

## DIETARY SUPPLEMENTS

What can make and keep humans healthy? UF/IFAS scientists are experimenting with minerals, nuts, herbs, prebiotics and probiotics to show that what a person consumes profoundly affects their health.

Garlic is particularly healthy for the heart, but research is showing it can boost the immune system, too. Almonds are rich in fiber and scientists want to know if the nut can improve intestinal health in families. Zinc deficiency is believed to contribute to nearly half a million child deaths worldwide annually, but researchers have found an inexpensive and easy way to check for the mineral. Spices have long been treasured throughout the world and now we know that some help to fight inflammation.

Use of probiotics and prebiotics is increasing in popularity. Prebiotics, which are specific types of fiber, support the growth of beneficial bacteria. Probiotics are live bacteria that, when consumed, confer a health benefit. UF research shows that consumption of a probiotic can help improve the digestive health of older adults, while prebiotics can improve the health of people with chronic kidney disease.

NATURAL  
RESOURCES



HUMAN  
SYSTEMS



AGRICULTURE



## Ongoing Research



### GARLIC

Sue Percival and several colleagues gave a randomized, double-blind test to 120 healthy people to see if aged garlic capsules could modify proliferation of T-cells and NK cells, both of which are part of the immune system. After 90 days, the group consuming the aged garlic appeared to have reduced severity of colds and flu, as noted by a reduction in the number of symptoms reported (21 percent fewer), a reduction in the length of illness (61 percent fewer days) and fewer missed school and work days (58 percent fewer). These results suggest that supplementation of the diet with aged garlic extract may enhance immune cell function and that this may be responsible, in part, for reduced severity of colds and flu.



### ALMONDS

Almonds contain fiber and a variety of nutrients important for human health. Bobbi Langkamp-Henken, a professor with the UF/IFAS Department of Food Science and Human Nutrition, is conducting a study to determine whether incorporating almonds into the diets of families with young children can have further health benefits resulting in improved quality of life. The scientists are investigating if almonds in the diet increase beneficial bacteria, improve intestinal function, increase antioxidant status, improve immune function, decrease inflammation and decrease perceived stress. In the study, adults will eat 1.5 ounces of whole, raw almonds with skin or almond paste, per day, and children will consume 0.5 ounces of almonds or almond paste per day for 3 weeks.



### PROBIOTICS AND INTESTINAL HEALTH

Aging is often associated with altered gastrointestinal and immune health. Probiotics are thought to help regulate gastrointestinal function, which may lead to improvements in immune function. A recent UF/IFAS study led by Bobbi Langkamp-Henken showed that 36 healthy older adults, consuming a probiotic mix each day for three weeks, had a shift in their intestinal bacteria towards “healthy” bacteria and changes in immune function, resulting in a greater proportion of immune cells, decreased inflammation and better digestive health. The participants, 65 to 80 years old, saw a decrease in gas bloating and diarrhea from taking two capsules daily containing *Lactobacillus gasseri*, *Bifidobacterium bifidum* and *Bifidobacterium longum* (1.5 billion cells per capsule).

## Research with Impact



### PREBIOTICS AND CHRONIC KIDNEY DISEASE

Foods with added fiber, specifically prebiotic fibers, appear to be of benefit to individuals with chronic kidney disease. Looking at blood urea nitrogen and serum creatinine concentrations, researchers studied the incorporation of commercially available foods with added fiber and prebiotics. The team of researchers led by Wendy Dahl, an assistant professor with the UF/IFAS Department of Food Science and Human Nutrition, found that consuming fiber-fortified foods is an effective means of dramatically increasing fiber intake, decreasing symptoms and improving blood lipids in people with chronic kidney disease. It may also help to reduce blood levels of p-cresol, a substance implicated in cardiovascular disease and progression of chronic kidney disease.



### SPICES AND INFLAMMATION

Sue Percival, a professor and chair of the UF/IFAS Department of Food Science and Human Nutrition, was part of a team that investigated common herbs and spices to determine if they were absorbed at pharmacologically relevant concentrations, and thus available in the body to protect the body against free radical damage. If they were absorbed, then white blood cells' DNA and LDL in the blood were protected. Results showed that spices were absorbed at pharmacologically relevant concentrations. Paprika, rosemary, ginger, heat-treated turmeric, sage and cumin are thought to protect people from cell damage that may result in tumors, while clove, ginger, rosemary and turmeric have a significant positive effect on blood lipids such as LDLs.



### ZINC BIOMARKERS

Zinc is an important micronutrient in the human diet and zinc deficiency is believed to contribute to more than 450,000 child deaths worldwide every year from diarrhea, lower respiratory infections and malaria. Age-related declines in immune function have also been related to zinc deficiency in the elderly. To address this, zinc expert Robert Cousins, a professor and eminent scholar in the UF/IFAS Department of Food Science and Human Nutrition, led a team that discovered biomarkers that indicate zinc deficiency better than any previously known method. These biomarkers can be detected in blood samples or cells collected by swabbing the mouth, and the process is inexpensive enough to use in impoverished areas where limited medical care is available.

### UNIT LEADER

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