PPAR-gamma antagonist imatinib improves insulin sensitivity

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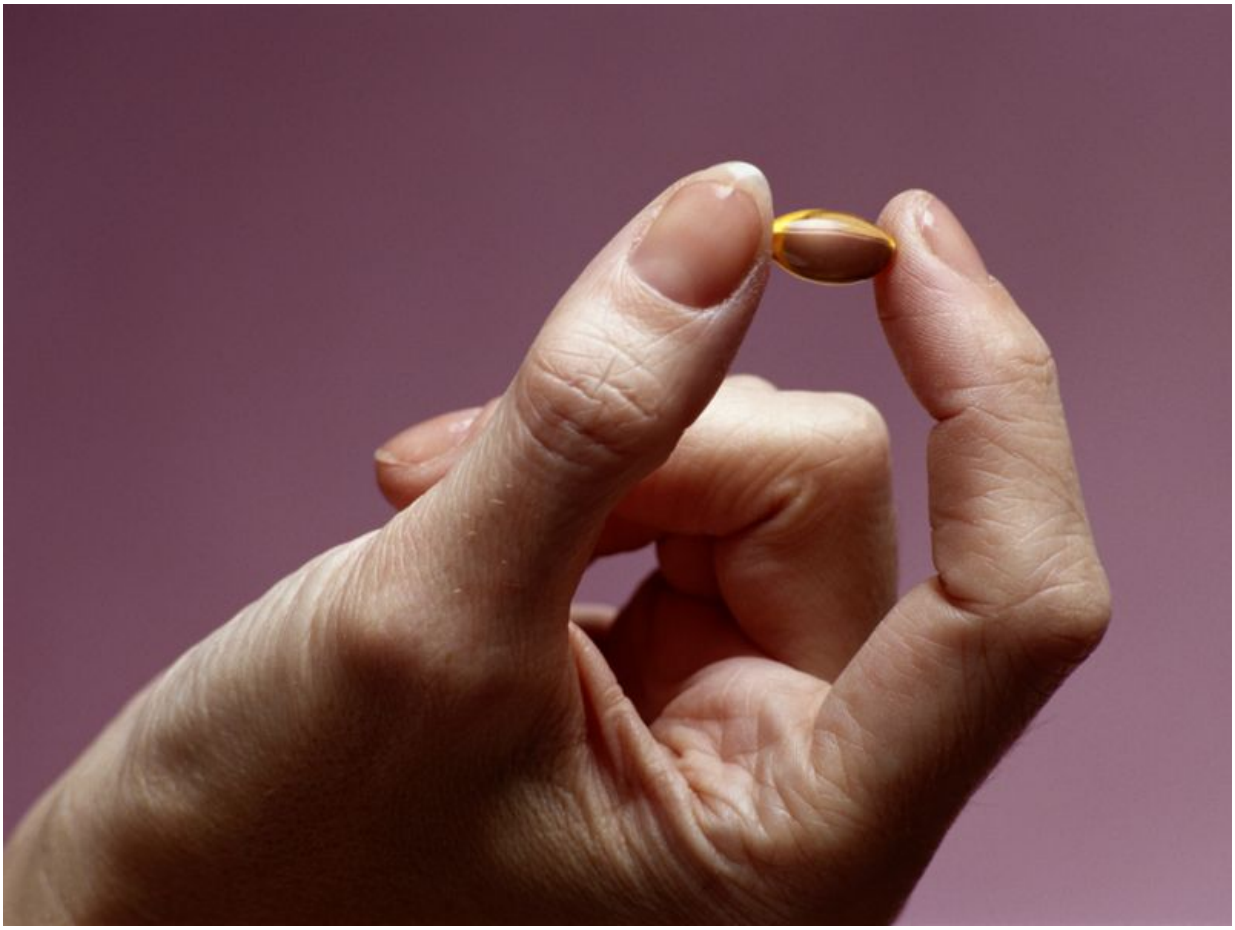

(HealthDay)—Imatinib (Gleevec) blocks CDK5-mediated peroxisome

proliferator-activated receptor γ (PPARγ) phosphorylation as an antagonist ligand, improving insulin sensitivity and promoting browning of white adipose tissue, according to a study published online Jan. 6 in *Diabetes*.

Sunsil Choi, from the Ulsan National Institute of Science and Technology in South Korea, and colleagues used high throughput phosphorylation screening to describe the mechanism of action of imatinib.

The researchers note that imatinib blocks CDK5-mediated PPARγ phosphorylation acting as a PPARγ antagonist ligand. Imatinib improved insulin sensitivity in high fat-fed mice, without causing severe side effects associated with other PPARγ-targeting drugs. Imatinib was also found to reduce lipogenic and gluconeogenic gene expression in the liver and improved inflammation in adipose tissues. Increased browning of white adipose tissue and energy expenditure were also seen with imatinib .

"Taken together, Gleevec exhibits greater beneficial effects on both glucose/lipid metabolism and energy homeostasis by blocking PPARγ phosphorylation," the authors write. "These data illustrate that Gleevec could be a novel therapeutic agent for use in insulin resistance and type 2 diabetes."

One author was employed by Hyundai Pharm Co.

More information: Abstract
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