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## ABSTRACT BOOK

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## Effects of environmentally relevant concentrations of phthalates on first generation rat embryo body and bone length

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**Objectives.** Phthalates, widely used plasticizers, are found in wastewater and subsequently in the human body, linking them to impaired bone formation in embryos. This study aims to identify their effects on body and bone length in female rat embryos.

**Materials and methods.** 36 F0 female Wistar rats were divided into 6 groups, based on phthalate dosage: control (K), received a phthalate-free diet; DEHP\_200 – 200 µg/kg di(2-ethylhexyl) phthalate (DEHP); DEHP\_1000 – 1000 µg/kg DEHP; DBP\_100 – 100 µg/kg dibutyl phthalate (DBP); DBP\_500 – 500 µg/kg DBP; DEHP\_DBP – 200 µg/kg DEHP and DBP\_100 µg/kg DBP. The rats received diets daily for two months, were mated, and euthanized on the 21<sup>st</sup> day of embryogenesis. Embryos were fixed according to the whole-mount skeletal staining protocol. Embryo lengths and the lengths of the humerus, ulna, radius, femur, tibia, and fibula were measured using a stereomicroscope and NIS-Elements D software.

**Results.** Embryo lengths in the DEHP\_1000 were longer than in K, DEHP\_200, and DEHP\_DBP groups (4.02 > 3.86; 4.02 > 3.76; 4.02 > 3.76). The DBP groups showed no significant results. Regarding bone lengths, ulnar, radial, tibial, and fibular bones were significantly longer in the DEHP\_1000 group compared with DEHP\_200 (4.35 > 3.81; 3.40 > 3.06; 3.82 > 3.27; 3.74 > 3.31). In the DEHP\_200 group, ulnar, radial, and tibial bones were significantly shorter than in the K group (3.81 < 4.21; 3.06 < 3.34; 3.27 < 3.64). All measured bone lengths (humeral, ulnar, radial, femoral, tibial, and fibular) in the DBP\_100 group were significantly shorter compared with the K group (3.68 < 4.04; 3.91 < 4.21; 3.10 < 3.34; 2.83 < 3.13; 3.29 < 3.64; 3.20 < 3.47). In the DEHP\_DBP group, femoral bones were significantly shorter than in the K group (2.83 < 3.13), and fibular bones were shorter than in the DEHP\_1000 group (3.15 < 3.74).

**Conclusions.** In conclusion, embryos and measured bones are longer in groups with higher phthalate doses, while they are shorter in groups with lower doses compared to the control group. In addition, the dose-response relationship appears to be non-linear.