently in *Psychological Science* of 7,000 Americans ages 20 to 75, beginning in 1994 posed questions aimed at assessing this sense of life purpose. For example: Do you generally feel as if you've done all there is to do in life? Do you feel as if you wander aimlessly through life? When a team from the University of Rochester Medical Center, in collaboration with Canada's Carleton University, looked at these answers after a 14 year follow-up, they found that those who survived were more likely to see their lives as consequential and worthwhile. Observed lead researcher, Patrick Hill, Ph.D.: "Our findings point to the fact that finding a direction for life, and setting overarching goals for what you want to achieve can help you actually live longer, regardless of when you find your purpose."

Why might this be? One theory is that those who see themselves less as passive victims of fate and more as active co-creators in their destiny may have more motivation in adhering to a healthy lifestyle. Previous research suggests that 75% of your longevity potential comes from choices which affect not just the length of life, but its quality as well. Perhaps self-directed seniors are less likely to seek escape in television and alcohol than more apathetic peers. Guzzling in the golden years could increase risk of falls and interfere with medication, and statistics show that more than a third of seniors exceed guidelines for moderation. By contrast, regular brisk walking can increase brain volume as we age—a simple regimen of walking three times a week can improve aerobic ability. Eating more than two cups of veggies a day was found to yield a nearly 40% decrease in the rate of cognitive decline.

Looking for ways to find more meaning in life's "Why"? You may want to look into attending religious services (those who do enjoy a 25% lower mortality rate). Volunteer, take up a new hobby, learn a new skill (brushing up on bilingual ability could ward off cognitive decline). Above all, focus on gratitude—you'll get fewer headaches, less back pain, and your smiles will make you appear younger!

## Featured Recipe

### Sweet Potato and Spinach Soup

#### Ingredients:

- 2 teaspoons olive oil
- 1 cup chopped DOLE® Onion
- ½ cup chopped DOLE Carrots
- 1 teaspoon curry powder
- ½ teaspoon seasoned salt
- ½ teaspoon freshly ground black pepper
- 5 cups vegetable broth, divided
- 1 large (12 oz) DOLE Sweet Potato, peeled and cubed
- 1 DOLE Red Apple, cored and chopped
- 1 package (14 oz.) soft tofu, drained
- 2 tablespoons cornstarch
- 1 package (6 oz.) DOLE Baby Spinach



**Serves:** 5

**Prep Time:** 15 min.

**Cook Time:** 30 min.

#### Directions

1. **Heat** oil over medium-high heat in large stockpot. Add onion, carrots, curry powder, salt and pepper. Cook 4 to 5 minutes, stirring occasionally.
2. **Stir** in 4 cups of the broth, sweet potato and apple. Bring to a boil; reduce heat and simmer 20 minutes or until sweet potato is tender. Cool slightly.
3. **Combine** tofu, cornstarch and remaining 1 cup broth in blender or food processor. Cover; blend until smooth. Remove from container; set aside.
4. **Process** sweet potato mixture in batches in blender or food processor until smooth. Pour into stockpot; add tofu mixture.

#### EDITORIAL TEAM

Dole Nutrition Institute / Lead Editor: Nicholas Gillitt, PhD

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