



## Low zinc and copper levels might cause spontaneous abortion

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[Enlarge](#)

This is an ultrasound image of a spontaneous abortion. Credit: University of Granada

Scientists at the [University of Granada](#) have confirmed that a low plasma level of copper and zinc in pregnant women may be a factor associated with spontaneous abortion, a hypothesis that had not been confirmed to date, and which had never been proven in humans before.

For the purpose of this study, 265 pregnant women participated in the tests. From these 265 women, 132 had suffered a spontaneous miscarriage during that year. The rest (other 133) were women with evolutionary pregnancy, selected among pregnant women attending an scheduled birth control appointment. All of them underwent an ultrasound examination, and were taken a blood sample for laboratory tests. Additionally, they were asked to answer a questionnaire. In total, 131 variables were assessed from each participant.

### Differences in plasma concentrations

The data obtained from the group of women who had suffered a miscarriage were compared with those obtained from the group of women with a normal process of pregnancy. The results proved the existence of differences in maternal plasma concentrations of copper and zinc. This finding suggests that maternal deficiency of one or both trace elements may be associated with the occurrence of spontaneous abortion, which opens new and interesting lines of research in this area so far unexplored.

Apart from the influence that copper and zinc may have on the occurrence of abortions, the research conducted at the [UGR](#) has provided relevant information about other variables previously studied, but significantly unknown as homocysteine, preconception and prenatal supplementation with iodine and folate, thyroid dysfunction or consumption of drugs in the first weeks of pregnancy.

This study was carried out by Jesús Joaquín Hijona Elósegui, a researcher at the Department of Pharmacology of the [University of Granada](#), and conducted by professors Manuel García Morillas and Juan Antonio Maldonado Jurado.

[UGR](#) scientists determined that most of pregnancies (64 percent) that ended in abortion in the study were planned, although only 12 percent of patients had used the recommended supplements of

iodine and folate before attempting pregnancy (These substances have been proven to decrease the rate of abortions and malformations). In addition, a third of the women who had a miscarriage reported to be regular smokers and 16.6 percent regularly consumed coffee at a dose that exceeded the abortifacient and teratogenic threshold. The consumption of tobacco and caffeine on certain doses has been strongly associated with the occurrence of spontaneous abortion.

During pregnancy, 81.07 percent of the women who suffered a miscarriage had taken some drug officially contraindicated during pregnancy, and 13.63 percent were exposed to some drug considered dangerous during pregnancy.

### **The most frequent complication**

As doctor Hijona points out "despite the significant progress made in reproductive medicine, spontaneous abortion is still the most frequent complication during pregnancy. It is estimated to affect 15 percent of pregnant women, mainly during the first trimester. Although most of the time it is not recurring, there is a recurrence of two to five percent among women who have already suffered a miscarriage."

There are data available showing an increase in the number of miscarriages among the Spanish population. In recent years, the number of pregnant women who suffers a miscarriage has increased gradually. This is not only due to the increase in the number of pregnancies, but also to the increase in the percentage of miscarriages -from 10.39 percent in 2003 to 13.70 percent in 2010).

Provided by University of Granada

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