The British Acupuncture Council has composed a fairly comprehensive list of conditions and accompanying research which identifies the mechanisms of Acupunctures effect on the body. Research data provided does not include the most recent finding nor have all mechanisms been listed. Below is an abbreviated and slightly edited version, if you do not see a condition or symptoms listed here, please contact me for information. To access the full data sheets: http://www.acupuncture.org.uk/category/a-to-z-of-conditions/a-to-z-of-conditions.html

Acne

- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- enhancing natural killer cell activities and modulating the number and ratio of immune cell types (Kawakita 2008);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling;

Allergic Rhinitis

- regulating levels of IgE and cytokines, mediators of the allergic reaction to extrinsic allergens (Ng 2004; Rao 2006; Roberts 2008)
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Han 2004; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- enhancing natural killer cell activities and modulating the number and ratio of immune cell types (Kawakita 2008);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Anxiety disorders and symptoms of anxiety

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010).
- regulating levels of neurotransmitters (or their modulators) and hormones such as serotonin, noradrenaline, dopamine, GABA, neuropeptide Y and ACTH; hence altering the brain's mood chemistry to help to combat negative affective states (Lee 2009; Samuels 2008; Zhou 2008; Yuan 2007).
- stimulating production of endogenous opioids that affect the autonomic nervous system (Arranz 2007). stress activates the sympathetic nervous system, while acupuncture can activate the opposing parasympathetic nervous system, which initiates the relaxation response.
- Reversing pathological changes in levels of inflammatory cytokines that are associated with anxiety (Arranz 2007)
- reversing stress-induced changes in behavior and biochemistry (Kim 2009).

Arrhythmias, heart failure, and overall cardiovascular function

- minimizing myocardial injury, probably partially by reducing serum cardiac troponin (integral to heart muscle contraction and a marker for damage to the muscle) and C-reactive protein (a marker of inflammation) levels (Ni 2012);
- regulating MAPK (mitogen-activated protein kinase) signaling pathways (e.g. p38 and JNK) that are involved in cardiovascular pathogenesis such as cardiac hypertrophy, and modulating the upstream neuroendocrine factors that control these pathways (Wang 2012, Li 2012, Wu 2012);
- reducing plasma levels of adrenaline, noradrenaline (Wang 2009) and vasoactive intestinal peptide (Fan 2010), so suppressing tachycardia;
- regulating the autonomic nervous system (the main controller for heart rate and rhythm) (Yue 2008, Middlekauf 2002), partly via opiate receptors in the hypothalamus (Zhong 2009);
- mediating heart rate variability (low HRV is associated with various cardiac pathologies) (Wang 2013);
- inhibiting cardiovascular function (heart rate, blood pressure) by activating baroreceptor sensitive neurons in the nucleus tractus solitarius (specific to auricular, not body, acupuncture) (Gao 2011);
- affecting activation of the brain cortex and hence heart function(Kim 2008);
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007).

Asthma

- having regulatory effects on mucosal and cellular immunity in patients with allergic asthma, as shown, for example, by changes in levels of immunoglobulins, eosinophils, T-lymphocytes and cytokines (Yang 2013, Carneiro 2010, Joos 2000);
- reducing bronchial immune-mediated inflammation, particularly through the balance between T helper 1 and 2 cells and their associated cytokines (Carneiro 2010; Carneiro 2005, Jeong 2002). Reducing inflammation in general by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- regulating expression of surfactant proteins, that help to reduce airways resistance biophysically and also modulate the immune response (Yan 2010);
- inhibiting structural changes in the airways, and hence reducing airways resistance, possibly by inhibiting T-type calcium channel protein in airway smooth muscle cells (Wang 2012);
- regulating the expression of genes and proteins that control the airways inflammatory response (Mo 2012, Xu 2012, Yin 2009);
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010).

Back pain

- providing pain relief - by stimulating nerves located in muscles and other tissues, acupuncture leads to release of endorphins and other neurohumoral factors and changes the processing of pain in the brain and spinal cord (Pomeranz 1987; Zhao 2008).

- reducing inflammation - by promoting release of vascular and immunomodulatory factors (Kim 2008, Kavoussi 2007;Zijlstra 2003).
- improving muscle stiffness and joint mobility - by increasing local microcirculation (Komori 2009), which aids dispersal of swelling and bruising.
- reducing the use of medication for back complaints (Thomas 2006).
- providing a more cost-effective treatment over a longer period of time (Radcliffe 2006;Witt 2006).
- improving the outcome when added to conventional treatments such as rehabilitation exercises (Ammendolia 2008; Yuan 2008).

Bell's Palsy

- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kim 2008, Kavoussi 2007, Zijstra 2003);
- enhancing local microcirculation, by increasing the diameter and blood flow velocity of peripheral arterioles (Komori 2009);
- nerve and muscular stimulation (Cheng 2009).

Cancer: associated symptoms

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- regulating neurotransmitters (or their modulators) and hormones such as serotonin, noradrenaline, dopamine, GABA, neuropeptide Y and ACTH; hence altering the brain's mood chemistry to help to combat negative affective states (Lee 2009; Cheng 2009; Zhou 2008);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling;
- stimulating production of endogenous opioids that affect the autonomic nervous system (Arranz 2007). stress activates the sympathetic nervous system, while acupuncture can activate the opposing parasympathetic nervous system, which initiates the relaxation response;
- reversing pathological changes in levels of inflammatory cytokines (Arranz 2007);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- reversing stress-induced changes in behavior and biochemistry (Kim 2009);
- increasing levels of T lymphocyte subsets such as CD(3) , CD(4), and CD(8) , as well as Natural Killer cells (Zhao 2010);
- relieving nausea and vomiting by regulating gastric myo-electrical activity (Streitberger 2006) , modulating the actions of the vagal nerve and autonomic nervous system (Huang 2005), and regulating vestibular activities in the cerebellum (Streitberger 2006);
- reducing vasopressin-induced nausea and vomiting and suppressing retrograde peristaltic contractions (Tatewaki 2005).

Carpal tunnel syndrome

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- regulating the limbic network of the brain, including the hypothalamus and amygdala (Napadow 2007a);
- inducing beneficial cortical plasticity (i.e. conditioning the brain to stop processing sensory nerve input from the affected fingers maladaptively, which leads to improved symptoms) (Napadow 2007b). Lundeberg T et al. Is Placebo Acupuncture What It is Intended to Be? Evid Based Complement Alternat Med. 2011; 2011: 932407

Chronic fatigue syndrome: musculoskeletal pain, headache, sleep problems, tiredness and depression

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Zhao 2008).
- stimulating opiodergic neurons to increase the concentrations of beta-endorphin, so relieving pain (Cheng 2009).
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003).
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which can reduce swelling and pain.
- reducing insomnia through increasing nocturnal endogenous melatonin secretion (Spence 2004).

Chronic pain

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors (e.g. neuropeptide Y, serotonin), and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Han 2004, Zhao 2008, Zhou 2008, Lee 2009, Cheng 2009);
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors (e.g. neuropeptide Y, serotonin), and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Han 2004, Zhao 2008, Zhou 2008, Lee 2009, Cheng 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- modulating the limbic-paralimbic-neocortical network (Hui 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Colds and flu

- enhancing natural killer cell activities and modulating the number and ratio of immune cell types (Kawakita 2008);

- reducing pain through the stimulation of nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors(Pomeranz 1987);
- reducing inflammation through the release of vascular and immunomodulatory factors(Kavoussi 2007, Zijlstra 2003);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

COPD

- reducing bronchial immune-mediated inflammation (Carneiro 2005), and reducing inflammation in general by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003).
- improving both airway mucociliary clearance and the airway surface liquid (Tai 2006).
- regulating cytokine production (Jeong 2002, Joos 2000).

Coronary heart disease

- minimizing myocardial injury, probably partially by reducing serum cardiac troponin I and C-reactive protein levels (Ni 2012);
- inhibiting cardiac sympathetic nervous system activity (and hence noradrenaline and adrenaline), in order to relieve myocardial ischemia (Li 2012a; Zhou 2012);
- activation of myocardial opioid receptors, and subsequent signaling by protein kinases such as PKC, has a protective effect against ischemia (Zhou 2012);
- lowering levels of myocardial enzymes (serum aspartate aminotransferase, isoenzymes of creatine kinase, lactate dehydrogenase, creatine kinase, and alpha-hydroxybutyrate dehydrogenase) to prevent ischemic myocardial injury (Huang 2012);
- regulating nerve electrical activity in the spinal dorsal roots and concentrations of norepinephrine and dopamine in the paraventricular nucleus of the hypothalamus (Li 2012b);
- regulating JNK signaling pathways (mitogen-activated protein kinases that transmit signals of stress stimuli) to possibly prevent and treat cardiac hypertrophy (Wang 2012);
- activating baroreceptor sensitive neurons in the nucleus tractus solitarius in a similar manner to the baroreceptor reflex in cardiovascular inhibition (Gao 2011);
- upregulating myocardial nitric oxide and nitric oxide synthase content and downregulating myocardial intracellular calcium levels, which may contribute to its effect in relieving myocardial injury (Wang 2010);
- [h1] acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007).

Cystitis

- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kim 2008, Kavoussi 2007, Zijstra 2003);reducing pain and swelling (Lorenzini 2010)
- improving bladder irritation by inhibition of capsaicin-sensitive C-fibre activation (Hino 2010).

Dementia

- regulating neuropeptide substances (somatostatin and arginine vasopressin) relevant to learning and memory (Chen 2011; Wang 2010);
- reducing the levels of 8-OHdG (Shi 2012) and decreasing lipid peroxidation in the brain (Zhu 2010; Yang 2007), suggesting that acupuncture helps to prevent oxidative damage;
- activating certain cognitive-related regions in the brain(Wang 2012);
- decreasing the overproduction of nitric oxide and strengthening the ability to eliminate free radicals (He 2012);
- decreasing cholinergic neuron damage and reducing the abnormal activation and hyperplasia of astrocytes (Miao 2009);
- decreasing the number of activated glial cells so as to protect the neurons (Zhu 2009);
- lowering acetylcholinesterase activity (Yang 2007);
- suppressing vascular dementia-induced increase of interleukin-1beta and tumor necrosis factor-alpha levels in the hippocampus (Li 2007);
- improving glucose metabolism in the bilateral frontal lobes, bilateral thalamus, temporal lobe and lentiform nucleus (Chen 2006);
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010).

Dental pain

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors (e.g. neuropeptide Y, serotonin), and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Han 2004, Zhao 2008, Zhou 2008, Lee 2009, Cheng 2009);
- reducing the cardiovascular reflex elicited by toothache, which is associated with the adrenergic system (Jung 2006);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- modulating the limbic-paralimbic-neocortical network (Hui 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Depression

- In general, acupuncture is believed to stimulate the nervous system and cause the release of neurochemical messenger molecules. The resulting biochemical changes influence the body's homeostatic mechanisms, thus promoting physical and emotional wellbeing.
- Studies indicate that acupuncture can have a specific positive effect on depression by altering the brain's mood chemistry, increasing production of serotonin (Sprott 1998) and endorphins (Wang 2010). Acupuncture may also benefit depression by acting through other neurochemical pathways, including

those involving dopamine (Scott 1997), noradrenaline (Han 1986), cortisol (Han 2004) and neuropeptide Y (Pohl 2002).

- Stimulation of certain acupuncture points has been shown to affect areas of the brain that are known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain which is responsible for anxiety and worry (Hui 2010). Stress-induced changes in behavior and biochemistry may be reversed (Kim 2009).
- Some of the most recent research suggests that depression is associated with dysfunction in the way that parts of the resting brain interact with each other (Broyd 2008); acupuncture has been shown to be capable of changing the 'default mode network' (Dhond 2007), but the effect goes beyond that of expectation/placebo (Hui 2010).
- Acupuncture can be safely combined with conventional medical treatments such as anti-depressants, helping to reduce their side effects and enhance their beneficial effects (Zhang 2007).
- Acupuncture treatment can also help resolve physical ailments such as chronic pain (Zhao 2008), which may be a contributing cause of depression.

Dysmenorrhea

- regulating neuroendocrine activities and the related receptor expression of the hypothalamus-pituitary-ovary axis (Liu 2009; Yang 2008)
- increasing nitric oxide levels, which relaxes smooth muscle and hence may inhibit uterine contractions (Wang 2009)
- increasing relaxation and reducing tension (Samuels 2008). Acupuncture can alter the brain's mood chemistry, reducing serotonin levels (Zhou 2008) and increasing endorphins (Han, 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Zijlstra 2003; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors
- (Zijlstra 2003; Kavoussi 2007)

Atopic eczema and psoriasis

- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- regulating mediators of the allergic reaction to extrinsic allergens, for example Ig-E (Rao 2006), serum cytokines (IL-2, IL-4, IL-10, IFN-, Ig-E) (Okumura 2002), and basophils (Pfab 2011);
- enhancing natural killer cell activities and modulating the number and ratio of immune cell types (Kawakita 2008);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling;

Endometriosis

- providing pain relief - by stimulating nerves located in muscles and other tissues, acupuncture leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Zhao 2008, Han 2004, Zijlstra 2003, Pomeranz 1987).
- reducing inflammation - by promoting release of vascular and immunomodulatory factors Kavoussi 2007, Zijlstra 2003).
- regulating levels of prostaglandins (Jin 2009)
- combining acupuncture with Chinese herbal medicine for endometriosis has been shown in animal studies to down-regulate the abnormal increase of matrix metalloproteinase-2 (MMP-2) levels that is associated with ectopic activity of endometrial cells. The treated rats had reduced areas of ectopic tissue (Chen 2008). MMP-2 is required for the anchoring of the placenta to the uterine wall in pregnancy but over-production can lead to endometriosis.

Facial pain

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009)
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010)
- inducing antinociception by activating the opioid pathway (Almeida 2008a) or the L-arg/NO/cGMP pathway (Almeida 2008b)
- exciting or inhibiting the anterior temporalis muscle via reflex pathways and thus smoothing jaw opening and closing (Wang 2007)

Fertility

- regulating fertility hormones - stress and other factors can disrupt the function of the hypothalamic pituitary-ovarian axis (HPOA), causing hormonal imbalances that can negatively impact fertility. Acupuncture has been shown to affect hormone levels by promoting the release of beta-endorphin in the brain, which affects the release of gonadotrophin releasing hormone by the hypothalamus, follicle stimulating hormone from the pituitary gland, and estrogen and progesterone levels from the ovary (Ng 2008, Huang 2008, Lim 2010, Stener-Victorin 2010). Further details of these processes are emerging, for example mRNA expression of hormones, growth factors and other neuropeptides (He 2009)
- increasing blood flow to the reproductive organs - stress also stimulates the sympathetic nervous system, which causes constriction of ovarian arteries. Acupuncture inhibits this sympathetic activity, improving blood flow to the ovaries (Stener-Victorin 2006, Lim 2010), enhancing the environment in which ovarian follicles develop. It also increases blood flow to the uterus (Stener-Victorin 1996, Huang 2008), improving the thickness of the endometrial lining and increasing the chances of embryo implantation.
- counteracting the effects of polycystic ovarian syndrome (PCOS) - PCOS is one of the most common causes of female infertility. By reducing sympathetic nerve activity and balancing hormone levels, acupuncture has been shown to reduce the number of ovarian cysts, stimulate ovulation, enhance blastocyst implantation and regulate the menstrual cycle in women with PCOS (Stener-Victorin 2000,

2008, 2009, Zhang 2009). It may also help to control secondary effects such as obesity and anorexia (Lim 2010).

Fibromyalgia

- altering the brain's chemistry, increasing endorphins (Han 2004) and neuropeptide Y levels (Lee 2009; Cheng 2009), and reducing serotonin levels (Zhou 2008);
- evoking short-term increases in mu -opioid receptors binding potential, in multiple pain and sensory processing regions of the brain (Harris 2009);
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Zhao 2008);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003)
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Frozen Shoulder: pain, inflammation, muscle and joint stiffness

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987, Zijlstra 2003, Zhao 2008, Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kim 2008, Kavoussi 2007, Zijlstra 2003);
- enhancing local microcirculation, by increasing the diameter and blood flow velocity of peripheral arterioles (Komori 2009).

GI tract disorders

- inhibiting gastric and duodenal motility by activating sympathetic nerves via spinal reflexes, and increasing motility via the vagus nerve and supraspinal reflexes (Chang 2001; Takahashi 2006; Sehn 2006; Yao 2006; Noguchi 2008);
- altering acid secretion, and visceral pain (Takahashi 2006)
- improving delayed gastric emptying (Xu 2006)
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003)
- stimulating areas in the brain that are involved in gastric perception (Zeng 2009)
- inhibiting stress-induced pro-opiomelanocortin expression in the hypothalamus (Sun 2008)
- increasing vasoactive intestinal peptide and nitric oxide in plasma, gastric mucosal and bulb tissues, and elevating expression of vasoactive intestinal peptide in antral smooth muscle (Shen 2006);
- decreasing permeability of intestinal mucosa in patients with acute pancreatitis, and reducing accumulation of endogenous inflammatory mediators and vascular active substance in intestinal mucosa (Wang 2007).

Gout: pain and prevention of acute attacks

- reducing the production of uric acid and promoting its excretion (Xie 2007);
- restoring the various metabolic pathways that are disturbed in individuals with gout.(Wen 2011);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- increasing local microcirculation (Komori 2009);
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010).

Tension-type Headache

- increasing endorphins (Han 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states;
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Herpes Zoster

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Han 2004; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- enhancing natural killer cell activities and modulating the number and ratio of immune cell types (Kawakita 2008);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

HIV infection

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling;
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007);

Infertility

- regulating fertility hormones - stress and other factors can disrupt the function of the hypothalamic pituitary-ovarian axis (HPOA). Acupuncture promotes the release of beta-endorphin in the brain, which regulates gonadatrophin releasing hormone from the hypothalamus, follicle stimulating hormone from the pituitary gland, and estrogen and progesterone levels from the ovary (Anderson 2007).
- increasing blood flow to the reproductive organs (Ho 2009, Anderson 2007), which can improve the thickness of the endometrial lining, so increasing the chances of embryo implantation.
- increasing egg production (Jin 2009) and improving oocyte quality (Chen 2009), which could increase the chance of fertilization.
- enhancing luteal function (Huang 2009)
- regulating follicle stimulation hormone-receptor expression (Jin 2009).
- normalizing cortisol and prolactin levels on IVF medication days (Magarelli 2008); reducing stress (Anderson 2007)
- promoting embryo implantation (Liu 2008).

Insomnia

- increasing nocturnal endogenous melatonin secretion (Spence et al 2004).
- stimulating opioid (especially b-endorphin) production and μ-opioid receptor activity (Cheng et al 2009).
- increasing nitric oxide synthase activity and nitric oxide content, helping to promote normal function of brain tissues, which could help to regulate sleep (Gao et al 2007).
- increasing cerebral blood flow (Yan 2010)
- reducing sympathetic nervous system activity, hence increasing relaxation (Lee 2009a)
- regulating levels of neurotransmitters (or their modulators) such as serotonin, noradrenaline, dopamine, GABA and neuropeptide Y; hence altering the brain's mood chemistry to help to increase relaxation and reduce tension (Lee 2009b; Samuels 2008; Zhou 2008).
- Acupuncture can be safely combined with conventional medical treatments for insomnia, such as benzodiazepines, helping to reduce their side effects and enhance their beneficial effects (Cao et al 2009).

IBS

- providing pain relief (Pomeranz 1987).
- regulating the motility of the digestive tract (Yin 2010, Chen 2008).
- raising the sensory threshold of the gut. Various possible mechanisms have been identified, involving spinal nerves and NMDA receptors and a range of neurotransmitters (Xu 2009, Ma 2009, Tian 2008, Tian 2006, Xing 2004). A lowered threshold to bowel pain and distention are hallmarks of IBS.
- increasing parasympathetic tone (Schneider 2007b). Stress activates the sympathetic nervous system, which can stimulate colon spasms, resulting in abdominal discomfort. In people with IBS, the colon can be oversensitive to the smallest amount of conflict or stress. Acupuncture activates the opposing parasympathetic nervous system, which initiates the relaxation or 'rest and digest' response.

- reducing anxiety and depression (Samuels 2008). The distress provoked by IBS symptoms can lead to a vicious cycle of anxiety-pain-anxiety, while the embarrassing nature of the condition can lead to feelings of depression. Acupuncture can alter the brain's mood chemistry, increases production of serotonin and endorphins (Han 2004), helping to combat these negative affective states.

Kidney stones and gallstones

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling;
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007);
- increasing the distribution of cholecystokinin - and vasoactive intestinal peptide -containing cells in duodenum and the sphincter of Oddi, thus improving biliary tract motility (Kuo 2005).

Male infertility

- lowering scrotal temperature (Siterman 2009);
- enhancing local microcirculation, by increasing the diameter and blood flow velocity of peripheral arterioles (Komori 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003)
- by improving sperm maturation in the epididymis, increasing testosterone levels, and reducing liquid peroxidation of sperm (Crimmel 2001)

Menopause and perimenopause

- regulating serum estradiol, follicle stimulating hormone and luteotrophic hormone (Xia 2008);
- increasing relaxation and reducing tension (Samuels 2008). Acupuncture can alter the brain's mood chemistry, reducing serotonin levels (Zhou 2008) and increasing endorphins (Han, 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states.
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987, Zijlstra 2003, Cheng 2009).

Migraine

- providing pain relief - by stimulating nerves located in muscles and other tissues, acupuncture leads to release of endorphins and other neurochumoral factors and changes the processing of pain in the brain and spinal cord (Zhao 2008, Zijlstra 2003, Pomeranz, 1987)
- reducing inflammation - by promoting release of vascular and immunomodulatory factors (Kim 2008, Kavoussi 2007, Zijlstra 2003).

- reducing the degree of cortical spreading depression (an electrical wave in the brain associated with migraine) and plasma levels of calcitonin gene-related peptide and substance P (both implicated in the pathophysiology of migraine) (Shi 2010).
- Modulating extracranial and intracranial blood flow (Park 2009).
- Affecting serotonin (5-hydroxytriptamine) levels in the brain (Zhong 2007). (Serotonin may be linked to the initiation of migraines; 5-HT agonists (triptans) are used against acute attacks.)

Multiple Sclerosis

- reducing numbers of inflammatory and CD4 T cells. This accompanied improved paralytic symptoms in a rat model of MS (Kim 2012);
- promoting NT-3 (a protein growth factor that supports neuronal survival) expression, increasing the cell number and differentiation of endogenous oligodendrocyte precursor cells, and causing remyelination and functional improvement of the demyelinated spinal cord (Huang 2011);
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010;
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling;
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007).

Nausea and vomiting

- regulating gastric myo-electrical activity (Streitberger 2006)
- modulating the actions of the vagal nerve and autonomic nervous system (Huang2005)
- reducing vasopressin-induced nausea and vomiting and suppressing retrograde peristaltic contractions (Tatewaki 2005)
- regulating vestibular activities in the cerebellum (Streitberger 2006)

Neck pain

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Zhao 2008);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Neuropathic pain

- reducing hypersensitivity induced by spinal nerve ligation, an effect dependent on the opioid system (Cidral-Filho 2011);

- inhibiting paclitaxel-induced allodynia/hyperalgesia through spinal opioid receptors (Meng 2011);
- influencing the neurotrophic factor signaling system, which is important in neuropathic pain (Dong 2006).
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling;
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007);

Osteoarthritis: relieves pain and improves function in patients

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz 1987; Han 2004; Zhao 2008; Cheng 2009; Ahsin 2009);
- inhibiting pain through the modulatory effects of endogenous opioids (Uryu 2007; Ahsin 2009);
- regulating metabolism-related genes and pathways (Tan 2010)
- inhibiting the activity of cytokines that are mediators of inflammation, including interleukin (IL)-1, IL-6 and tumor necrosis factor (TNF)-alpha (Xu 2009; Wu 2010);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Palliative care: associated symptoms

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009)
- regulating neurotransmitters (or their modulators) and hormones such as serotonin, noradrenaline, dopamine, GABA, neuropeptide Y and ACTH; hence altering the brain's mood chemistry to help to combat negative affective states (Cheng 2009; Zhou 2008;
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010)
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling
- stimulating production of endogenous opioids that affect the autonomic nervous system, promoting relaxation and reduced stress Arranz 2007)
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003)
- reversing stress-induced changes in behavior and biochemistry (Kim 2009)
- increasing levels of T lymphocyte subsets such as CD(3), CD(4), and CD(8), as well as Natural Killer cells (Zhao 2010)

- relieving nausea and vomiting via central opioid pathways (Tatewaki 2005), regulating gastric myo-electrical activity (Streitberger 2006) , modulating the actions of the vagal nerve and autonomic nervous system (Huang 2005), and regulating vestibular activities in the cerebellum (Streitberger 2006)
- enhancing levels of vasoactive intestinal polypeptide and calcitonin gene-related peptide (O'Sullivan 2010), which may relieve xerostomia and hot flushes

Parkinson's disease

- affecting neural mechanisms involving the basal ganglia-thalamocortical circuit of the brain (Chae 2009);
- increasing cerebral blood flow in the most affected hemisphere (Huang 2010);
- improving cerebral glucose metabolism (Huang 2009);
- enhancing synaptic dopamine availability, which may play a critical role in motor function improvement (Kim 2011a);
- attenuating neuronal damage and increasing the number of neurons in the substantia nigra (Yang 2011,Wang 2010);
- activating the PI3K/Akt signaling pathway (and hence regulating cellular survival) in the substantia nigra, (Kim 2011b);
- mobilizing the antioxidant defense system (via substances such as superoxide dismutase) to protect neurons in the nigrostriatal system (Wang 2011, Yu 2010)
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010).

may specifically help with symptoms of PCOS by:

- impacting on beta-endorphin production, which may affect gonadotropin-releasing hormone (GnRH) secretion (Lim 2010; Stener-Victorin 2009; Feng 2009; Manneras 2009);
- a regulatory effect on follicle stimulation hormone (FSH), luteinizing hormone (LH) and androgens (Lim 2010; Feng 2009);
- modulating the activity of the sympathetic nervous system and improving blood flow to the ovaries (Stener-Victorin 2006, 2009);
- regulating steroid hormone/peptide receptors (Feng 2012);
- downregulating the expressions of serum levels of testosterone and estradiol (Zang 2009);
- controlling hyperglycemia by increasing insulin sensitivity and decreasing blood glucose and insulin levels (Lim 2010);
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010), and;
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007).

Post-operative pain

- altering the brain's chemistry, increasing endorphins (Han 2004) and neuropeptide Y levels (Lee 2009; Cheng 2009), and reducing serotonin levels (Zhou 2008).

Post-traumatic stress disorder: anxiety disorders and symptoms of anxiety and stress

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010);
- regulating levels of neurotransmitters (or their modulators) and hormones such as serotonin, noradrenaline, dopamine, GABA, neuropeptide Y and ACTH; hence altering the brain's mood chemistry to help to combat negative affective states (Lee 2009; Zhou 2008);
- stimulating production of endogenous opioids that affect the autonomic nervous system (Arranz 2007). stress activates the sympathetic nervous system, while acupuncture can activate the opposing parasympathetic nervous system, which initiates the relaxation response;
- reversing pathological changes in levels of inflammatory cytokines that are associated with stress reactions (Arranz 2007)

PMS

- increasing relaxation and reducing tension (Samuels 2008). Acupuncture can alter the brain's mood chemistry, reducing serotonin levels (Zhou 2008) and increasing endorphins (Han, 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states.
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987, Zijlstra 2003, Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors Kavoussi 2007, Zijlstra 2003).
  may increase milk production, help relieve pain (e.g. back pain, headache, pain in the perineum), and improve mood and reduce anxiety in women who have recently given birth by:
- increasing prolactin levels (Wang 2007);
- altering the brain's chemistry (Samuels 2008), increasing endorphins (Han 2004) and neuropeptide Y levels (Lee 2009; Cheng 2009), and reducing serotonin levels (Zhou 2008);
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Zhao 2008);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003).

Pregnancy: relieving pain, improve mood and reduce anxiety, alleviate dyspepsia, and turn a fetus who is breech

- increasing relaxation and reducing tension (Samuels 2008). Acupuncture can alter the brain's mood chemistry, reducing serotonin levels (Zhou 2008), and increasing endorphins (Han, 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states.

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- increasing cortico-adrenal secretion, placental estrogens, and changes in prostaglandin levels, which leads to raised basal tone of the uterus and enhanced movement of the fetus, thus making version more likely (Van den Berg 2008).

Raynaud's

- increasing local microcirculation (Komori 2009);
- regulating endothelium-derived vasoconstrictors (endothelin-1) and vasodilators (calcitonin gene-related peptide, nitric oxide and nitric oxide synthase) (Wang 2011a; Wang 2011b; Pan 2010; Kim 2006);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007)
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010).

Rheumatoid arthritis

- decreasing the proinflammatory cytokines IL-1 and IL-6 and increasing the inhibitory cytokines IL-4 and IL-10 (Ouyang 2010);
- inducing vasoactive intestinal peptide expression, an anti-inflammatory neuro-peptide (He 2011);
- inhibiting the function of synovial mast cells (which are substantially involved in the initiation of inflammatory arthritis) (He 2010);
- upregulating plasma adrenocorticotropic hormone, downregulating serum cortisol levels and synovial nuclear factor-kappa B p 65 immunoactivity, and restoring the hypothalamus-pituitary-adrenal axis (HPAA).(Gao 2010);
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz 1987; Han 2004; Zhao 2008; Cheng 2009);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Sciatica

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Zhao 2008).
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003).

- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling.
- causing a transient change in sciatic nerve blood flow, including circulation to the cauda equine and nerve root. This response is eliminated or attenuated by administration of atropine, indicating that it occurs mainly via cholinergic nerves (Inoue 2008).
- influencing the neurotrophic factor signaling system, which is important in neuropathic pain (Dong 2006).
- increasing levels of serotonin and noradrenaline, which can help reduce pain and speed nerve repair (Wang 2005).
- improving the conductive parameters of the sciatic nerve (Zhang 2005).
- promoting regeneration of the sciatic nerve (La 2005)

Sinusitis

- increasing endorphins (Ham 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- enhancing natural killer cell activities and modulating the number and ratio of immune cell types (Kawakita 2008);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.
- in general, acupuncture is believed to stimulate the nervous system and cause the release of neurochemical messenger molecules. The resulting biochemical changes influence the body's homeostatic mechanisms, thus promoting physical and emotional well-being. Stimulation of certain acupuncture points has been shown to affect areas of the brain that are known to reduce sensitivity to pain and stress (Hui 2010)

Sports injuries

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors (e.g. neuropeptide Y, serotonin), and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Han 2004, Zhao 2008, Zhou 2008, Lee 2009, Cheng 2009);
- delivering analgesia via alpha-adrenoceptor mechanisms (Koo 2008);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- modulating the limbic-paralimbic-neocortical network (Hui 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Anxiety disorders

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- improving stress induced memory impairment and an increasing AchE reactivity in the hippocampus (Kim 2011);
- reducing serum levels of corticosterone and the number of tyrosine hydroxylase-immunoreactive cells (Park 2010);
- regulating levels of neurotransmitters (or their modulators) and hormones such as serotonin, noradrenaline, dopamine, GABA, neuropeptide Y and ACTH; hence altering the brain's mood chemistry to help to combat negative affective states (Lee 2009; Cheng 2009; Zhou 2008);
- stimulating production of endogenous opioids that affect the autonomic nervous system (Arranz 2007). stress activates the sympathetic nervous system, while acupuncture can activate the opposing parasympathetic nervous system, which initiates the relaxation response;
- reversing pathological changes in levels of inflammatory cytokines that are associated with stress reactions (Arranz 2007);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- reversing stress-induced changes in behavior and biochemistry (Kim 2009).

Stroke

- harnessing the anti-inflammatory effects of acetylcholine receptor activation (Wang 2012);
- protecting the brain from ischemic injury by increasing cerebral blood flow (Zhou 2011, Du 2011);
- alleviating cerebral edema after cerebral ischemia (Zhang 2011b);
- preventing the impairment of cortical GABAergic neurons (Zhang 2011c);
- regulating differential expression of multiple serum proteins involved in stroke, and enhancing muscle strength recovery (Pan 2011);
- increasing production of glyco-metabolic enzymes and hence improving post-stroke cognition (Zhao 2011);
- improving motor cortical excitability, and facilitating motor function recovery after focal cerebral ischemic injury (Lin 2010);
- restoring the expression of Na(v)1.1 and Na(v)1.6 (sodium channel sub-unit genes that are down-regulated in cerebral ischemia) thus reducing infarction volume and decreasing stroke damage (Ren 2010);
- up-regulating bcl-2 , hence reducing the expression of caspase-3, one of the enzymes involved in programmed cell death in stroke (Chen 2009);
- promoting neuroprotective effects against focal cerebral ischemia (Kang 2010);
- Modulating brain glutamate release (excessive glutamate in the ischemic zone is neuro-toxic) (Lee 2010);

- increasing the production of endocannabinoid 2-arachidonylglycerol and N-arach-idonoylethanolamine-anandamide, which elicits protective effects against transient cerebral ischaemia through CB1 receptors (Wang 2009);
- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007).

Withdrawal

- normalizing the release of dopamine in the mesolimbic system. This reduces the over-stimulating effects of abused drugs and modifies behaviors associated with addiction such as those around desire and reward. Several brain neurotransmitter systems, for example serotonin, opioid and GABA, are implicated in this (Lee 2009a, Yang 2008, Zhao 2006)
- reducing anxiety (Samuels 2008). Acupuncture can alter the brain's mood chemistry, reducing serotonin levels (Zhou 2008) and increasing endorphins (Han 2004) and neuropeptide Y levels (Lee 2009b; Cheng 2009);
- modulating postsynaptic neuronal activity in the nucleus accumbens and the striatum to reduce nicotine addiction (Chae 2004) and increasing corticotrophin-releasing factor to attenuate anxiety-like behavior following nicotine withdrawal (Chae 2008);

Tennis elbow: pain and inflammation

- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors (e.g. neuropeptide Y, serotonin), and changes the processing of pain in the brain and spinal cord (Pomeranz 1987, Han 2004, Zhao 2008, Zhou 2008, Lee 2009, Cheng 2009);
- delivering analgesia via alpha-adrenoceptor mechanisms (Koo 2008);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- modulating the limbic-paralimbic-neocortical network (Hui 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007, Zijlstra 2003);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Thyroid disease

- increasing free thyroxine (FT4) and free tri-iodothyronine (FT3) levels in hypothyroidism (Xia 2012; Hao 2009; Hu 1993);
- decreasing serum tri-iodothyronine (TT3), total thyroxine (TT4), free T3 (FT3) and free T4 (FT4) levels and increasing supersensitive thyrotropin (S-TSH) levels in hyperthyroidism (Li 2006);

- acting on areas of the brain known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for anxiety and worry (Hui 2010; Hui 2009);
- increasing the release of adenosine, which has antinociceptive properties (Goldman 2010);
- improving muscle stiffness and joint mobility by increasing local microcirculation (Komori 2009), which aids dispersal of swelling;
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Kavoussi 2007);

Tinnitus

- acting on the cochlea, specifically on the contractile activity of outer hair cells (Azevedo 2007);
- acting on the function of the efferent olivocochlear system to suppress otoacoustic emissions (Azevedo 2007);
- altering the brain's chemistry, increasing neuropeptide Y levels (Lee 2009; Cheng 2009), and reducing serotonin levels (Zhou 2008);
- reducing inflammation, by promoting release of vascular and immunomodulatory actors (Kavoussi 2007, Zijlstra 2003);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling.

Type-2 diabetes

- gulate insulin production (Lin et al, 2004) and blood sugar levels (Lin 2004; Chang 2006; CabioÄŸlu 2006; Jiang 2006)
- improve the blood lipid profile (CabioÄŸlu 2005; Jiang 2006) (dyslipidemia is common in patients with type-2 diabetes and may lead to cardiovascular morbidity and mortality).
- improve blood circulation (Tsuchiya 2007), thus helping to slow the onset and progression of diabetic circulatory complications
- moderate the stress response (Sakai 2007)

Urinary incontinence

- decreasing the expression of c-Fos in the brain. Induction of stress urinary incontinence in rats has been shown to increase expression of c-Fos (Chung 2008).
- controlling nitrergic neurotransmitters in order to increase nitric oxide levels in bladder tissue, thus relaxing smooth muscle and allowing increased bladder capacity (Chen 2006).

Vertigo

- activating the left superior frontal gyrus, anterior cingulate gyrus, and dorsomedial nucleus of the thalamus, and stimulating the release of acupuncture-specific neural substrates in the cerebellum (Yoo 2044);
- increasing blood flow velocity in the vertebral-basilar artery, thus improving cervical vertigo (Li 2011; Qi 2011; Kang 2008)

- increasing endorphins (Han 2004) and neuropeptide Y levels (Lee 2009), which can help to combat negative affective states;
- stimulating nerves located in muscles and other tissues, which leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Pomeranz, 1987; Zhao 2008; Cheng 2009);
- reducing inflammation, by promoting release of vascular and immunomodulatory factors (Zijlstra 2003; Kavoussi 2007);
- increasing local microcirculation (Komori 2009), which aids dispersal of swelling

The British Acupuncture Council website: http://www.acupuncture.org.uk/category/a-to-z-of-conditions/a-to-z-of-conditions.html

(Editing: Converted words to American spelling, typo corrections and the use of capitalization for consistency, research data was not changed)