



FIGURE 13 Appearance times for radium-induced head carcinomas are plotted against initial systemic intake levels.

Table 13 summarizes the measured individuals considered to have radium-induced carcinomas of the paranasal sinus or mastoid. Given for each case are the year of first exposure to radium and the year of diagnosis of the malignancy. The initial systemic intake is provided only for ²²⁶Ra on the assumption that ²²⁸Ra was not effective in inducing these malignancies. Similarly, the skeletal dose from only ²²⁶Ra is included. Table 13 also lists the five individuals with unknown or uncertain radium contents who had probable or confirmed diagnoses of these malignancies.

Multiple Myeloma

Multiple myeloma is more prevalent among the radium cases than might be expected. Cuzik (1981) reported eight deaths from myeloma in a registry of 3,600 radium-exposed persons. These deaths, he stated, were identified by examination of death certificates, and all occurred after 1959. Six of these deaths occurred among dial painters who had worked in the industry before 1929; five were in women. The other two deaths with myeloma included a woman who started dial painting in 1944 and a male chemist.