

In the light of colour and heat



The various properties of optical radiation are used in medicine for a diverse range of applications. These include medical effects that are physically measurable as well as psychosomatic effects that cannot be measured directly.

The term “optical radiation” refers to electromagnetic radiation in the wavelength range from 100 nm to 1 mm. The optical radiation spectrum is divided into ultraviolet (UV), visible (VIS) and infrared radiation (IR). Light is the part of the electromagnetic radiation range that is visible to the human eye and it encompasses the wavelength range from around 380 nm to 780 nm (fig. 1). However, it is not possible to give an exact limit on either side because the sensitivity of the eye decreases gradually, not suddenly, around the limits of perception. The two ranges that border on either side of visible light – infrared and ultraviolet radiation – are also generally described as “light”. So there are two invisible and one visible spectra of optical radiation. So much for the quantitative aspects of optical radiation.

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For the purposes of this article, the interplay of colour light and the near infrared range is of particular interest; it is also known by the term “Photothermotherapy” (fig. 1). In comparison to heat-generating infrared radiation, which is perceived by sensors on the skin, colour light is cold and is registered first and foremost by the eyes. This is the basis for a therapeutic synergy of colour light and near infrared.

Colour therapy takes on a special significance in complementary medicine

and naturopathy due to the qualitative properties attributed to each colour (table 1). These mechanisms of action, which predominantly take effect on a level beyond ponderable matter, cannot be measured metrologically by science and, for the sake of simplicity are thus attributed to the placebo effect.

Infrared radiation, on the other hand, has – through heat generation – direct effects on the physiology of the body, with a range of desirable possible effects such as improving blood circulation, oxygen partial pressure and tissue supply, flushing out metabolites, pain relief and muscle relaxation. However, from a medical point of view things get particularly interesting when that part of infrared heat radiation which is close to the visible light (the near infrared) is passed through a liquid such as water, a method known as wIRA (water-filtered infrared-A). This process of filtering through water allows a more intensive, deep-penetrating heat input to treat a large spectrum of indications (table 2). The combina-

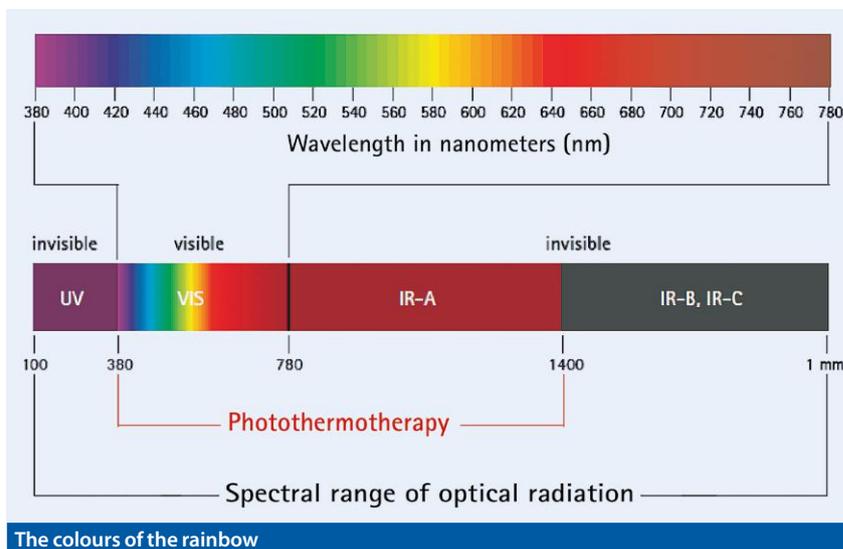


Table 1: Colour effects attributed according to the chakra system

- **Red:** activating, invigorating
- **Orange:** stimulating, supporting
- **Yellow:** changing, dissolving
- **Green:** calming, balancing
- **Blue:** antiseptic, cooling
- **Indigo:** regulating, pain relief
- **Violet:** supporting, relaxing

tion of colour light and wIRA, in turn, is achieved using a special illumination technique that produces both the visible range of light (380–780 nm) and the near infrared range, known as infrared-A (780–1400 nm).

However, not all components of the infrared are equal, just as little as the colours of the visible light. As can be seen from the example of the hydrosun® wIRA-emitter, the combination of water-filtered infrared-A with dichroic colour filters makes it possible to expand the efficacy spectrum in both ranges. With the appropriate application methods, this can be used to achieve excellent synergistic effects.

While the effects of the infrared-A rays are significantly improved by water filtration, the use of different additional colour filters allows the user to access a substantial enhancement and to integrate the experiences gathered in the complementary medical field of colour light therapy. (Additional compatible treatments such as aromatherapy can also be integrated.) The filters used are dichroic colour filters; these show significantly better filter characteristics than conventional glass or transparent colour foils. The characteristics of light and infrared transmittance can be specified in

Table 2: Typical wIRA effects

- Pain relief and muscle relaxation
- Increased metabolism and circulation
- Improved tissue supply and detoxification
- Washing out of metabolites
- Local stimulation of the immune system
- Increased oxygen partial pressure in the tissue
- Oncological hyperthermia (whole-body hyperthermia, local hyperthermia)
- Promotion of wound healing, antispasmodic and expectorant effect
- Synergistic effect through colour filters

the manufacturing process. Colours are significantly more defined, appear brighter and are additionally more durable.

Actually, every wIRA application can be combined with colour filters and thus used synergistically. A set of seven dichroic filters is available, and there are different systems for finding the right colour for each individual. The simple method of asking for the individual's favourite colour can be used, or it is possible to determine two possible complementary colours from the colour star if the patient prefers to indicate which colour they dislike (fig. 2).

The use of colour light in combination with the profound thermotherapy, also called photothermotherapy, leads not only to the therapeutic effects of deep penetrating heat field but also to the activation of the body's self-healing capacities and to improvements in the patient's general condition – this should be a part of every treatment.

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- Pain
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- Wound healing disturbances
- Chronic venous ulcers
- Common warts (Verrucae)
- Psychosomatic disorders

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- Red: activating, invigorating
- Orange: stimulating, supporting
- Yellow: changing, dissolving
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- Indigo: regulating, pain relief
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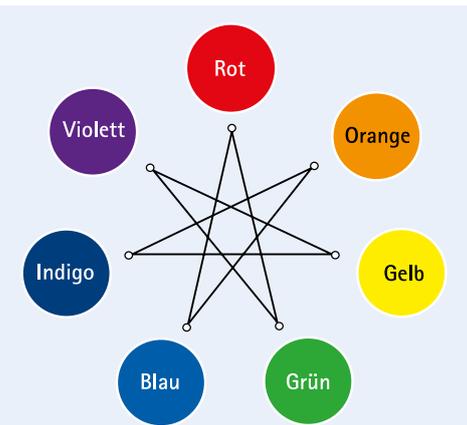


Fig. 2: The colour selection heptagram:

Every wIRA application can be combined with colour filters and used synergistically. A number of testing methods can be used, including kinesiology, pulse diagnosis or simply asking the patient which colour they currently feel drawn to or which colour they dislike. The axes of the colours lead to the complementary colour, thereby offering the additional possibility of finding the optimal colour or to identify it intuitively. Two filters can also be used in sequence to potentially increase the effect.