

## Ten Steps to Maintain Heart Health

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Revealing the secret to maintaining heart health

*What's missing in heart health programs?*

Research and practice show that heart health programs improve both the quality and quantity of life of cardiac and at-risk patients. Despite being aware of this information, patients don't always stick to their program. Even though doctors assumed that heart patients would make the necessary changes to their diet and general behaviour, they found that after the initial shock of the heart attack, people reverted to their old way of doing things as the immediate "drive to survive" subsided. To counter this, strategies have included educating patients as to the rationale behind heart health programs, as well as applying interventions based on observations of experts. However, these strategies have not always been successful. Heart health programs have been temporarily successful but while these generally lead to lifestyle changes and promote overall heart health, these programs are expensive and are not available to participants for the rest of their lives. There is also a high drop out rate, and low-risk patients are not included.

Until recently, a key ingredient of a "successful" heart health program has been left out. What is this crucial ingredient?

*Adaptation: the necessary process towards heart health*

In the past, heart health programs focused on encouraging participants to conform to the requirements of the program, rather than accommodating to participants' preferred activities and lifestyle. We now know that a customized heart health program that caters to an individual's particular circumstances is better than a generalized approach.

This accommodation and customizing is what we refer to as *adaptation*. In order for meaningful behaviour to occur, there must be both effort and reward, and a balance between them must be maintained to ensure that the patient's motivation to change is sustained, and that old habits are dropped. A patient who is motivated to assume a healthy lifestyle needs to develop a formula structured around the elements of their particular heart health program. This formula is based on ten Principles of Heart Health.

### **Principles of Heart Health:**

#### ***1) Understands the need for a heart health program***

A patient who has coronary artery disease first needs to understand more about the heart and how it functions. The heart is a fist-sized pump in the left chest, which pumps

oxygen-rich blood to the rest of the body. Oxygen supply to the heart is provided by a few vessels, which surround the heart. These vessels can become blocked through the accumulation of a fatty substance in the walls (*atherosclerosis*) or problems related to thickening of the blood. As a result, when effort is exerted (such as during exercise), the heart can become short of oxygen, causing angina pain. If the vessels are completely blocked, the resultant lack of oxygen will result in a *myocardial infarction* or heart attack. How a heart attack affect one's life depends on where in the heart the attack occurred and how much damage it caused. A heart health program is specifically designed to prevent negative occurrences and to promote heart health by reducing the factors that contribute to the blockage of the arteries of the heart and threaten the survival of the individual.

## ***2) Works with good professionals***

Equipped with an understanding of one's specific heart condition, the patient needs to find qualified professionals to work with and help them navigate through their various health needs. These caregivers will act as informants and intermediaries with the health system, and should be approachable and trustworthy. The general practitioner, or family doctor, is usually at the forefront, and will deal with day-to-day or urgent concerns that could be potentially life-threatening. Over time, the services of specialists are required for regular follow-up, as well as for special circumstances, when the need arises.

## ***3) Is aware of individual heart health risk profile***

Patients need to know their own heart health risk profile and be aware of their specific risk factors for heart disease. The key factor leading to coronary artery disease (including heart attack, bypass surgery and angioplasty) is in the metabolism of fat (lipids). This is manifested in a high cholesterol ratio and the elevation of triglycerides. The second factor is smoking. This is followed by other pre-conditions, such as diabetes and high blood pressure (hypertension). Further risk factors include excess weight, a poor heart health diet, a sedentary lifestyle, persistence and excessive stress, and non-compliance with the program. Genetic vulnerability for heart disease is another risk factor. Research on genetic considerations is still in its early stage, but in the future, doctors will be able to target interventions that better manage each individual's situation.

## ***4) Knows the five elements of the heart health program***

### *Professional Assessments*

Patients must attend follow-up appointments with medical professionals to receive objective assessments, as well as treatment-management directions. Appointments are planned, allowing for treatment at appropriately spaced intervals, or rapid evaluation and treatment once symptoms develop.

### *Medication*

Patients should be aware of the challenges of taking multiple medications several times per day, for a prolonged period, and should take special care to ensure that medication is taken correctly. While taking medication is simple, problems associated with long-term

use can arise. A study on just one medication, has shown that after two years, only 40% of patients aged over 65, taking a statin (such as atorvastatin or Lipitor, one of the most-widely prescribed drugs), were actually taking this medication (Journal of the American Medical Association July 2002).

### *Diet*

A heart healthy diet is important for a heart health program. This diet should not contain excessive calories and should include fruit, vegetables, whole grains, healthy fats (such as found in oily fish) and low-fat dairy. Foods and beverages that contain saturated fats, trans fats, cholesterol, simple sugars, salt, and are high in calories and low in nutrients, should be consumed in minimal amounts. A summary of a heart health diet can be found in the Healthy Eating Pyramid, developed by the Department of Nutrition at the Harvard School of Public Health (available through the Nutrition Source at [www.thenutritionsource.org](http://www.thenutritionsource.org)).

### *Exercise*

Patients should follow a regular exercise regimen. This can either be devised by the individual patient, according to specific instructions (such as recommended in Dr Kavanagh's book), or preferably, designed by a trained professional (such as a kinesiologist), based on physiological parameters, such as heart rate. An alternative is for the patient to follow general guidelines from organizations like the American Heart Association, which suggests half an hour of continuous movement per day, most days of the week. Recent research shows that 150 minutes per week (in divided amounts) of most forms of exercise is sufficient for the average person.

### *Smoking cessation*

Patients following a heart health program need to break the bad habits that affect heart health. Smoking is a major risk factor for coronary artery disease, as well as for other potentially life-threatening conditions, such as lung cancer. Successful smoking cessation often occurs after heart disease diagnosis, or otherwise through meaningful date selection, following behavioral guidelines or a specific program.

## ***5) Makes adequate preparation to implement the program***

The memory of the cardiac event, as well as understanding the heart health program, play a role in sustaining patients' motivation over time. Patients prepare to follow a heart health program initially because of fear, an intense emotional experience that acts as an electric prod, motivating them to adhere to the program and prevent a similar stressful experience from reoccurring.

A cardiac event is followed by a sequence of phases. The short phase of shock at the time of the event is followed by the aftermath phase after the hospital discharge. Family members acknowledge responsibility for the patient and are often hypervigilant, adopting a protective stance towards the now-dependent patient. The reaction phase follows, where the mind reacts to the event as the body heals, and the patient typically displays emotions such as fear, sadness and mild depression or even clinical depression. The next phase is

the rehabilitation phase, which is characterized by an improvement in energy and drive. During this phase, patients are able to follow structured cardiac rehabilitation programs, which provide exercises, supervision, and education. These programs also act as support groups, where patients share similar experiences with one another. Emotional reorientation and recovery usually occur after a year, with families playing an important role in the challenge of permanently maintaining motivation for the heart health program.

Patients should be aware of their risk profile, know the five elements of the program and be able to integrate the program into their lifestyle. This will help to sustain motivation. Once a program has begun, it can be refined, but planning should include an awareness of self-discipline, reward systems, daily routine, and strength of the patient's social network. The plan needs to be constantly revised as it moves from theoretical to practical.

#### ***6) Maintains sufficient discipline***

Character and temperament affect the success of a lifestyle change. Individuals who are naturally self-disciplined, perfectionists and respond to obligations, are more likely to succeed in a heart health program, compared to individuals who are free spirited, have a laissez-faire attitude and are non-conformist.

Environment is another important factor. A program will be more successful if the patient has the support of family or housemates, who eat heart healthy food, enjoy exercising and do not smoke. Similarly, the work environment also contributes to the success of the heart health program. Having access to heart healthy food at work and the company of fellow workers, who exercise and do not smoke, will increase the chances of success. When family or close friends participate and support the heart health program, it is more likely to succeed and sustain motivation. The relationship with a partner usually has the most profound impact. From eating healthily, to walking together, to discouraging bad habits like smoking, a partner can be a prime mover to promote heart health. Similarly, associates can play a key role in lifestyle choices: Smokers tend to mix with other smokers, the health-conscious with other health-conscious people.

Patients who struggle with any aspect of the program, can find support from professionals, such as dieticians and personal trainers, depending on what is available in the community. In many countries, funded cardiac rehabilitation programs exist for those at high risk. They usually consist of weekly or bi-weekly visits, where a prescriptive exercise program is devised for each individual, and supervision and a regular education program is provided. Participants are responsible for completing a set amount of exercise on their own each week. These cardiac rehabilitation programs have been highly successful, but they eventually come to an end as funding is often limited, and motivation can wane after a few months.

#### ***7) Understands the importance of achieving satisfaction in the program***

*Effort-Reward Balance—a key concept to achieve satisfaction*

Sustaining heart health and achieving permanent change is difficult as character is set by the time people reach their late 20s. The routine and structure of life have become established, and it is difficult to make changes.

Yet change is possible and the Effort-Reward model provides an understanding of how to achieve this. The model stipulates that it is necessary to achieve a balance between the effort that one makes and the reward that one receives from this effort. If this balance is not achieved, physical and mental strain can result, which can have serious implications for health. Current practices regarding heart health programs have placed too much emphasis on what one does on the heart health program (on the Effort side of the equation) and insufficient attention has been paid to balancing the Effort with Reward.

Reward is a fundamental motivation force. When we are young, we learn what we like to do. Once we know what this is, we keep finding ways to continue doing this. The problem is that what we like is often not good for us. For example, the very components of food that provide taste—the sweet, the rich and the salty—are bad for our health. Furthermore, for every activity that we like to do, there is an equivalent addictive behaviour, simply because we don't want to stop doing what we love to do. As a result, the advice to simply find heart health activities that patients like to do is inadequate. Patients must also learn to know when to stop. This aspect of satiety is a basic component for the more mature notion of Satisfaction (versus the Pleasure Principle). Once this concept is accepted, healthy outcomes can result.

#### *Satisfaction and compatibility with one's life*

It is vital to ensure that a heart health program fits into a patient's life and daily patterns. Some people prefer to exercise first thing in the morning; others prefer to exercise in the mid-morning, afternoon or later. When the program fits naturally into a patient's day-to-day schedule, they will be more likely to adhere to the program for the long term.

Following a program that one likes and that fits into one's schedule will help ensure the success of the program. If a patient is able to conform to a structured program, a prescriptive approach to diet or exercise is recommended, but many cannot continue to conform to an exact program over an extended period. Patients should find what forms of exercise they enjoy, such as walking, cycling or dancing. They are more likely to follow an exercise routine that is comprised of physical activities they enjoy. Finally, the program must be adequate enough to fulfill the basic requirements of a heart health program.

#### *Satisfaction and the 5 elements of a heart health program*

##### **Satisfying requirements for assessments and medication**

Patients usually do not find attending the ongoing assessments that are part of their treatment a major challenge, even if they are uncomfortable with the various procedures and are fearful of the results of the evaluations. However, when patients hesitate to see

their professionals, it can lead to serious delays, especially for high-risk patients with established risk factors.

Taking prescribed drugs is an inevitable part of being a cardiac patient, who often has to keep taking medication on an ongoing basis. Therefore, it is crucial for patients to ensure that they do not experience long-term side effects from these medications. While many prescriptions (such as for high blood pressure) can take weeks, or even months, to settle in patients' systems, it is unusual to have to continue taking medications that have significant side effects. Beta blockers (medications ending in -olol) have been shown to be effective in many cardiac patients and in those with hypertension, but also cause mood distortion, such as feeling "off," down, tired or having sexual side effects. Patients who experience side effects should consult with their physicians to see if any adjustments can be safely made. Often a small change in dosage or a switch to a similar preparation with fewer side effects can have an impact on improving quality of life.

### **Satisfaction as a non-smoker**

Three key lifestyle areas that require the greatest effort to change and achieve satisfaction are diet, exercise and smoking cessation. Relatively mild effort, followed by reward, is needed to fulfill the requirement of completing assessments and taking medication. However, stopping a bad habit, such as smoking, requires a much greater amount of effort, and is accompanied by a lack of reward in the early stages of cessation. As a result, it is important that programs for smoking cessation offer a lot of support for the huge effort that is initially required. Multiple possibilities to reduce the effort of quitting now exist, including behavioural programs, supportive caregivers, smoking substitutes (especially nicotine-related materials), and medication to ease the pain of withdrawal. With the help of public efforts such as legislation, the incidence of smoking in industrialized countries has been greatly reduced. In Ontario, the adult smoking prevalence has decreased from 42% to 20% in a couple of decades. Ultimately, rather than dwelling on the pain of withdrawal, the aim and Ultimate Reward of becoming a non-smoker must be emphasized. Once this is achieved, it is relatively easy to maintain.

### **Satisfaction and Diet**

Successful effort-reward strategies need to be more closely aligned over time in order to achieve Satisfaction with diet and exercise, and for the next stage of routinization to occur. The Healthy Eating Pyramid can be used to demonstrate what is required for regular and occasional consumption. At the top of the pyramid are foods that should be avoided. These include foods that contain simple sugars, saturated, and especially trans fats, and salt—conveniently remembered as “the tasty foods.” Consumers should focus on the bottom of the pyramid, which consists of the recommended daily food, including fruit and vegetables, healthy fats and oils, and whole grains. The rest of the pyramid applies to favoured foods, such as fish and poultry, nuts, seeds, beans and tofu. Low-fat milk products are included in the foods that can be regularly consumed. The recommended foods are those that are filling and satisfying. They are low energy-dense foods, containing water and fibre, which are both heart-healthy and promote satiety (see the Volumetrics diet by Barbara Rolls). The foods that should be avoided tend to be more dense and “tasty,” leading to bulldozing of the satiety centre and unhealthy activation of

the pleasure centres. This results in overeating and obesity. Individuals that follow a diet that promotes satiety need to be mindful, and learn to be aware when they have had enough. At the bottom of the pyramid is the warning to be active daily and to maintain weight control. The emphasis is on healthy, satisfied eating, rather than on a restrictive diet.

### **Satisfaction and Exercise**

In contrast to food where the reward is immediate, it takes effort to exercise. For people who “hate” exercise, it will be important to reduce the effort and find activities that they enjoy, such as strolling with a friend, cycling to work, or dancing at home. The exercise should be convenient, fit into the person’s life, and become routine. It will be much easier if there is an automatic, biological reward as a result of the exercise. A person that experiences the rush of the endorphin effect, particularly once a sweat is produced, and does exercise that is easily replicated, will be more liable to continue the practice. The regimen must be performed at a suitable time, and the effort required must in some way promote reward.

Cardiac patients in rehabilitation programs are usually given a prescriptive exercise regimen that corresponds to a *physiological* match with the individual. The problem with this approach is the absence of a *psychological* match. If prescriptive exercise can be maintained over time, little more needs to be done unless slippage is noted. A re-examination of the psychological fit would then be required. Most people will have some difficulty adhering to their program, so in order to sustain the program in the long run, modifications of the program will have to be made. The program can be modified by altering the effort required by the program to better suit the individual, or by ensuring the reward system is in place. Certain guidelines need to be kept in mind when the prescriptive approach is too restrictive or there is no formal program, as only high-risk individuals are usually allowed into the programs. A generally recommended schedule involves regular exercise, half an hour five times per week (as per American Heart Association guidelines), and it should be individualized for content and timing. Research has shown that at little as ten minutes of continuous exercise six days per week is much better for heart health than being completely sedentary. Also, once new pleasurable habits have become established, the exercise stints can be extended or made more frequent. So, in terms of effort and reward for exercise, there is a strong emphasis on reward through individualization.

### **8) *Makes the program routine***

#### *The concept of routinization*

The next component of Adaptation is necessary to declare the program a success, that of habit, which refers to making the program a routine. According to Prochaska, it generally takes at least six months for new behaviour to become a habit (for example, see Prochaska, Norcross, DiClemente Changing for Good 1994). Even if the requirements of the five elements of the heart health program are satisfied, it is still necessary to make each aspect a part of the routine of a patient’s life. Once the reward element is in place and a balance between effort and reward is established, the habit can begin to develop. These conditions allow

the act to be more easily repeated than under other circumstances. This does not occur automatically; more attention and effort have to be given to ensure this steady state is working smoothly, and must also be individualized. The notions of mindfulness and practice are key concepts to ensure the goal of making the activity routine. The litmus test for routinization is that the individual feels the absence of the newly established healthy habit, not as a result of feeling badly (guilt, for example) for not practicing heart health, but rather from “not feeling right” when the activity is not done.

#### *Making the heart health program a routine*

While assessments only take place periodically, patients need to be aware that they have to be performed. Evaluations are usually carried out every few months or annually, although certain tests (such as the INR measure to determine the liquidity of the blood) need to be done at much shorter intervals.

On the other hand, taking medication routinely is a serious challenge, especially given the complicated drug regimens of cardiac and other patients. Regimens become more challenging when more pills are required more times per day. Simplification is a crucial component that helps with medication compliance.

For the lifestyle components (diet, exercise and smoking cessation), once satisfaction is achieved, this is followed by the mantra: “practice, practice” combined with avoidance of former bad habits (unhealthy diet, lack of exercise and smoking). The trick is to attain satisfaction in lifestyle; this is the sweet spot that allows routines to become established.

#### *Declaring a heart health formula*

Each patient develops a personal “formula,” which is a unique combination of program and circumstances, for achieving a successful heart health program. A personal formula is comprised of what is known about an individual’s risk profile plus the requirements of the program, combined with what constitutes the circumstances of one’s life and what has been determined to work for that individual over time.

### ***9) Understands and attains balance in the components of life***

#### *Components of Balance*

The final aspect of Adaptation relates to the restoration of balance to an individual’s life. It is important to achieve overall health, not only heart health. This includes all aspects of an individual’s life, both emotional and physical. As people age, they are subject to ill health, which may require ongoing treatment, or at least periodic reassessment. Many conditions are age-related, and with each succeeding general examination, the possibility of discovering pathology exists. Often, emotional health, particularly depression, both mild and major, is ignored. These conditions can have a profound impact on quality of life, especially if there is a clinical or major depressive disorder, which can present in unexpected ways, especially in the cardiac patient where the emphasis may be on the lack of interest or pleasure in usual activities rather than on depressed mood. Allowing depression to go untreated can result in the deterioration of work and home situations.

Effective treatments are available, which can transform quality of life to an acceptable state of normality.

Work is the next area in which balance must be achieved. Job strain results from excessive demands and limited control in the work setting. When both of these factors are present, mental and physical strain can develop, including elevated blood pressure or heart problems. When the balance between effort and reward in the work setting is persistently not achieved, adverse health outcomes result. Job reward is multifaceted and includes factors such as earnings, job satisfaction, validation as a worker and support from supervisors and colleagues.

Human contact is essential for health. A partnership often represents the deepest and most conflictual of human relationships. The issue of conflict has been well explored by researchers such as John Gottman, who found that conflict is a necessary aspect of close relationships (for example see Gottman, *Journal of Consulting and Clinical Psychology* 1989). How conflict is managed is a crucial component of marriage. If the conflict is persistent and a struggle ensues, the integrity of the marital bond is tested, but some conflict is necessary for engagement. The key factor for maintaining a positive relationship is the ability to “move on.” The main marital ingredient for positive health outcomes is marital satisfaction. Marital cohesion, which is the ability of the couple to enjoy common activities, is a key ingredient for satisfaction.

Humans benefit from a strong social network, particularly the presence of at least one confidante. Friendships may vary in the amount of bonding and the degree of contact. A special type of relationship is that with a pet. While usually uncomplicated, bonding with an animal such as a cat or dog can be an important contributor to reducing day-to-day stress. In addition, a spiritual relationship with the world, in a religious or nonreligious way, can contribute to achieving balance. A belief system can help to anchor an individual and have a positive impact on mental and physical health.

*Balance: Integration of the components*

For adaptation to occur, the different aspects of an individual’s life must be integrated and kept in balance. Health should be under control, and while many conditions cannot be eliminated they can be well controlled through regular assessments and treatment. A balance between work and non-work time needs to be achieved with work being efficiently managed and confined to work time, and not spilling over into recreational time. The latter time should be comprised of rest and activity. Rest is required to “recharge the batteries,” allowing the remainder of the time to be filled with satisfying activities that are pleasurable and stimulating. Supportive relationships are encouraged to nurture the feeling that one is not alone and has others on whom one can depend.

Life is always subject to pitfalls, and even when one feels that a new habit has become ingrained, one may find oneself reverting to old habits when encountering stress. It is important to be self-forgiving, to realize that one has reverted to old habits, but instead of becoming discouraged, one needs to resume the program and start again.

## *10) Achieves Centeredness*

The ultimate goal of adaptation to one's program is finding a state of balance within oneself—*centredness*. Before centredness can be achieved, it is necessary to deal with the concern about heart disease and illness generally, and preoccupation with preventing illness. While many people think that it is necessary to be preoccupied with following health prevention programs, the evidence is to the contrary. As long as the program is being practiced and renewed, one should not be preoccupied by these thoughts. The goal of heart health is to achieve "adaptive denial" so that once the program requirements are fulfilled, the person can get on with life. If the program obligations are not met, it is known as "maladaptive denial." People who are perfectionists will often be vigilant in following heart health practices, but ultimately, by the end of the process, they find it difficult letting go—to move along the road towards centredness through adaptive denial. Centredness proceeds towards the final goal of equanimity, which is defined as "the quality of being calm and even-tempered." This state is achieved through a balanced life, productive activities and satisfying relationships.

### *Conclusion: the five key elements of heart health*

To be successful in a heart health program, adaptation in the five elements of assessments, taking medications, as well as fulfilling the lifestyle factors (diet, exercise and smoking-cessation) needs to be achieved. Each individual's program is unique because it is based on an individual's own predilections, with a specific formula to ensure that satisfaction, routinization and balance is maintained. The required change is based on original lifestyle and situation, which will determine the degree of effort necessary to achieve success. Reward for effort is part of this equation.

The checklist below can be used to determine if one has achieved the goals of one's heart health program:

- 1) Understands the need for a heart health program*
- 2) Obtains good professionals*
- 3) Is aware of heart health risk profile*
- 4) Knows the 5 elements of the heart health program*
- 5) Makes adequate preparation to implement the program*
- 6) Maintains adequate discipline*
- 7) Understands the importance of achieving satisfaction in the program*
- 8) Makes the program routine*
- 9) Understands and maintains Balance in the components of life*
- 10) Achieves Centredness*

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