

## A Bio-Oil® guide to Scars





The material in this brochure has been drawn from various sources and collated by Bio-Oil to provide one user-friendly reference on scars.

## Contents

What is a scar?	2
Why do we scar?	3
What are the stages of scar formation?	4
Are all scars the same?	6
How common are scars?	9
How do scars affect us?	10
What can we do about scars?	11

### What is a scar?

A scar is a growth of collagen that forms as a natural part of the healing process following an injury to the skin.

While a scar will go through numerous changes as it matures, it will never attain the normal strength of the surrounding skin. Hair follicles and sweat glands at the scar site will not grow back.

### Why do we scar?

When an injury to the skin occurs, the body acts as quickly as possible to repair the affected area, devoting its energy and resources to healing quickly rather than perfectly. As a result, there is an overproduction of collagen at the site of the wound which leads to scarring.

## How do scars form?

Depending on the size and depth of the wound, scar formation can take up to two years and consists of the following three stages:



Stage one: When the skin has been wounded, blood rushes to the site of the wound to form clots, thereby sealing off damaged vessels and reducing blood loss. Once this has occurred, cells in the blood release chemicals which cleanse the wound and prepare it for healing. This stage lasts a few days.



Stage two: The healing process begins as collagen and ground substances, the bricks and mortar of scar tissue, are laid down. In this stage, which lasts between two days and three weeks, new capillaries are formed and the outer layer of the skin is healed.



Stage three: During this stage, collagen continues to build and fill in the area creating the scar, and the scar is remodelled into an organised matrix. While the scar covers and protects the site of the wound, it can easily be disrupted. In the months that follow, the healed wound will regain its strength, usually up to 70–80% of the original strength of the skin.

## Are all scars the same?

Due to the fact that everyone heals differently, the final appearance of a scar will vary from individual to individual. Factors like skin type, scar location, type of injury, age and even nutritional status will play a role in determining what a scar will look like.

Scar types can be divided roughly into the following categories:

### COMMON SCARS

These scars appear inflamed and dark in the beginning, but become flatter and paler over time resulting in a fine line scar.



### ATROPHIC SCARS

These scars cause depressions or indentations below the surface of the skin. Examples are scars from acne or chickenpox.

### HYPERTROPHIC SCARS

Hypertrophic scars are raised above the surface of the skin. They are characterised by excessive amounts of collagen, but always remain within the boundaries of the wound.

### KELOID SCARS

Keloids are raised scars that spread beyond the boundaries of the wound. They continue to grow over time and usually recur after excision.



Contractures

### SCAR CONTRACTURES

Scar contractures often develop when scars cross joints or skin creases at right angles. They often occur following burn injuries.



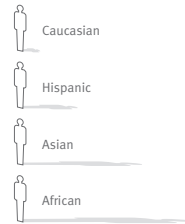
Stretch marks

### STRETCH MARKS (STRIAE)

Stretch marks occur in periods of rapid weight gain (teenage growth spurts, pregnancy) when the body expands faster than the skin covering it, causing internal tears in the skin tissue. When these tears heal, they form scars that are known as stretch marks.

### How common are scars?

On average, people have three scars on their body.



It is estimated that, of all new scars formed, most can be attributed to everyday cuts, grazes and minor burns (34%). The remaining causes of new scars include hospital surgery (20%), trauma (15%), elective surgery (15%), mole removal (6%) and cosmetic surgery (10%).

When it comes to problem scars, compared to Caucasian skin, Hispanic skin suffers 5 times as much, Asian skin 10 times as much and African skin 20 times as much.

## How do scars affect us?

In an image-conscious society that places a large importance on how we look, scars can cause some people to experience a loss of confidence and self-esteem. These psychological effects often vary depending on the location of the scar, how it occurred, as well as the age and sex of the person.

Studies show that 65% of women and 35% of men are self-conscious about their scars.



In addition to the psychological effects of scarring, in some instances scars can cause physical discomfort, including pain, itchiness and tenderness. This is particularly relevant if the scar occurs across a joint, where it can limit mobility.

## What can we do about scars?

Scars usually fade over time, and while there is no product that can make a scar disappear entirely, there are various solutions which offer an opportunity to improve the scar's appearance.

### SURGICAL REVISION AND LASER THERAPY

These are methods used to alter or remodel scars to improve their appearance.

### INJECTABLE SUBSTANCES

Collagen and other soft tissue fillers are used to elevate sunken scars while steroid injections can flatten and soften raised scars.



#### CRYOTHERAPY

This method freezes the upper layer of the scar to remove the excess scar tissue.

#### RADIOTHERAPY

Used in severe cases to reduce hypertrophic and keloid scars post surgery.

#### DERMABRASION

This method involves the removal of the top layers of the skin.

#### PRESSURE BANDAGES

Are most often used for burn scars and can flatten and soften scars.

#### TOPICAL GELS, CREAMS, OINTMENTS AND OILS

Generally the cheapest means of scar improvement.

References:

- 1 A Bayat, DA McGrouther, MWJ Ferguson, *Skin Scarring*, British Medical Journal 2003 326:88-92
- 2 Richard Shih, et al *Review of OTC Topical Scar Treatment Products*. PRS Journal Volume 119, Number 3, American Society of Plastic Surgeons
- 3 S Rahban, W Garner, *Fibroproliferative Scars*, Clin Plastic Surg 30 (2003) 77-89.
- 4 CMI Chicago 5/12/2005 *Skin care: stretch mark/scar therapy trends: Minimize scars by Jane E Ellen* 13 May 2003, Special to the Daily Press 2004.
- 5 [www.scarinfo.org](http://www.scarinfo.org)
- 6 [www.aad.org](http://www.aad.org) – American Academy of Dermatology 2006

