



# Cancer Association of South Africa (CANSA)

## Fact Sheet on Actinic Cheilitis

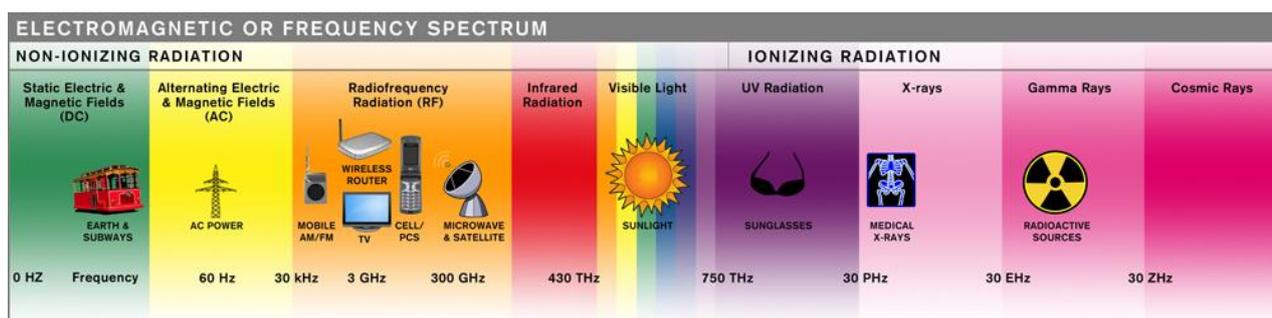
### Introduction

According to the SCC Scottish Sensory Centre, University of Edinburgh, UV radiation is described as follows: “In the electromagnetic spectrum there is an area of visible light. UV radiation has wavelengths shorter than visible light. We can't see it, although birds and insects can. The wavelength of UV light varies from 10-400 nm. Within this UV spectrum there are three different sorts of UV light. The first section, called UVA, has wavelengths of 320-400 nm. The second, UVB, has wavelengths of 290-320 nm. The third, UVC, has wavelengths of 10-290 nm.”



[Picture Credit: Actinic Cheilitis Picture]

The diagram below shows ultraviolet (UV) radiation as part of the electromagnetic spectrum. The wavelength of ultraviolet radiation is between 10nm and 400nm which makes it shorter than the wavelengths of visible light (400nm to 700nm) and longer than X-rays.



[Picture Credit: EMF & RF Solutions]

### Sources and Uses of Ultraviolet Radiation

Although there are manmade sources of ultraviolet (UV) radiation like arc welding, mercury vapour lamps and UV lamps, the sun is the major source of ultraviolet radiation.

### Uses and benefits of ultraviolet radiation include:

- Phototherapy (also called light therapy or heliotherapy)
- Disinfection and sterilisation
- Triggers Vitamin D production in human skin
- Tanning

### **Harmful Effects of Ultraviolet Radiation in Humans**

Overexposure to ultraviolet radiation may cause:

- Sunburn
- Skin cancer, especially squamous cell carcinoma
- Premature ageing of skin
- Suppression of the immune system
- Eye damage (macular degeneration, damage to the cornea of the eye, and cataract formation)

### **Actinic Cheilitis**

Actinic Cheilitis is a pre-malignant condition which results of excessive exposure to the UV rays of the sun. It is especially the lower lip, more so than surrounding skin that is affected. It is mostly seen along the line that separates the lips from the skin of the face. Individuals with albinism are often affected by Actinic Cheilitis.



Other names for Actinic Cheilitis include actinic cheilosis, actinic keratosis of the lip, solar cheilosis, sailor's lip and farmer's lip. It presents mainly in adults with fair skin who spend a lot of time in the sun. It presents as a diffuse or patchy dryness on the lower lip. If neglected it may cause squamous cell carcinoma *in situ*.

[Picture Credit: Actinic Cheilitis]

Other parts of the body that may be affected include:

- Other parts of the face
- The hands
- The ear lobes
- The scalp (especially if there is thinning of the hair)

**Rodríguez-Blanco, I., Flórez, Á., Paredes-Suárez, C., Rodríguez-Lojo, R., González-Vilas, D., Ramírez-Santos, A., Paradela, S., Suárez Conde, I. & Pereiro-Ferreirós, M. 2018.**

“Actinic cheilitis is thought to be a premalignant lesion or a superficial squamous cell carcinoma. The prevalence of actinic cheilitis in Europe is unknown. The aim of this study was to determine the prevalence of actinic cheilitis in the Galicia region (north-west Spain). Secondary objectives were the description of risk factors of actinic cheilitis. A cross-sectional multicentre study in patients  $\geq 45$  years of age was performed in 8 dermatology departments in Galicia region during a 1-year period. The prevalence of actinic cheilitis was 31.3%. Significant and independent risk factors of actinic cheilitis after multivariate analysis were age  $\geq 60$  years, Fitzpatrick skin phototype II, outdoor working for more than 25 years, and previous history of non-melanoma skin cancer. This is the first cross-sectional multicentre study of the prevalence of actinic cheilitis in Europe. Actinic cheilitis was present in almost one-third of the screened patients. Lip examination should be performed in all patients with chronic actinic damage.”

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### **Incidence of Actinic Cheilitis in South Africa**

The outdated National Cancer Registry (2016) does not provide any information regarding the incidence of Actinic Cheilitis in South Africa as it is a pre-malignant condition.

### **Prevention of Actinic Cheilitis**

The best protection against developing Actinic Cheilitis includes:

- Protection of the face against sun exposure by wearing a broad rim hat
- Regular application of an effective sunscreen (SPF 30)
- Avoid being outside when the sun is at its hottest

### **Assessment and Treatment of Actinic Cheilitis**

When skin changes are noticed on the lower lip or other areas of the body, one should visit a dermatologist for assessment and treatment. This may involve:

- Clinical assessment
- Biopsy
- Electrosurgery
- Cryotherapy
- Application of medication to the affected area.

### **Mello, F.W., Melo, G., Modolo, F. & Rivero, E.R. 2019.**

**BACKGROUND:** To investigate the prevalence of malignant and potentially malignant lesions of the lip in an oral pathology service and to compare these data with a literature review.

**MATERIAL AND METHODS:** A total of 3173 biopsy reports and histopathological records were analyzed. Cases with a histological diagnosis of actinic cheilitis (AC) with or without epithelial dysplasia, in situ carcinoma, or lip squamous cell carcinoma (LSCC) were included. A comprehensive literature review was conducted to investigate the prevalence of AC and/or LSCC.

**RESULTS:** 124 cases (3.91%) were included, 75 (60.5%) had some degree of epithelial dysplasia and 31 (25.0%) were LSCC. Clinically, most of the lesions were diagnosed as AC (50.8%); however, eight cases clinically reported as AC were histologically diagnosed as LSCC. Regarding clinical characteristics, most individuals were fair-skinned male, with mean age of 54.3±12.3 years, and with a history of long-term solar exposure. Furthermore, 18 articles were selected from the literature, showing that the lower lip was predominantly affected and that most individuals were males, fair-skinned, and older than 40 years.

**CONCLUSIONS:** Since most of the cases diagnosed clinically as AC presented some degree of epithelial dysplasia, it is important to emphasize the value of biopsy and the histological evaluation of this lesion.

### **Levi, A., Hodak, E., Enk, C.D., Snast, I., Slodownik, D. & Lapidoth, M. 2019.**

**BACKGROUND:** Actinic cheilitis (AC) is a common, chronic premalignant condition resulting from protracted sun exposure affecting the vermilion border of the lower lip. Treatment of AC aims at terminating the progression to squamous cell carcinoma by obliterating the primary lesion, and includes ablative methods; nonablative modalities such as cryotherapy, electrodesiccation, chemical peeling, topical imiquimod and 5-fluorouracil; and photodynamic therapy (PDT). Daylight-activated PDT, in which natural daylight serves as the light source, showed promising results in the treatment of actinic keratoses with substantially less pain than conventional PDT.

**PURPOSE:** To determine the safety and efficacy of daylight PDT in a series of patients with AC.

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**METHODS:** Eleven patients with AC were treated with daylight PDT. All patients underwent repeated treatment sessions until clinical and histological remission were achieved.

**RESULTS:** Cure rate was 91% (10 of 11 patients, three females/eight males; mean age 59.2 ± 14.4 years). Mean number of treatments to attain cure was 2.7. Patients experienced mild erythema and minimal to no pain during treatment.

**CONCLUSIONS:** Daylight PDT is a promising modality for the treatment of AC, with impressive cosmetic results and few side effects.

**Lai, M., Pampena, R., Cornacchia, L., Pellacani, G., Peris, K. & Longo, C. 2019.**

**BACKGROUND:** No large studies defined the best treatment for actinic cheilitis.

**METHODS:** We conducted a systematic review in order to define the best therapies of actinic cheilitis in terms of clinical response and recurrences.

**RESULTS:** We first identified 444 papers and 49 were finally considered, including 789 patients and 843 treated areas. The following therapies were recorded in order of frequency: laser-therapy, photodynamic therapy (PDT), 3% diclofenac in 2.5% hyaluronic acid, PDT+5% imiquimod, ALA- or MAL- laser, 5% imiquimod, fluorouracil, partial surgery, 0.015% ingenol mebutate, 50% trichloroacetic acid and laser+PDT. Concerning the primary outcome 85.9% of patients underwent complete clinical response and 11.0% had clinical recurrences. Partial surgery and laser therapy showed the highest complete response rates (14/14 [100%] and 244/260 [93.8%], respectively) with low recurrences. Only a limited number of patients were treated with other therapies, with the exception of PDT with 68.9% complete responses and 12.6% of recurrences. Interestingly, when combined with 5% imiquimod efficacy of PDT was significantly enhanced.

**LIMITATIONS:** Heterogeneity across studies.

**CONCLUSIONS:** Laser therapy appears as the best option among non-surgical approaches for actinic cheilitis, while PDT showed higher efficacy when sequentially combined with 5% imiquimod. Larger studies are needed to confirm these data.

### Medical Disclaimer

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### Sources and References Consulted and/or Utilised

#### Actinic Cheilitis

<https://www.patienthelp.org/diseases-conditions/actinic-cheilitis.html>

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#### **Actinic Cheilitis Picture**

<https://www.healthline.com/health/actinic-cheilitis#pictures>

#### **Canadian Centre for Occupational Health and Safety**

[https://www.ccohs.ca/oshanswers/phys\\_agents/ultravioletradiation.html](https://www.ccohs.ca/oshanswers/phys_agents/ultravioletradiation.html)

#### **DermNet NZ**

<http://www.dermnetnz.org/site-age-specific/solar-cheilitis.html>

**Emadi, S.E., Suleh, A., Babamahmoodi, F., Ahangarkani, F., Betty Chelimo, V., Mutai, B., Raeeskarami, S.R. Ghanadan, A. & Emadi, S.N.** 2017. Common malignant cutaneous conditions among albinos in Kenya. *Med J Islam Repub Iran.* 2017 Jan 11:31:3. doi 10.18869/mjiri.31.3. eCollection 2017.

#### **EMF & RF Solutions**

<http://www.emfrf.com/electromagnetic-spectrum-or-frequency-spectrum/>

**Lai, M., Pampena, R., Cornacchia, L., Pellacani, G., Peris, K. & Longo, C.** 2019. Treatments of actinic cheilitis: a systematic review of the literature. *J Am Acad Dermatol.* 2019 Aug 7. pii: S0190-9622(19)32501-0. doi: 10.1016/j.jaad.2019.07.106. [Epub ahead of print]

**Levi, A., Hodak, E., Enk, C.D., Snast, I., Slodownik, D. & Lapidoth, M.** 2019. Daylight photodynamic therapy for the treatment of actinic cheilitis. *Photodermatol Photoimmunol Photomed.* 2019 Jan;35(1):11-16. doi: 10.1111/phpp.12415. Epub 2018 Aug 15.

#### **Medical News Today**

<https://www.medicalnewstoday.com/articles/319133.php>

**Mello, F.W., Melo, G., Modolo, F. & Rivero, E.R.** 2019. Actinic cheilitis and lip squamous cell carcinoma: literature review and new data from Brazil. *J Clin Exp Dent.* 2019 Jan 1;11(1):e62-e69. doi: 10.4317/jced.55133. eCollection 2019 Jan.

**Muthukrishnan, A. & Bijai Kumar, L.** 2017. Actinic Cheilosis: early intervention prevents malignant transformation. *BMJ Case Rep.* 2017 Mar 20:2017. pii: bcr2016218654. doi: 10.1136/bcr-2016-218654.

**Radakovic, S. & Tanew A.** 2017. 5-aminolaevulinic acid patch-photodynamic therapy in the treatment of actinic cheilitis. *Photodermatol Photoimmunol Photomed.* 2017. Nov; 33(6):306-310. doi: 10.1111/phpp. 12332. Epub 2017 Aug 29.

**Rodríguez-Blanco, I., Flórez, Á., Paredes-Suárez, C., Rodríguez-Lojo, R., González-Vilas, D., Ramírez-Santos, A., Paradela, S., Suárez Conde, I. & Pereiro-Ferreirós, M.** 2018. Actinic Cheilitis Prevalence and Risk Factors: A Cross-sectional, Multicentre Study in a Population Aged 45 Years and Over in North-west Spain. *Acta Derm Venereol.* 2018 Nov 5;98(10):970-974. doi: 10.2340/00015555-3014.

#### **Science Learning Hub**

<https://www.sciencelearn.org.nz/resources/1304-positive-and-negative-effects-of-uv>

#### **Scottish Sensory Centre**

<http://www.ssc.education.ed.ac.uk/BSL/physics/ultravioletradd.html>

#### **Study.com**

<http://study.com/academy/lesson/what-is-uv-radiation-definition-types-effects.html>

#### **The Dermatologist**

<http://www.the-dermatologist.com/content/actinic-cheilitis-treatment-ablative-laser-vermilionectomy>

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