

Mushrooms may alleviate features of pre-eclampsia

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New research reveals that a substance most commonly found in mushrooms could help alleviate some features of pre-eclampsia.

Pre-eclampsia is a complex disorder of pregnancy that can have potentially serious consequences for women and their babies. There is currently no cure for [pre-eclampsia](#) other than delivery, which can present a major medical problem if the condition results in an extremely premature birth.

Now, scientists from the University of Liverpool and University College Cork (UCC) have shown that a natural diet-derived substance, L-ergothioneine, can alleviate some of the features of this condition.

Professor Louise Kenny from the University of Liverpool says: "Pre-eclampsia remains a leading cause of maternal and neonatal death around the globe. We currently have few treatment options and the only cure is delivery. This early stage work suggesting a therapeutic role for ergothioneine is very exciting and worthy of further research."

"Potent and effective"

Significant research suggests that pre-eclampsia may be caused by substances released from the placenta that disrupt normal biological processes in the mother. In particular, disruption of mitochondrial function can lead to exaggerated oxidative stress. Ergothioneine is a potent and effective mitochondrial antioxidant. Ergothioneine can be found in a wide variety of foods, but the chief source of ergothioneine in the human diet is mushrooms.

"We wanted to see if this natural antioxidant could ameliorate some of the biological features of pre-eclampsia using our model of disease," says project lead Dr. Cathal McCarthy at UCC.

"Our research shows that treating rats with pre-eclampsia with the natural antioxidant L-ergothioneine reduced [blood pressure](#), prevented fetal growth restriction and dampened production of the damaging

substances released from the placenta during pre-eclampsia."

"Furthermore, using an exciting new approach we identified that treatment with ergothioneine diminished mitochondrial-derived oxidative stress," he adds.

New possibilities

Professor Douglas Kell from the University of Liverpool, says:

"Ergothioneine is an important antioxidant nutraceutical, commonly found in mushrooms. Mammals have evolved a special transporter to take it up, implying it has major benefits.

"We have now shown that [ergothioneine](#) is protective in a rat model of pre-eclampsia, a major disease of pregnancy. This opens up the possibility of testing it in humans."

The research creates a new avenue for therapeutic investigation in the elusive search for a treatment for pre-eclampsia. Ergothioneine appears to be a safe, natural diet-derived antioxidant whose therapeutic potential looks promising but remains to be validated by the gold standard of sufficiently powered, human clinical trials.

The study is published in *Hypertension*.

More information: Rachel D. Williamson et al. L-(+)-Ergothioneine Significantly Improves the Clinical Characteristics of Preeclampsia in the Reduced Uterine Perfusion Pressure Rat Model, *Hypertension* (2019). [DOI: 10.1161/HYPERTENSIONAHA.119.13929](https://doi.org/10.1161/HYPERTENSIONAHA.119.13929)

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