

# A Review of the Scientific Evidence Supporting the Reality of Spiritual Healing

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## Introduction

The practice of healing has a long history going back over millennia and accounts of its use have been recorded from all the major cultures of the past. Although in the West its practice has often been suppressed or reduced to the status of a folk-art, this century has seen a revival of what is now most commonly called spiritual healing as one of the most widely-used complementary therapies.

Spiritual healing, also known under a variety of other names such as mental, psi, faith and Reiki healing, and Therapeutic Touch, is probably the most simple and straightforward approach to the treatment of ill-health and injury that is available; consisting of a simple, direct relationship between healer and patient relying mainly on close contact, such as the laying-on-of-hands, the use of prayer, hand passes, etc., to help bring about improvements in the patient's condition. Despite this simplicity of technique and the lack of any fully-substantiated mechanism describing how healing works, there has developed over recent decades a large body of anecdotal evidence - published in books, articles and similar sources - demonstrating the efficacy of spiritual healing in the treatment of a wide range of conditions. More recently, a considerable body of scientific research has been built up which indicates that spiritual healing is a clearly-demonstrable phenomenon. The research evidence supporting the scientific validity of spiritual healing has been described and analysed in detail by Benor (1993).

Benor's review lists 155 controlled studies using a wide range of experimental subjects - enzymes, microorganisms, cells, plants, animals and humans, of which more than half produced statistically significant results supporting the reality of a healing effect. Further studies have been published since 1993. The aim of the present review is to present summaries of a number of these studies, from across the range of experimental subjects, which showed a positive outcome - thus demonstrating the reality of healing. In all these studies the level of significance of the results, and hence the positive outcome and acceptability of the study, are given in the form of probability (p) values; and an explanation of what this means may be of help to those not conversant with this terminology. The results of a scientific experiment are considered to be significant when, on statistical analysis, the odds against the differences between experimental and control groups occurring by chance are greater than 1 in 20. Thus the probability (p) of a result which is just statistically significant is equal to or less than 0.05 ( $p < 0.05$ ). With odds of more than 1 in 100,  $p < 0.01$ , the differences are highly significant; and with odds of over 1 in 1000,  $p < 0.001$ , the differences are very highly significant. Sometimes significance levels are expressed in a more precise form, e.g.  $p = 9.3 \times 10^{-10}$  (see Section 4 c); which can also be expressed as  $p < 0.000000001$  - or odds of one in hundreds of millions against a chance occurrence.

The accounts given here are only summaries of the original reports. Full details will be found in the references to the studies which are given at the end of this paper.

## Review of Healing Studies

### 1. Studies on Enzymes

- a. Glenn Rein (Rein, 1986), using Matthew Manning as the healer, treated preparations of a human enzyme, blood platelet monoamine oxidase (MAO). Enzyme levels in platelet samples were measured before and after healing treatment (for 5 minutes) and were compared with untreated controls. In nine trials enzyme activity in the treated samples increased, in seven it decreased and in two it remained unchanged. The combined results gave a significance of  $p < 0.001$ .
- b. Other studies on enzymes have been conducted by Smith (1972), Rein (1978) and Edge (1980).

### 2. Studies on Cell Preparations

- a. Braud, Davis & Wood (1979) attempted to control the breakdown of stressed human blood cells (erythrocytes) using the healer Matthew Manning. Erythrocytes are sensitive to the osmotic pressure of the solution in which they are suspended; when this pressure is reduced significantly below that of blood plasma they swell and rupture. In the experiments the intention was for the healer to attempt to reduce the rate of cell breakdown when suspended in a hypotonic salt solution. The experiments consisted of 3 series of 10 runs, each consisting of 10 samples. Five samples in each run were controls and the healer sought to positively influence the other five against cell breakdown. Nine of the runs were done with the healer in close proximity to the samples and in one he sought to influence the samples from a distant room. Overall the results were highly significantly positive ( $p < 0.00096$ ), with the most significant results occurring in the 'distant' sample.
- b. Other studies on cell preparations yielding positive results have been undertaken by Snel (1980), Baumann, Lagle & Roll (1986) and Braud (1989).

### 3. Studies on Fungi and Yeasts

- a. Haraldsson & Thorsteinsson (1973) used yeast cultures as an experimental model. They worked with seven subjects, three healers and four non-healers, asking them to attempt to increase the growth of yeast cultures in tubes from close by - but not making direct contact. In each experimental session, individual subjects worked with 10 tubes and there were the same number of controls. In 12 sessions a total of 240 tubes were run, both experimental and control. The results showed a highly significant positive result for the healers ( $p = 0.00014$ ) and a non-significant result for the non-healers.
- b. Tedder & Monty (1981) studied the effect of distant healing on inhibition of the growth of fungal cultures. Two groups of healers took part in the experiments: Group 1 consisted of individuals who were familiar with the author who organised this aspect of the work; Group 2 were volunteers who had little or no contact with him. The second author controlled the fungal cultures and had no contact with the healers. All healers worked at a distance of up to 15 miles from the experimental site using photographs of the target location. They worked by concentrating on five culture dishes per trial for 15 minutes per day. Overall, the results for Group 1 showed 16 hits and no misses giving a highly significant result ( $p < 0.00003$ ). As a group these healers produced a mean growth reduction of -9.81 mm per trial, or almost -2 mm per dish over a total of 80 dishes, which was highly significant ( $p < 0.00006$ ). Group 2 accumulated four hits, 11 misses and three ties over two series of experiments, giving a significance of  $p = 0.08$ .
- c. Other studies on yeasts or fungi have been conducted by Grad (1965a), Barry (1968) and Cahn & Muscle (1976).

## 4. Studies on Plants

- a. Grad (1965b), using barley seeds which had been damaged by watering with a 1% saline solution as the experimental model, measured the effect that the healer Oscar Estebany had on the seeds as compared to non-healer influenced controls. The healing effect was transmitted to the seeds by Estebany holding the beaker of saline for 15 minutes prior to treating the seeds. In three trials the healer was able to positively influence the retarding effect of the saline on seed development ( $p < 0.001$ ;  $< 0.05$ ;  $< 0.02$ ).
- b. Harrington (1982), using the healer Matthew Manning, sought to influence groups of mung beans; the intention being that the healer would significantly increase the rate of germination over that of control groups. Measurements were taken of the numbers of beans with visible radicles and plumules after seven days. A significantly higher level of germination ( $p < 0.02$ ) was found in the experimental beans.
- c. Scofield & Hodges (1991) used cress seeds to measure the effect that a healer, Geoff Boltwood, had on the rate of germination and growth of seeds which had been damaged by overnight soaking in a strong (half-saturated) salt solution. The rates of germination and development of the seeds over periods of five or six days were measured in a series of six trials. The results of the first experiment only showed significance between the experimental and control groups in two out of the six daily measurements (day 2:  $p < 0.05$ ; day 3:  $p < 0.01$ ). However, in the remaining experiments all the differences on all the days were very highly significant, with  $p$  never being less than 0.001. Many of these results showed extremely high levels of significance. Thus in Experiment 2, significance varied between  $p = 6.1 \times 10^{-4}$  on day 1 and  $p = 2.9 \times 10^{-8}$  on day 3; in Experiment 2 the highest level of significance occurred on day 3 at  $p = 9.3 \times 10^{-10}$ ; and in Experiment 4 significance varied between  $p = 6.7 \times 10^{-6}$  and  $p = 3.3 \times 10^{-9}$ .
- d. Other studies on plants/seeds have been performed by MacDonald, Dakin & Hickman (1977), Nicholas (1977), and Saklani (1988 & 1990).

## 5. Studies on Animals

Many experiments have been undertaken to demonstrate a healing effect using animals as the experimental subjects. Among the experimental models used have been wound healing, tumour regression, goitre growth and recovery from anaesthesia. What follows is a selection of those studies which showed positive, significant results in favour of healing.

### i). Wound Healing

- a. Grad (1965b) produced identical wounds on the backs of 96 anaesthetised mice and measured the rate of wound healing on a daily basis. The healer Oscar Estebany treated half the mice daily for 15 minutes by holding the cages. By fourteen days the wounds of the treated group had healed significantly more rapidly than those of the control group ( $p < 0.001$ ). Grad, Cadoret & Paul (1961) repeated this wound healing experiment using 300 mice and more careful controls. By days 15 and 16 the results showed that the treated wounds had healed more rapidly than the controls ( $p < 0.01$ ).
- b. Wirth, Johnson, Horvath & MacGregor (1992) demonstrated that healing, in the form of non-contact Therapeutic Touch, was in some circumstances able to significantly accelerate the regeneration of surgically-amputated newt forelimbs. In a complex set of experiments, four healers were used to treat newts which had had part of one forelimb amputated and were compared to control newts whose limbs were allowed to regenerate without treatment. Treatments took place under three conditions: through an open aperture, through smoked opaque glass and through the smoked glass plus opaque plastic; time of regeneration was measured for two stages of redevelopment of the limb. Healer 1 showed non-significance in all three conditions at both regeneration stages; Healer 2 obtained significance ( $p < 0.01$  to  $p < 0.002$ ) for all three conditions at both stages; Healer 3 obtained significance only for condition 1 at both stages ( $p < 0.04$ ); and Healer 4 showed significance for conditions 2 and 3 at both stages ( $p < 0.05$  to  $p < 0.02$ ).

### ii). Goitre Growth

a. Grad (1965b) developed goitres in mice either nutritionally or chemically. The rates of goitre development were measured over a period of 40 days. Three groups of mice were used, a treated group where the healer, Oscar Estebany, treated the mice daily and two control groups which had no healing treatment. The results showed that the development of goitres in the treated group was significantly slower than in the control groups ( $p < 0.001$ ).

b. In a further goitrogenic experiment with mice (Grad, 1965b) the healed group were treated indirectly by the healer holding wool or cotton material in his hands, after which portions of the 'healed' material were placed in the mouse cages for an hour twice daily over a period of 24 days. The treated group of mice developed goitres significantly more slowly than the controls ( $p < 0.001$ ).

### iii). Tumour Regression

Onetto & Elguin (1966) developed tumours in mice by injection of tumour cells and then attempted to negatively influence the growth and development of the tumours by daily healing treatments. The average tumour area was significantly smaller in the treated group than in the controls after 16 and 22 days ( $p < 0.001$ ) (Campbell, 1968) and, following sacrifice of the mice at 23 days, direct measurements of the tumours confirmed the difference ( $p < 0.01$ ).

### iv). Recovery from Anaesthesia

A series of five trials have been carried out on the effect of healing on the recovery time of anaesthetised mice by Watkins & Watkins (1971), Wells & Klein (1972), Watkins, Watkins & Wells (1973), Wells & Watkins (1975) and Schlitz (1982). All the trials were well-conducted and were based on the premise that healing given to one of a pair of ether-anaesthetised mice would significantly reduce the recovery time over that of the control member of the pair. In a large number of experiments, each composed of many trials, the majority of the results showed a positive effect of the healing, with significance levels varying from  $p < 0.05$  to  $p < 0.001$ . In some of the experiments the healers sought to influence the subject mice at a distance through a one-way mirror - with significantly positive results ( $p < 0.001$ ; Watkins & Watkins, 1971).

## 6. Studies on Humans

Performing healing experiments on human patients is more difficult than similar work on seeds or mice; not only for ethical and legal reasons but also because of potentially interfering factors such as the placebo effect. Nevertheless, a number of studies have been undertaken which produced significantly positive results.

### i). Effects of healing on human physical factors

a. Krieger (1975) carried out four experiments with the intention of raising blood haemoglobin levels in patients. The technique of Therapeutic Touch was used, with Oscar Estebany being the healer in the first three experiments and nurses trained in the method in the fourth. Significant differences in blood haemoglobin levels were obtained in:

- 19 patients comparing pre- and post-healing measurements ( $p < 0.02$ ), and also healed as against control levels ( $p < 0.01$ ).
- 43 healed patients as against 33 controls ( $p < 0.01$ ).
- 46 healed patients as compared to 33 controls, where the groups were more carefully matched ( $p < 0.001$ ).
- 32 nurses treated two patients each - one healed, one control - measuring pre- as compared to post-healing levels ( $p < 0.001$ ).

b. Wetzel (1989) undertook a similar experiment on blood haemoglobin levels using the Reiki healing technique. A group of 48 Reiki trainees were blood sampled before and after (24 hours separation) first degree Reiki training. A control group of 10 healthy individuals acted as controls with two blood samples

taken 24 hours apart. Measurements of blood haemoglobin and haematocrit showed significant changes in the test group as compared to the controls ( $p < 0.01$ ).

c. Wirth (1989, 1990) carried out a well-organised, double-blind study on wound healing, using non-contact Therapeutic Touch applied to skin wounds in human subjects unaware of the experimental procedures. Wound size was measured on days 8 and 16 of the trial with significant differences ( $p < 0.001$ ) between experimental and control groups on both days. Similar studies have been undertaken by Wirth, Richardson, Eidelman & O'Malley (1993) with significantly positive results ( $p < 0.01$ ); and by Wirth, Barrett & Eidelman (1994) and Wirth, Richardson, Martinez, Eidelman & Lopez (1996) when no significant positive effect was recorded. The implications of this important experimental series have been discussed by Wirth, Richardson & Eidelman (1996).

d. Miller (1982) undertook a double-blind study on 96 hypertension patients divided equally into experimental and control groups. The experimental patients received distant healing from eight healers, together with their normal medical treatment; the controls received no healing. The results showed a significant improvement ( $p < 0.014$ ) in the systolic blood pressure of the healed group, as compared to the controls, but no significant changes in the diastolic blood pressure.

e. Kuang (1986) reported a trial on the effect of Chinese Qigong healing on blood pressure and mortality due to stroke in a large number of hypertensive patients. The experimental group of patients received/practised Qigong on a regular basis as the main therapy but also received drugs, but there was also a group who did not practise Qigong consistently. A carefully-matched control group was given drug therapy alone. The results showed that mortality in the Qigong group was 19.3% as compared to 41.7% in the control group ( $p < 0.01$ ). Mortality in the consistent Qigong group was 11.2% as compared to 29.3% (24 out of 82) in the non-consistent Qigong group ( $p < 0.001$ ). The difference in mortality between the non-consistent Qigong group and the control group was not significant. Qigong and drug therapy both showed positive correlations with stroke prevention,  $p < 0.01$  and  $p < 0.05$  respectively.

#### ii). Effects of Healing on Human Subjective Experiences

This section covers research undertaken to demonstrate a healing effect on subjective experiences, such as headache, pain and anxiety, which are not easily quantified.

a. Keller & Bzdek (1986) used Therapeutic Touch healing (TT) to treat tension headaches in a group of 60 volunteers. Three hypotheses were tested in the trials: (a). That TT would reduce headache pain and that the reduction would be maintained for four hours, (b). That those receiving TT would experience a greater relief of pain than subjects undergoing simulated TT. (c). That subjects receiving TT would maintain greater pain reduction than those receiving simulated TT four hours after the treatments. Subjects were randomised regarding treatments with TT or simulated TT, and were blind to the treatment received. Subjective assessment of headache pain was made before and after treatments using a specialised pain questionnaire.

Results showed that, while initial severity of headaches was comparable between the treated and control groups, for the first two hypotheses significant reduction of pain ( $p < 0.005$ ) immediately followed the treatment. The results of the four hour delay experiment initially did not support the third hypothesis. However, it was discovered that some subjects in both experimental and control groups had used other treatments to control their headaches during the four hour period and, when the data for these subjects was removed from the analysis, significant differences between the groups appeared ( $p < 0.005 - 0.01$  depending on the various questionnaire tests).

b. Dressier (1990) used a technique called Light Touch Manipulative Technique, a form of healing given in the context of spinal manipulation or osteopathy, to improve the condition of patients with neck and/or back pain. Twenty seven volunteers with chronic neck and back pain were independently assessed prior to

and following treatment. Sixteen subjects were placed in the treatment group and 11 in the control group. Significant improvements were found in the treated group ( $p < 0.01$ ).

c. Heidt (1979) utilised Therapeutic Touch in seeking to reduce levels of anxiety in patients in a hospital cardiovascular unit. Ninety volunteers were divided into three matched groups receiving treatments as follows: a five-minute period of TT, casual touch and no touch at all. Pre- and post-intervention levels of anxiety were measured using a special questionnaire. In those subjects receiving TT there was a highly significant reduction in anxiety following the treatment ( $p < 0.001$ ). Also TT-treated subjects showed significant anxiety reductions when compared to both the casual touch and no touch treatments ( $p < 0.01$  in both cases).

d. Quinn (1982) also studied the effects of TT on anxiety states in hospitalised cardiac patients, but without making physical contact. Sixty patients were randomly assigned to either an experimental group receiving five-minute treatments of non-contact TT given by an experienced practitioner; or to a control group where inexperienced practitioners went through similar procedures whilst doing mental arithmetic. Assessments were done by the patients before and after treatment using a specialised questionnaire. Results showed that the experimental group had a very significant reduction in anxiety post-treatment ( $p < 0.0005$ ).

e. Ferguson (1986) performed a further trial assessing, amongst other things, the effect of TT on anxiety states. The trial was undertaken by 100 nurses practising TT, 50 experienced and 50 inexperienced, who were asked to administer TT to a patient of their choice. The patients filled in an anxiety state evaluation questionnaire before and after treatment and also an Effectiveness of Therapeutic Touch Scale (ETTS) following the healing. With both groups of nurses the patients showed significantly reduced levels of anxiety ( $p < 0.0001$  with experienced nurses and  $p < 0.001$  with inexperienced nurses). The differences between the results for the two groups were also significant for the anxiety and the ETTS measurements ( $p < 0.001$  each).

f. Gulak (1985), a healer, undertook a study on his patients measuring anxiety levels before and after healing treatment. Seventy six patients were given 15-minute treatments, with anxiety levels being assessed 14 days before and 21 days following the treatments using a specialised questionnaire. Different statistical analyses showed the reductions in anxiety to be significant ( $p < 0.01$  or  $p < 0.001$ ). At the same time a number of other health problems were apparently cleared up.

g. Wirth, Brenlan, Levine & Rodriguez (1993) performed a double-blind, crossover study on the effect of healing on post-operative pain, following surgical removal of both impacted lower molar teeth. Twenty one patients were randomly assigned to control or treatment groups before the first tooth was removed; and before the second operation the groups were transposed from control to experimental and vice versa. All conditions for both groups were the same except that the experimental groups received Reiki and LeShan healing post-operatively. Healing was undertaken at a distance of several miles from the patients with the healers concentrating on individual patients' photographs. Patients measured their pain intensity and pain relief over a period from 3 to 9 hours after operation using specialised pain assessment techniques. A statistically significant difference was found between the treatment and control groups in both pain intensity and amount of pain relief at hours 4 to 8 ( $p < 0.05$ ) and hour 9 ( $p < 0.01$ ). When combined, the data showed a highly significant improvement in pain levels as a result of the distant/remote healing ( $p < 0.0001$ ).

## Discussion

A number of important points arise from a consideration of the scientific evidence in favour of the reality of healing, as reviewed in summary here. The most obvious of these are as follows:

1. The scientific validity of healing. There is no doubt that, providing the evidence outlined here - together with the other experimental and anecdotal material

available - is objectively assessed, a clear, scientifically-based case for the reality of spiritual healing can be made. This is not to say that all the experimental work has been flawlessly designed and conducted, or that no further research needs to be done; but that the weight of present evidence is more than enough to establish the reality of a healing effect.

2. The quality of the evidence. As Benor (1993) describes, the quality of the wide range of experiments available varies considerably, particularly in the level of the design and conduct of the work and in the analysis of the results. However, a significant proportion of the studies quoted here have been performed to the highest standards of design and analysis and have been undertaken blind or double-blind. For example, blind studies were carried out by Grad et al. (1961), Wells & Watkins (1975), Scofield & Hodges (1991) and Wirth et al. (1992); whilst double-blind studies were performed by Miller (1982), Wirth (1989/1990), Wirth, Brenlan, Levine & Rodriguez (1993) and Wirth, Richardson, Eidelman & O'Malley (1993).
3. Placebo effect. Critics of the reality of healing frequently disparage the positive results obtained by healers by ascribing any positive result to the placebo effect or other psychosomatic mechanism such as suggestion. In doing this they - often wilfully - ignore the fact that, firstly, patients such as infants and animals which are unlikely to be affected in this way frequently respond well to healing; and, secondly, the experimental evidence from non-sentient organisms such as plants and fungi clearly discounts any possibility of mechanisms such as the placebo effect.
4. Mechanisms of healing. In parallel with our relatively limited knowledge of the phenomenon of healing, little is understood about the mechanisms by which healing operates. There is a range of ideas concerning such mechanisms. At one end of this range is the belief, held by many healers, that they are channeling a higher spiritual energy which ultimately derives from God. This energy is often referred to as 'divine love' or 'unconditional love' by healers. At the other end of the range there are many theories which are based on our knowledge of science and particularly physics. The possibility that any conventional electromagnetic energy may be a candidate for 'healing energy' seems unlikely as healing has been shown, at times, to appear to operate outside the dimensions of space and time (see Dossey, 1993); examples of experiments where the healing procedures were partly or wholly undertaken at a distance are described in Sections 2a, 3b, 5(iv) and 6(i)d, and other distant healing experiments not detailed here are those of Snel (1980), Nash (1982), Beutler et al. (1988) and Braud (1989). Another experiment which suggests a non-conventional mechanism is that of Grad (1965b) where cotton/woolen material was used as a 'carrier' for the healing energy.

Between these 'spiritual' and 'material' poles there is a middle ground of ideas concerning healing mechanisms based on the concepts of subtle energies, the subtle energy bodies of all living organisms and the universal energy known by names such as prana and chi. It is in this area where most interest and involvement in healing and healing research seems to be developing. References to further reading in this general area are given below.

## Further Reading

There is a vast literature concerning healing available in a wide range of books and journals and thus only a selection can be recommended here.

A short, scientifically-based introduction to healing is available in Hodges & Scofield (1995).

The following books are some of the best published, not least because they are almost entirely written by doctors or scientists, most of whom are also healers: Benor 1993, 1994), Brennan (1988, 1993), Coddington (1976), Dossey (1993), Eden (1993), Gerber (1988), Krieger (1986) and Laskow(1992).

Much information can also be gained from many of the references quoted in the review of research.

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