NATIONAL TANNING TRAINING INSTITUTE

TRAINING MANUAL

Training for the Professional Operation of Indoor Tanning Salons

2011/2012

Basic Indoor Tanning Certification Course

NATIONAL TANNING TRAINING INSTITUTE

Canada

Answering the call for better options for training from Canadian salon owners, staff at the National Tanning Training Institute offers the FIRST online certification program developed specifically for Canadian tanning professionals.

This program allows Canadian tanning salon owners and operators to take advantage of online certification covering topics like skin anatomy and physiology, understanding UV light, the tanning process and the "Canadian Guidelines for Tanning Salon Owners, Operators and Users" distributed by Health Canada.

Our online certification has been designed to be quick and easy to use. Once you have reviewed the material and taken the test, simply complete the billing information at the bottom of the test and hit send.

Our program includes our training manual and a final exam. The exam is designed to be taken open book. With a passing score of 90% or better, you will be issued a certificate of completion through the National Tanning Training Institute. If you do not pass the first time, you or your staff may retake the test at no additional cost.

Price List

NTTI Basic Indoor Tanning Certification Course

Amount	Total	Price each
1 test	$105	$105.00
2 tests *	$195	$ 97.50
5 tests *	$295	$ 59.00
10 tests *	$395	$ 39.50
20 tests *	$495	$ 24.75

References

1. Medications That Increase Sensitivity To Light: A 1990 Listing; by J. Levine; U.S. Government Printing Office: 1991
2. Sunlight; by Zane R. Kime, MD, MS; World Health Publications: 1980
3. Tanning Fact Book; LOOKING FIT Magazine; Virgo Publishing, Inc.: 1999
4. Sun and Solarium; by Philips Lighting: 1996
5. The World of Light; by Friedrich Wolff: 1974
6. The physiology Coloring Book; by Wynn Kapit et al; Harper Collins Publishers, 1997
7. Dorland's Illustrated Medical Dictionary; 45th Edition: 1994

Congratulations on the completion of this course of study. You should now be aware of the tremendous responsibility you and others like you have toward the safety and well-being of the people who pass through your doors.

We hope you will take the information provided by this manual and put it to appropriate and responsible use.

We at NTTI have created this manual as an educational tool, not as a strict guideline on which to base day to day business decisions. NTTI will not be held liable for use of any of this material in any irresponsible manner.

* Note: You will be provided a promotional code number with your purchase of all multiple test packages. Please keep this code available, it is to be used on all remaining tests purchased with the package.

NATIONAL TANNING TRAINING INSTITUTE

table of contents

CHAPTER 1

your skin is the largest organ

Skin covers all body surfaces. The skin of an average adult weighs 8-10 pounds and has an average area of about 22 square feet. The purpose of this outer covering for the body is to protect against injury, infection, heat, cold, and store water, fat and vitamins. The human skin is rejuvenated about once every four weeks.

Thinking of your skin as an organ, rather than something that we can use and abuse, puts things in proper perspective. Your skin is a wonderfully resilient organ and for the most part can survive virtually any form of punishment. The skin is the body's boundary, tough enough to resist all sorts of environmental assaults, yet sensitive enough to feel a breeze.

A versatile organ, skin creates the first line of defense against possible invasion by bacteria and germs, while maintaining the body's internal environment to within a few degrees of normal throughout our lifetimes. The skin also secretes fluids that lubricate it and barricade toxic substances, while maintaining this environment. The skin can absorb some soluble substances

The Skin Functions

The skin is divided into three layers, the epidermis or outer layer which produces the tan; the dermis or middle layer which contains collagen and other materials vital to the skin's strength, its ability to repair itself and fight off infections; and the subcutaneous tissue or bottom layer which serves as insulation, a food reserve and binds the skin to your body. The layers of the epidermis which are involved in the tanning process are the horny (outer) layer and the germ (inner) layer. Cells from the germ layer are constantly reproducing and pushing old cells up through the horny layer where in approximately one month they are sloughed off. At the base of the epidermis, cells called melanocytes (about 5% of the epidermal cells) exist. These are the pigment cells involved in the tanning process. The melanocytes use the amino acid tyrosine to produce melanosomes (dark brown granules of pigment) which contain melanin that, when oxidized by UVR, provide the adaptive coloration of the skin. When exposed to ultraviolet radiation, the melanocytes release extra melanosomes thus making the skin darker and completing melanogenesis which is defined as the UVR-induced production and oxidation of melanin, i.e., the process of developing facultative pigmentation, better known as cosmetic tanning. **Faculative** Pigmentation is simply the level of an acquired tan developed by an individual exposed to UV light where as **Constitutive** Pigmentation is our natural skin color.

Every individual has only a given amount of melanin which is determined by an individual's skin type. Although a person may gradually increase the amount of melanin production through tanning, the person cannot change from one skin type to another.

One function of the skin is to protect its underlying tissues from invisible radiation i.e. that produced by the sun. The sun emits three kinds of ultraviolet (UV) rays, UVA, UVB and UVC. Although invisible, you can see the results of ultraviolet rays in such things as the growth of plants and the tanning of our skin.

- **Layers of Skin**
- **Facultative Pigmentation**
- **Constitutive Pigmentation**

Notes

UVC is a short and harmful wavelength of ultraviolet rays, but is virtually stopped by the Earth's ozone layer and pollution.

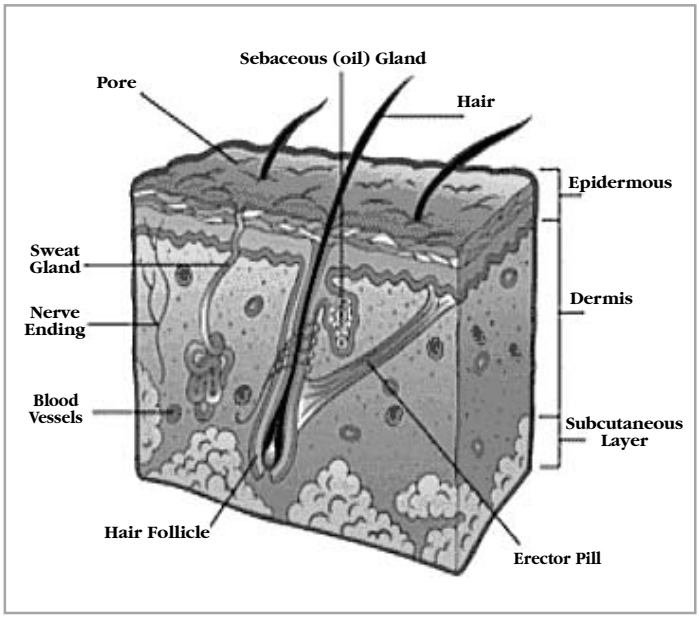
UVB is the medium wavelength and although overexposure can cause erythema (sunburn), a controlled amount is necessary to initiate tanning in the skin.

UVA is the longest wavelength and is responsible for the completion of the tanning process. Tanning is actually the body's natural defense mechanism to protect itself from the sun's rays.

The outer surface of dead cells (horny layer) is the first shield against any invader. These cells arise from the living dividing basal cells (named for their location at the base of the epidermis). New cells rise, pushed from the base by rapidly dividing basal cells. These new cells produce greater and greater quantities of a protein called keratin. The fibrous keratin accumulates within the cells until it nearly replaces their living cellular machinery. This journey to the surface takes approximately four to five weeks. Now they have withered, died and bound themselves firmly to one another, forming a tough nearly impermeable outer shell to the epidermis. Perpetual shedding of this horny layer prevents many microbes from penetrating the skin. As the epidermis goes about the business of renewing the horny layer, it sheds the dried out cells at a rate of one million every forty minutes. This horny layer becomes thicker and tougher in response to UV to protect the skin from overexposure. The remaing 5% of cells found in the epidermis are mostly made up of Langerhans and Merkel cells. **Langerhans cells**, also known as "immune cells", help fight off organisms trying to invade the body. **Merkel cells**, known as "touch receptors", relay touch sensations to the dermis as contact nerve endings.

Ultraviolet B initiates the tanning process by stimulating the melanocytes, releasing melanin into the surrounding cells. As these melanin granules migrate to the skin's surface, there is a chemical reaction that occurs between the tyrosine, the melanin and the UVA rays that turns the skin a light brown or brown giving us the tanned appearance.

The degree of coloring achieved depends on the amount of melanin one has, the duration of the exposure and the individual's reaction to the ultraviolet rays.



The sun is not selective in the proportions of UVA and UVB emitted. Therefore the skin is vulnerable to too much UVB which can cause sunburn, as well as other types of damage to the skin.

Another system at work in the epidermis is our immune system. The epidermis houses special cells that join the immune system in defense against disease. Langerhans cells give agents of the immune system information regarding the nature of foreign substances entering the body through the skin. Extremely high doses of UV can damage Langerhans cells, preventing them from sending the appropriate warning signals to the immune system. Lymphocytes are also located in the epidermis. They are the other defender in this delicate cellular world. Lymphocytes are also damaged by prolonged overexposure to UV.

This highly complex inner world of the skin mandates responsible treatment by its owner as well as those of us entrusted with the cosmetic care of this largest of human organs.

CHAPTER 2

understanding ultraviolet radiation

In order to truly understand the tanning process of the skin you need to have at least a basic understanding of the properties and function of light. Although light has played a central role in the histories of religion, art and science and is so common to our everyday existance, it can actually be quite elusive.

Understanding Ultraviolet Radiation

To understand ultraviolet radiation (UV) one needs to know UV's placement in the electromagnetic spectrum. Ultraviolet light is located between X-radiation and visible light. UV has a higher frequency and shorter wavelength than visible light, and it has a lower frequency and longer wavelength than X-radiation. UV with its longer wavelength and less energy is less penetrating than X-ray and is sometimes absorbed by matter. Photobiology studies the interaction of nonionizing radiation between the electromagnetic spectrum and biologic systems. Nonionizing radiation represents the ultraviolet, visible and near infrared regions of the spectrum. Tanning occurs as a result of exposure to ultraviolet radiation. To fully understand this reaction, you must familiarize yourself with the electromagnetic spectrum.

Electromagnetic Spectrum

The electromagnetic spectrum is a way of visualizing the frequency and wavelength proportions of different forms of energy. Electromagnetic radiation has properties of both waves and particles. We divide the electromagnetic spectrum in the UV range for medical purposes.

UVA is found in the region between 320 and 400 nm and is the least powerful wavelength band of UV radiation. UVA acts primarily to cause the melanin pigments in the skin to oxidize (darken) creating the cosmetic tan and has limited power to cause erythema.

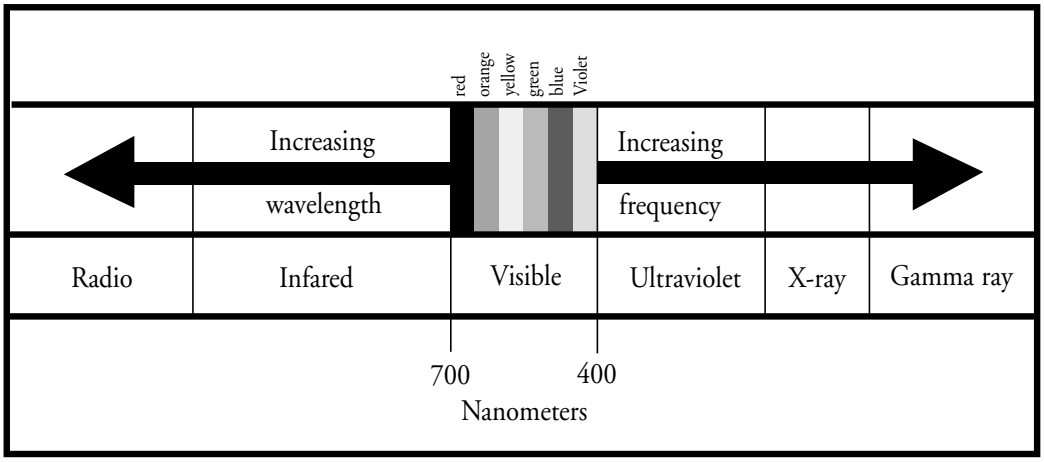
UVB is found in the region between 280 and 320 nm. It comprises the wavelengths primarily associated with erythema (sunburn), is also necessary for the production of vitamin D in the skin and is primarily responsible for stimulating increased melanin production. UVB wavelengths (at 305 nm) have 1,000 times more erythemal power than UVA wavelengths.

UVC is found in the region between approximately 200-280 nm and is called germicidal UV because of its proven effectiveness in killing sing-cell organisms. Solar radiation in the UVC range is absorbed almost entirely by the atmosphere and that is fortunate considering that even a short overexposure to UVC is very harmful to the eyes and causes severe erythema (sunburn). One place where radiation in the UVC range can be found is in the arc of a welding torch. For that reason, optical damage referred to as "welders eye" is caused by UVC light. It should be noted that UVC wavelengths are not produced by the UVR sources utilized by the indoor tanning industry.

- **Electromagnetic spectrum**
- **UVA, UVB & UVC**
- **Wave theory**
- **Quantom theory**

Notes

Electromagnetic Spectrum



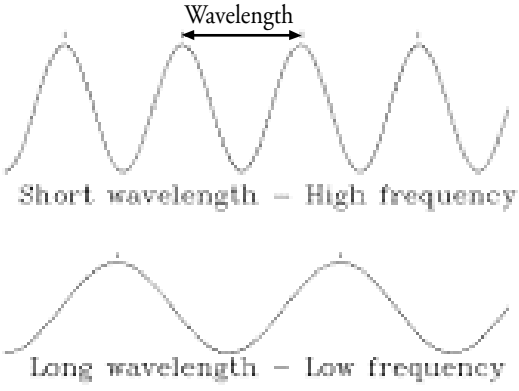
Wave Theory

Ultraviolet rays are similar to X-rays, white (visible) light, infrared and other similar types of radiant energy. They are all electromagnetic waves, wavelike disturbances associated with vibrating electric charges. Most waves are transmitted by some medium; for example, you have all seen waves on the surface of the water, in which case the water is the transmitting material. When a stringed instrument is plucked, waves are set up in the string, so the string becomes the transmitting material. Strangely enough, no one knows what transmits electromagnetic waves, however, we have proof that they are in fact transmitted.

Electromagnetic waves all travel at the same constant speed as light, 186,000 miles per second in a vacuum. All electromagnetic waves have the same form and travel at the same speed, but differ in wavelength. Wavelength is the distance between two successive crests in the wave. The number of crests or cycles per second is the frequency of the wave. The unit of frequency is hertz or 1 cycle per second. Therefore, if the wavelength is decreased, then the frequency is increased. Frequency and wavelength have an inverse relationship which is calculated with one of two equations

Where the velocity of radiation is 186,000 miles per second. Frequency is calculated using cycles per second and wavelength is calculated in meters. The wavelengths of electromagnetic radiation vary in size from a fraction of an angstrom unit (an angstrom is equal to ten billionths of a meter) to thousands of meters, commonly called the "electromagnetic spectrum." Some of the wavelengths of electromagnetic radiation from this spectrum are classified as follows:

The Length of a Wave Chart



Frequency = velocity of radiation / wavelength
Wavelength = velocity of radiation / frequency

SPECTRUM	APPROXIMATE WAVELENGTH
X-Ray	0.1 - 100 angstroms
Vacuum	10 - 200 nanometers
Ultraviolet C (UVC)	200 - 280 nanometers
Ultraviolet B (UVB)	280 - 320 nanometers
Ultraviolet A (UVA)	320 - 400 nanometers
Visible light	400 - 700 nanometers
Near Infrared	0.74 - 1.5 micrometers
Middle Infrared	1.5 - 5.6 micrometers
Far Infrared	5.6 - 1,000 micrometer
Microwave/Radiowaves	greater than one millimeter

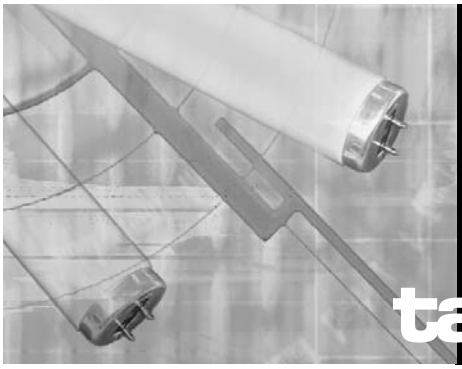
Therefore, the useful unit of measure for our purposes is the **nanometer**. Radiations shorter than 10 nanometers (i.e. gamma rays or X-rays) generally ionize molecules (remove electrons) producing positively or negatively charged ions and are, therefore, known as ionizing radiation. Ultraviolet radiation is absorbed by molecules and is known as nonionizing radiation.

Quantum (Particle) Theory

Another theory used in reference to the electromagnetic spectrum is the quantum theory. In order to explain energy transfer, a bit of energy called a photon was theorized. Photons have no mass and when absorbed this energy is passed on to the absorbing molecule (such as skin cells) and the photon no longer exists in its same state. The amount of energy in a photon is directly proportional to the frequency of the radiation. The energy of a photon increases as the frequency increases. The more cycles per second (frequency) of any given photon, the more energy the photon has. The energy of any given photon decreases as the wavelength increases. The longer the wavelength, the less the frequency.

Light energy is expressed differently. We often express radiant energy in terms of watts per square meter or milliwatts per square centimeter. Skin exposure is usually expressed in joules per square centimeter. A Joule, is a unit of measure and is equivalent to the electrical work done in one second by an electrical current of one ampere through the resistance of one ohm; named for its inventor, British Physicist, J.P. Joule (1818-1889).

Notes



CHAPTER 3

tanning lamps

a brief description

The tanning lamp is probably the single most important element to your tanning unit. Having a better understanding of the function of the tanning lamp will allow you to offer the best level of service to your client.

Lamp Componets

The fluorescent lamp is composed of seven main parts:

Base- connects the lamp to an external source of power.

Lead-in Wires- connects the base to the cathode, which emits electrons during lamp operation.

Mercury- atoms in the form of vapor in the lamp which are strukt by the electrons and excited from their ground state to a higher state, from which they emit a UV photon with a wavelength of 254 nm.

Phosphor- absorbs this UV and converts it to longer wavelengths (usually visible light). It is coated onto the inside of the bulb during lamp manufacturing.

Stem Press- is a cathode support structure as well as the means to hermetically seal the lamp ends.

Exhaust Tube- is the means of introducing the fill gas and mercury into the lamp during processing. It is then closed off.

Fill Gas- is an inert gas which aids in starting and operating the fluorescent lamps.

Tanning lamps

Tanning lamps emit primarily UVA radiation with a small amount of UVB. The percentage of UVA and UVB is varied through lamp design by changing the phosphor composition. An electric current is passed through mercury vapor gas under low pressure which then becomes ionized. UV emissions are the result of energy transfers between the electrons and the gas atoms. Some lamp manufacturers rate their lamps by percentage of UVB, however, lamp manufacturers who provide a spectral analysis graph will perhaps be easier to understand.

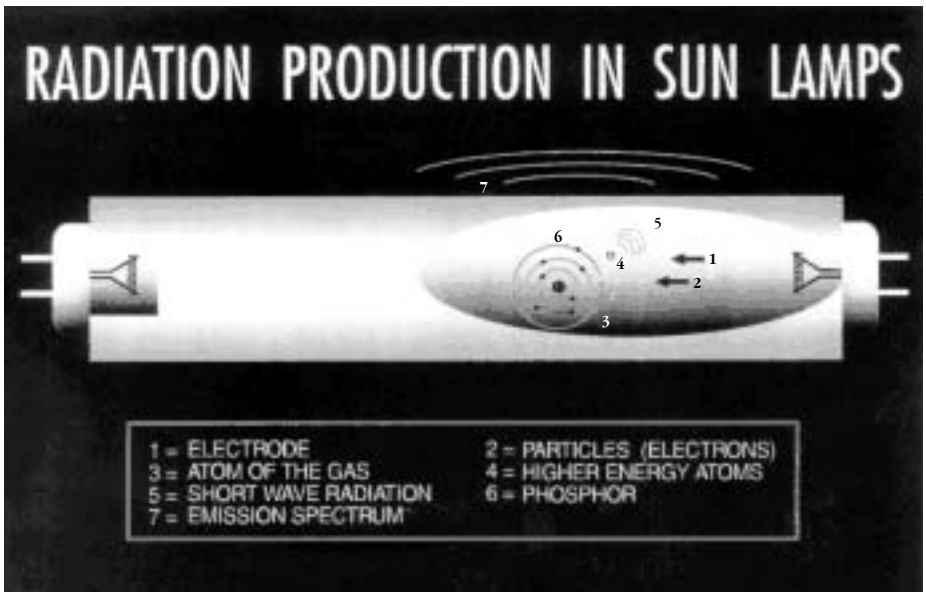
Lamp pressure

fluorescent lamps are the most prevalent in the tanning industry. These lamps vary in size; the average commercial tanning lamps are either 5 or 6 foot in length and range from 80 to 160 watts. Electrical contacts for lamps are found in two types: Bi-Pin and RDC (recessed double contact). Light output ranges across a wide spectrum, including UVA and UVB, plus infrared and visible light. All fluorescent lamps share the same basic design, a glass tube lined with a coating of phosphors, electrodes on the inside and end caps at each end to seal the lamp. To determine the proper lamp type for a particular piece of equipment, you are required to follow the manufacturer's recommended lamp replacement guide posted on the equipment's operation label. This information can also be found in the owner's manual. (Note: Sunbeds manufactured prior to 9/8/86 do not always have replacement lamps listed on bed labels. Consult the Owner's Manual if not listed on bed labels.)
Low pressure lamps' output generally exceeds the sun's natural intensity of the UV spectrum by 2-5 times. The UVA to UVB ratios are determined by the phosphor in the lamp. Other factors also will affect a lamp's output, such as operating temperature, wattage, and lamp age in hours.

- **Low pressure**
- **High pressure**

Notes

High Intensity Discharge (HID) lamps are also known as High pressure lamps that are significantly different than low pressure lamps. Their size is small, averaging from 5 to 8 inches in length. They are primarily used as facial tanning lamps, but are also used in equipment designed for full-body tanning. HP lamps are mercury vapor lamps. The wattage output ranges from 400 to 30,000 watts. The light output is 20 to 100 times that of the sun's natural intensity. They also emit a wide spectrum of light beginning with short wave UVC through visible light. HID lamps require a filter glass, commonly known as "blue glass" to contain the output of the UVC spectrum. This filter glass must be present in order to operate or severe burning will occur. Cracked filter glass must be replaced before the unit can be energized. Cracked glass will allow dangerous levels of UVC and UVB to reach the client. Tanning systems utilizing HP lamps offer shorter overall exposure times, but extra care and maintenance must be observed. Some tanning units utilize both low pressure and high pressure lamps. Again, extra care must be observed. As always, follow the manufacturer's exposure schedule and the maintenance schedule properly, regardless of the equipment and lamp type utilized.



CHAPTER 4

the complete tanning process

It is essiential that you and your employees understand the biological process by which the skin tans when exposed to ultrviolet radiation. An understanding of the tanning process will aid you in educating your clients in the proper way of achieving the best tan possible

Skin Absorption

Human skin is composed almost entirely of water and organic molecules. Molecules of organic compounds consist of nuclei which are in relatively fixed positions and electrons which are found in defined volumes surrounding the molecular structure. For each compound, certain electronic states exist, each of which corresponds to the distribution of electrons around the nuclei and a specific energy. At room temperature, all molecules are in the electronic state with the lowest energy, called ground state.

UV radiation must first be absorbed by molecules to cause any chemical change. Only that radiation absorbed by the skin can initiate a biologic response. A molecule that absorbs light is called a chromophore. These include molecules such as DNA, RNA, and proteins. After absorbing the energy of the radiation, the molecule is in an excited state. The molecule exists in this excited state for a fraction of a second before losing the energy at which time a chemical change occurs. The observable effect may be increased pigmentation of the skin or erythema.

The Tanning Process

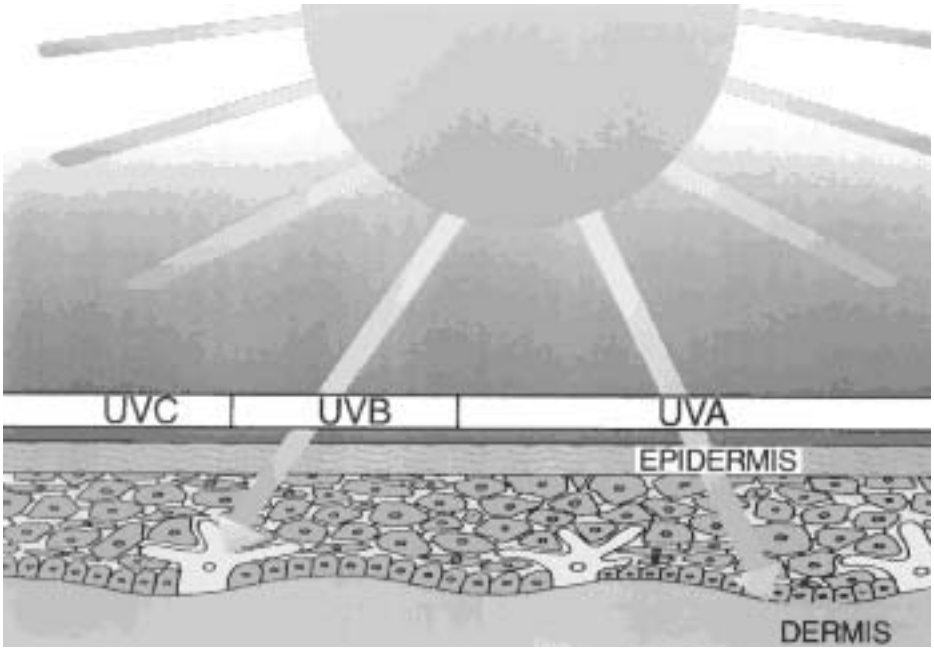
To understand the tanning process one first needs to realize that the skin is comprised of several different types of cells. Each type of cell has a specific function. The cells involved primarily in the tanning process are called melanocytes. Melanocytes are located at the base of the epidermis between the epidermis and the dermis below. Melanocytes produce melanin which is either particulate or non-particulate in form. This melanin leaves the melanocytes and travels up through the epidermis where it reacts with the UVA and UVB radiation through a chemical reaction darkening the pigmentation of the skin. As we already know the skin consists of three layers of tissue: The epidermis or outer layer, the dermis or inner layer and the subcutaneous layer.

The tanning process or increased pigmentation occurs in two phases. The first one is **immediate pigment darkening** (IPD). IPD is a rapid darkening of the skin which begins during exposure to UV radiation and its maximum effect is visible immediately. It is caused by a change in melanin already present in the skin. IPD is most obvious in skin where significant pigmentation already exists. It occurs after exposure to the longer wavelength of UVA or visible light. IPD may fade within minutes of small exposures or may last several days after longer exposures and blend in with delayed tanning.

- **Melanocytes**
- **Tyrosine**
- **Melanin**
- **Immediate pigment darkening**
- **Delayed tanning**

Notes

Delayed tanning, induced mostly by UVB exposure, is the result of increased epidermal melanin and first becomes visible 72 hours after exposure. Both UVA and UVB radiation start delayed tanning by creating an excited condition in the melanocytes which in turn releases more melanin into the skin. The degree of IPD is primarily a reflection of the person's skin type. Delayed tanning demands larger doses of both UVA and UVB for any given response.



CHAPTER 5

skincare

moisturizing

Tanning salon operators need to understand the role good skincare plays in the overall tanning process. moisture is essential to good skin health because it helps maintain the integrity of an exceptional skin barrier while enhancing the tanning process.

Moisturizing

Your client's skin is gasping for moisture like a flower in the desert. All winter, the elements have taken their toll. For at least three months the dry winter wind has sucked moisture from the delicate skin surface, while the cold temperatures blocked the production of natural oils and emollients. Your client's skin is dry to the touch and tight in appearance. You must come to the rescue with a good moisturizer.

Moisture is critical to good skin health because it helps maintain a good skin barrier and creates a flexible, pliable skin that is soft to touch. Moist skin will tan better and more evenly than dry skin. Your skin knows that moisture is important and uses a variety of methods to retain moisture in its surface.

Moisturize With Oils

Your skin retains water within its natural oils to help them maintain an ordered structure around each skin cell. Each skin cell is surrounded by a variety of different natural oils. Together, the skin cells and the natural oils help form the acid mantle or barrier in the stratum corneum. Water helps increase the flexibility of the oils so the oils can surround the cells to maintain an adequate skin barrier.

During cold winter months, the skin's ability to make natural oils for the stratum corneum is greatly reduced. We have known for many years that cold weather causes skin to become dry and brittle. Recently, scientists discovered that one of the reasons is a decrease in the production of natural oils when skin is exposed to cold temperatures. If the skin is not producing enough natural oils, then we can help by adding oils.

A good moisturizer not only will add moisture to the skin, but also add some oils to the skin. A client with severe dry skin requires a moisturizer with more oils than a client with slightly dry skin. For your clients with severe dry skin, recommend a moisturizer with a greasy feel. Clients with slightly dry skin can expect improvement with a less greasy moisturizer.

However, be careful to remember that the best moisturizer is one that your clients will use. The moisturizer has to be enjoyed by your client; it has to be used regularly. If your client will not use a greasy moisturizer, then the moisturizer will sit in the bottle and you may lose future sales.

- **Oils**
- **Natural moisturizing factors NMFs**
- **Vitamins**
- **SPFs**
- **Sunless tanners**

Notes

Moisturize with NMFs

Your skin retains water within its natural proteins to keep them flexible. Each stratum corneum cell is a flexible sack of proteins. Without water, the proteins lose their flexibility and become rigid. The skin becomes rough to the touch, even cracking in severe cases. Water helps increase the flexibility of the proteins so the cells can relax to a smooth surface that begs to be touched.

Normally, skin creates natural moisturizing factors (NMFs) to hold moisture in the stratum corneum and increase the water content of the skin. In dry winter conditions, the skin cannot make NMFs because the water content of the skin is too low. Also, NMFs are stripped away by the use of hotter bathing water and stronger detergents.

A good moisturizer will add moisturizing factors back to the skin where they can lock moisture into the skin. Sodium PCA, or sodium pyrollidone carboxylic acid, is one of the most efficient NMFs because it binds lots of water.

Moisturizing lotions also may contain moisturizing factors that are not natural, but moisturize much the same way. Some examples are sodium isethionate, glycerin and panthenol.

Moisturize With Vitamins

The reduced barrier function of the skin caused by the dry cold winter allows a variety of environmental pollutants to enter the skin. These pollutants can deplete the antioxidant system of the skin, making the skin more susceptible to oxidative damage. Vitamins can reduce or eliminate this damage.

A good moisturizer will help replace the vitamins skin needs. Vitamin E, or tocopheryl acetate, is a potent antioxidant that should be found in a good moisturizer. Vitamin C, frequently included as ascorbyl palmitate, acts in concert with vitamin E in a healthy antioxidant system. Scientists have found several situations where these vitamins are more powerful together than alone.

Results

Dry, cold winter prevents skin from maintaining a moist healthy condition due to the loss of natural oils, natural moisturizing factors, and vitamins. A good moisturizer will contain these three items with a low level of AHAs. Your clients need to use a good moisturizer regularly and to apply it generously. Moisturizing skin helps replenish and retain the normal moisture content of the stratum corneum, keeping the skin soft and supple. Moist skin is healthy skin and healthy skin will tan better and more evenly than dry skin.

SPFs

It's only the middle of March, the winds are still blowing cold, artic air from the north and salons nationwide are filled to capacity with clients seeking solace from Old Man Winter. Yet, before long, those winds will be shifting to the south, and many of your loyal customers will be turning to Mother Nature for a dose of relaxation and nourishment.

While many salon owners believe that the summer doldrums brings a dramatic decrease in their tanning business, this is not true for marketing savvy operators. By marketing your facility as a one-stop shop for clients' skincare needs such as outdoor lotions and oils, you will keep your cash ringing throughout the summer months.

The sun is responsible for our very existence here on earth. Its light is the fuel for photosynthesis, which is the process by which plants create their energy, and we, in

turn, depend on the plants for food and oxygen. The sun's infrared rays keep us warm and its visible rays give us light to see by. The sun's ultraviolet radiation also is useful; however, at the same time, it is dangerous to us.

As you know, ultraviolet radiation is divided into three different bands - UVA, UVB and UVC. Virtually all of the UVC is filtered out by our atmosphere so that none actually reaches the earth's surface. However, both UVB and UVA reach the earth in significant amounts.

The summer months of June, July and August bring heat and discomfort as well as dry, thirsty skin in need of nourishment and care. By offering a complete array of moisturizers and SPFs, your clients will turn to your salon as their complete skincare source instead of spending money at the drug or department store down the street.

With the public becoming more aware of the dangers of overexposure to sunlight, SPFs are a natural fit into your retailing sector. Not only can you promoted sunscreens for outdoor use to your faithful tanners, but also word-of-mouth advertising from these clients may attract additional customers who don't tan indoors. Just because you are a tanning facility, doesn't mean that non-tanners can't turn to you for skincare education.

In addition, it is important to promote responsible tanning whether it occurs indoors or outdoors. By taking a proactive approach and acting as an ambassador to this industry, you as a salon owner and educator can squelch bad publicity about tanning as well as secure additional sales of sunscreens.

Anyone who has had the experience of being burned by the sun knows the value of sunscreens and sunblocks. However, most people do not understand how they work to protect the skin.

Sunburn is caused by overexposure to ultraviolet rays, mostly UVB. In fact, sunburn almost is exclusively a UVB phenomenon; however, research continues on the different effects of UVB and UVA rays. This is important because the SPF system measures UVB protection and not UVA. During a sunburn the skin turns red, swells and, in some severe cases, blisters. A sunburn continues to develop for 12 to 24 hours after the exposure.

Sunscreens are chemicals that, when applied topically, keep ultraviolet rays from penetrating the skin. They work either by absorbing or reflecting solar energy. The absorbed energy excites the sunscreen temporarily; then, as the chemical relaxes back into its original state, it transforms that entry into something harmless (usually heat). This process is repeated countless times per second.

In addition, every sunscreen has a characteristic absorption spectrum that is capable of absorbing only certain wavelengths of ultraviolet light energy. High SPF sunscreen formulas contain blends of more than one sunscreen because no single-chemical is capable of absorbing all UVB radiation.

High SPF products contain Oxybenzone (or Benzophenone-3), a UVA absorber. In 1986 (the last year data was published) Padimate (or Octyl Dimethyl PABA) was found to be the most widely used UVA absorber in the United States. Contrary to consumer belief, this is not the same as PABA, which rarely is used anymore because a small percentage of people are known to be sensitive to it.

One of the newest ingredients to hit the SPF market is Parsol(r) 1789, a highly effective filter against the sun's UVA rays. Many of the leading SPF manufacturers have begun using Parson 1789 because currently it is the only sunscreen that also contains skincare properties.

Notes

Notes

Another new property that has been incorporated in SPF formulas is zinc oxide. Most people associate zinc oxide with the white thick paste lifeguards used in the past. It was known to be the best sunblock available, but it was cosmetically unacceptable and therefore not used by the mainstream population. Fortunately, things have changed, and you now can get the physical sunscreens that are transparent. For example, zinco oxide is now manufactured so that the particles are so small that you cannot see them. These space age physical sunscreens are referred to as microfine powders and Z-CODE (microfine zinc oxide) is an example that has been incorporated into one manufacturer's higher block SPFs in the past year.

Additionally, Ethylhexyl Methoxycinnamate (Octyl Methoxycinnamate) is becoming an increasingly popular UVB absorber, especially in PABA-free and sensitive skin sun products. Use of a broad-spectrum sunscreen product that block UVA and UVB is much safer than UVB blocks alone.

Make sure to inform clients to apply sunscreen approximately 20 minutes before being exposed to the sun. This allows the sunscreen time to "set up" on the skin so that it can do its job correctly. Remember, an SPF 2 blocks out approximately 50 percent of ultraviolet rays; an SPF 10 blocks out about 85 percent of ultraviolet rays; and, an SPF 15 blocks out approximately 95 percent of ultraviolet rays and is the reason that most health professionals suggest an SPF of 15 or above.

It is useful to have an assortment of products with varying SPF numbers. The suntan lotion that is desired in the early days of summer may have too great an SPF for the last days of August.

Another point to consider is that different parts of the body require special care in the sun. Because of their prominence, noses, cheeks and lips often require a product with a stronger SPF than needed for arms and legs. Educate your customers that regular use of suntan products and common sense about how long to spend in the sun is extremely important.

Sunless Tanners

Imagine this dilemma: One of your customers is leaving on a cruise in less than one week, and she has been so busy that she has not had time to tan. What to do? Being the knowledgeable salon operator, have the perfect solution-suggest a sunless tanner.

Afraid that offering a sunless tanner is counterproductive to selling indoor tanning? Think again. What better way to secure customer confidence than by showing them how to even out those unsightly pressure points and uneven tan lines? You already offer a complete line of skincare products to keep your customers' skin moisturized and provide darker, more beautiful tans. So round out that skincare promotion by offering sunless tanners and you will find it will shed new light on your profits.

Self-tanners have gained popularity in the past few years for a number of reasons. The medical community's condemnation of UV light has caused some sun worshippers to seek refuge indoors. And while indoor tanning offers a controlled environment and all the comforts one could want, the media's incisive industry bashing has caused some fear to getting in a tanning bed.

Another reason self-tanners are gaining favor is the ease of application and upkeep. In the past, a lot of people thought self-tanners were messy and difficult to apply. Today, self-tanner application has been refined and products have gained a respectable place in the industry.

In addition, many salon owners are noticing a trend toward their clients covering their faces with towels to avoid premature wrinkling. Sunless tanners are the perfect remedies for those telltale towel lines on their faces and necks. In addition, it is a great product for those people who have problems tanning or for those difficult areas to tan such as the feet and hands. Sunless tanners also can be used to fill in pressure points and even out tan lines. And, for some fair skin people, sunless tanners can be used to augment the tanning process.

In days past, sunless tanners didn't live up to their promise of deep, golden tans. Instead, they left the skin streaked and splotched with a distinctive orange cast. Today's sunless tanning products are far more sophisticated than those introduced nearly 30 years ago. In fact, in the last few years, these products have undergone a sort of metamorphosis- streaks, splotches and orange; smooth, bronze and beautiful are in.

The key ingredient to the products' evolution is Dihydroxyacetone, or DHA, which is an extract of sugar cane. DHA reacts with proteins in the skin to produce a bronze coloration on the top layer of skin-in essence, a cosmetic effect that does not saturate the skin.

Over the years, the formulation technology has been greatly improved to provide better application and coloration. Many of the earlier products were formulated using higher DHA concentrations; today, sunless tanners use lower concentrations because of the improved technology.

The majority of self-tanners on the market are a medium grade of color. How dark they tan really depends on the individual's skin type and the condition of the skin. It is important to remind your clients that what works on one person may not necessarily look the same on another.

The first step to ensuring a great sunless tan is to exfoliate the skin. The skin needs to be clean and free from dead skin cells in order to alleviate uneven distribution. Clients also need to exfoliate well and then dry off completely before applying a sunless tanner. For example, if a client is young and has soft, supple skin, he or she probably doesn't need to exfoliate as much. If he or she has naturally dry skin or are in a place with a lot of humidity, exfoliation is the key to getting an even, all-over tan.

The second, and probably the most important step, is application. Some experts suggest spot testing the product to see what shade of bronze will result. The key to obtaining an even tan is to apply a smooth, thin layer of the self-tanner. Avoid using too much self-tanner in one application; you can always go back and apply another layer if the color isn't dark enough.

When applying the self-tanner, special attention should be paid to the knee, elbow, ankle and eye areas. The reason? Color is proportional to the surface area of the skin, and these areas are likely to become darker because there is a higher concentration of self-tanner in the fine lines.

Additionally, it is important to wait for the product to dry completely before getting dressed, since DHA interacts with proteins and can cause fabrics to stain. Also, avoiding the hairline is crucial since hair is protein and self-tanners will cause it to discolor.

Once the color has fully developed, another coat of self-tanner may be added to darken the tan. Mistakes and uneven patches can be fixed easily by exfoliating the area or by adding more self-tanner. Make sure to tell clients to allow self-tanners to dry before beginning any activity, as sweat during application can cause an uneven or streaked tan.

Notes

Notes

Since self-tanners work on the top layer of skin, the average tan only will last for approximately three to four days, gradually fading as the top layer dries and flakes off. Salon operators need to remind customers that self-tanners don't contain any sunscreen and even though their skin is tan, they still can get sunburned.

In addition, because DHA often is associated with skin dryness, it is important to suggest a moisturizer to complement self-tanners. Not only will it alleviate the dryness, but it will ensure another sale for you during typically slow months.

CHAPTER 6

Understanding MED and MMD

Two terms commonly used in the indoor tanning industry are Minimal Erythemal Dose (MED) and Minimal Melanogenic Dose (MMD). Both terms seem to be self-explanatory, however, the true definition of each term is necessary for a clear understanding of the science of tanning.

Understanding MED and MMD

MED is the Minimal Erythemal Dose and is defined as the threshold dose that may produce sunburn. MMD on the other hand is the Minimal Melanogenic Dose and is equal to the lowest dose required to develop a visible suntan.

Even though the terms MED and MMD seem to be self-explanatory at first glance, the translation of these values in the daily practice of indoor tanning often leads to misunderstandings and wrong interpretations, especially when it comes to determining exposure times based on MED and MMD values.

How Threshold Dosages are Determined

Assume that unprotected skin has been exposed to UV radiation for the first time. In order to determine the MED, the reaction of the skin will be recorded 24 hours after exposure. The minimal dose that induces any visible reddening at that point is defined as one MED.

Redness that occurs immediately after exposure, however, and disappears during the following three to five hours is mainly caused by heat and is not comparable with real UV erythema. This is the reason why the reading is not taken until 24 hours later.

For users of tanning units, the MED provides important information about the sunburning effect of the equipment, since an even perceptible reddening is the first sign of a sunburn reaction. In order to prevent possible acute or long term risks due to indoor tanning, the MED should not be exceeded during a session.

The MMD is determined in a very similar manner. In contrast to the MED examination, however, the readings are taken seven days after exposure instead of 24 hours. The minimal dose required to produce an even noticeable tan, which can be observed seven days later, is defined as one MMD. The interval between exposure and reading is necessary to permit the occurrence of new melanin biosynthesis (melano-genesis), which only becomes evident after several days of UV application.

Why Standard Values?

To better understand MED and MMD, it should be said that both are individual values. The lowest effective dose developing a sunburn as well as the value of producing a suntan depend distinctly on the skin sensitivity of the person (i.e. skin types).

In order to eliminate these individually influencing factors, MED and MMD have been

- **Minimal Erythemal Dose**
- **Minimal Melanogenic Dose**

Notes

standardized. With standardized MED and MMD values, sunlamp products can be characterized and specified and become comparable with respect to their biological capabilities.

Such information based on these standard values is of greater meaning than statements about the physical data such as UVB/UVA ratios or UVB percentages.

Standard MED and MMD Compared

By comparing MED and MMD values of tanning units, it may be surprising that the required exposure time for reaching one MMD is usually longer than the corresponding time for one MED. This seems to indicate that it is impossible to tan without first developing red skin. At the same time, the question comes up: How can we achieve tanning slowly, progressively, and safely without producing a sunburn?

To shed some light on this question, consider the following: As mentioned above, MED and MMD are standardized values and valid for unprotected and untanned Skin Type II. This means that such given values are basically only valid before undergoing the first exposure.

The effect on the skin of a melanogentic dosage will become evident only three to five days after exposure, at the earliest. Further, Melanogenesis is a long lasting process, therefore single doses work cumulatively. In other words, the skin does not forget the induced pigment effects and accumulates these single pigment-producing dosages over time.

Besides Melanogenesis there exists the 'IPD', an immediate pigment darkening effect which is a rather superficially effective tanning mechanism. IPD is a transient reaction induced by the photochemical oxidation of preformed melanin pigments by long-wave UV, darkening the skin during exposure.

By the use of a sunbed, for example, which is characterized by an exposure time of 20 minutes for one MED and 45 minutes for one MMD. Melanogenesis can be induced in two different and, at least theoretically, conceivable ways.

MED/MMD-Based Schedule

Consider the given MMD exposure time of 45 minutes. Although the applied melanogenetic dose is high enough to produce new pigments, an exposure of this duration cannot be recommended because the MED would be exceeded more than twice during such a session.

It is better to get a suntan by starting an exposure schedule consisting of three applications of 15 minutes each during one week. The advantage of such a procedure is twofold. The applied dose per session does not reach the limit of one MED, however, at the same time the skin has received a total melanogenetic dose of one MMD. This means that the process of new pigment formation will be induced without the risk of sunburn. In additions to Melanogenesis, even during the first exposure session the skin will be tanned immediately if the horny layer contains some weakly colored, preformed pigments which then can be darkened by IPD. Generally, human skin has some pigment pre-stages available (except Skin Type I). In this context, it may be helpful to know that with most of the commonly used sunlamps, the threshold dose to initiate IPD will be reached quicker than 1 MED.

Depending on the amount of available pigment (and skin types), the effect of IPD usually remains only for hours, at the most a few days. With an increasing number of sessions, the amount of pre-stage pigment will be enhanced.

Talking about indoor tanning as well as outdoor tanning, the mechanisms of 'immediate pigment darkening' and of 'pigment formation' (Melanogenesis) interact so that a clear differentiation

between them is often impossible. As a rule, it can be established that IPD is more important during the first sessions while Melanogenesis comes more and more into play during the following exposures.

By using suntanning units, both mechanisms are utilized. At the beginning, the tanning results are mainly caused by IPD. With increasing sessions, the obtained suntan becomes darker and deeper due to further melanin synthesis. Further, with well-tanned skin, the required exposure time to develop erythema will be prolonged, and thus offers an effective sun protection.

Notes

Notes

CHAPTER 7

determining an exposure schedule

Accurate control of exposure times is necessary to decrease the risk of over-exposure to ultraviolet radiation. Another factor involved in optimal tanning sessions is being able to accurately identify the various skin types of those clients that frequent indoor tanning facilities.

Determining an Exposure Time

Maximum timer intervals depend upon the intensity and spectral distribution of ultraviolet emission from your equipment and must not exceed the maximum recommended exposure time provided on the manufacturer's label. Equipment manufacturers are required to develop an exposure schedule and to establish the recommended exposure time; and therefore the maximum timer interval based on the characteristics of their particular products.

According to the RED Act, the purpose of a sunlamp product timer is to provide for reliable control of exposures and to limit acute (and delayed) damage from unintentionally long exposures.

The RED Act requires that the manufacturer provide an exposure schedule with the product warning label.The exposure schedule allows a user to gradually build up a tan and maintain it while controlling the risk of acute injury and delayed adverse effects. Because the UV dose that causes a barely discernible pink coloration of the skin (MED or minimal erythema dose) is not the same for everyone, the exposure schedule for the first time user will depend on the skin type of the user. Sub-erythema doses of UV received at 24-hour intervals initially lead to a reduction of the erythema thresholds.Therefore, the exposure schedule and maximum recommended exposure time limits the potential for erythema and monitors the dose of radiation necessary to achieve and maintain a tan.

Determination of Skin Type

Skin types are divided into six classes, depending on skin color and race. Caucasians make up the first four skin types with skin type 1 being the most pale. Skin types 5 and 6 normally include very brown skinned or black persons.

SUB-REACTIVE SKIN TYPES USED UN CLINICAL PRACTICE

Type skin Reaction Examples

I. Tans little or not at all, always burns easily and severely, then peels People most often with fair skin, blue eyes, freckles; white unexposed skin

II. Usually burns easily and severely (painful burn); tans minimally and lightly; also peels People with fair skin; blue or hazel eyes blonde or red hair; white unexposed skin

III. Burns moderately gains average tan Average Caucasian; white unexposed skin

- **Exposure time**
- **Skin typing**

Notes

IV. Burns minimally, tans easily and above average with each exposure; exhibits IPD (immediate pigment darkening) reaction People with light or brown skin; dark brown hair, dark eyes; unexposed skin is white or light brown (Orientals, Hispanics and Mediterraneans)

V. Rarely burns, tans easily and substantially; always exhibits IPD reaction Brown skinned persons; unexposed skin is brown (East Indians, Hispanics etc.)

VI. Tans profusely and never burns; exhibits IPD reaction Persons with black skin (e.g. African & American Blacks, Australian & South Indian Aborigines)

CHAPTER 8

photosensitizers

Photosensitivity is typically defined as a chemically induced alteration in the skin that makes a person more sensitive to light. Photosensitive reactions can fluctuate from mild to chronic depending on the sensitivity of the individual.

Understanding Photosensitivity

Many medications and topical solutions can cause the skin to burn or break out in a rash when exposed to ultraviolet light. Photosensitivity is an adverse skin reaction (dermatitis) to certain substances in the presence of ultraviolet light. The substances may be encountered orally, topically, or subcutaneously, but it must be present when the skin is exposed to ultraviolet light. Photosensitizers may cause erythema, rashes, itching, scaling or inflammation and act to decrease tolerance to ultraviolet light (TUVR) and, therefore, increase sensitivity to UVR (SUVR).

There is a list of drugs and other substances known to cause photosensitivity at the end of this chapter. The items with the highest probability of causing a reaction are highlighted. A list of this type should be clearly posted in your salon and be thoroughly reviewed by the client before they sign the informed consent form. The brand names of products should be considered only as examples; they do not represent all names under which the generic product may be sold.

A document titled "Medications That Increase Sensitivity to Light: A 1990 Listing" is included in the appendix and contains almost every substance that is known to cause photosensitivity. Remind your clients to notify your tanning salon and check with their physician when they begin taking any medication while they are tanning. Clients taking psoralen drugs may become extremely photosensitive and should only tan under physician supervision. At the beginning of each new tanning season, it is a good idea to remind your clients again about the risks and symptoms of a photosensitivity reaction.

There are numerous factors that determine how a photosensitizer will react. An item which causes a severe reaction in one person may not cause but a minimal reaction in another person. Also an individual who experiences a photosensitive reaction on one occasion may not necessarily experience it again.

Everyday items such as perfumes, soaps, artificial sweeteners, tattoos and certain foods may cause photosensitivity. They often cause photodermatitis, which is characterized by inflammation of the skin when exposed to ultraviolet light. Some of the new "tingle" products can cause photodermatitis and you should advise your clients to test them on a small area before using them. If a client complains of rashes and/or itching, find out whether or not they have recently used a photosensitizing substance. If so, they should be referred to a physician or pharmacist for followup.

- **Photosensitivity**
- **Health conditions**
- **Medications**

Notes

You should exert every effort to make sure your clients thoroughly review the "Substances That May Cause Photosensitivity" list and recommend that they consult their physician prior to tanning if they are taking any of the "high probability" items. It is also wise to significantly reduce their session time temporarily if they are taking any items on the list until it can be determined whether or not it will cause the client to experience a photosensitivity reaction

AIDS / HIV (*)

Psoriasis
Albinism
Porphria
Dermatomysitis
Related Allergies
Estivalis Prurigo
Rosacea
Lichen Rubber
Solar Urticaria
Lung Tuberculosis
Sun Poisoning
Lupus Erythematosis
Varix
Melasma
Vitiligo
Photoallergic Eczema
Xeroderma Pigmentosum
Polymorphous Light Eruption

(*)Human Immunodeficiency Virus

The risk of photosensitivity and the possibility that a client may have one of the diseases listed above are but two of the many reasons why you need to routinely use a comprehensive Client Release and Informed Consent form. Never forget that you are accountable for the safety of the clients who patronize your tanning salon.

SUBSTANCES THAT MAY CAUSE PHOTOSENSITIVTY ANTIDEPRESSANTS

clomipramine (Anafranil)
isocarboxazid (Marplan)
maprotiline (Ludiomil)
mirtazapine (Remeron)
sertaline (Zoloft)

TRICYCLIC AGENTS, eg.,
Elavil, Asendin, Norpramin, Sinequan,
Tofranil, Aventyl, Vivactil, Surmontil,
venlafixine (Effexor)

ANTIHISTAMINES
astemizole (Hismanal)
cetirizine (Zytec)
cyproheptadine (Periactin)
dimenhydrinate (Dramamine)
diphenhydramine (Benadryl)
hydroxyzine (Atarax, Vistaril)
loratadine (Claritin)
terfenadine (Seldane)

ANTIMICROBIALS
azithromycin (Zithromax)
griseofulvin (Fulvicin, Grisactin)
*nalidixic acid (NegGram)
QUINOLONES, eg., Cipro, Penetrex,,
Levaquin, Floxin,
*Maxaquin, Noroxin, * Zagam
sulfasalazine (Azulfidine)
* SULFONAMIDES, eg., Gantrisin, Bactrim,
Septra
TETRACYCLINES, eg., *Declomycin,
Vibramycin, Minocin, Terramycin

ANTIPARASITICS
*bithionol (Bitin)
chloroquine (Aralen)
mefloquine (Lariam)
pyrvinium parnoate (Povan, Vanquin)
quinine

ANTIPSYCHOTICS
chlorprothixene (Taractan, Tarasan)
haloperiodol (Haldol)

* PHENOTHIAZINES, eg., Compazine,
Mellaril, Stelazine, Phenergan, Thorazine
risperidone (Risperdal)
thiothixene (Navane)

CANCER CHEMOTHERAPY
*dacarbazine (DTIC)
fluororacil (5-FU)
methotrexate (Mexate)
procarbazine (Matulane, Natulan)
vinblastine (Velban, Belbe)

CARDIOVASCULARS (see also Diuretics)
ACE INHIBITORS, eg., Capoten, Vasotec, Monapril, Accupril, Altace, Univasc
*amiodarone (Cordarone)
diltiazem (Cardizem)
disopyramide (Norpace)
losartan (Hyzaar)
lovastatin (Mevacor)
nifedipine (Procardia)
pravastin (Pravachol)
quinidine (Quinaglute)
simvastatin (Zocor)
sotalol (Betapace)

DIURETICS (see also Cardiovasculars)
acetazolamide (Diamox)
amiloride (Midamor)
furosemide (Lasix)
metolazone (Diulo, Zaroxolyn)
*THIAZIDES, eg.,
HydroDiuril, Naturetin,

*HYPOGLYCEMIC SULFONYLUREAS
acetohexamide (Dymelor)
chlorpropamide (Diabinese)
glimepiride (Amaryl)
glipzide (Glucotrol)
glyburide (Diabeta, Micronase)
tolazamide (Tolinase)
tolbutamide (Orinase)

NSAIDs
All nonsteroidal anti-inflammatory drugs, eg., ibuprofen (Motrin, Naproxen (Anaprox, Naproxyn), Orudis, Feldene, Voltaren, etc. The new NSAID agents include: etodolac (Lodine), nabumetone, (Relafen), oxaprozin (Daypro)

SUNSCREENS
*benzophenones (Arimis, Clinique)
cinnamates (Arimis, Estee Lauder)
dioxbenzone (Solbar Plus)
oxybenzone (Eclipse, Presun, Shade)
PABA (PreSun)
*PABA esters
(Block Out, Sea & Ski, Eclipse)

MISCELLANEOUS
benzocaine
benzoyl peroxide (Oxy 10)
carbamazepine (Tegretol)
chlordiazepoxide (Librium)
coal tar, eg., Tegrin, Zetar)

CONTRACEPTIVES, oral estazolam (ProSom)
*etretinate (Tegison)
felbamate (Felbatol)
gabapentin (Neurontin)
gold salts (Myochrysine, Ridaura, Solganal)
hexachlorophene (pHisoHex)
hypericum (St. John's Wort)
interferon beta-1b (Betaseron)
*isetretinoln (Accutane)
masoprocol (Actinex)
olsalazine (Dipentun)

*PERFUME OILS, eg.,
bergamot, citron, lavender, sandalwood, cedar, musk

*PSORALENS
selegiline (deprenyl, Eldepryl)
*tretinoin (Retin-A, Vitamin A Acid)
zolpidem (Ambien)

Note: items with an asterisk (*) are shown in bold because they are more likely to cause photosensitive reactions. Overall, the drugs listed above cause reactions in less than 1% of patients. Tell clients that get an unusual "sunburn" or allergic or eczematous reaction in skin areas exposed to light to let their physician or pharmacist know about the problem and to discontinue exposure to UV radiation. Photosensitivity data from Pharmacist's Letter.

Notes

Notes

CHAPTER 9

risks of overexposure

Salon owner/operator and client education is the number one factor that can and will diminish the chances of risk during the tanning process. As with any process involving UVR Exposure, it is vital to stress moderate, sensible and responsible tanning and consistent use of approved eye protection.

Risks of Overexposure

The indoor tanning industry believes that the benefits of sensible, moderate and responsible exposure to ultraviolet radiation (UVR) far outweigh the minimal and manageable risks involved.

However, overexposure, which is defined as a UVR dose sufficient to cause erythema, should be avoided. Repeated overexposure is believed to cause eye and skin injury and allergic reactions and increase the risks of developing photoaging of the skin, dryness, wrinkling, and (sometimes fatal) skin cancer. There are two categories and three main types of skin cancer:

1. Non-melanoma skin cancer

A. **Basal Cell Carcinoma** (BCC) occurs in the deepest layer of the epidermis and it is named for the skin cell in which it arises. In 1998 there were an estimated 765,000 new cases (incidence) of BCC diagnosed in the United States and 300 deaths (mortality) for an incidence to mortality ration of 2,549 to 1.

Signs- Basal cell carcinoma usually appears as a smooth, waxy or pearly bump that grows slowly and rarely spreads.

B. **Squamous Cell Carcinoma** (SCC) occurs in the upper layers of the epidermis. In 1998 there were an estimated 190,700 new cases (incidence) of SCC and 900 deaths (mortality) for an incidence to mortality ratio of 212 to 1.

Signs- Squamous cell carcinoma causes a firm, nodular or flat growth with a crusted, ulcerated or scaly surface on the face, ears, neck hands or arms.

2. Melanoma

A. **Cutaneous Malignant Melanoma** (CMM) are more rare but are aggressive and can be fatal. In 1998 there were 44,300 new cases (incidence) of CMM and 7,300 deaths (mortality) for an incidence to mortality ratio of 6.1 to 1.

Signs- Melanoma often appears asymmetrical, irregularly bordered and with a diameter larger than the head of a pencil (about 1/4 of an inch).

- **Non-melanoma**
- **Melanoma**
- **Actinic Elastosis**
- **Actinic Keratosis**
- **Polymorphous light**
- **Eruption (PLE)**
- **Sunburn**
- **Photoaging**

Notes

Medical Help Regarding Skin Cancer

If you notice a new growth, change in skin or sore that doesn't heal in 2 weeks, see your physician. Don't wait for pain; skin cancers are usually not painful. The cure rate for skin cancer is high if you receive treatment early

There are several other skin conditions that have been associated with overexposure to sunlight (ultraviolet radiation). They are:

Actinic (solar) keratosis (AK). A horny growth or callosity associated with middle-aged or elderly individuals with fair complexion. AK is a premalignant condition that may give rise to squamous cell carcinoma and is linked to repeated overexposure to sunlight.

Polymorphous light eruption (PLE). A common disorder that is characterized by a delayed abnormal response to sunlight, usually a rash or eruption, that is found on UVR-exposed areas of the skin. Women are four times more likely to experience PLE symptoms than are men. Additionally, about 5% of the public is prone to an outbreak of PLE. The typical onset is 1 to 24 hours after exposure and the condition usually resolves itself within seven to ten days.

Sunburn (Erythema)

This condition is an acute reaction in the skin following overexposure to UV radiation. UVB accounts for most sunburn reactions. Symptoms of sunburn usually appear within a few hours after exposure, bringing pain, redness, swelling and occasional blistering. Because a large area of the body is often effected after overexposure, a sunburn can cause headache, fever and fatique.

Sunburn may not slow you down too much, but a lifetime of overexposure to UV radiation can damage your skin and increase your risk for skin cancer. If you have sever sunburn or immediate complications (rash, itching or fever), contact your physician.

Photoaging

The term photoaging is a relatively new one. Utilized to describe skin changes that result from chronic UVR overexposure that mimic the physiologic aging process. Photoaged skin is typically thickened and has increased numbers and activity of skin cells. There is a degeneration of collagen fibers and an increase in elastin of the skin.

Photaged skin appears rough and thickened, with wrinkling and furrowing. It is dry to the touch and may have a yellowish color associated with brown hyperpigmentation.

CHAPTER 10

canadian guidelines for tanning salon owners, operators & users

The ultimate goal of regulatory agencies is to protect the consumer. As the indoor tanning industry grows across Canada, local, state and federal agencies are stretched to the limit in carrying out there primary objective of protecting the consumer. It is the responsibility of indoor tanning facilities to assure that mandatory regulations are being followed in day-to-day operations.

The Radiation Emitting Devices Act prohibits or restricts the sale, re-sale, lease or importation of products that are, or are likely to be, a danger to the health of the public. The RED Act states that no person shall label, package or advertise a radiation emitting device in a manner that is false, misleading or deceptive or likely to create an erroneous impression regarding its design, construction, performance, intended use, character, value, composition, merit or safety.

Under the authority of the Radiation Emitting Devices Act, the Radiation Emitting Devices Regulations (Sunlamps) were introduced in 1980 to restrict users time of exposure to sunlamps. New technology and tanning equipment designs, in addition to recent scientific studies, showed that 1980 requirements needed to be updated to ensure safer use of the new equipment. Amendments to the Radiation Emitting Devices Regulations (Tanning Equipment) came into force February 23, 2005 with their publication in the Canada Gazette, Part II. The new requirements replace the old Schedule 1 Sunlamp definition and the old requirements set out in Part XI - Sunlamps.

The Radiation Emitting Devices Regulations (Tanning Equipment) set out the technical requirements for modern tanning devices and their replacement parts for sale, resale, importation or lease in Canada as follows:

- Requires that manufacturers recommend a maximum exposure time for the user's first exposure time
- Requires that manufacturers recommend a maximum number of exposure times per year. The number of exposures needed to reach that dose depends on the characteristics of the lamps and varies according to the type of tanning equipment
- Introduces a way to calculate the exposure times that takes into account skin sensitivity and the characteristics of the lamps.
- Provides warnings to consumers related to the use of tanning equipment. The new warning signs must be permanently affixed tot he external surface of the tanning equipment and bear the information, clearly legible, and readily accessible to view by the user immediately before use.

The regulations apply only to equipment sold or resold after the amendments came in to force. They are not retroactive.

- **Radiation Emitting Devices Act (RED Act)**
- **Radiation Emitting Devices Regulations (Tanning Equipment)**
- **FPTRPC Position Statement**

Notes

Radiation Emitting Devices Act

A summary of the federal Radiation Emitting Devices Act (RED Act) is listed here for general information only. It is not legal text; for complete detailed information, please contact the Consumer and Clinical Radiation Protection Bureau at Health Canada.

Regulations

(Required in the Radiation Emitting Devices Act, section 13.)

13. (1) The Governor in Council may make regulations

(a) prescribing classes of radiation emitting devices for the purposes of this Act;

(b) prescribing standards regulating the design, construction and functioning of any prescribed class of radiation emitting devices for the purpose of protecting persons against genetic or personal injury, impairment of health or death from radiation;

(c) exempting any radiation emitting device or class of radiation emitting device from the application of all or any of the provisions of this Act or the regulations and prescribing the conditions of that exemption;

(d) respecting the labeling, packaging and advertising of radiation emitting devices, and the use of any material in the construction of any radiation emitting device, for the purpose of protecting persons against genetic or personal injury, impairment of health or death from radiation;

(e) prescribing the information that must be shown on any label or package and the manner in which that information must be shown;

(f) requiring persons who manufacture, sell, lease, import into Canada or otherwise deal with any radiation emitting device to maintain such books and records as the Governor in Council considers necessary for the proper enforcement and administration of this Act zand the regulations;

(g) prescribing the content of and the method of sending the notification required by subsection 6(1);

(h) respecting the powers and duties of inspectors and analysts and the seizure, taking away, detention, forfeiture and disposition of radiation emitting devices; and

(i) generally, for carrying out the purposes and provisions of this Act.

Sale, Lease and Importation Prohibitions

(Required in the Radiation Emitting Devices Act, section 4.)

4. Except as authorized by regulations made by the Governor in Council, no person shall, sell lease or import into Canada a radiation emitting device if the device

(a) does not comply with the standards, if any, prescribed under paragraph 13(1)(b) and applicable thereto; or

(b) creates a risk to any person of genetic or personal injury, impairment of health or death from radiation by reason of the fact that it

(i) does not perform according to the performance characteristics claimed for it,

(ii) does not accomplish its claimed purpose, or

(iii) emits radiation that is not necessary in order for it to accomplish its claimed purpose.

Deception

(Described in the Radiation Emitting Devices Act, section 5.) 5. (1) No person shall label, package or advertise a radiation emitting device in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its design, construction, performance, intended use, character, value, composition, merit of safety.

Notification

(Described in the Radiation Emitting Devices Act, section 6.)

6. (1) Where a person who is the manufacturer or importer of a radiation emitting device becomes aware, after the device has left the person's premises, of the fact that the device

(a) does not comply with the standards, if any, prescribed under paragraph 13(1)(b) and applicable thereto, or

(b) creates a risk to any person of genetic or personal injury, impairment of health or death from radiation by reason of the fact that it

(i) does not perform according to the performance characteristics claimed for it,

(ii) does not accomplish its claimed purpose, or

(iii) emits radiation that is not necessary in order for it to accomplish its claimed purpose, the person shall forthwith notify the Minister.

(2) Where the Minister determines,

(a) after being notified or

(b) through the Minister's own investigation, research, inspection or testing, that a radiation emitting device falls under paragraph

6.(1)(a) or (b), the manufacturer or importer of the device shall, if directed by the Minister, notify such persons as the Minister requires of the defect or non - compliance, by such method, giving such details and within such time period as are specified by the Minister

RADIATION EMITTING DEVICES REGULATIONS

(TANNING EQUIPMENT) (published in the Canada Gazette, Part II)

REGULATIONS AMENDING THE RADIATION EMITTING DEVICES REGULATIONS

(TANNING EQUIPMENT)

AMENDMENTS

1. Item 11 of Schedule I to the Radiation Emitting Devices Regulations (see footnote 1) is replaced by the following:

11. Tanning equipment as defined in section 1 of Part XI of Schedule II.

2. Part XI of Schedule II to the Regulations is replaced by the following:

PART XI TANNING EQUIPMENT

Interpretation

1. The following definitions apply in this Part. "double-contact medium screw lampholder" means a lampholder described in American National Standard for Lampholders for Electric Lamps, ANSI C81.62-1991, Standard Sheet 2-158-1, entitled Double-Contact Medium Screw Lampholder, published by the American National Standards Institute and approved on July 15, 1991. (douille à contact double pour vis moyenne) "erythema reference action spectrum" means the erythema action spectrum set out in section 5.2 of CIE Standard CIE S 007/E-1998 entitled Erythema Reference Action Spectrum and Standard Erythema Dose, published in 1998 by the Commission internationale de l'éclairage. (spectre d'action érythémale de référence) "exposure position" means any place, orientation or distance relative to the ultraviolet-radiating surface of tanning equipment at which it is recommended by the manufacturer that the user be exposed. (position pendant l'exposition) "exposure schedule" means a program of exposure recommended by the manufacturer of tanning equipment that takes into account exposure times, intervals between exposures and the degree of sensitivity for each skin type. (programme d'expositions) "irradiance" means radiant power incident per unit area, expressed in watts per square metre (W/m2). (éclairement énergétique) "maximum exposure time" means the longest period for continuous exposure

recommended by the manufacturer of tanning equipment. (durée maximale d'exposition) "protective eyewear" means a device that is worn by the user of tanning equipment to reduce the ultraviolet radiation reaching their eyes either directly or indirectly. (dispositif de protection des yeux) "single-contact medium screw lampholder" means a lampholder described in American National Standard for Lampholders for Electric Lamps, ANSI C81.62-1991, Standard Sheet 2-157-1, entitled Single-Contact Medium Screw Lampholder, published by the American National Standards Institute and approved on July 15, 1991. (douille à contact unique pour vis moyenne) "spectral irradiance" means the irradiance that results from radiation within an infinitesimally small wavelength range, expressed in watts per square metre per nanometre (W/m2/nm). (éclairement énergétique spectral) "spectral transmittance" means the ratio of the spectral irradiance that is transmitted through protective eyewear to the spectral irradiance that is incident and normal to the surface of the eyewear. (transmittance spectrale) "tanning equipment" means a device that (a) can be equipped with one or more ultraviolet lamps; and (b) induces skin tanning or other cosmetic effects. It does not include any such device that is used in the production of therapeutic effects for medical purposes. (appareil de bronzage) "timer" means a device that is capable of ending the emission of ultraviolet radiation from tanning equipment after a preset period. (minuterie) "ultraviolet lamp" means a device that produces ultraviolet radiation in the wavelength range from 200 nm to 400 nm and is used in tanning equipment. (lampe à rayonnements ultraviolets) "wavelength" means a wavelength as measured in air. (longueur d'onde)

Information and Labelling

General

2. The information and labels required by this Part must be provided in both official languages.

Information

3. The following information must accompany each piece of tanning equipment:

(a) instructions for its operation and safe use that include

(i) detailed directions for determining the exposure positions,

(ii) the maximum exposure time,

(iii) the minimum interval between consecutive exposures recommended by the manufacturer,

(iv) the maximum number of persons who may, at the same time, be exposed to ultraviolet radiation from the tanning equipment, as recommended by the manufacturer, and

(v) the ultraviolet radiation warning labels described in section 5;

(b) instructions for obtaining repairs and the recommended replacement components and accessories that comply with the requirements of these Regulations; and

(c) a warning to always follow the instructions that accompany the equipment so as to avoid injury.

Labelling

4. Every piece of tanning equipment must have permanently affixed to its external surface the following information, clearly legible and readily accessible to view by the user immediately before use:

(a) the manufacturer's name and address;

(b) the model designation, serial number and month and year of manufacture;

(c) detailed directions for determining the exposure positions and a warning that the use of any other position may result in overexposure;

(d) the recommended exposure time, as calculated in seconds using the formula and converted into and expressed in minutes, where X is a dose not greater than

100 J/m2 for the first exposure session for untanned skin, gradually increasing over the following sessions to a maximum of 625 J/m2 per session, is the wavelength in nanometers, is the irradiance of the tanning equipment, measured at the minimum exposure distance, and is the weighting factor determined in accordance with the erythema reference action spectrum;

(e) the minimum interval between consecutive exposures;

(f) the maximum number of minutes of exposure per year, as recommended by the manufacturer based on a maximum annual dose of 15 kJ/m2, weighted in accordance with the erythema reference action spectrum and taking into account the recommended exposure schedule;

(g) the model designation for each type of ultraviolet lamp that is to be used in the tanning equipment; and

(h) the ultraviolet radiation warning labels designed in accordance with section 5.

5. The ultraviolet radiation warning labels must

(a) be reproduced from the electronic file provided by the Minister;

(b) include in the French version of the label illustrated in Figure 1 of paragraph (e), enclosed within a black border,

(i) in the upper portion, on a white background, the signal word "Danger" in red with the hazard symbol to its right,

(ii) in the middle portion, the primary hazard statement "Rayonnements ultraviolets" in yellow on a black background, and

(iii) in the lower portion, the following message in black on a white background: "La surexposition provoque des brûlures aux yeux et à la peau. Porter le dispositif de protection des yeux. Suivre les instructions. Médicaments et cosmétiques peuvent augmenter les effets des UV. L'exposition aux UV peut avoir des effets nocifs sur la santé et contribuer, à long terme, au vieillissement prématuré et au cancer de la peau. Ces effets sont cumulatifs. Plus l'exposition régulière commence tôt, plus les risques qui y sont associés sont élevés.";

(c) include in the English version of the label illustrated in Figure 2 of paragraph (e), enclosed within a black border,

(i) in the upper portion, on a white background, the signal word "Danger" in red with the hazard symbol to its right,

(ii) in the middle portion, the primary hazard statement "Ultraviolet Radiation" in yellow on a black background, and

(iii) in the lower portion, the following message in black on a white background: "Overexposure causes skin and eye burns. Use protective eyewear. Follow instructions. Drugs and cosmetics may increase UV effects. UV exposure can be hazardous to your health and in the long term can contribute to premature skin ageing and skin cancer. UV effects are cumulative. Greater risks are associated with early and repeated exposure.";

(d) measure

(i) 75 mm high and 200 mm wide, in the case of tanning equipment used for full- or half-body exposure, and

(ii) 50 mm high and 100 mm wide, in any other case; and

(e) conform to the following diagrams:

Figure 1

Figure 2

Notes

6. (1) Subject to subsection (2), all advertising material in relation to tanning equipment must include, in a clearly legible manner, the signal word "Danger", the primary hazard statements "Ultraviolet Radiation / Rayonnements ultraviolets" and the messages set out in subparagraphs 5(b)(iii) and (c)(iii).

   (2) Advertising material that is in only English or French must include, in a clearly legible manner,

   (a) if it is only in French, the signal word "Danger", the primary hazard statement "Rayonnements ultraviolets" and the message set out in subparagraph 5(b)(iii); and

   (b) if it is only in English, the signal word "Danger", the primary hazard statement "Ultraviolet Radiation" and the message set out in subparagraph 5(c)(iii).

7. Every ultraviolet lamp must have a tag, tape or card affixed to it that sets out

   (a) its model designation; and

   (b) the warning "DANGER - Ultraviolet radiation. Follow instructions.

   Use only in fixtures equipped with a timer. / DANGER - Rayonnements ultraviolets. Suivre les instructions. À n'utiliser qu'avec un dispositif pourvu d'une minuterie."

Construction Standards
General

8. All controls, meters, lights or other indicators of a piece of tanning equipment must be readily identifiable and clearly labelled to indicate their function.

Safety Features

9. Every piece of tanning equipment must have the following safety features:

   (a) a control by which the person being exposed may easily turn off the tanning equipment at any time without disconnecting the electrical plug or removing the ultraviolet lamps; and

   (b) a timer that meets the functioning standards set out in section 16.

10. (1) Every piece of tanning equipment must have a physical barrier between the ultraviolet lamps and the user that prevents any direct physical contact between the user and the lamps.

    (2) In the case of tanning beds, the physical barrier must be constructed of plexiglass or an equivalent material.

Components and Accessories

11. Every ultraviolet lamp that is used in tanning equipment must be constructed so that it cannot be inserted and operated in a single-contact medium screw lampholder or a double-contact medium screw lampholder.

12. Every piece of tanning equipment must be accompanied by a number of sets of protective eyewear at least equal to the maximum number of persons who may, at the same time, be exposed to ultraviolet radiation from the tanning equipment, as recommended by the manufacturer of the equipment.

Functioning Standards

13. Every piece of tanning equipment, whether it has its original components or replacement components recommended by the manufacturer, must, under the conditions of use specified by the manufacturer, meet the functioning standards set out in this Part.

14. Every ultraviolet lamp that is used in tanning equipment must function so that, at any distance and in any direction from the radiation source, the irradiance within the wavelength range from 200 nm to less than 260 nm does not exceed 0.003 of the irradiance within the wavelength range from 260 nm to 320 nm.

15. Every replacement ultraviolet lamp must function so that the maximum exposure time remains within 10% of the maximum exposure time originally recommended by the manufacturer.

16. The timer must

(a) be adjustable to preset times and have a maximum timer setting not greater than the maximum exposure time recommended by the manufacturer;

(b) have a margin of error not greater than 10% of the maximum timer setting; and

(c) not automatically reset when the tanning equipment emissions have been ended by the timer.

17. Protective eyewear must have a spectral transmittance that is

(a) not more than 0.001 over the wavelength range from 200 nm to 320 nm;

(b) not more than 0.01 over the wavelength range from 320 nm to 400 nm; and

(c) sufficient over wavelengths greater than 400 nm to enable the user to read the labels and use the control specified in paragraph 9(a).

COMING INTO FORCE

3. These Regulations come into force on the day on which they are registered.

FEDERAL PROVINCIAL TERRITORIAL RADIATION PROTECTION COMMITTEE (FPTRPC)* POSITION STATEMENT ON ULTRAVIOLET RADIATION

1. There is ample scientific evidence demonstrating that excessive exposure to ultraviolet radiation (UVR), from sunlight or from artificial sources, causes acute and chronic adverse health effects. The main organs affected by UVR are the skin and the eyes. There is increasing evidence indicating that UVR also acts as a systemic immuno- suppressor.
2. Exposure to solar and artificial ultraviolet radiation is widely recognized as an important, and preventable, cause of skin cancer. There is significant scientific evidence indicating that long- term exposure to UVR also plays a role in the development of some types of cataract and other eye and skin conditions.
3. The main source of ultraviolet radiation in the environment is the sun. Artificial sources of UVR can be found in the work and recreation environments. Sunlamps and sunbeds account for significant additional UVR exposure of users.
4. The UVR dose to the population can be significantly decreased by applying simple strategies and measures to reduce sun exposure. The FPTRPC recommends that protective measures against excessive exposure to solar and artificial ultraviolet radiation, such as those contained in its overview document, be implemented by health, education, labour and recreation authorities in all provinces and territories and adopted by the general public.
5. The FPTRPC recommends that particular attention be given to the reduction of UVR exposure among the following groups:
   • Children. As much as 80 % of the lifetime UVR exposure takes place before the age of 18 years.
   • Sensitive people. People with lightly pigmented skin, hair and eyes are at higher risk of developing skin cancer.
   6. The FPTRPC recommends that tanning and the use of sunlamps and sunbeds, particularly by minors, be discouraged. The FPTRPC further recommends that provincial and territorial authorities evaluate the need for operator- based regulation of tanning salons.
   • The Federal Provincial Territorial Radiation Protection Committee comprises a forum of delegates from each of the following government organizations: Atomic Energy Control Board; Health Canada (Consumer and Clinical Radiation Protection Bureau) and provincial and territorial radiation protection programs. It was established to support federal, provincial and territorial government radiation protection agencies with their respective mandates in Canada. The mission of the committee is to advance the development and harmonization of practices and standards for radiation protection within federal, provincial and territorial jurisdictions.

Notes

Notes

CHAPTER 12

understanding eye protection

The importance of wearing approved eyewear while tanning can never be stressed enough. What value can you put on something that is so vital it is responsible for 80% of all the information we receive on a daily basis.

Understanding Eye Protection

The importance of wearing protective eyewear can never be stressed enough. The RED Act requires that tanners wear protective eyewear that block 99.9% of the UVB light and 99% of the UVA light. It is the operator's responsibility that the clients use compliant eyewear. Every sunlamp shall be accompanied by sufficient sets of protective eyewear that at least is equal to the number of persons using the tanning device.

The eyelid is too thin to be able to protect the eye from ultraviolet light penetration. Too much UVB damages the cornea, while too much UVA damages the retina. UVB has such a short wavelength that is completely absorbed by the lens (cornea of the eye. When these rays are absorbed by the cornea, they can cause corneal burns.

People who have had UVB overexposure to the eyes will experience swelling of the eye tissues, redness, soreness, and a feeling as though a handful of sand has been thrown in their eyes. Because UVA has a longer wavelength, it penetrates the cornea and focuses on the retina, where it does considerable damage at high dosage levels. Color perception is the first thing to fail with overexposure to UVA.

Retinal burns caused by UVA can produce scarring in the rods and cones of the eye which will reduce both visual acuity and sensitivity to color. Unprotected overexposure of the eyes to UVR can also lead to brunescent cataracts which cannot be removed by surgery.

Always ask your clients if they have their eye protection with them. Remind them that towels, sunglasses, cotton balls, and their eyelids do not adequately protect their eyes from damage. Eyewear must fit properly to be effective. UV light must not be able to seep in around the corners of the eyewear. The elastic strap that comes with goggles is provided to insure a tight fit. Do not let your clients risk damaging their eyes to eliminate tan lines.

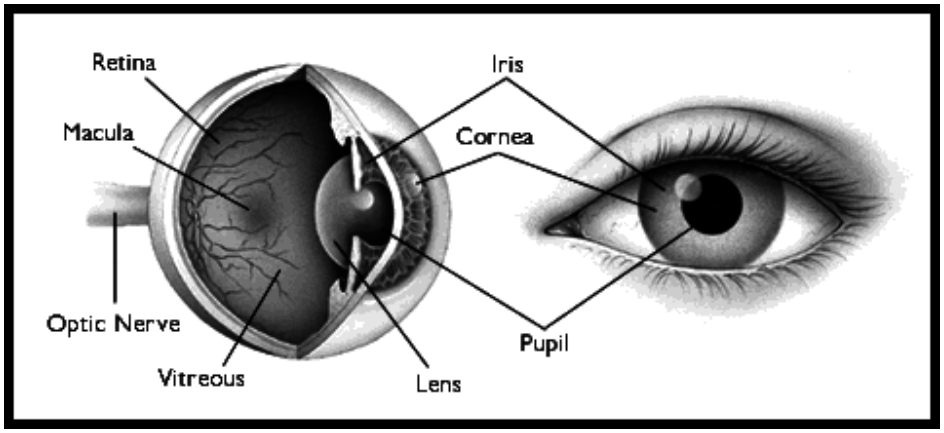
There are types of protective eyewear which fit on each eye in order to eliminate lines from the glasses bridge or elastic strap, however these should not be used in vertical booths. Never allow the use of cracked, pitted or discolored eyewear.

Your eyes are too valuable to risk damaging and you only get two of them to last a lifetime. You are, by law, responsible for your clients eye safety and you can never take that responsibility too seriously.

- **RED Act**
- **Structure and function of the eye**

Notes

Structure and Function



The eye is like a camera. The cornea protects the lens and acts as a colorless filter to refract light. The lens of the eye is flexible, changing thickness in response to the contraction and relaxation of the ciliary muscles. The iris corresponds to the aperture in a camera, controlling the amount of light that enters the eye. The retina is like the film in a camera: The images are projected onto it and thin changed into electric signals. The visual cells of the retina include rods and cones. Rods are sensitive to changes in light but not color, whereas cones perceive color. The optic nerve relays signals to the visual center of the cerebrum, giving rise to vision.

CHAPTER 13

equipment sanitation

Equipment Sanitation

Disinfecting your equipment is of utmost importance because of the rise in communicable diseases. The most widely publicized of these today is the HIV virus (AIDS). There are other forms of bacteria and other viruses to think about. Doctors claim that toilet seats, Jacuzzis and shower rooms do not play host to the HIV virus. They are not so certain about more intimate items such as toothbrushes, razors, and in a tanning facility perhaps the protective eyewear.

Considering that indoor tanning is a fairly intimate industry, a salon owner/operators need to know how to respond to inquiries about AIDS and tanning units. They also need to know more about equipment maintenance and sanitation to ensure that hygiene problems of any kind are kept at bay. Most microorganisms' die immediately upon exposure to ultraviolet light, but when left on handles and the sunbed frame, they can live for an unspecified time period.

Some infectious diseases to be aware of include: hepatitis A and B, influenza viruses and conjunctivitis (pinkeye). One thing salons often neglect to disinfect is the tanning pillow. If the vinyl on a pillow is split, bacteria and viruses can live inside the warm foam. Any split or cracked pillow should be replaced immediately, and all pillows should be disinfected after every use. Tanning salon employees must be responsible for disinfecting the entire tanning room rather than leaving it up to your customers. Your customers don't know all the cleaning/disinfecting methods and don't really want to be bothered with it anyway. In some states regulations prohibit customers from cleaning/disinfecting the tanning room.

Another critical area of sanitation is protective eyewear. Because of the risk of infectious diseases (i.e. impetigo, viral and bacterial infections, conjunctivitis etc., goggles must be cleaned, then disinfected between each use.

Remind clients that the risk of infection does not only come from other people, but it is possible to continually re-infect yourself if you have some type of virus or infection. The cleaning solution used should be designed for protective eyewear specifically. Make sure it has been mixed properly to prevent eye irritation. The solution needs to be non-toxic and not leave a film or residue behind after drying. It must clearly state on the product label that it will effectively kill all leading germs and bacteria.

The solution must not destroy the plastic in the goggles. and make the plastic fall below FDA standards. State, local and FDA regulations that apply to sanitation vary from area to area and must be complied with in all cases. Check with the regulating body(s) in your area to be sure you are in compliance.

Notes

CHAPTER 14

equipment operating procedures

Consistency is the key to any effective operating or maintenance plan. Having a written schedule or list of procedures helps us take the guesswork out of what is expected of staff.

Equipment Operating Procedures

Tanning salon owners and operators have a responsibility to educate themselves and operate under the framework of a well structured, informed and ethical procedure. The biological effects of overexposure to ultraviolet radiation are well established. The following sample list is considered to be a general and responsible list of operating procedures.

1. Utilize a detailed medical history information questionnaire. Include questions on past and present medical history, medications, past tanning history.
2. Establish your clients' proper skin type. This is very important in order to follow the proper exposure schedule.
3. Follow the recommended exposure schedule. The duration and spacing of UV exposures is very important. It is important for you to inform the client of the reasons to follow the guidelines of the exposure schedule and the inherent dangers associated with UV exposure.
4. Post in a conspicuous location warning and proper usage signs. Many states have specific guidelines regarding size, placement and wording of signage.
5. Establish an accurate record-keeping system, detailing each client's visit. Include dates, exposure time, room used and attendant.
6. Be sure the equipment in place at your facility has been manufactured in accordance with FDA regulations 21 CFR Part 1040.20.
7. Be sure that your equipment meets FDA's 21 CFR Part 1040.20 regarding timer accuracy. (FDA's policy allows for not more that a (+ or -) 10% error.)
8. Make sure your equipment has all of the required labeling required as part of FDA's 21 CFR 1040.20.
9. Be sure the lamps utilized in your equipment are compliant with the manufacturer's requirements and labeling or replacement lamps are certified to FDA standards to be equivalent to the original equipment lamp listed on the equipment labels (or listed in the Owner's Manual).
10. Follow the manufacturer's recommended replacement schedule for acrylic panels or sooner if damaged, cracked or the transmission level has deteriorated. NOTE: The use of a UV irradiance metering device can be very helpful for determining acrylic and lamp degradation. Take your initial readings when lamps are new and follow up every 100 hours. Record the date, hours and readings each time. When transmission levels drop below 70%, the acrylic panels should be replaced. Therefore a reading of 10 milliwatts with the acrylic off and a reading of less than 7 with it on, is at the replacement stage. Also tanning units equipped with higher UVB output lamps, do in fact reduce acrylic life.

- **Standard operating procedures**
- **Equipment and salon maintenance problems**
- **Maintenance programs**
  - **Daily**
  - **Weekly**
  - **Monthly**

Notes

11. Ensure your equipment has a visible and labeled emergency cut-off switch located on the tanning unit within the reach of the client without having to get out of the tanning unit. This is very important in order for the client to terminate a session.
12. Provide compliance protective eyewear for each client. Protective eyewear must be compliant with CFR 21 1040.20 (c) (4). The eyewear must fit properly, thus not allowing light to filter in through the sides of the eyewear. The purpose for the elastic strap is to provide a proper fit. Ensure that the eyewear is disinfected after ach use.
13. Be sure that your equipment meets the required electrical code requirements for your area. The following are examples of recognized electrical circuitry testing institutions, (UL) Underwriter's Laboratory, (ETL) Electrical Testing Laboratory, (CASA) Canadian Standard Association. Note: Many states and local areas have specific guidelines regarding acceptable testing.
14. Be sure that your staff never misinforms a client about the health risks associated with UV exposure. Never use the verbiage SAFE or APPROVED in any way to describe the usage of tanning equipment.

Most Common Equipment & Salon Maintenance Problems

1. Sunbed is overheating
   a. Inspect the fan filters and grills for cleanliness
   b. Check the fans to see if operating
   c. Provide adequate air conditioning and ventilation

2. Tanning unit not providing favorable tanning results
   a. Check your lamps
      • Check the lamp's hours of operation (most tanning devices have an hour meter to record total unit hours. Check owner's Manual for location.)
      • Use a UV meter to review and compare outputs
      • Check for lamp compatibility and compliance
   b. Inspect the acrylic panels
      • Check the usage hours (Refer to manufacturer's life expectancy guide
      • Visually inspect for yellowing
      • Use a UV meter to compare output
      • Clean and polish acrylic panels
   c. Clean and polish reflector systems
   d. Check incoming line voltage
      • Applies to choke start and electronic ballast only
      • Use a digital display voltmeter for testing

3. Lamps flickering and hard to start
   a. Classic low voltage problem
      • Check voltage with a digital voltmeter
      • Install a buck boost transformer

4. Burning odor in sunroom
   a. The most common source is a bad lamp socket
   b. Electrical short at a terminal
   c. Bad ballast, very common with electronic ballasts
   d. A binding fan motor
   e. An electrical short at the power plug

5. Salon is excessively warm
   a. All salons require additional air conditioning
   b. A 24-26 lamp bed requires 3/4 ton a/c per bed
   c. A 30-40 lamp bed will require 1 + ton a/c per bed

d. Booths should be vented to the outside
e. 3.90 times total wattage equals BTU output
f. 1 Ton A/C = 12,000 BTU
g. Leaving the front or back door open doesn't work
- Allows warm damp air in
- Bugs are drawn to light
- Incredible liability problems

6. Timer not accurate and/or inoperable
a. Test with an accurate watch and record timer test results in minutes and seconds in your maintenance log
b. Replace immediately any timer that is inaccurate by more than 10%
c. Should always have a remote timer as a backup

7. Top of sunbed will not stay up
a. Adjust brake system if applicable
b. Adjust gas shock mounting position if applicable
c. Adjust spring mounting points on spring lift beds
d. Insure the correct weight value on gas shock
e. Replace gas shocks or springs where applicable
f. Incorrect acrylic panel on top
- The top acrylic is usually thinner, thus lighter
- Rotating the acrylics is not recommended

NOTE: Do not leave sunbeds in the exposure (down) position between clients uses. This wears out the shocks at least twice as fast.

8. Not getting the advertised lamp life as expected
a. Start a lamp rotation system
b. Rotate at 50%-60% of the manufacturer's suggest life
c. If a lamp is advertised at 1000 hours
- Replace the top with new lamps at 500-600 hours
- Move the top lamps to the bottom
- Document the lamp change
- The net result is a true 1000-1200 hours of life

d. Also invoke more frequent cleaning of sunbed
e. Check and replace acrylics if degraded

9. Acrylic panels crack prematurely
a. Always ask for acrylic that has been "annealed"
b. Go to the next thickness of acrylic if on bottom
c. Install extra acrylic supports

Daily

· Turn the tanning bed on and make sure the lamps are lit.
· Run the unit for three minutes. Check for unusual noises and smell the bed for any electrical problems or burning.
· Check the vents for any clogs caused by dust or hair.
· Dust the outside of the unit.
· After each use of the tanning unit, clean and disinfect the acrylic shield, top and bottom, and any other areas of the unit that may have come in contact with the client with an approved acrylic cleaner and disinfectant.

Notes

Notes

Weekly

· Remove the acrylic shields, top and bottom, clean and dust both sides of each.
· Wipe the reflectors and lamps with a clean, damp cloth.
· Wipe the entire machine with an approved disinfectant.
· Vacuum the fan inlets and screen as well as the ends of the beds where the air flow begins.
· Vacuum around the starters if your unit has them also vacuum around the sockets where the lamps aremounted and along the sides of the lamps.

Monthly

· Remove the inspection plates and vacuum the area.
· Vacuum around the ballasts.
· Vacuum the reflector channels, air-flow inlets and fan mounts.
· Remove and wipe the lamps with a clean, dap cloth.
· Clean the reflectors while the lamps are out.

Clean both sides of the acrylic with an approved cleanser and disinfectant.

CHAPTER 15

tanning salon professionalism

To be a professional is to bee an expert in your field both ethically and knowledgably.

Tanning Salon Professionalis

Professionalism is defined as the standing, practice, or methods of a professional, as distinguished from an amateur. A professional is defined as a person who is expert at his or her work. Finally, a profession is defined as an occupation requiring advanced education and experience.

As the indoor tanning industry moves toward becoming more professional, in order to be considered a true profession, it is necessary that all of us privileged to work in the indoor tanning industry seek to advance our knowledge of the "science of tanning" and in the professional operation of a fully compliant tanning salon.

Customer Rapport

To a customer, walking in and seeing a familiar smiling face behind the counter is one of the things that helps them to feel comfortable when making a buying decision. Building rapport (a harmonious relationship) with the customer will help them understand that you are sincere and are leading them in the right direction.

It is important to take the time to make a client feel comfortable about the decision they have made to tan at your facility. Make sure to initiate a conversation when they come in to tan, even though they may not need to purchase anything. Start off by remembering their name, shaking their hand, and of course greeting them with a smile. As you get to know your clients you will remember things you can ask them about their family, job, pet or anything else they may have told you.

When a client is tanning for a special occasion, like a vacation or wedding, always ask detailed questions about the status of the event and wish the customer good luck and invite them back to continue tanning after the event. Tell them to make sure that they bring photographs of the event to share with you. If the client is vacationing in a tropical area, be sure to warn them about the intensity of sunlight in the tropics and suggest that they consider purchasing appropriate sunscreen products to take with them.

Customer Complaints

The old adage "the customer is always right" is particularly true in the indoor tanning industry when it comes to handling complaints because tanning is a business built primarily on referrals from customers. It is much easier to keep a customer that currently patronizes you than it is to try to regain one that has left. The majority of customer complaints, even those that may start off with the client being very irate, can usually be handled in a calm, mature manner. A good strategy is to "kill them with kindness" when handling customer complaints.

- **Customer rapport**
- **Customer complaints**
- **Customer service**

Notes

It is important than employee never argue with a customer and it is recommended that they listen carefully to the customer in order to determine the reasons that they are unhappy. When the employee does not have the authority to resolve the problem, the customer should be politely informed that the owner or manager must be informed of the situation.

Consider working up a list of past complaints and develop methods for handling them should they happen again. New employees can practice "role playing" exercises so that they will feel better prepared regarding how to handle certain complaints that may arise.

There are situations in the tanning salon where the customer is not always right and they involve issues relating to their safety. For instance, if a client states that they do not intend to wear protective eyewear while tanning, they must not be allowed to tan. Also, a client must never be allowed to tan longer than the MTI (maximum timer interval) posted on the tanning unit for any reason.

Anything that would adversely impact the safety of the client is the responsibility of the tanning salon, not the client and, therefore, in these situations the client is not always right.

Customer Service

Your philosophy of customer service should be to provide necessary information to your clients in the most friendly and professional manner that is possible. They should be educated about your equipment, tanning packages, lotions and their phototype/subtype. In addition, each new client should sign a Client Release and Informed Consent form in order to make sure that you have properly covered the risks of indoor tanning.

In addition, you want to give your clients as much information about the "science of tanning" as possible without overloading them with more information than they are able to comprehend. Each client has a different educational background and, therefore, a different threshold of understanding. It is important for you to stay up-to-date with the latest information so that you can deal with all levels of clients. It is important to understand that if a question arises and you are not sure of the answer that you tell the client that you will find out the answer for them. This is a much more professional approach than "guessing" and possibly providing the client with the wrong answer.

It is the responsibility of all employees to work within the company guidelines of professionalism at all times. Should there be a situation where an employee of a tanning salon feels that they have been instructed to operate in a manner that is against federal and state regulations and not in the best interests of the client, it is incumbent upon the employee to bring the matter to the attention of the manager or owner for resolution.

Finally, the client deserves an appropriate and professional level of attention from the time they enter your facility until the time that they have completed their tanning session and leave. Saying "goodbye" when they leave is just as important as saying "hello" when they arrive!

Cleanliness Standards

The highest standards of cleanliness should be maintained at all times. Your clients should feel comfortable that they are tanning in a clean and properly sanitized environment. This pertains not only to the tanning equipment they will be using but also to the entire salon. It is important to make the cleanliness of the facility a major factor in the training of new employees. The owner or manager must set the guidelines for the cleanliness of the salon and routinely check to make sure that they are being adhered to.

A good "pop quiz about cleaning" is to ask yourself if the salon is ready for an FDA or state

inspection at all times. If every aspect of your tanning salon is ready for the inspector, then you are most certainly ready for your valued clients. Your customers deserve the very best you can offer and they should never be given anything less.

It may be helpful to create "checklists" to help remind employees of tasks that are to be completed by the end of a shift. Put on the list the mandatory things that must be done daily as well as less critical tasks that can be scheduled during the slower parts of the day if time allows.

Any employee who wants to be considered as a true indoor tanning industry professional must act responsibly and pro-actively when it comes to maintaining a clean and inviting tanning salon environment.

Notes