Claves en Fotoprotección

1° CONGRESO ARGENTINO de Dermatología Pediátrica de la Sociedad Argentina de Pediatría

27 de Abril de 2017

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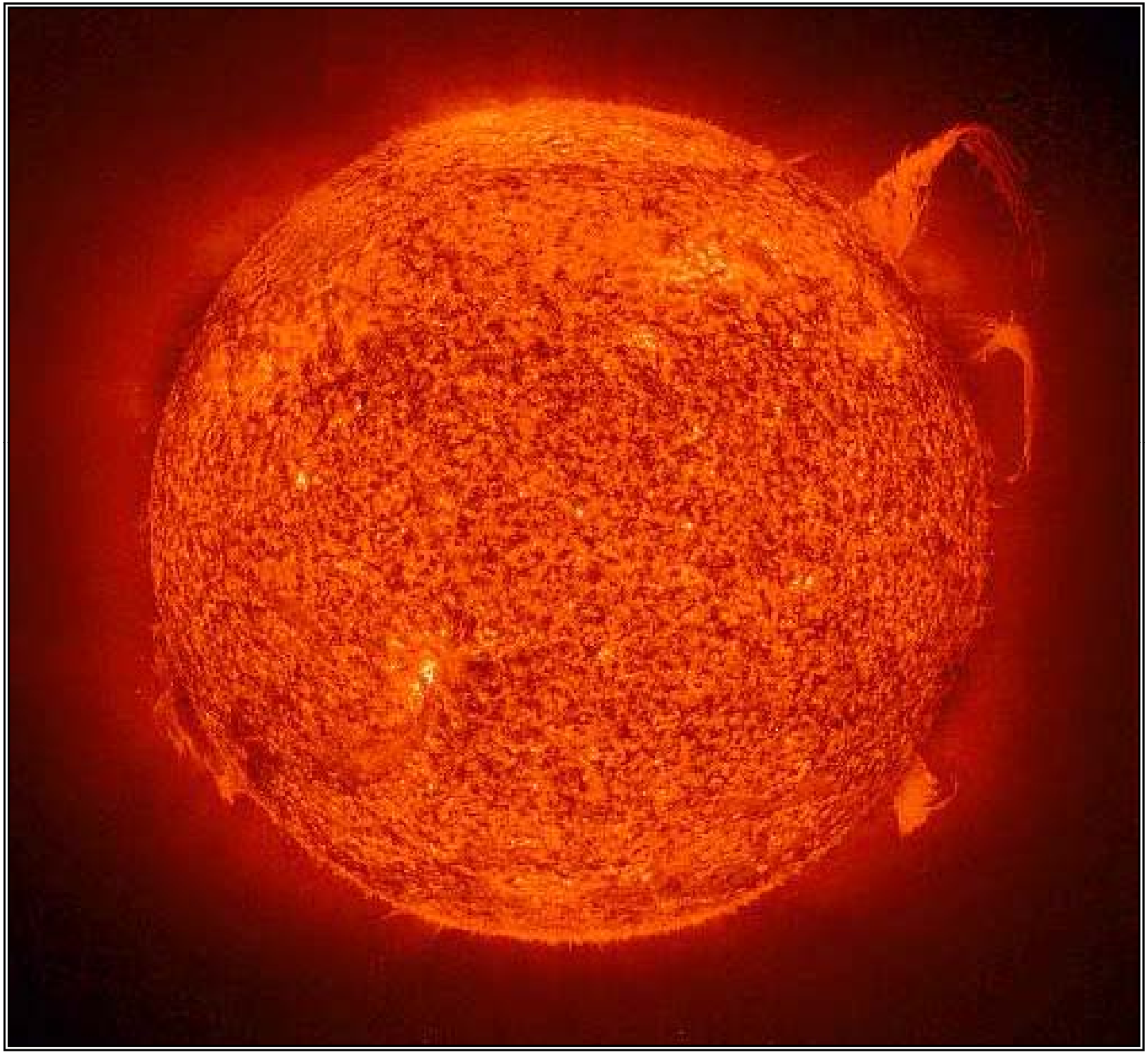
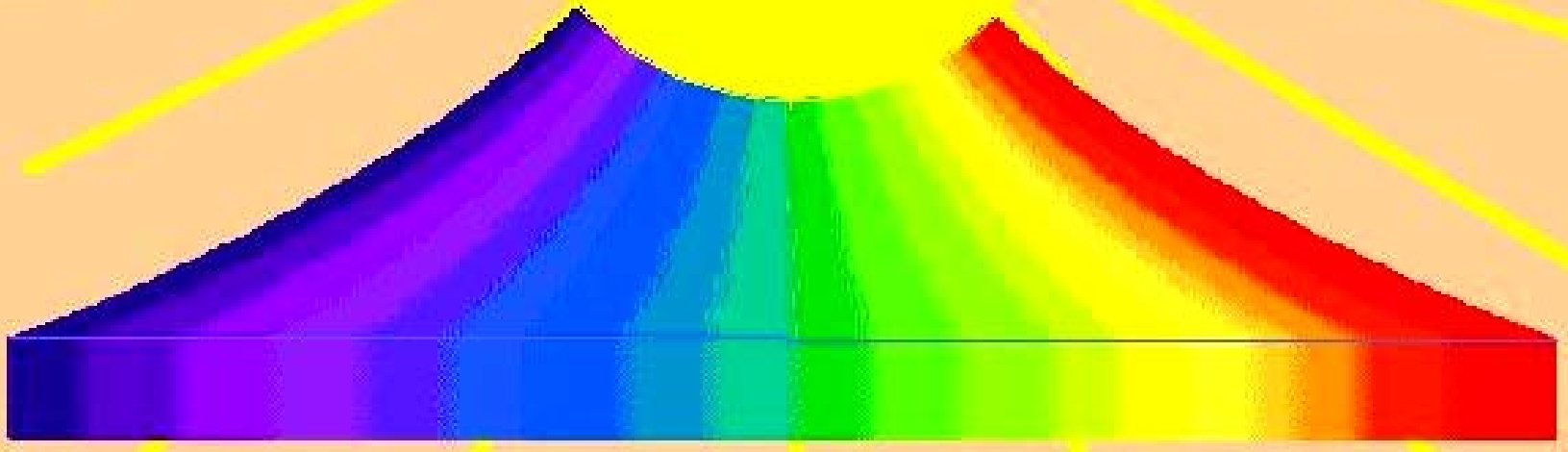
Buenos Aires – Argentina

Claves en Fotoprotección

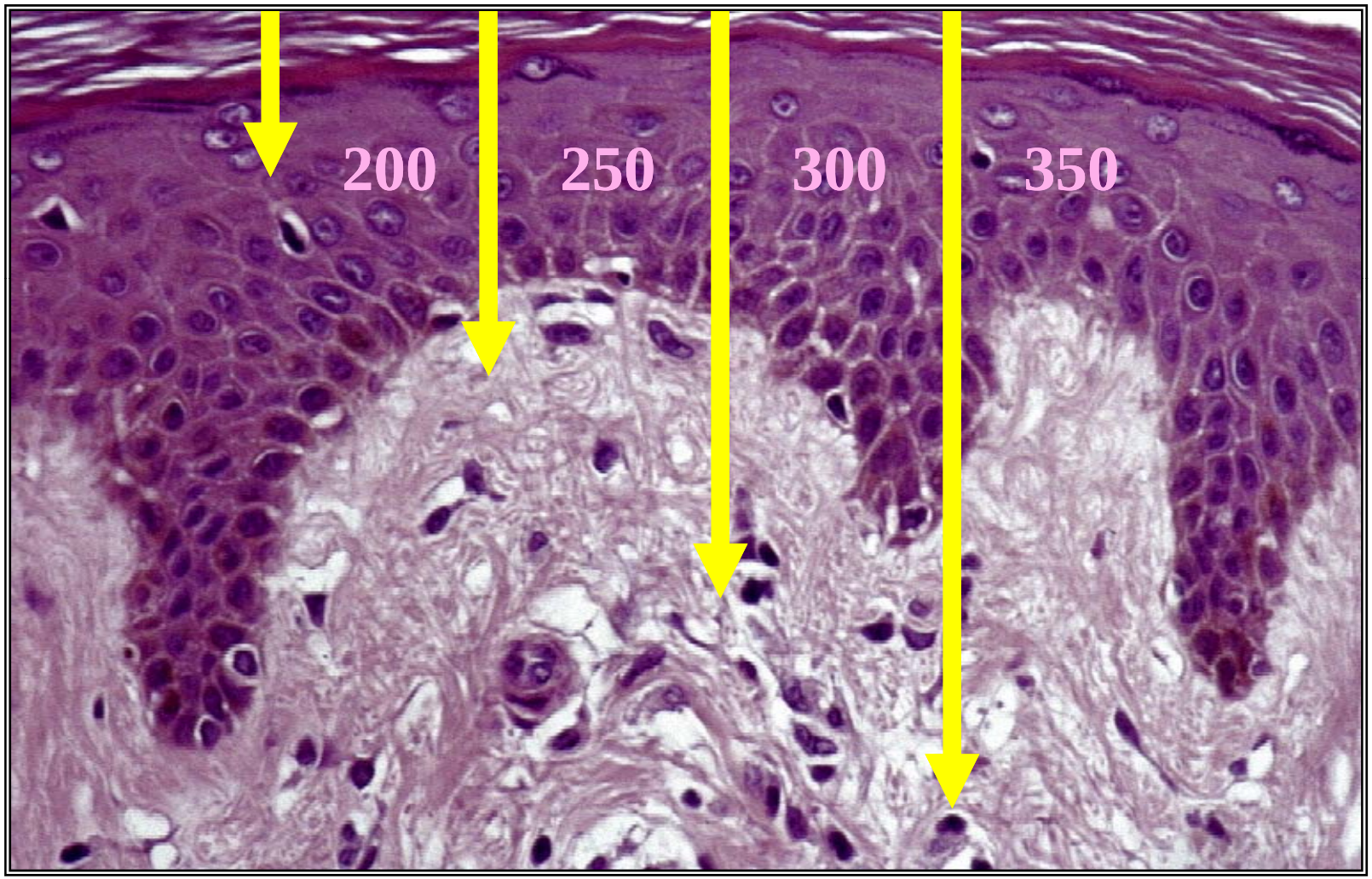
- La radiación UV es la principal causa del cáncer de piel

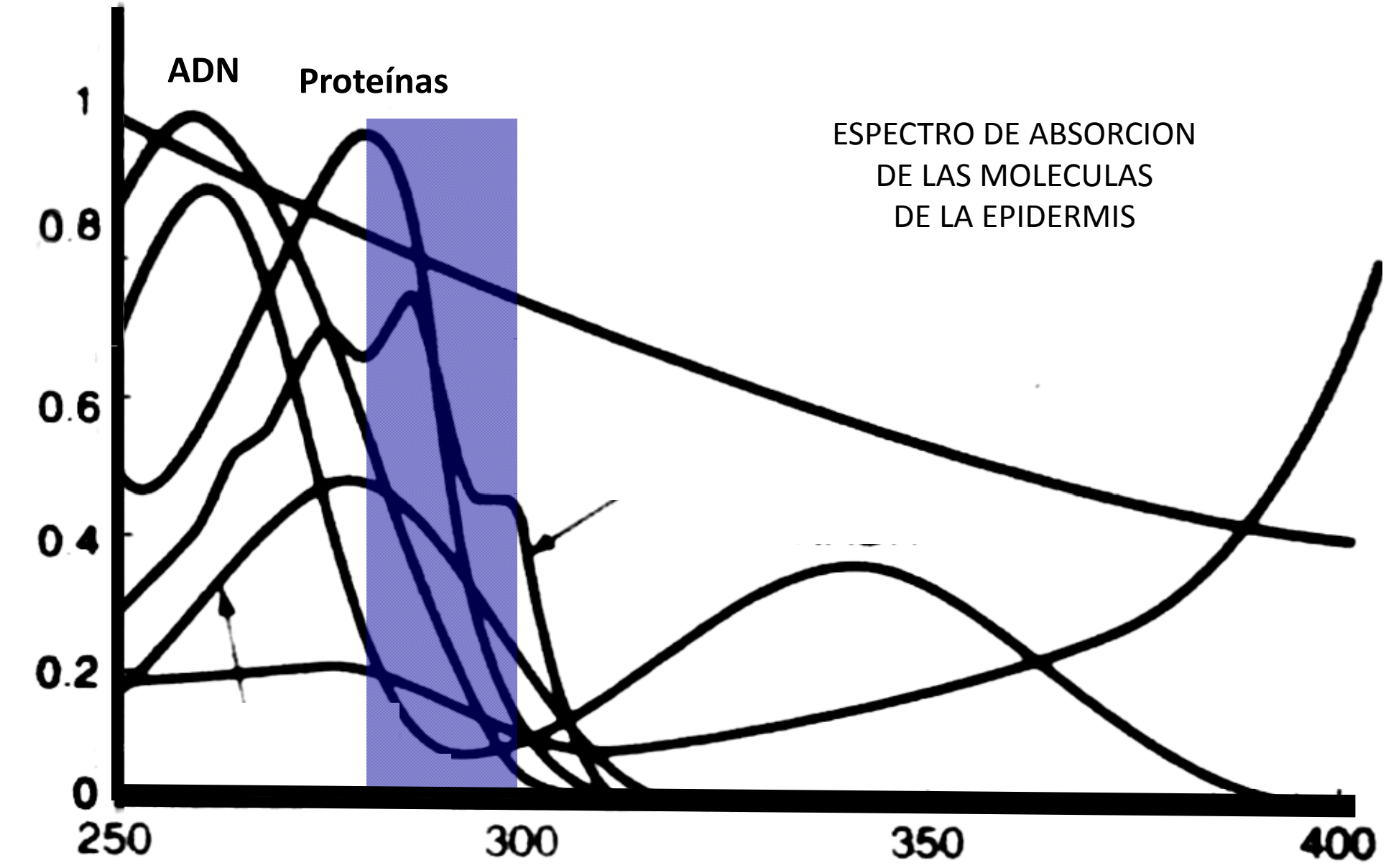


Radiaciones ultravioletas	**Daño del material genético**
	Inmunodepresión
	Fotoenvejecimiento
Luz visible	**Señales visuales**
Radiaciones infrarrojas	**Calor**



Epidermis y RUV




ADN
Proteínas
ESPECTRO DE ABSORCION
DE LAS MOLECULAS
DE LA EPIDERMIS
1
0.8
0.6
0.4
0.2
0
250
300
350
400

La radiación UV es el factor de riesgo más importante

La formación de **dímeros de pirimidina** (CPD) es el principal daño causado en el ADN

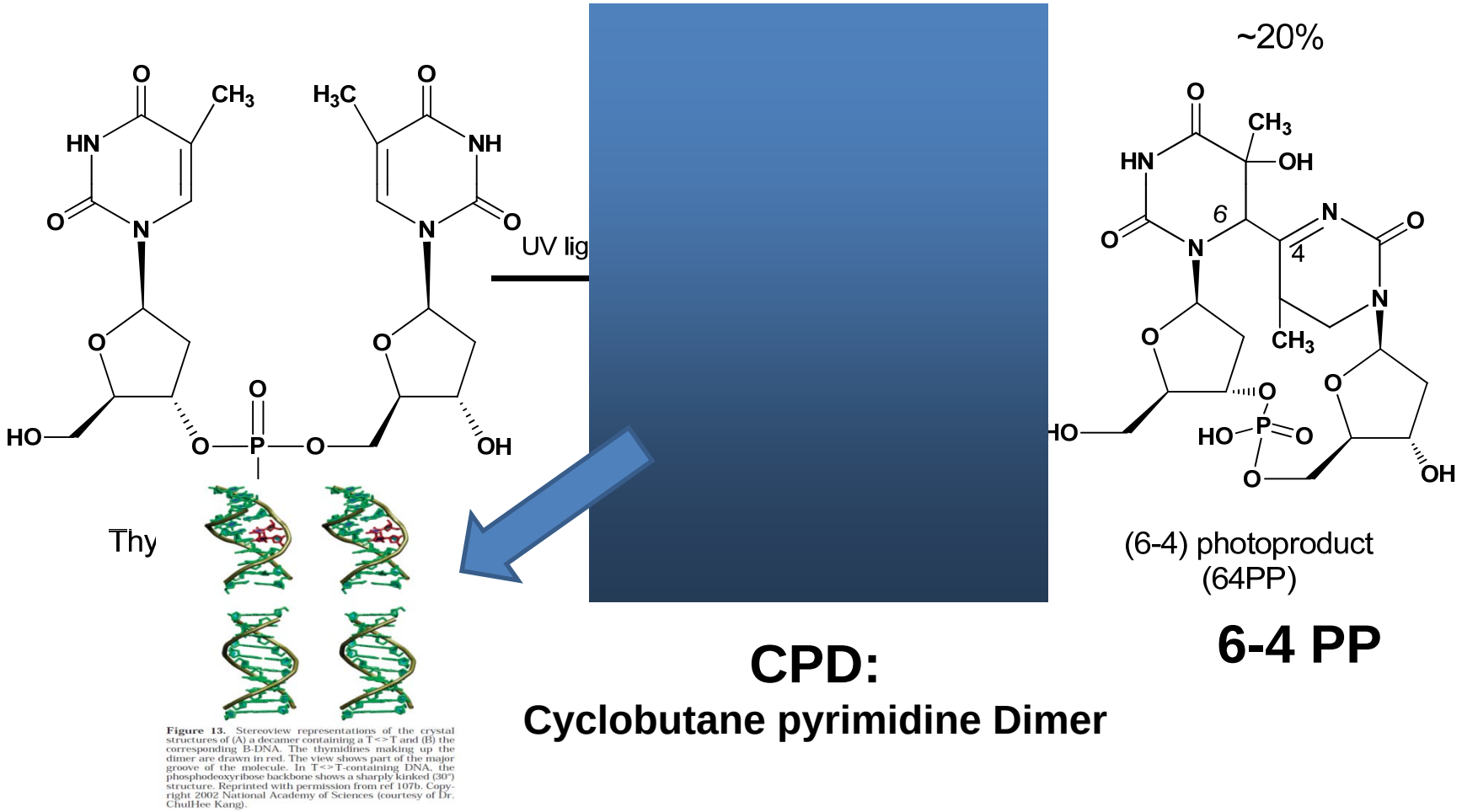
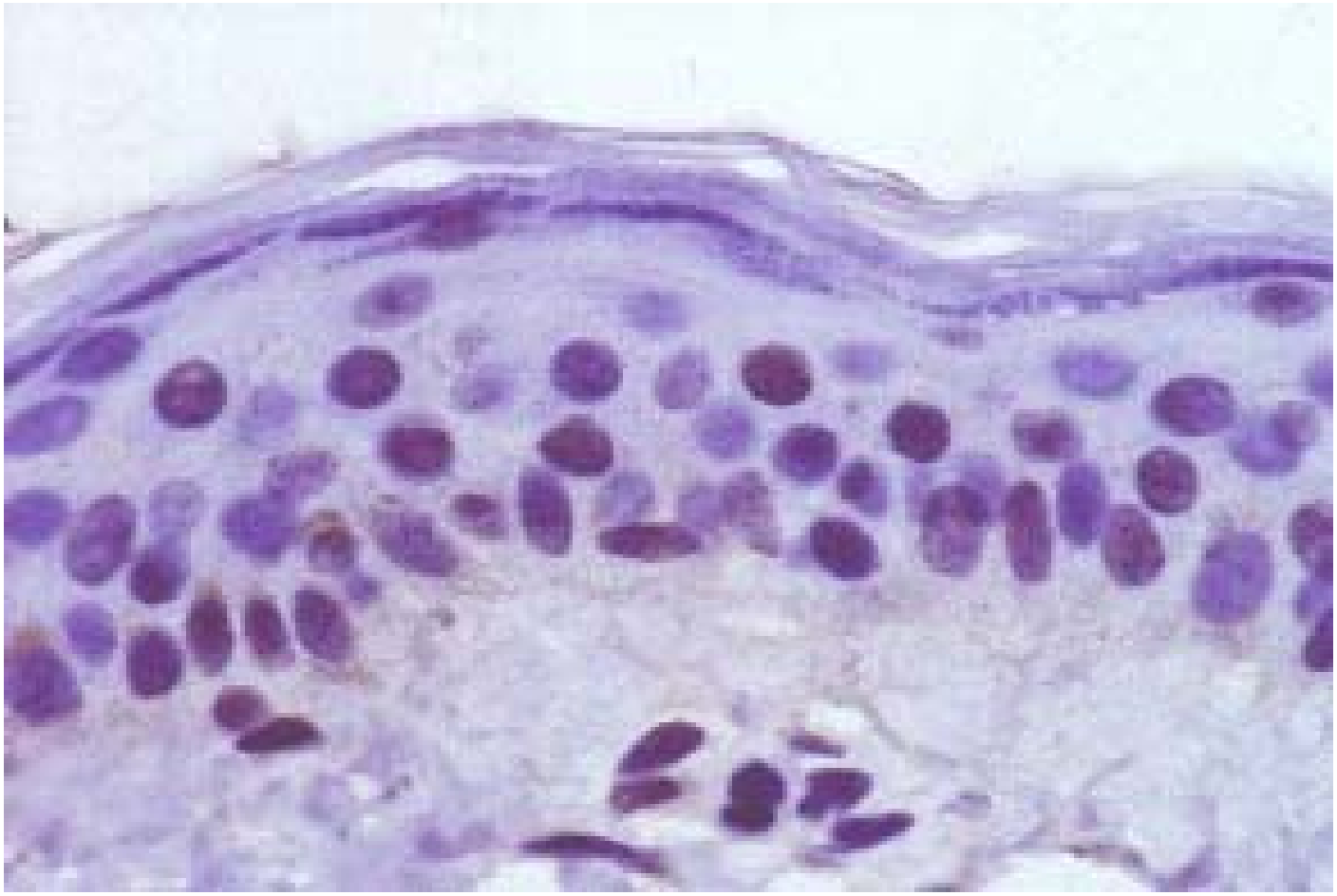
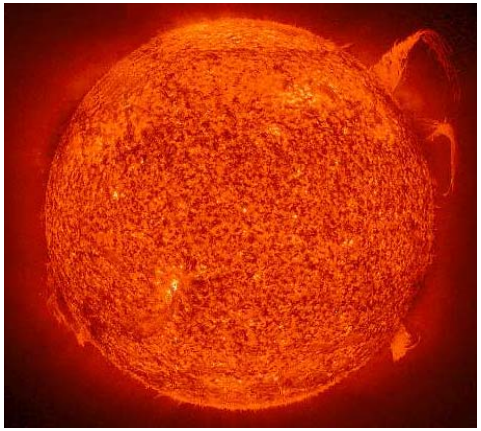


Figure 13. Stereoview representations of the crystal structures of (A) a decamer containing a T<>T and (B) the corresponding B-DNA. The thymidines making up the dimer are drawn in red. The view shows part of the major groove of the molecule. In T<>T-containing DNA, the phosphodeoxyribose backbone shows a sharply kinked (30°) structure. Reprinted with permission from ref 107b. Copyright 2002 National Academy of Sciences (courtesy of Dr. ChulHee Kang).

Expresión de p53 post-exposición UV





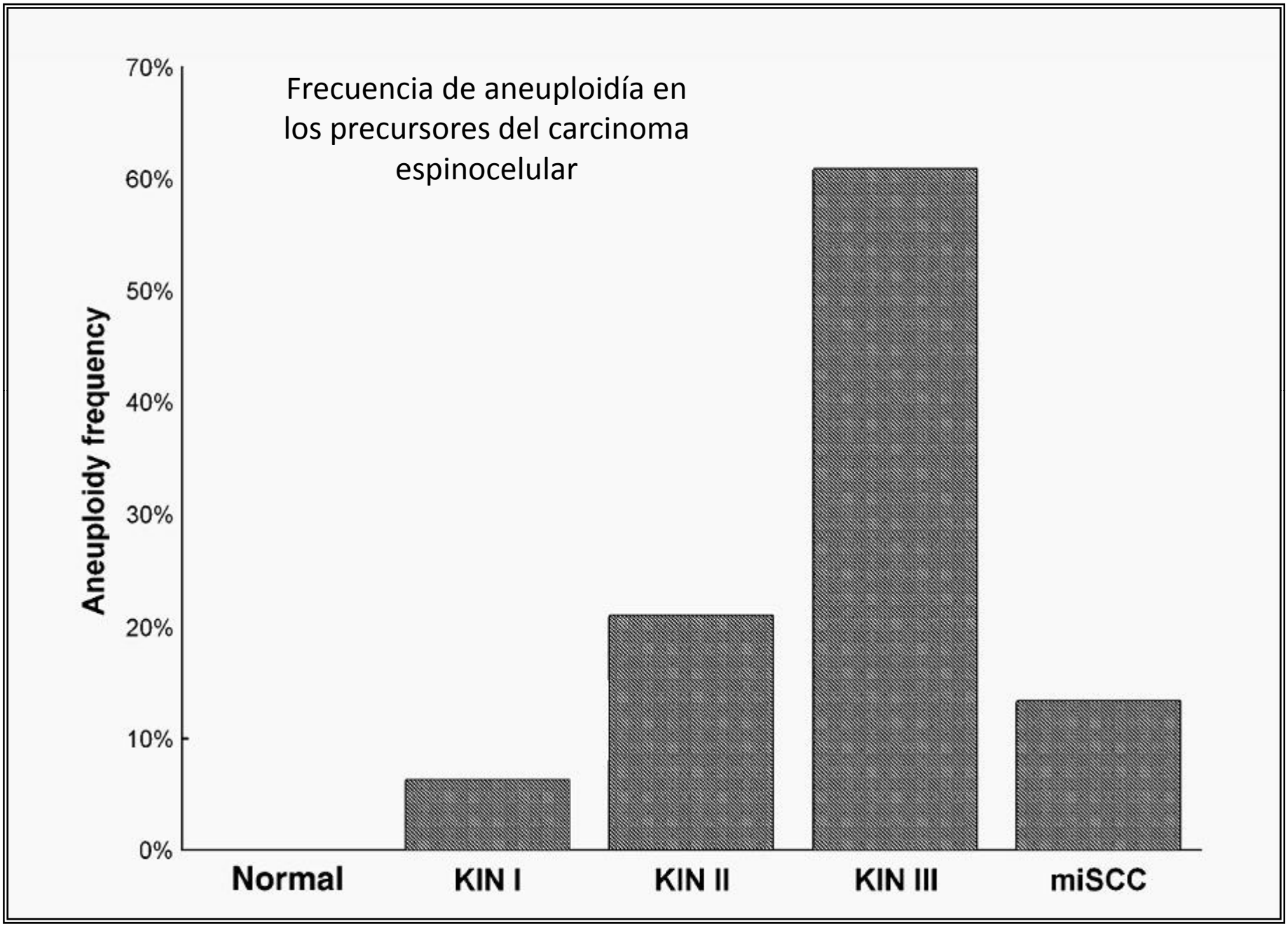
Daño en el DNA

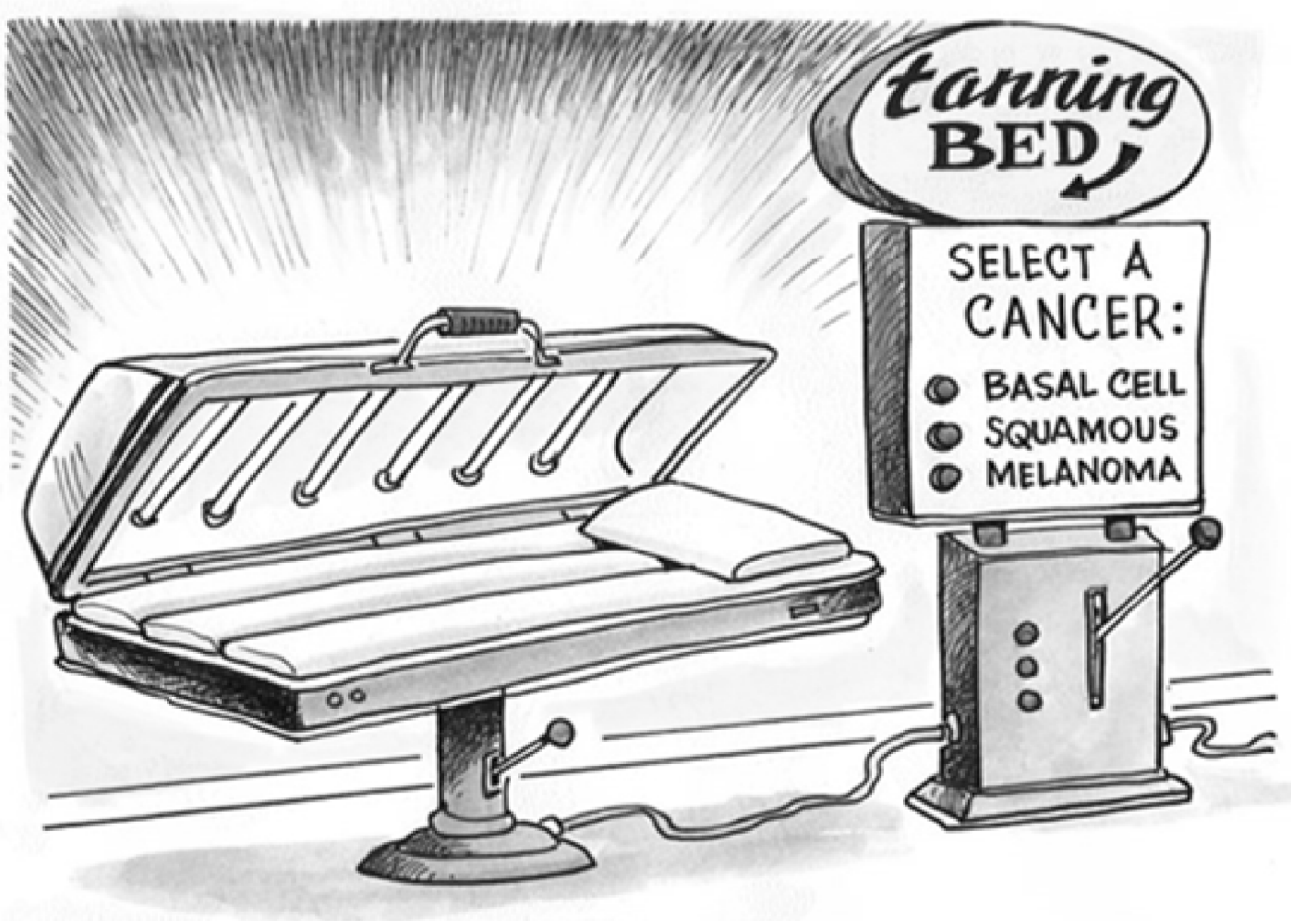
Inmunosupresión
Apoptosis
Cáncer de Piel No Melanoma
Melanoma

Inflamación

Eritema
Fotodermatosis
Fotoenvejecimiento

Frecuencia de aneuploidía en los precursores del carcinoma espinocelular




tanning BED
SELECT A CANCER:
BASAL CELL
SQUAMOUS
MELANOMA

Early-onset BCC and indoor tanning

- Data on indoor tanning were obtained on 657 cases of BCC and 452 controls age≤50
- Early-onset BCC was related to indoor tanning (OR=1.6)
- Strongest association was observed for first exposure as an adolescent or young adult, with a 10% increase in the OR with each age younger at first exposure (OR per year of age ≤23 = 1.1)
- *Conclusion:*
  - *Findings suggest early exposure to indoor tanning increases the risk of early development of BCC*

Karagas et al Pediatrics, 2014

Claves en Fotoprotección

- La radiación UV es la principal causa del cáncer de piel
- El fotodaño acumulado desde la infancia es relevante

Riesgo Epidemiológico

- Carcinoma basocelular
  - Fotoexposición solar en la infancia y la adolescencia (ej: largas vacaciones de verano al sol).
- Carcinoma espinocelular
  - Fotoexposición solar prolongada y acumulativa (ej: trabajadores rurales o deportistas).
- Melanoma
  - Fotoexposición intensa e intermitente (ej: grandes quemaduras solares en la playa).

Claves en Fotoprotección

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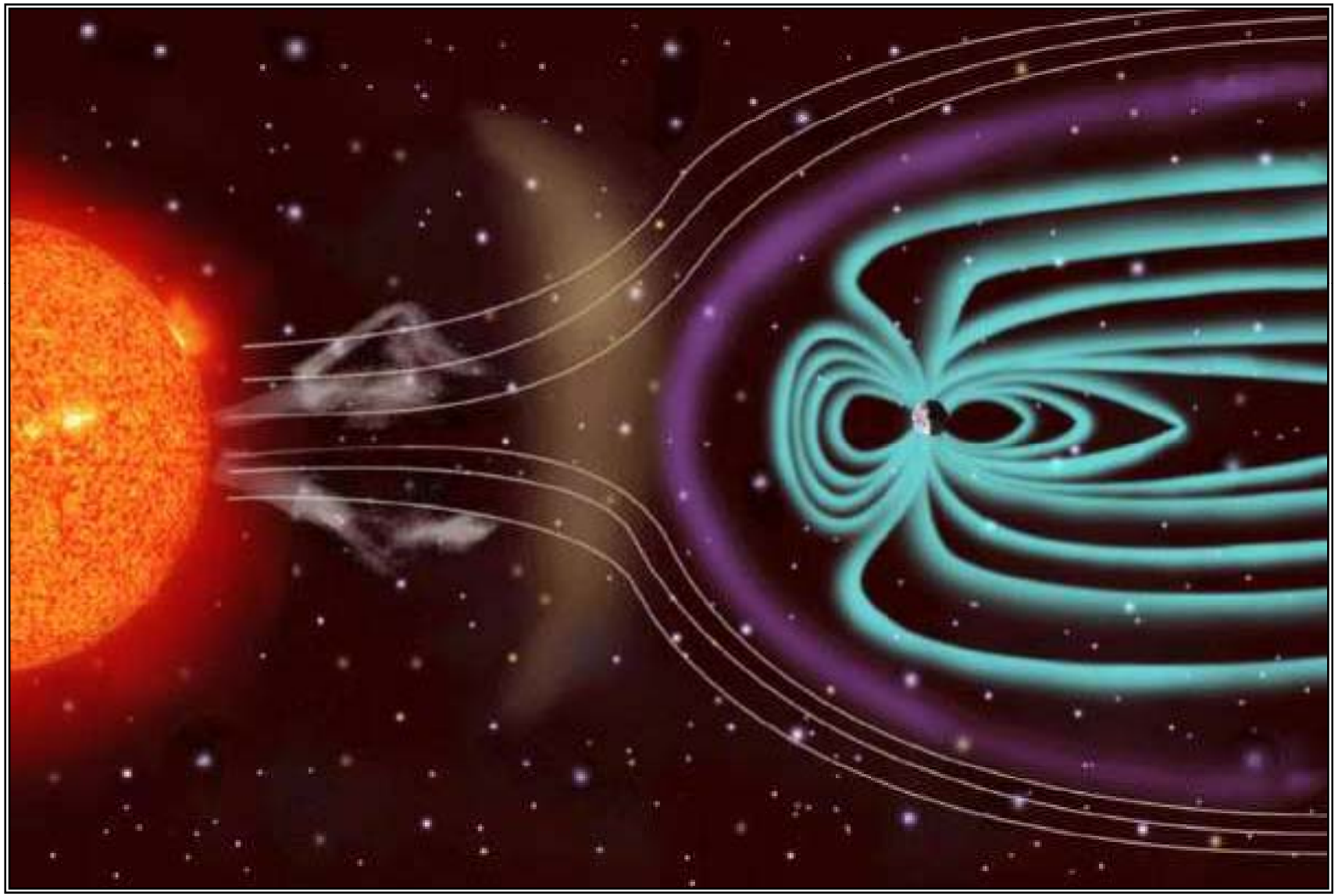
Filtro atsmosférico



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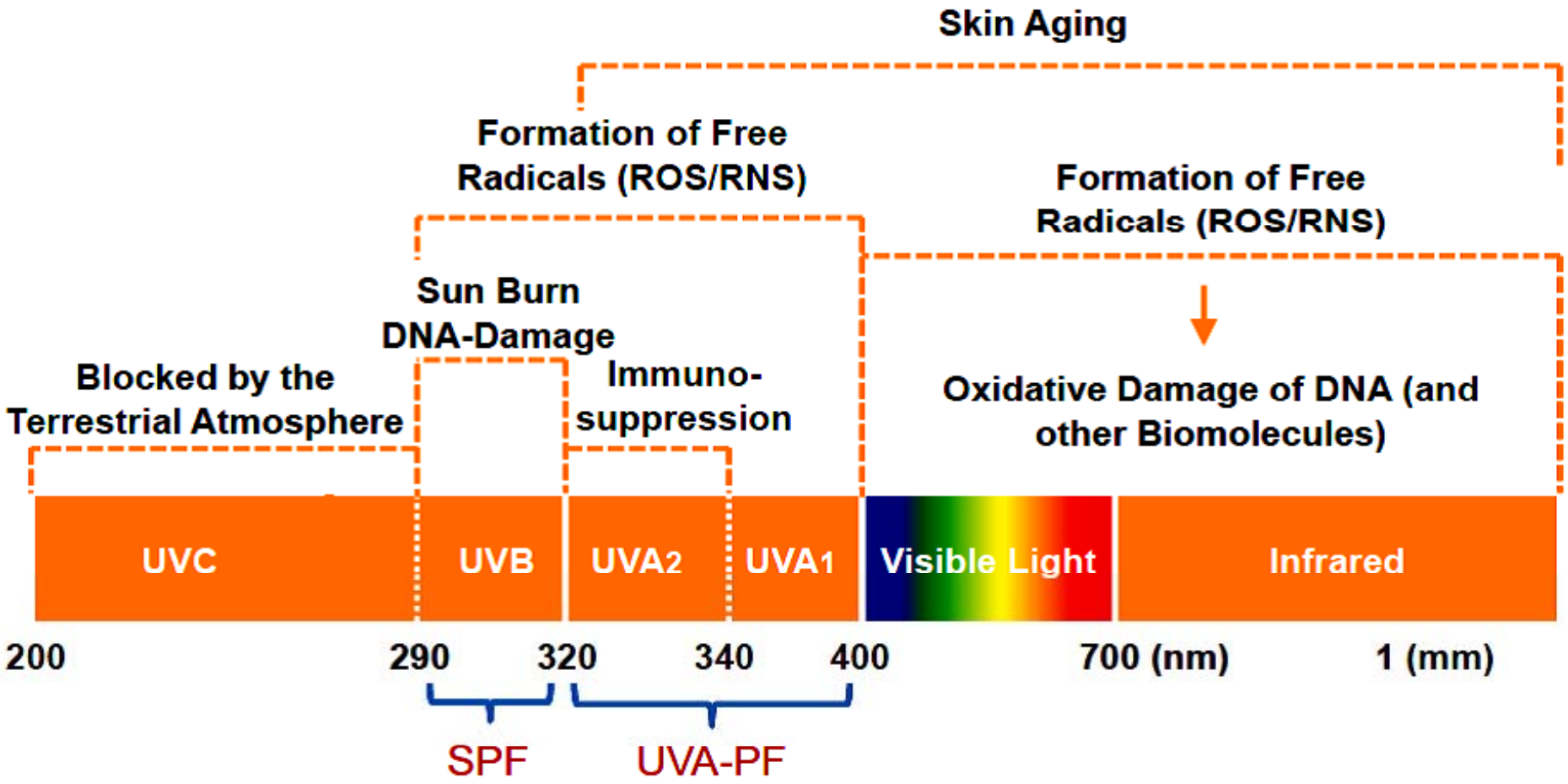
Espectro de radiaciones



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Ecosistema fotoprotector

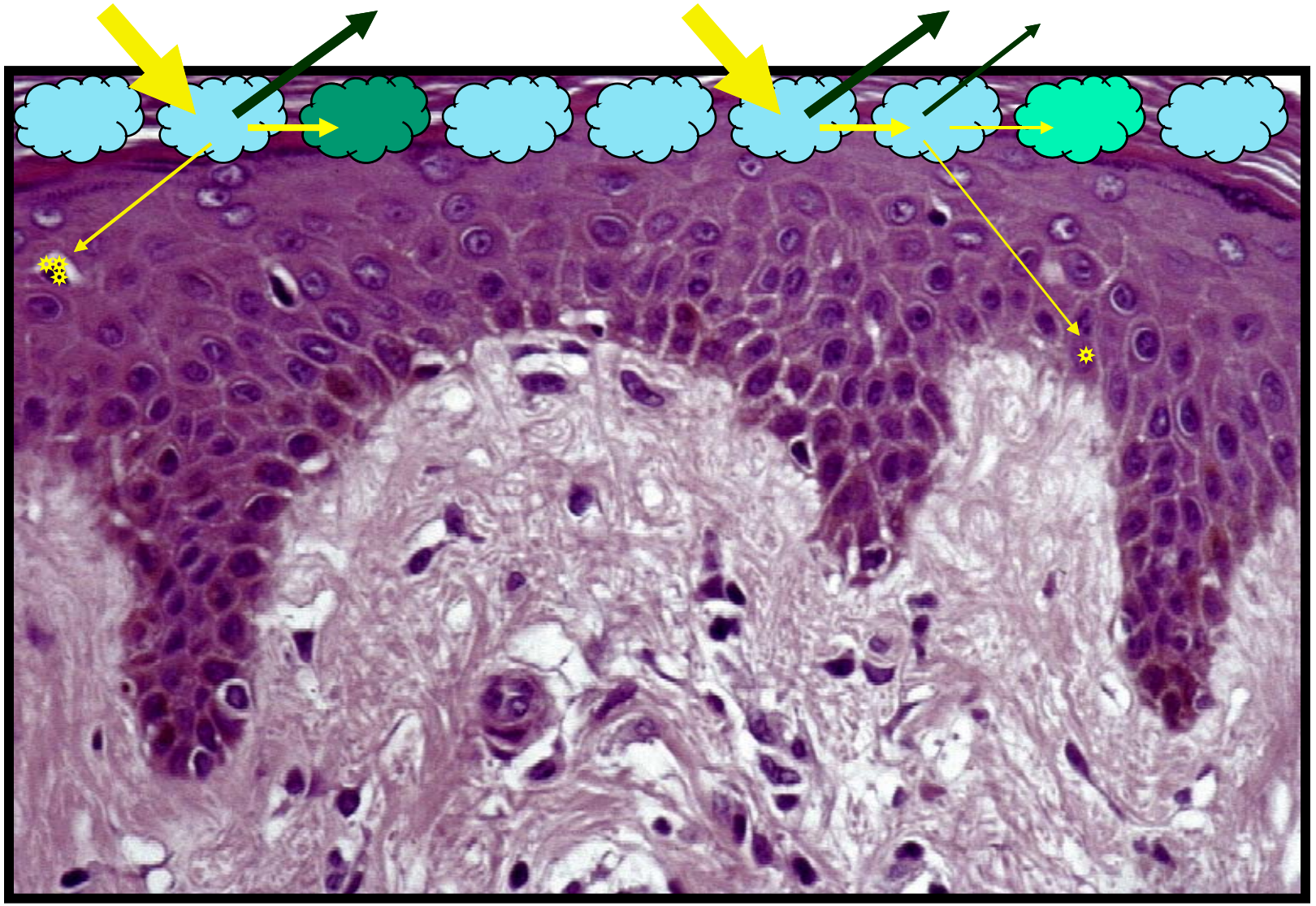


Figure Seven: The 20 Most Common Cancers, Percentage Change in European Age-Standardised Three Year Average Incidence Rates, Males, UK, 1997-1999 and 2006-2008

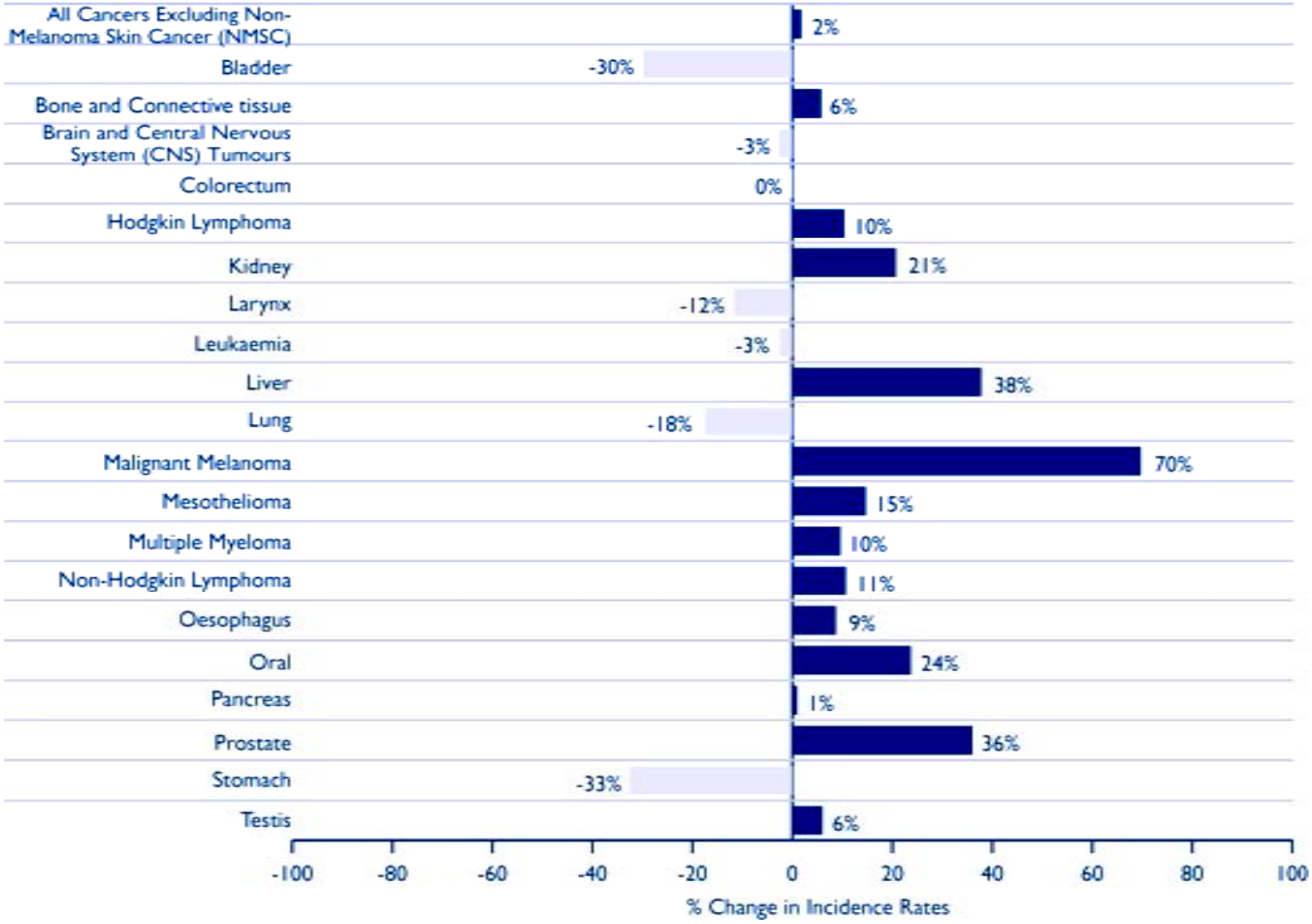
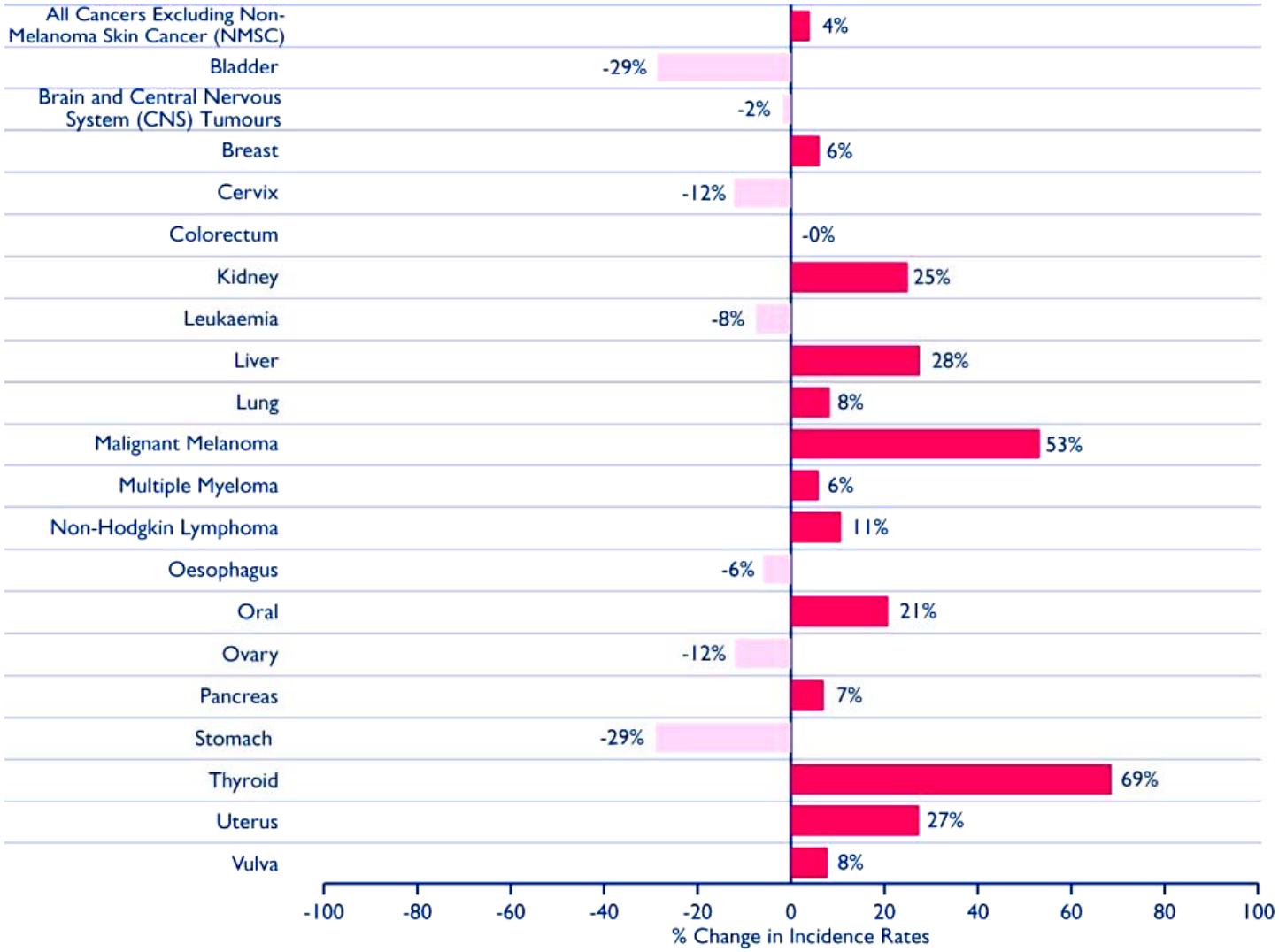


Figure Eight: The 20 Most Common Cancers, Percentage Change in European Age-Standardised Three Year Average Incidence Rates, Females, UK, 1997-1999 and 2006-2008



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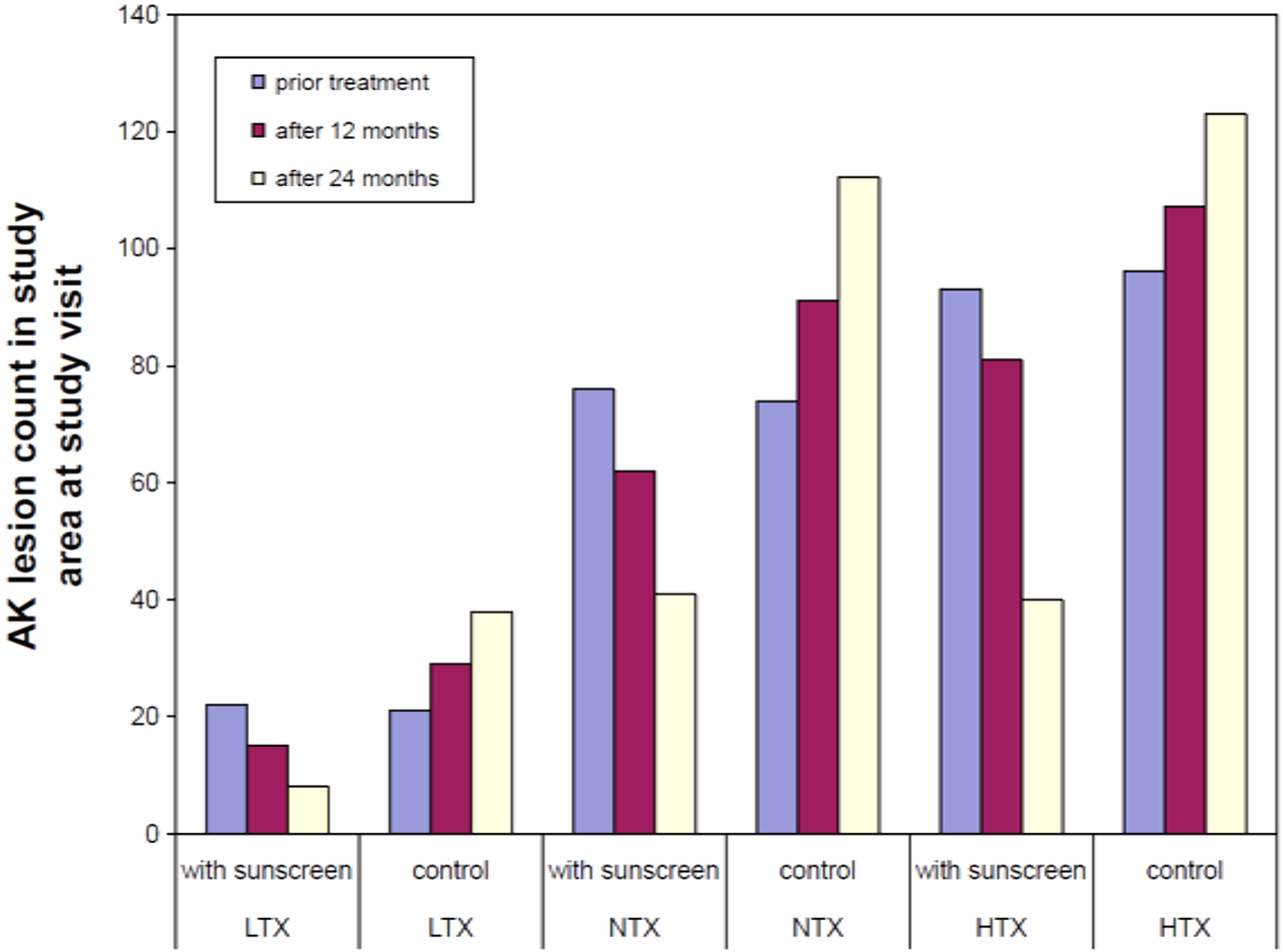
Photoprotection in immunocompetent and immuno compromised people



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- La atmósfera y la sombra son fotoprotectoras
- Los protectores solares pueden contribuir a disminuir el riesgo de cáncer de piel
- El FPS es una medida confusa

FPS

ORIGINAL ARTICLE

BJD British Journal of Dermatology

Sun protection factors: world wide confusion

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Ciba Inc., Basel, Switzerland

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Key words

PPD, skin aging, skin cancer, sun protection factor, sunscreen, UVA-PF

Conflicts of interest

The authors are employees of Ciba Inc.

DOI 10.1111/j.1365-2133.2009.09506.x

Summary

The Sun Protection Factor (SPF) is a very popular instrument in the marketing of sunscreens. Unfortunately it is often not understood how sunscreens work and where the limitations of the SPF are. A lot of aspects of the SPF are confusing, e.g. the race for higher and higher numbers, the effect on SPF when less sunscreen is applied and if sunscreen should be used at all because they may block the Vitamin D synthesis. All this has a negative impact on compliance by the consumer or patient which is the most important influence factor in sun protection. This paper explains how sunscreens work, how the SPF is determined and where the limitations of the current methods exist. The dynamic view of 'UV radiation applied' and the 'UV dose transmitted' through the sunscreen onto the skin as well as onto a substrate *in vitro* help in the understanding and are also promising approaches in the *in vitro* assessment. A variation of the *in vitro* assessment of a sunscreen is the *in silico* calculation based on the absorption spectrum of the UV filters and an assumption about the irregular sunscreen film on the skin. The sunscreen simulator program can be used to determine how the SPF is

FPS

$$FPS = \frac{\text{Dosis mínima de eritema con fotoprotector}}{\text{Dosis mínima de eritema sin fotoprotector}}$$

Se basa en la dosis mínima de eritema (DEM)

No se considera el sub-eritema

Hay dos normas diferentes (FDA y COLIPA)

Se mide con cantidades de crema que nadie utiliza

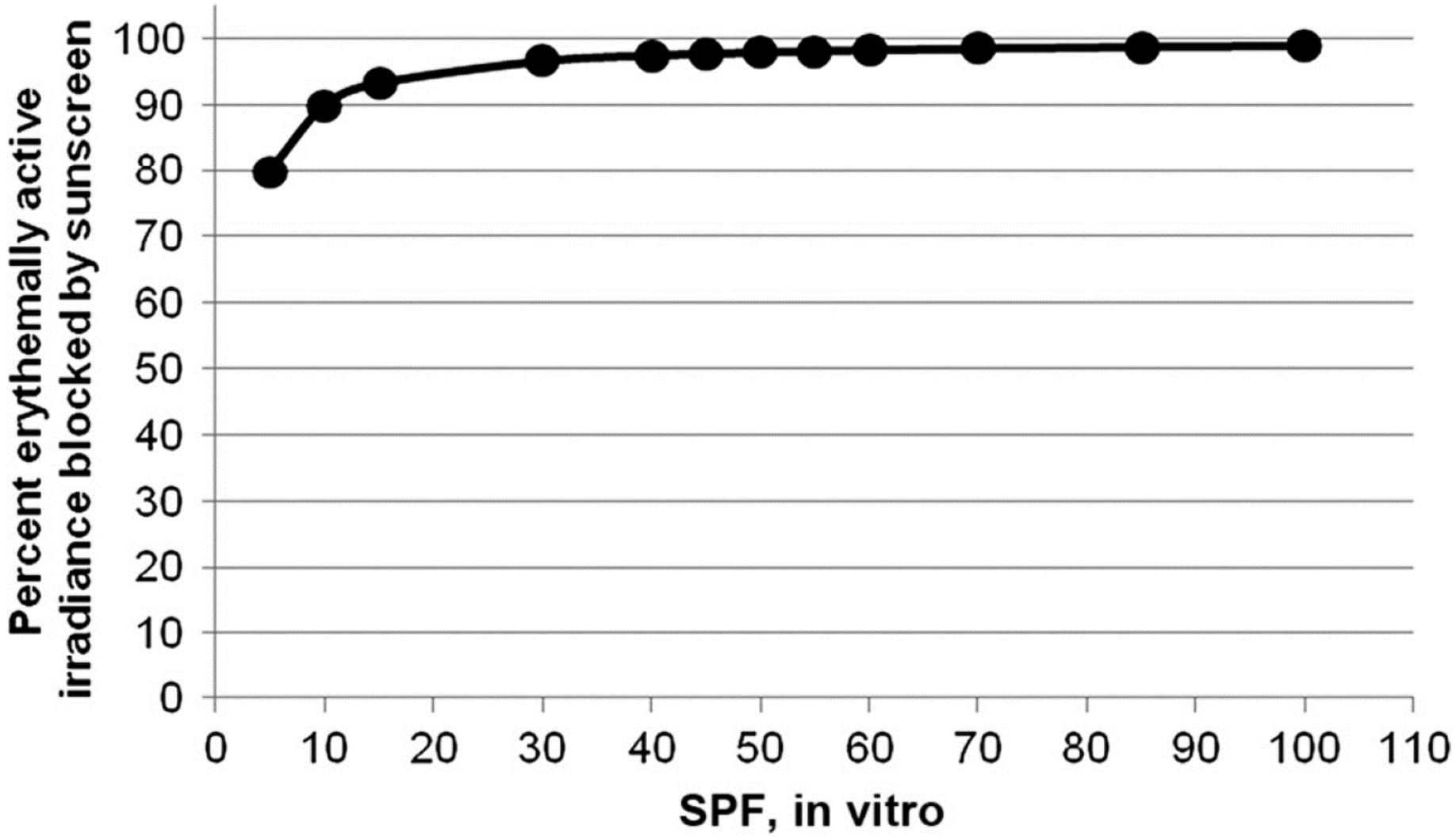
FPS en el día a día real

La aplicación inadecuada resulta en un FPS menor

Los FPS están calculados con de 2 mg/cm^2

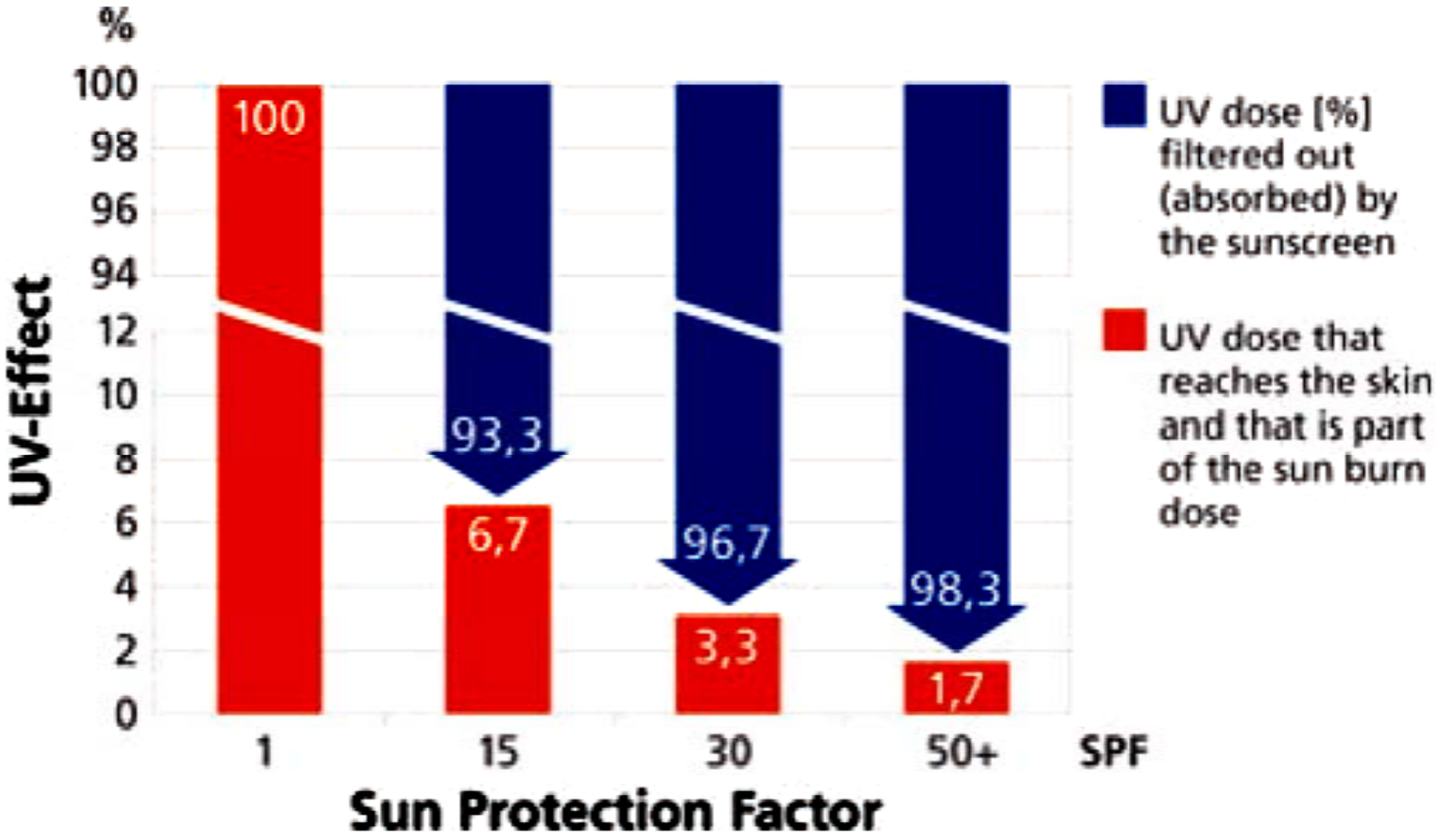
La aplicación estándar en adultos el del 25% de la cantidad idónea (0.5m g/cm^2)

SPF 30	=	Factor real	9.11
SPF 50+	=	Factor real	14.34
SPF100	=	Factor real	25.82



Pediatrics 2011;128:92–102

Llegada de las radiaciones a la piel



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- El FPS es una medida confusa
- La piel de los niños requiere medidas especiales

New Insights About Infant and Toddler Skin: Implications for Sun Protection

abstract

FREE

The skin is increasingly recognized as a component of the innate immune response, in addition to its role as a physical barrier. Although the deleterious effects of solar ultraviolet radiation (UVR), including immunosuppression and cutaneous tumorigenesis, are widely acknowledged, most studies to date have concentrated on adult skin. Despite the more sensitive nature of infant and toddler skin, little is known about its responses to UVR exposure, whether acute or long-term. Accumulating evidence suggests not only that the skin's barrier protection remains immature throughout at least the first 2 years of life but also that accumulation of UVR-induced changes in the skin may begin as early as the first summer of life. Such evidence not only affirms the importance of sun protection during the infant and toddler years but underscores the need for more research to establish evidence-based standards of care in this area. In this article we review recent studies in which differences between the skin properties of infants and young children and those of adults were compared, and we discuss the implications of these differences for sun-protection practices. *Pediatrics* 2011;128:92–102

AUTHORS: Amy S. Paller, MD,[a] John L. M. Hawk, MD,[b] Paul Honig, MD,[c] Yoke Chin Giam, MD,[d] Steven Hoath, MD,[e] M. Catherine Mack, BS,[f] and Georgios N. Stamatas, PhD[g]

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KEY WORDS

sun protection, epidermis/metabolism/physiology, sunscreening agents/administration, dosage/therapeutic use, sunburn/prevention control/therapy, skin neoplasms/prevention, control, melanoma/prevention, control, child/preschool, infant, newborn, humans, skin absorption, skin physiological phenomena

ABBREVIATIONS

UVR—ultraviolet radiation

TABLE 1 Differences in Infant and Adult Epidermal Structure[132]

	Infants	Adults
SC thickness, μm	7.3 ± 1.1	10.5 ± 2.1
Epidermal thickness, μm	29.7 ± 3.4	36.2 ± 5.2
Corneocyte size, μm^2	949.9 ± 19.1	1077.6 ± 26.9
Granular cell size, μm^2	443.6 ± 6.2	475.9 ± 8.3
Lipid/protein ratio	0.37 ± 0.012[a]	0.91 ± 0.027[a]
Melanin apparent concentration, au	1.4 ± 0.017	1.7 ± 0.014

All data are represented as average ± SD ($P < .05$). au indicates arbitrary units.

[a] Johnson & Johnson, unpublished data, 2009.

How can I protect my baby or toddler from the sun?

Ideally, parents should avoid exposing babies younger than 6 months to the sun's rays.

The best way to protect infants from the sun is to keep them in the shade as much as possible, in addition to dressing them in long sleeves, pants, a wide-brimmed hat and sunglasses. Make sure they do not get overheated and that they drink plenty of fluids. If your baby is fussy, is crying excessively or has redness on any exposed skin, take him or her indoors.

Sunscreen use should be avoided if possible in babies younger than 6 months.

Parents of infants and toddlers 6 months and older may apply a broad-spectrum, water-resistant sunscreen with an SPF of 30 or higher to their children's exposed skin that is not covered by protective clothing, according to the instructions on product label. The sunscreen should be reapplied approximately every two hours, or as often as the label says. Sunscreens that use the ingredients zinc oxide or titanium dioxide, or special sunscreens made for infants or toddlers may cause less irritation to their sensitive skin.[10]

Can I use the sunscreen I bought last summer, or do I need to purchase a new bottle each year? Does it lose its strength?

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- El FPS es una medida confusa
- La piel de los niños requiere medidas especiales
- La educación y las creencias resultan relevantes

1916

2016

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A comparison of patterns of sun protection during beach holidays and everyday outdoor activities in a population sample of young German children

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Funding sources
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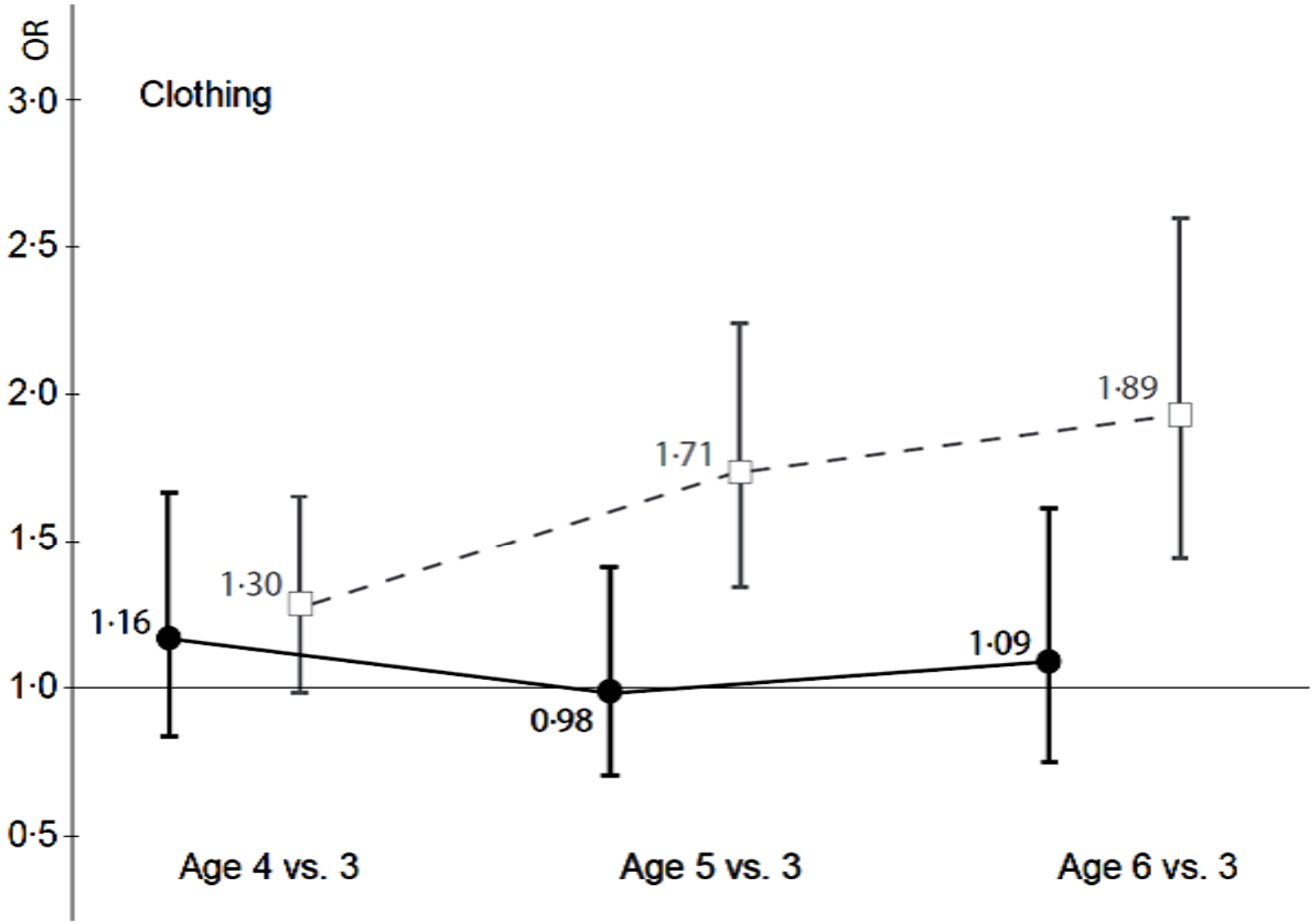
Conflicts of interest
None declared.

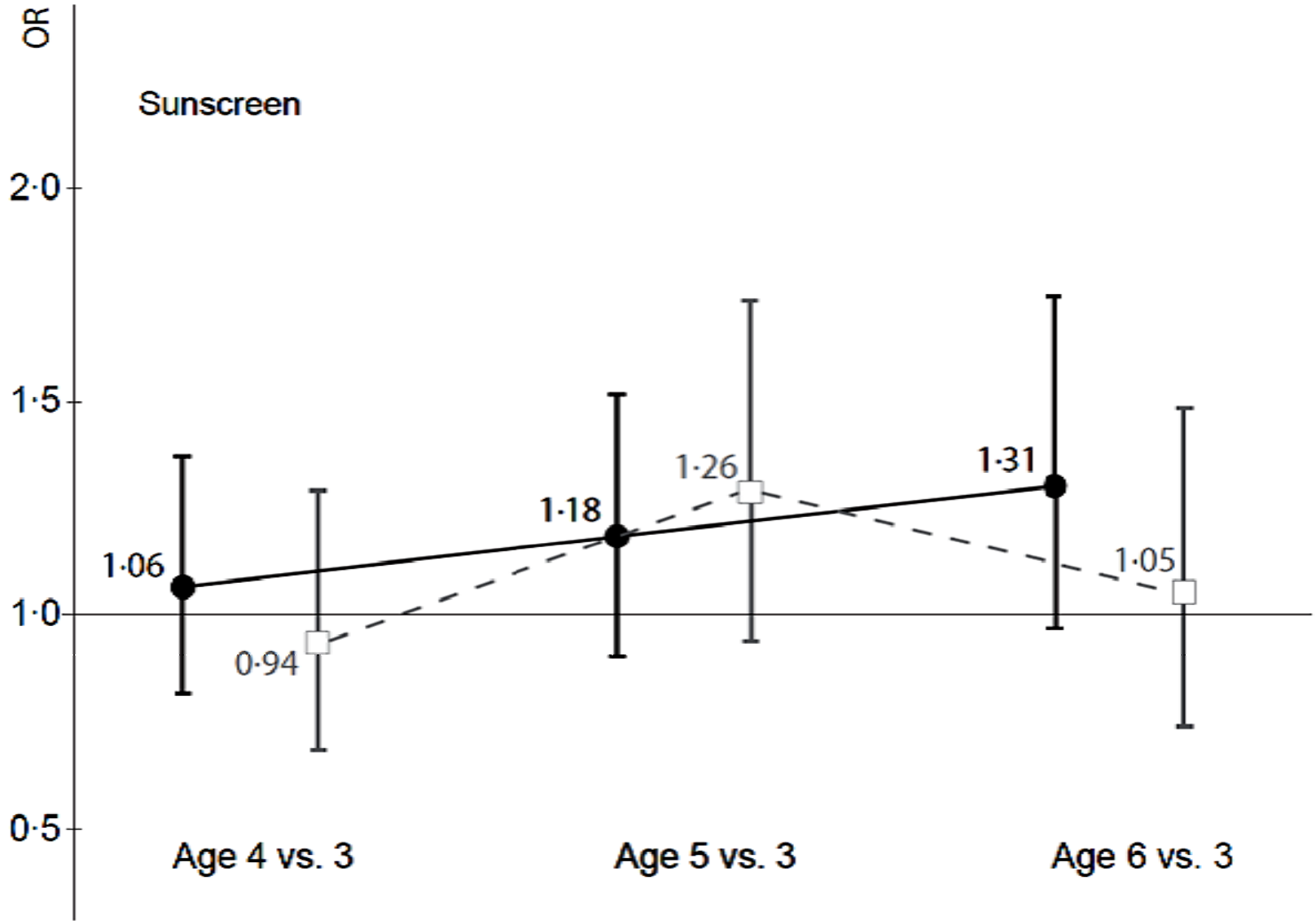
Summary

Background Reducing exposure to ultraviolet (UV) radiation is the main effective measure for preventing skin cancer. Educational campaigns targeting sun protection have been focused either on behaviour on the beach during the summer holiday alone, or during everyday outdoor activities of the children. Little is known about the comparison between these different settings.

Objectives To analyse whether parents apply similar protective measures to reduce UV exposure for their young children in different outdoor environments.

Methods Families (n = 2619) with children aged 3–6 years (response: 64·7%) were enrolled in a population-based survey in the German city of Erlangen and its surrounding rural county. Using a self-administered standardized questionnaire parents gave information about demographic and photosensitivity data of their children, their knowledge about risk factors for skin cancer and their typical instructions given to their children when these played outside on a summer day in different outdoor environments.


OR
Clothing
3·0
2·5
2·0
1·5
1·0
0·5
1·16
1·30
1·71
1·89
0·98
1·09
Age 4 vs. 3
Age 5 vs. 3
Age 6 vs. 3


OR
Sunscreen
2·0
1·5
1·0
0·5
1·06
0·94
1·18
1·26
1·31
1·05
Age 4 vs. 3
Age 5 vs. 3
Age 6 vs. 3

DOI: 10.1111/jdv.12898 JEADV

ORIGINAL ARTICLE

Evolution of sun-protection measures for children

C. Lebbé,[1,*] C. Robert,[2] S. Ricard,[3] B. Sassolas,[4] F. Grange,[5] P. Saiag,[6] C. Lhomel[7], L. Mortier[8]

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[2]Department of Dermatology, Institut Gustave Roussy, Villejuif, France
[3]Kantar Health, Montrouge, France
[4]Department of Internal medicine and Respiratory Diseases, Hôpital Cavale Blanche, Brest, France
[5]Department of Dermatology, Robert Debré University Hospital, Reims, France
[6]Department of Dermatology, Hôpital Ambroise Paré, Boulogne-Billancourt, France
[7]Roche, Boulogne-Billancourt, France
[8]Department of Dermatology, Hôpital Claude Huriez, Lille, France
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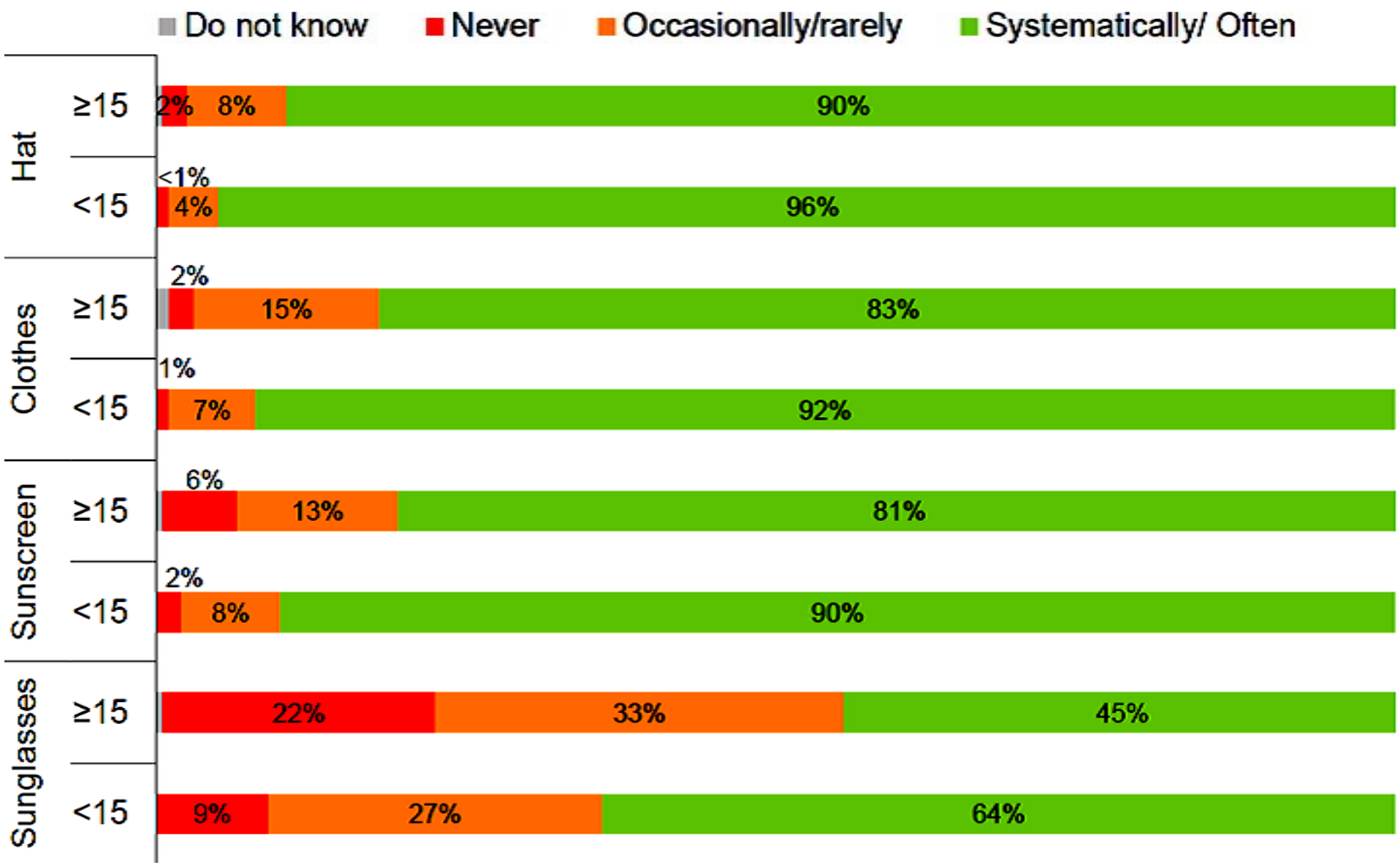
Abstract

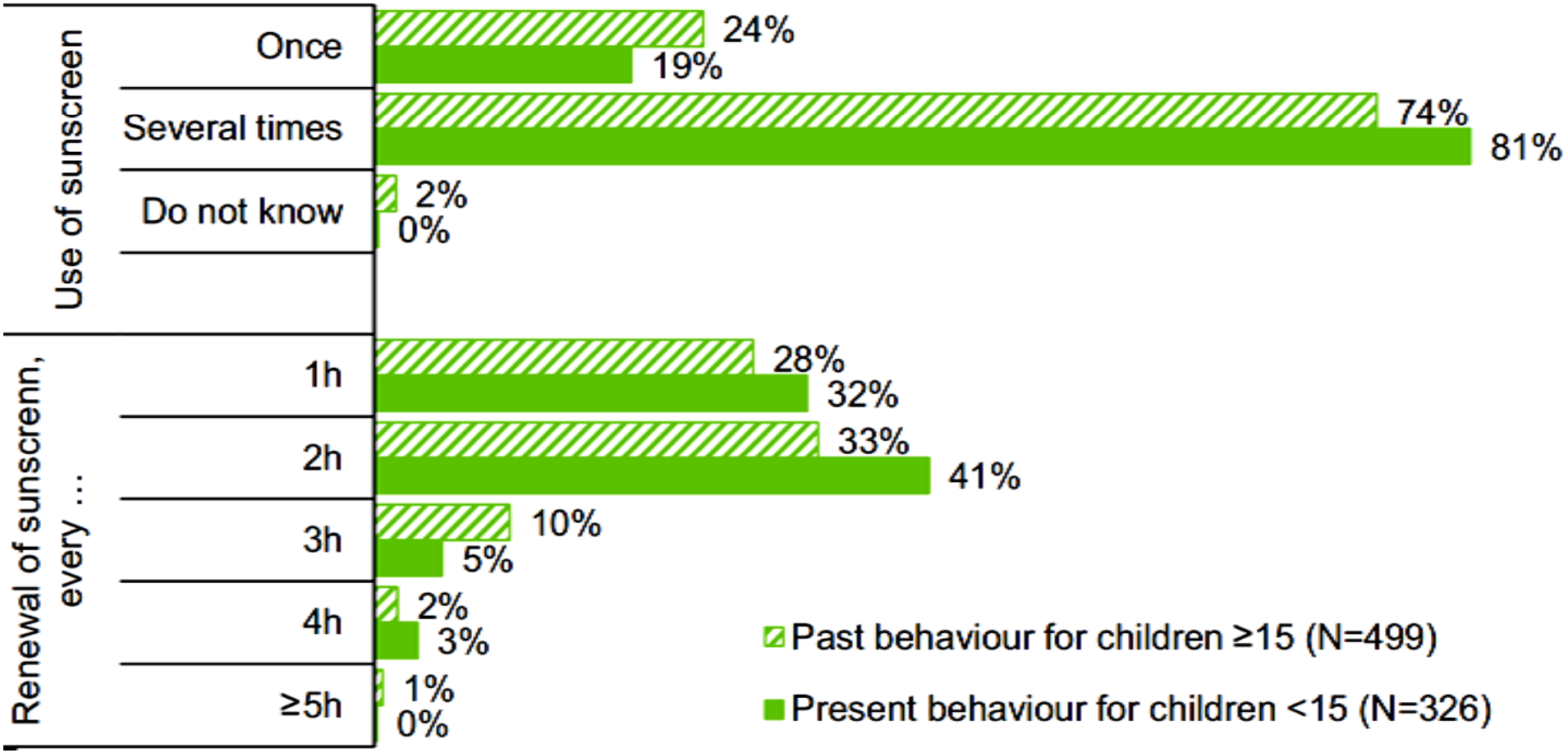
Background The prevention of melanoma can be significantly improved by targeting information directly towards the subpopulation of children and, as a means to achieve it, towards young parents.

Objectives The objective of this analysis was to determine the evolution over time of the sun-protection measures adopted by parents for their young children.

Methods The Edifice Melanoma survey was based on telephone interviews of a representative sample of 1502 subjects aged ≥18 years. This particular analysis focuses on 864 adults whose children are exposed to the sun for more than 10 days a year. We compared the characteristics and attitudes of two sub-groups of parents with regard to sun protection of young children: current-day behaviour of parents with children <15 years and behaviour in the past of parents whose children are now ≥15 years.

Results Present-day parents are more likely than those of previous generations to systematically or often use hats (96% vs. 90%, $P < 0.01$), protective clothes (92% vs. 84%, $P < 0.01$), sunscreen (89% vs. 80%, $P < 0.01$) and sunglasses (63% vs. 44%, $P < 0.01$) for their children. Systematic application of sunscreen is also more frequent today than several years ago as reported by 81% of present-day parents vs. 74% of those in the past ($P < 0.05$). Cream is reapplied


Do not know
Never
Occasionally/rarely
Systematically/ Often
Hat
≥15
2%
8%
90%
<15
<1%
4%
96%
Clothes
≥15
2%
15%
83%
<15
1%
7%
92%
Sunscreen
≥15
6%
13%
81%
<15
2%
8%
90%
Sunglasses
≥15
22%
33%
45%
<15
9%
27%
64%


Use of sunscreen
Once
24%
19%
Several times
74%
81%
Do not know
2%
0%
Renewal of sunscrenn, every …
1h
28%
32%
2h
33%
41%
3h
10%
5%
4h
2%
3%
≥5h
1%
0%
Past behaviour for children ≥15 (N=499)
Present behaviour for children <15 (N=326)

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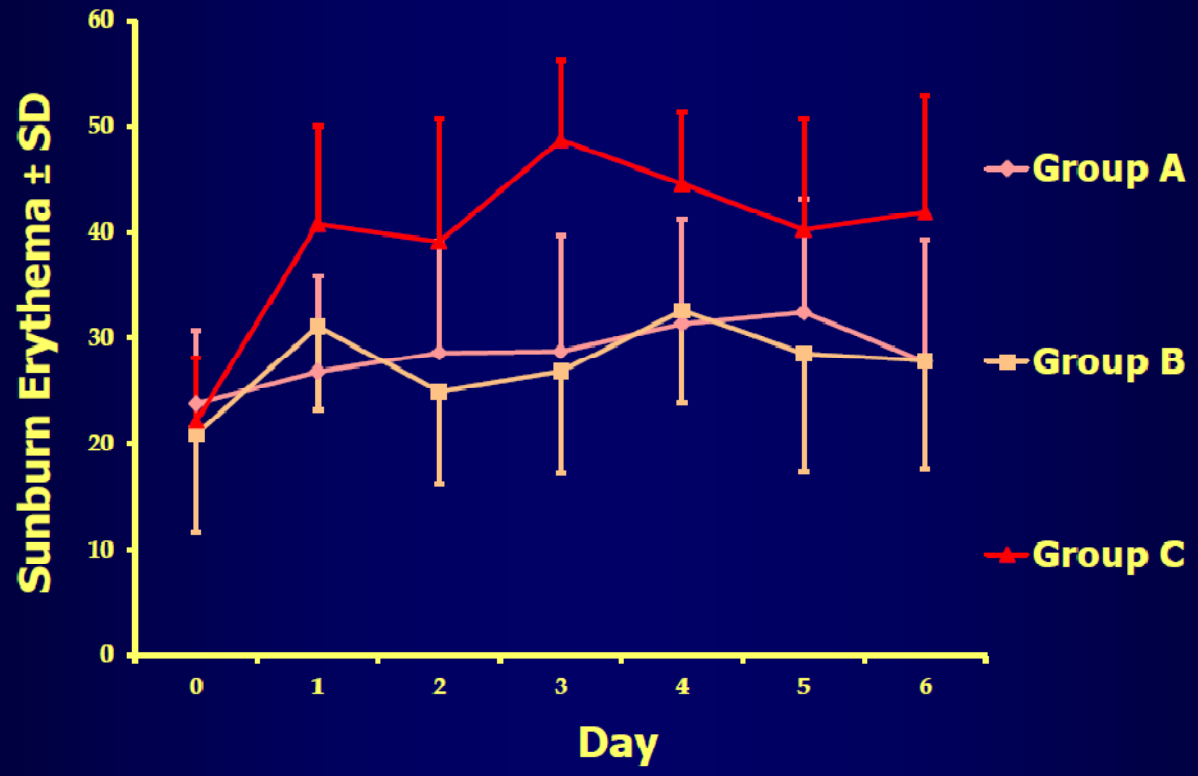
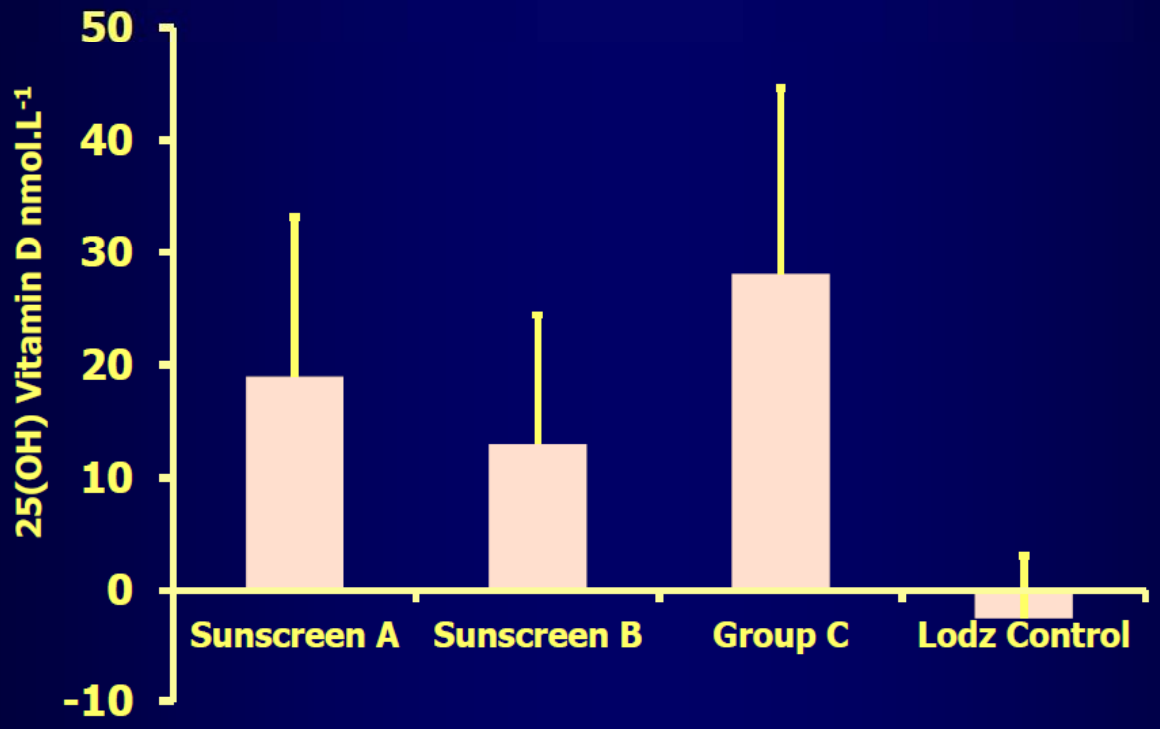
- La atmósfera y la sombra son fotoprotectoras
- Los protectores solares pueden contribuir a disminuir el riesgo de cáncer de piel
- El FPS es una medida confusa
- La piel de los niños requiere medidas especiales
- La educación y las creencias resultan relevantes
- La vitamina D no se afecta por los protectores solares

Sunscreens A and B Prevented Sunburn Erythema as Assessed by Reflectance Spectroscopy on Volunteer Chests



Sunscreen users did not sunburn but non-interventional group did

Change in 25(OH) Vitamin D Levels in Sunscreen Groups A and B and Non-Interventional Group C (similar results from both laboratories)



All exposed groups developed 25(OH) vitamin D increases, with careful sunscreen users only moderately less than non-users, with broad-spectrum sunscreen apparently better than mostly UVB sunscreen

Claves en Fotoprotección

- La radiación UV es la principal causa del cáncer de piel
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- Es posible la fotoprotección oral

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Phase 3 Randomized Trial of Nicotinamide for Skin-Cancer Chemoprevention

Andrew C. Chen, M.B., B.S., Andrew J. Martin, Ph.D., Bonita Choy, M.Med., Pablo Fernández-Peñas, Ph.D., Robyn A. Dalziell, Ph.D., Catriona A. McKenzie, M.B., B.S., Richard A. Scolyer, M.D., Haryana M. Dhillon, Ph.D., Janette L. Vardy, M.D., Anne Kricker, Ph.D., Gayathri St. George, M.Sc.Med., Niranthari Chinniah, M.B., B.S., Gary M. Halliday, D.Sc., and Diona L. Damian, Ph.D.

ABSTRACT

N Engl J Med 2015;373:1618-26.

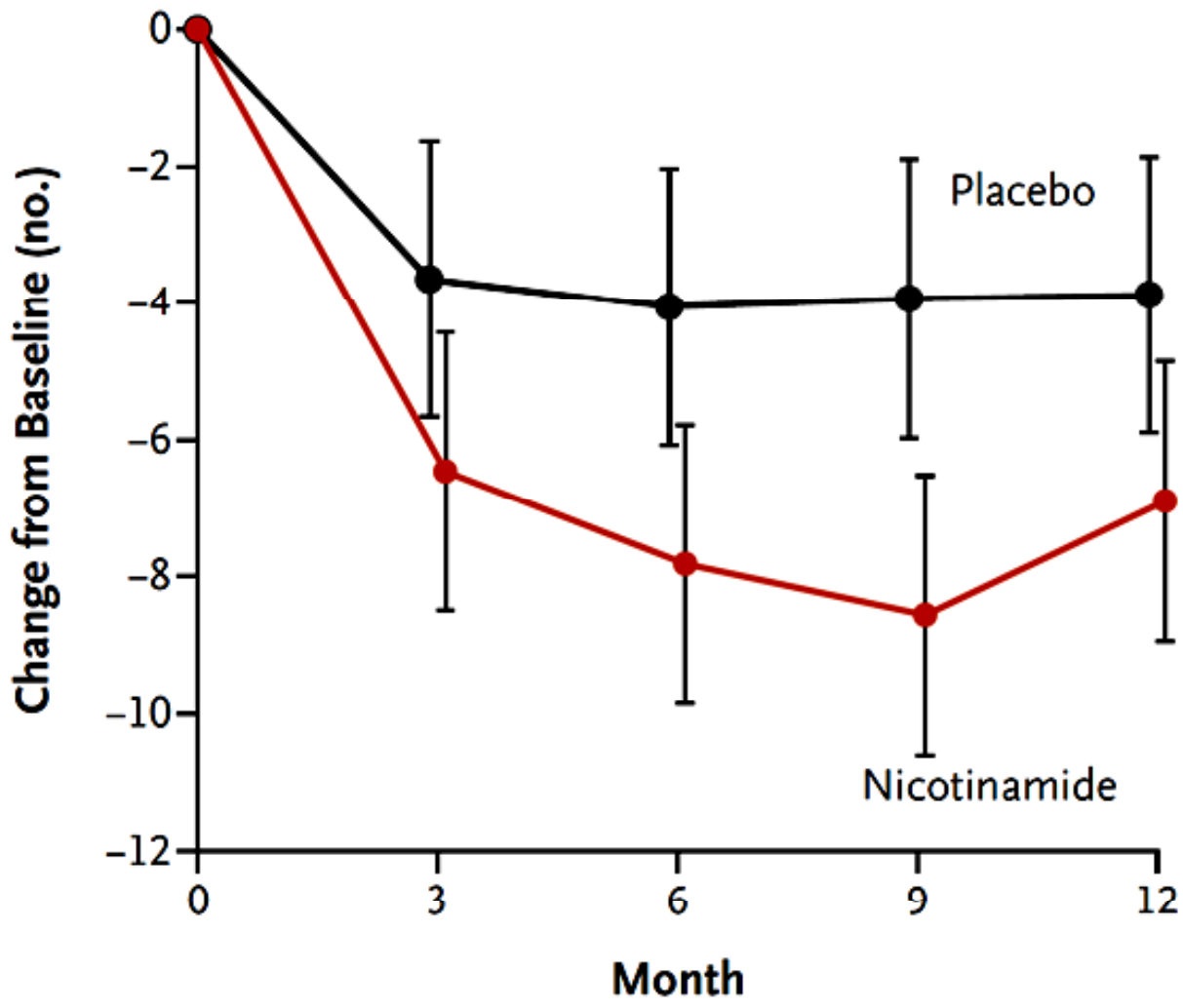

Figure 3. Change from Baseline to Month 12 in Number of Actinic Keratoses.

N Engl J Med 2015;373:1618-26.

International Journal of
Molecular Sciences

MDPI

Review

Fernblock (*Polypodium leucotomos* Extract): Molecular Mechanisms and Pleiotropic Effects in Light-Related Skin Conditions, Photoaging and Skin Cancers, a Review

Concepcion Parrado [1], Marta Mascaraque [2], Yolanda Gilaberte [3], Angeles Juarranz [2] and Salvador Gonzalez [4,5,*]

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Actas Dermosifiliogr. 2012;103(7):599–607

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ACTAS Dermo-Sifiliográficas

Full English text available at www.elsevier.es/ad

ORIGINAL

Extracto de *Polypodium leucotomos* en dermatitis atópica: Ensayo multicéntrico, aleatorizado, doble ciego y controlado con placebo

A. Ramírez-Bosca[a], P. Zapater[b], I. Betlloch[c], F. Albero[d], A. Martínez[a], J. Díaz-Alperi[e], J.F. Horga[b,*] y Grupo de Anapsos en Dermatitis Atópica y centros de realización del estudio[◊]

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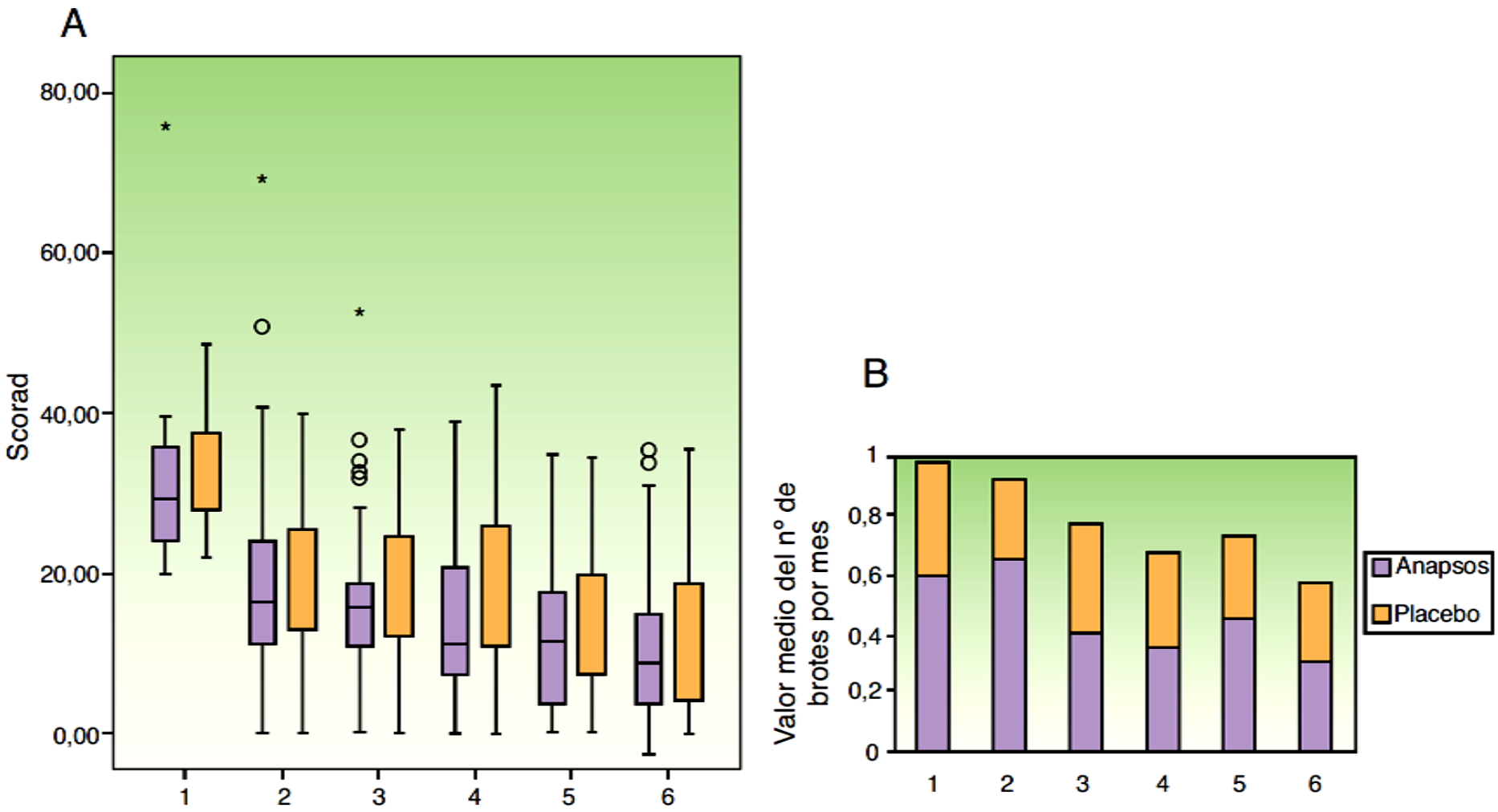
[e] *ASAC PHARMA, Alicante, España*

Recibido el 19 de julio de 2011; aceptado el 29 de enero de 2012
Disponible en Internet el 3 de mayo de 2012



Actas Dermosifiliogr. 2012;**103(7)**:599–607

Claves en Fotoprotección

- La radiación UV es la principal causa del cáncer de piel
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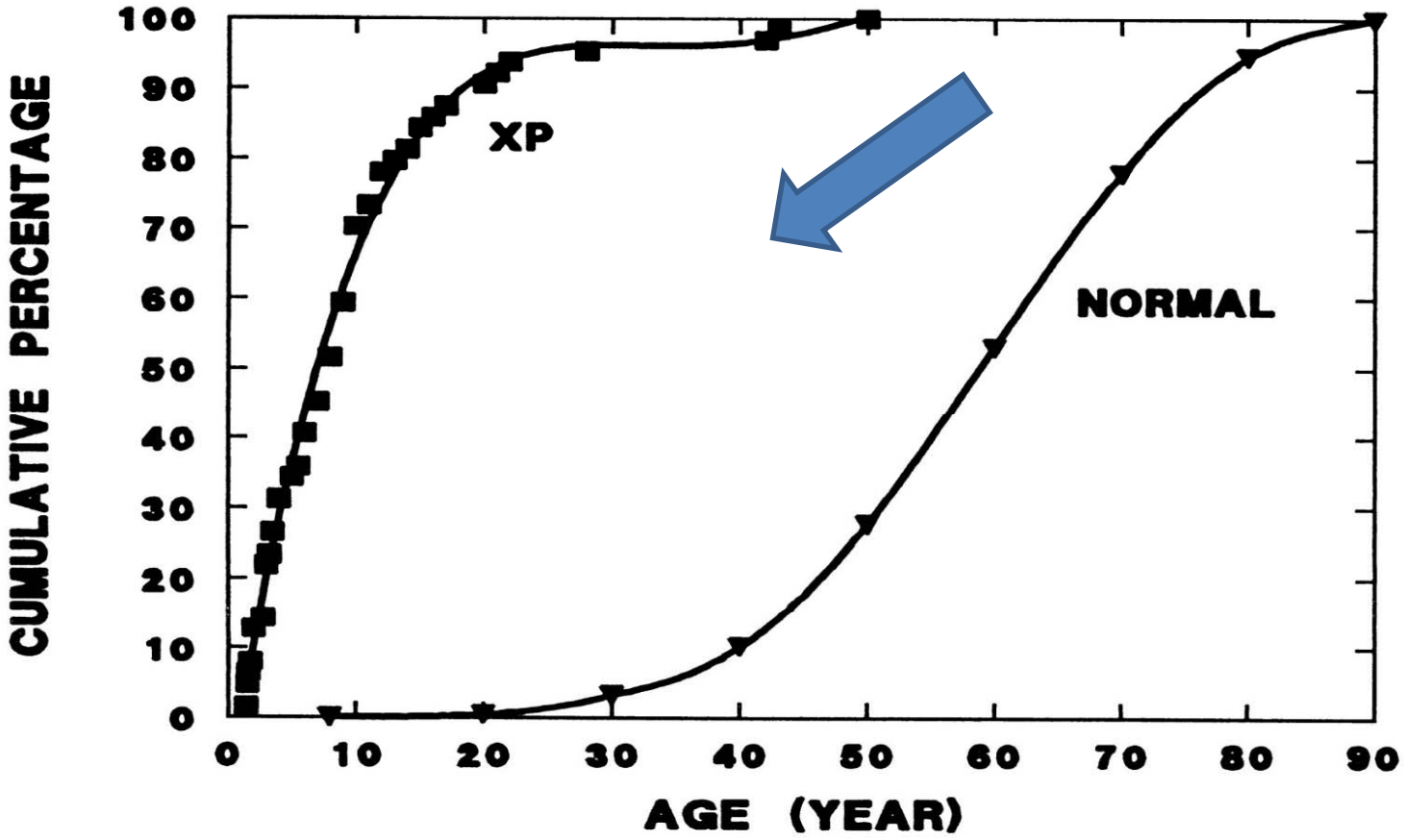
- Es posible la fotoprotección oral
- Se puede asociar reparación del DNA al protector solar

Cuando hay un déficit en los sistemas de reparación del ADN dañado por la radiación se produce un aumento en los tumores cutáneos

Edad de aparición de cáncer de piel en condiciones normales y xeroderma pigmentoso (XP) de los pacientes de cáncer de piel.



Kraemer K PNAS 1997;94:11-14

Published in final edited form as:
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New Agents for Prevention of Ultraviolet-Induced Nonmelanoma Skin Cancer

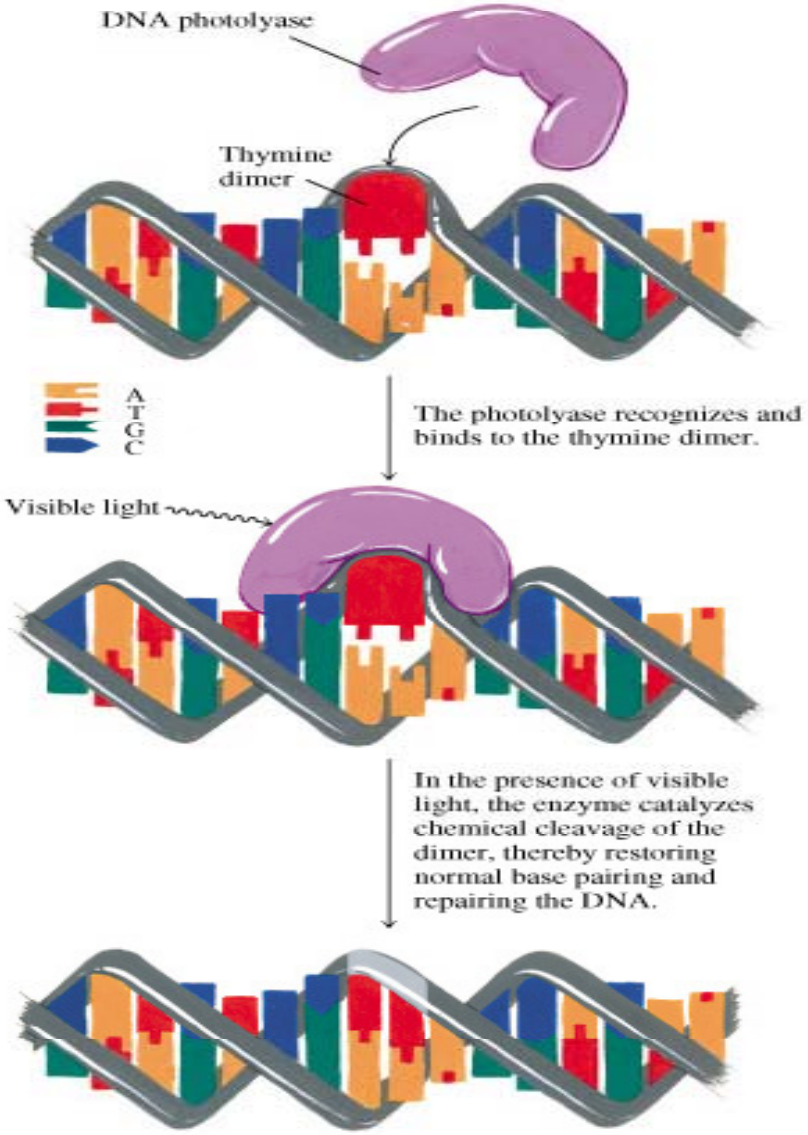
William L. Camp, MD, MPH[*], **Jennifer W. Turnham, BS**[*], **Mohammad Athar, PhD**[*,†], and **Craig A. Elmets, MD**[*,†]

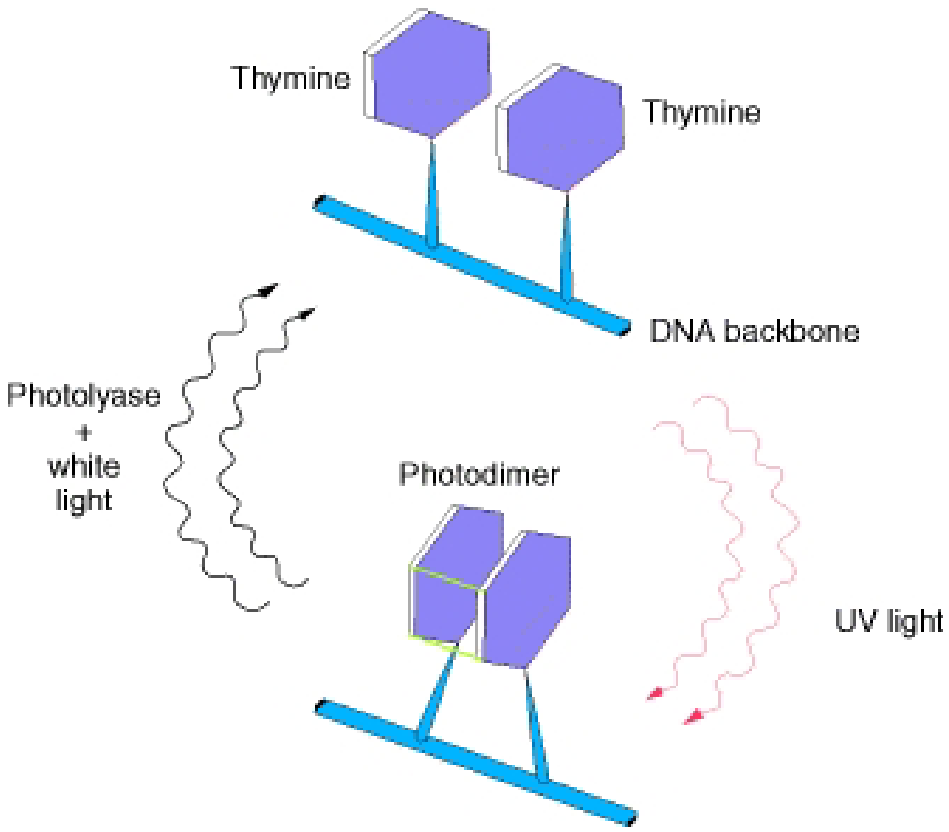
[*]Department of Dermatology, University of Alabama at Birmingham, Birmingham, AL.

Photolyase

Photolyase is a DNA repair enzyme derived from the algae, *Anacystis nidulans*. It binds to UV-induced cyclobutane pyrimidine dimers and pyrimidine-pyrimidone (6–4) photoproducts. Following exposure to photoreactivating light (300–500 nm), it converts them back to their monomeric form via photoinduced electron transfer. Similar to T4N5, photolyase has been encapsulated into a liposomal lotion that penetrates the stratum corneum and is absorbed by epidermal cells.[67] In UVB-irradiated human skin, the application of liposomal photolyase lotion plus photoreactivating light resulted in a 40%–45% reduction in cyclobutane pyrimidine dimers and restored IFN-γ–induced keratinocyte ICAM-1 expression, thereby diminishing UV-induced immunosuppression.[68]

Acción de la Fotoliasa





9 Nanosegundos

Topical Application of Preparations Containing DNA Repair Enzymes Prevents Ultraviolet-Induced Telomere Shortening and c-FOS Proto-Oncogene Hyperexpression in Human Skin: An Experimental Pilot Study

Enzo Emanuele MD,[a] Velimir Altabas MD,[b] Karmela Altabas MD,[b] and Enzo Berardesca MD[c]

[a]Department of Health Sciences, University of Pavia, Pavia, Italy
[b]Clinical Hospital "Sestre Milosrdnice", Zagreb, Croatia
[c]San Gallicano Dermatological Institute, Rome, Italy

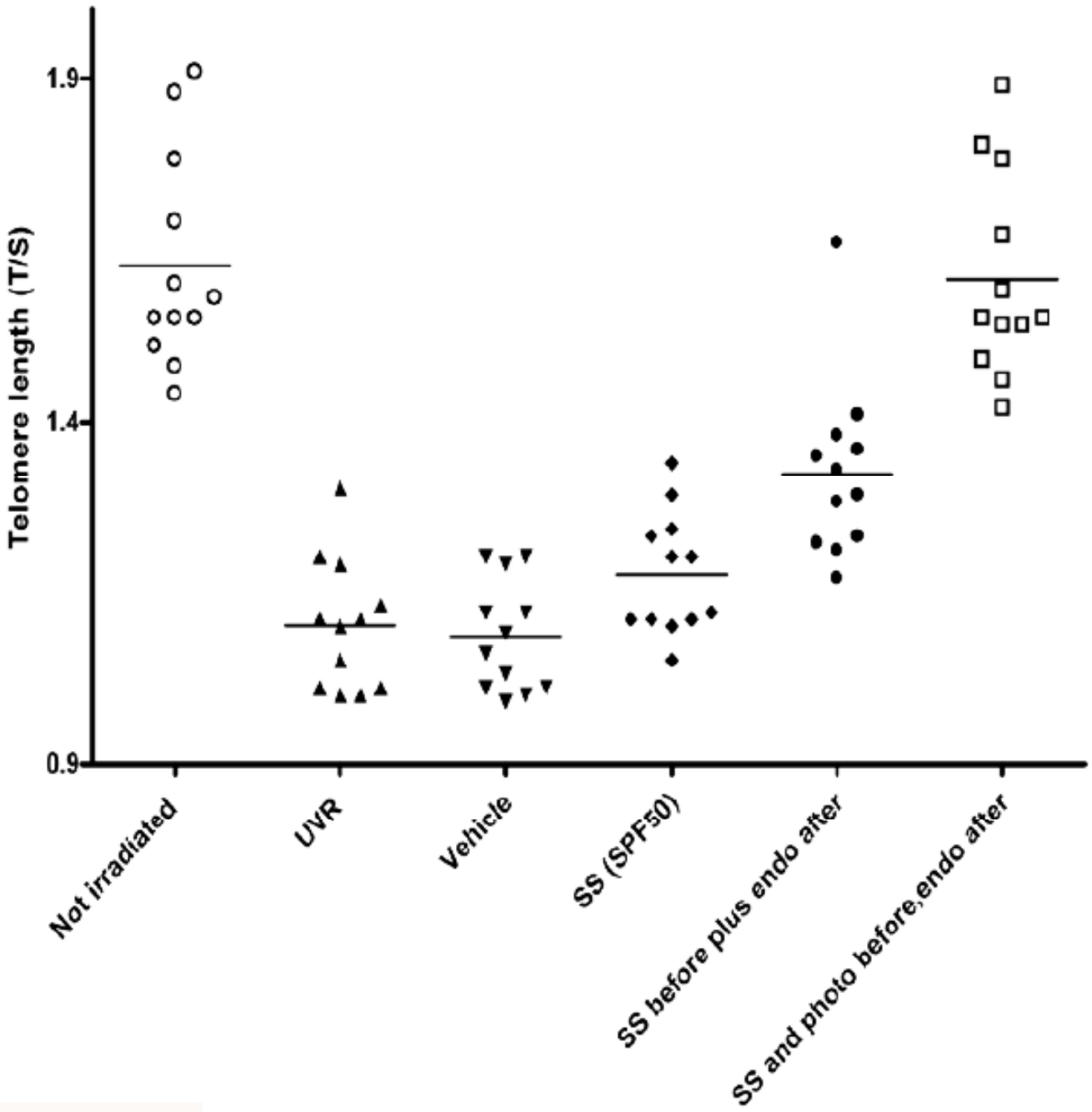
ABSTRACT

The exposure to ultraviolet radiation (UVR) is one of the most important risk factors for skin aging and increases the risk of malignant transformation. Telomere shortening and an altered expression of the proto-oncogene c-FOS are among the key molecular mechanisms associated with photoaging and tumorigenesis. Photolyase from *A. nidulans* and endonuclease from *M. luteus* are xenogenic DNA repair enzymes which can reverse the molecular events associated with skin aging and carcinogenosis caused by UVR exposure. Therefore, the purpose of this study was to investigate whether the topical application of preparations containing DNA repair enzymes may prevent UVR-induced acute telomere shortening and FOS gene hyperexpression in human skin biopsies. Twelve volunteers (Fitzpatrick skin types I and II) were enrolled for this experimental study, and six circular areas (10 mm diameter) were marked out on the nonexposed lower back of each participant. One site was left untreated (site 1: negative control), whereas the remaining five sites (designated sites 2–6) were exposed to solar-simulated UVR at 3 times the MED on four consecutive days. Site 2 received UVR only (site 2: positive control), whereas the following products were applied to sites 3–6, respectively: vehicle (moisturizer base cream; applied both 30 minutes before and immediately after each irradiation; site 3); a traditional sunscreen (SS, SPF 50) 30 minutes before irradiation and a vehicle immediately after irradiation (site 4); a SS 30 minutes before irradiation and an endonuclease preparation immediately after irradiation (site 5); a SS plus photolyase 30 minutes before irradiation and an endonuclease preparation immediately after irradiation (site 6). Skin biopsies were taken 24 h after the last irradiation. The degree of telomere shortening and c-FOS gene expression were measured in all specimens. Strikingly, the combined use of a SS plus photolyase 30 minutes before irradiation and an endonuclease preparation immediately after irradiation completely abrogated telomere shortening and c-FOS gene hyperexpression induced by the experimental irradiations. We conclude that the topical application of preparations containing both photolyase from *A. nidulans* and endonuclease from *M. luteus* may be clinically useful to prevent skin aging and carcinogenesis by abrogating UVR-induced telomere shortening and c-FOS gene hyperexpression.

J Drugs Dermatol. 2013;12(9):1017-1021.

c-FOS Expression Values for the Six Experimental Sites			
Site	**Condition**	**Solar-simulated Ultraviolet Radiation**	**c-FOS Expression**
1	Baseline (reference)	-	0.74 ± 0.19
2	Ultraviolet radiation only	+	1.27 ± 0.22
3	Vehicle	+	1.24 ± 0.33
4	Sunscreen alone before irradiation	+	1.11 ± 0.42
5	Sunscreen before irradiation and endonuclease after irradiation	+	0.97 ± 0.27
6	Sunscreen plus photolyase before irradiation and endonuclease after irradiation	+	0.78 ± 0.22

J Drugs Dermatol. 2013;12(9):1017-1021.



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- Se puede asociar reparación del DNA al protector solar
- Los médicos deberíamos ser proactivos en protección solar

Original Investigation

Trends in Sunscreen Recommendation Among US Physicians

Kristie L. Akamine, MD; Cheryl J. Gustafson, MD; Scott A. Davis, MA; Michelle M. Levender, MD; Steven R. Feldman, MD, PhD

IMPORTANCE Sunscreen is an important part of sun protection to prevent skin cancer but may not be recommended as often as guidelines dictate.

OBJECTIVE To evaluate trends in sunscreen recommendation among physicians to determine whether they are following suggested patient-education guidelines regarding sun protection, and to assess data regarding physician sunscreen recommendations to determine the association with patient demographics, physician specialty, and physician diagnosis.

DESIGN, SETTING, AND PARTICIPANTS The National Ambulatory Medical Care Survey was queried to identify patient visits to nonfederal outpatient physician offices at US ambulatory care practices (January 1, 1989–December 26, 2010) during which sunscreen was recommended.

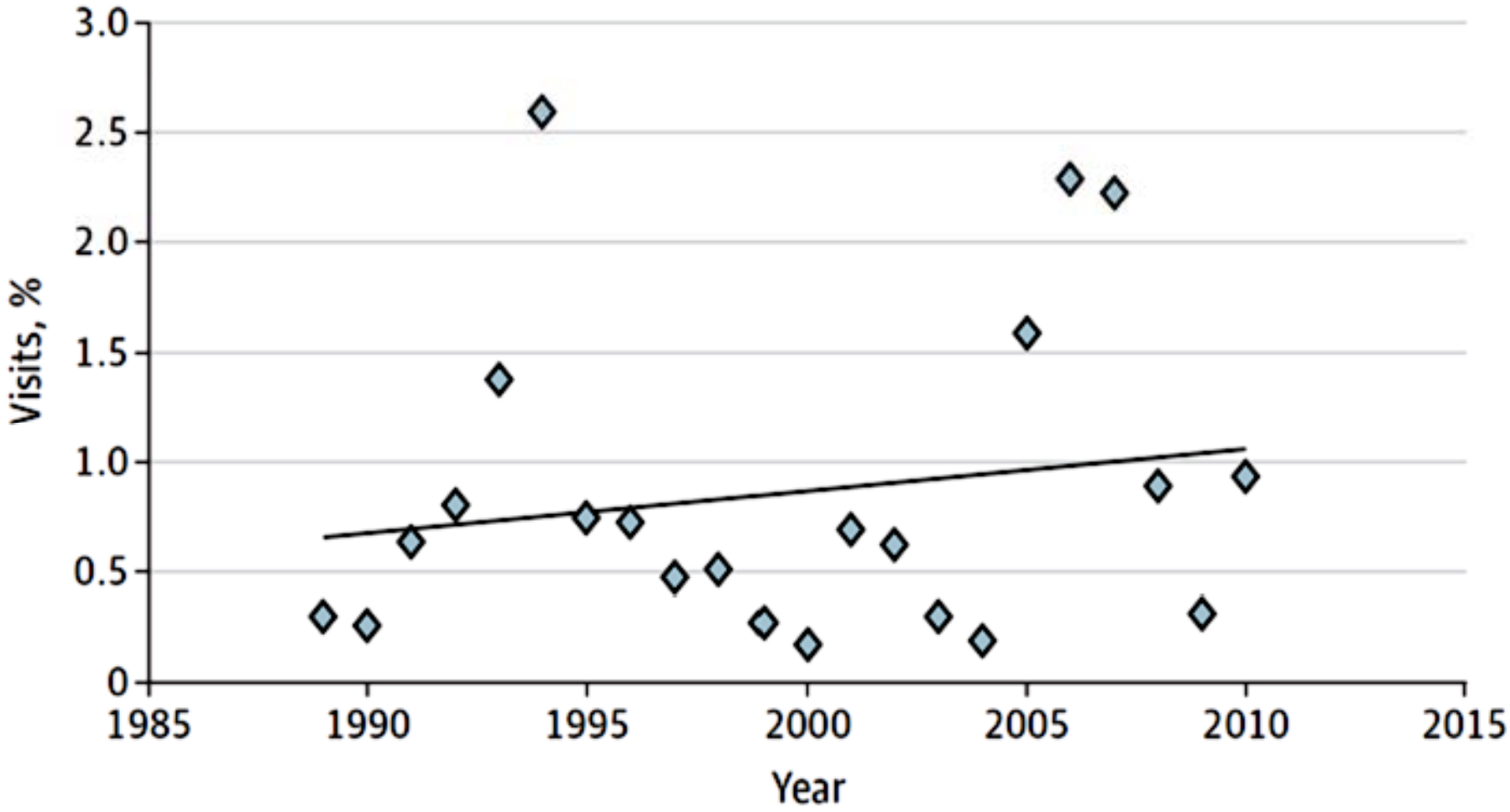
MAIN OUTCOMES AND MEASURES Frequency of sunscreen recommendation.

RESULTS According to the National Ambulatory Medical Care Survey, there were an estimated 18.30 billion patient visits nationwide. Physicians mentioned sunscreen at approximately 12.83 million visits (0.07%). Mention of sunscreen was reported by physicians at 0.9% of patient visits associated with a diagnosis of skin disease. Dermatologists recorded the mention of sunscreen the most (86.4% of all visits associated with sunscreen). However, dermatologists reported mentioning sunscreen at only 1.6% of all dermatology visits. Sunscreen was mentioned most frequently to white patients, particularly those in their eighth decade of life, and least frequently to children. Actinic keratosis was the most common diagnosis associated with sunscreen recommendation.

Author Affiliations: Center for Dermatology Research, Department of Dermatology, Wake Forest School

JAMA Dermatol. 2014;150(1):51-55.

Figure. Trend in Sunscreen Recommendations by All Physicians at Skin Disease Visits: National Ambulatory Medical Care Survey, 1989-2010



JAMA Dermatol. 2014;150(1):51-55.

Efforts to reduce skin cancer through **EDUCATION** include creating **AWARENESS** of a sensible approach to sun exposure, encompassing preventive measures and early detection of signs of skin cancer.

AFTERCARE of skin cancer varies considerably, depending on a number of factors — which technique/therapy was used, how extensively the cancer had spread, and patient-specific factors such as general health, age, and medical history. Close cooperation between patient, healthcare professionals and medical facilities is essential.

Adherence to **PREVENTIVE** measures such as wearing protective clothing, seeking shade, and using sunscreens is the key to reducing the harmful effects of ultraviolet radiation.

Depending on the type of skin cancer, different kinds of **TREATMENT** with different levels of evidence are used. They include surgery, systemic/topical chemotherapy, photodynamic therapy, biologicals, and radiotherapy

Signs of skin cancer differ according to the type of malignancy. Being aware of these signs helps to determine the right time to seek professional help and to get a definite **DIAGNOSIS.**

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Mensajes para llevar a la práctica

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- Los médicos deberíamos ser proactivos en protección solar

How many cancers can be prevented?

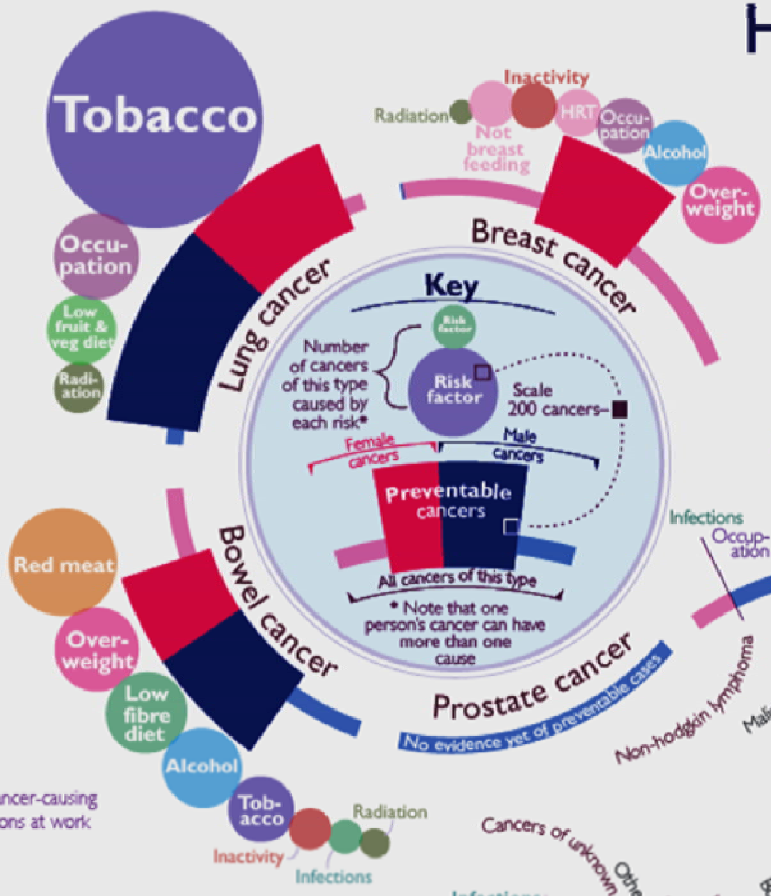
Although there are some things we can't control about our cancer risk, decades of research have clearly shown that by living a **healthy life**, people can reduce the risk of developing the disease. But how many cancers in the UK are really caused by things we can change?

This diagram shows the results of new research funded by Cancer Research UK, which aims to show the number of cancer cases in the UK that could be prevented by known lifestyle and environmental factors, like being a **non-smoker**, keeping a **healthy weight**, drinking **less alcohol**, eating a healthy, **balanced diet**, and **avoiding** being exposed to certain infections or radiation.

The **thin lines** show the total number of cancers of each type from the latest UK incidence figures, and the **large bars** in the centre of each line show the proportion of these cases that could be prevented in **men** and **women**. Around the outside, you'll see the **lifestyle** and **environmental factors** that are linked to each cancer type. On the left is the contribution of each lifestyle factor to cancer overall.

All cancers

- **HRT** — Taking any type of Hormone Replacement Therapy
- **Salt** — Having at least 6 grams a day
- **Not breast-feeding** — Breastfeeding each child for less than 6 months
- **In-activity** — Being moderately active for less than 150 minutes a week
- **Low fibre diet** — Having less than 23 grams of fibre a day
- **Radi-ation** — Being exposed to any ionising radiation, including background levels such as those released from the earth
- **Red meat** — Eating any red or processed meat
- **Infections** — Exposure to cancer-causing infections like HPV and Hepatitis B or C
- **Sunlight & sunbeds** — Getting more UV than was typical for people born in 1903
- **Occupation** — Being exposed to cancer-causing chemicals or conditions at work
- **Alcohol** — Drinking any type of alcohol
- **Low fruit & veg diet** — Getting fewer than five portions a day
- **Over-weight** — Having a BMI of 25 kg/m2 or over
- **Tobacco** — Smoking any form of tobacco, or exposure to environmental tobacco smoke



Together we will beat cancer

CANCER RESEARCH UK