

## **Why Excellent Immune Booster is good!**

### **GINGER**

Ginger is a root product from a flowering plant of Zingiberaceae family. It is widely used as a spice and folk medicine. loaded with antioxidant, compounds called gingerols and shogaols that prevent stress and damage to your body's DNA. They may help your body to fight against chronic diseases like high blood pressure, heart and lung, disease, relieves indigestion, ease arthritis symptoms because of its anti-inflammatory functions and promote healthy aging. Also known to produce heating effect, therefore very suitable to take ginger products to help ease the symptoms of a cold or sore throat.

#### **Antibacterial**

A laboratory study found that ginger showed a higher antibacterial effect than antibiotics against *Staphylococcus aureus* and *Streptococcus pyogenes*. *S. pyogenes* is the bacterium that causes streptococcal pharyngitis, known as strep throat. Ginger's antibacterial power may also brighten your smile. Active compounds in ginger called gingerols keep oral bacterial from growing. These bacteria are the same ones that can cause periodontal disease, a serious gum infection. Ginger may be used to tame sore muscles, calm nausea in pregnancy and curbs cancer growth.

#### **Anti-viral**

Fresh ginger has been proved to have antiviral activity against human respiratory syncytial virus (HRSV), that is hot water of fresh ginger extract stimulate antiviral cytokines, therefore inhibited HRSV. In contrast, dried ginger didn't show any dose-dependent inhibition. Jung San Chang et al J Ethnopharmacol. 2013

### **LEMON**

The lovely bright fruit of the lemon tree offers a tart and flavourful source of fibre, plus vitamin C and other nutrients. It also provides a wealth of other health-promoting substances, some of which occur in such riches in only a few other foods. A lemon's four 'Ps' A lemon has three layers: the peel (which cooks call the zest and botanists call the exocarp, epicarp or flavedo), the pith (mesocarp or albedo) and the pulp (endocarp or flesh). It also has pips, which are in its pulp. Peel This is the tough, shiny, textured, vibrant yellow (or green) outer layer. Depending on the variety of lemon and the growing conditions, the peel's thickness varies from a thin 1–2mm/1/16–1/8in to a thick 20mm/3/4in. Cellulose fibre makes up 30 per cent of the peel. Its other constituents include waxes, organic acids, carotenoid pigments and lemon oil. Tiny oil glands open via pores on to the surface of the peel. Pith This is the soft, spongy white lining of the peel. It's mainly composed of fibre but also contains small amounts of antioxidants (such as phenolic compounds and limonin) and other substances. Pulp This forms the inside of the lemon and is separated by fibrous membranes into eight to ten segments, each containing tiny ovoid sacs (vesicles) filled with pale yellow juice. This juice forms 20–25 per cent of the weight of a ripe lemon and contains 90 per cent of its vitamin C, as well as small amounts of other antioxidants, plus various vitamins, minerals and organic acids, and lemon oil. Pips These are the bitter, whitish seeds in the pulp of most lemons. Their contents include salicylic-acid salts (as in aspirin), limonin and a little lemon oil. Lemons contain many health-promoting and otherwise useful substances, including nutrients, fibre, phenolic compounds, plant pigments, limonene, organic acids and limonoids. Nutrients Lemons are one of the best food sources of vitamin C (an antioxidant also known as ascorbic acid). The antioxidant properties and the acidity of lemons help to explain why they

are so beneficial. One small (100g/3 1/2oz) lemon contains 60–100mg of vitamin C. The recommended adult dietary allowance of this vitamin varies between countries, being 90mg a day in the US and 75mg in the UK, for example. So consuming one lemon a day can provide most, if not all, of your daily requirement. It's best to consume lemon juice freshly squeezed, as 20 per cent of its vitamin C is lost after eight hours at room temperature or 24 hours in a refrigerator. However, **lemons retain its vitamins when freeze, can be store three to four months in the freezer.** Lemons also contain small amounts of sugar, plant pigments, beta carotene (also called 'pro-vitamin A', as the body makes it into this vitamin), vitamins B and E and minerals – particularly potassium, but also magnesium, phosphorus, calcium, copper, iron, manganese, selenium, and zinc. Two-thirds of a **lemon's iron** is in its peel and pith; two-thirds of its calcium is in its juice. The amounts of vitamins and minerals are small but useful. **Lemons also contain minute amounts of proteins and fats,** and a medium-sized lemon contains 15 calories of energy.

### Fibre

A lemon's peel, pith, pips and pulp membranes are rich in valuable dietary fibre (once called 'roughage' but now officially 'non-starch polysaccharides'). Lemons contain two types of fibre: **cellulose**, which strengthens cell walls, and pectin, which binds cells together. **Cellulose absorbs water in the digestive tract.** This makes stools more bulky and less sticky, **which helps to prevent constipation and diarrhoea.** Pectin dissolves in water in the digestive tract to form a gel. Pectin is an antioxidant. About 90 per cent of dissolved pectin is fermented by the millions of 'good' bacteria in the large bowel, releasing butyric acid and other short-chain fatty acids. These acids are valuable to our health because they: **Aid the absorption of calcium and other minerals from the bowel**, reduce the absorption of cholesterol from the bowel. Suppress the production of cholesterol by the liver while also boosting the proportion of HDL cholesterol (the 'good' type) in the blood. encourage apoptosis ('suicide') of bowel-cancer cells. Many people don't eat enough fibre, the average intake is only half the recommended amount. Most of us could usefully increase our intake by including suitably prepared lemon peel and pith in recipes for foods and drinks, like **this immune booster.**

### Antioxidants

Lemons contain a wide variety of antioxidants, including many of their phenolic compounds (such as flavonoids and coumarins), as well as vitamins C and E, selenium, zinc, carotenoid pigments, limonin and other limonoids, and pectin. Antioxidants help to protect cholesterol and other body fats from being oxidized by unstable particles known as 'free radicals'. Your body makes more free radicals when it is physically stressed, such as if you smoke too much, expose yourself to too much sun or take too much exercise. The presence of oxidized fats in the body encourages sunburn, prematurely aged skin, infection, pregnancy problems (such as pre-eclampsia and miscarriage), eyesight problems (such as cataracts and age-related macular degeneration), gallstones, high blood pressure, heart attacks, memory loss, strokes, and certain cancers. What's more, studies suggest that a lemon's antioxidants enhance the liver's ability to break down toxins by up to 35 per cent. Many people hope that antioxidant supplements will help protect their health, and women are the biggest fans. But these supplements may behave differently to the antioxidants found in lemons and other foods. For example, certain studies show that eating vitamin-C-rich fruits and vegetables can reduce the damage to DNA (our cells' genetic material) that can trigger cancer, whilst certain other studies show that using vitamin-C supplements, do not have the same effect. Indeed, in 2002, a report in The Lancet of a five-

year study at Oxford University found that people who took a daily supplement of the antioxidant's beta carotene and vitamins C and E were no less likely than those who took a placebo ('dummy') supplement to develop either cancer or, indeed, heart attacks, strokes, asthma, cataracts, dementia, or osteoporosis. The good news is that most of us can get all the antioxidants we need from a healthy diet that contains at least five helpings of vegetables and fruit a day – and lemons are an excellent source.

If you need more antioxidants than usual – for example, in later life, or if you have an infection, feel stressed, or smoke (one cigarette destroys 25mg of the body's vitamin C) – the solution is to eat more antioxidant-rich foods. Including lemons in your diet will give you a great start.

### **Phenolic compounds**

These are present mainly in a lemon's peel and in smaller amounts in its pith and juice. Derived from phenolic acid, and called polyphenols, their levels vary according to the variety of lemon tree, the maturity of the fruit, the geographical region (because of differing soil chemistry) and the year (because of changing climatic conditions). They include certain flavonoids and coumarins. Many phenolic compounds are antioxidants, and some are even more effective than vitamin C.

### **Flavonoids**

These are water-soluble compounds that have also been called citrin, bioflavonoids and vitamin P. **The flavonoids in lemons and other citrus fruits are the most biologically active of all the flavonoids in the edible plant kingdom.** The highest concentration is in a lemon's peel and pith. Many lemon flavonoids are antioxidants, and some are the yellow pigments that help to give lemon peel its sunny colour. Examples include diosmine, eriocitrin, hesperidin, limotricine, naringin, nobiletin, quercetin and tangeretin. Some of a lemon's antioxidant flavonoids – the polymeth-oxyated flavones (PMFs) – are dubbed 'super-flavonoids'. The most common are nobiletin and tangeretin. A lemon's peel is 20 times richer than its juice in PMFs. This is the reason why this **Excellent immune booster** is made with the whole lemon including the peel. Studies suggest that flavonoids have many health benefits: They guard the power of vitamin C by improving its absorption and protecting it from oxidation.

Super-flavonoids reduce LDL cholesterol (the potentially damaging type) by up to 40 per cent, possibly by reducing its production in the liver. **A high intake is associated with a reduced risk of heart disease.** They strengthen the walls of our capillaries (tiny blood vessels), so maximizing their potential volume and encouraging good blood flow. **Their antioxidant power can discourage cancer.** For example, naringenin helps to prevent DNA damage and enhances DNA repair. **Hesperidin is one of the most intensively studied antioxidant flavonoids. It can strengthen capillaries, reduce cholesterol, and blood pressure, help maintain bone density, discourage overwhelming infection, have anti-inflammatory and sedative effects, and penetrate the blood-brain barrier (implying it can help to protect the brain from infection or other inflammation).** Naringin is a particularly bitter-tasting antioxidant flavonoid, which scientists believe can also help to lower cholesterol. Another flavonoid, rutin (known in its slightly different form as quercetin), is found in lemon peel and reported to bind ('chelate') potentially harmful heavy metals, so aiding their expulsion from the body.

## Coumarins

These are phenolic compounds and their concentrations in a lemon's peel (and mainly in its oil) are up to 100 times higher than in its pulp. They include auraptene, bergamotene, isopimpinellin, limettin, certain psoralens (such as oxypeucedanin, and 5-methoxypsoralen – also known as bergapten), scopoletin and umbelliferone. Some coumarins can benefit our health because they are antioxidants. For example, studies suggest that auraptene helps prevent degenerative diseases and cancer.

## Pigments

A lemon pigments are mainly in its peel. They include carotenoid (orange carotenes, such as beta carotene, and yellow xanthophylls, such as lutein, zeaxanthin, beta cryptoxanthin); High levels of carotenoids in the blood discourage heart disease by helping prevent the oxidation of fats. They help prevent the oxidation of LDL cholesterol (the potentially damaging sort), and thereby help keep arteries healthy and blood flowing freely.

Beta carotene and beta cryptoxanthin are converted in the body into vitamin A, which promotes eye health and discourages infection.

## Limonin

This and other limonoids (such as nomilin) are antioxidants that belong to a family of substances called terpenoids. Limonin is found throughout a lemon, though mainly in its pith and pips. It is present in about the same amount as vitamin C. Most people say it tastes very bitter. Studies show that limonoids can help prevent cell multiplication in cancers of the mouth, skin, lung, breast, stomach, and colon. **What's especially interesting is that limonin lasts in the body for up to 24 hours, whereas most other anti-cancer agents in foods remain for much less time.** Scientists also suspect that limonin helps prevent the production of LDL cholesterol (the potentially dangerous sort) in the liver.

## Organic acids

The acids in lemon include ascorbic acid (vitamin C), citric acid (about 5 per cent of the juice) and glucaric acid. Lemon taste sour because they contain too little sugar to mask their acidity. Most of the acidity is in the juice- and its PH 2.4-4. (The PH indicates a liquid's acidity or alkalinity: 7 is neutral; below 7 is increasingly acid; above 7 is increasingly alkaline.)

**Lemon acid** can aid digestion in people who don't make enough of their own gastric acid. After the contents of a lemon or its juice have been digested, the lemon acids are metabolised (broken down) into water and carbon dioxide. The breakdown the other contents **releases alkalizing minerals** (calcium, iron, magnesium, potassium, sodium). In contrast, most the fruits (including apples, bananas, grapes, oranges, pears, pineapples) contain so much sugar that their metabolism adds to the body's acid loads.

**Citric acid:** Consuming the citric acid in lemon juice helps move any excess water from the body's tissues into the bloodstream. This reduces congestion in the tissues and enables the blood flow more freely.

**Glucaric acid:** Research suggests that this acid helps to:

- Lower LDL cholesterol (the potentially damaging sort) by up to 35 pr cent, but doesn't affect HDL cholesterol (protective sort)

- Discourage bowel cancer and inflammatory bowel disease by promoting butyric-acid production in the large bowel.
- Prevent oestrogen-sensitive cancer of the breast. Prostate, ovary, and colon, achieved by suppressing the enzyme betaglucuronidase. This suppression enables a process called glucuronidation in the liver, which makes oestrogen more water-soluble and so aids its elimination in the urine.
- Prevent pre-menstrual syndrome by encouraging glucuronidation (above)
- Rid the body of pollutant by encouraging glucuronidation (above).

## SUMMARY

**Lemon** have long been prized as an aid to health. Their health-giving components include antiseptics, antifungals, antivirals, diuretics, astringents, tonics, antioxidants, detoxifiers, anti- cancer agents, anti-inflammatories and antihistamines. Traditional use, common sense and anecdotal evidence suggest that lemon can help many different ailments, such as Acne, Ageing, Alzheimer's disease, Anaemia, Ankle swelling, Anxiety, Arthritis, Asthma, Bronchitis, Bruises, Cataracts, Cellulite, Chapped lips, Chilblains, Chronic illness, Cold sores, Colds, flu and sore throat, Covid 19, Constipation, Cough, Diabetes, Diarrhoea, fainting, Fatigue, Fibroids, Food intolerance,, Fractures and Sprains, Gallstones, Gingivitis, Hay fever, headache, Heart disease, Heavy period, High blood pressure, High cholesterol, Indigestion and heartburn, Infection, Infertility, Irritable bowel syndrome (IBS), Kidney stones, Low immunity, macular regeneration, memory loss, Metabolic syndrome, miscarriage, Obesity, Osteoporosis, Peptic ulcer, Piles, Pre-eclampsia, Pre-menstrual syndrome, Prolapse, Psoriasis, Restlessness, Scurvy, Strokes, Sunburn, Urine infection, and many more function. However, few scientific trial has been done because funding is problematic as lemons and their components cannot be patented.

## TURMERIC

This is known as the wonder spice because of its magical properties which benefit us in different ways. It is rich in **Vitamin A, Thiamine (B1), Riboflavin (B2), Vitamin C** and good amount of **calcium, phosphorus, iron, sodium, and potassium**. Recent clinical studies shown turmeric also contains compounds known as "curcuminoids" use for treating different associated diseases and illness.

Turmeric has curcumin in it which is a **natural anti-inflammatory** that help to fight against inflammatory that is cause by disease or illness. **Turmeric boosts the antioxidant** capacity of the body as it neutralizes free radicals on its own but also stimulates our body's own antioxidant enzymes. Curcumin in Turmeric may **improve cognitive function** and helps to protect brain functions by **boosting the level of BDNF** (Brain- derived neurotrophic factor) in the brain. Turmeric is also used to **treat symptoms of joint(gout) related problems** and reduce inflammation. It is used to **check gastric problem-** it relieves gas formation in stomach and indigestion discomforts. Use in treating **Bronchitis**, give protection against cancer, the active compounds (curcumol and curdione) which has cytotoxic effect that **fight against all forms of Cancer**. Turmeric relieves pains from **sprains and internal injuries**.

Having combined these wonderful three natural ingredients- **Ginger Lemon** and **Turmeric** in its fresh form, maintaining it highest benefits is amazing! **The unique nature of these natural ingredients is that they attack inflammations** which research has revealed is the cause of so many illness and diseases. Simply taking these products is a real "battle won" against illness and diseases!

This **Excellent Immune Booster** been prepared in a cleaned homely environment for your convenience, to have at any time of the day. **Excellent Immune booster** is one of the key to heathy living!

The whole details above show **how** and **why** lemon, ginger and turmeric can help, but don't forget that you can also discourage common ailments with a healthy diet, adequate hydration, regular exercise, daily outdoor light, effective stress management, a sensible alcohol intake and no smoking. The strategies outlined should not take the place of medical diagnosis and therapy.

### **Warning!**

**Avoid** this product if you have allergic to **Ginger, Lemon, and Turmeric**.

The acidity from lemon may temporarily soften tooth enamel, making it vulnerable to damage, therefore **consume your Excellent Immune booster cube with a full cup of drink of your choice**. You could use straw to consume drinks containing lemon or rinse your mouth with water afterwards. Also, **don't brush your teeth soon after you have finished the drink**, as this might cause micro- abrasions of your softened tooth enamel.

### **References**

1. [11 Health Benefits of Ginger: Effect on Nausea, the Brain & More \(healthline.com\)](#) (01-07-2022)
2. Jung San Chang et al J Ethnopharmacol. 2013
3. The Miracle of Lemons By Dr Penny Stanway, page 6-74, (2011)
4. [10 Proven Health Benefits of Turmeric and Curcumin \(healthline.com\)](#)(01-07-2022)