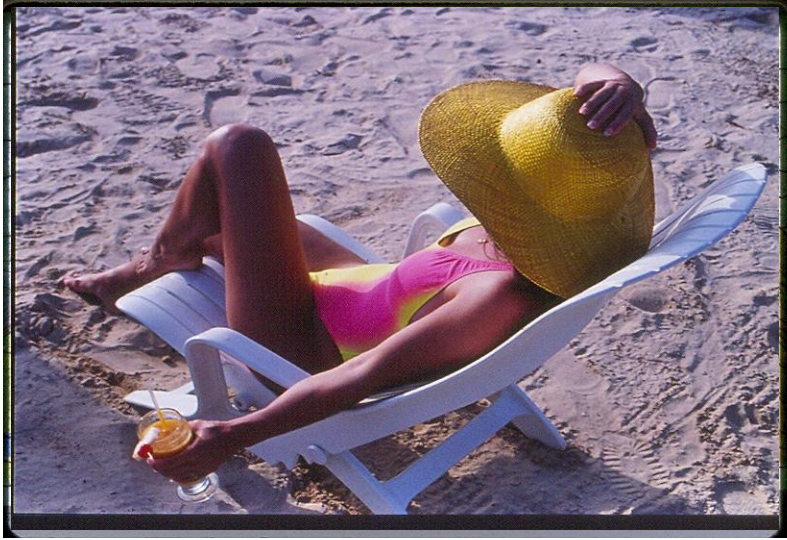


# BAN THE TAN

By: Judith Ann Mysliborski, MD





# WHY

- 70% of tanning salon patrons are Caucasian girls & women primarily age 16-21 years
- Using a tanning bed before age 30 increase ones risk of melanoma by 75%
- Melanoma is the MOST common cancer in young adults 25-29 yrs and the SECOND most common cancer age 16-29years
- Melanoma is increasing faster in females age 15-29 than in males
- Using tanning beds also increases ones risk of basal cell carcinoma & squamous cell carcinoma

# The Facts 2012

- 1.6 million : estimated new cancers  
(excluding BCC & SCC & in situ  
carc. except urinary/bladder)

3.5 million skin cancers in 2 million people

2 in every 3 new cancers is a cancer of the skin

# 3.5 million non-melanoma skin cancers 2012

- 2.8 million are Basal Cell Carcinomas (rarely fatal but highly disfiguring if allowed to grow)
- 700,000 are Squamous Cell Carcinomas

1 in 5 Americans will develop  
some form of skin cancer  
during their lifetime!!!!

# Melanoma 2012

- 76,250 cases of invasive melanoma
- 55,600 cases melanoma in situ
- 12,190 skin cancer deaths
- 9,180 melanoma deaths
- 75% of skin cancer deaths in melanoma patients
- One American dies of melanoma every hour (every 57 minutes)



# Lifetime Risk of Developing Invasive Melanoma in the US

- 1:1500 in 1935
- 1:600 in 1960
- 1:250 in 1980
- 1:150 in 1985
- 1:100 in 1993
- 1:74 in 2000
- 1:62 in 2005
- 1:50 in 2010

## Leading New Cancer Cases and Deaths – 2012 Estimates

### Estimated New Cases\*

| Male                                 | Female                               |
|--------------------------------------|--------------------------------------|
| Prostate<br>241,740 (29%)            | Breast<br>226,870 (29%)              |
| Lung & bronchus<br>116,470 (14%)     | Lung & bronchus<br>109,690 (14%)     |
| Colon & rectum<br>73,420 (9%)        | Colon & rectum<br>70,040 (9%)        |
| Urinary bladder<br>55,600 (7%)       | Uterine corpus<br>47,130 (6%)        |
| Melanoma of the skin<br>44,250 (5%)  | Thyroid<br>43,210 (5%)               |
| Kidney & renal pelvis<br>40,250 (5%) | Melanoma of the skin<br>32,000 (4%)  |
| Non-Hodgkin lymphoma<br>38,160 (4%)  | Non-Hodgkin lymphoma<br>31,970 (4%)  |
| Oral cavity & pharynx<br>28,540 (3%) | Kidney & renal pelvis<br>24,520 (3%) |
| Leukemia<br>26,830 (3%)              | Ovary<br>22,280 (3%)                 |
| Pancreas<br>22,090 (3%)              | Pancreas<br>21,830 (3%)              |
| All sites<br>848,170 (100%)          | All sites<br>790,740 (100%)          |

### Estimated Deaths

| Male  | Female                                       |
|---|--|
| Lung & bronchus<br>87,750 (29%)               | Lung & bronchus<br>72,590 (26%)              |
| Prostate<br>28,170 (9%)                       | Breast<br>39,510 (14%)                       |
| Colon & rectum<br>26,470 (9%)                 | Colon & rectum<br>25,220 (9%)                |
| Pancreas<br>18,850 (6%)                       | Pancreas<br>18,540 (7%)                      |
| Liver & intrahepatic bile duct<br>13,980 (5%) | Ovary<br>15,500 (6%)                         |
| Leukemia<br>13,500 (4%)                       | Leukemia<br>10,040 (4%)                      |
| Esophagus<br>12,040 (4%)                      | Non-Hodgkin lymphoma<br>8,620 (3%)           |
| Urinary bladder<br>10,510 (3%)                | Uterine corpus<br>8,010 (3%)                 |
| Non-Hodgkin lymphoma<br>10,320 (3%)           | Liver & intrahepatic bile duct<br>6,570 (2%) |
| Kidney & renal pelvis<br>8,650 (3%)           | Brain & other nervous system<br>5,980 (2%)   |
| All sites<br>301,820 (100%)                   | All sites<br>275,370 (100%)                  |

\*Excludes basal and squamous cell skin cancers and in situ carcinoma except urinary bladder.

# Melanoma Incidence NYS (all races, male and female)

- 1994-1998 9.2/100,000
- 2004-2008 15.8/100,000
- 72% increase
- Two factors that may be causing the increase: 1) improved and earlier detection of melanoma
  - 2) increased exposure to ultraviolet light from the sun and artificial sources



## Effects of Sun Exposure

- Permanent destruction of the skin's supporting structure
- Premature wrinkling
- Pre-cancerous skin lesions
- Drug reactions
- Eye damage
- Dilated blood vessels
- Sunburn
- **Skin cancer**

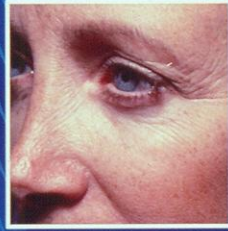




## Signs of Sun Damage



**Freckles**



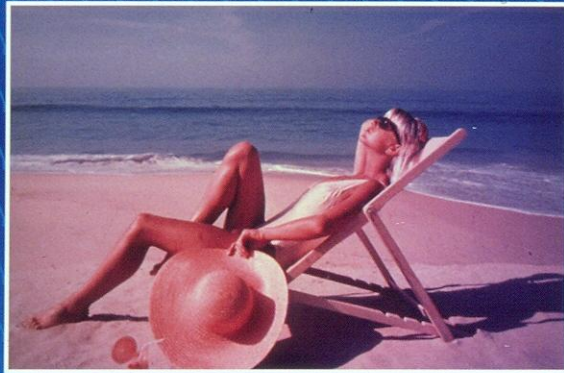
**Wrinkles**



**Skin Cancer**



## Photodamage (Sun Damage)



# SUNBURN





Five or more sunburns at any  
age **DOUBLES** your  
risk of developing a melanoma

One or more blistering sunburns  
in childhood or adolescence  
more than double a person's  
chances of developing a  
melanoma later in life

# Sunburn & Sun Protective Behaviors Among Adults

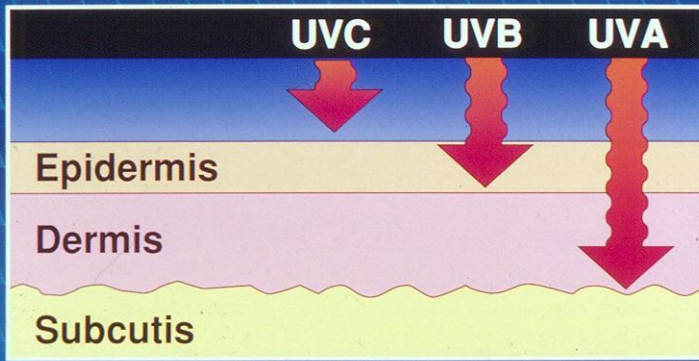
- Data from CDC & Nat. Can. Inst. US 2000-2010 National Health Interview Survey
- Sun protective behaviors increased in recent years: sunscreen use, shade use, wearing long clothing to the ankles
- Sunburn prevalence remains high:
  - 50.1% of all adults
  - 65.6% of whites aged 18-29 yr. report at least one sunburn in the past 12 months

- These results suggest that additional efforts are needed to identify & implement effective strategies targeting younger adults to improve their sun protective behaviors & prevent sunburn & ultimately skin cancers





## Ultraviolet Rays



## Ultraviolet Light

### UVA

- “Tanning” rays
- Penetrate deeply into the skin
- Cause suntan, sunburn, and sun damage

### UVB

- “Burn” index
- Cause suntan, sunburn, and sun damage
- Causes long term tanning



# UVA & UVB

- UVB: direct DNA damage & mutations
- UVA: indirect damage
  - causes oxidative damage & stress
  - longer wavelength
  - penetrates deeper



# Tanning machines

- Prior to 1970 machines gave off UVB (22-40%) and UVC (1-20%)
- Newer machines more UVA but still UVB (4-5%)
- The UVB fraction induces a deep, long lasting tan

# “TIP OF THE ICEBERG”

- UVA output of tanning devices is **FOUR TIMES HIGHER** than the noon sunlight in Washington, DC during the summer
- UVB output is **TWICE AS HIGH**
- High frequency of use & high levels of radiation increase rise of skin cancer with increasing number of sessions
- Repeated exposure to large amounts of UVA delivered to the skin in relatively short periods (typically 10-20 min) constitutes a new experience for humans

# Rising Incidence

Melanoma rates in white Americans

8.7/100,000 in 1975

25.3/100,000 in 2007

Why? Increased UV exposure  
Increased public awareness of the  
warning signs of melanoma  
Increased screening by clinicians

# Melanoma in young people & young adults

- Young adults 25-29 years old melanoma IS THE MOST COMMON form of cancer
- Young people 15-29 years is the SECOND most common form of cancer
- Young adults 20-39 years Second most common form of cancer (first is breast cancer)

# Incidence of Melanoma Among Young Adults (age 18-39years)

- First lifetime diagnosis of melanoma
- Patients aged 18-39 years
- 40 years (1/1/1970 to 12/31/2009)
- 800% increased incidence among young women
- 400% increased incidence among young men
- (Mayo Clinic Proc. April 2012)

# Life time risk of melanoma

- Overall 1.5 male to female ratio
- BUT the tendency of male predominance is reversed in young adults
- Overall 1.8 female to male ratio

# Melanoma SEER database at NCI

(Surveillance, Epidemiology, & End Results)

Ages 15-39 years 1973-2004 (30 years)

Melanoma rates male: 4.7 to 7.7/100,000

female: 5.5 to 13.9/1000,000

Rising in both males and females but faster  
in females

# Incidence of melanoma in young white women

- Steadily rising
- Due to increased exposure to ultraviolet radiation as a consequence of changes in individual behavior namely, increased sun tanning and the use of indoor tanning beds



# Ultraviolet radiation is a proven human carcinogen

- Group 1 : most dangerous cancer-causing substances include
  - plutonium, arsenic & asbestos
  - cigarettes
  - solar UV radiation
  - ultraviolet (UV) tanning devices

The International Agency for Research on Cancer,  
an affiliate of the World Health Organization

# Currently tanning beds are regulated by the FDA as Class 1 medical devices

(same designation as elastic bandages, rubber gloves, tongue depressors, gauzes & crutches)

(if class II could prevent devices from containing mirrors which amplify the power of UV exposure)

Class1 devices subject to limited federal oversight & “present minimal potential harm”

# Indoor tanning

- Sunbed
- Sunlamp
- Solarium
- Tanning bed
- Tanning parlor/salon
- Tanning booth





# Tanning Industry

- 30 million people tan indoors every year
- 70% are Caucasian girls & women ages of 16 to 49
- 2.3 million are teens
- In an average day more than 1 million Americans visit tanning salons
- It is a 5 billion dollar industry
- Survey of 116 US cities average 42 tanning salons( more prevalent than Starbucks or McDonalds !!!!!!!!)

# Teenage Tanning Bed Use

- 8 million teenage girls use tanning beds
- 35% teenage girls use tanning beds
  - age 14 7%
  - age 15 15%
  - age 17 35%
- Median times of use 20
- 57% experienced at least one sun burn



# Tanning Bed Use

- 32% of white non-Hispanic females
- age 14-22 y.o.
- 22% in age group 14-17 y.o.
- 40% in age group 18-22 y.o.
- 50% of adults age 18-29 y.o. reported at least one SUNBURN in the past 12 mos.



# Dangers of Indoor Tanning

- 42% of teen and young adult user said they were never warned of the dangers of tanning bed by tanning salon employees
  - 30% said they were unaware of any warning labels on tanning beds
    - 42% users aged 14-17
    - 25% users aged 18-22
- 39% did NOT wear goggles to protect their eyes in one study

# FDA requires tanning salons to do the following:

- Direct all consumers to wear protective eye goggles
- Advise consumers to limit their exposure to tanning devices
- To avoid them if they have certain medical conditions such as lupus or diabetes or are susceptible to cold sores
- In addition it requires LABELS on the device that warn of skin aging, skin cancer & eye injury

# Tanning is a Risky Behavior

Skin Cancer: melanoma

basal cell carcinoma

squamous cell carcinoma

Premature aging of the skin: structural changes including fine wrinkles, deep grooves, blotchiness, sagging, leathery texture

ER visits: sunburn, infections, eye damage

# MELANOMA

- Individuals who use indoor tanning devices before the age of 30 increase their risk for melanoma by 75%.
- Int. J. Cancer, March 2007

- Indoor tanning has been classified as carcinogenic to humans
- International Agency for Research on Cancer (IARC) of the WHO in 2009 raised classification of UV-emitting indoor tanning devices to the highest level of cancer risk- Group 1- “carcinogenic to humans”
- WHO recommends NO person under the age of 18 use tanning beds

- 20% increase risk of melanoma in “ever users” of indoor tanning devices
- Risk was doubled when use started before the age of 35 years
- 1 in every 20 cases (5.4%) of melanomas is attributed to tanning bed use

- Indoor tanning & risk of melanoma
- Dose response for :
  - years sun beds used
  - cumulative time (hours) sun bed used
  - cumulative number of tanning sessions

# International Journal of Cancer

May 2011

- Study showed for young people diagnosed with melanoma between ages of 18 and 29 years old, “76% of melanomas were attributable to sunbed use”
- Ten or more tanning sessions in the first three decades of life, the risk of being diagnosed with melanoma before age 30 is SIX times higher than those who have never tanned indoors



# “TIP OF THE ICEBERG”

- To date studies may have underestimated risks associated with indoor tanning because this behavioral trend is relatively new & this recent use may not (YET) have influenced the incidence of melanoma
- From this logic it is possible that future epidemiological studies on sunbed use & skin cancer could show relative risks **HIGHER** than those found to date

# Basal Cell Carcinoma

- “ever-use” & early age at first use significantly increased risk of BCC by 50%
- Tanning bed use increased an individuals risk of skin cancer via a dose response effect: Every 4 visits to the tanning salon/yr risk of BCC increased 15%
- “ever-use” before age 25 increased BCC risk 29%
- Teenagers & young adults using tanning beds increase risk by 40%

# JAAD Oct 2012

## Ferrucci, et al

- Young people who used indoor tanning had a 69% increased chance of suffering from early-onset (prior to age 40) BCC
- Stronger among women
- Often on trunk & extremities
- Approximately  $\frac{1}{4}$  of early onset BCC could be prevented if individuals never tanned indoors

# Nodular BCC



- Pearly-white to pink somewhat translucent, domed shaped papule
- Telangiectasias meandering randomly over the surface
- Grow slowly
- Frequently bleed & ulcerate



# Squamous Cell Carcinoma

- Tanning bed use increased an individual's risk of skin cancer via a dose-response effect: Every 4 visits to the tanning salon/yr raised risk of SCC by 11%
- “ever-users” before age 25 is associated with a 67% higher risk of SCC
- Teenagers & young adults using tanning beds double their risk of SCC







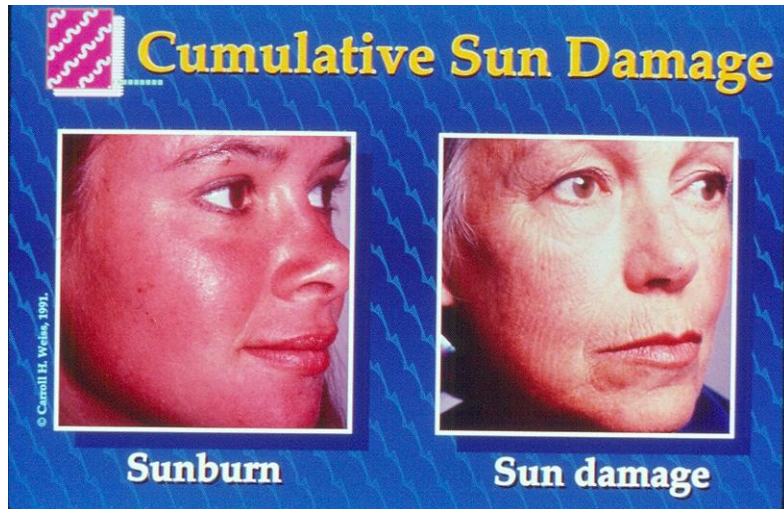
# What To Do ?

- Behavioral counseling in a primary-care setting can reduce UV exposure, including indoor tanning among persons aged 10-24
- In younger women, the most likely group to indoor tan, APPEARANCE-FOCUSED behavioral interventions reduced indoor tanning behavior by up to 35% (ex: photoaging effects of UV exposure via videos, photos)
- In young adolescents use computer support

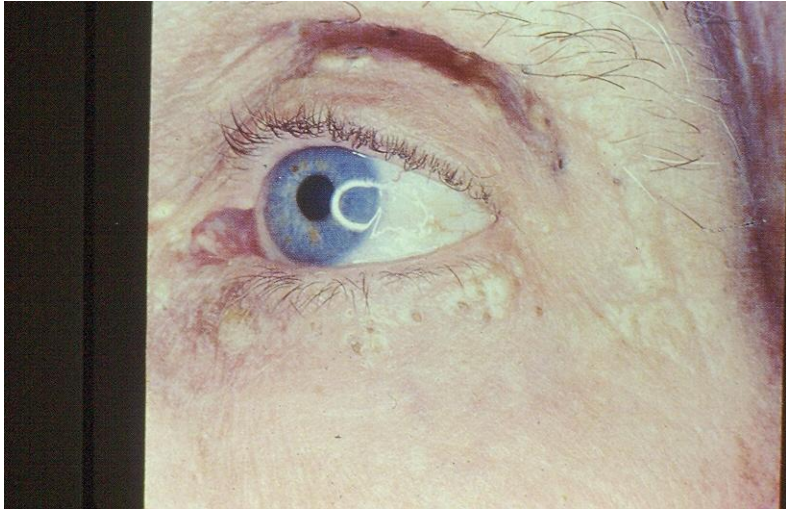
- Physicians should focus on the negative aesthetic impacts of sun exposure & tanning when counseling children, teenagers & young adults
- DO NOT say “stay out of the sun and prevent cancer”
- DO SAY “stay out of the sun and prevent UGLY skin”

# SUN DAMAGE

- Sunburn – acute damage
- Chronic damage-cumulative weathered, leathery, haggard look









## Ultraviolet Photo of Sun Damaged Skin



American Academy of Dermatology







# Educational Packs (Intervention Kits)

- To parents via the mail 2005,2006&2007 with F/U phone interviews
- Material on increasing sun protective behavior & decreasing sun exposure in their children
- Each year emphasized a specific sun protective behavior (2005 long clothing, 2006 hats, 2007 shade)

# Intervention Group

- More use of sunscreen
- protective clothing
- hats
- shade-seeking & midday sun
- avoidance
- Fewer sunburns
- More awareness of skin cancer
- Higher perceived effectiveness of sun protection

# “Go With Your Own Glow”

- Tanned look is no longer in fashion
- Hollywood actresses: Julianne Moore
- Cate Blanchett
- Nicole Kidman
- Gwyneth Paltrow
- Natural skin: modern
- Tanned skin: dated

# What needs to be done

- Increase public awareness of the dangers posed by UV light from the sun & artificial sources
- Promote self protective behavior
- Prohibit minors from using tanning beds
- Be sure that all adult consumers are warned of the risk prior to use
- Proper regulation of indoor tanning devices
- Effective enforcement provisions

# FTC settlement with ITA (Indoor Tanning Association)

- 2008 advertising campaign by the ITA
- Falsely stated that indoor tanning was approved by the government
- & that a National Academy of Sciences study found that “ the risk of not getting enough ultraviolet light far outweighed the hypothetical risk of skin cancer”

# FTC vs. ITA cont.

- & that indoor tanning is safer than tanning outdoors because the amount of UV light received tanning indoors is monitored & controlled

# The Ruling

- A ban on misleading or unsubstantiated claims
- Any ITA ads suggesting that tanning is safe or healthy must display this disclosure “NOTICE: Exposure to ultraviolet radiation may increase the likelihood of developing skin cancer and can cause serious eye injury”

# FTC ruling cont.

- Declarations regarding tanning's beneficial effect on Vitamin D levels in the body would require the previous, plus the disclaimer: "NOTICE: You do not need to become tan for your skin to make vitamin D"
- ITA statement: the FTC "ignores the substantial body of research regarding the protective effect that vitamin D synthesized through the skin has in preventing melanoma"



# Vitamin D

- Adequate intake of Vit D is important for maintenance of good health, and may be achieved through diet and oral supplements. Intentional or prolonged exposure to UVL should not be used as a means of obtaining Vit D.

- Eat healthy foods high in Vit D : salmon, sardines , and other fish ('oily fish'); and fortified dairy (milk, yogurt) and soy milk products, orange juice, cereal etc.
- Daily supplement of vitamin D3
- Check blood level of vitamin D  
30ng/ml to 100ng/ml

- The problem arises that normal vitamin D production from a small amount of exposure, which everyone is getting already, becomes a rationalization for excessive UV exposure

by: James Spencer, M.D.

# Bottom line on Vitamin D

- Vitamin D should be obtained through diet &/or supplements, not unprotected exposure to UV radiation.

# Regulation / Legislation / or Prohibition

- Regulation:
- FDA regulates the labeling of devices
- FTC regulates advertising claims made about devices
- 43% of users responded that tanning salon employees did not warn the user about the dangers of tanning beds
- 30% users were unaware of warning labels on tanning beds
- 39% of users did not wear goggles to protect their eyes

“Regulation is unable to turn a carcinogenic agent into a healthy one”

# FDA medical device performance standards for tanning beds

- Limits on irradiance emissions
- Mechanism by which a user may terminate the session at any time
- Mandate tanning bed manufactures include protective eyewear with their product when distributed
- Mandate the presence of a timer on each tanning bed
- **AND ALL TANNING BEDS INCLUDE THE FOLLOWING WARNING LABEL**

- **DANGER– Ultraviolet radiation. Follow instructions. Avoid overexposure. As with natural sunlight, overexposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of the skin and skin cancer. WEAR PROTECTIVE EYEWEAR; FAILURE TO MAY RESULT IN SEVERE BURNS OR LONG-TERM INJURY TO THE EYES.**



# Require warning label cont.

- Medications or cosmetics may increase your sensitivity to ultraviolet radiation. Consult physician before using a sunlamp if you are using medications or have a history of skin problems or believe yourself especially sensitive to sunlight. If you do not tan in the sun, you are unlikely to tan from the use of this product.

# Tanning industry ( a \$4.9 billion industry) fights back

- International Smart Tan Network
- “D-Angel Empowerment” vitamin D is important in breast cancer, heart disease, autism, etc.
- “Sunscare industry”: a profit driven conspiracy of dermatologists, sunscreen manufactures & the American Cancer Society are causing a deadly epidemic of vitamin D deficiency !

# False and Misleading Health Information Provided to Teens by the Indoor Tanning Industry

Investigative Report 2/1/2012

US House of Representative  
Committee on Energy & Commerce

- Committee investigators represented themselves as fair-skinned teenage girls
- Contacted 300 tanning salons nationwide
- Asked each salon a series of questions about its policies and the risk and benefits of tanning
- Also review the print and online advertising of tanning salons

- The vast majority provided false information about the serious risks of indoor tanning & made specious claims about the health benefits that indoor tanning provide

# Nearly all salons denied the known risks of indoor tanning

90% said indoor tanning did not pose any health risks

51% denied indoor tanning would increase the risk of developing skin cancer

Suggestion of a link between indoor tanning & skin cancer as “a big myth”, “rumor”, “hype”

# 4 of 5 salons falsely claimed that indoor tanning is beneficial to a young person's health

Several salons said tanning would PREVENT cancer

Other health benefits claimed were vitamin D production, treatment of depression and low self-esteem, weight loss, reduce cellulite, sleeping better, prevention of arthritis and osteoporosis, treating lupus, and improving symptoms of fibromyalgia

# Salons used many approaches to downplay the health risks of indoor tanning

'young people are not at risk for developing skin cancer', 'rising rates of skin cancer are linked to increased use of sunscreens', 'that government regulators had certified the safety of indoor tanning', and 'it's got to be safe, or else they wouldn't let us do it'



# Tanning salons fail to follow FDA recommendations on tanning frequency

FDA recommends that indoor tanning be limited to no more than 3 times in the first week –  $\frac{3}{4}$  of tanning salons permit first time customers to tan daily

# Tanning salons target teenage girls in their advertisements

Target teenage girls & college-aged students with student discounts and “prom,” “homecoming,” and “back-to-school” specials. Often feature “unlimited” tanning packages

# ITA TACTICS

- Like the tobacco industry
- Like the alcohol industry handling Mothers Against Drunk Drivers and the fetal alcohol issue. Their PR person who has been likened to “Dr Evil” is now working with the tanning industry.

# Tanning industry fights back

Taking cues from Big Tobacco, they battle evidence of possible harm

By **Bridget Huber**  
FairWarning

A doctor in a white lab coat stands at the pearly gates. The voice of God booms, "And your good deeds?" The man responds, "Well, as a dermatologist, I've been warning people that sunlight will kill them and that it is as deadly as smoking."

His smug smile fades as God snaps, "You're saying that sunlight, which I created to keep you alive, give you vitamin D and make you feel good, is deadly? And the millions of dollars you received from chemical sunscreen companies had nothing do with your blasphemy?"

A bottle of SPF 1000 sunscreen materializes in the dermatologist's hand. "You'll need that where you're going," God says.

The scene is part of a training video for tanning salon employees made by the International Smart Tan Network,

an industry group. The tone is tongue-in-cheek, but it's part of a defiant campaign to defend the \$4.9 billion industry against mounting evidence of its questionable business practices and the harm caused by tanning. And, in an extraordinary touch, it is portraying doctors and other health authorities as the true villains – trying to counter a broad consensus among medical authorities that sunbed use increases the risk of skin cancer including melanoma, the most lethal form.

To sway public opinion, the in-

Please see **TANNING A10** ▶

T.U. 9/2/12

- “Tanning beds are the cigarettes of our time: cancer causing and poorly regulated” Rep. Carolyn Maloney – NY
- “Like smoking, we have an obligation as a society to protect our youngest citizens from a know cancer risk by any legal means”
- “If sunbed use by teenagers and young adults dose not substantially decrease in the short term, then more radical actions could be envisioned, such as the nationwide prohibition of the public use of tanning devices”

# Legislation

- Over 30 states require parental permission
- A dozen restrict tanning for young people
- Who's onboard:
  - American Medical Association
  - World Health Organization
  - American Academy of Dermatology
  - Skin Cancer Foundation
  - American Academy of Pediatrics

# Cuomo signs law to ban teen tanning

Children 16 and under banned from tanning beds; 17-year-olds will need parental permission

By Rick Karlin

ALBANY — Gov. Andrew Cuomo on Monday signed a law banning the use of artificial tanning beds by those younger than 17.

It was the latest move in a multiyear crackdown on the use of tanning devices as a result of an alarming rise in the incidence of melanoma, the deadliest form of skin cancer.

Those younger than 14 had previously been prohibited from using such devices, while those between ages 14 and 17 needed parental permission.

In addition to the outright ban on indoor tanning for those age 16 and under, 17-year-olds will need parental permission.

"This legislation recognizes that many tanning salons are small businesses facing economic challenges," Cuomo said in a statement. "However, protecting our children must always be our first priority."

The measure had been brought forth in the Legislature by Senate Republican Charles Fuschillo and Assembly Democrat Harvey Weisenberg, both from Long Island.

Tanning salon operators had earlier complained that the law would take away parents' rights to decide what was best for their kids.



PAUL BUCKOWSKI/TIMES UNION ARCHIVE

**JAMIE ROSEN**, a student at Bethlehem Central High School, talks about bad choices teens are making by using tanning beds. The news conference last year promoted legislation that would prohibit indoor tanning by children and teenagers under 18.

But anti-cancer organizations welcomed the news.

"The new law ... will protect a significant portion of the teen population," said Blair Horner of the American Cancer Society of New York & New Jersey.

He noted that the World Health Organi-

zation has found those with a history of indoor tanning before age 30 have a 75 percent increased chance for developing melanoma.

The law will take effect in 30 days.

► [rkarlin@timesunion.com](mailto:rkarlin@timesunion.com) ■ 518-454-5758 ■

# NYS LEGISLATION

- Summer of 2012
- Minors 16 years of age and younger are prohibited from using UVA indoor tanning devices
- Parental consent is required for those between the ages of 17 and 18 years



- California and Vermont ban use if younger than 18 years
- In Germany 5% of minors used tanning beds although banned in minors
- Nationwide prohibition of public use of tanning devices was implemented in 2009 in Brazil

# Tanning Dependence/Addiction

- 70% of frequent UV tanners met criteria for UV light substance abuse or dependence disorder
- CAGE developed to identify alcohol addiction by Am. Psychiatric Assoc.
- C cutdown: 'ever felt the need to cut down''
- A annoyed: 'annoyed by criticism about tanning'

# Tanning Dependence/Addiction

- G guilty: 'felt guilty about tanning'
- E eye-opener: 'needed to tan first thing in the morning'
- Subjects reported missing events to tan, facing social or occupational consequences because of tanning and continuing to tan despite awareness of its threat to their health
- Arc. Derm. 2010

# Body Dysmorphic Disorder (BDD)

- BDD: preoccupation with a specific body part & the belief that this body part is deformed or defective. The preoccupation causes distress or significant impairment of function”
- Example: repeated or excessive plastic surgery

# Seasonal Affective Disorder (SAD)

- Depressive disorder that occurs at certain time of year, usually in the winter.
- 80% frequent tanners reported symptoms of SAD
- Properly treated by use of a light box that emits VISIBLE light not UV light

# SAD cont.

- Frequent tanners were exposed to UV emitting beds and/or filtered (no UV) beds
- Preferred UV emitting beds
- After a real tanning bed exposure had a more relaxed mood & subsequent decreased craving to tan

# Hooked on Tanning

- Is tanning addicting?
- Are tanners self-medicating underlying psychiatric disorders?
- Does tanning affect one's mood: “feel good” “feel relaxed” ?
- A growing body of research indicating that for frequent tanners a direct effect on mood may be motivating them to lie in the sun or in a tanning bed
- “feeling of elation & relief” may eclipse their awareness of the threat of skin cancer & premature skin aging

# Skin Cancer Epidemic Who is at Risk?

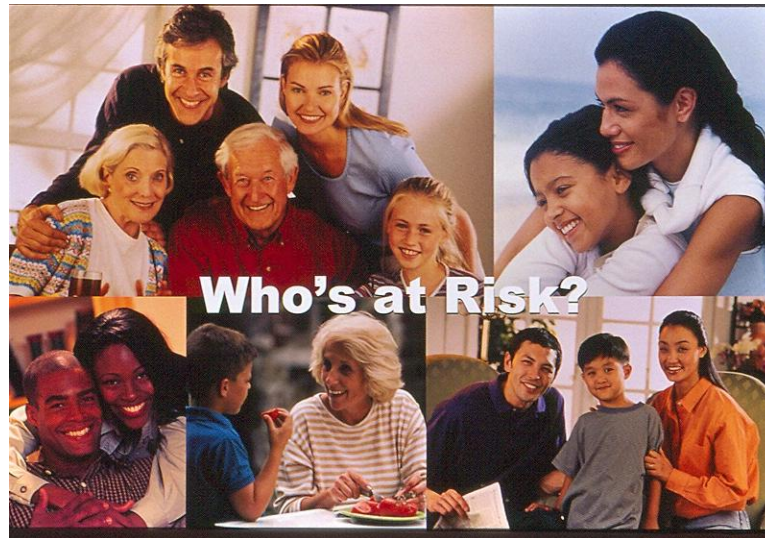


Skin type is a key factor for  
developing skin cancer

## Skin Types

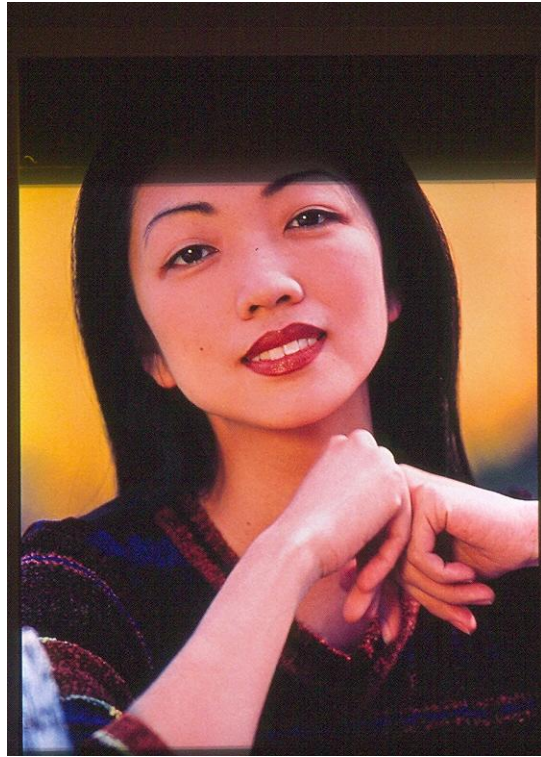
- |  |
|--|
| I. <b>Pale White Skin</b> <ul style="list-style-type: none"><li>▪ always burns; never tans</li></ul>                                       |
| II. <b>White</b> <ul style="list-style-type: none"><li>▪ burns easily; tans minimally</li></ul>  |
| III. <b>White (Average)</b> <ul style="list-style-type: none"><li>▪ burns moderately; tans gradually to light brown</li></ul>              |
| IV. <b>Beige or Lightly Tanned</b> <ul style="list-style-type: none"><li>▪ burns minimally; always tans well to moderately brown</li></ul> |
| V. <b>Moderate Brown or Tanned</b> <ul style="list-style-type: none"><li>▪ rarely burns; tans profusely to dark</li></ul>                  |
| VI. <b>Dark Brown or Black</b> <ul style="list-style-type: none"><li>▪ never burns; deeply pigmented</li></ul>                             |

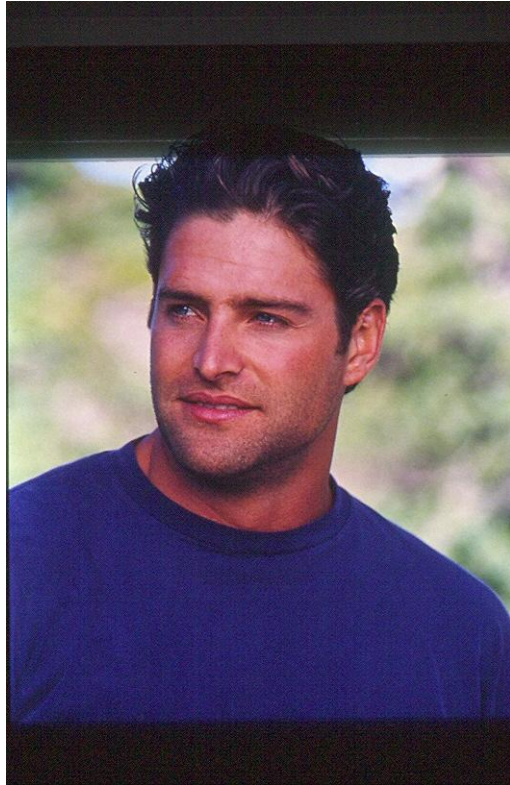


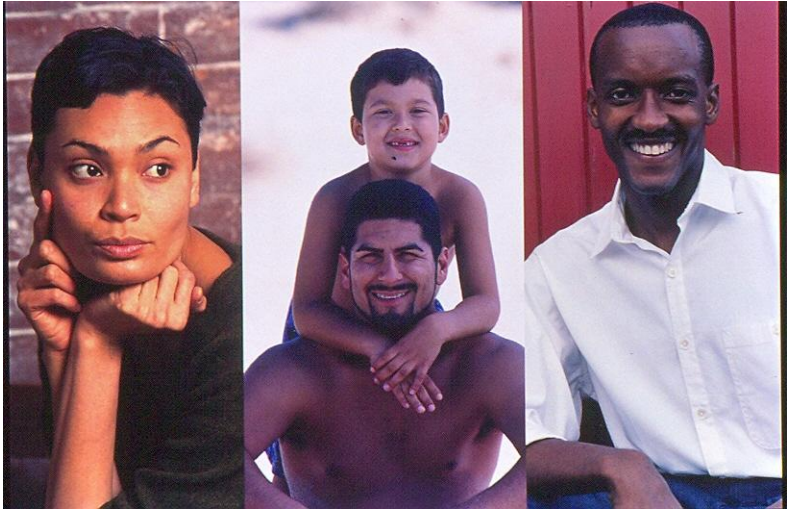


**Who's at Risk?**





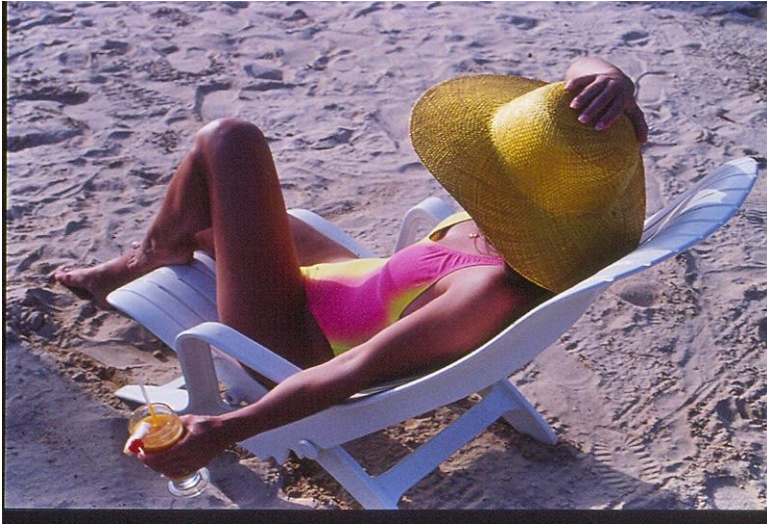






# American Cancer Society Recommends

- Avoiding sunlight between 10am and 4pm (daylight time) when sun rays are strongest





## Ultraviolet Index

| UV Index Number | Exposure Level |
|-----------------|----------------|
| 0 – 2           | Minimal        |
| 3 – 4           | Low            |
| 5 – 6           | Moderate       |
| 7 – 9           | High           |
| 10 +            | Very High      |

*For more information, go to [www.epa.gov/sunwise/](http://www.epa.gov/sunwise/)*



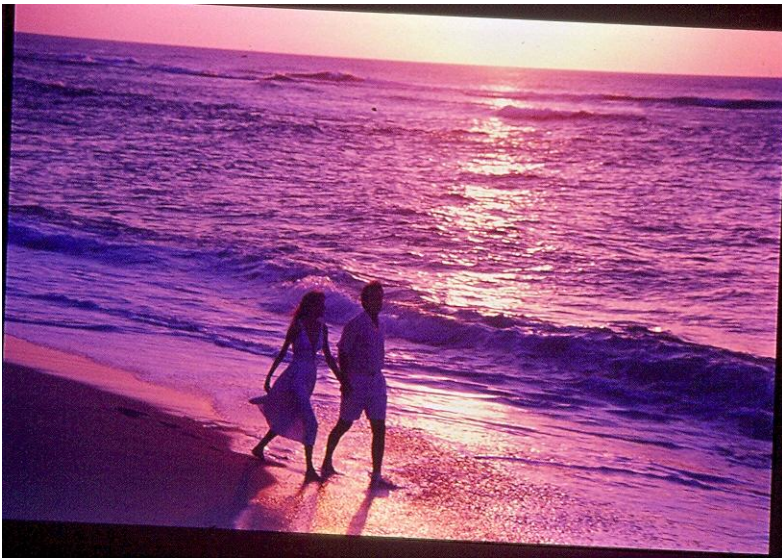
American Academy of Dermatology





- Seek shade
- Especially during mid-day hours

- Early day or late day exposure preferable



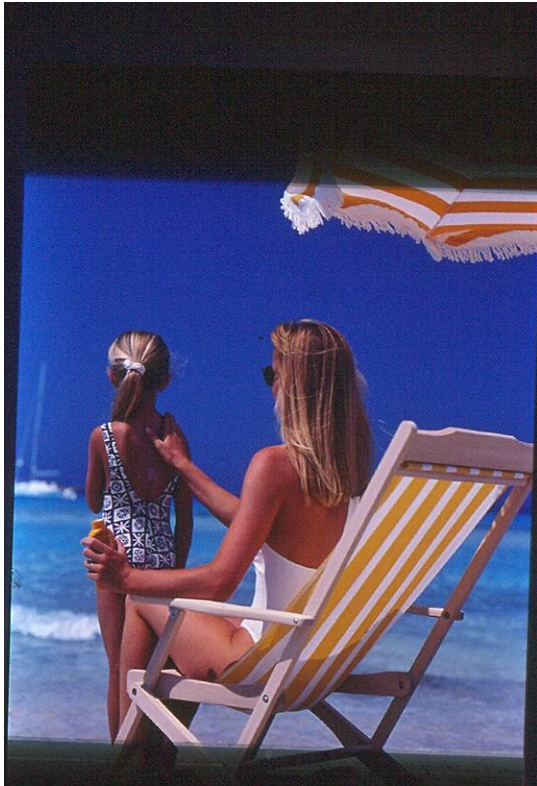
# American Cancer Society Recommends

- Avoiding tanning devices and sunlamps



# American Cancer Society Recommends

- Using and re-applying sunscreen when exposed to UV rays





# SPF

A diagram illustrating the Sun Protection Factor (SPF) concept. It features a central image of a bright sun over a horizon, set against a blue background with a wavy pattern. The sun is depicted as a glowing yellow circle with a horizontal line across its center, set against a red-to-orange gradient background. In the top left corner, there is a small pink square with a white wavy pattern. The title "Sun Protection Factor" is written in yellow text at the top. Below the sun image, a mathematical equation is presented in white text on a red background.

**Sun Protection Factor**

$$\frac{\text{Burn time without sunscreen}}{10 \text{ minutes}} \times \frac{\text{SPF}}{15} = \frac{\text{Burn time with sunscreen}}{150 \text{ minutes}}$$

# Sunscreens

- 17 FDA approved sunscreens:
  - 2 physical blockers: titanium dioxide & zinc oxide
  - 15 chemical filters: ex) anthralates, benzophenones, cinnamates, PABA derivatives, salicylates, etc.
- Thousands of commercial products
- Ideal product stable, efficient, user-friendly & cost effective



# Sunscreens cont.

- Sunscreen manufacturers now are required to clarify that the sole “purpose” of sunscreen is sunburn prevention & that additional measures are needed to reduce cancer risk & early aging
- SPF cap 50+
- Water resistant (not water proof)
  - 40 min water resistant
  - 80 min very water resistant

# Sunscreens cont.

- Sweat resistant (not sweat proof)
- Broad spectrum (not sun block)
  - UVA effectiveness = UVB effectiveness
- Uses: sunscreens reduce the risk of skin cancer & early aging when used as directed with other sun protection measures

# Sunscreens cont.

- “Directions” section, under heading “Sun Protection Measures” it may state:  
“Spending time in the sun increases your risk of skin cancer and early aging. To decrease the risk, regularly use a broad spectrum SPF of 15 or higher and other sun protection measures, including: limit time in the sun, especially from 10 am to 2 pm, wear long-sleeved shirts, pants, hats & sunglasses”

# Sunscreens cont.

- All sunscreens with an SPF of less than 15 must have a Skin Cancer/Skin Aging Alert with the warning “Spending time in the sun increases your risk of skin cancer and early aging”.
- Apply ‘generously’/’liberally’ 2 mg/sq cm
- Shot glass full or golf ball size amount or handful amount for whole body
- Reapply every 2 hours

# Sunscreens cont.

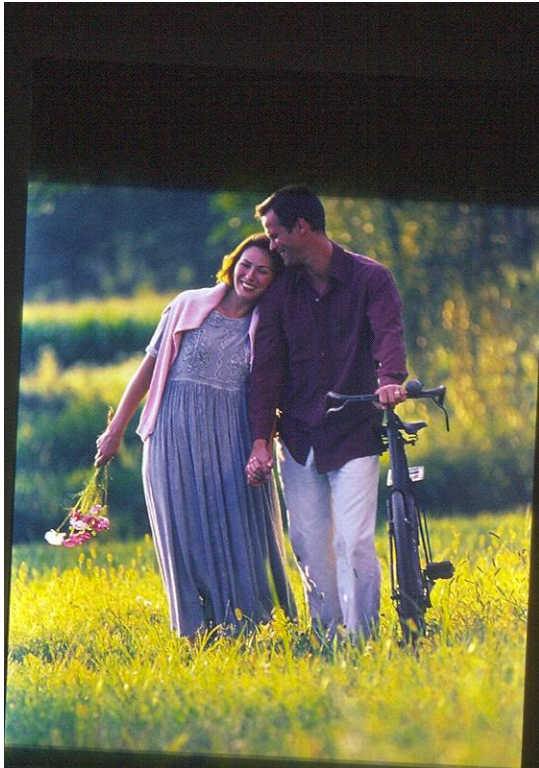
- Lip balms
- Use even on hazy overcast days
- Apply 20-30 min. pre-exposure
- One should not make the mistake of thinking that because one uses a sunscreen that one can stay out in the sun longer
- Sunscreens should not be used to gain extra time in the sun

# Sunscreen use requires a 'doctor's note'

- Sunscreens are regulated by the FDA as an over-the-counter drug
- Many American schools don't allow them without a doctor's note
- Some schools have a policy that girls are not allowed to wear hats



# American Cancer Society Recommends



- Covering with clothing
- Long sleeved shirts
- Long pants or long skirt
- Tightly woven not loosely woven material
- Darker colors better than light colors





# Ultraviolet Protection Factor (UPF)

- To effectively block out UVL a product should have a UPF of 30 +
- Standard T-shirts especially light colored and loosely woven ones often do not give enough UV protection
- GAP and L.L.Bean sell shirts, shorts and other clothing infused with titanium dioxide or zinc oxide

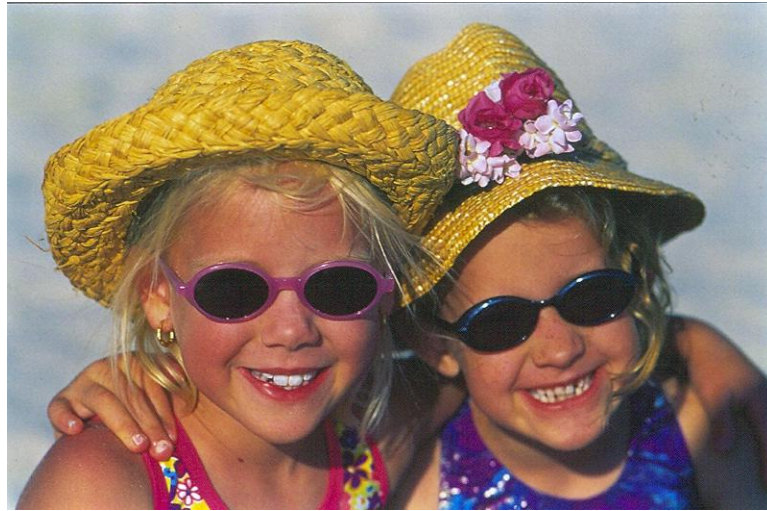
# UPF cont.

- Companies devoted to sun protective clothing: Coolibar, Sun Precautions, etc
- SunGuard: laundry additive containing Tinosorb. Gives UVA & UVB protection to a UPF 30. Lasts approx. 20 washes. Dose not work on synthetic fibers (polyester or nylon).

# American Cancer Society Recommends



- Wearing hats & sunglasses
- Hats with wide 2-3” brim all around to protect neck, ears, eyes, forehead, nose & scalp
- Wrap around sunglasses with both UVA & UVB labeled protection



# New beachwear: MASKwear

- Unwillingness to tan has long been a part of Chinese culture
- “A women should always have fair skin. Otherwise people will think you’re a peasant.”
- An idiom which women young or old know by heart: “Fair skin conceals a thousand flaws.”
- ‘hands free’ parasol









© Reuters

# Self-tanning Products

- DHA (dihydroxyacetone) : reacts with amino acids on the skin to turn it brown
- Fake tan, self tan, bronzers, overnight tan, sunless tan
- Care with spray on – can be inhaled and absorbed into the bloodstream

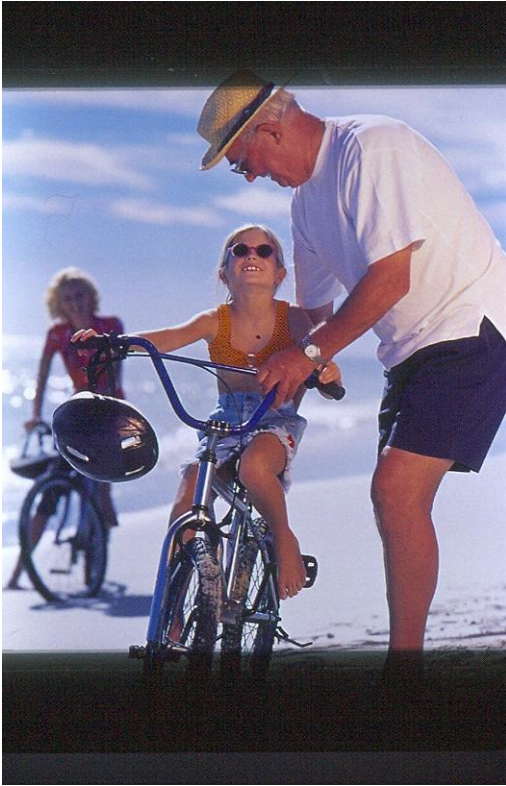


# apps

- Skin Scan app iTunes website
- Skin Scan: skin cancer prevention tool: uses mathematical algorithm to calculate the fractal dimensions of a mole & surrounding skin. Builds a structural map that reveals the growth patterns of the involved tissue
- iSunBurn: UV Index based on user's location

# apps cont.

- nevus: new sun alarm app by Apple
- mobile app dedicated to the care and protection of skin
- Sun Alarm: GPS-located UV index to remind patient when & how often to apply sunscreen
- Sunscreen Visualizer: visual tool to explain how much sunscreen to apply to body areas
- Skin Record: tool that takes sequential photographs of mole or nevi & independently gathers data on any skin spots & lesions that may appear & create a record on how the area is changing



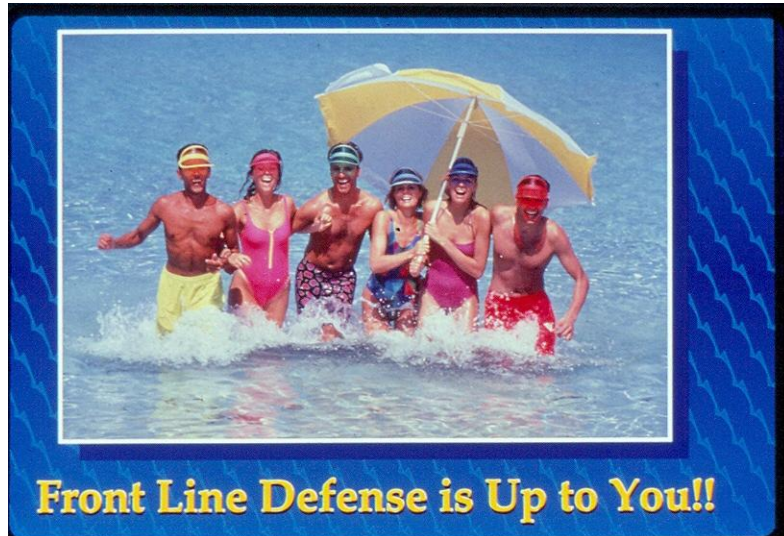
- Have fun
- Be a responsible adult
- Teach children good habits

- Swim in the ocean





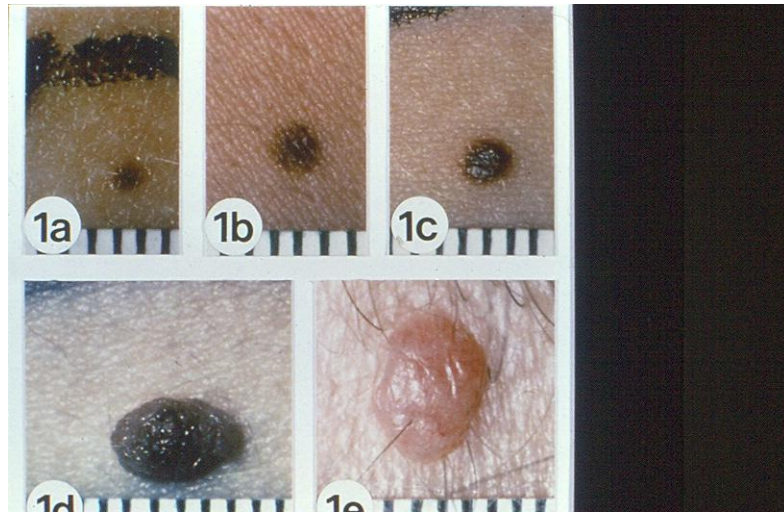
- But be responsible for the health of your skin





# NEVI : Moles

- Nevus: “new growth” -
- Nevocellular nevi/ melanocytic nevi:  
benign proliferation of nevus cells derived  
from melanocytes/neural crest cells:  
lesions are : symmetrical  
have regular even borders  
have uniform color  
tend to be less than 6mm  
are acquired



# Malignant Melanoma

- Cancer of pigment producing cells / melanocytes
- Can evolve from random pigment cell in the epidermis or from nevi/moles
- A major risk factor is numerous moles, changing moles or atypical moles (dysplastic nevi)

# Risk factors for developing Melanoma

- UV exposure (sunlight & tanning beds) & sunburn
- Blistering sunburns during childhood or teenage years
- Fair skin
- Freckles
- Moles
- Family history of melanoma

# ABCDE of MM

- A= ASYMMETRY
- B= BORDER that is irregular or notched
- C= COLOR that is varied (brown, black, pink, blue-gray, white, or admixtures )
- D= DIAMETER  $> 6\text{mm}$  (size of a pencil eraser)
- E= EVOLUTIONARY CHANGE: evolving lesions



Darke, Thom

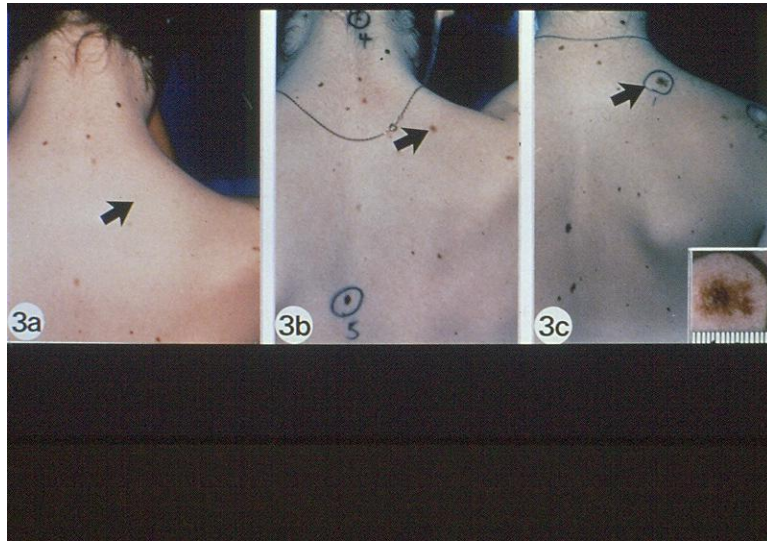












## Melanoma

- A Asymmetrical
- B Borders irregular
- C Colors variegated
- D Diameter >6mm, may be smaller





What is the most difficult  
thing of all?

That which seems to you  
easiest-- to see with your  
eyes that which lies before  
your eyes.

...Goethe

# Photo to remember





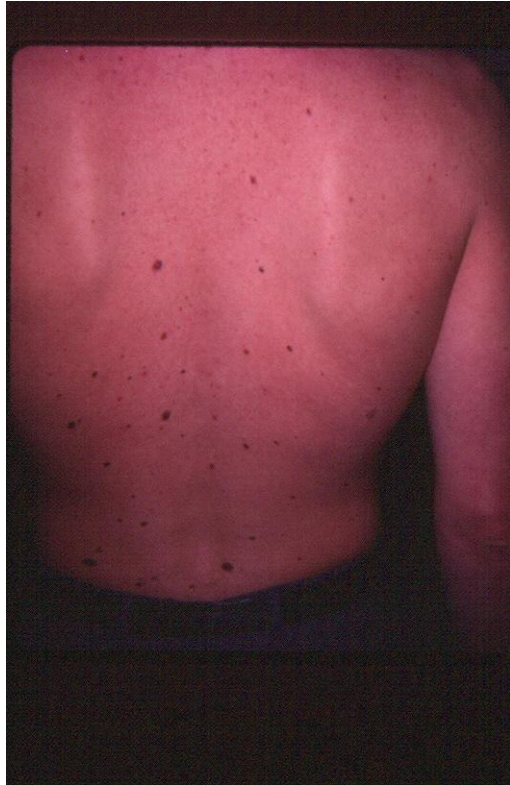


# Dysplastic Nevus Syndrome (Atypical Mole Syndrome)

- Multiple clinically atypical nevi
- Increased risk of melanoma
- Familial and sporadic cases
- Not present at birth and begin to appear in early childhood
- Unlike common acquired melanocytic nevi which stop appearing after age 30, atypical nevi continue to appear well into adulthood







# Management of DNS

- Referral to Dermatologist: Management of such patients should focus on patient education, self-examination, and routine complete skin examinations

## Melanoma

- A Asymmetrical
- B Borders irregular
- C Colors variegated
- D Diameter >6mm, may be smaller



## Skin Cancer Self-Examination



- Examine your body front and back in a full-length mirror. Raise your arms, and check your right and left sides.



## Skin Cancer Self-Examination



- Bend elbows and look carefully at forearms, upper underarms, and palms.



## Skin Cancer Self-Examination



- Next, check the backs of your legs and feet, including the spaces between toes and soles.

## Skin Cancer Self-Examination

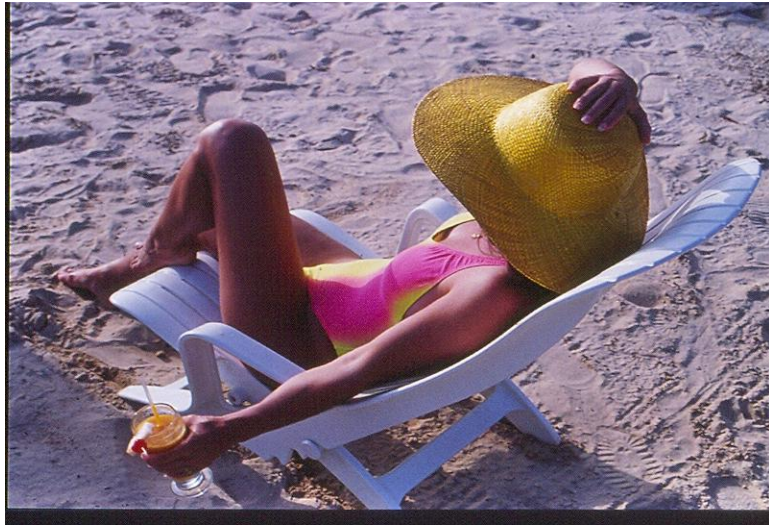


- Examine the back of your neck, scalp, and genital area with a hand-held mirror.





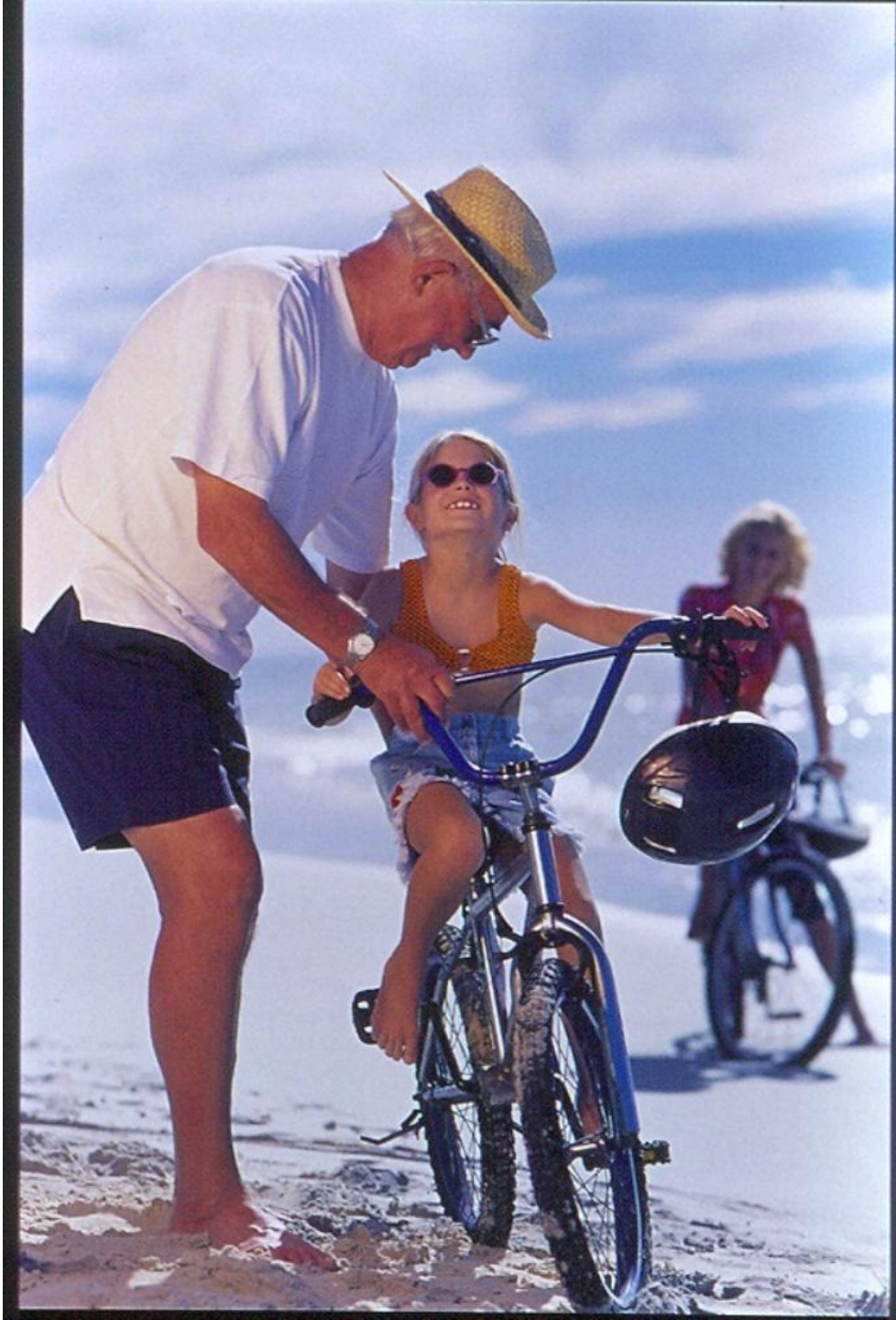












- Lead them to a happy healthy life







**Front Line Defense is Up to You!!**