

**EMBARGOED FOR RELEASE until March 5, 2015 – 5:00 PM (ET)**

**Contacts:** Tracy Hampton • (312) 339-9067 • [thampton@nasw.org](mailto:thampton@nasw.org)  
Bob Henkel • (202) 557-8360 • [bhenkel@asn-online.org](mailto:bhenkel@asn-online.org)

## STUDY REVEALS HOW DIETARY PHOSPHATE CAN INCREASE HEART DISEASE RISK

*Findings are especially relevant for patients with kidney disease, who lose the ability to excrete phosphate*

### Highlight

- High phosphate levels cause a stress signal inside the cells that line blood vessels, leading to the release of microparticles that promote the formation of blood clots.

*Blood vessel obstructions caused by clots are a common cause of injury and death.*

**Washington, DC (March 5, 2015)** — A new study has found that high phosphate levels can cause a stress signal inside the cells that line blood vessels, leading to the release of microparticles that promote the formation of blood clots. The findings, which appear in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN), provide new insights into how phosphate in the diet can impact heart health.

Inorganic phosphate is a nutrient in nearly all diets. Because patients with chronic kidney disease (CKD) lose the ability to excrete excess phosphate in their urine, the nutrient accumulates in their blood and cells. Such “hyperphosphatemia” is thought to be an important contributor to CKD patients’ increased risk of cardiovascular disease.

To investigate this link, a team led by Alan Bevington, BA, DPhil and PhD student Nima Abbasian, BSc, MSc (University of Leicester, UK) examined the effects of hyperphosphatemia on the cells that form the lining of blood vessels. The researchers’ experiments revealed a mechanism by which an excess of inorganic phosphate—similar to levels found in the blood of CKD patients—causes a stress signal inside these cells. In cells that are stressed in this way, fragments known as microparticles break off from the cells and can promote the formation of blood clots. “This is important because blocking of blood vessels by blood clots—a process known as thrombosis—is a common cause of injury and death, occurring in a wide range of human illnesses including CKD,” said Dr. Bevington.

While the effects described in this study are especially relevant to patients with kidney dysfunction who lose the ability to excrete excess phosphate in their urine, nearly all

modern Western diets are rich in phosphate, so even healthy individuals with normally functioning kidneys may experience some elevation of blood phosphate levels. In addition, there are a number of metabolic disturbances that can raise phosphate levels inside cells. "It's possible therefore that the results of this study will also be relevant in other situations in addition to CKD," said Abbasian.

Study co-authors include James Burton, BA, MBChB, MRCP, DM, Karl Herbert, BSc, PhD, Barbara-Emily Tregunna, BSc, MSc, Jeremy Brown, BSc, MSc, Maryam Ghaderi-Najafabadi, BSc, MSc, Nigel Brunskill, MBChB, ECFMG, PhD, FRCP, and Alison Goodall, BSc, PhD.

Disclosures: The authors reported no financial disclosures.

The article, entitled "Hyperphosphatemia, Phosphoprotein Phosphatases, and Microparticle Release in Vascular Endothelial Cells," will appear online at <http://jasn.asnjournals.org/> on March 5, 2015.

*The content of this article does not reflect the views or opinions of The American Society of Nephrology (ASN). Responsibility for the information and views expressed therein lies entirely with the author(s). ASN does not offer medical advice. All content in ASN publications is for informational purposes only, and is not intended to cover all possible uses, directions, precautions, drug interactions, or adverse effects. This content should not be used during a medical emergency or for the diagnosis or treatment of any medical condition. Please consult your doctor or other qualified health care provider if you have any questions about a medical condition, or before taking any drug, changing your diet or commencing or discontinuing any course of treatment. Do not ignore or delay obtaining professional medical advice because of information accessed through ASN. Call 911 or your doctor for all medical emergencies.*

*Founded in 1966, and with more than 15,000 members, the American Society of Nephrology (ASN) leads the fight against kidney disease by educating health professionals, sharing new knowledge, advancing research, and advocating the highest quality care for patients.*

# # #

Tweet: Study reveals how phosphate in the diet can increase heart disease risk.  
<http://www.bit.ly/ASN-XXXX>

Facebook: A new study has found that high phosphate levels can cause a stress signal inside the cells that line blood vessels, leading to the release of microparticles that promote the formation of blood clots. The findings, which appear in the *Journal of the American Society of Nephrology*, provide new insights into how phosphate in the diet can impact heart health.

Press officer: Mr Ather Mirza (Director of the News Centre at the University of Leicester)  
at: [pressoffice@le.ac.uk](mailto:pressoffice@le.ac.uk)

The American Society of Nephrology®, ASN®, Kidney Week®, CJASN®, JASN®, NephSAP®, and ASN Kidney News® are registered trademarks of ASN