

### Skin rejuvenation: Anti-ageing treatments

After you are 30 years old the skin loses both elastin and collagen fibres, the 2 main fibres responsible for the skin's structure, resulting in the skin losing its elasticity and becoming thinner. Wrinkles form both with aging and also from movement of facial muscles. As well as this melanocytes, the cells responsible for the skin's pigmentation, become unevenly distributed leading to the formation of pigmentation spots. In Australia damage by the sun, or photo-aging, is also a major cause of facial lines and wrinkles, as well as skin cancers.

Anti-aging treatments aim at preventing and reversing these changes.

### Maintaining good skin – general health advice

The following lifestyle changes have been shown to be effective in producing better quality skin:

Drink plenty of water  
Eat plenty of rooted fruits and vegetables  
Minimise red meat consumption  
Minimise alcohol ingestion  
Stop smoking  
Exercise regularly  
Ensure you sleep well

Apart from improving these lifestyle factors you should also:

- 1) Avoid sun exposure
- 2) Wear protective clothing when outside
- 3) Use sunscreens – these should provide protection against **both** UVA and UVB.
- 4) Have a regular daily skin care program which contains:
  - Skin exfoliants and stimulating agents, such as **alpha hydroxy acids (AHAs)** and **Retinol** (vitamin A)
  - Topical antioxidants which help your skin both protect and repair itself eg topical **vitamin C, Copper** and **Manganese** (these help protect against the damage caused by the sun and other factors eg brown pigment spots)
- 5) Consider using/having **DermaRoller** treatments to increase the effectiveness of your skin care regime



### The skin care program

Skin care programs involving the above agents often take 3-6 months to achieve the final maximum effect possible – the idea is to be on the highest concentration of product that your skin will tolerate. The treatment needs to be continued for any improvement to be maintained, and it is essential to prevent further damage by changing lifestyle factors, especially sun avoidance.



### Information on the skin care products

Be careful in the selection of skin care products. Many of the creams or gels marketed as containing many of these substances that are available over the counter have only very small amounts of the active ingredient, and may not have the beneficial effects produced by these substances in a more concentrated form. It may be possible to buy a cream or gel containing a combination of these compounds, but this should not be at the expense of having the compounds being too weak to be effective.

### Retinol (Vitamin A)

Retinol is a compound related to vitamin A, which reverses some of the effects of aging, and has been safely used now for 35 years. It significantly increases the amount of collagen in the skin, and improves fine wrinkles and helps to lighten brown spots.

It may be used in combination with alpha hydroxy acids, and the combination is usually well tolerated and may have an additional benefit. It should also be combined with a lightening agent (see below) for reduction of skin pigmentation (brown spots) if this is your main concern. If therapy is stopped then the skin returns to pretreatment condition 2 months later, and therefore continued use is required.

For those who are sensitive to taking Retinol, an alpha hydroxy acid may be substituted.

### Alpha hydroxy acids (AHAs)

Alpha hydroxyl acids (AHAs) enhance exfoliation, increasing cell turnover, smoothing the skin and helping to reduce pigmentation spots. A desirable pH for a therapeutic preparation is between 2.8 and 4.8 (pH about 3.0 produces the most effective epidermal renewal). A fully neutralised solution will produce little cutaneous activity.

Note that the concentration of AHAs in cosmetics cannot exceed 10% and the pH of the cosmetic must be 3.5 or higher – these products only offer mild improvement for photodamage. Doctor prescribed formulations contain medium strength concentrations are more effective, and high strength concentrations are used in peels.



Note that both *Retinol (tretinoin)* and *alpha hydroxy acids* increase sun sensitivity, and therefore sun avoidance and the use of a broad spectrum sunscreen is essential.

#### **Topical Antioxidants - vitamin C, Copper & Manganese**

These antioxidants help to protect against the ultraviolet rays of the sun by fighting oxygen free radicals in the skin (preventing collagen breakdown, aging, and helping to protect against the development of skin cancer). They also protect against damage from free radical formation from environmental pollutants, smoking, and alcohol.

Vitamin C stimulates collagen production, and diminishes the appearance of fine lines and wrinkles, and has been used since the mid 90s. When applied on the skin Vitamin C is most effective as a 15-20% solution (a lot of over the counter creams only contain 1%).

Copper is essential in skin health, wound healing and repair. Copper peptide complexes stimulates collagen production to a greater extent than either vitamin A or C, and helps the body prevent and repair the changes of age-related skin changes ie wrinkles. It is also useful to help the skin repair itself after laser treatments.

Manganese peptide complexes also have an antioxidant effect, improving the signs of sun damage such as pigmentation spots and skin surface texture.

#### **Lightening agents**

Skin pigmentation is caused by melanin, and sun exposure stimulates the production of melanin by the skin, causing both a darkening in colour and the appearance of darker "age" spots. There are a number of treatments which decrease the production of melanin by stopping the enzyme tyrosinase, which produces melanin, with the commonest being hydroquinone, kinerase, and azelaic acid.



### Sunscreen/sunblock

A lot commercially available sunscreens only give protection against UVB, which causes sunburn, but not against UVA, which causes many of the changes of photoaging and skin cancer.

A sunscreen should contain protection against both UVA and UVB, and be a SPF (sun protection factor) of 15 or greater. The SPF factor is only calculated on the effectiveness of the sunscreen against UVB.

There are some newer sunscreens containing micronised zinc oxide (which is the broadest spectrum sunscreen available, and protects against both UVA and UVB) which are colourless, rather than the old fashioned opaque versions. As long as the sunscreen contains 5-7% zinc oxide it will give you good protection.

### Increasing the effectiveness of your skin care regime with the Dermaroller

Only about 0.3% of cosmeceutical products such as Vitamin A are absorbed through the surface of your skin. The Dermaroller increases the penetration by up to 200 times!

By using the Dermaroller the effectiveness of your normal skin care regime will increase significantly, giving additional benefit from products such as Vitamin A and antioxidants such as Vitamin C, Copper and Manganese.

Collagen Induction Therapy (CIT) with the Dermaroller uses a roller with minute needles to penetrate the skin, stimulating new collagen formation and improving skin texture.

### Starting new skin care products

Any new product should be tested by putting a small area eg postage stamp on the skin overnight, and watching to see if irritation occurs. When starting a combination of products, only one should be introduced at a time. Many of medical grade skin care products are in a highly concentrated and refined form, which only need a small amount to be effective eg pea-sized dab for the entire face and neck.



After starting Vitamin A some redness or light peeling often starts within several days of initiating treatment, but the skin "hardens" and the reaction decreases with continued use, but this phase may last a few weeks. The hardening effect is lost when the application is stopped. Application should be 20-30 minutes after facial cleansing to avoid irritation. With Vitamin A start application slowly will minimise the chance of this reaction eg every third day for 10 days, then every second day for 10 day, then use every day.

Topical vitamin C produces a mild tingling effect when applied to the skin, which is normal.

### Instructions if skin irritation occurs

If significant irritation occurs, stop all soaps, all other applications to the skin, red wine, spices, tea and coffee, sun exposure or being in a warm environment. Use Cosmedix Rescue (and hydrocortisone if reaction severe) three times a day, and wait 2-3 days before restarting or starting another cream.

