Appetite hormone misfires in obese people

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Glucagon, a hormone involved in regulating appetite, loses its ability to help obese people feel full after a meal, but it continues to suppress hunger pangs in people with type 1 diabetes, according to a recent study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism* (*JCEM*).

The primary role of glucagon, a hormone secreted by the pancreas, is to signal the body to release stored glucose when blood sugar falls too low. But growing evidence suggests the hormone also may play a role in controlling food intake and feelings of fullness, or satiation, through signaling the body to reduce levels of other appetite hormones like ghrelin.

"Once a person becomes obese, glucagon no longer induces feelings of fullness," said the study's lead author, Ayman M. Arafat, MD, of Charité-University Medicine in Berlin, Germany. "Further research is needed to determine why glucagon no longer suppresses appetite effectively in this population, even though they are otherwise healthy."

The prospective, double-blinded, placebo-controlled study investigated glucagon levels and appetite among 11 obese people, 13 people with type 1 diabetes and 13 lean people. Participants received injections of either glucagon or a placebo. Researchers then measured participants' appetites using a satiety scale as well as levels of the appetite hormone ghrelin.

Feelings of fullness did not differ between obese study participants who received glucagon injections and those who were given the placebo. In

comparison, participants who were lean or had type 1 diabetes reported feeling significantly more full after receiving glucagon. The response to the hormone was detectable in this population, even 24 hours after it was administered.

"The findings could influence efforts to develop new treatments for obesity and diabetes," Arafat said. "Although therapeutic agents that influence glucagon and other hormones currently are considered a promising avenue for research, this study suggests a treatment involving glucagon may be ineffective in controlling meal size in people who are obese."

More information: The article, "The Impact of Insulin-independent Glucagon-induced Suppression of Total-Ghrelin on Satiety in Obesity and Type 1 Diabetes Mellitus," was published online Aug. 20.

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