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## Human mercury exposure associated with artisanal gold miners in Sudan

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**Background:** Mercury concentration in the blood is one of mercury exposure biomarkers. This study was conducted in Abuhamed mining area in Sudan, during the period from August 2012 to November 2014.

**Objectives:** The aim of the study was to evaluate serum mercury levels and to assess lung functions in artisanal gold miners.

**Material & Methods:** The study included 123 subjects, of them 83 were working in the gold mining area, beside 50 healthy volunteers from Khartoum State, as control group. Serum mercury was measured by direct mercury analyzer (DMA-80). Lung function tests were done with a portable spirometer. Data were analyzed using IBM SPSS Statistics version 20.

**Results:** The study observed significant increase in serum mercury levels in the gold miners, when compared with control group;  $24.9 \pm 32.24$  mg/l versus  $1.40 \pm 0.94$  mg/l with P value (0.000). The mean forced expiratory volume in the first second (FEV1) in the gold miners was  $3.24 \pm 0.57$  versus  $3.40 \pm 0.39$  in the control group, while the mean forced vital capacity (FVC) in the mercury exposed miners was  $3.7 \pm 0.69$  versus  $3.86 \pm 0.60$  in non-exposed control group. The FEV1/FVC ratio in the exposed men was 86% versus 89% in the control group.

**Conclusion:** Serum mercury levels significantly increases in the traditional gold miners working in Abuhamed, while forced expiratory volume in the first second (FEV1) and forced vital capacity (FVC) decreases.

### Biography

Eltayeb Tayrab has completed his PhD from National Ribat University in Sudan. He published 26 papers in regional and some reputed journals. He also published 2 books; one was published in Germany and the other was accepted by the National Ribat University as academic book for the students of Medical Laboratory Sciences. He supervised for 28 master degrees. He is the director of laboratory of Reproductive Health Care Center in Khartoum. He has been working for 25 years in Ribat University Hospital, Sudan. He is currently associate professor of chemical pathology at University of Bisha-Saudi Arabia, Faculty of Applied Medical Sciences.

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