
The effects of solar ultraviolet radiation on the eye

A new International Research Programme on Health, Solar UV Radiation and Environmental Change (INTERSUN) is under consideration by the International Agency on Cancer (IARC), the World Health Organization (WHO) and the United Nations Environment Programme (UNEP). This comes as a direct consequence of the United Nations Conference on Environment and Development, held last year in Brazil.

There is already convincing evidence that ultraviolet radiation is related to several types of skin cancers, including the potentially fatal melanoma. Sufficient animal and human data also exist to relate consistent UV radiation exposure to increased incidence of certain types of cataract. In view of the fact that half of the 35 million cases of blindness in the world are due to unoperated cataract, it is important and urgent to verify whether the sun, through its ultraviolet radiation, is responsible for the blindness of millions of people.

Specialists from twelve countries have met in Geneva to review scientific knowledge on the effects of solar ultraviolet radiation on the eye and particularly on the development of cataract. Together with participants from other United Nations agencies such as IARC,

UNEP and the World Meteorological Organization (WMO), they have proposed to launch an international collaborative study on the relationship between cataract and solar radiation exposure.

The main objectives of the study will be to describe accurately the relationship between ground level solar ultraviolet irradiance and incidence of cataracts in defined populations, and to increase understanding of the relationship between personal risk of cataract and constitutional sensitivity to the sun and sun-related behaviour. The study will also estimate accurately the change in occurrence of eye effects of ultraviolet radiation that would result from change in ground level solar ultraviolet irradiance due to environmental change.

Study centres will be selected in a number of different countries in both hemispheres. In each case, a sizeable population sample will be carefully investigated in order to determine the prevalence and incidence of the different types of cataract and to relate them to the level of ultraviolet exposure.

This ambitious programme is expected to fill an important gap. Although a number of attempts have been made during the last few decades to predict the effect of

depletion of stratospheric ozone on levels of ultraviolet irradiance at the surface of the earth, and on risks of skin cancers and cataracts, until now there has been no sound basis for prediction. The new study should give a clearer insight into this increasing problem.

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