It is not well established that long-term contact to low concentration of toluene produces changes in male hormonal profile (MHP).

Objective To identify changes in the MHP consisting of luteinizing hormone (LH), follicle-stimulating hormone (FSH) and testosterone, in workers exposed to toluene in an industrial packaging plant in Mexico City.

Material and Methods Cross-sectional study that included 42 workers, from which were formed two groups: with high (HET) and low (LET) exposure to toluene; serum FSH, LH, testosterone and acid hippuric in urine were measured in all subjects.

RESULTS Hippuric acid in subjects with LET: 2.53 ± 1.20 g/g creatinine, and with HET: 6.31 ± 3.83 g/g creatinine (p = 0.02). Seric FSH concentration: 5.12 ± 0.77 and 3.55 ± 0.3 mU/mL (p = 0.02) in LET and HET respectively; LH: 2.66 ± 0.45 and 2.77 ± 0.21 (p = 0.81), and testosterone: 3.91 ± 0.34 and 4.86 ± 0.23 nm/mL (p = 0.04). By regression analysis, the correlation coefficient of FSH with hippuric acid: -0.182 (p = 0.031), with coefficient of determination of 11%, the LH: -0.007 (p = 0.88) and 0.05% respectively, and testosterone: +0.029 (p = 0.0001) and 34%.

Conclusions The effect of toluene is evident on FSH; LH also decreased but not overwhelming; testosterone seems to have opposite response, perhaps explained by different sensitivity of the male gonads to toluene exposure. These findings appear to be the initial changes in MHP of workers exposed to the solvent in question.