



## The effect of swimming exercise on the placenta histological changes and the blood level of HCG hormone in the pregnant rats exposed to the cigarette smoke

Eskandari M, Barzanjeh SH, Mostafavi H, Alipour M  
Zanjan University of Medical Sciences, Zanjan, Iran

### Objective

Cigarette smoke is constituted of thousands of toxic chemical components which causes many noxious biological changes during pregnancy. On the other hand, the beneficial effects of exercise on the health of the different body organs have been established. The aim of this study was to investigate the swimming exercise on the placenta and the blood level of HCG hormone in the pregnant rats exposed to the cigarette smoke.

### Methods

In this experimental study, 32 pregnant mature Wistar rats weighting 200–220 gr were divided into 4 groups including control, exercise and smoke with and without exercise. Cigarette group and cigarette with swimming group were exposed to smoke for 6 hours/day, 5 days/week during 18 days. Swimming was extended increasingly from 2 minutes for the first day to 75 minutes at the end of period. After 18 days of pregnancy, HCG hormone and thickness of decidua were evaluated.

### Results

We found that in the smoke-swimming group, HCG hormone level decreased and the number of abortions increased significantly compared with the control group. Neither groups showed significant changes in the decidual thickness compare to the control group.

### Conclusion

The results of the present study suggest that, the swimming exercise associated with inhalation of smoke lead to abortion which may be due to the reduction of HCG levels and decidual area changes in pregnant rats.