A picture is worth a thousand words. A picture in colour is worth infinitely more than that. It not only appeals to the senses, it also boosts concentration and helps to balance the energy of the body with its own special attributes and power, which is known to affect one’s mood, general health and energy levels.

The Temperament of an individual also has qualities which concur with the properties of their respective colours, namely: the Sanguinous and Biliary Temperaments are warmer, more energetic and vibrant, as represented by the colours of red and yellow respectively, whereas the Phlegmatic and Melancholic Temperaments are cooler and less energetic, as represented by the colours of blue and purple/violet respectively.

Throughout history, from the time of the ancient Egyptians and Newton’s colour wheel, to Goethe’s polarity and elevation, Hering’s opponent-process theory and Spitler’s syntonic principle, colour therapy has played a pivotal role in healing.

Modern day chromotherapy understands that each frequency of visible light appears to have a definite effect upon a specific function of the human body, mind and spirit.

The healing properties of colour work within the framework of the innate healing ability of Physis to restore equilibrium of the body.

**The History of Colour**

Colour has been used as long as thirty thousand years ago from the time of the cave paintings. During this time they used the primary colours of red, blue and yellow for healings as they did not yet discover the various permutations of the mixing of colours.

**The ancient Egyptians** believed that colour had magical abilities, and they used colour for
ailments and cures, which were documented on papyrus as early as 1550 BC. They built temples for healing and they used gems (crystals) through which the sunlight shone. They created the colours of red, yellow and orange from pigments in the soil. According to ancient Egyptian mythology, the god, Thoth, used colours with crystals, minerals and stones as remedies for healing.\footnote{6}

The ancient Egyptians and Greeks also used coloured minerals, stones, salves and dyes as remedies. They painted sanctuaries in various shades of colour for the use of treatment.\footnote{7}

The ancient Egyptians copied the wonders of nature in their quest for health. The floors of their temples were often green, like the grass, and blue was also used to mimic the colour of the sky. They had different rooms for different colours. They worshipped the sun, which, in modern times, is valued for its existence of mankind, not only for its heat, but also for healing purposes, such as Seasonal Affective Disorder. The sun is also used to fuel central heating systems, light and energy.\footnote{8}

People were often dipped in vats of coloured pigment to cure a particular ailment. Other methods of colour healing involved the grinding up of crystals and gemstones that would be ingested. They built great halls of colour healing, where people were bathed in light that was filtered through various coloured glass panels or windows.\footnote{9}

In Ancient Greece colour therapy was used in healing to restore balance. The use of colours for treatment was used in two different ways:

- **Indirect healing** involved the use of stones, dyes, oils, ointments, plasters and salves to treat disease, and
- **Direct healing** which involved exposure to sunlight.

The Greeks considered the use of colour as a science. Hippocrates, amongst others, abandoned the metaphysical side of colour, concentrating only on the scientific aspect.

During 980 AD Ibn Sina (Avicenna) used colour for diagnosis and treatment, and he created a chart to associate various colours with each physical condition and to temperature (colours have heating/cooling properties). He is said to have stated that “colour is an observable symptom of disease.” He suggested that a person who has had a nose bleed should not be exposed to bright red colours or red light as this would trigger more blood flow, thereby stimulating the Sanguinous humour. He also observed that the colour blue has soothing qualities, and which would reduce the flow of blood. The colour blue was the first colour to be used as a remedy for injuries, burns or aches, due to its cooling effects of the cold and moist qualities as well as relaxing the muscles; while yellow was used to reduce muscular pain (heat).\footnote{7}

In Tibb the colour red is associated with the Sanguinous Temperament due to its association with blood and energy and motion, and the colour blue with the Phlegmatic
Temperament due to its **calming and cooling** properties. The colour **yellow** has an **alkalising effect** due to its brownish-yellow or greenish-yellow bile, which is associated with the **Bilious** humour.

**Aristotle (384-322 BC), Plato and Pythagoras** also studied light. Aristotle deduced that, by mixing two colours, a third is produced. He did this with a yellow and blue piece of glass, which when brought together, produced a green colour. Aristotle described seven colours that could be traced to connect black and white. His linear scale was white, yellow, red, purple, green, blue and black. Aristotle also discovered that light travels in waves.

**Acharya Charaka** (sixth century BC) was an ancient Ayurvedic physician who recommended sunlight to treat a variety of diseases.7

In 6th century BC **Orpheus**, the founder of the first metaphysical mystery school in Greece, utilized vibrational medicine of colour and light as a means of healing and spiritual awareness.10

In 125 AD the ancient scientist, **Apuleius**, experimented with a flickering light stimulus used to reveal epilepsy.

In 200 AD **Ptolemy**, a mathematician and astronomer, observed patterns of colour rays coming from the sun into the eyes produced a feeling of euphoria. He recorded feelings of euphoria while gazing at the spokes of a wheel while it was spinning, flickering in the sunlight. He was the first person to document brainwave entrainment, because he noticed that each flash represented frequencies, such as: one flash per second equals 1Hz on the frequency chart and two flashes per second is 2Hz. Hertz effectively means "cycles per second." The brain will naturally attune to the same frequency as it is exposed to, in the same way that tuning forks would. Ptolemy’s brain picked up on this frequency, and entrained itself to those specific alpha/beta frequencies, bringing about a sense of euphoria, by releasing the ‘feel-good’ hormone, serotonin.11

During the period 1325-1519 **The Aztecs** proclaimed that red dye was more valuable than gold, which was created by crushing the female cochineal beetle. Yellow was produced from concentrated cow urine, which was mixed with mud and sepia from the dried ink sac of the squid.12

During the Middle Ages in 1493, **Paracelsus** (originally known as Theophrastus Bombast von Hohenheim), a Swiss botanist and physician, reintroduced the knowledge and philosophy of colour. He used the power of the colour rays for healing, along with music and herbs, which is presently included in many complementary therapies.13

In 1510, **Leonardo da Vinci** created a sketch of a linear view of colours that progressed from yellow to green and from to blue to red.

In the 17th century - French psychologist, **Pierre Janet**, used flickering lights to reduce hysteria for hospital patients.14
In 1611 **Aron Sigfrid Forsius** proposed that white and black were the primary colours of the world from which all other colours were derived.

1 In 1630 **Robert Fludd** created the first printed colour wheel in a medical journal.15

In 1666 **Sir Isaac Newton** first put together a circular diagram of colours, in the form of a wheel. This *colour wheel* enables one to see groupings of colours that are harmonious together, and other colours that might clash. He presented the primary colours of red, yellow, and blue, which could not be formed by mixing any other colour. He stated that other colours are derived by combinations of these colours.16

**Johann Wolfgang Goethe** (1749-1832) observed in nature a main principle which he called “polarity and elevation.” Every natural process or event is a qualitative change – a metamorphosis. He believed that when one refers to a change as being “natural,” he meant that it is not coincidental, but that it follows a characteristic, typical pattern. A change between opposite qualities, a higher totality, always appears which Goethe referred to as an “original phenomenon.” Certain colours cannot be seen in combination together, such as red-green, blue-yellow or white-black.

Goethe referred to the main colours of **yellow and blue**, and that when a change in those colours occur, a *metamorphosis*, or an *elevation*, occurs through all the variations of those colours, from yellow-red to red violet on the other side. Between reddish-yellow and reddish-blue, is the colour purple that *resolves the polarity between yellow and blue*. He also described another transition of yellow and blue to green.17

In 1810 Goethe took an innovative approach to colour theory by adding the emotional impact that different colours have on mood and emotion.15 He argued that one’s perception of colour is a phenomenon of the brain rather than of physics, whereas Newton saw colour in discrete wavelengths of light which the eye passively received. Goethe hypothesised that colours were a side effect of the brain’s mechanics, emerging in tandem with other variables, like brightness and shadow. He also proposed that the eye only perceived three colours, namely those of red, yellow and blue, and not the seven, as displayed by Newton’s prism.18

Goethe suggested that darkness is an active ingredient rather than the mere passive absence of light, as in Newton’s theory of colour: “...light and darkness, brightness and obscurity, or if a more general expression is preferred, light and its absence, are necessary to the production of colour... Colour itself is a degree of darkness”.19

Goethe noticed that **blue** gives a feeling of **coolness** and **yellow** has a **warming** effect. Goethe created a colour wheel showing the psychological effect of each colour. He divided all the colours into two groups - the **plus side** (from red through orange to yellow), and the minus side (from green through violet to blue). Colours of the plus side produce **excitement and cheerfulness**, while colours of the **minus side** are associated
with weakness and unsettled feelings.\textsuperscript{20}

200 years ago the Chinese, namely the Nei/ching, recorded colour diagnoses.

\textbf{Edwin Burr Babbitt} (1803-1881) identified the colour of \textit{red} as a \textit{stimulant for the blood}, and the colours of \textit{yellow and orange} as a \textit{stimulant for the nerves}, as well as having a \textit{laxative} effect; while \textit{blue and violet} were \textit{soothing} colours, which have \textit{anti-inflammatory} qualities. He also stated that ‘all vital organs have direct connection with the skin through arteries, blood vessels and capillaries, and colour rays can affect the entire blood stream through circulation and elimination of toxins.’ Babbitt prescribed \textit{red} for paralysis, physical exhaustion and chronic rheumatism; \textit{yellow} as a laxative, emetic and purgative and for bronchial difficulties, and \textit{blue} for inflammatory conditions, sciatica, meningitis, nervous instability, headache, irritability and sunstroke.\textsuperscript{7}

Babbitt published a book, “The Principles of Light and Colour”, and he used ‘solar elixirs’, which are coloured bottles containing water, which was charged by the sun. He was able to treat conditions that were unresponsive to conventional medicine at that time.\textsuperscript{21}

\textbf{Seth Pancoast} (1823-1889) used \textit{red and blue} light to \textit{balance the autonomic nervous system}. Pancoast described light and its rays as medicine showing that ‘light is the original and sole source of all the physical and vital forces of nature; and that light is nature’s own and only remedy for disease’.\textsuperscript{14}

\textbf{Lord William Thomson Kelvin} (1824-1907) was a Scottish mathematician and physicist who invented the Kelvin scale which is used on thermometers. The Kelvin scale measures the \textit{ultimate extremes of hot and cold}. The temperature of colour is a measurement in degrees Kelvin that indicates the hue of a specific type of light source. In the late 1800’s William Kelvin heated a block of carbon, which glowed on the heat, producing a range of different colours at different temperatures. The black cube first produced a dim red light, which increased to a brighter yellow as the temperature went up. This eventually produced a bright blue-white glow at the highest temperatures.\textsuperscript{22}

\textbf{Alfred Augustus Pleasanton} (1824-1897) an American General during the Civil War, discovered the influence of blue rays of the sunlight as a treatment. He utilised blue as the first remedy for injuries, pains and burns. He observed was that the growth and quality of grapes could be improved by using chromotherapy, as well as that colours have an effect on the physical maturation and fertility in animals.\textsuperscript{32}

\textbf{Ewald Hering}. In the second half of the nineteenth century, Ewald Hering was the father of the opponent colour processes theory. \textit{Opponent-process theory} suggests that colour perception is controlled by the activity of two opponent systems; a \textit{blue-yellow} mechanism and a \textit{red-green} mechanism. This colour theory works through a process of \textit{excitatory} and \textit{inhibitory} responses, with the two components of each mechanism \textit{opposing each other}.
For example, **red** creates a **positive** (or excitatory) response, while **green** creates a **negative** (or inhibitory) response. These responses are controlled by opponent neurons, which are neurons that have an excitatory response to some wavelengths, and an inhibitory response to wavelengths in the opponent part of the spectrum.\(^2\) Hering also mentioned a third opponent process for black and white.

Hering’s theory noted that there are certain pairs of colours that one never seen together at the same place and at the same time. For example, one does not see reddish greens or yellowish blues. Hering also noted that if one looks at a red patch for about a minute and then switches the gaze to a homogeneous white area, one will see a greenish patch in the white area.\(^23\)

Hering hypothesized that trichromatic signals from the cones fed into subsequent neural stages and exhibited two major opponent classes of processing:

- **Spectrally opponent processes** which were **red vs. green** and **yellow vs. blue**.
- **Spectrally non-opponent processes** which were **black vs. white**.

A 1986 study by West, as cited by Heerwagen (1986), evaluated the effects of light on health by evaluating prison inmates with different window views. He found that inmates with windows facing a meadow or mountains had significantly lower rates of stress-related sick calls than inmates with a view of the prison courtyard and buildings. Ulrich found that viewing vegetation and water through slides or movies is more effective in creating psychophysiological recovery from stress than scenes without water or vegetation. Ulrich also reported more positive emotional states and wakeful relaxation states for people exposed to natural scenes.\(^24\)

**William Ludlow** (1843-1901) was an American surgeon and architect who introduced the colour green into his operating theatre, as he found that the traditional colour of white was too bright and the flare made it difficult for him to differentiate anatomical features. He found that **green complements** the colour of red of haemoglobin. He stated: “White is negative; the convalescent needs the therapeutic reaction of the positive colours that nature has spread so lavishly for her children. ... Our eyes were made to find rest and contentment in soft greens, pale blues, an occasional touch of red, but above all, the glorious golden yellow of the sunshine.”\(^25\)

**Johannes Itten** (1888-1967) was a Swiss painter and teacher at the Bauhaus School in Germany. He modified the number of colours on the colour wheel to twelve colours, namely the three primary colours, three secondary colours and six tertiary colours.\(^26\)

**Colonel Dinshaw P. Ghadiali** (1873-1966) was a metaphysician and psychologist who invented the **Spectro-Chrome**, which is an aluminium colour projector, which he believed, cured many maladies by focusing a specific colour on a particular part of the body.\(^27\) He was
the first to develop a system of healing utilising all the colours of the spectrum. He compiled an encyclopaedia of treatment with the use of colour and light for over 400 various health related disorders.\textsuperscript{27}

\textbf{Dr. Harry Riley Spitler} (1889-1961) formulated \textit{The Syntonic Principle}, meaning ‘\textit{to bring into balance}’. What he meant by this is that healing with light and colour balances the energetic systems of the body and creates equilibrium by causing \textit{cellular and hormonal changes}. Spitler applied colour through gels, lights, lenses etc. to direct energy into the body. The optic nerve converts light and its components into electricity, which then extends across the meridians and nervous systems to control bodily functions.\textsuperscript{28}

Syntonic is also known as \textit{optometric phototherapy}, a branch of ocular science, which deals with the application of selected light frequencies through the eyes. It is used in the field of optometry for the treatment of visual dysfunctions, including strabismus (squint), amblyopia (lazy eye), focusing on convergence problems, learning disorders, and the after effects of stress and trauma. In recent years, sytonics has been shown to be effective in the treatment of brain injuries and emotional disorders.\textsuperscript{29}

\textbf{Dr William Feindel} (1918-to present date). In 1945 the Canadian Medical Association put a lot of importance on the use of colour, and \textit{green} was recognised to promote \textit{calmness and serenity}. A decade later Dr William Feindel introduced the colour green to his entire surgery, which is still currently used today.\textsuperscript{30}

In 1908 \textbf{Aura Soma} was developed in England, which uses colours to heal physical and emotional symptoms and to promote psychological change.\textsuperscript{34}

\textbf{The original Spectro-Chrome machine}. Ghadiali determined why and how different colour rays have various therapeutic effects on the body. He maintained that an \textit{imbalance of colour waves} constitutes a \textit{chemical imbalance}. He found that by treating the body with a particular colour vibration, one could effectively reintroduce the appropriate biochemical elements into the body. He also maintained that the chakras responded better to treatment with colours than on other parts of the body. In 1999 the American Journal of Acupuncture recorded that Ghadiali had been able to \textit{minimise intractable dysentery}, from 100 diarrhoeal stools per day to a minimal amount by the third day, by shining an \textit{indigo} light on the patient's body.\textsuperscript{21}

\textbf{Faber Birren} (1900-1988) was a graduate of the Chicago Art Institute, who introduced colour to the industry and institutions. His motto was “putting colour to work” He maintained that \textit{bright colours} stimulate an \textit{outward attention} toward the environment, such as red (warning signs) and yellow (induces excitability). The Sanguinous and Bilious temperaments also exhibit outgoing personalities. The \textit{softer colours} of blue and purple/violet, represents an \textit{inward attitude} and attention,\textsuperscript{25} such as the introvert nature of the Phlegmatic and Melancholic temperaments respectively.
Max Luscher (1923-to present date) conducted a study on humans and colour. Luscher claimed the ability to tell, by acceptance and rejections of colours, aspects of an individual's personality. Luscher performed chromotherapy by applying colour and light to specific areas and accupoints on the body. He maintained that colours are associated with both positive and negative effects; therefore specific colours and accurate amounts of colour are critical in healing.31

Luscher developed the Luscher-Colour-Diagnostic test, which involved asking the client to select eight coloured bottles in order of preference. The results are said to reveal their worries and their solutions.5

In 1951 Takkata discovered that there are different methods of applying coloured light. It can be received through the skin or the eyes, which, in turn, has been found to stimulate the internal glands.7 Takkata believed that there is a relation between sunspots and the levels of certain proteins in human blood, which cause changes in the menstrual cycles.32

In 1997 Dr. Ott claimed that the body uses light as a nutrient for metabolic processes, similar to water or food. Natural light stimulates essential biological functions in the brain and is divided into colours that are vital to our health. On a cloudy day or under poor lighting conditions, the inability to perceive the colours from light can affect our mood and energy level. Day lighting has been associated with improved mood, enhanced morale, lower fatigue, and reduced eyestrain.24

Dr Ott noted that different lights affect different enzymatic reactions for healing purposes. This was the first time that the effect of chromotherapy was tested at the DNA level. In 1991 Dr. Harrah Conforth applied colour and light to facilitate whole brain synchronization. During the same year Dr. Robert Cosgrove utilized coloured light for sedative properties prior to, during and immediately following surgery.

John Ott used ultraviolet light to grow healthy plants (the qualities of moisture from red and blue). He determined that only 2% of ultraviolet light passes though glass, and that the full spectrum of light is needed to be absorbed through the eyes for optimal health to be achieved. He realised this after he broke his spectacles and was forced to work outdoors without them. He maintained that his arthritis had improved.33

Colour has been used from the ancient Egyptians to modern times in various forms of treatment and therapies. The impact of colour has been shown to influence the physiological, psychological and social wellbeing of the individual and the world at large. The warmer colours of red and yellow have positive, strong and stimulating properties, which induce excitement and cheerfulness; whereas the cooler and more soothing colours of blue and violet/purple induce calmer, sombre and weaker properties.
References


