

# Eating Your Way Out of High Blood Pressure

The role of salt in high blood pressure is considerably more complex and controversial than the public is being led to believe. What's more, some other dietary components may be just as, if not more, critical.

USDA

By JOAN AREHART-TREICHEL

The public has long been admonished by the medical community to eat less salt, both to lower high blood pressure and to keep it from developing in the first place. And in recent months the public has been pressured even more toward these goals by the American Medical Association, the Food and Drug Administration, the Department of Agriculture and some other medical groups. Yet the role that salt and other sodium-containing compounds play in high blood pressure is considerably more complex than the public is being led to believe, current scientific data indicate, and there is even disagreement among scientists studying the subject over how much salt people should eat.

There is ample and strong evidence that a reduced salt intake can lower high blood pressure among humans. For instance, Norman Kaplan, a high blood pressure specialist with the University of Texas Health Science Center in Dallas, contends that one of the strongest studies to date was published in the Feb. 13, 1982 *LANCET* by Graham A. MacGregor and colleagues of Charing Cross Hospital Medical School in London. Says Kaplan: "It was the first truly . . . properly done study in which a moderate degree of sodium restriction was shown to be effective in lowering high blood pressure." Another noteworthy in-

vestigation, Kaplan says, was reported at the American Heart Association meeting in Dallas in November 1982 by Rose Stamler of Northwestern University Medical School in Chicago and colleagues. Their results indicated that if persons with mild high blood pressure eat less salt, while also limiting their alcohol intake, exercising more and dieting if necessary, they can often reduce their need to take drugs to combat high blood pressure or maybe even be safely able to stop taking such drugs altogether. Still other outstanding studies showing that consumption of less salt can lower high blood pressure were conducted during the late 1940s and early 1950s, says Harriet P. Dustan, director of the Cardiovascular Research and Training Center at the University of Alabama Medical Center in Birmingham and past president of the AHA. Yet the drawback of these investigations, she points out, is that they restricted salt much more drastically than would be practical in our modern Western society.

There is also ample, but much less scientifically firm, evidence that a low-salt diet can *prevent* high blood pressure in humans. A number of studies have examined populations who eat little salt and populations who eat a lot of it and have found the former to have a much lower incidence of high blood pressure. Animals with genetic susceptibility to high blood

pressure will not develop it or at least won't develop such severe high blood pressure if they eat a low-salt diet. And for the first time, a study has shown that a low-salt diet can lower blood pressure among persons with normal blood pressure, providing at least indirect evidence that a low-salt diet can prevent high blood pressure. It was reported at the AHA meeting in Dallas by Sandra A. Daugherty, an epidemiologist with the University of Nevada School of Medicine in Reno. Daugherty and her co-workers studied 16 families to see whether reduced salt intake over a three-month period could reduce normal blood pressure. They found that it could among adults and older children but not among younger children. Daugherty and her co-workers will now attempt to confirm the results in a larger study of 60 families.

However, no study to date has followed subjects on a low-salt diet for a number of years to see whether such a diet can prevent high blood pressure. And, according to experts, such a study is what is really needed to prove that a low-salt diet can prevent high blood pressure. But such an investigation will probably never be conducted, contends Harry Keiser, a scientist with the National Heart, Lung and Blood Institute in Bethesda, Md., who is studying salt and high blood pressure. Kaplan agrees. The reasons are that it would be

difficult to keep subjects on a low-salt diet for a number of years and to frequently monitor their blood pressure during such an extended time period. So as things now stand, and may stand indefinitely, evidence that a low-salt diet can prevent high blood pressure in humans is not as strong as that which indicates that such a diet can lower high blood pressure.

In view of the complex and sometimes conflicting data over the role of sodium in high blood pressure, it's not surprising that scientists studying the subject hold different views on what the public should do about eating salt and other sources of sodium, and these views don't necessarily coincide with the party line being voiced by the AMA, FDA, USDA and some other medical groups that recommend people reduce their salt intake.

For instance, Dustan contends that persons with high blood pressure should restrict their salt intake to the extent that they avoid eating excessively salty foods like ham, bacon and potato chips, and that persons with normal blood pressure should not restrict their salt intake unless they come from a family prone to salt-induced high blood pressure. On the other hand, Suzanne Oparil, a scientist at the University of Alabama Medical Center studying interactions of sodium, high blood pressure and the nervous system, believes that salt restriction is a good idea for high blood pressure patients, but that it probably wouldn't benefit the general public with normal blood pressure and might even hurt it. For instance, an individual with normal blood pressure who is very active and restricts salt intake, she says, could be vulnerable to low blood pressure. Also, she adds, "not being able to eat salt is losing one of the pleasures of life, and I think that is serious."

Kaplan holds that people with and without high blood pressure should generally eat less salt. However, he says, a person who has normal blood pressure, no family history of high blood pressure and is older than 45 or 50 years of age is unlikely to develop high blood pressure and thus "can probably go ahead and eat what he damn well pleases."

And adding to the confusion is new information on the effect of other dietary factors in high blood pressure.

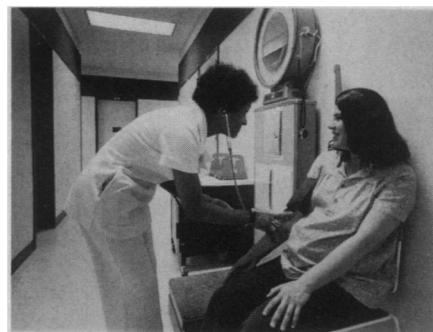
One of them is the element potassium. Kay Tee Khaw and Simon Thom of St. Mary's Hospital in London gave a potassium supplement to 10 healthy young subjects and a placebo to 10 others for a two-week period and measured their blood pressure before and at the end of the period. The 10 subjects getting potassium were then switched to a placebo for two weeks, while the 10 getting a placebo were put on potassium during the same period. Once again blood pressures were recorded before and at the end of study. Fifteen of the 20 subjects experienced lower blood pressure after taking potassium than after taking a placebo, Khaw and

Thom reported in the Nov. 20, 1982 LANCET. This finding implies that potassium supplements—either in the form of potassium tablets or in potassium-rich fruits and vegetables—might help people lower high blood pressure or even keep them from getting it in the first place. "If these results are confirmed in larger groups over longer periods," Khaw and Thom assert, "the public health implications may be considerable."

In fact, a diet rich in vegetables may prevent or lower high blood pressure for reasons other than the potassium it contains. Ian L. Rouse of the University of Western Australia in Perth and colleagues allocated 59 subjects with normal blood pressure to one of three groups. Group one ate a normal meat-containing diet for 12 weeks. Group two ate a diet consisting of vegetables and dairy products but no meat for six weeks, then a normal meat-containing diet for six weeks. Group three ate the meat diet for six weeks, then the vegetarian diet for six weeks. Subjects' blood pressures were monitored before and during study. Group one's blood pressure did not fall during the entire 12-week study period. Group two and three's blood pressure fell while on the vegetarian diet but not while on the meat diet. Thus a vegetarian diet appears to be capable of lowering blood pressure, the researchers concluded in the Jan. 1/8, 1983 LANCET, and they suspect that it's because a vegetarian diet contains less fat than a meat-containing diet does.

Another study, also published in the Jan. 1/8, 1983 LANCET, strengthens the possibility that a low-fat intake can prevent or lower high blood pressure. Pekka Puska of the National Public Health Institute in Helsinki, Finland, and colleagues allocated 114 subjects with either normal or high blood pressure to one of three groups. Group one ate a low-fat diet for six weeks, group two reduced its salt intake for six weeks, and group three continued its usual diet for six weeks. The blood pressures of all groups were monitored before and during study. Group one experienced a fall in blood pressure during the six-week period, whereas groups two and three did not. What's more, blood pressure reduction in group one was greater among persons with high blood pressure than among those without. These results, the scientists concluded, suggest that a low-fat intake can counter and prevent high blood pressure. The results will also, the researchers contended, "certainly add to the controversy about the possible role of salt in hypertension [high blood pressure]."

Yet another dietary component that may be capable of preventing and treating high blood pressure is the element calcium. Jose Villar, an obstetrician with the Johns Hopkins University School of Hygiene and Public Health in Baltimore, and colleagues gave calcium supplements or a placebo to 57 healthy young people



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*High blood pressure has been well documented as a major risk factor in heart attacks and strokes, and today checking for high blood pressure is not just a routine part of medical care but something the public can do for itself. Yet the role that diet plays in countering high blood pressure is unclear.*

for 22 weeks. As they reported in the March 4, 1983 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the subjects getting calcium experienced a significant reduction in blood pressure whereas the placebo group did not. What's more, high blood pressure is almost unknown among Central American Indians, Villar says, and he has found that the Indians have a surprisingly good calcium intake from the corn in corn tortillas. These results, in press with the INTERNATIONAL JOURNAL OF OBSTETRICS AND GYNECOLOGY, further suggest that calcium can counter high blood pressure.

So which dietary factor or factors are most crucial in high blood pressure control—less salt or fat, or more potassium, vegetables or calcium? Perhaps any or all of them. Until scientists know for sure, Villar cautions, people should not make the same mistake that the low-salt advocates have made—claiming that one dietary factor alone can promote or prevent high blood pressure. □