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# News

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\*\*\*Copper stimulates a hormone essential  
to ovulation

DALLAS--The trace metal copper found in the body stimulates the release of a hormone essential to ovulation. In the first reported study of the effects of copper salts on nerve cell granules isolated from the brain of rats, Dr. Ayalla Barnea and Dr. G. Howard Burrows found 17 times as much luteinizing hormone releasing hormone (LHRH) released from granules incubated with copper as was released from control granules.

Barnea, associate professor of Obstetrics and Gynecology and Physiology in the Cecil H. and Ida Green Center for Reproductive Biology Sciences at The University of Texas Health Science Center at Dallas, will present their findings June 17 at the annual meeting of The Endocrine Society in San Francisco.

"Our study strongly suggests that copper acts directly on hypothalamic granules to release LHRH," says Barnea.

LHRH, a peptide composed of 10 amino acids, is produced in nerve cells located in the hypothalamus (an area of the brain). The hormone is secreted from the hypothalamus directly into the blood supply of the pituitary gland, causing the pituitary to secrete the hormones luteinizing hormone (LH) and follicle stimulating hormone (FSH). These two pituitary hormones are essential for the normal function of the ovaries in the female and the testes in the male.

In a cell, peptide hormones are stored within granules, protected by a membrane, until something causes the needed hormone to come out of the "package." "Something triggers a series of events to get the LHRH to the outside of the cell," says the biochemist. "In this study, granules that serve as the storage particles for LHRH were isolated from the neurons of the rat hypothalamus. It was found that copper is an extremely potent trigger for the release of LHRH from its storage granule."

Other researchers have found that copper given to female rabbits causes the secretion of LHRH and causes ovulation. It is also known that steroid hormones, especially estrogen, change the content of copper in the blood.

Barnea and Burrows also tested other metals on isolated hypothalamic granules -- zinc, magnesium, calcium, iron, barium, strontium and manganese. In this test zinc caused only a sixfold release of LHRH while all the others stimulated only a twofold release.

Barnea concludes, "With a 17-fold release of LHRH, copper appears to be a unique releaser of the hormone, and it may act at the level of the LHRH granule." So copper may play a key role in the whole cycle of reproduction in the female.

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