

## Angina

Angina (sometimes called angina pectoris) occurs when your heart doesn't get as much blood and oxygen as it needs due to a blockage of one or more of the heart's arteries (coronary arteries). This blockage causes pain in the chest. People who have angina describe the pain as a squeezing, suffocating or burning feeling.

It is a warning signal.

Angina is not a heart attack. It is a warning signal that there is increased risk of a heart attack, cardiac arrest or sudden cardiac death. Usually, the pain will go away with rest or medication, but it is a signal to commence further medical investigation.

The pain may occur during physical activity, exercise, stress, periods of extreme cold or hot temperatures, after heavy meals, while drinking alcohol or smoking.

Angina is most often caused by:

- **Coronary artery disease** as a result of atherosclerosis, a buildup of fatty deposits that block the flow of blood through the coronary arteries.
- **Coronary artery spasm** one of the blood vessels supplying the heart muscle vigorously contracts, causing blood flowing to the part of the heart supplied by the artery to decrease or even stop, resulting in a heart attack.

In some cases angina can be caused by uncontrolled high blood pressure, or other heart conditions such as narrowing of one of the valves in the heart (aortic stenosis) or an enlarged heart (hypertrophic cardiomyopathy). Sometimes, people can have chest pain that is the result of other health conditions such as lung problems, muscle problems or bone problems.

## Symptoms

- Pain that starts in the centre of the chest, but spreads to the left arm, neck, back, shoulder, throat or jaw.
- Tightness, pressure, squeezing and/or aching feeling in the chest or arm(s).
- Feeling of moderate to severe indigestion that is persistent.
- Sharp, burning or cramping pain.
- An ache starting in, or spreading to, the neck, jaw, throat, shoulder, back or arm(s).
- Discomfort in the neck or upper back, particularly between the shoulder blades.
- Numbness or a loss of feeling in the arms, shoulders or wrists.

Usually angina only lasts a few minutes, but if the pain lasts longer, it may mean that

there is a sudden, total blockage of a coronary artery or that there might be a heart attack. Rest or nitroglycerin may provide relief after 15 minutes but delay can be fatal.

### **How is angina diagnosed?**

After a review of medical history and a complete physical exam, the medical doctor may then order one or more of the following tests:

#### **Angiography**

An angiogram is a test that takes X-ray pictures of the coronary arteries and the vessels that supply blood to the heart. During an angiogram, a special dye is released into the coronary arteries from a catheter (special tube) inserted in a blood vessel. This dye makes the blood vessels visible when an X-ray is taken. Angiography allows doctors to clearly see how blood flows into the heart.

#### **Electrocardiogram (ECG/EKG)**

An electrocardiogram (ECG or EKG) is a test that checks how your heart is functioning by measuring the electrical activity of the heart. With each heart beat, an electrical impulse (or wave) travels through your heart. This wave causes the muscle to squeeze and pump blood from the heart. By measuring how long the electrical wave takes to pass through the heart, the cardiologist can determine if the electrical activity is normal, fast or irregular.

#### **Echocardiogram**

An echocardiogram (ECHO) uses sound waves (ultrasound) to create a picture of the heart. The recorded waves show the shape, texture and movement of the heart valves, as well as the size of the heart chambers and how well they are working.

#### **Exercise electrocardiogram (Stress test)**

An exercise electrocardiogram (ECG) records the heart's response to the stress of exercise. An exercise ECG measures the heart's electrical activity, blood pressure and heart rate while at exercise, usually by walking on a treadmill.

### **How is angina treated with Traditional Medicine?**

Lifestyle changes and medications are the most common ways to treat and control angina. Sometimes, surgery may be necessary.

Although exercise may bring on angina, doctor's will still recommend walking or other mild cardio-vascular exercise. Risk factors such as blood pressure, diabetes and high blood cholesterol, and by eating a healthy diet, being smoke-free, limiting alcohol use and reducing stress are also recommended. Certain medications may help prevent or relieve the symptoms of angina, such as anti-platelets (to prevent coagulation of the blood), beta blockers (block the responses from the beta nerve receptors, slowing the heart rate and lowering blood pressure to reduce the workload on the heart), calcium channel blockers (are vasodilators, which means they dilate the blood vessels), or

nitroglycerin (another vasodilator).

Angina can also be treated by widening or bypassing the narrowed artery to increase the blood flow to the heart. Percutaneous Coronary Intervention (PCI, formerly known as angioplasty with stent) is a non-surgical procedure that uses a catheter (a thin flexible tube) to place a small structure called a stent to open up blood vessels in the heart that have been narrowed by plaque buildup. If there are many blockages or if the blockages are positioned in places that are difficult for a catheter to reach (for example, at a bend in a blood vessel), the doctor may recommend bypass surgery. A piece of a healthy blood vessel from the patient's leg, arm, or chest will be "harvested" to be used as the bypass. Unless one of the newer procedures (minimally invasive bypass or off-pump or beating-heart surgery) is used, a heart-lung machine will take over while the surgeon is operating on the heart.) The section of healthy blood vessel is attached above and below the blocked artery. When the heart is restarted, blood flow is diverted through the bypass around the narrowed portion of the diseased artery. Depending upon the number of blockages, several bypasses may be created.

### **Risks to the Conventional Medical Approach**

As with all pharmaceutical interventions, there are side effects. Anti-platelets increase the risk of bleeding, so even shaving can become a stress filled endeavour. Beta blockers can cause drowsiness or fatigue, cold hands and feet, weakness or dizziness, dry mouth, eyes and skin. Vasodilators can inhibit sexual response and cause fatigue, heartburn and swelling of the ankles or feet. Often these medications are offered in combination with medications to reduce blood pressure and the combination effects can make it difficult to diagnose which meds are causing which problems. Patients are often counselled to take several weeks on each medication before determining its efficacy, adding up to weeks of discomfort and stress for already vulnerable patients. Research also shows that up to 75% of cardiac patients do not take their medications properly or in a timely fashion.

Surgical interventions also bring risk. Angiograms, and angioplasty, can lead to bleeding from the blood vessel where the catheters were inserted; there can be blood vessel damage from the catheters; an allergic reaction to the dye; an arrhythmia (irregular heartbeat); need for emergency coronary artery bypass grafting during the procedure (2–4 percent of people); damage to the kidneys caused by the dye used; heart attack (3–5 percent of people) or stroke (less than 1 percent of people).

Coronary bypass surgery brings the risk of bleeding, heart rhythm irregularities (arrhythmias), kidney failure, infections of the chest wound, memory loss or troubles with thinking clearly, which often go away within six to 12 months or stroke. The sites from which the arteries are harvested are also subject to extreme discomfort and residual numbness. The patient needs to be extremely mindful of the fact that the sternum was split to remove the heart so driving, sexual activity and any weight bearing are restricted for several months. Actual risk of death varies according to the patient, but standard success rate is 96%- 98%.

Perhaps the greatest risk to traditional medical therapies is the pervading idea that once the doctor has adjusted the blood flow, either through medication or surgery, and the pain

has been reduced, all is now good. This is not the true situation. The lifestyle practices that have contributed to arteriosclerosis are not specifically addressed in this model. The build up of plaque in the arteries signalled an overall inflammation problem that can also leave the patient at risk for cancer, arthritis and a host of other diseases. This is why, despite the advancements in cardiac care, overall mortality rates have not changed significantly. (refer: <http://www.pmri.org/publications/1761.pdf> - American Medical Association). A lifestyle modification that addresses the underlying risk factors of diet, exercise, stress reduction and sense of connection with community would enhance the patient's overall quality of life rather than just eliminate one source of pain.

## **The Yogic Approach - A Case Study**

A 55 year old male began to experience shoulder and back pain on the left side, accompanied by a sense of heaviness in the chest, during cycling and dancing vigorously. Patient was 175 pounds and a life long athlete with no obvious hereditary risks for cardiac disease, although both parents and one brother had passed from cancer. After a "stress test", it was determined that there were mild symptoms, particular in the left anterior descending ischemia. Cardiologist prescribed one baby aspirin daily and low dosage of beta blockers, further instructing the family physician to begin prophylactic use of statin drugs to lower cholesterol. No lifestyle counselling was offered.

Patient was reluctant to expose himself to the pharmaceutical side effects so commenced research on alternatives. Here was the holistic plan:

### **1. Natural Supplements**

- the **Pauling Therapy for the Reversal of Heart Disease**: primarily based on **Vitamin C**. Humans are one of the few mammals who do not produce their own supply of this vitamin, essential for repairing the cracks in the artery walls that end up attracting cholesterol on the way to arteriosclerosis. Pauling recommended up to 10,000 mg per day, split into 2 doses, if the bowel would tolerate. Added to this, proline (to release lipoproteins from artery walls), lysine (again to release that lipoprotein), co-enzyme Q-10 (to strengthen the heart muscle), carnitine (to again strengthen the heart muscle), niacin (decreases production of lipoprotein in the liver, so it is a natural statin) and vitamin E (inhibits proliferation of smooth muscle cells in the walls of arteries undergoing the arteriosclerotic changes) (reference: [www.newconnexion.net/article/11-01/heartdisease.html](http://www.newconnexion.net/article/11-01/heartdisease.html)). This patient also added bromelain (an anti-inflammatory and natural blood thinner found in pineapples), fish oils (reduces inflammation and assists in healthy connective tissue growth), magnesium (reduces spasming of muscles) and selenium (an anti-oxidant).

### **2. Diet**

Following the pioneering research conducted by **Dr Dean Ornish**, the patient dramatically reduced his fat intake by assuming a vegetable based diet (reference: *Reversing Heart Disease*, Dr. Dean Ornish, published in 1990 by Random House). There are many recipes in the doctor's books and website that helped the patient's adjustment to

a life without chicken wings. The saturated animal fats have been consistently shown to elevate cholesterol levels, but Dr Ornish proved that all fats create an overload in the liver, especially when it is already over-producing cholesterol. It is also desirable to dramatically increase intake of fruit and vegetables as they have an alkalinizing, therefore anti-inflammatory, effect on the body. From a yogic perspective, a more mindful approach to preparation and intake of food creates a more nurturing vibrational energy that is healing in itself. When on this diet, the patient reported that restaurant meals were very rare occurrences. Almost all meals were prepared at home (in calmer surroundings than the average restaurant kitchen, and with fresher ingredients than a restaurant could source = more pranic energy).

### **3. Exercise**

The patient continued with his normal levels of activity which included daily cardiovascular sessions of up to 3 hours and weight training. He wore a heart monitor and carefully adjusted his effort to keep the heart rate below where he learned that the pain might occur. Throughout the ensuing 8 months, he would occasionally push to test pain levels in the hopes that the lifestyle program was in actuality reducing the blockages.

**Results:** After 8 months of rigorous adherence to the regimen, the pain had not subsided at all so the patient underwent an angiogram. It revealed a 100% blockage in the LAD and 70 - 90% blockages in all the other major arteries. There had been significant collateral artery growth that kept the flow of blood adequate during normal levels of activity. The patient elected for bypass surgery but is continuing to maintain the diet, exercise and supplement routine. He is on 5 mg of statin (to lower cholesterol levels). This represents a very minimal dose (often 80 mg is indicated). It is a testament to his lifestyle renovation that he lowered his cholesterol ratio by 11% (no drugs) and needs no other long term medication.

### **Therapeutic Analysis:**

There were some key elements not fully addressed in the patient's holistic plan. Dr Ornish identified diet, exercise and quitting smoking as crucial, but also emphasized that stress reduction was pivotal. Our patient would have benefited from addressing inherent buried stress in his system. As he was retired, and in a basically satisfactory marriage, he resisted that stress was an issue for him.

1. Exercise does reduce stress, but also continues the production of adrenalin and fuels a rajasic energy in the participant. If the exercise is done in a competitive environment (our patient did work out alongside other men and cycle in a club where racing has been known to occur), this can lead to feelings of isolation (I am better/worse than they are) and pushing further than what is truly healthy. A yogic prescription would have included cardiovascular activity for a maximum of 45 minutes daily at 60% of the target heart rate in a relaxed, outdoor environment.

2. Yoga asana did not get incorporated although the patient did stretch up to 60 minutes each day. Asana are more sophisticated balancing exercises between stretch and strengthening; they massage the glands of the body and incorporate deep breathing. The

overproduction of cholesterol in the liver is stimulated by a hormonal response and is the inflammatory compounds of the body. It makes intuitive sense, and research is mounting, that to change the hormonal response is to heal the imbalance. The following asana would be indicated and would have been recommended in an afternoon practice, prior to dinner (about the same time he stretched at the gym):

- tadasana
- uttanasana
- kneeling lunge (both sides)
- chadurangasana
- modified adho mukha svanasana utilizing chair seat and pelvic tilting (patient had low back and toe discomfort that required these modifications)
- bhujangasana
- salambhasana
- majariasana
- janu sirsasana
- ardha sarvangasana
- supta ardha matsyendrasana
- savasana

3. **Relaxation practice:** The patient considered watching television late at night to be his relaxation. The stimulation provided by the entertainment in this format only served to excite his nervous system, not calm it, even though his physical body was still. As a yogic prescription, it would have been recommended to leave the tv room 30 minutes prior to desired bed time and practice two restorative poses (supported fish pose and supported savasana) with soft music or guided relaxation cd.

4. **Pranayama:** Deep rhythmic breathing moves over 75% of the body's muscles, providing a gentle contraction/release to each one of them. It also opens the lungs and improves endurance. For cardiac specifically, a yogic prescription might be nodi shodhana (alternate nostril breathing). This pattern of breath assists the nervous system to shift dominance between the sympathetic and parasympathetic. Often, for individuals with deeply rooted stress patterns, the ida nadi is particularly blocked. In our patient for the case study, I didn't see the typical "type A" personality often associated with cardiac disease so I would stick with the standard alternate nostril instead of varying the breath to stimulate the left nostril more.

The prescription for our patient might have been 10 rounds of even ratio breath with observation of the body followed by ten rounds of nodi shodhana. I would have suggested a morning practice. He reported difficulty in obtaining a solid night's sleep and

was often fatigued as the light of morning arrived.

5. **Meditation** was not an entirely foreign concept to our patient. His religious tradition advocated much spiritual reading and quiet contemplation (similar to jnana yoga). It also advocated a strong connection with one's own consciousness and identified the concept that our body is not who we really are (connection with purusha). The prescription would have been to incorporate 10 - 15 minutes of quiet reflection after pranayama practice in the mornings when the patient's energy levels were typically at their lowest. He could have borrowed from his spiritual tradition and began each meditation with a reading and then allowed those ideas to settle deeply into the silence that would follow. Mantra, chanting or mudras were too foreign to this patient's background and alarmed him somewhat as they connoted hypnotic techniques, an undesirable outcome in his spiritual tradition. In other patients, one might draw from a favourite childhood memory, hymn or connection to nature to create a mantra. One of the traditional Buddhist meditations on loving kindness is particularly appropriate for heart patients. It reminds us that we are connected to all living beings and it is "heart warming" to send that love to all beings.

6. **Guided Imagery** Patients could be encouraged to develop an affirmation journal or posterboard. As they progress along the journey, certain phrases or pictures may inspire them to a new insight. After meditation each morning, the individual could read aloud or visually study the image for five minutes or so, clarifying the intention toward healing and balance. Verbally reinforcing the message to oneself deepens the seed of knowledge into consciousness.

7. **Connection to Community** is one of the most difficult concepts to promote and define for cardiac patients. Our case study had gradually shed most of his extended family and after retirement, lacked a "gang" that waited for him to show up each morning. He was convinced that this was "living", no ties or responsibilities. This attitude is very representative of the pervading sentiment in modern society. Troublesome mothers-in-law, nosy neighbours and milk delivery men are unnecessary to survival now, leaving us isolated in our media rooms, wearing headphones and texting friends that we hardly ever touch in person anymore. This independence is not natural to the human species and leads to paranoia, social awkwardness and basically far too much time alone with our negative thoughts. Our case study was also reluctant to volunteer his services as he perceived that he would be "taken advantage of".

As a yogic concept, selfless service is mandatory to help us learn to perform without attachment to the outcome. It is a necessary step to alleviating suffering, for others whom we help, but also by liberating us from our ego's attempts at control through fear (ie "you might get taken advantage of"). To heal a broken heart, the patient needs to open to service to others. It simply feels good. The sense that we are all connected, that we are all fellow travellers on the path, leads the participant to open to the truth that there is no separation... we are all one.

As a prescription, the therapist would look carefully at the patient's aptitudes and interests. Working with children is the fast track to opening the heart because they are more likely to be present in the moment and spontaneously model expression of emotion (something that adults typically repress to the detriment of their cardiac health).

Encouraging a volunteer commitment of just one hour a week can have positive results.

It may be the case that a patient is already volunteering extensively. The therapist would perhaps then assist the client in a compassionate exploration of what is selfless service, and what volunteer work is being done in service of the ego.

**8. Emotional Health:** Cardiac patients experience fear at an elemental level as their conditions are life threatening and the pain traumatizing. Most report never feeling so weak or afraid. This fear can manifest as anger or depression. Our case study was able to express his fears openly but still faced the disturbing concept that he might not be useful, or able to work anymore. Encouraging angina patients to talk, paint, sing or dance out their fears is crucial. It's scary to face "your maker" and they may not have the language to say that. Weaving a discussion of the kleshas into the sessions with the client, and a frank exploration of especially the last one (fear of death), may open a door to a less fearful path.

### **Marrying Yoga Therapy with Allopathic Medicine**

1. Absolutely honesty between the yoga therapist (and other holistic practitioners) and the allopathic medical team is essential. Many of the practices described here can have serious health consequences if utilized in conjunction with medical practices. For example, some of the supplements described can thin the blood which would lead to fatal bleeding during bypass or angio surgery.

2. The allopathic team may not understand or appreciate the alternative therapies, but if the patient demonstrates a firm resolve to make the lifestyle changes, they will support that. All medical doctors would love to see us eat more veggies, exercise and meditate.

3. The allopathic team will prescribe pharmaceutical intervention as they believe it will save lives. Period. That has been the nature of their training. The patient who wishes to postpone pharmaceutical therapy will need to set a clear timeline with their physician and explain what other steps are being taken to correct the problem. Occasionally, the patient may need to seek another medical professional who is more familiar with lifestyle modifications. Most doctors are becoming aware that these yogic practices feel good almost immediately, so patients are more likely to stick to the regimen (unlike with pills). The higher the degree of compliance with therapy (allopathic or natural), the faster and more complete the results.

4. The services of a naturopath are highly recommended to evaluate the right supplements and herbs for each patient.

5. If the angina patient elects for surgery, the yoga therapist can still play a pivotal role.

- breathing and relaxation techniques are helpful during all the tests and preparations for surgery, even during those long minutes waiting to hear your name called in the OR

- immediately after surgery, the therapist or a loved one, can place their hands about 4 - 6" over the heart and visualize healing white light penetrating the area. The

heart undergoes significant shock, obviously, and there is a scary place as the heart tries to find its own electrical rhythm again. You couldn't possibly overdo this energy work

- the day after surgery, the respirator tube is generally removed and the patient will be encouraged to sit up, and even start walking! The therapist can help the patient re-establish even ratio, deep rhythmic breathing

- on day two, post surgery, a physical therapist will introduce some simple stretching exercises to the patient. A yoga therapist can punch up the effectiveness of these movements by marrying them to the breath as well as other practices of mindfulness, energy work and yoga philosophy to create an effective yoga class right in the hospital bed

- once home, the spectrum of yoga postures can be increasingly varied, keeping in mind that the sternum takes 6 - 8 weeks to heal. At first, even table pose or anything that puts pressure on the arms is contraindicated. Anything that spreads the sternum, such as yoga mudra, is a no-no. Also, movements need to be symmetrical so the movement on the sternum is level. The patient will be the best indicator of when it is safe to slowly re-establish poses. However, postures that aggressively stretch the chest, such as gomukhasana, bhujangasana, matsyasana, bound twists to name a few, would be contraindicated for at least 2 months.

- the yoga therapist can continue to re-inforce the lifestyle modifications discussed. The patient needs support as they explore their new blood flow patterns and they need to keep the arteries clear!