Sunscreen Protection

The skin is the largest organ of the human body, therefore the need to protect this from external factors is important (Wilson et al 2012). Skin cancers are chiefly categorised as melanoma and non-melanoma, the latter are generally benign in comparison to melanomas which are responsible for a greater proportion of cancer related mortalities (Narayanan et al 2010). Within the UK approximately 16,200 people are diagnosed with melanoma each year denoting this the 5th most common cause of cancer (Cancer Research UK 2021). The incidence, morbidity and mortality rates of skin cancers are increasing and therefore a major public health concern (Mayers 2018, Narayanan et al 2010 ).

Sun exposure is the primary cause of skin cancer whereby 8 out of 10 cases of melanoma could have been prevented with greater understanding of sun damage and protection (Robinson 2017). The sun naturally emits ultraviolet radiation which can cause damage to our skin:

UVA: penetrates deep into the skin contributing to aging but less sunburn

UVB: This is responsible for the majority of sun burns

UVC: This contains the highest energy source and is naturally blocked by the ozone layer

Ultraviolet radiation can have positive effects such as assisting the human body to produce vitamin D for calcium and phosphorous absorption (Wilson et al 2012). However this can have damaging effects on the skin caused by cellular deterioration and modifications to immunological functions (Narayanan et al 2010). Sunburn is an inflammatory reaction occurring after exposure of the skin to intense solar radiation and had been identified as a strong predictor of melanoma (Wu et al 2016).

Sunscreen products assist to protect the skin by absorbing, scattering or reflecting UV radiation (Perugini et al 2019). The first widely used sunscreen, which acted as a block to UV radiation, was developed by Benjamin Green in 1944 to assist soldiers in the pacific during World War II (Svarc 2015). However this had limited effectiveness meaning the first fully effective sunscreen was developed by Franz Gleiter in 1946. (Svarc 2015)

Within the UK sunscreens have both a SPF and UVA star system. SPF considers the sunscreens ability to protect the skin from sunburn, therefore primarily considering UVB protection. SPFs are rated from the lowest rating of 2 to the highest of 50+, indicating the multiples of protection provided against burning compared with unprotected skin (Jackson 2017). UVA star ratings, range from 0 to the highest level of 5, considering the proportion of UVA radiation absorbed by the sunscreen in comparison to UVB (British Association of Dermatology 2013).

It is advised to spend time in the shade when the sun radiation is at its highest elevation between the hours of 11.00 and 14.00 (Baggerly et al 2015). Babies and young children should at all times be kept out of direct sunlight. Sunscreen should have a SPF of greater than 30 and at least 4 star UVA protection. It is also important to ensure the sunscreen is within its expiry date and appropriately applied frequently to ensure adequate protection to exposed skin (NHS 2019).

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