

ENJOY THE SUN SAFELY!

HOW TO PREVENT EXCESSIVE EXPOSURE TO SUNLIGHT AT WORKPLACE

ABRIDGED VERSION



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INTRODUCTION

Sunlight has positive effects on human health; it plays a very important role for the synthesis of the vitamin D; it has also an environmental antibacterial action, so that it can prevent infections; besides it promotes positive effects from the psychological point of view, acting as an effective antidepressant.

Last but not least, a beautiful tan often helps us to have a more pleasant aspect and help us keep fit.

Nevertheless we must be careful to avoid excessive exposure; at work if we remain under the sun without the necessary protective measures, we risk contracting skin and ocular diseases.

There are a lot of workers facing these risks, i.e. all outdoor workers, such as fishermen, farmers, building workers, water transport workers, bathing attendants etc. .

While for the recreational exposure to solar radiation suitable measures of prevention and protection are generally taken, due to a widespread awareness of these risks among sportsmen/ sportswomen and the general population, at workplace this awareness is lacking in many cases and effective measures of prevention are seldom put into practice.

HIGHLIGHTS

Sunlight exposure is the most frequent cause of skin tumours

Outdoor workers have twice the probability of contracting a squamous cell carcinoma, an invasive tumour, than the general population, because they have a long daily exposure and often lack a place to shelter

Ocular structures (cornea, crystalline retina etc.) too can be heavily damaged by an excessive exposure to sunlight

In every workplace effective measures of prevention and protection must always be put into practice

Actinic keratosis (AK) is a common skin disease which can potentially progress to invasive squamous cell carcinoma. It is now considered by many experts to be an initial tumour because of its cellular anomalies. AK has also been called senile keratosis, because it is extremely frequent among old people. It is also a marker of people's predisposition to contact basal cell carcinoma and other skin tumours caused by sunlight.

The onset of AK is secondary to chronic sunlight exposure of people generally of fair complexion. In regions with strong insolation the incidence is already at 10% among people of less than 30 years, raising to 80% among over 60's.

Somatic characteristics such as blue eyes, blonde hair and presence of freckles are associated with an increased risk. The AK is practically nonexistent among black people and is sporadically present among Asians. Outdoor activities (recreational as well as work activities) greatly contribute to the appearance of these lesions. Also the abuse of tanning lamps contributes to the onset of the KA.

The AK can be latent for 20 - 30 and even 50 years before turning into invasive squamous cell carcinoma. Besides the chronic exposure to UV radiation, also genetic mutations induced by the UVs seem to constitute an important phenomenon for the development of tumours.

The AK lesions are small, flat, greyish, rough to touch ; they appear as a thickening sometimes even warty. In general their dimension is less than a centimetre, they appear in isolated forms, but at times they are confluent in plates on sun-exposed skin.

These lesions are usually asymptomatic, but in certain cases they are of an irritative kind with itching or a modest pain at the centre of the lesion.

The AK are in the greatest part of the cases multiple and are found in sun-exposed skin (head, neck, ears, back of the hands and scalp if the subject is bald).

From the prognostic point of view the potential evolution of AK to invasive squamous cell carcinoma is more probable for the labial locations, but a preventive treatment of all the lesions is always needed.



PREVENTION

Organizational measures are the main means to reduce sunlight risks: first of all we must avoid as much as possible exposure during the "sunlight peak hours", from 10 am to 2 pm in Summer.

It is also mandatory to use a personal protective equipment systematically. To protect the head close-woven peaked hats are always needed; to protect shoulders and back we can use UV protection clothing; light pants with UV protection are also available. Gloves too must be worn because the back of the hand is one of the points where lesions of the AK are more frequent.

With regards to UV protection creams, it is advisable to use them to protect the face; creams with a Sun Protection Factor (SPF) 50 must be preferred and must be applied every 2-3 hours. A larger use of these creams (to be applied also to other parts of the body), must be made when it is not possible to avoid exposure during the sunlight peak hours .



OCULAR LESIONS

Our eyes are protected inside the ocular orbit and defended from the lesions that sunlight can make by eyebrows and eyelashes; intense light activates the constriction of the pupil and this pupillary reflex minimizes the penetration of sunrays.

Nevertheless the effectiveness of these natural defences is limited under conditions of very intense exposure such as those due to strongly reflecting surfaces (such as sand, water, snow) or by working during “ peak hours” in Summer.

The intense and continuous exposure to sunrays can provoke the development of cataract, the opacity of the crystalline due to the breakdown of proteins and the accumulation of pigments. Prolonged exposure to sunlight is also the main risk factor for keratitis, an inflammatory disease of the epithelium of the cornea.

Senile maculopathy, a highly invalidating lesion of the retina, is also connected with sunlight exposure. Eyelids, as well as other sun-exposed skin areas, can develop skin tumours, such as squamous cell carcinoma.

PREVENTION

Eyes must therefore be defended from the negative effects of prolonged exposure to sunrays. To guarantee a suitable protection glass lenses must have a proper filtering system with conformity to the European norm EN 172/2003. In the choice of glasses it is necessary therefore to verify this conformity, that can be ascertained from the mark on the frames or on lenses.

We must verify also the degree of filtering, given by the first two numbers of the marking. The proper filters for sunrays are those with a degree of filtering 5-2, while for heavy exposures a filter 5-3 gives a more suitable protection.

PREVENTION AND PROTECTION

We must avoid as much as possible exposure during “sunlight peak hours “ in Summer.

When working under the sun, we must drink abundant quantities of beverages rich in mineral salts (such as tea)

Close-woven peaked hats, glasses with UV protection and gloves must always be worn

If we can't avoid exposure during “sunlight peak hours “ in Summer, creams with a Sun Protection Factor (SPF) 50 must be applied and reapplied every 2-3 hours

UV protection glasses with a polarized filter ¹



FINAL REMARKS

Occupational health professionals of outdoor workplaces have to be aware of the sunlight-related diseases and properly act for prevention. At present a dangerous "do it yourself" habit is the rule at many workplaces.

Italian law (d.lgs. n.81/2008) establishes that employers must assess all occupational risks and accordingly act by putting into practice specific measures of prevention to guarantee workers' health. Moreover, employers must choose the best and most effective measures of prevention and protection, which better fit their workers' needs.

At present, it is probably also necessary to develop new strategies for the implementation of prevention as far as occupational exposure to sunlight is concerned.

Proper training is a fundamental aspect of prevention: exposed workers must be trained on sunlight health risks at the beginning of their employment and then periodically be retrained.

Doing so will improve workers' health and will not become an insidious carrier of diseases!

REFERENCES

Alberta Health Services, 2017 Be sunsible. Protecting outdoor workers

<https://besunsible.albertapreventscancer.ca/>

¹ The polarized filters permit the elimination of annoying reflexes (this is a model of the brand Uvex)