Aromatherapy and Diabetes

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Aromatherapy has a long history of use. Dating back to the time of Hippocrates, skin problems were treated with aromatic baths.[1] Since then, essential oils have been used continuously not just for their pleasant aromas, but also for their medical properties.

The renaissance of aromatherapy occurred in France in the 1940s with three individuals in the medical field. Gattefosse, a French chemist, burned his hand and arm so badly that gas gangrene set in. At that time, the only treatment for gas gangrene was amputation, but Gattefosse used essential oil of lavender, and his wounds healed rapidly. He was so impressed that he dedicated his life to the use of essential oils for skin problems.[2] Valnet, a physician, used essential oils on wounds in the Indo-China war when antibiotics ran out.[3] Maury, a surgical assistant, carried out research on how essential oils helped skin elasticity and integrity and assisted wound healing.[4]

Nurses have also been involved in aromatherapy. During the past 10 years, nurses have been using aromatherapy as an enhancement of nursing care in Australia, South Africa, Germany, Switzerland, the UK, and, more recently, the United States. The idea that nursing care could be enhanced with pleasant smells and gentle touch is not a new one. Florence Nightingale was famous for anointing the foreheads of her wounded soldiers with lavender oil.

Hospitals can be frightening for many people, and the smells of hospitals can compound their fear. Chronic slow-healing wounds can mean repeated hospital visits. A judicious use of essential oils can put some hospitality back into our hospitals, reduce the stress of coping for both staff and patients, improve wound care, and also reduce the possibility of chronic infection.

Defining Terms

Clinical aromatherapy is the therapeutic use of essential oils, the efficacy of which is supported by research data. In aromatherapy, essential oils are inhaled or diluted and applied topically to the skin, depending on the symptom.

Essential oils are steam distillates obtained from aromatic plants. They have been used for thousands of years for a multiplicity of symptoms ranging from insomnia and depression to poor skin integrity, slow-healing wounds, and infection. All of these oils have a fragrance and a chemistry that can lead to a range of responses that affect the healing process.

A fragrance stimulates the olfactory system. The effects of smell result in an instant reaction. Sometimes, the mere thought of a smell can trigger that reaction.[5]

A sense of smell plays an important role in our survival as well as our quality of life. Many of our actions, both conscious and subconscious, depend on smell. Each day we inhale about 23,040 times and move around 438 cubic feet of air.[6] Various odors may warn us of a fire, of the need to eat, or of the desire to get closer to another person. Babies find their mother's breast through smell, and smell is one of the last senses to fade as we die.[6]

Physiological Responses

When we inhale a scent, the chemical components within it travel via the nostrils to the olfactory bulb and then to the limbic part of the brain. This is an inner complex ring of structures below the cerebral cortex that are arranged into 53 regions and 35 associated tracts, including the amygdala and the hippocampus.[7] The amygdala governs our emotional response to an aroma. The memory and recognition of smell takes place in the hippocampus.[7] The hippocampus is also where chemicals in an aroma trigger our unique repository of learned memories.

Essential oils are lipotrophic, which means they are fat-soluble. The principal barrier to topical drug therapy is the keratin-rich cells in the stratum corneum. However, these cells are embedded in multiple lipid bilayers. Recent research[8] has shown that essential oils increase drug permeation, thus indicating that essential oils are themselves absorbed.

Therapeutic Use

Pleasant aromatics can raise our spirits and address specific clinical symptoms. A few drops of lavender can aid insomnia[9] or help improve a person's mood.[10] Torii et al.[11] and Bardia et al.[12] reported on the psychologically stimulating effect of jasmine. Manley[13] found lemon, lemongrass, peppermint, and basil to be psychologically stimulating and bergamot, chamomile, and sandalwood to be relaxing. Other aromas found to be relaxing were rose and lavender.[14] Sweet orange essential oil was found to be effective in both induction of anesthesia and recovery time in children.[15]

When essential oils are used topically, they are diluted in a cold-pressed vegetable oil, called carrier oil. Cooking oils are not suitable because they will have been heated to high temperatures, which alters their chemical constituents and prevents them from being absorbed. Carrier oils, which can be purchased from health food stores, should be kept refrigerated and discarded when they become rancid.

Diluted essential oils have been used with good effect on slow-healing ulcers or chronic skin conditions, as summarized in Table 1. Carrier oils suitable for wound care are shown in Table 2.

Table 1. Essential Oils for Slow-Healing Skin Conditions

Common Name	Botanical Name	Research
Lavender	Lavandula angustifolia	Throne[31]
Frankincense	Boswellia carteri	Duwieja et al.[32]
Sandalwood	Santalum album	Dwivedi et al.[33]
Teatree	Melaleuca aternifolia	Hitchin[34]
Eucalyptus	Eucalyptus globulus	Siang[35]
Geranium	Pelargonium graveolons	Walsh[36]
German chamomile	Matricaria recutitia	Glowania et al.[37]

Table 2. Cold-Pressed Carrier Oils

Common Name	Botanical Name
Sweet almond	Prunus dulcis
Tamanu	Collophyllum inophyllum
Evening primrose	Oenothera biennis
Rosehip	Rosa rubiginosa
Olive	Olea europaea

The procedure is to dilute 1–5 drops of essential oil in 1 teaspoon (5 ml) of carrier oil to make a 1–5% dilution. Apply this dilution to sterile gauze and pack the wound lightly. Cover with a dressing. The carrier oils will ensure that the dressing does not stick to the damaged tissue. If the dressing sticks to the tissue injury, unnecessary debridement could occur each time the dressing is replaced.

Essential oils also have antiseptic qualities and will ensure that a wound is sterile. An example is thymol, obtained from essential oil of common thyme (Thymus vulgaris). Thymol, discovered by Lister, was the first antiseptic and is still being used as such today—hence, Listerine mouthwash.

Replace the wound dressing twice a day. In addition to being antiseptic, all essential oils have some antibacterial activity, although some are more antibacterial than others.[3] Because there is a gradient of bacterial concentration in chronic wounds with the largest amount of bacteria being found in the ulcer bed,[16] it makes sense to lightly pack the wound so that the diluted essential oil will be in direct contact with the infected area.

The use of essential oils can reduce inflammation, encourage cell regeneration, and eliminate infection. A great many essential oils are effective against *Staphylococcus aureus* and *B-Hemolytic streptococcus*—two of the most common wound infections. A few essential oils, such as Palma rosa (Cymbopogon martini),[17] rosemary (Rosmarinus occicinalis),[18] juniper (Juniperus communis),[19] and peppermint (Mentha piperita),[20] are effective against *Pseduomanas aeruginosa.* Of these, the safest to use in wound care would be palma rosa and juniper because their chemical composition is gentle. Lavender, juniper, teatree, and peppermint are also effective against methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus faecium*.[21]

Use for People With Diabetes

Whereas there is some evidence that the oral intake of herbs such as Asian ginseng (Panax quinquefolius), fenugreek (Trigonella foenum-graecum), and aloe (Aloe vera) may improve glucose tolerance,[22] aromatherapy does not make this claim. Also, there is no suggestion that essential oils can cure diabetes (type 1 or type 2). However, essential oils can be used to reduce the side effects of some complications (i.e., ulcers, loss of skin integrity) and to reduce infections that often take longer to resolve than in nondiabetic patients.[23]

Essential oils can also ameliorate the stress of coping with a lifelong chronic condition such as diabetes.[24] Aromatherapy has a long history of use for stress reduction, and aromatics have been used in many cultures to enhance quality of life. Nurses have used inhaled essential oils to help reduce their patients' stress.[25] Essential oils found to be most effective for stress are shown in Table 3.

For many years, stress has been linked to chronic skin problems. Recent research[26] has shown that stress affects epidermal permeability barrier function and is a precipitator of inflammatory dermatoses. This means that anything that can alleviate stress is likely to also have a beneficial effect on skin integrity.

To use aromatherapy for stress, put 3–5 drops of an undiluted essential oil on a handkerchief or cotton ball and ask the patient to hold the handkerchief to his or her nose and breath in slowly for 5 min. This treatment can be repeated every 4 h or more frequently when necessary.

Touch has been described as the first and most fundamental means of communication; people who are denied touch have been said to suffer from skin hunger.[27] Research indicates that many chronically ill people long to be touched and that touch can make pain more bearable. Perhaps for these reasons, aromatherapy appears to be particularly effective when diluted essential oils are used with touch, either in the form of massage or with the 'M' Technique (Table 4).

Aromatherapy using touch has been shown in several nursing studies to reduce stress.[27–29] The essential oils listed in Table 3 are also suitable for topical use. Dilute them to 1–5% before applying topically.

Summary

Aromatherapy holds at least as much potential for use with people who

Table 3. Essential Oils for Stress

Common Name	Botanical Name
Roman chamomile	Chamomelum nobile
Neroli	Citrus aurantium
Petitgrain	Citrus amara
Lavender	Lavandula angustifolia
Mandarin	Citrus reticulata
Geranium	Pelargonium graveolens
Rose	Rosa damascena
Sweet marjoram	Origanum majorana

Table 4. Information and Resources

'M' Technique
The 'M' Technique is a trademarked method of gentle touch that uses structured stroking sequences in a set pattern and at a set pressure and rhythm that can easily be used on hands, feet, and face. It is gentle enough to use on critically ill or very fragile people and can add dignity to the dying process.

Clinical Aromatherapy Training
For information about training in clinical aromatherapy and the 'M' Technique, contact the American Holistic Nurses Association, P.O. Box 2130, 2733 E. Lakim Drive, Suite 2, Flagstaff, AZ 86003-2130. Tel: 1-800-278-AHNA.

have diabetes as for use with those who do not have diabetes. Health care professionals can enhance their patients' lives by either obtaining training in clinical aromatherapy (Table 4) or referring patients to people who have such training.

As discussed above, aromatherapy can be beneficial either when used in conjunction with medical treatment (such as for wound healing) or when used to encourage general relaxation. The potential for even greater positive benefits exists, for as our patients' aches, pains, and stresses are relieved, so may their physical health be less challenged, with resultant improvements in their blood glucose levels. Making our patients more comfortable, whether through the healing of an infection, the amelioration of a sore muscle, the lessening of neuropathic pain, or the reduction of psychological stress, can improve their overall quality of life.

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