GENERAL SCIENTIFIC SUMMARY

CALDose X—a software tool for the assessment of organ and tissue absorbed doses, effective dose and cancer risks in diagnostic radiology

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In diagnostic radiology, physicians and patients want to know the health risks resulting from the exposure of the human body to ionizing radiation. These risks, mainly that of cancer incidence, depend on absorbed doses in radiosensitive organs caused by the radiation when passing through the body, which cannot be measured in vivo. Therefore, male and female virtual adult humans have been constructed and connected to a so-called Monte Carlo computer code, which allows for the simulation of the exposure of patients being submitted to radiographic examinations and thereby for the calculation of absorbed doses to radiosensitive organs. The most frequently performed x-ray examinations have been simulated and the results have been made available to the medical community through a software tool, called CALDose X, which makes it possible for the user to calculate organ and tissue absorbed doses as well as cancer risks for average adult patient on every home computer.