

论著

# 邻苯二甲酸二丁酯宫内暴露对SD大鼠两代繁殖的影响

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**摘要** 背景与目的: 探讨邻苯二甲酸二丁酯(di-n-butyl phthalate, DBP)宫内暴露对亲代和F1代孕鼠繁殖能力以及F1和F2代雄性仔鼠生长发育及生殖系统的影响。材料与方法: 选择妊娠SD大鼠60只, 随机分为溶剂对照组(玉米油)、DBP 50 mg/(kg·d)染毒组和DBP 250 mg/(kg·d)染毒组, 于GD8至GD21每日经口灌胃染毒, 连续繁殖两代, 观察F0及F1代孕鼠体重、产仔数、产仔性别比等的改变, 以及F1和F2代雄性仔鼠体重、肛殖距、精子数目及形态、睾丸及附睾组织病理学改变。结果: 与对照组相比, DBP 50 mg/(kg·d)组F1代母鼠哺乳期体重的增量增加(P<0.05); F2代雌性仔鼠肛殖距缩短(P<0.05), 但经自身体重校正后差异无统计意义(P>0.05)。DBP 250 mg/(kg·d)组F0代母鼠哺乳期体重增量减少(P<0.05); F1代雄性仔鼠肛殖距缩短, 用自身体重校正后差异显著(P<0.05); F1代雄鼠精子数目明显减少(P<0.01); F1和F2代雄性仔鼠精子头部畸形率增加(P<0.05)。结论: 亲代宫内暴露DBP可影响F0乃至F1代孕鼠的繁殖功能, 引起F1代雄性仔鼠生殖系统损伤, 可能会延续至F2代。

**关键词** 邻苯二甲酸二丁酯 繁殖 发育 肛殖距 精子畸形

## Effect on Two-generation Multiplication of SD Rats Treated with Di-n-butyl Phthalate in Utero

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**Abstract** BACKGROUND AND AIM: To investigate the effects of Di-n-butyl phthalate on the multiplication function of F0 and F1 pregnancy rats and on the development and reproductive system of F1 and F2 male pups. MATERIALS AND METHODS: Pregnant SD rats were randomly divided into three groups with two experimental groups and one control group. Animals were gavaged with either corn oil only (vehicle control) or DBP[50 mg/(kg·d), 250 mg/(kg·d)] during GD8 and GD21. For breeding in two generations, we assessed the body weight, sex ratio of F0 and F1 pregnant rats. The body weight, anogenital distance, number and morphous of sperm, the histology of testis or epididymis of F1 and F2 male pups were also observed. RESULTS: Compared with control, the body weight gain during lactation of F1 pregnant rats were significantly increased at the dose of DBP 50 mg/(kg·d), but the anogenital distance were shorten in F2 female pups. After corrected by anogenital index (AGI), there are no significant differences. At the dose of DBP 250 mg/(kg·d), the body weight gain during lactation of F0 pregnant rats were significantly reduced. The anogenital index and the number of sperm of F1 male pups were also significantly reduced at this dose (P<0.05 or P<0.01). Moreover, the headed deformity rate of F1 and F2 male pups were also reduced significantly (P<0.05). CONCLUSION: Treating with DBP in utero could interfere with the multiplication function of F0 and F1 pregnant rats, and give rise to the reproductive toxicities of F1 male rats, with potential influence on F2 male rats.

**Keywords** Di-n-butyl phthalate multiplication development anogenital distance semina

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