

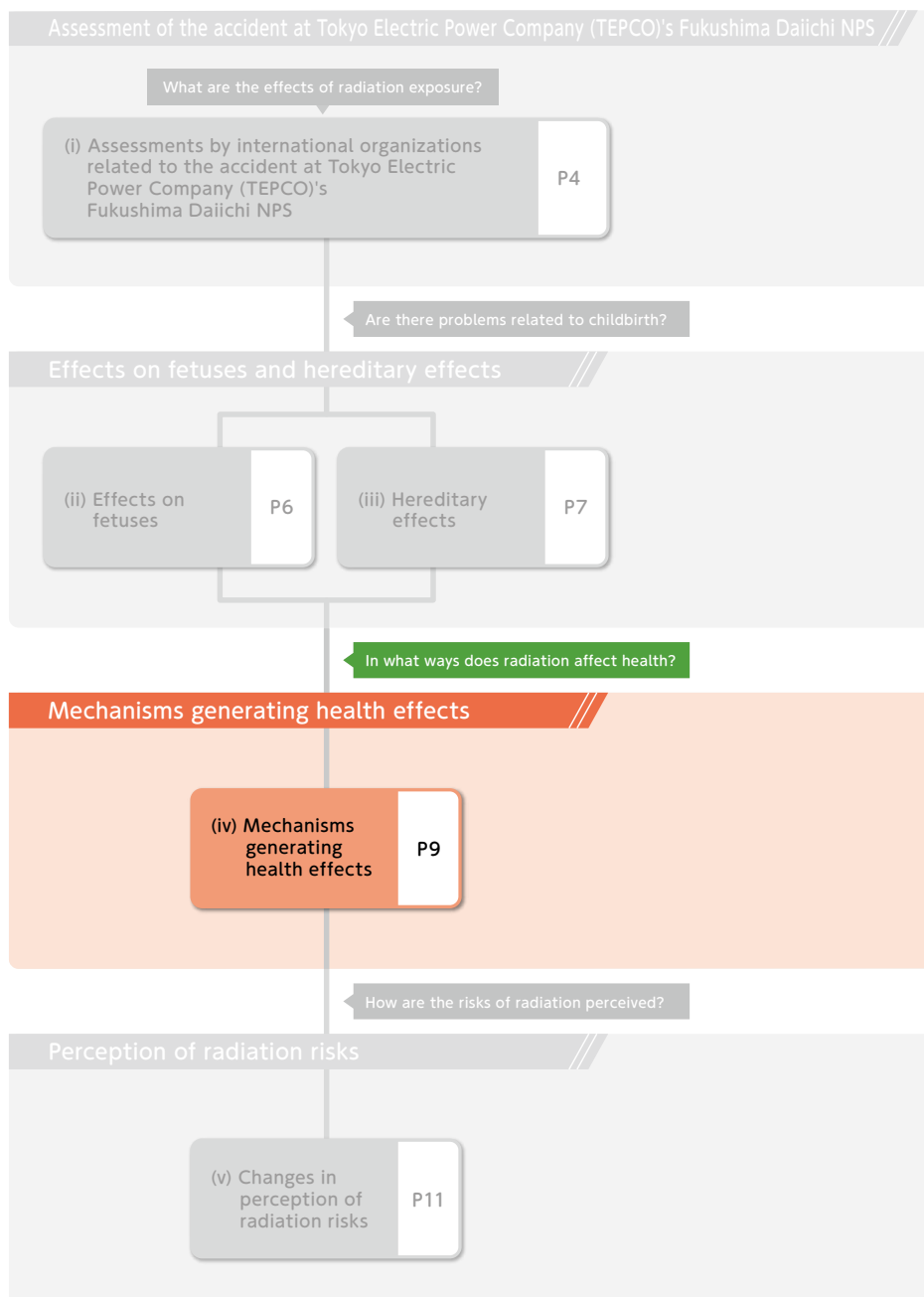


Health Effects of Radiation: 5 Themes

Effects on Fetuses and Hereditary Effects

Theme: Mechanisms generating health effects

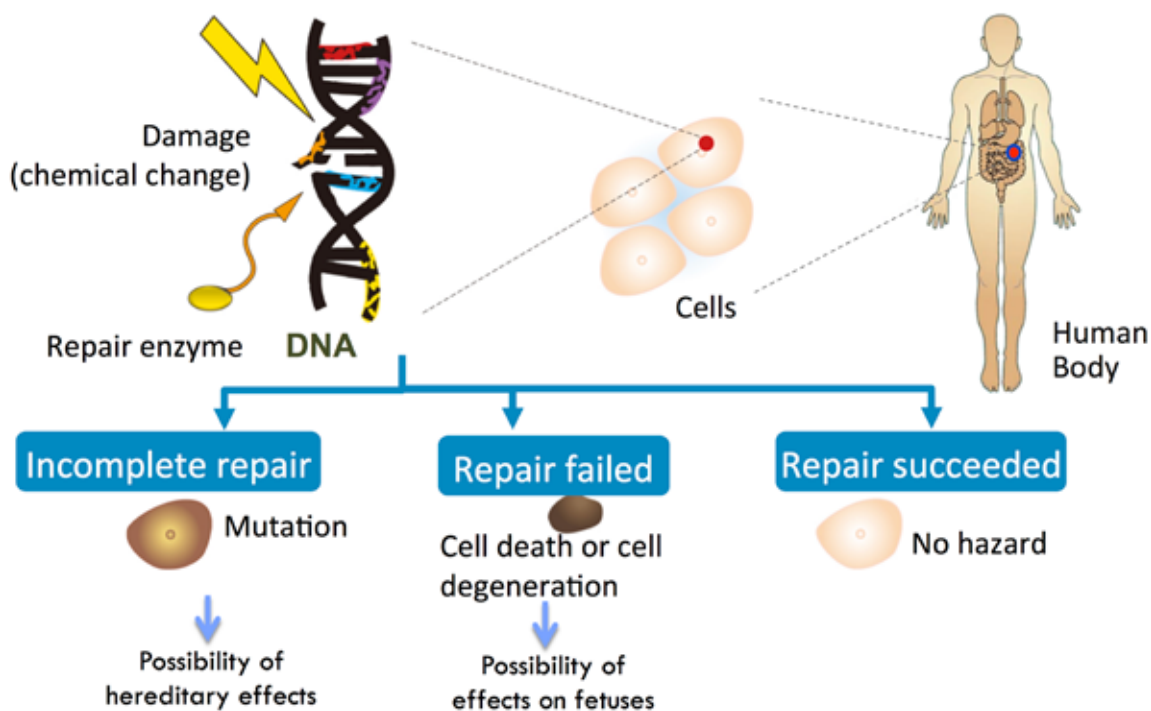
The effects of radiation exposure on the human body are caused by cell damage from the radiation. This section is a simple explanation of the mechanisms generating these effects.



(iv) Mechanisms generating health effects

We introduced research results related to the two types of effects involving problems related to childbirth, effects on fetuses and hereditary effects on future generations of children. When examined in further detail, the effects and generation mechanisms for each of these categories differ.

● Generation mechanisms for effects on fetuses and hereditary effects caused by radiation



Taking a closer look at exposed areas, when radiation hits a cell, it may damage DNA (genes) inside the cell. When large numbers of cells die or degenerate, this may cause deterministic effects, including acute disorders such as hair loss, cataracts, and skin injuries as well as fetal disorders.

DNA is damaged not only by radiation but also by carcinogens in foods, tobacco, chemical substances in the environment, active oxygen, etc. It is said that DNA is damaged at 10,000 to 1,000,000 locations per cell every day.

DNA damage is repaired by inherent body systems. Minor damage is repaired and DNA is successfully restored. When many parts are damaged, they cannot be repaired and the cells themselves die. Even when some cells die, if other cells can replace them, dysfunction does not occur in organs and tissues.

For more information about the mechanisms generating health effects, see page 89 of Vol. 1, FY2022 edition.