



[Authoritative facts](#) about the skin from the [New Zealand Dermatological Society Incorporated](#).

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Soaps & cleansers

Why wash?

Everyone likes to feel clean; it's refreshing, invigorating, relaxing and enjoyable. Washing your skin removes excessive oil and unpleasant odours as well as make-up, [sunscreens](#) and dirt.

How to wash: wet your skin. Apply soap or cleanser to your hands, add warm water and work into lather. Massage gently. Rinse thoroughly. Gently pat dry.

Do I have normal, dry, oily or sensitive skin?

These terms are most frequently applied to facial skin, but may apply to other sites as well. To determine your skin type, wash your face and pat dry. Wait for an hour, then press a tissue to your forehead, cheeks, chin and nose. If your face is not shiny and there's no oily residue on the tissue, you have normal skin. If your face looks/feels tight or is flaky and there is no oily residue on the tissue, you have dry skin. If your face is shiny and the tissue reveals an oily residue, you have oily skin. Many people have combination skin: the T-zone (forehead, nose, chin) is oily but the cheeks are normal or dry.

Normal skin has a correct balance of moisture and oils. It is slightly acidic at a pH of 4.5–5.75 (6.5 under your arms). A variety of harmless (commensal) bacteria and yeasts live in low numbers on the skin surface, and may help protect your skin from infection (invasion by more harmful bacteria such as staphylococcus or streptococcus).

Sensitive skin is skin that stings easily, especially during or just after cleansing. Sensitive skin is more likely to be dry and is hyper-reactive, i.e. prone to develop [dermatitis](#) (itchy bumpy skin). Sensitive skin may be inclined to be red, flush easily or have broken capillaries (telangiectasia).

There is often an underlying skin problem such as:

- [atopic dermatitis](#)
- [seborrhoeic dermatitis](#)
- [rosacea](#)
- [psoriasis](#).

Oily skin, or [seborrhoea](#), predisposes to [acne](#). If you have an oily complexion, you may be tempted to scrub twenty times a day: don't! You might dry your skin too much and rather than preventing infection, you may even increase the number of harmful [bacteria](#). Just gently wash affected areas when you wake up, post-exercise and at bedtime.

What cleanser should I use?

Pure water alone is not quite enough: removing dirt, which is fat-soluble (lipophilic) and sticks to the skin, requires a surfactant.

Surfactants are active cleansing substances that consist of a fat-soluble (lipophilic) part and a water-soluble (hydrophilic) part. The lipophilic part sticks to oil and dirt, and the hydrophilic part allows it to be washed away. Surfactants may be a soap, a synthetic detergent or a combination. The choice of cleaning agent helps determine the product's lathering characteristics, feel on the skin and how easily it rinses off.

There is a wide range of products designed for washing, available as bars, liquids, gels, creams, shampoos, scrubs, masks, cloths and wipes. Manufacturers consider mildness, biodegradability, low toxicity, cleansing ability, emulsification, moisturization, skin appearance and feel, smell (fragrance) and lubrication to be important aspects of their products.

Cleansers may contain:

- Water to remove water-soluble (hydrophilic) components of dirt.
- A mixture of detergents or surfactants (surface-active agents) to remove oil-soluble (lipophilic) dirt, by loosening particles from the skin surface. Surfactants often have an electrical charge:
 - Anionic (negatively charged) surfactants to foam (lather) such as sodium lauryl sulphate, sodium laureth sulphate and sodium sulphosuccinate. Anionic surfactants rinse off easily.
 - Cationic (positively charged) surfactants include trimethyl dodecyl ammonium chloride.
 - Amphoteric surfactants are both negatively and positively charged to leave a pleasant sensation on the skin and reduce the irritant action of anionic surfactants. An example is cocamido propyl betaine; betaines are derived from sugar beet.
 - Non-ionic surfactants include polyethylene glycols (PEGs) and acyl-polyglycoside (APG).
- Emulsifiers such as diethanolamine (DEA) to prevent separation into layers of different chemicals.
- Moisturisers to replace skin oils and retain moisture in the skin.
- Fragrances to provide a pleasant smell.
- Preservatives to prolong shelf-life and prevent mould.
- Colours, humectants, thickeners and solvents such as glycerine to improve texture and appearance.
- Biocides (antiseptics) such as triclosan and para-chloro-meta-xyleneol (PCMX), to reduce bacterial count on the skin. They can reduce body odour and help certain skin disorders such as atopic dermatitis and acne. These products, depending upon their formulation and application, may also kill or inhibit the growth of bacteria that cause intestinal illnesses and other community infections. But there is concern that common household use may increase resistant organisms and actually make such infections more likely and more serious,
- Scrubs i.e. abrasive substances to smooth out rough skin (face) or remove stubborn dirt (industrial hand cleansers).
- Antioxidants, vitamins and alphanhydroxy acids (fruit acids) to smooth skin and reduce photoaging changes.
- Botanicals to soothe, heal, moisturise, for their astringent properties or to act as natural antiseptics.
- Exfoliating (peeling), keratolytic (skin-dissolving) or comedolytic (whitehead-removing) additives such as salicylic acid or benzoyl peroxide to reduce acne.

What are the complications of skin cleansing?

Soaps and cleansers can irritate and result in skin problems. These are rare with modern synthetic detergent products made by reputable manufacturers, if they have been designed for sensitive skin and are used appropriately. Over-washing may have the following effects:

- The pH of the skin may change. Water alone has a neutral pH of 7. Soaps are alkalis pH 7-12, which damage the skin barrier function.
- The number and type of bacteria may change. Alkalis may even increase the number of *Propionibacterium acnes* (the acne bacteria).
- The surface oil film ([sebum](#)) is removed, allowing greater water loss through the epidermis to the skin surface, from where it evaporates. This may lead to [dermatitis](#).
- The de-fatted skin may become excessively dry.
- The surface horny cells may be loosened, disturbing barrier function and allowing more water loss. The skin becomes more permeable to chemicals.
- [Dry skin](#) is more prone to infection with *Staphylococcus aureus*, resulting in [impetigo](#).

- [Irritant contact dermatitis](#) (red, dry, chafed skin) may develop. This may be provoked by the dry skin itself, or by a particular surfactant in the cleanser. [Sodium lauryl sulphate is more irritating than sodium laureth sulphate for example.](#) Cleansers designed to treat acne should be used with caution if leave-on acne products are used as well: too much treatment will result in excessive dryness and irritation.
- Stinging is particularly likely with alcohols, gels, [alpha hydroxy acids](#) or other additives
- [Contact urticaria](#) (immediate redness, itching and swelling) may arise due to fragrance, preservative or [benzoyl peroxide.](#)
- Some formulas are comedogenic (clog the pores), aggravating acne.
- Scrubbing may break open [comedones](#) (blocked pores) forming inflamed [acne pimples.](#)
- Applying a thick [moisturiser](#) to compensate for dryness could also aggravate acne.
- [Allergic contact dermatitis](#) (a delayed but persistent reaction) may develop to a component of the cleanser. Because they are rinsed off, true contact allergy to soaps and cleansers is rare. However it may result from:
 - Botanicals, such as [chamomile](#), lavender and rose oil
 - Preservatives, such as [Kathon CG](#) or [quaternium-15](#)
 - [Fragrances](#), such as hydroxycitronellal or oak moss
 - Emollients, such as [wool alcohol](#) (lanolin)
 - [Rosin](#), a sticky substance is some transparent bar soaps
- Protein contact dermatitis, a rare mixture of contact urticaria and allergic dermatitis, due to a protein component such as peanut or oatmeal.

Soap

Soap has been made since ancient times, but has been particularly popular for cleansing the body since the mid-eighteenth century when modern manufacturing processes were discovered.

Soap is an anionic surfactant. Soap is made from fats and oils mixed with alkali, forming glycerine and the sodium salt of the fatty acid. The fats required for soap making come from a combination of tallow, grease, fish oils, and/or vegetable oils. In ancient times, the alkali came from ashes but today the alkali for soap formed into solid bars is sodium hydroxide. Liquid soaps are made with potassium hydroxide.

The hardness, lathering ability, and transparency of soap vary according to the combination of ingredients.

Disadvantages of soap

- It is alkaline, which irritates sensitive skin, which is normally acidic.
- It forms scum when used with hard water (water that contains a high amount of calcium in solution). The scum stops the surfactant properties, so one tends to use more soap.
- Soap leaves deposits of carbonate salts on the skin. This irritates the skin.
- Soap deteriorates on storage.

Syndets

Synthetically produced detergents (syndets) were developed in the 1950s and are widely available. They are made from a variety of petrochemicals (derived from petroleum) and/or oleochemicals (derived from fats and oils). These hydrocarbon chain sources are used to make the lipophilic end of the surfactant molecule. Chemicals, such as sulphur trioxide, sulphuric acid and ethylene oxide, are used to produce the hydrophilic end of the surfactant molecule.

Compared with soap:

- Syndets can be set to the normal skin pH of 5.5
- The number of *Propionibacterium acnes* (acne bacteria) is reduced
- No scum is produced so they rinse off well

- Washed skin is less dry
- Sensitive skin is less irritated
- They are more expensive.

Hypoallergenic products

The manufacturers of hypoallergenic skin cleansers have tried to avoid using substances that are likely to cause contact allergy. Their products are often "fragrance-free" (low levels of masking fragrances are permitted), "mild" and "non-irritating". If you have acne, choose products that are labelled as "oil-free" and "non-comedogenic".

However, even hypoallergenic products may still be irritating to those with very sensitive skin, and they may still rarely cause contact allergy.

Labelling in the USA

For the US, the [FDA](#) states: "If a cosmetic claim is made on the label of a "true" soap or cleanser, such as moisturizing or deodorizing, the product must meet all FDA requirements for a cosmetic, and the label must list all ingredients. If a drug claim is made on a cleanser or soap, such as antibacterial, antiperspirant, or anti acne, the product is a drug, and the label must list all active ingredients, as is required for all drug products."

There are no specific labelling requirements in New Zealand.

Related information

On DermNet NZ:

- [Dermatitis](#)
- [Allergic contact dermatitis](#)
- [Irritant contact dermatitis](#)
- [Emollients](#)
- [Shampoos](#)

Other websites:

- [Dean Coleman](#): What is soap?
- [Chandler's Soaps](#): How is soap made?
- [Eucerin®](#) explains syndets
- [US Food and Drug Administration](#) on cosmetics
- [Ingredients in hair care products](#)
- [The Soap and Detergent Association](#)

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DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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