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# The untold story of the scorching sun—A wake up call for sun protection☆

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ARTICLE INFO

*Article history:*
Accepted 24 June 2017
Available online xxx

*Keywords:*
Sun burn
Sun protection
Sunscreen

ABSTRACT

Despite extensive warnings from health authorities regarding the dangers of direct sunlight exposure, most people still turn to sun bathing to get a golden tan. Unfortunately, that pleasant tan appearance is often lost because of over exposure to sunlight, resulting in painful red sunburns.

In this paper we are reporting a case with significant sunburn injuries that required hospitalization and treatment in a burn center. Concurrently a pilot study was conducted to assess the knowledge about sun protection among the adult population and the results are discussed. The results obtained from the study revealed the lack of knowledge regarding sun protection and sun seeking behaviour among the responders.

Deeper burns are rarely caused by direct sunlight exposure and are underreported in literature. Despite extensive health education and warnings, there are significant numbers of sunburn injuries reported annually. On most occasions, these are superficial and are in the form of erythema. Nonetheless, the public is unaware of the impending risks of developing deep sunburn injuries that can occur especially during protracted holiday exposures. Therefore, it is crucial to escalate public awareness and to implement preventive measures to reduce the short and long-term risks of sun exposure.



## 1. Introduction

Sunlight has been proven to possess many health advantages such as vitamin D production and enhancement of mood and energy levels. In fact, phototherapy has been used to treat many diseases since ancient times. However, the dangerous effects of chronic and intense sunlight exposure are expressed in many forms. The ageing process is accelerated by photo damage and the ultimate price of UV radiation is the development of skin cancer. Sunburn mostly occurs during outdoor activities and when using intense sun tanning beds, and usually presents in the form of erythema with no deeper damage. Significant sunburns requiring hospitalization occur infrequently and are rarely described in literature.

The effects of sun exposure have been widely published in literature and as a result, many health agencies have taken extensive measures to educate the public about sun protection

☆ The paper was presented at the 18th Congress of ISBI, Miami, Florida, 28th August 2016.

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http://dx.doi.org/10.1016/j.burns.2017.06.009

behaviours. Despite the many educational programs implemented worldwide, such as the Sun Smart program in Australia and America, there are still a significant number of sunburns reported among the public [1,2].

In recent years, this epidemic of sunburns has reached new heights, where patients are now being hospitalized due to the severity of their burns. This was first noted in Australia, where Duke et al. investigated the external causes of burn-injury related hospital admissions for a 26-year period, and found that hospital admission rates for sunburn increased by 2% each year when standardized by age [3]. Mah et al. subsequently investigated the hospital presentations of pediatric patients with sunburns severe enough to require treatment in the burns department; 81 cases were described from 2006 to 2011 that needed hospitalization [4]. The incidence of pediatric sunburns requiring hospital admission is not just seen in Australia; such occurrences have also been described in the UK and Ireland as well [5–8].

Whilst the trend of pediatric sunburn requiring hospital admission is well documented, there is a severe paucity of literature describing hospital admission due to sunburns in the general public. The following case study describes such a patient who was presented to the burns unit for treatment of burns caused by exposure to direct sunlight.

## 2. Case study

A fifty-seven year old man presented with burns caused by sun exposure on the dorsum of both legs. He was on a holiday at a beach resort and sat outside in the sun with his legs exposed. He recalled applying sunscreen to the legs but he was not sure about the SPF factor of the lotion. He sat in the sun for about six hours, but failed to reapply the sunscreen during this period.

He was admitted with a total of about 8% of mixed partial thickness burns over the anterior and lateral aspects of both legs and feet. Some of the areas were erythematous with mixed partial thickness burns especially over the medial and lateral parts of the lower legs (Fig. 1).

He was treated conservatively with dressings and considered for debridement and skin grafting under anaesthesia. As he was not fit for general anaesthesia due to heart failure it was decided to treat him conservatively. He was admitted for two weeks for complete treatment of the burns and heart failure (Fig. 2).

## 3. Public awareness: previous studies

This patient is not an isolated example; many cases of hospitalization due to sunburn have been observed in burns departments in the United Kingdom. This persistent influx of similar cases may suggest that the knowledge regarding sun protection may be still lacking among the public. Number of papers have assessed the public's knowledge, behaviours, and attitudes towards sun protection, beginning with a study by Robinson et al. that assessed the trends in sun exposure knowledge in the general American public from 1986 to 1996 [9]. They found that whilst public knowledge of the harmful effects of sun exposure increased during this period, behaviours such as sun-burning and use of tanning booths also increased. This trend of increased knowledge combined with an increase in sun exposure behaviours has been observed in many studies from various demographic back ground [10–12].

Furthermore, many papers have studied the sun protective behaviours of children and young adults, identifying the importance of early education. Rouhani et al. assessed the sun protection knowledge and behaviours of students in Florida, which has high levels of ultraviolet radiation in the US. Despite many educational programs such as Sun Smart America, the knowledge of sun exposure and the subsequent risks is very low, especially in elementary students. Similar studies among adolescents, children and parents signify the importance of education both generations [2,13].

Ultimately, the public's lack of knowledge regarding sun protection has been demonstrated from Australia to America to British plastic surgeons. Such studies support the suggestion from this case study that this lack of knowledge may be

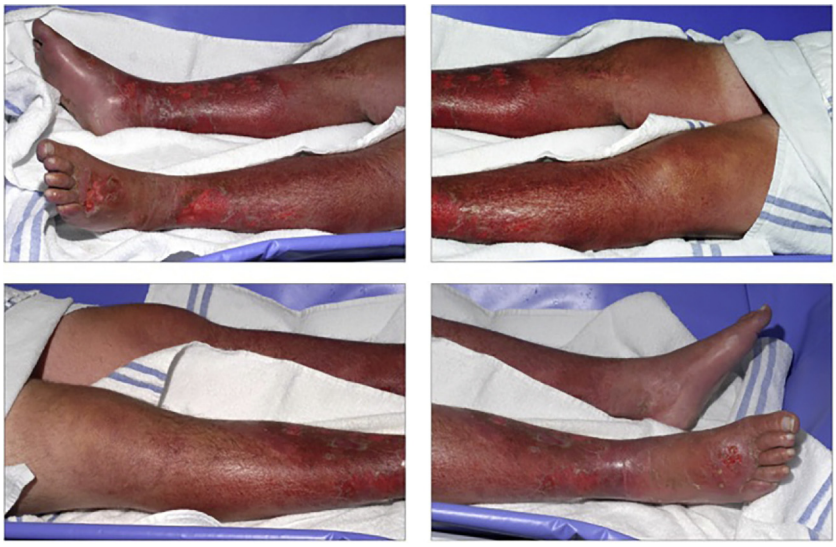

**Fig. 1 – Burn to the dorsum of the legs on admission.**

Please cite this article in press as: S.S. Raveendran, et al., The untold story of the scorching sun—A wake up call for sun protection, Burns (2017), http://dx.doi.org/10.1016/j.burns.2017.06.009