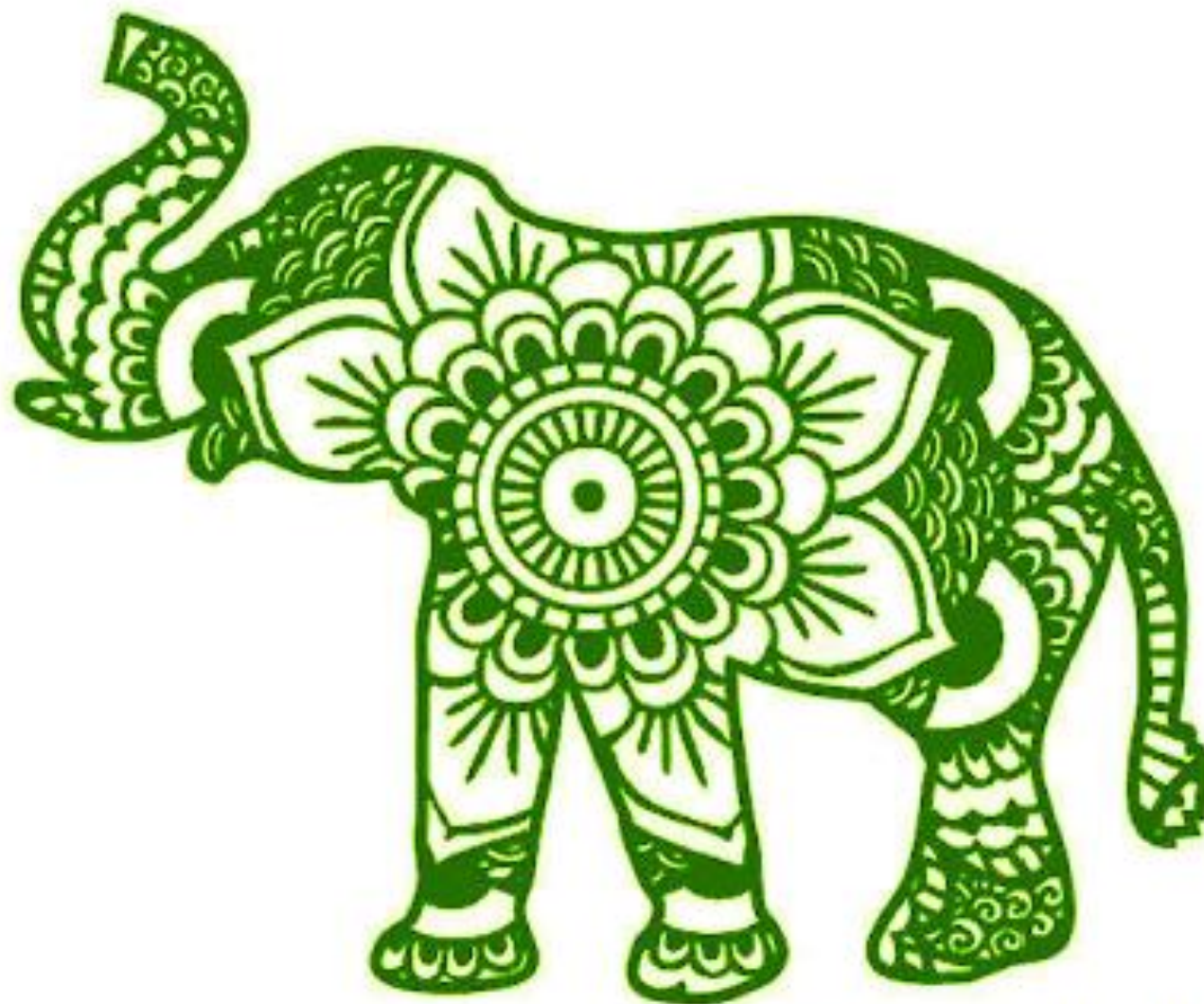




# Cardiovascular Wellness Program

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# Cardiovascular Wellness Program

SACRAMENTO  
STATE

Welcome! Thank you so much for joining us in the CSUS Cardiovascular Wellness Program. The purpose of this handbook is to clarify for you the program services and goals. We hope you give us feedback as to how these services are meeting your personal goals.

The primary aim of the program is to provide a multitude of activities that foster wellness in general, with a particular focus on cardiovascular health. Program participants have either a primary or a secondary prevention goal for heart disease. We strive to instill positive lifestyle habits in three primary areas: exercise, nutrition, and stress management.

Historical information about the program as well as the program's mission statement are included at the end of this handbook.

## ENTRANCE REQUIREMENTS

The lectures and demonstrations in the educational component of the program are open to anyone interested. Participation in the exercise sessions, however, requires medical clearance and confirmation that your risk stratification level is either Class A (apparently healthy individuals, no prior cardiac events) or Class B (well recovered from any cardiac events and medically stable).

## EXERCISE TRAINING

In general, participants are directed to develop consistent exercise training habits, with a routine that includes a balance of cardiovascular (walking, biking, etc), strength, flexibility, and balance activities. These are all important aspects of physical fitness that continue to be important throughout life.

**Cardiovascular Training:** The program goal is 30-60 minutes of sustained, large muscle group activity 3-5 times each week. We offer exercise sessions 3 days each week, so some activity outside of our schedule is desirable. Walking, cycling, rowing, stepping, using the elliptical cross-trainer—these are all excellent cardiovascular training activities. During our supervised training sessions, we monitor your heart rate. Be aware of what your resting heart rate is each day and how much it increases with activity. We like to check your blood pressure before you start, at least one time while exercising, and again before you leave, to assure you have appropriate responses. Volunteer staff and students take these vital signs. Taking all these measurements is not a requirement—they just serve as useful feedback to let you know how your exercise is going. They are also a good training activity for our student staff.

If you are just starting an exercise program, keep in mind that building slowly to 30-60 minutes is your goal. A beginning exerciser should start with 10-15 minutes of cardiovascular activity and progress by adding 5-6 minutes each week, spending at least three weeks building to 30 minutes of continuous exercise.

**Strength Training.** Doing resistance training at least two times each week is important. Focusing on strength and endurance of specific muscles or muscles groups is helpful to ensure good tolerance of cardiovascular activities as well as help you maintain good function throughout life. A routine of 6-10 exercises focusing on upper body and abdominal toning is recommended. Student interns lead resistance training activities each exercise session for those interested in doing these activities in a group setting.

**Flexibility Training.** Stretching, done in both dynamic and static fashions, is helpful as people continue to be active. Group sessions for stretching are offered during exercise sessions and individual routines can be worked out for those not wanting to join the group. Stretching can be done on a daily basis and is hopefully done at least the 3-5 days/week when you are also doing cardiovascular activity.

**Balance Training.** The group stretch done each session as well as the T'ai chi sessions offered are both excellent ways for individuals to get some balance training. Individual routines can be worked out for those not wanting to join the group activities. Balance training can be done on a daily basis or at least the 3-5 days/week when you are also doing cardiovascular activity.

**GENERAL COMMENT ABOUT EXERCISE TRAINING.** To summarize the exercise training goals: 30-60 minutes cardiovascular activity 3-5 days/week, with strength, flexibility, and balance training activities also included in your program. The Wellness Program helps you to individually determine what is the best routine for you. You are also encouraged to discuss with the program staff any problems you are having with your routine. In terms of health and wellness, devoting time to an exercise routine is the most important thing you can do for yourself.





**NUTRITION HABITS.** Your nutrition habits also have a big place in optimizing your health. The Wellness Program promotes a heart-healthy, plant-based diet. We present concepts regarding a whole foods, plant-based diet as part of our educational program, and these concepts are reinforced monthly with community potlucks, and cooking classes and demonstrations.

**Dietary Recommendations**

The Wellness Program is continuing to have as goals the guidelines that initiated with the UCDMC Reversal Program. The main elements of the diet are :

1. Mainly a plant-based diet that can include non-fat dairy and egg whites.
2. Total calories consumed to achieve an appropriate body weight.
3. Total fat in the diet lower than AHA recommendations, with saturated fats extremely limited.
4. Focus on high dietary fiber (as per Food and Nutrition Board recommendations).
5. Omega 3 and 6 fatty acids should be included as part of the daily fat allowance.
6. Low sodium content highly recommended.

For reversing heart disease, we recommend that carbohydrates, proteins and fat be consumed in the following proportions (Note: these proportions are somewhat different from those recommended by the American Heart Association and the Institutes of Medicine in the Unites States.)

Reversal Program/Wellness Program Dietary Recommendations

Proportions of calories derived from carbohydrates, proteins and fat per day	
Carbohydrates	50 - 70 %
Protein	15-25%
Fat	Less than 12 %
Saturated fat	3%
Cholesterol	20 mg/day
Other diet features	non-fat dairy is acceptable <1,500 mg sodium 25 grams fiber for women 38 grams fiber for men

## **STRESS MANAGEMENT HABITS**

Your stress management habits also have a big place in optimizing your health. The Wellness Program encourages mindfulness and tries to provide a selection of activities that foster the concept of mindful relaxation. Guest presenters come in at least monthly to lead either cardiac yoga or another guided mindset activity. The group stretch and T'ai Chi might also serve this role for some individuals. This is an aspect of the program that we hope to further develop.

## **SENSE OF COMMUNITY**

As a program participant, you are expected to develop your own individual goals for each of our program components: exercise, nutrition, and stress management. All of you working together on similar goals have learned that we have an incredible community spirit in our program and this important social aspect has now also become one of our more important goals—working on individual goals together. This sense of community has come to include not only the program participants but many of the students and the volunteer staff as well.

## **CWP MISSION STATEMENT**

The goal of the Cardiovascular Wellness Program is to provide an affordable comprehensive exercise and education program for individuals seeking to improve their cardiovascular health.

Through student and faculty involvement from multiple campus disciplines, educational opportunities abound to develop preventive habits to optimize cardiovascular health. Both the program participants and the program staff and volunteers benefit from this preventive education.

This education consists of exercise training, nutrition, and stress management activities. A sense of community pervades and common goals foster community spirit.

The Program draws its participants from throughout the Sacramento region and goals include offering the program to all interested. We seek community partnerships to expand the model. The program does not seek to compete with existing healthcare agencies but rather to fill a void in the care of the individuals described above when their access to such services is limited.

## **HISTORICAL INFORMATION ABOUT NUTRITION GOALS**

The Wellness Program bases its nutrition goals on patterns learned from prior programs. For a period of nearly 20 years, we provided a program of comprehensive care at the UC Davis Medical Center which included a vegetarian diet. This diet was adapted from the pioneering work in this field initiated by Dr. Dean Ornish at UCSF, who showed that a vegetarian diet that was low in fat was capable of promoting the reversal of atherosclerosis in the coronary arteries. Atherosclerosis is the term that is used commonly to describe the disease that affects the arteries that carry blood to the heart muscle. This disease eventually leads to blockages in these arteries leading to heart attacks.

All the patients admitted to the Med Center program had either atherosclerosis of the coronary arteries or had recovered from a recent heart attack. The patients were enrolled in small groups of 6 – 8 and were managed by a team composed of cardiologists, nurses, registered dietitians, an exercise physiologist and a clinical psychologist. A spouse or a support person was encouraged to participate in the program.

These patients were tracked for a period of 10 years with evaluation of their main heart-related events. Two categories of events were stipulated: 1) “hard” events which consisted of cardiovascular deaths, fatal and non-fatal strokes and heart attacks 2) admission to hospital for placement of a stent in the coronary artery or for coronary artery bypass surgery (CABG).

A total of 137 patients (105 men, 32 women; average age 61 years) enrolled in the program during the period from May 1992 to May 2002. 77 patients completed the two years and 60 dropped out at various times during the two-year period (average participation: 8.1 months). Patients who followed a vegetarian diet and attended 60% of all the sessions relating to other aspects of the program were deemed to have completed the program.

Those who completed the program showed several changes which could be viewed as related to the diet. The estimated energy consumption increased from  $1620 \pm 43$  to  $1724 \pm 51$  kilocalories/day over the two years. Despite this increase in food intake there was a decrease in weight from  $80.3 \pm 1.8$  to  $76.8 \pm 1.9$  kg and daily intakes of total and saturated fat and cholesterol declined. Over 24-months, the serum cholesterol and LDL cholesterol concentrations were reduced significantly. Serum HDL cholesterol and triglyceride concentrations were unchanged. Of these patients 41% required medications for lowering serum lipids and the majority were already on lipid-lowering therapy at the time of entry.

Treadmill exercise times, oxygen consumption, peak ventilation and the highest heart rate attained during the exercise test increased significantly. Three patients reported angina during the initial exercise test and none after completion of the two years.

The dietary changes resulting from participating in the program are summarized in the table below:

	Start	End of 2 years
Total calorie intake/day	1627 + 43	1725 + 51
% Fat Calorie intake/day	18.3 ± 1.0	8.0 ± 0.3
Fat intake (g /day)	34.2 ± 2.5	15.7 ± 0.7
Saturated Fat intake (g/day)	10.2 ± 1.2	3.8 ± 0.3
Cholesterol intake (mg/day)	120 ± 14	16 ± 2.0

It should be noted that fat and cholesterol intakes in this diet is significantly lower than that recommended by the American Heart Association.

Eight cardiac events (MI, cardiovascular deaths) were identified in the 134 subjects over a 120-month period. One event (a fatal MI) occurred in the group of 77 patients who completed the two-year program. Seven events were identified in the 57 patients who dropped out of the program (3 cardiac deaths, 1 non-fatal MI, 1 fatal stroke, 2 non-fatal strokes). Five patients (6.5%) in the group, who completed the program, had myocardial revascularization procedures (2 -CABG, 3 - PCI). In those who did not complete the program, 2 patients underwent CABG (3.5%).

This study highlighted two unique aspects of the care received by these patients. The first was the extended period of follow up. It appears that participation in the program for two years had a lasting effect on long-term outcomes possibly due to consolidation of lifestyle changes. The second was the frequency of use and dosage of statins. Less than half the patients required lipid-lowering drugs to achieve target LDL levels and in those who did, the average dose was considerably lower than that advocated in recent clinical trials.

This low event rate in patients who participated in a comprehensive lifestyle modification has been shown to be associated with both a reduction in the progression of and actual regression of arterial disease. It is generally recognized that in patients with advanced disease the arteries tend to get calcified. Recent studies have shown that even this form of the disease (i.e. calcified arteries) could be reversed by a comprehensive program care as discussed above. These results were published in 2006 (Clinical Cardiology, 29, 317-321, 2006).

## CSUS PROGRAM EVOLUTION



The CSUS Cardiovascular Wellness Program started in the fall of 2013 with a cohort of a dozen UCDMC cardiac rehabilitation maintenance program participants. Dr. Tissa Kappagoda attended regularly and exercise sessions were supervised by Linda Paumer and Mary Sheikh, both retired from UCDMC cardiovascular medicine programs. Nursing supervision was provided by Joyce Mikal-Flynn from the CSUS nursing school. Three students also participated, all graduate students, one in family studies and two exercise science majors

### Staffing

The program is staffed almost entirely by volunteers. Academic units have been provided by both the College of Health & Human Services (HHS) and the College of Social Sciences and Independent Studies (SSIS) which went initially to nursing and now are being devoted to the program coordinator and an ID201 course. Community nurses now provide that supervision and a UCDHS physician, Radhika Bukkapatnam, volunteers as medical director.

### Educational Program

The first semester educational classes were offered once/week and were conducted mostly by Dr. Kappagoda and Linda Paumer with occasional guest presentations from former UCDMC colleagues—nurses, dietitians, and psychologists. As the program developed, the educational offerings expanded and classes are now held three days per week following exercise sessions. The schedule includes core lectures from Dr. Kappagoda's curriculum, taught by Linda



Jeff Southard, MD, speaking to group, Nov 2017



Paumer with help from Cari Shulkin, RN, and Sharon Myers, RN, other former UCDMC colleagues. Debbie Lucas, RD, a former UCDMC dietitian provides regular, once/month nutrition education. CSUS faculty members from psychology, nutrition, and gerontology are now involved in the schedule. Other guests continue to provide insights, including monthly presentation by physicians, the program medical director and her colleagues. Students also participate in these educational offerings and do up to 1/3 of these classes, either as cooking demonstrations, presentations, or small group activities.

**Student Internships** From the initial 12 participants, the program roster has grown. Over 100 people have enrolled and currently 35-50 attend regularly. Student opportunities have expanded as the program has expanded. After those first 3 students, our student population has also grown and each semester, 6-15 students complete internships with the program. Those opportunities have expanded to include a physical therapy elective, fieldwork experience for gerontology (Gero130/131), community nutrition (FACS 117) and psychology (Psych 195 and 150) with additional placement of students in an ID 201 course. A major component of this wellness program is becoming part of a community and the students greatly contribute to that concept. They are as much a part of our program family as the older individuals. High school students help in the summer and several of the past semester CSUS students, including recent graduates, are also still attending.



Cooking Demonstration, Fall

**Future Plans.** The Program continues to evolve, with continued new participants as well as new opportunities for students. CSUS faculty see the potential for research with our population. Expansion goals include additional exercise session time and development of online resources for remote learning. Creation of a medically-supervised session devoted to under-served community members as well as opportunities for exercise testing are being considered. Additional collaborations with other CSUS departments (speech pathology, social work) are developing. There is a need to establish funding opportunities to facilitate these expansion goals as the current all-volunteer staffing cannot adequately manage this expansion and those are being explored.



Group Photo, Spring 2017