



Non-Ionizing Radiation & Children's Health

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PLATFORM PRESENTATION ☒

Harmful Effects Of UVR In Childhood: Epidemiological Evidence

Adèle GREEN

Queensland Institute Of Medical Research , Brisbane , Australia

In general children and teenagers are at low risk of manifest UVR-related skin damage compared with adults, especially skin cancers. White children are at higher risk of harm than non-whites, and among white children, those with the palest complexions show the most damage. Insights about UVR-induced skin effects come from comparing prevalence and incidence rates of outcomes in children and teenagers sharing common ancestry, but living at different latitudes, for example, in Britain and Australia. Such data show that prevalence of photoageing and melanocytic naevi are higher in Australian compared with British children, and similarly for melanoma. Interestingly in the last 30 years melanoma incidence in England has increased in young people while rates in Australia peaked a decade ago and have decreased since.

The genetic “risk factors” for the majority of melanoma in teens are genes controlling naevus propensity and pigmentation in the skin, such that high numbers of naevi and freckles, red hair, blue eyes, inability to tan, as well as a family history are the primary determinants of melanoma among adolescents. Data about actual amounts of solar UVR received by children and teenagers in the medium term and about trends in their UVR exposure are lacking, though artificial UVR exposure has increased in recent decades especially among young women, through the use of tanning facilities.

Beyond the signs of skin damage seen in children are the unseen latent effects seen later in adulthood. Premature skin ageing is highly prevalent in young and middle-aged Australians compared with Europeans. Equally striking are differences in skin cancer rates among migrants from high latitudes and their native-born counterparts at low latitudes. The contrasts reveal childhood to be a susceptible window for long-term harmful effects of UVR. Thus effective UVR protection from childhood is necessary to control both immediate and long-term harmful effects.