

|                    |           | Father's dose (Gy)     |                    |                  |                  |
|--------------------|-----------|------------------------|--------------------|------------------|------------------|
|                    |           | <0.01                  | 0.01-0.49          | 0.5-0.99         | >=1              |
| Mother's dose (Gy) | <0.01     | 2,257/45,234<br>(5.0%) | 81/1,614<br>(5.0%) | 12/238<br>(5.0%) | 17/268<br>(6.3%) |
|                    | 0.01-0.49 | 260/5,445<br>(4.8%)    | 54/1,171<br>(4.6%) | 4/68<br>(5.9%)   | 2/65<br>(3.1%)   |
|                    | 0.5-0.99  | 44/651<br>(6.8%)       | 1/43<br>(2.3%)     | 4/47<br>(8.5%)   | 1/17<br>(5.9%)   |
|                    | >=1       | 19/388<br>(4.9%)       | 2/30<br>(6.7%)     | 1/9<br>(11.1%)   | 1/15<br>(6.7%)   |

Source: M. Ohtake et al.: Radiat. Res. 122: 1-11, 1990.

Surveys targeting newborns of atomic bomb survivors were conducted between 1948 and 1954 in order to examine the possibility that genetic mutations in the genome of germ-line cells induced by radiation exposure due to the atomic bombing may impair growth of fertilized embryos, fetuses or newborn babies. However, radiation effects were not observed.<sup>1</sup>

Furthermore, in the United States and Canada<sup>2,3</sup> and in Denmark,<sup>4,5</sup> abnormalities at birth among children of childhood cancer survivors were epidemiologically surveyed (p.110 of Vol. 1, "Survey of Children of Childhood Cancer Survivors"). These surveys also do not show any risks of congenital anomalies or stillbirths caused by fathers' radiation exposure. On the other hand, it was found that mothers' exposure to radiation exceeding 10 Gy in the ovary or womb increased premature births and stillbirths caused by deterioration of uterine function.<sup>3</sup>

1. M. Ohtake et al.: Radiat. Res. 122: 1-11, 1990.
2. L.B. Signorello et al.: J. Clin. Oncol. 30: 239-45, 2012.
3. L.B. Signorello et al.: Lancet 376(9741): 624-30, 2010.
4. J.F. Winther et al.: J. Clin. Oncol. 30: 27-33, 2012.
5. J.F. Winther et al.: Clin. Genet. 75: 50-6, 2009.

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