

[Another eBookWholesaler Publication](#)



# **The Complete Guide to Acne; Prevention, Treatment and Remedies.**

**By Pamela Archer**

Copyright 2006 All rights reserved

**Proudly brought to you by**

**[Lewis Philips signature books](#)**

[Email](#)

## ***Recommended Resources***

- [Web Site Hosting Service](#)
- [Internet Marketing](#)
- [Affiliate Program](#)

## Please Read This **FIRST**

### Terms of Use

This Electronic book is Copyright © 2006. All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from the copyright holder(s).

You do not have any right to distribute any part of this ebook in any way at all. Members of eBookwholesaler are the sole distributors and must abide by all the terms at

<http://www.ebookwholesaler.net/terms.php>

### Disclaimer

This information is not presented by a medical practitioner. It is a lay person's overview for informational purposes only. The content is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health care provider with any questions you may have regarding a medical condition.

**Never disregard professional medical advice or delay in seeking it.**

The advice contained in this material might not be suitable for everyone. The author neither implies nor intends any guarantee of accuracy.

Research is changing theories and practices in this area constantly.

The author, publisher and distributors never give legal, accounting, medical or any other type of professional advice. All readers must always seek those services from competent professionals that can review their patients own particular circumstances.

The author, publisher and distributors particularly disclaim any liability, loss, or risk taken by individuals who directly or indirectly act on the information contained herein. All readers must accept full responsibility for their use of this material.

## Contents

<b>Please Read This FIRST .....</b>	<b>2</b>
<b>Terms of Use.....</b>	<b>2</b>
<b>Disclaimer.....</b>	<b>2</b>
<b>1. Acne - An Overview.....</b>	<b>9</b>
<b>2. What is Acne? .....</b>	<b>11</b>
<b>Definition of Acne .....</b>	<b>12</b>
<b>3. Who Develops Acne? .....</b>	<b>13</b>
<b>4. What is the Real Cause of Acne? .....</b>	<b>14</b>
<i>The Hair Follicle and the Sebaceous Glands.....</i>	<i>14</i>
<b>Sebum .....</b>	<b>14</b>
<i>Hormonal control of sebum.....</i>	<i>15</i>
<i>Role of Sebum .....</i>	<i>15</i>
<b>Why Do We Get Acne? .....</b>	<b>16</b>
<b>5. Types of Acne Lesions .....</b>	<b>18</b>
<b>6. Scars and Stripes - Scarring in Acne .....</b>	<b>20</b>
<b>Definition .....</b>	<b>20</b>
<b>Types of Scars .....</b>	<b>21</b>
<i>I. Color changes due to inflammatory lesions .....</i>	<i>21</i>
<i>Treatment for post- inflammatory pigmentation.....</i>	<i>21</i>
<b>II. Physical disfigurements in the form of pits or lumps .....</b>	<b>22</b>
<i>Treatment Options .....</i>	<i>22</i>
<b>7. Seborrhea Due to Hormonal Changes .....</b>	<b>24</b>
<b>Causes of High Levels of Androgens in Women .....</b>	<b>24</b>
<b>8. Factors Which Aggravate Acne.....</b>	<b>26</b>
<b>Acne Lesions.....</b>	<b>27</b>

<i>Inflammatory acne</i> .....	27
<i>Non-Inflammatory acne</i> .....	27
<b>9. Acne Vulgaris</b> .....	<b>29</b>
Pathophysiology of Acne vulgaris .....	29
Diagnosis.....	30
Management of Acne Vulgaris .....	31
<i>Topical treatments</i> .....	31
<i>Systemic treatments</i> .....	32
Surgical Options .....	33
Prognosis .....	34
<i>Precaution for Patients</i> .....	34
<b>10. Acne Conglobata or Cystic Acne</b> .....	<b>35</b>
Patho-physiology of Acne conglobata .....	35
<i>Characteristics</i> .....	35
<i>Treatment</i> .....	36
<b>11. Severe Acne: Acne Fulminans or Acne Maligna</b> .....	<b>37</b>
Features of Acne fulminans .....	37
<i>Pathophysiology</i> .....	38
<i>Medical Care</i> .....	39
<i>Prognosis</i> .....	39
Management.....	39
<b>12. Comedonal Acne</b> .....	<b>41</b>
The Way Out.....	41
<b>13. Acne Keloidalis Nuchae</b> .....	<b>43</b>
Treatment.....	43
<b>14. Acne in Pregnancy</b> .....	<b>44</b>
<i>Medicines to be avoided during Pregnancy</i> .....	44
<i>Treatment of Acne during Pregnancy</i> .....	44
<b>15. Acne Excorié</b> .....	<b>45</b>
Treatment.....	45

<b>16. Newborn or Infantile Acne .....</b>	<b>46</b>
Infantile Acne.....	46
<b>17. Acne Due to Medicines .....</b>	<b>48</b>
Hormonal Medicines .....	48
Other Types of Medicines .....	48
Precautions .....	49
<b>18. How to Diagnosis Acne.....</b>	<b>50</b>
Prognosis .....	51
<b>19. Ten Tips to Avoid Acne.....</b>	<b>53</b>
<b>20. Useful Tips to Reduce Acne Naturally.....</b>	<b>55</b>
<b>21. Tips to Prevent Worsening of Acne .....</b>	<b>56</b>
<b>22. Step One: - Keeping Your Face Clean.....</b>	<b>58</b>
<b>23. Step Two: - Using Acne Face Creams.....</b>	<b>59</b>
<b>24. Step Three: - Relieving Your Constipation .....</b>	<b>60</b>
<b>25. Step Four: - Making Changes to Your Diet .....</b>	<b>61</b>
<b>26. Step Five: - Foods to Avoid.....</b>	<b>62</b>
<b>27. Step Six: - Using Essential Fatty Acid .....</b>	<b>63</b>
<b>28. Step Seven: - Using Fish Oil.....</b>	<b>64</b>
<b>29. Step Eight: - Juices You Should Be Drinking .....</b>	<b>65</b>
<b>30. Step Nine: - Fruits You Should Eat .....</b>	<b>66</b>
<b>31. Step Ten: - Vegetables to Eat.....</b>	<b>67</b>

<b>32. Step Eleven: - Eating Protein-Rich Food .....</b>	<b>69</b>
<b>33. Step Twelve: - The Vitamins You Should Take.....</b>	<b>70</b>
<b>34. Step Thirteen: – Herbal Mixtures.....</b>	<b>71</b>
<b>35. Step Fourteen: – Changing Your Thinking .....</b>	<b>72</b>
<b>36. The Psychosocial Impact of Acne.....</b>	<b>73</b>
<b>37. Myths and Misinformation about Acne.....</b>	<b>75</b>
<b>38. When to Seek Professional Help.....</b>	<b>77</b>
<b>39. Tips for Clear, Beautiful Skin .....</b>	<b>79</b>
<b>40. Acne Treatment .....</b>	<b>81</b>
<b>41. Treatment of Mild Acne.....</b>	<b>82</b>
1. Benzoyl peroxide.....	82
<i>Possible problems with benzoyl peroxide products: .....</i>	<i>82</i>
2. Azelaic acid.....	83
3. Topical Retinoids .....	83
<b>42. Treatment of Moderate Acne .....</b>	<b>84</b>
<b>43. Treatment of Severe Acne.....</b>	<b>87</b>
1. Isotretinoin .....	87
<i>Properties of isotretinoin .....</i>	<i>88</i>
<i>Side Effects and Precautions.....</i>	<i>88</i>
Monitoring the Patients.....	89
2. Accutane .....	89
3. Corticosteroids .....	90
4. Surgery .....	90
<b>44. The Powerful Effects of Accutane -The Risky Miracle Drug.....</b>	<b>92</b>
What is Accutane? .....	92

<b>1. Risks during Pregnancy and Lactation.....</b>	<b>92</b>
<b>2. Psychiatric Distress.....</b>	<b>93</b>
<b>3. Abdominal Problems .....</b>	<b>94</b>
<b>4. Effects on the Bones and Muscles.....</b>	<b>95</b>
<b>5. Brain Problems .....</b>	<b>95</b>
<b>6. Problems with Vision.....</b>	<b>96</b>
<b>7. Effects on Hearing .....</b>	<b>96</b>
<b>8. Effects on Lipid Levels .....</b>	<b>96</b>
<b>9. Allergies .....</b>	<b>96</b>
<b>10. Blood Sugar Problems.....</b>	<b>97</b>
<b>Symptoms of other Serious Problems .....</b>	<b>97</b>
<i>Some less Serious Side-Effects .....</i>	<i>98</i>
<b>Precautions for Patients .....</b>	<b>99</b>
<b>The Treatment Procedure.....</b>	<b>99</b>
<b>45. Budget Friendly Home Remedies for Acne.....</b>	<b>101</b>



## Part-I: Introduction

### 1. Acne - An Overview

Acne is inflammation of the skin, due to blockage of your skin's pores. Blockage occurs due to an excessive secretion from the skin's oil glands and accumulated, dead skin cells. This combination encourages the skin bacterium **Propionibacterium** which multiplies and causes increased skin inflammation. Acne comes from the Greek word, **ἀκμή or acme**, meaning skin eruption. **Common acne** is **acne vulgaris**.

Acne is a problem for most adolescents, although it can occur at any age. Acne cuts across all barriers of race, age, culture and gender. Acne most often occurs on the face but can occur on other areas too. You can often find acne on the chest, back, shoulders and upper arms.

There are many different forms of acne, including blackheads, whiteheads and swollen nodules or pimples, showing as reddish bumps, boil- like swellings, or pus-filled bumps. Sometimes, acne occurs singly, without any additional cysts.

**Hormonal disturbances during the teenage years are the main cause of acne.** Acne usually vanishes once you reach your twenties. For some, the misery continues beyond the teen years, in the form of scars. Acne can also occur because of your genetic make-up. Acne can lower your self-esteem, as you tend to feel inferior due to your physical appearance.

It is impossible to avoid acne, although you can try to keep tabs on it and prevent major eruptions. Simple remedies and solutions abound, such as:

- eating a healthy diet,
- using water-based cosmetics,
- washing your face with non-irritating soap,

- avoid touching acne or other facial eruptions with your hands and spreading infection further.

These simple methods may help you to keep a check on the further spread of acne.

Regular treatments can provide relief from acne. Use acne cream or ice to lessen the inflammation due to acne. Most medications, creams, and acne liquids contain benzyl peroxide. This kills the bacteria present in acne and dries up your skin. Simple acne can be relieved with many home remedies, but you need to consult a dermatologist for severe acne.

## Part-II: Understanding Acne

### 2. What is Acne?

Pimples! We have all experienced those nasty, painful blots on our faces as teenagers, varying in size from the ultra-small and almost unnoticeable, to the big, attention-grabbing ones!

Pimples appear at all the wrong places, at equally wrong times. They invariably appear at the tip of our nose the night of the first date or the school prom. However, the outbreak of pimples is episodic, not continual. They merely require a few years of endurance and a lot of patience before disappearing altogether from our lives, remaining just an interesting part of the memories of our adolescent years.

However, there is another skin condition which is similar in some ways to that disorder, but more severe in its appearance. It occurs on various parts of the body besides the face, and is much more difficult to cure. It can appear at any time during a person's life, although the disorder most often begins in adolescence. This dermatological condition is called **Acne**.

This book will, hopefully, give you the answers to all your questions, including:

- What is acne?
- What are the various forms of acne?
- How can you treat each of these disorders?
- What causes acne?

It will focus especially on the most severe forms of acne and the symptoms, and provide a comprehensive guide to the various treatment options available.

Whether you are an anxious teenager, a forty-year old patient or a worried parent, the in-depth information on the condition will reduce your fears and help you negotiate your way through the worries that come with acne.

## **Definition of Acne**

Acne is one of the most common skin disorders worldwide. It occurs on almost 45% teenagers and adults, and is seen in a smaller percentage of young children. Pimples, blackheads, whiteheads and lesions appear in the various oil-producing areas of the body; the face, back, chest, neck, shoulders and upper arms.

The main reason for this is an over-production of oil by the sebaceous glands in the skin. This causes the oil to combine with dead skin cells, which clogs the pores in that area. Scientists are focusing on the roles played by hormones, bacteria and genes that can increase the risk of developing acne.

Acne exists in several forms, including *acne vulgaris*, *acne fulminans* and *acne conglobata*. Each differs in its cause, severity and prognosis. Some forms cannot be successfully treated but most acne is completely curable.

With the wide range of treatment options available today, ranging from topical ointments to surgical procedures, the best treatment depends upon the type and severity of the condition. Non-prescription drugs, such as topical medications, may cure some forms but oral medications or even surgery may be required for others.

Patients with moderate to severe acne must consult with a qualified doctor or a dermatologist who will help them to decide the most suitable treatment combinations for them.

### **3. Who Develops Acne?**

Acne affects millions of people all over the world. The statistical distribution of the condition, by age and gender is:

- 1 85% of adolescents and pre-adolescents are affected by acne.
- 2 The condition occurs on some children under 10 years of age.
- 3 Boys are more likely to have a severe form of the disease than teenage girls.
- 4 About 12% of women between 22 and 45 years of age are affected by acne.
- 5 About 3% of all men are affected during their adult life.
- 6 Women are more prone to acne during adulthood because of premenstrual hormonal changes as well as consistent use of cosmetics.
- 7 The incidences of acne reduce sharply after the age of 45.

## 4. What is the Real Cause of Acne?

For most people, acne begins during adolescence. One of the main reasons is the excessive production of sebum due to the higher levels of sex hormones in the body during puberty.

To understand the various factors which cause acne, we need a brief insight into the anatomy of the skin surface; the hair follicles, as well as the production and role of sebum.

Here is some background before we get to the actual causes.

### *The Hair Follicle and the Sebaceous Glands*

There are many hair follicles on our skin. The sebaceous glands (oil glands) exist near the surface of the skin and open into the hair follicles. The oil, or sebum, which they produce constantly, enters the follicle. This helps in protecting the skin from drying out.

Overproduction of sebum is a major factor in the development of acne. Before covering the various causes of acne, here is information about the production, role and regulation of sebum.

### **Sebum**

Sebum, an oily and complex mixture of lipids (a group of fats and similar compounds including waxes, oils, sterols, triglycerides, phosphatides and phospholipids), is produced by the sebaceous glands.

Sebaceous glands exist over almost all of the body, but especially on the forehead, chin and back. Cells in these glands disintegrate in about a week and produce sebum. The rate of production depends on age and gender:

- 1 Adult females produce less sebum than adult males
- 2 Production of sebum increases almost five times in boys with the onset of puberty

- 3 Sebum production declines significantly with age
- 4 Production of sebum also falls steeply in women after menopause

### ***Hormonal control of sebum***

The sex hormones, or androgens, stimulate the cells in the sebaceous glands to produce sebum.

The testis in males, the ovaries in females and the adrenal glands produce these hormones.

The androgens that influence the production of sebum the most are:

- 1 5-testosterone (DHT)
- 2 5-androstene-3 $\beta$ -diol

### ***Role of Sebum***

Some of the functions of sebum are:

- 1 It acts as a protective barrier against bacteria and fungi.
- 2 It helps to reduce excessive water loss from the surface of the skin.

It is an environment that supports the bacteria *Propionibacterium acnes*, which researchers believe may play an important role in the regulation of the immune system.

With your new insight into the working of sebaceous glands and the production of sebum, you will understand the factors that cause acne more easily.

## Why Do We Get Acne?

Acne develops when the sebaceous glands in a person's skin start producing excessive levels of sebum. This oil combines with the cells lining the walls of the glands and clog the skin's pores, plugging them. This plug can enlarge and rupture the hair follicle, so that the follicle spills the oil and debris on to the skin. This causes inflammation and swelling.

Various factors can cause an increase in the production of sebum, including:

**Hormones:** There is a sudden surge in the level of hormones at puberty. These hormones react with the skin to form *dihydrotestosterone*, or *DHT*, which makes the sebaceous glands increase in size. It also stimulates these glands to increase the production of sebum. The increase in sebum leads to the plugging of hair follicles, which eventually leads to the development of acne.

**Hormones in Women:** At puberty, an increase in the production of estrogen results in menses. The menstrual cycle results from changes in the levels of estrogen. The severity of acne differs as she goes through her monthly cycle.

**Bacteria in acne:** *Propionibacterium acnes* are bacteria found commonly on the surface of the skin, as well as in pimples. With the onset of puberty, the bacteria increase. Other types of bacteria, such as *Propionibacterium granulosum* and *Staphylococcus epidermidis* can also be found at this time. It has been found that people with an excessive production of sebum have more bacteria on their skin, but the link between bacteria and acne has not been discovered yet.

**Medications:** Acne can sometimes occur as a reaction to a particular drug. This type of acne typically clears up as soon as the medication is discontinued.

**Pregnancy:** Pregnant women usually develop acne, due to a rise in the levels of hormones in their body. However, their acne clears up soon after the birth of the baby. Newborn babies have acne at times as well. This can be due to the stress of birth or because some hormones from the mother may have permeated the umbilical cord and passed to the baby.



**Endocrine disorders:** Less frequently, acne is found in young children and old people. This could be due to a rare disorder of their endocrine system.

**Genes:** Researchers have found evidence that genes may play a vital role in causing acne. It has been found that children whose parents had acne in their childhood are much more likely to develop acne. In addition, the severity of their acne was similar to the severity of their parents' acne.

**Hypersensitivity to *P. acnes*:** Acne fulminans, an extremely severe form of acne, can be caused due to a body's hypersensitivity to the bacteria *P. acnes*.

## 5. Types of Acne Lesions

We often get confused with the terminology when we read about acne. For example, the different types of lesions like papules, cysts and comedones or the meaning of the word lesion itself. These definitions should help you in learning about your specific need for treatment.

**Lesions-** Any physical change in the body tissues caused by a disease or an injury is called a lesion. This may be either external (like acne, skin cancer, or even a knife cut) or internal (like lung cancer or liver cirrhosis). An acne lesion is a physical change caused by a diseased process in the sebaceous follicle.

**Comedo lesions-** Comedones (plural of comedo) are skin-colored, small bumps that are most commonly found on the chin and forehead of those who suffer with acne. A comedo is a sebaceous follicle. Dead cells from this follicle, sebum, tiny hairs and even small bacteria sometimes plug the sebaceous follicle. The cells lining the sebaceous duct proliferate in acne (this is called cornification) and the result is formation of a comedo.

Some are so small that they may not be visible to the naked eye; these are called 'microcomedones.' An open comedo is called a blackhead because the surface of the plug appears black due to exposure to air. A closed comedo that appears as a bump in the skin is called a whitehead. Whiteheads and blackheads should only be extracted under sterile conditions by a qualified dermatologist. If whiteheads and blackheads are squeezed or picked, staphylococci, streptococci and other skin bacteria could infect the area.

**Papule-** A localized cellular reaction to acne produces a papule. It is a small, solid lesion elevated above the surface of the skin. Although a group of papules and microcomedones may be invisible to the naked eye, they may give a 'sandpaper' feel to the touch.

**Macule-** A macule is a temporary red, or red-pink, spot that is left after the acne has healed. This has a well-defined border and may stay for many days before disappearing.

**Pustule-** A pustule is a fragile, dome-shaped lesion that contains pus (white blood cells, bacteria and dead cells). If a pustule does not worsen into a cyst, it does not leave a scar.

**Cyst-** A cyst is a severe form of acne, a sac-like lesion containing white blood cells, bacteria and dead cells in a liquid or a semi-liquid form. This is inflammatory and may damage the deeper layers of the skin and cause scarring. Treatments for this lesion are usually not very effective. It is usually very painful.

**Nodule-** A nodule is the most severe form of acne and sufferers should seek therapies like isotretinoin. A nodule is a solid, irregularly shaped lesion. It is inflammatory and may penetrate the deeper layers of the skin, causing tissue destruction and scarring. A nodule is generally very painful.

A nodule and a cyst often occur together. That form of acne is called *nodulocystic acne*.

## 6. Scars and Stripes - Scarring in Acne

In teenagers, as well as adults, severe acne can lead to atrophic, or pit-like, scars in the affected area. This can be the source of a huge inferiority complex and leads to depression in many people.

This section describes:

- How to define scarring
- The various types of scars that result from the different kinds of acne ... and
- Are they treatable?

### Definition

The human body is tuned to respond to any foreign body or abnormal change, whether in it or outside, in a similar way to how an animal would attack an intruder encroaching upon its territory. The body automatically acts to 'normalize', or heal the change that took place in it.

For example, if the body receives an external injury, it immediately initiates production of clotting to heal the wound. The body instigates a similar healing process when scarring occurs.

In biological terms, 'scarring' is the fibrous process that initiates production of collagen to heal the acne-induced changes in the body.

People suffering from either moderate or severe forms of *acne vulgaris* (e.g. *acne fulminans*, *acne conglobata*) are particularly prone to scarring or pigmentation. Hence, it is advisable for patients suffering from severe acne to seek immediate treatment that will reduce their chances of developing deep, or untreatable, scars.

## Types of Scars

### *I. Color changes due to inflammatory lesions*

The healing of inflammatory acne lesions can lead to the emergence of patches of pigmentation in the affected area. These changes in skin color are temporary and curable. With the right treatment, the patches disappear after a few months and do not recur.

The color changes are classified into three types:

- (1) Post- inflammatory pigmentation:** Results in brown pigmentation
- (2) Post- inflammatory hypopigmentation:** White marks appear on the skin
- (3) Post- inflammatory erythema:** Purple, or pink, patches are seen.

### *Treatment for post- inflammatory pigmentation*

Treatment options for post-inflammatory pigmentation include:

**Chemical peel-offs:** These are face packs with glycolic acid or Jessner's solution added to them.

**Azelaic acid cream:** This cream, also prescribed for treating moderate acne, is successful in treating pigmentation.

**Protection from the sun:** Brown marks darken under moderate to excessive exposure to the sun. Always apply an oil-free sunscreen with an SPF of 15 or more before going out of the house.

## II. Physical disfigurements in the form of pits or lumps

Severe acne causes three kinds of scarring. These are -

1. **Ice Pick scars:** Appear as a series of small pits.
2. **Hypertrophic/ Keloid scars:** Extremely thick, lumpy scars that protrude from the skin.
3. **Atrophic scars:** In contrast to keloid scars, atrophic scars are thin, flat scars.

### *Treatment Options*

There are various treatment options for each type of scar. Most scars heal completely with the right treatment, though it may take many months for this to occur. However, in a few cases, the scar recurs, even after being successfully treated.

Here are the different ways in which the three kinds of scars can be treated. For details on the procedures, please refer to the Section on Treatment.

#### 1. **Ice pick scars** can be treated by:

- 1 Dermabrasion
- 2 Cutting out larger scars
- 3 Laser resurfacing

#### 2. **Atrophic scars:**

- 1 Dermabrasion

2 Increasing the soft tissue through fat or collagen implants

3. **Hypertrophic, or keloid scars**, are the most difficult of the three to treat successfully. Despite apparently effective treatment, the scars are liable to recur within a short time.

Treatments that can be used are -

1 Dressing of scars with silicone gel

2 Application of strong topical steroids

3 Steroidal injections in the lesions

4 Cryotherapy (Cold therapy)

5 Surgery

## **7. Seborrhea Due to Hormonal Changes**

**S**eborrhea refers to a condition where the sebaceous glands produce high quantities of oil (or sebum) and the skin becomes excessively oily. The ailment is common in both men and women.

The person suffering from seborrhea complains of unpleasant and excessively oily skin. This may lead to acne or seborrheic dermatitis. It may, rarely, also lead to Parkinson's disease and *acromegaly*. A doctor should be consulted at the first sign of the condition and treatment begun immediately.

### **Causes of High Levels of Androgens in Women**

Statistics reveal that about half of the women who suffer from acne have a hormonal imbalance.

Some causes of high levels of male sex hormones in women are:

#### **1 Disease of the Pituitary Gland -**

- Acromegaly (gigantism)
- Problems in lactation (galactorrhoea) due to tumor-producing prolactin
- 'Moon face', stretch marks, tiredness and/or easy bruising due to excessive ACTH (adrenocorticotrophic hormone)

#### **2 Disease of the Adrenal Gland -**

- Benign, or malignant, adrenal tumors
- Partial deficiency of enzyme *21-hydroxylase*



### 3 Disease of the ovaries -

- Benign, or malignant, ovarian tumors
- Infertility, irregular menstruation and hirsutism (abnormal growth of hair) caused by *Polycystic ovarian syndrome*

### 4 Obesity- Body fat also results in the synthesis of more androgens.

Any of the conditions listed above can stimulate the sebaceous glands and lead to seborrhea.

While diagnosing acne, doctors must check for signs of any of these disorders as the underlying cause of the acne and even perform a laboratory analysis to rule them out.

If any of the above conditions is the cause of acne, it should be tackled first.

## 8. Factors Which Aggravate Acne

Some of the factors that can aggravate acne are -

**Genetic Factors** - If a person's parents had severe acne, they may also suffer bad acne.

**Stress**- Like a lot of other health problems, acne also may be caused by severe stress.

**Hormonal Factors** - If a person has a high level of androgenic hormones, due to any of the following reasons, it may lead to acne.

- Enzyme deficiency
- Polycystic ovaries
- Excessive corticosteroids
- Certain medicines

**Clothes or other equipment rubbing against the body** - Wearing tight straps, headbands, chinstraps, turtleneck sweaters or bra straps may make acne worse. Wearing equipment like helmets, shoulder pads, or holding a violin between your chin and neck may also make the acne get worse.

- Using harsh soap or very hot water may also aggravate acne.
- Rubbing your face too often or too hard can make the acne get worse.
- Sweating too much may also be an aggravating factor.

## **Acne Lesions**

The two types of acne are inflammatory and non-inflammatory. Blackheads, or open comedones, and whiteheads, or closed comedones, are examples of non-inflammatory acne.

Nodular acne is an example of inflammatory acne.

### ***Inflammatory acne***

Inflammatory acne includes pimples (or 'zits'), red blemishes and deeper, swollen lesions called nodules.

- 1 Pustules are closed comedones that become inflamed and then begin to rupture into the skin. Then, they form pustular heads of different sizes.
- 2 Papules are closed comedones that become swollen, red and then inflamed.
- 3 Nodules are the most severe form of acne and can produce scarring if they are not treated in time. These are large, swollen and tender acne lesions. They become intensely inflamed and rupture under the skin. Proper treatment should be sought quickly for them.

### ***Non-Inflammatory acne***

Non-Inflammatory acne is of two types; blackheads and whiteheads.

- 1 Open comedones are enlargement of the plug formed by oil and flakes of skin inside the hair follicle.
- 2 A closed comedo is formed if the hair follicle plug is not exposed to outside air and, thus, no black color develops. It appears as a tiny, pink bump on the skin.
- 3 If, however, the plug is exposed to outside air, the oil inside the plug turns black (the black color is not due to dust) and is known as a blackhead.



## 9. Acne Vulgaris

*Acne vulgaris* is the most commonly-occurring type of acne in adolescents and young adults worldwide. Affecting almost 90% of people at some point in their lives, the condition usually starts at puberty and may become more severe in adulthood. It mostly affects the face, the back and the upper chest. This dermatological condition is characterized by the following kinds of lesions –

- 1 Non-inflammatory nodules (cysts), open comedones (blackheads) and closed comedones (whiteheads) in its mild to moderate forms
- 2 Inflammatory papules, nodules and pustules in its severe forms
- 3 Macules (dark scars seen on dark skin)
- 4 Erythematous macules (reddish-colored scars from recently healed blemishes, seen mostly in fair-skinned people)

These lesions may disappear without any treatment after a few weeks. However, more severe forms of acne require extensive treatment and may take a few months to a few years to heal.

### Pathophysiology of Acne vulgaris

Acne lesions develop in the following four stages –

- 1 Follicular epidermal hyperproliferation (rapid multiplying of cells) and hyperkeratinization (cells convert to keratin, a natural part of the hair, too fast and clump wrongly, causing acne or keratosis pilaris).
- 2 Excess sebum

### 3 *Propionibacterium acnes*

### 4 Inflammation

**Frequency:** *Acne vulgaris* affects 85-95% of people worldwide at some point in their lives. It is one of the most commonly occurring dermatological disorders in the world. *Acne vulgaris* seems to strike people of all races in equal ratios.

**Gender:** Acne develops in girls between the ages of 10 to 18 years. In boys, acne usually develops between the ages of 14 to 20 years.

- 1 Acne vulgaris affects a larger number of boys than girls during adolescence.
- 2 There is a reversal after adolescence; a greater number of women than men have acne during adulthood.

**Causes:** *Acne vulgaris* can be due to the following reasons:

- A history of acne in the family
- Endocrine disorders such as *polycystic ovary syndrome* and *adrenal hyperplasia*
- Excessive production of sebum by the sebaceous glands

## Diagnosis

**The doctor diagnoses acne vulgaris through a physical examination.** No laboratory tests are required to confirm the diagnosis. However, if the doctor suspects the acne to be a result of an underlying disorder, such as Cushing's syndrome, he will order a set of laboratory tests.

These tests are needed when:

- There is no response to the standard treatment. The doctor will take a culture from a lesion to rule out the presence of gram-negative bacteria, which causes *folliculitis* (inflammation of hair follicles).
- The Doctor sees signs of symptoms of polycystic ovarian syndrome such as hyperandrogenism (women with high levels of male hormones) and anovulation (women who do not ovulate). They will order a test to assess the level of serum lipids.
- Patients show evidence of virilization (women displaying male characteristics). In such a case, the total testosterone and DHEAS (a steroid) levels need to be checked.
- The doctor suspects Cushing's syndrome, where they will check the urine cortisol level.
- If women have hirsutism (excessive hair growth) and dysmenorrhea (painful menstrual cramps), a hormonal evaluation needs to be carried out.

## Management of Acne Vulgaris

### Treatment Options

Treatment of acne vulgaris depends on the severity of the acne. The doctor decides whether a single mode of treatment, or a combination, is required. The various kinds of treatment are shown below. For a more in-depth look, please refer to the Section on Treatments.

### *Topical treatments*

- **Topical Antibiotics:** Topical antibiotics are useful against *P. acnes* and for controlling inflammation. Unlike topical retinoids, however, these can cause bacterial resistance to

develop, so they are best used in combination with benzoyl peroxide. *Clindamycin* and *erythromycin* are two of the topical antibiotics which are used.

- **Topical retinoids:** Topical retinoids are anti-inflammatory and they help to reduce the number of comedones, microcomedones and inflammatory lesions. Some of the most commonly used retinoids are tazarotene, adapalene and tretinoin. **CAUTION:** these retinoids peel away the upper layers of the skin, so patients should use non-comedogenic moisturizers and sunscreen regularly.
- **Benzoyl peroxide products:** These are extremely effective against *P acnes* and do not foster bacterial resistance. They are available without prescription in a number of forms, such as soaps, creams, lotions and gels.

### ***Systemic treatments***

- **Systemic antibiotics:** Systemic antibiotics, such as the tetracycline group of antibiotics, are usually effective for treating acne. They contain anti-inflammatory agents and help fight *P acnes*. However, bacteria have become resistant to these agents. To reduce the resistance, antibiotics should be combined with benzoyl peroxide.
- **Hormonal therapies:** Some hormonal therapies are effective in treating acne *vulgaris*. Birth control pills increase the level of the sex-hormone-binding globulin. This causes the testosterone circulating in the body to fall, which reduces the production of sebum.
- **Isotretinoin:** Isotretinoin is a systemic retinoid that is effective in treating severe and recalcitrant *acne vulgaris*. It normalizes the epidermal differentiation and, at the same time, reduces the quantity of sebum excreted by the sebaceous glands up to 70%. Also, it is anti-inflammatory and reduces the number of *P acnes*. In severe cases, isotretinoin is recommended to be used with steroids at the start of therapy.



**Patients should be aware of these precautions and possible side effects:**

Pregnant women should **never** use Isotretinoin, a strong teratogen. Women should be tested to rule out pregnancy before this therapy is started and pregnant women must not take isotretinoin. Routine pregnancy tests should be done during the course of the treatment.

Safer options would be erythromycin and amoxicillin.

Some of the side effects associated with isotretinoin are depression and mood swings. The doctor should make patients aware of this before the start of the treatment.

Patients should be aware that they may develop larger quantities of granulation tissues and have an abnormal rate of healing, so procedures such as waxing, epilating, tattooing and piercing are strictly prohibited. Dermatologists delay surgical procedures such as dermabrasion and laser resurfacing for up to one year after the end of this treatment.

## **Surgical Options**

Apart from the therapeutic options mentioned above, severe cases may also require surgery. Some surgical procedures are -

- 1 Manual extraction of comedones
- 2 Steroid injections into the lesion
- 3 Superficial peels containing glycolic and salicylic acid.
- 4 Phototherapy and photodynamic therapy using red or blue light
- 5 Laser resurfacing

## 6 Dermabrasion

### **Prognosis**

The prognosis for acne vulgaris is good overall, but it can leave physical as well as psychosocial scars in its wake.

- 1 In male patients, acne generally clears up by the late teens.
- 2 Acne usually continues into adulthood in female patients.

### ***Precaution for Patients***

- Patients should gently wash their face twice a day with mild cleansers.
- Cosmetics should be mild and non-abrasive. It is better to buy non-comedogenic (non-greasy) cosmetics.
- Prescriptions should be discussed with the doctor for any potential adverse effects.

## **10. Acne Conglobata or Cystic Acne**

**A**cne conglobata, or cystic acne, is a rare but severe form of nodulocystic acne vulgaris. It is seen mostly in males between the ages 18-35, and occasionally in infants. The disease affects the face, chest, back and the scalp. It is characterized by inflamed nodules, which leave deep scars when they heal. Treating the disease is a long process which, in some cases, has taken more than twenty years.

### **Patho-physiology of Acne conglobata**

Scientists still do not know the primary cause of the disease, but they identified factors that may stimulate or provoke the disease.

These factors include:

- 1 Chromosomal defects in the XXY karyotype (a picture of chromosomes which is used when checking for abnormalities)
- 2 Androgens (male sex hormones)
- 3 Anabolic steroids

### ***Characteristics***

- The nodules are dome shaped and tender to the touch
- Nodules start forming early in puberty, and keep forming until the mid-forties.
- Nodules often keep on increasing in size before breaking down, forming unusual shapes.

- A main characteristic of Acne conglobata is that blackheads are formed in groups.

### ***Treatment***

Patients should consult a dermatologist as soon as they notice symptoms. The disease can be treated by -

- 1 Isotretinoin
- 2 Oral tetracycline or erythromycin alone or in combination with isotretinoin.
- 3 Systemic steroids in combination with isotretinoin

## 11. Severe Acne: Acne Fulminans or Acne Maligna

Acne fulminans, also known as Acne maligna, is a rare and severe form of acne conglobata that occurs due to an immune complex reaction to *Propionibacterium acnes*. It is only seen in adolescent boys. In this condition, pimples spread rapidly on the person's chest and back. The face is usually unaffected.

### Features of Acne fulminans

**Physical Features:** Some features of Acne fulminans that are visible physically are -

- 1 A sudden onset of severe, mostly ulcerating pimples
- 2 A bent posture, due to pain from Polyarthritis (inflammation affecting many joints)
- 3 Muscle pain
- 4 Inflammatory arthralgia (joint pain).
- 5 Fever
- 6 Deep scars left by the pimples

Laboratory analysis shows that the following features are common to Acne fulminans -

- Leukocytosis (high number of white blood cells)
- Anemia

- A high Erythrocyte Sedimentation Rate (ESR is an increased rate of red cells settling in blood)
- Protein urea
- Sterile blood cultures
- No response to anti-bacterial medications

**Imaging Studies:** By using advanced scientific equipment, such as radiographs and ultrasound, doctors can detect these lesions or cysts in patients suffering from Acne fulminans:

- 1 Destructive lesions are seen in 30% of patients on doing radiography.
- 2 Radiographs also show that almost 50% of patients have lytic bone lesions.
- 3 Using technetium scintillography, doctors can also detect multifocal osteolytic cysts.

### ***Pathophysiology***

Acne fulminans is an immunologically-induced condition, believed to be triggered by *Propionibacterium acnes*. According to some researchers, higher-than-normal levels of testosterone can also cause the disease.

Isotretinoin can also act as a precipitator of the disease.

Genes too may be an important factor in some patients. However, nothing concrete has been established on this theory yet.

## ***Medical Care***

Over the past few years, fewer cases of acne fulminans have been recorded. It is believed that earlier and better treatment therapies are the main factors in the reduction.

For those who do have this disease, the treatment is long and severe. Broad-spectrum antibiotics offer no relief at all. Doctors usually recommend a combined therapy of isotretinoin, oral steroids and intra-lesion injections.

## ***Prognosis***

Though it is difficult to treat, the prognosis for acne fulminans is good.

- The disease rarely recurs after successful treatment.
- Bone lesions resolve with treatment, though there may be some scars left behind.
- The pimples may cause scarring and fibrosis on healing.

## **Management**

Boys who develop Acne fulminans must consult a physician or a dermatologist immediately. Left untreated, the disease can develop fast, become more severe and leave permanent scarring.

Managing the disease is a tough process as topical medications do not help and large doses of other drugs are required, but it can be treated successfully.

These medications are used:

- 1 Isotretinoin
- 2 Systemic oral steroids such as prednisone
- 3 Oral antibiotics such as erythromycin and amoxicillin
- 4 Anti-inflammatory medications such as salicylates.



## **12. Comedonal Acne**

**S**eborrhea (excessive production of sebum) causes keratin in the skin to mix with the oil, leading to blocked skin pores. These blockages, or plugs, are called comedones. This form of acne is called Comedonal Acne.

There are two types of comedones -

- 1 Open comedones, or white heads
- 2 Closed comedones, or black heads

Comedonal acne mostly affects the forehead and the chin.

This condition can occur at any time in a person's life.

Some factors aggravating the occurrence of comedonal acne are-

- Hormonal imbalance in the body- This may be due to pregnancy, intake of testosterone supplements, obesity, Cushing's syndrome, etc.
- Oil-based cosmetics- Use of products for care of oily skin like sunscreen lotions and petroleum-based moisturizers can also cause comedonal acne.
- Humid weather

### **The Way Out**

Some of the ways to avoid or treat comedonal acne are -

- Wash your face twice daily with a mild soap and water.

- Use oil-free cosmetics and skin-care products. Check for products that have 'non-comedonal' on them.

Some oral medications which may be successful in treatment of comedonal acne are -

- Isotretinoin
- Hormonal Therapy

One of the most effective cures is topical medication. The results may take a few months, but this method has proved its effectiveness. The medicine should be smeared, once or twice daily, on the affected area.

Some of the most common topical agents are -

- Benzoyl peroxide- 2.5-10%
- Azelaic acid- 20%
- Glycolic acid- 10-20%

### **13. Acne Keloidalis Nuchae**

**A**cne keloidalis nuchae (also known as 'cheloidalis') is a type of acne that is seen only in men of African or Caribbean origin, who have curly hair. The condition mostly affects the nape of the neck, but it can also affect the forehead.

The most common symptom of the condition is ingrown hairs. These hairs rub against the wall of the hair follicles and irritate them, which leads to inflammation. Patients should wear loose-fitting clothes that do not rub against the back of the neck.

#### **Treatment**

Acne keloidalis nuchae is difficult to treat. It can persist for many years, and can recur after treatment. On healing, the more severe forms of this acne can result in scarring.

Here are some of the most common treatments prescribed by doctors for this condition:

- 1 Oral isotretinoin
- 2 Topical steroids
- 3 Laser vaporization
- 4 Radiotherapy and
- 5 Oral antibiotics (in case of secondary infection)

## 14. Acne in Pregnancy

Pregnant women are also prone to acne. This occurs due to an increase in the levels of estrogens in their bodies. Although the acne gets worse during the first trimester, it eventually improves as the pregnancy goes on. One major hitch in treating acne that occurs during pregnancy is the intake of certain drugs to cure it. Oral medicines must be totally avoided as they can affect the developing fetus.

**Pregnant women should never take medications without first consulting their doctor.**

### *Medicines to be avoided during Pregnancy*

Oral medicines can seriously affect the cognitive, neurological and physical growth of the fetus. Pregnant women and those considering pregnancy, should **NOT** to take the following medicines:

- ✗ Oral isotetrinion
- ✗ Tetracycline
- ✗ Topical Retinoids

One exception, but only if prescribed by your Doctor, is oral erythromycin for severe acne during pregnancy.

### *Treatment of Acne during Pregnancy*

Instead of oral medicines, patients can apply certain topical drugs to heal the acne. These include:

- 1 Benzoyl Peroxide
- 2 Azelaic Acid

## **15. Acne Excorié**

Many people tend to squeeze or pick at their pimples, out of extreme self-consciousness or just not knowing any better. It makes them look worse, instead of improving their appearance,. It causes secondary infection and this could lead to scarring, which may even become permanent. Patients suffering from acne should not pick at their pimples. Acne excorié is scarring which is sometimes caused by scratching, squeezing or picking pimples.

Patients should also be aware that acne excorié could be a result of intense stress or depression. If this is the case, help from a psychiatrist could be beneficial. Antidepressants may also be useful in reducing the patients' depression and their tendency to squeeze their pimples. Statistics show that women tend to develop acne excorié much more frequently than men do, so women should be particularly careful about not picking at their pimples.

### **Treatment**

Acne excorié can result from deep embarrassment in a person about his or her looks. The scars that are formed in this condition are particularly tough to treat. Treatment, therefore, is highly aggressive. Doctors usually prescribe oral isotretinoin to clear the scars. Patients should keep in mind that this could be a long process.

## **16. Newborn or Infantile Acne**

About 20% of newborns have acne. Reasons for this may include:

- 1 Their mothers passed certain hormones to them through the placenta just before delivery.
- 2 The baby's body has released certain hormones because of the stress of the birth.

Acne in newborns is usually in the form of whiteheads.

### **Infantile Acne**

Babies between 3 and 6 months may develop infantile acne. Some children have acne at the time of birth. Infantile acne is generally mild in the form of blackheads, whiteheads and pimples. This acne generally settles down by the time the child is five years old. These pimples hardly ever leave scars. It is more common in boys and usually develops on the cheeks, forehead and chin. Children with infantile acne are more likely to suffer from very severe acne (acne vulgaris) during their teenage years.

The most likely cause of infantile acne is fetal hormones. Most common are adrenal androgens like dehydroepiandrosterone, excessive testosterone, LH or luteinizing hormone and FSH (follicle-stimulating hormone).

In most cases of infantile acne, no medical investigations are required.

Treatments include -

- 1 Topical agents like benzoyl peroxide and erythromycin gel.
- 2 Oral antibiotics like erythromycin and isotretinoin.

The antibiotic tetracycline should not be used on young children because it can cause yellow staining of the teeth.

## 17. Acne Due to Medicines

It is widely accepted that acne can be caused or aggravated by the intake of certain medications or drugs. Research firmly supports this. These are some of the drugs that can cause acne:

### Hormonal Medicines

Several hormonal supplements have been known to cause acne. They raise the level of hormones in the body, upset the endocrine system and act on the sebaceous glands in the skin.

The hormonal supplements that may cause acne are:

- **Testosterone supplements:** An increase in testosterone levels in the body can stimulate the sebaceous glands to produce greater quantities of sebum. This ultimately results in acne.
- **Oral steroids:** These cause steroidal acne.
- **Anabolic Steroids-** Anabolic steroids, such as danazol and stanozolol, are known to cause severe acne, such as acne conglobata and acne fulminans. Acne due to the intake of anabolic steroids is mostly seen in athletes, who take steroids to build muscles.

### Other Types of Medicines

Some of the other medicines that may cause acne are -

- 1 Antidepressants such as lithium and amoxapine
- 2 Anti-tuberculosis drugs like ethionamide, isoniazid and rifampicin.



- 3 Halogens like iodides, chlorides, bromides and halothane.
- 4 Vitamin B12 (Cyanocobalamin).
- 5 Antiepileptics like carbamazepine, phenytoin and Phenobarbital

### **Precautions**

Now that you know the various types of medications that can cause, or even aggravate acne, it is important for you to be careful. Discuss the use of any drug, even over-the-counter drugs, with your doctor before taking them. If you find that a certain drug is causing your acne to worsen, ask your doctor for an alternative.

## Part-III: Diagnosis of Acne

### 18. How to Diagnosis Acne

Acne is very simple to diagnose. No medical tests are required to diagnose it. A physical exam and a medical history will suffice. Doctors decide the severity of the acne by using a graduated scale. They compare a patient's acne with a standardized set of photographs to see if the acne is mild (1 on the scale) or very severe (12 on the scale).

However, doctors do conduct various examinations and tests to rule out the possibility of the acne being a symptom of an underlying medical condition. These tests include:

(1) Microbiological biopsy of an acne lesion to check if:

- 1 The bacteria, such as *Propionibacterium acnes*, react to the antibiotics prescribed by the doctor.
- 2 The culture obtained shows the presence of yeast or gram-negative bacteria, as this implies that the lesions are a symptom of either folliculitis or dermatitis.

(2) For women suffering from acne, doctors routinely suggest blood tests to check for abnormal levels of hormones (for example, testosterone). Hormone tests will help:

- 1 To determine whether there are abnormally high levels of prolactin in the body.
- 2 To check for excessive secretion of testosterone, the predominantly male hormone
- 3 To check for the possibility of pregnancy, in which case the treatment would have to be cancelled.

#### 4 To rule out Cushing's syndrome

Tests, which should be taken in the morning during the first fifteen days of the women's menstrual cycle, include:

- 1 Free androgen index (FAI)
- 2 Dehydroepiandrosterone sulfate (DHEAS)
- 3 Dexamethasone suppression test
- 4 Luteinising hormone and Follicular Stimulating Hormone Test

(3) A pelvic ultrasound to rule out the presence of tumors

(4) Apart from the tests mentioned above, physicians perform these blood tests to monitor their patient through the course of the prescribed therapy or treatment:

- A test to measure liver functioning
- Total blood count test
- Test to check for the levels of cholesterol and triglycerides in the body

### **Prognosis**

When the doctor has made his diagnosis and firmly ruled out the possibility of other disorders with acne-like symptoms, (s)he will start the required treatment immediately.

All patients, especially those suffering from severe forms of acne, are anxious to know what the prognosis of their disease is.

For most of the patients, the prognosis is highly positive. With the right treatment and lots of patience, they will eventually overcome it. For those who have acne scarring, there is no need to be disheartened as there are various ways by which they can be treated to some degree.

## **Part-IV: Prevention of Acne**

### **19. Ten Tips to Avoid Acne**

Acne affects a wide range of people. It could be due to many causes like stress, hormonal imbalances, environmental pollution, improper diet, or illness.

#### **Ten tips to help you avoid acne**

1. Clean your face with natural skin products every morning and night to remove dead cells, open clogged skin pores and let your skin breathe.
2. Do not touch your acne with your hands and keep your hair from falling on your face. Dirt and oils aggravate your acne.
3. Do not use oil-based make-up. Use water-based products to avoid clogging your pores.
4. Wipe your face with fresh, clean face-cloths as bacteria transfers from damp cloths.
5. Picking and pinching acne generally makes it worse and may leave scars.
6. Eat a healthy diet with lots of fruit and vegetables, and drink plenty of water to wash toxins from the body.
7. Regular exercise and sufficient sleep are essential for a healthy skin.
8. Stress can lead to increased acne. Reduce your stress level if possible.
9. Avoid sugary and iodized foods, coffee and carbonated drinks. Stop smoking, as it makes

your skin dry up and break easily.

10. Wear soft cotton clothes to get relief from itching and irritation of acne on your back and shoulders. Also, shower immediately after exercises.

11. Use a clean pillowcase every night until your condition improves.

**Consult a dermatologist to treat severe outbreaks of acne.**

## 20. Useful Tips to Reduce Acne Naturally

Most of us have had acne at some point in our lives. Although you can use various lotions or creams to combat acne, following these natural tips reduces the occurrence of acne.

Keep your face clean to avoid acne, but excessive washing of your face could dry your skin, leading to or increasing acne. Wash your face gently, as scrubbing opens the acne lesions and causes further spread.

**Avoid picking or popping acne.**

**Use water-based products** on your skin to avoid clogging of pores, instead of oil-based cosmetics.

**Acne breakouts reflect your stress level.** Try keeping your body and mind relaxed by doing meditation or yoga. Low stress levels allow better movement of oxygen within the body, and your face remains clearer with less acne.

**Certain medications for other health problems cause acne.** Review your medicines with your doctor to reduce acne outbreaks.

**Eat a healthy diet of vegetables and fruit** which include sufficient fiber. Avoid iodized and sugary foods as these often cause acne.

**Drink sufficient water** to clean your system and wash out toxins. Insufficient water levels in the body hamper excretion of waste products. These can erupt as acne.

**Wear loose clothing.** Tight clothes accumulate sweat and block skin pores, increasing acne on your back and body.

**Herbal medicines** may produce positive results for acne as they clean your body inside and outside. They also clean your system of different toxins.

## 21. Tips to Prevent Worsening of Acne

**M**edicines are not the sole healers. Self-care and precautions go hand-in-hand with drugs to improve healing. If you suffer from acne, it is essential that you exercise caution to avoid worsening of symptoms.

Here are some easy home-care tips for acne:

**(1) Wash your skin gently:** Take care of your skin every day. As a general rule, wash it gently with water and a mild soap or an acne cleanser at least two but not more than three times a day. However, do not scrub yourself too hard, as it can worsen the acne.

**(2) Avoid sweating:** If you find that excessive sweating worsens your acne, try to avoid activities that would cause you to sweat. Also, wash yourself after taking part in any strenuous activity.

**(3) Dress comfortably:** Wear soft, cotton clothing as far as possible. Other materials rub against the skin, causing irritation and worsening the acne. Acne can be made worse by tight chinstraps and bra straps rubbing against the skin.

**(4) Choose cosmetics carefully:** Certain cosmetics such as gels and hair mousses, which contain a large quantity of oil, can cause the acne to flare up. Use only non-comedogenic products, which are designed to not cause or worsen acne.

**(5) Avoid prolonged exposure to sunlight:** Long hours under the sun can spell trouble for your skin. Always try to go out in the sun for a short time, if at all, and use a sunscreen with a high PPF when you do so.

**(6) Wash your hair:** Hair often falls onto the face and rubs against the skin. If it is oily or dirty, it can worsen the acne. Cleanse your hair with a good shampoo at least twice a week, and tie your hair up properly to prevent it from falling onto your face.



**(7) Avoid exposure to chemicals:** Avoid environments that would expose you to harsh chemicals like petroleum and coal dust.

**(8) Reduce stress:** Stress plays an important role in causing, as well as worsening, acne. Learn stress-management techniques and do some form of aerobic activity to help you manage stress.

## **Part-V: A Step-by-Step Program to Prevent or Cure Acne**

### **22. Step One: - Keeping Your Face Clean**

**A** clean face keeps acne at bay. Follow these tips to keep your face clean and acne-free -

- 1 **Use only Glycerin or Castile soap** to wash your face. Do not wash your face excessively with ordinary soaps as most contain harmful chemicals, which dry out natural face oils and make it dry. These dangerous chemicals may also enter your blood and put excessive pressure on your liver.
- 2 **Stop using different types of face cosmetics** as chemicals present in them, like Lanolin, Parabens, Mineral oil and Propylene Glycol may close skin pores.
- 3 **Do not to touch, or rest your face on palms, arms or hands**, as this spreads bacteria and increases acne.
- 4 Although it is best to avoid make-up, you can use water-based make-up if it is necessary. Check for skin reactions, if any.
- 5 **Never scratch or pick pores** as this may leave scars.
- 6 **Pat a hot towel on your face two or three times a week** to cleanse it of toxic material and increase blood circulation.
- 7 **Use a clean pillowcase every night**. This action alone can reduce the incidence and severity of acne.

## 23. Step Two: - Using Acne Face Creams

There are different types of acne face creams. Use the cream which is best suited for your skin type. Discontinue it if you find even the slightest rash or allergy.

**Apply cream after cleansing your face** in the morning. Of course, you can use it again at noon and at night. These creams can be above or beneath your make up, but it produces the best results on a clean face.

Dip the applicator into the cream; place the cream on your face and spread. Allow the cream to penetrate your skin through gentle massage. The curative vitamin A and E oils of these creams seal skin pores and protect natural skin moisture. The minerals nullify the effects of toxic acids, clean off old and dead skin and make your face glow with increased radiance. The application of such creams may cause a stinging sensation in acne. This vanishes within seconds and further itchiness may be reduced.

Add a few drops of Borage oil, Teatree oil or Neptune Krill Oil to your face cream to increase its effectiveness against acne. These oils fight against bacteria and fungus. Some of them contain omega-3, EPA and DHA, which help to control excess production of sebum and androgens.

## 24. Step Three: - Relieving Your Constipation

**A** clean colon reflects on your acne and blemish-free face. **Colonic toxins increase the incidence of acne.** Normally, you should have two bowel movements daily. Develop normal bowels by cleaning present residue in your colon.

Such cleaning may be possible by following a three-day fruit juice fast and then by including more natural foods in your daily diet. **Consult your Doctor before starting and follow their advice as to whether this sort of plan is safe for you and whether it could help you.**

While you fast, your body elimination rate increases through kidneys, skin, lungs, and liver. The intake of juices during a fast carries off dead and unwanted body wastes. Plenty of salad and two apples the day before you fast may help to clean colon walls of fecal matter.

Start the first day of your fast with an 8 oz glass of prune juice every ten minutes for half an hour. Then drink two 8 oz glasses of apple juice after twenty and thirty minutes. Continue drinking 8 oz of apple juice each hour until five in the evening. Additionally, eat around six apples. This process should help to clean your colon thoroughly.

If you have no bad effects, you may continue your fast on the second and third days by **drinking a combination of fruit and vegetable juices and eating two to six apples.**

After your fast, eat soft and gentle foods initially to help your system adjust to solid food.

## 25. Step Four: - Making Changes to Your Diet

Your face is a mirror which reflects your diet and eating habits. Your food may be divided into **acid- or alkaline-forming groups**.

**Alkaline forming foods** are best, although you can eat small portions of acid-forming foods. Acid-forming foods include fried foods, rice, white breads, milk, cheese, yogurt, etc. Alkaline foods are fruits, vegetables, seeds and nuts. **Acidic foods build up toxins in your body while alkaline foods eliminate such toxins and maintain a clean digestive system.** This helps to keep your skin clear and clean.

Additionally, your body needs sufficient fatty acids from **foods rich in Omega-3, Omega-6, and Omega-9**. These fatty acids control the excess production of sebum and other hormones and help to develop a strong immune system with fewer inflammatory disorders.

You gain essential omega acids from sesame seeds and oil, avocados, pumpkin seeds, salmon, sardine, dark green leafy vegetables, walnuts and other nuts, olive oil, olives, flaxseed and its oil, grape seed oil and sunflower seed oil, etc. Fish oils contain EPA and DHA fatty acids, which produce prostaglandins to control excess hormonal secretions.

**Drink water in sufficient quantities** to keep your body cells hydrated and add a supple look to your face.

**Stay away from sugary foods and beer.**

## 26. Step Five: - Foods to Avoid

Your face is a reflection of what you eat and drink. Eat healthy foods to avoid toxicity and constipation. Natural and permanent cure of acne through proper diet is best as drugs provide only temporary relief and you may suffer from their side effects too.

Foods to avoid if you want to reduce acne are -

- 1 **Fried fatty foods** like beef, butter, and cheese.
- 2 **Artificially flavored and preserved foods** which may leave unhealthy wastes in your body.
- 3 **Processed foods** cause constipation, as they lack fiber and need lot of digestive enzymes, minerals, and vitamins for their digestion.
- 4 Stay away from **sodas, coffee, alcohol, beer, iodized salt, chocolates, white bread**, etc.
- 5 **Vitamin B12 in excess** of your body's needs causes acne.
- 6 **Milk and milk products** are difficult to digest and sometimes cause mucus and allergies. Excess of such mucus causes acne. Cow's milk contains iodine, and various hormones are present in high percentages in the milk of pregnant cows. These hormones create androgen, which leads to sebum production.

However, maintain necessary calcium levels in your body by eating calcium-rich foods other than milk and milk products if your doctor advises you to reduce or avoid milk products.

Reduce your intake of acne-encouraging foods steadily, not quickly.

**Always seek your doctor's advice before making changes to your diet.**

## 27. Step Six: - Using Essential Fatty Acid

Your body needs fatty acids-**omega-3, omega-6, and omega-9** in sufficient quantities daily to curb the production of excess androgens which produce sebum oil that clogs hair follicles and causes acne. Lack of such essential acids causes inflammatory and skin disorders or eruptions, and weakens your immune system.

You can receive your supply of these essential acids through different vegetable oils, seeds, and nuts. These could be **monounsaturated fatty acids** found in avocados, or **polyunsaturated fatty acids**, found in Flaxseed oil and olive oil. Other important sources of fatty acids include **flaxseeds, pumpkin and sesame seeds, sesame oil, salmon, sardine, wheat germ oil, dark leafy green vegetables, walnuts, olives, grape seed oil, sunflower seeds, pine nuts**, etc.

You can either take one or two tablespoonfuls of such essential fatty acids daily or use them in your cereals, smoothies, salads, soups, and similar liquid foods. Alternatively, **two or three tablespoons of omega-6 oil everyday may meet daily needs of all fatty acids in your body**. This can help to keep your face clear of acne.

**Ask your doctor before starting to use any supplements.**

## 28. Step Seven: - Using Fish Oil

Fish oils are **rich sources of omega-3, omega-6, and EPA and DHA fatty acids**. Body enzymes convert omega-6 into different useful fatty acids. Fish oils help the formation of **prostaglandins**, chemical hormones which control the production of androgen, and help with the regulation of the functioning of body cells and organs. A high androgen level in the body causes excess sebum that blocks skin pores, which leads to acne.

**Eating mackerel, halibut and salmon twice a week** may provide sufficient quantities of fish oils to your body. Alternatively, fish supplements like **two capsules of Omega-3 Norwegian Fish Oil** with each meal, if suitable for you, may meet your requirements of fish oils and reduce acne.

Your body forms both good and bad prostaglandins. Maintain adequate prostaglandin levels by consuming omega-6 and omega-3 fatty acids in a 2:1 ratio. Excess of omega-6 fatty acids causes formation of more bad prostaglandins. Additionally, reduce intake of eggs, dairy products and meat to help the good prostaglandins work well. Multivitamins and minerals may also accelerate breaking of fatty acids into prostaglandins.

If you consume at least twenty percent of your body calories in the form of fish oils and omega fatty acids, that may reduce acne formation and inflammation.



## 29. Step Eight: - Juices You Should Be Drinking

Fruit juices supply essential vitamins and minerals directly to the blood. They help digest fats and proteins, clear toxic wastes and fight against bacteria. If you use a juice extractor (highly recommended), use fresh fruits and consume the juice within two to three hours of extraction.

Juices you should drink to help with your acne problems are:

**Lemon Juice:** It may help with liver and skin disorders, constipation, infections and reduce mucus formation.

**Apple juice:** Two glasses of apple juice a day helps to maintain good and healthy skin.

**Cherry juice:** It contains numerous minerals and neutralizes acidic body wastes, maintaining better alkaline levels in your body.

**Orange and grapefruit juice:** Equal portions of grapefruit and orange juice form a strong drink. It supplies your body with helpful minerals and vitamin C.

**Apricot and berry juice:** Equal portions of apricot and berry juices, with a little honey, makes a tasty drink.

**Melon Juice:** It helps in clearing kidney and skin disorders. Also, as with fresh fruit in general, melon juice helps to keep your bowels operating smoothly.

**Orange and lemon juice:** Orange and lemon in a three to one ratio, with sufficient water and honey, may be your secret to radiant skin. It increases skin metabolism and removes dead skin.

**Pear, Prune, Peach, Strawberry, and Pineapple juices** also may be helpful against acne.

## 30. Step Nine: - Fruits You Should Eat

**Apricots:** These contain fiber, beta-carotene and minerals, which can help with constipation and to control acne.

**Apples:** They contain pectin, bioflavonoids, fiber, ascorbic acid and vitamins to help with clearing acne and improving skin health.

**Blueberries and Blackberries:** They help to clean your blood and kidneys, and help with various skin disorders and constipation.

**Bananas:** A banana a day has a quantity of fruit chemicals, which supplements the good bacteria in your colon. This prevents bad bacteria from creating as much toxic acids, leading to acne.

**Cherries:** They ease bowel movements and maintain liver and kidney health.

**Grapes and Grapefruits:** These help to maintain skin and liver health by removing poisons. This improves the quality of your blood.

**Strawberries:** The high pectin content fights acne and help to maintain regular bowel movements.

**Mango:** Minerals in mango help to nullify acid wastes and reduce kidney inflammation.

**Pineapples:** They contain papain that helps the digestion of protein and to remove intestinal worms and mucus.

Other fruits, like **figs, plums, and raspberries**, may help to control your acne.

## 31. Step Ten: - Vegetables to Eat

Vegetables are major sources of minerals and nutrients. Vegetable juices enter your bloodstream immediately. This helps in faster absorption of nutrients and provides quicker relief from constipation, skin disorders and acne. Minerals in vegetables help to maintain pH levels, neutralize acids and build bones, body tissue and blood.

The vegetables believed most helpful against acne are -

**Cabbage:** Detoxifies detrimental chemicals from food additives.

**Carrots and Broccoli:** They contain vitamin A carotenoids and beta-carotene for repairing body tissues and removing body wastes.

**Cucumber:** The high silicon, sulfur, and water content cleanse the blood and reduces inflammation.

**Celery:** Its high fiber content helps to reduce nervous tension and eliminate body wastes.

**Green pepper:** This improves liver health and reduces constipation.

**Garlic:** This antibiotic helps with bacterial infections.

**Watercress:** It supplies essential vitamins and minerals to help to maintain body health and functions.

**Radishes:** They promote good digestion, are good for the bowels and help to maintain the health of the liver and pancreas.

**Vegetable sprouts:** These are a rich source of vitamins, and help to reduce body acids.

You can drink a **combination of vegetable and fruit juices** like carrot and apple juice, carrot, apple and spinach juice, etc. All of them are believed to help against acne and skin disorders.

## 32. Step Eleven: - Eating Protein-Rich Food

**P**rotein-rich foods build body tissues and bones. **Eating proper protein-rich foods improves your health and helps to fight off skin problems.**

Excess consumption of meat may lead to indigestion and constipation. These provoke bad bacteria and the accumulation of toxic wastes in your colon. This reflects negatively on your skin.

Regular consumption of certain protein-rich foods like nuts and seeds may help to improve and cure acne. Eat them raw to preserve their vitamin and mineral content.

Protein-rich foods are:

**Oats:** Oats with honey or raisins for breakfast develops regular bowel movements and keeps your skin glowing.

**Whole grains:** These contain minerals, fiber, vitamin B, E, magnesium, and folic acid for building body tissues and easing the elimination of wastes.

**Brown rice:** Amino acids in brown rice can help to rebuild body tissues.

**Sesame seeds:** Their high phosphorous, calcium, and potassium contents can help with skin problems like acne.

**Almonds and Pecans:** These contain essential proteins, vitamins, and minerals for building tissues and muscles.

**Sunflower seeds:** This rich source of calcium, vitamin A, and proteins is good for problems of dry skin.

**Flax seeds:** This rich source of omega-3 oils acts as an anti-inflammatory and may help to prevent acne formation.

### **33. Step Twelve: - The Vitamins You Should Take**

The intake of vitamins and minerals in your daily diet can help the treatment of your acne.

Essential vitamins and minerals are:

**Vitamin A:** Water-soluble vitamin A (25,000-40,000 IU) before meals can help to fight off acne.

**Do not exceed 40,000 IU as high levels can be toxic.**

**Vitamin E:** 400 IU of vitamin E twice a day before meals may help to keep your skin soft, hydrated, and supple. It also repairs body tissues. You tend to look younger.

**Vitamin C:** Vitamin C in dosages of 1000mg three times a day may help to maintain skin health.

**Magnesium:** It can help control hormonal imbalances and to reduce acne formations.

**Zinc:** It helps with the absorption of vitamin A and in regulating vitamin E levels in the blood. It also may kill acne-causing bacteria.

**Selenium:** It helps in the efficient working of antioxidants and to retain skin elasticity.

Different vitamin supplements like digestive and systemic enzymes, electrolyte minerals, vitamin B complex and oxygen elements develop and improve your immune system and help you fight off acne.

**Supplements should only be used under medical advice and at the levels advised by your doctor.**

### 34. Step Thirteen: – Herbal Mixtures

Herbal mixtures can offer positive results for acne but you may suffer strong initial reactions, so consult your doctor before starting.

Herbal mixtures generally increase acne ruptures at the onset. This is due to the powerful impact of herbs on acne, but the acne may heal after that.

Some herbal teas available over-the-counter may be effective against acne. You can drink tea at any time of the day. You can make your herbal tea at home by using one or a combination of all these herbs or a few of them.

**Before using any herbs, consult your doctor and make yourself aware of each herb's ingredients, properties and effects.**

Herbs contain chemicals, alone or in combination, in natural form and many of these chemicals have powerful and not always helpful effects.

Look at herbs such as Fragrant valerian, Dandelion, Goldenseal, Burdock, Ivy, Echinacea, Watercress, Marshmallow root, Yarrow root, Purslane, Wild strawberry leaves, etc.

**Burdock-Sarsaparilla Compound** is a herbal extract containing Jamaican sarsaparilla root, Burdock mature seed, Nettle mature seed, Spilanthes flowing herb, Yellow dock root and Sassafras root bark. These ingredients are claimed to cleanse your blood by improving liver functioning, thereby fighting off acne infections and inflammations. If you use this, stick to the recommended dose or less.

Herbal extracts trigger various reactions and you must follow instructions diligently. Do not use herbal extracts as the only method to cure your acne. Stop using such extracts if you have any sort of negative reaction or if your acne clears.

### **35. Step Fourteen: – Changing Your Thinking**

**A**cné is often a physical reflection of your thoughts and emotional traumas. It occurs due to your way of thinking. Your thoughts may encourage the production of certain chemicals, which may then flow through your blood and aggravate the physical functioning of your body as a whole.

So, mend your emotional and mental thinking to ward off acne problems. **Accept your physical appearance and ignore whatever others have to say or think about your acne.**

Your acne is a physical reflection and representation of your inner toxic elements. **Emotional imbalances often upset all biological functions of your body** and may encourage various illnesses like constipation and body pain.

Other factors include irregular, improper and insufficient intake of food, lack of sleep, little or no exercise etc.

**Acne eruptions display your emotional or mental conflicts.** Although most remedies produce positive results for acne, mental disturbances often find reflection in other physical illnesses, like ulcers, irregular bowel movements, nervous twitches and stomach disorders.

**The best way to deal with such emotional disturbances is to develop a positive attitude,** progress with your goals and aims and evolve as a better and more balanced individual.



## Part-VI: Coping with Acne

### 36. The Psychosocial Impact of Acne

Acne has been the cause of anguish since time immemorial, especially so when it comes on the heels of adolescence. Teenagers suffer from low self-confidence, have a poor image of their bodies and can even sink into severe depression.

However, they should not, and do not have to suffer any more. Stress-busting techniques such as yoga, meditation, psychotherapy and counseling along with family support where available, can ensure that the patient will build up his or her self-worth and optimism.

Here are some of the most common effects of acne on the psychological and social levels of a patient's life –

- 1 Reduced self-esteem
- 2 Low self-confidence
- 3 Social withdrawal
- 4 Embarrassment about self and body
- 5 Anger and frustration at one's condition
- 6 Severe depression
- 7 Loss of interest in job, social life and marital life
- 8 **Dysmorphophobia** (focusing on imagined body flaws): Patients suffering from mild acne have a distorted image of their bodies in this condition. They feel they have

severe acne and, as a result, suffer from the symptoms mentioned above. If this is the only noticeable abnormal behavior, the patient will respond well to a low-dose therapy of isotretinoin, where otherwise suitable.

These symptoms do not always occur singly, but are often interrelated. Without treatment, they go on increasing in severity and can eventually prove to be crippling. Patients need to remember that acne, in most cases, is just a phase in their lives that it will eventually pass. Modern day treatment therapies can help them a lot. Patients should not be scared to approach their dermatologists and psychiatrists at the very first symptom. Doctors can help them get back their zest for life in a short time.

## 37. Myths and Misinformation about Acne

There are many myths regarding acne. Knowledge is the cure.

**Myth: Acne occurs due to insufficient washing of the face.**

**Fact:** Acne occurs due to dirt and bacteria but you can keep your face sufficiently clean by gently washing it twice a day. Excessive washing removes too much oil from your face. This stimulates oil secretion by your sebaceous glands which may cause more acne.

**Myth: Avoid Oily Food, Chocolate or Caffeine**

**Fact:** Although there is no medical proof for specific diets and acne, certain foods seem to encourage acne in certain people. Hence, you need to note if you suffer from any specific allergies or are sensitive to specific kinds of food. Some people are sensitive to iodized foods while others are sensitive to protein-rich foods.

**Myth: Acne vanishes if you leave it untreated**

**Fact:** The early treatment of acne prevents further spreading. Successful early treatment removes most chances of scarring. Sometimes (rarely), acne will vanish when left untreated, unwashed and ill-fed. Go figure!

**Myth: Intake of lots of water clears acne**

**Fact:** Sufficient water intake keeps you healthy and is a minor constituent of acne cure. Just drinking huge quantities of water cannot cure your acne.

**Myth: Higher than recommended medicinal dosages results in better and faster acne cure**

**Fact:** Medicines in larger dosages do not offer extra cure or relief from acne. **Taking medicines, etc in more than prescribed dosages is dangerous.**

**Myth: Basking in Sunshine cures acne**

**Fact:** Sunbathing for short intervals dries up excess oils but it does not work as a long-term relief from acne. Rather, excessive exposure to the sun is harmful and increases acne due to severe

drying of the skin.

**Myth: Acne affects only teenagers**

**Fact:** Acne is a common occurrence among teenagers. However, many adults in their forties also face acne outbreaks. For some, acne problems are present throughout their lives.

**Myth: Picking acne cures it**

**Fact:** Picking at acne spreads bacteria and causes more acne. Besides, such picking can leave behind permanent scars.

**Myth: Excess sex causes acne.**

**Fact:** Although sex releases hormones, there is no medical proof connecting sex and sebum production, which is the main cause for acne.

## 38. When to Seek Professional Help

Acne, as was mentioned earlier, is one of the most common dermatological disorders in the world. Almost 85% of teenagers experience it in some form or other during their adolescent years. Usually, acne clears up after four to five years without any medication. Adults who suffer from the condition may not need to consult a physician, if their acne is mild as it might clear up on its own. However, many people experience extremely severe outbreaks of acne, which do not clear up at all, or leave behind scars and lesions if it does subside. Men, especially, are prone to getting severe acne. In such cases, it is essential to seek the help of a qualified professional; either a physician or a dermatologist.

How do you know if your acne is severe? Well, it is simple, really. If there are more than ten blemishes on any particular area of your body, your acne is categorized as severe. Consult a health professional immediately if you find that you have severe acne.

You should also call a doctor if you experience any of the following -

- 1 Pimples become larger and get filled with fluid.
- 2 Acne lesions become painful.
- 3 After your pimples heal, you notice scars (in the form of pits) along with lesions.
- 4 Over-the-counter medications do not help reduce the symptoms.
- 5 The acne gets worse, despite medication.
- 6 You notice acne-like symptoms as a side effect of taking a new drug.
- 7 You start getting irregular periods, muscle pain, fever, increased hair growth or there's an

abrupt worsening of your acne. These symptoms may indicate serious skin infection.

- 8 Dark patches start appearing on the skin and you have a dark complexion.
- 9 Pimples, pustules and papules appear on exposure to harmful chemicals or oils.

## 39. Tips for Clear, Beautiful Skin

Clear and beautiful skin is not a mirage; you can develop such skin by following a regular skin/health-care regimen. Your skin is a reflection of your inner self and displays physical, emotional, and genetic attributes.

Ten tips for clear, beautiful skin are -

**1. Proper Exfoliation:** Dead skin cells clog skin pores, which later turn into ugly blackheads. This prevents the natural excretion of dirt and oil and encourages acne and pimples. Regular exfoliation (the removal of dead skin cells) is the first step to clear skin.

**2. Keep hair away from your face:** Hair contains oil, and brushing your hair against your face increases and spreads oiliness.

**3. Keep hairspray and gels off your face:** These contain chemicals which are harsh on your tender facial skin. Such chemicals bruise, rupture, and cause skin scars. These lead to the formation and growth of bacteria causing acne and pimples.

**4. Do not touch your face with your hands:** Your hands contain invisible dirt, oil, and bacteria. When you touch your face with them, it encourages acne and spreads it too.

**5. Gently wash your face regularly two or three times a day:** Use a good cleanser to wash your face and do not change cleansers too often.

**6. Use moisturizer after washing your face:** Use an oil-free moisturizer after washing your face to keep your skin's pores clean. Similarly, water-based make-up helps your skin breathe more easily.

**7. Avoid picking at acne and pimples:** It is most tempting to pop pimples, but this spreads the bacteria.

**8. Eat Proper food:** Fried and oily foods contain higher percentages of oil. This increases oil secretion in your body, which accelerates acne breakouts. Exclude sugary and fatty foods; instead, stick to light meals of vegetables and fruits with some cereals, proteins, and lots of water.

**9. Stop changing face creams and lotions too frequently:** Follow your skin care regimen diligently and do not change creams, liquids, and lotions often. You should test the suitability of different face creams, finding one that suits you.

**10. Stress:** Relax when it is appropriate, and get enough exercise. Your body reacts negatively to high levels of stress, and it is often the health of your skin which reflects the stress you are under. And of course, an acne outbreak only tends to add more stress to your life.



## Part-VII: Treatment of Acne

### 40. Acne Treatment

The treatment of acne depends on the severity of it. With mild acne, home care - including proper diet along with nonprescription products – is often successful in controlling the disease. In more severe cases, it is essential to seek the help of a qualified health care practitioner. The following table shows some of the medical options used to treat acne, according to the severity of the case:

	- Benzoyl peroxide
<b>Mild acne</b>	- Azelaic acid
	- Topical Retinoids
	- Antibiotics
<b>Moderate acne</b>	- Hormonal treatment
	- Isotretinoin
<b>Severe acne</b>	- Surgery

## 41. Treatment of Mild Acne

Mild acne can often be successfully treated with over-the-counter products such as mild washes, soaps, lotions and gels. Other mild medications include –

### 1. Benzoyl peroxide

Benzoyl peroxide is an extremely mild topical medication, and is used commonly to treat acne. Studies have proven that it is safe for adults and children as well as pregnant women.

The properties that make benzoyl peroxide useful in treating the condition are –

**It is an antiseptic:** The product acts on the skin surface, reducing the number of bacteria and yeasts. It has the edge on antibiotics in that it doesn't cause bacterial resistance to develop. It may actually reverse any resistance built up due to prior medications.

**Acts as an oxidizing agent:** Benzoyl peroxide is comedolytic; it reduces the number of comedones on the skin's surface.

#### 1 It is an anti-inflammatory

Benzoyl peroxide is available as a non-prescription product in the form of creams or gels. It can be combined with other topical drugs as well.

### **Possible problems with benzoyl peroxide products:**

- 1 Mild skin irritation, including redness, dryness, and itching of treated area.

## 2. Azelaic acid

Azelaic acid is found naturally, as the by-product of the yeast (*Pityrosporum ovale*) living on healthy skin. It is available as a non-prescription drug, either as a gel or as a cream. It is applied directly to the skin, and it acts by exfoliating dead cells from the skin, thus preventing the clogging of pores.

## 3. Topical Retinoids

**Retin-A (Tretinoin):** This is a derivative of vitamin A. It helps by reducing inflammation, fighting bacteria and opening blocked pores. It comes in the form of a cream or a gel, and is applied directly to the affected area.

**Caution:** Retin-A (Tretinoin) can cause peeling of the skin, causing photosensitivity, irritation and redness.

**Adapalene:** This is a topical retinoid closely related to Retin-A. However, it is much milder than Retin-A and may cause less skin irritation.

## **42. Treatment of Moderate Acne**

If acne does not improve with home care (proper hygiene, diet, sleep, exercise and mild topical medication), the patient should seek medical help. In moderate acne, oral antibiotics, topical antibiotics and hormonal therapies are the three most commonly prescribed treatments.

### **1. Antibiotics**

Antibiotics are anti-inflammatory in action. They act on the skin by reducing the number of bacteria in the hair follicles and on the skin surface.

#### **Topical antibiotics**

The most commonly prescribed topical antibiotics are -

- 1 Erythromycin
- 2 Clindamycin

#### **Side effects of Topical Antibiotics**

- 1 Contact dermatitis
- 2 Mild irritation of the skin
- 3 Dryness in and around the area treated

Bacterial resistance due to infrequent use of antibiotics. To lessen resistance, the antibiotic should be applied twice a day, and may be combined with benzoyl peroxide, subject to the advice of your medical professional.

## **Oral antibiotics**

The oral antibiotics most commonly prescribed for acne include -

- 1 Tetracycline
- 2 Erythromycin

## **Side effects**

- 1 The patient can be allergic to the antibiotics in rare cases.
- 2 Photosensitivity can occur.
- 3 Nausea, diarrhea and gastrointestinal irritation
- 4 Women can get vaginal thrush/yeast infection.
- 5 One of the most severe side-effects of antibiotics is bacterial resistance

## **2. Hormonal Therapies**

Androgenic, or male hormones such as testosterone, affect the sebaceous follicles and stimulate them to produce excessive sebum. Hormonal therapy is aimed at blocking the effect of androgens. This therapy is an option for women whose acne does not respond to other medication.

The options available in hormonal therapy are –

- **Estrogen:** Estrogen is the female hormone. Estrogen may counter the effects of androgens and hence decrease sebum production. Sometimes, doctors prescribe estrogen

alone. Then, the patient should be closely monitored throughout the treatment period, as estrogen can affect the physiology of the body in various ways.

- **Estrogen-containing oral contraceptives:** Oral contraceptives that have estrogen as one of their constituent hormones are the most commonly prescribed. They do not have as many side effects as estrogen alone, because the other hormones in the contraceptives balance its effects. However, women still need to be monitored for possible side effects such as menstrual spotting, tenderness in breasts and weight gain.

## **43. Treatment of Severe Acne**

If there are more than ten lesions on any single part of your body, your acne is considered to be severe. The options to treat severe acne include the use of isotretinoin, accutane and surgery.

### **1. Isotretinoin**

Isotretinoin is a retinoid derived from vitamin-A, and is extremely effective in treating severe acne. It helps to normalize exfoliation of skin cells in hair follicles affected by acne. It is a very potent drug, and patients taking it should be constantly monitored for side effects. Patients should ask their dermatologists about the medicine before beginning treatment. They should also know that only 50% of patients are completely cured by this drug. Many people experience relapses after a few years. In such a case, the same treatment needs to be done once more.

Isotretinoin may be useful in the following conditions –

- 1 Acne fulminans
- 2 Acne conglobata
- 3 Severe acne vulgaris
- 4 Recurring acne
- 5 Nodular acne
- 6 Acne which results in scarring
- 7 When the acne has a severe psycho-social affect on the patient's life

### ***Properties of isotretinoin***

- 1 Isotretinoin shrinks the sebaceous glands, thereby reducing sebum production.
- 2 It is an anti-inflammatory
- 3 It inhibits the growth of bacteria as it keeps the skin dry
- 4 It removes comedones and prevents the formation of new ones.

### ***Side Effects and Precautions***

Isotretinoin is a strong drug, and has several side affects. Some of these are:

- 1 It makes the acne flare-up before it starts to heal
- 2 All patients get dry and cracked lips
- 3 Dry, sore and red eyes
- 4 Risk of conjunctivitis
- 5 Dry and itchy skin
- 6 Nosebleeds in some people
- 7 Mild headaches occur in a percentage of people.



- 8 Severe headaches and blurred vision occur rarely, but if they do, the patient should contact the dermatologist immediately.
- 9 Heavier and irregular menstrual periods

**Some important precautions to be kept in mind are:**

- Isotretinoin should not be taken with tetracyclines.
- Isotretinoin should not be taken with Vitamin-A.
- Pregnant and lactating mothers must **not** take this drug.

### **Monitoring the Patients**

Patients taking isotretinoin need to be constantly monitored. Some of the tests they should undergo often are -

- 1 Blood tests to check for triglycerides and cholesterol levels
- 2 Total blood count
- 3 Pregnancy test
- 4 Liver function tests

## **2. Accutane**

Accutane is an extremely potent form of isotretinoin, and is used only for very severe acne. It works by reducing the number of bacteria on the surface of the skin, reducing the level of sebum

and unclogging blocked pores. However, it has strong side effects such as behavioral changes and severe depression.

Women trying to start a family, already pregnant or lactating should **not** take accutane.

### 3. Corticosteroids

These are very powerful anti-inflammation drugs used to treat severe acne. When given in low doses, they help to stop the excessive secretion of androgens. However, corticosteroids can trigger steroid acne when used for a long time. So, they should not be taken over a long period.

### 4. Surgery

Surgery is required in cases of acne that does not respond well to other treatment, and in cases of severe scarring. The various surgical options include –

**Comedo extraction:** When comedones have not responded to any treatment, a dermatologist can extract them surgically.

**Ultraviolet light therapy:** This therapy is used more as a cosmetic treatment than a cure.

Ultraviolet light merely helps tan the skin, thereby masking some scars. However, tanning may increase the risk of skin disorders. If your dermatologist recommends this course of action, and you are concerned about the risk, let him/her know.

**Chemical Peels:** This therapy is used by a dermatologist to decrease the number of papules and to remove blackheads by applying chemical peels containing glycolic acid.

**Dermabrasion for acne:** Dermabrasion is used to smooth out scars near the surface of the skin. The procedure is carried out as follows:

- 1 The affected skin is numbed

- 2 It is then frozen by applying either liquid nitrogen or Freon
- 3 This skin is then removed carefully
- 4 The skin bleeds during the procedure, so the affected skin is bandaged after the treatment

The effects of the procedure can be seen after a week, when the skin starts looking smooth and shiny. However, dermabrasion can lead to discoloration of the skin. To prevent this, patients should avoid going out in the sun for at least 2 months after the treatment has been performed.

**Collagen injections and gelatin implants for acne:** Collagen injections and gelatin implants are commonly used to treat acne scars. They are injected directly into the scars, and help to smooth out the skin in the scarred area by raising the level of skin underneath the scar. The side effects of this therapy are few and not very serious. Injections may cause itching, redness and swelling of skin. The skin under the scar might harden due to gelatin implants.

**Cryotherapy for acne:** In Cryotherapy, dermatologists apply solid carbon dioxide or liquid nitrogen to bring down the temperature of a person's skin. This causes the outer layer of the skin to peel away, which removes the comedones as well. Cryotherapy has few side effects, which include redness, itching and stinging of the skin.

## **44. The Powerful Effects of Accutane -The Risky Miracle Drug**

### **What is Accutane?**

Accutane is a member of the family of drugs called retinoids, Accutane is the most potent and effective drug available for treating acne at the time of writing. With its main, or active, ingredient being Isotretinoin, a single course of the drug can clear severe acne *permanently*. The other side of the coin is that, along with its powerful healing potential, the drug can cause severe side effects.

The U.S.A. Food and Drug Administration has categorized it as a 'high-risk' drug, and allows its usage only in cases of 'severe, recalcitrant, nodular acne' – acne which is resistant to other drugs.

The medication guide on Accutane is to make you aware of the adverse effects of the drug. However, it does not take the place of your physician. Before you start to take the drug, consult in detail with him or her about the side-effects you might experience, as well as its possible benefits to you.

Here are some of the many side effects that Accutane can cause.

### **1. Risks during Pregnancy and Lactation**

Accutane is a teratogenic drug, i.e. it can cause severe birth defects in babies born to mothers who take Accutane before or during pregnancy. It is thereby a 'Category X' drug, one that must be avoided during pregnancy as well as lactation. Here are the various ways in which accutane can affect unborn babies -

- 1 There is a high risk of miscarriage
- 2 The baby could be stillborn at birth

- 3 It may be born prematurely
- 4 If born, the baby could have severe deformities. These include facial deformities, heart defects, mental retardation, an abnormally small head (microcephaly) and enlargement of fluid-filled spaces of the brain (hydrocephaly).

It is important that women do not become pregnant while being treated with accutane. If you are taking accutane, you should ensure that you do not conceive beginning from 1-month before the start and 1-month after completion of the course.

As a precaution, you should use at least *two* different forms of contraception. However, if despite taking these precautions, you miss a period or get pregnant, stop taking Accutane *immediately* and consult your doctor.

To ensure that such a situation is avoided, doctors do not prescribe the drug without prior confirmation of two negative pregnancy tests. Once prescribed, they will conduct routine tests to rule out pregnancy.

## **2. Psychiatric Distress**

Accutane can cause serious psychiatric problems in some people. These can range from depression or psychosis to suicidal thoughts. If you experience any abnormal symptoms after beginning the medicine, consult your doctor immediately. These symptoms may include;

- 1 Low energy
- 2 Trouble concentrating
- 3 Becoming more temperamental than before (i.e. easily irritated, aggressive or angry)
- 4 Trouble sleeping

- 5 Sleeping for longer periods than before
- 6 Feeling sad and having bouts of crying
- 7 Loss of interest in hobbies or work
- 8 Loss of interest in meeting or being with family and friends
- 9 A sudden change in body weight or appetite
- 10 Feelings of guilt, worthlessness
- 11 Suicidal thoughts

**Caution:** Merely stopping the course of Accutane does not resolve the psychiatric problem. Patients should seek help from a counselor or a psychiatrist to alleviate their problem.

### 3. Abdominal Problems

Some patients may experience abdominal distress, which may be a symptom of damage to the internal organs (i.e. the pancreas, liver, intestines and the esophagus). Some symptoms of abdominal problems include -

- 1 Diarrhea
- 2 Dark urine
- 3 Pain in the chest, stomach or bowels

4 Heartburn

5 Pain while swallowing

6 Rectal bleeding

If you notice any of the symptoms mentioned above, stop taking Accutane and call your doctor immediately. Do not delay in stopping the drug, as damage to the organs can become permanent.

#### **4. Effects on the Bones and Muscles**

Accutane can cause bone and muscle ache and, in severe cases, can cause damage as well. If you experience pain or weakness in your muscles and joints, a broken bone without apparent reason, or slow recovery of a broken bone, stop taking Accutane and consult with your doctor immediately.

#### **5. Brain Problems**

Accutane can affect the brain by increasing the level of pressure in it. The signs of increased brain pressure include -

1 Dizziness

2 Nausea

3 Headaches

4 Difficulty focusing (blurred vision)

5 Seizures

If you get any of these symptoms, stop taking Accutane immediately. Failure to do so may let the problem progress, which can lead to loss of eyesight and, in extremely severe cases, even death.

## **6. Problems with Vision**

Symptoms include -

- 1 Dryness of eyes
- 2 Pain in eyes
- 3 Problems seeing in the dark (night blindness)

If you get any of these symptoms, stop taking Accutane and consult your doctor.

## **7. Effects on Hearing**

Accutane can cause hearing loss in a few people. If you notice symptoms such as a ringing in the ear, problems hearing or consistent worsening of hearing, consult your doctor immediately.

## **8. Effects on Lipid Levels**

Accutane can lead to higher than normal levels of cholesterol and other lipids in the bloodstream. As serious as this problem is, it usually subsides once the treatment is over. However, you should have regular checkups to monitor the lipid levels in your blood.

## **9. Allergies**

Some people are allergic to accutane. While many of these allergies are mild, some are extremely severe and require emergency aid. Here are some symptoms of allergies.

Symptoms requiring immediate medical attention:



- 1 Swelling in face or mouth
- 2 Hives
- 3 Breathing difficulties

Symptoms for which you should consult your doctor:

- 1 Fever
- 2 Rashes
- 3 Bruises on the legs

## **10. Blood Sugar Problems**

Accutane can cause serious problems in the blood sugar level. If you get any of the following symptoms, tell your doctor immediately -

- 1 Excessive thirst
- 2 Frequent urination

## **Symptoms of other Serious Problems**

- 1 Fainting episodes
- 2 Shortness of breath

- 3 Generally feeling unwell
- 4 Convulsions
- 5 Speech problems
- 6 Difficulty moving

### ***Some less Serious Side-Effects***

- 1 Dry skin
- 2 Dryness of eyes and nose
- 3 Bleeding from the nose
- 4 Chapped lips
- 5 Initial worsening of acne (however, people should continue taking the drug as prescribed by their doctor)
- 6 Difficulty wearing contact lenses due to dryness of eyes

This is not a comprehensive list, but these are some of the more important side effects of Accutane. Keep a look out for any symptoms other than the ones mentioned here, and report them to your physician immediately.

## **Precautions for Patients**

Patients taking Accutane should **not** -

- 1 Get pregnant
- 2 Breast-feed
- 3 Take supplements containing Vitamin A
- 4 Donate blood
- 5 Expose themselves to sunlight and ultraviolet light
- 6 Take birth control pills that do not contain estrogen
- 7 Get cosmetic skin-smoothing procedures such as waxing (avoid these procedures for at least six to seven months after completion of the course.)

## **The Treatment Procedure**

One course of Accutane lasts for five months. A single course is usually sufficient to clear up the acne permanently, though some people require more than one. You should adhere to these guidelines while taking Accutane:

- 1 Discuss your family history with the doctor. Include all information, including psychiatric or physical problems, allergic reactions and asthma, etc.
- 2 Once prescribed the drug, ensure that your prescription has a yellow label on it. The chemist will not give you the medicine without such a sticker.

- 3 Only take the dosage prescribed by your doctor.
- 4 If you miss a dose, do **not** take a double one the next time.
- 5 Go for complete, regular checkups to monitor any changes and rule out serious symptoms.
- 6 Get a pregnancy test *every month*.
- 7 Discuss if you are taking other drugs (allopathic as well as herbal). Discuss in advance, whether you are or will be using corticosteroids or anticonvulsants during the treatment, as these can cause the bones to get brittle. One drug to avoid is 'St. John's Wort', as it lowers the efficiency levels of some birth control pills.
- 8 Do not take antibiotics, as some can combine with Accutane to increase brain pressure.
- 9 Finally, and most importantly, do not give Accutane to people to whom it has not been prescribed.

## **45. Budget Friendly Home Remedies for Acne**

Try these inexpensive home remedies to reduce your acne:

- 1 Clean your face thoroughly with saltwater and put cotton balls soaked in vinegar on your acne.
- 2 Apply egg whites around your acne for around twenty minutes.
- 3 Apply a few drops of tea tree oil directly to your acne. You may find positive effects with a month of regular usage.
- 4 Mix a teaspoon of fresh limejuice and groundnut oil. Apply this mixture to the acne. Similarly, apply paste of fenugreek leaves on a clean face at night and wash off after fifteen minutes with warm water to reduce occurrence of acne.
- 5 Raw papaya juice, including the juice of its seeds and skin, can be a powerful help for swollen acne.
- 6 Apply pulp of ripe tomatoes on acne and wash off within an hour.
- 7 Apply a paste of cinnamon powder (one teaspoon) and three teaspoons of honey on your acne before going to bed at night and wash with warm water next morning. You may be free of acne within two weeks.
- 8 Applying fresh garlic (an antibiotic) to acne may do the trick.
- 9 Apply paste containing equal portions of lemon juice and cinnamon powder as a remedy for acne.
- 10 Cooked and cooled oatmeal relieves acne.

- 11 Apply a paste of ground nutmeg and milk and acne may disappear without scars.
- 12 Apply a thin layer of Milk of Magnesia on your acne and wash with warm water for quick relief from acne.
- 13 Apply a paste of orange peel on and around acne for quick relief.
- 14 Turmeric paste on acne may help.
- 15 Dilute lavender oil with rose water or plain water to get relief from redness and itchiness of acne.
- 16 Soak cabbage leaves in witch hazel, strain liquid and add lemon oil. Apply it on acne.
- 17 Apply a mixture of cornstarch and vinegar on acne and allow it to harden for half an hour before washing with warm water.
- 18 Apply fresh mint juice every night on your face.
- 19 Eat a healthy diet with lots of fresh fruit and vegetables. Lower your intake of junk food, fried foods and carbonated drinks. Drink a minimum of a liter of water a day to clean your system of toxins.

[Another eBookWholesaler Publication](#)