## **'S.E.E.D.'** NEWS # 99 – 2016



Welcome to our 99th Newsletter.

We have 'NEW' Courses running in 2017 including Abdominal Massage, Palliative Care, Death & Dying, Combining Reiki & Massage, Aromatherapy & Ayurveda, Advanced Massage Refresher Day and Aura/Energy Massage!

Please note that the news and views expressed in our newsletters are not necessarily our own; we offer them to your critical faculty as to their usefulness.

If you have any news or views that you would like to share, please send them to us for publication.

You have received this Newsletter because you have shown an interest in what we do. If you would like to be removed from our e-mail list, let us know your name and e-mail address and it shall be done!

Best wishes,

The S.E.E.D. Institute

Jane Rose

4 Church Street,

Henstridge

Somerset.

BA8 0OE

E-mail: info@theseedinstitute.co.uk

Tel: 01963 362048 or 07761185630

Web-site: www.theseedinstitute.co.uk

MIMIS

#### **CONTENTS**

December 2016 – February 2017 Courses in Dorset and Surrey Book Reviews In-depth Introduction to Working with Essential Oils Pindasweda Ayurvedic Massage – What is it? Essential Oil Research: Basil Ageing and the Immune System

### **December 2016 – February 2017 'In-House' Courses**

Please note that a lot of The S.E.E.D. Institute Courses are also available as Distance-learning, which Students have found very valuable. Please ask for details.

**VENUES:** Courses are run in **Ash, Surrey (near Aldershot)** (40 miles south of London and easily accessible by train from Waterloo or from Heathrow and Gatwick Airports) and **Stour Row, Shaftesbury, Dorset** (easily accessible by road and rail).

Please 'click' on the appropriate link below if you would like further details of any of our Courses.

December 2016				
7	Hopi Ear Candling	£114	10.00 - 5.00	Ash, Surrey (nr.
	http://www.theseedinstitute.co.uk/HO1.php			Aldershot)
January	2017			
23-27	Aromatherapy Practical	£575	9.30 – 5.00	Ash, Surrey (nr. Aldershot)
	http://www.theseedinstitute.co.uk/AR102.php			
February	2017			
7	Aromatherapy for the Elderly	£105	10.00 – 5.00	Stour Row, nr. Shaftesbury, Dorset
	Also available as distance-learning			
	http://www.theseedinstitute.co.uk/EL1.php			
8	Sitting Back Massage	£120	9.30 – 5.30	Stour Row, nr. Shaftesbury, Dorset
	Also available as distance-learning			
	http://www.theseedinstitute.co.uk/SBM1.php			
11-12	Reiki level 1	£210	10.00 – 5.00	Stour Row, nr. Shaftesbury, Dorset
	http://www.theseedinstitute.co.uk/REI.php			
20	First Aid for Complementary Therapists	£100	9.30 – 5.30	Ash, Surrey (nr. Aldershot)
	http://www.theseedinstitute.co.uk/FIR1.php			
21-22	Palliative Care & Complementary Medicine	£217.50 incl. materials	10.00 – 5.00	Ash, Surrey (nr. Aldershot)
	http://www.theseedinstitute.co.uk/PALL.php			
23	Death & Dying – Over the Rainbow	£120	10.00 – 5.00	Ash, Surrey (nr. Aldershot)
	http://www.theseedinstitute.co.uk/RAIN.php			
24	Health Assessment techniques	£105	10.00 – 5.00	Stour Row, nr. Shaftesbury, Dorset
	Also available as distance-learning			
	http://www.theseedinstitute.co.uk/HA1.php			
25	Abdominal Massage	£120	9.30 – 5.30	Stour Row, nr. Shaftesbury, Dorset
	http://www.theseedinstitute.co.uk/AB1.php			
28 – 1st March	Lymphatic Drainage Massage	£210	10.00 - 5.00	Stour Row, nr. Shaftesbury, Dorset
	Also available as distance-learning			
	http://www.theseedinstitute.co.uk/CAMASS1.php			

#### BOOK REVIEWS

### **Aromatherapy in Midwifery Practice**

Author: Denise Tiran ISBN: 9781848192881

Denise has worked in Midwifery and Complementary Medicine for more than 30 years and has a well-earned reputation of excelling in her chosen profession. She is a very good communicator and this book is a must for any Clinical Aromatherapy Practitioner who sees pregnant Clients. Essential oils are not suitable for all pregnant women and this book has a very comprehensive safety section.

### The Way of the Five Elements

Author: John Kirkwood ISBN: 9781848192706

Written for the experienced practitioner as well as being accessible for the novice, this book gives a fascinating insight into the Five Elements (fire-earth-metal-water-wood) and how our material world resonates with these elements. Detailed descriptions of individual acupoints help one to understand just how useful they can be in coping with the stresses of modern living.

### The Way of the Five Seasons

Author: John Kirkwood ISBN: 9781848193017

Following on from 'The Way of the Five Elements', this is another fascinating book on the Five Elements – this one focusing on the seasons of the year and showing how to access the wonders of the elements in their own season.

#### The Western Herbal Tradition

Author: Graeme Tobyn, Alison Denham & Margaret Whitelegg

ISBN: 9781848193062

Excellent descriptions of the 27 plants that are at the core of an Herbalists practice. Detailed descriptions of how the herbs were used throughout the ages make this a fascinating study. Suitable for all.

# IN-DEPTH INTRODUCTION TO WORKING WITH ESSENTIAL OILS – 23-27 January 2017 in Surrey

We are running our 5-day Aromatherapy Practical Course on 23-27 January 2017 in Ash, Surrey – 40 miles south of London and very accessible via rail (3 nearby rail stations served by trains from all over the country), road (close to the M3) and air (direct rail link from Gatwick airport to a local railway station and from Heathrow via a road/rail link).

The 5-day module is a 'stand alone' module of our Aromatherapy Clinical Practitioners Diploma accredited by The International Federation of Professional Aromatherapists.

No prior experience is required to attend this Course and, if you wish to, you can progress and take further modules at your leisure.

Suitable for those with no prior experience who want to learn how to use essential oils safely with their family/friends OR, those who have already trained in Aromatherapy but who would like to freshen/update their knowledge by learning how to approach essential oils choice via several different methods, so viewing oils in a different light.

This is a fun, hands-on, Course that covers:

**Blending of Essential Oils**: blending a combination of essential oils with the focus on the final aroma, not its therapeutic properties – includes making a perfume with essential oils.

**Practical Applications:** compresses, inhalations, oils v creams in preparations. Includes making up creams, tinctures, macerated oils, ointments, lotions, facial and hair products (on each day we spent time on making products to take home).

**Fragrance Testing Essential Oils**: how to determine therapeutic properties from aroma and the psycho-somatic effect of Essential Oils.

**Therapeutic Cross-referencing:** How to find essential oils that cover more than one condition.

Therapeutic Relationships: consultations, when to refer clients to other Therapists.

**Health and Symptom Profiling:** based on Ayurvedic principles we look at how the different body systems work together and what essential oils are best to use for the different combinations.

Analysis of skin, nails, hair, eyes and tongue: choosing appropriate essential oils

**Skin Colour and its importance:** choosing appropriate essential oils

**Foot-characteristics:** how to determine problems through the condition of the feet.

**Muscle Testing**: how to choose essential oils using basic Kinesiology muscle testing.

**Cardio-vascular indexing**: enables an insight into circulation tension and metabolic stresses and aids assessment of the relative balance between hyper and hypo balance of the blood pressure.

#### Stress & Relaxation Techniques.

The cost of the Course is £575 for 5 days. This is a popular Course so booking early is recommended.

#### PINDASWEDA AUURVEDIC MASSAGE – WHAT IS IT?

**What is Ayurveda?** One of the oldest systems of medicine known, Ayurveda has preserved its holistic character and still treats man as a complex whole in relation to his environment.

**Ayurveda and Nature:** Ayurveda focuses on 'flow' and on the canal systems created by nature to route our intakes and outputs on every level of existence.

**Vata - Pitta - Kapha:** These are the forces (doshas) that create organic life.

Vata: is associated with movement. There is no pain without a Vata involvement.

Pitta: is associated with transformation. There is no inflammation without a Pitta involvement

**Kapha:** is associated with lubrication and protection. There is no pus formation without a Kapha involvement.

**Ayurvedic Treatments:** Ayurveda emphasises preventative and healing therapies along with various methods of purification and rejuvenation.

Ama (Toxic waste): Ama is a toxic by-product of improper digestion. It circulates around the body and is deposited at sites where there are weaknesses. It can also be caused by poor 'digestion' of thoughts and feelings.

**Pindasweda Massage:** is used for either full body massages or for specific areas of the body where localised treatment is all that is required. It is excellent in treating Vata and Kapha disorders since both these doshas are cold in nature. This Sweda is very effective for rehabilitation therapy.

What is Pindasweda Massage? In Pindasweda, the pinda (bolus/ball) is made from grains, herbs and spices (contained in cloth) and firm massage is applied, with the bolus, over the whole or specific parts of the body. It is said to help awaken cellular memory through intense stimulation.

What is Cellular memory? It is based on the notion that human body cells contain memories, independently of either genetic codes or brain cells. This is a controversial theory with both advocates and critics within the fields of science and medicine.

**Pindasweda Massage and elimination of Ama:** Abhyanga (regular) Massage and Pindasweda Massage are recommended to aid in the elimination of stagnant Ama and to restore the balance of the Vata dosha through movement and herbs/spices.

Benefits of Pindasweda Massage: Strengthens and rejuvenates the back and spine, strengthens the dhatu shakti (tissue-strength and integrity). Increases circulation, removes dirt and unwanted tissues, provides colour and complexion to the skin, induces good sleep and reduces stress.

**How is it used?** Several ingredients are tied into boluses (balls), dipped into warm medicated oil and massaged all over the body. Alternatively, if you have a hot plate, the oil is applied liberally to the body during the preliminary massage and the boluses are warmed on the hot plate - a more satisfying method as the boluses stay warm longer as the heat infiltrates the filling of the bolus and increases the soothing effect of the massage.

What is the traditional use of Pindasweda Massage? Used for many neurological and neuro-muscular disorders, including MS and Parkinson's as well as many other serious imbalances, and to promote vitality and longevity. Traditionally, Pindasweda massage is recommended at least once a year to preserve health and delay aging.

What can I treat with Pindasweda Massage? Acute/chronic back pain, loss of function of a part or whole limb, joint-stiffness and swelling, muscular pain, sprains, strains and cramps, whiplash injuries/rehabilitation, fluid-retention and cellulite.

**Pindasweda Facial treatment:** Small, filled, bolus bags are used to great effect to cleanse and nourish the face and give a natural face-lift.

Why use herbs and spices in Pindasweda Massage? All ancient cultures used the earth's sacred grains and legumes not only to cleanse, nourish and enhance the physical prowess of the body but also to tone the skin.

Where can I train in Ayurvedic Pindasweda Massage? We (The SEED Institute) run 1-day Courses in Ash, Surrey (40 miles south of London) and Stour Row, Shaftesbury, Dorset. Please ask for details visit www.theseedinstitute.co.uk

#### ESSENTIAL OIL RESEARCH

In each Newsletter we will focus on available research/studies for one essential oil. These references have been sent in by Aromatherapy Students and have not been verified.

**BASIL** (Ocimum basilicum var. album and Ocimum basilicum var. basilicum)

#### **ACNE**

Thyme and basil essential oil and their major compounds thymol, estragol, carvacrol, inalool and p-cymene, inhibited Shigella in an agar diffusion method.

(Bamgamboula et al, 2004) **C. F. Bagamboula, CF, Uyttendaele and J. Debevere (2004)** Inhibitory effect of thyme and basil essential oils, carvacrol, thymol, estragol, linalool and *p*-cymene towards *Shigella sonnei* and *S. flexneri* <a href="http://www.anandaapothecary.com/aromatherapy-essential-oils/basil-essential-oil.html">http://www.anandaapothecary.com/aromatherapy-essential-oils/basil-essential-oil.html</a> taken 01/08/12

Sweet Basil essential oil has recently been the subject of a university study for treatment of acne, and was shown to be effective in eradicating bacteria associated with acne outbreaks.

This oil can be a muscle relaxant, provides relief from insect bites and is stimulating to the olfactory system.

#### ANTI-BACTERIAL

In vitro antibacterial, antioxidant activity and total phenolic content of some essential oils

Srivastava U el al (2015), (http://www.ncbi.nlm.nih.gov/pubmed/26688969 date accessed 19/6/16)

In vitro antibacterial activity of 16 essential oils was investigated against two Gram positive bacteria with oils of Cymbopogon citratus and Ocimum basilicum showing the highest antibacterial activity and "can be further commended for treatment of infections caused by these bacterial pathogens and are potential sources of natural antioxidants having appreciable amount of total phenolic content".

Study on the pharmacological effects produced on the bacterial strains Staphylococcus aureus and Pseudomonas aeruginosa when standard antibiotics and O. basilicum essential oil are combined. Results showed Ocimum basilicum essential oil associated with existing standard antibiotics may increase their antibacterial activity, resulting in a synergistic activity against bacterial strains of clinical importance. The antibacterial activity of O. basilicum essential oil may be associated with linalool.

#### **ANTI-INFLAMMATORY**

## Protective Effect of Ocimum basilicum Essential Oil Against Acetic Acid-Induced Colitis in Rats.

Rashidian A et al (2015), (http://www.ncbi.nlm.nih.gov/pubmed/26620574 date accessed 19/6/16)

Basil essential oil found to exhibit a protective effect against acetic acid-induced colitis in rats.

#### ANTI-MICROBIAL

Chemical composition and antimicrobial activity of the essential oil of Ocimum basilicum L. (sweet basil) from Western Ghats of North West Karnataka, India.

Rajesh K. Joshi, R.K (2014) Anc Sci Life. 2014 Jan-Mar; 33(3): 151-156.  $\underline{\text{http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4264302/}}$  accessed 24 Aug 15

This was a study into the bactericidal effects of Sweet basil oil testing it against various strains of bacteria and fungi including *Staphylococcus* type, *Enterobacter* type *and Salmonela* types amongst many others. The study showed the essential oil of *O. basilicum* of this region, which was of the methyl eugenol/methyl chavicol chemotype, has bactericidal properties.

#### **ANTI-ULCER**

Evaluation of gastric anti-ulcer activity of fixed oil of Ocimum basilicum Linn. and its possible mechanism of action.

Indian J Exp Biol. 1999 Mar;37(3):253-7.Singh S1.

#### Abstract

Fixed oil of O. basilicum was found to possess significant antiulcer activity against aspirin, indomethacin, alcohol, histamine, reserpine, serotonin and stress-induced ulceration in experimental animal models. Significant inhibition was also observed in aspirin-induced gastric ulceration and secretion in pylorus ligated rats. The lipoxygenase inhibiting, histamine antagonistic and antisecretory effects of the oil could probably contribute towards antiulcer activity. O. basilicum fixed oil may be considered to be a drug of natural origin which possesses both anti-inflammatory and anti-ulcer activity.

#### **BACTERIA, YEASTS & MOULDS**

## The effect of essential oils of basil on the growth of Aeromonas hydrophila and Pseudomonas fluorescens

Wan, Wilcock and Coventry (1998), The effect of essential oils of basil on the growth of **Aeromonas hydrophila** and **Pseudomonas fluorescens**. Journal of Applied Microbiology, 84: 152–158. doi: 10.1046/j.1365-2672.1998.00338.x. Athor Information. *Australian Food Industry Science Centre, Werribee, Victoria, Australia.* Coventry Australian Food Industry Science Centre, Private Bag 16, Werribee, Victoria 3030, Australia. <a href="http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2672.1998.00338.x/abstract;jsessionid=49A934B259348D46B19CAF6EEF9E077C.d01t04?systemMessage=Wiley+Online+Library+will+be+d

<u>isrupted+on+4+August+from+10%3A00-12%3A00+BST+%2805%3A00-07%3A00+EDT%29+for+essential+maintenance</u> taken 03/08/12

Basil essential oils, including basil sweet linalool (BSL) and basil methyl chavicol (BMC), were screened for antimicrobial activity against a range of Gram-positive and Gram-negative bacteria, yeasts and moulds using an agar well diffusion method. Both essential oils showed antimicrobial activity against most of the micro-organisms examined except Clostridium sporogenes, Flavimonas oryzihabitans, and three species of Pseudomonas. The minimum inhibitory concentration (MIC) of BMC against Aeromonas hydrophila and Pseudomonas fluorescens in TSYE broth (as determined using an

indirect impedance method) was 0.125 and 2% (v/v), respectively; the former was not greatly affected by the increase of challenge inoculum from  $10^3$  to  $10^6$  cfu ml<sup>-1</sup>. Results with resting cells demonstrated that BMC was bactericidal to both Aer. hydrophila and Ps. fluorescens. The growth of Aer. hydrophila in filter-sterilized lettuce extract was completely inhibited by 0.1% (v/v) BMC whereas that of Ps. fluorescens was not significantly affected by 1% (v/v) BMC. In addition, the effectiveness of washing fresh lettuce with 0.1 or 1% (v/v) BMC on survival of natural microbial flora was comparable with that effected by 125 ppm chlorine.

#### **CANCER**

Characterisation of the volatile pattern and antioxidant capacity of essential oils from different species of the genus Ocimum.

Division of Toxicology and Cancer Risk Factors, German Cancer Research Center, Im Neuenheimer Feld 280, D-69120 Heidelberg, Germany.

"The data generated with Ocimum species indicates that essential oils obtained from various herbs and spices may have an important role to play in cancer chemoprevention, functional foods and in the preservation of pharmacologic products."

Chemical composition of the essential oil from basil (Ocimum basilicum Linn.) and its in vitro cytotoxicity against HeLa and HEp-2 human cancer cell lines and NIH 3T3 mouse embryonic fibroblasts.

<u>Kathirvel P, Ravi S. Nat Prod Res.</u> 2012;26(12):1112-8. Epub 2011 Sep 22. PMID: 21939371 [PubMed - in process] <a href="http://www.ncbi.nlm.nih.gov/pubmed/21939371">http://www.ncbi.nlm.nih.gov/pubmed/21939371</a> taken 03/08/12. Source: Department of Chemistry, Karajan College of Engineering, Coimbatore-641632, Tamil Nadu, India.

#### Abstract

This study examines the chemical composition and in vitro anticancer activity of the essential oil from Ocimum basilicum Linn. (Lamiaceae), cultivated in the Western Ghats of South India. The chemical compositions of basil fresh leaves were identified by GC-MS: 11 components were identified. The major constituents were found to be methyl cinnamate (70.1%), linalool (17.5%),  $\beta$ -elemene (2.6%) and camphor (1.52%). The results revealed that this plant may belong to the methyl cinnamate and linalool chemotype. A methyl thiazol tetrazolium assay was used for in vitro cytotoxicity screening against the human cervical cancer cell line (HeLa), human laryngeal epithelial carcinoma cell line (HEp-2) and NIH 3T3 mouse embryonic fibroblasts. The IC(50) values obtained were 90.5 and 96.3  $\mu$ g mL(-1), respectively, and the results revealed that basil oil has potent cytotoxicity.

#### **FUNGUS**

Altered growth and polyamine catabolism following exposure of the chocolate spot pathogen Botrytis fabae to the essential oil of Ocimum basilicum.

Oxenham SK, Svoboda KP, Walters DR. Mycologia. 2005 May-Jun;97(3):576-9. Scottish Agricultural College, Ayr Campus, Auchincruive Estate, Ayr KA6 5HW, UK. PMID: 16392245 [PubMed - indexed for MEDLIN <a href="http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=ShowDetailView&TermToSearch=16392245">http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=ShowDetailView&TermToSearch=16392245</a> taken 03/08/12

#### **Abstract**

Biomass of the fungal pathogen Botrytis fabae in liquid culture amended with two chemotypes of the essential oil of basil, **Ocimum basilicum**, was reduced significantly at concentrations of 50 ppm or less. The methyl chavicol chemotype oil increased the activity of the polyamine biosynthetic enzyme S-adenosylmethionine decarboxylase (AdoMetDC), but polyamine concentrations were not significantly

altered. In contrast, the linalol chemotype oil decreased AdoMetDC activity in B. fabae, although again polyamine concentrations were not altered significantly. However activities of the polyamine catabolic enzymes diamine oxidase (DAO) and polyamine oxidase (PAO) were increased significantly in B. fabae grown in the presence of the essential oil of the two chemotypes. It is suggested that the elevated activities of DAO and PAO may be responsible, in part, for the antifungal effects of the basil oil, possibly via the generation of hydrogen peroxide and the subsequent triggering of programmed cell death.

#### **GIARDIA**

#### Antigiardial activity of Ocimum basilicum essential oil.

Instituto de Microbiologia Prof. Paulo de  $G\tilde{A}^3$ es, Centro de  $Ci\tilde{A}^4$ ncias da  $Sa\tilde{A}^o$ de, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, 219491-590, Brazil.

"These results suggest that, with G. lamblia, the essential oil from O. basilicum and its purified compounds, especially linalool, have a potent antimicrobial activity

#### INSECTICIDE

## An Evidence-Based Review on Medicinal Plants Used as Insecticide and Insect Repellent in Traditional Iranian Medicine.

Cheraghi Niroumand M et al (2016), (http://www.ncbi.nlm.nih.gov/pubmed/27186389 date accessed 19/6/16)

Information about medicinal plants proposed as insecticides and insect repellents in traditional Iranian medicine (TIM) was collected from the TIM literature and searched in modern medical databases to find studies that confirmed their efficacy. The study confirmed the TIM claims of the insecticidal and insect repellent activity of certain plants, including Ocimum basilicum, with further study recommended.

#### LIVER FIBROSIS

## Hepatocyte Growth Factor Mediates the Antifibrogenic Action of Ocimum bacilicum Essential Oil against CCl4-Induced Liver Fibrosis in Rats.

Ogaly HA et al (2015), (http://www.ncbi.nlm.nih.gov/pubmed/26213907 date accessed 19/6/16)

Study to evaluate the antifibrogenic potential of Ocimum basilicum essential oil (OBE) suggests the use of OBE as a complementary treatment in liver fibrosis.

#### AGEING AND THE IMMUNE SYSTEM

Edith A. Burns, MD, Associate Professor of Medicine (Geriatrics), Medical College of Wisconsin

As the human body enters its senior years, its ability to fight off infection and other health problems diminishes significantly. The immune system, which is responsible for fighting infection, simply does not function as efficiently in older adults as in younger people.

The body's innate response to infection - mounting a fever to kill cells causing illness, for example - is not always automatic in elderly people. In fact, more than 20% of adults over age 65 who have serious bacterial infections do not have fevers. The body at this age probably still has the ability to generate fevers and other immunity weapons, but the central nervous system is simply less sensitive to immune signals and doesn't react as quickly or efficiently to infection.

10

**CTLLS** 

Lymphocytes, which are cells produced in the lymph glands, are essential to the body's production of antibodies used to fight infection. The overall number of lymphocytes does not change greatly in old age, but the configuration of lymphocytes and their reaction to infection does.

Elderly adults are less capable of producing lymphocytes to combat challenges to the immune system. The infection-fighting cells that are produced are less vigorous and less effective than those found in younger adults. When antibodies are produced, the duration of their response is shorter in older adults and fewer cells are produced than in younger adults. The immune system of younger adults - including lymphocytes and other types of cells - typically reacts more strongly and more rapidly to infection than does an older adult's.

In addition, elderly adults, particularly after age 70, are more likely to produce auto-antibodies, which attack parts of the body itself instead of infections. Auto-antibodies are factors in causing rheumatoid arthritis and atherosclerosis (hardening of the arteries).

#### **Improving the Immune System Response**

As the human body grows old, so does its organs. The organs are less efficient than when the body is younger. The thymus, for example, secretes important hormones, particularly during puberty. In elderly people, however, it is largely dormant. But when lymphocytes of older adults are exposed to thymic hormones, the immune system is enhanced at least temporarily. The secretion of hormones, including growth hormone and melatonin, decline in old age and may be related to a compromised immune system.

Certain prostaglandins, hormone-like acids that affect important body processes such as body temperature and metabolism, may increase in old age and inhibit important immune cells from doing their jobs. Older adults may also be more sensitive to the action of prostaglandins than younger adults, which could be a major cause of immune deficiency in elderly people. Prostaglandins are produced by most tissues in the body, but the immune system responds better in older adults when prostaglandin production is suppressed.

Nutrition also plays a factor in a healthy immune system. In both healthy and nutritionally deficient older adults, vitamin and dietary supplements have been found to enhance the response of the immune system, resulting in fewer days of infectious illnesses.

Older adults often experience loss and stress, and suppressed immunity has been associated with bereavement, depression and poor social support. Maintaining an active social life and receiving treatment for depression could boost the older adult's immune system.

It has not been proven that a less effective immune system necessarily means more infections or a shorter life. However, in general, older adults experience more infections and a greater severity of infections than younger adults. In addition, older adults display a decreased response to vaccines, including for streptococcal pneumonia that should protect them from infections. This is particularly important where influenza (the flu) is concerned because the elderly account for more than 80% of the deaths related to epidemics. Tetanus is another concern, since more than 70% of people over age 70 never received the necessary tetanus vaccinations.

While vaccines do not work as well in the immune system of older adults, vaccinations for diseases such as influenza, pneumonia, hepatitis B, tuberculosis, diphtheria and tetanus have been found to reduce mortality in the elderly and are still worthwhile.