Can Lifestyle Medicine Reverse the Progression of Heart Disease?
This is the era of lifestyle medicine—that is, changes in diet and lifestyle to treat and even reverse the progression of many of the most common chronic diseases as well as to help prevent these—often in combination with drugs and surgery and sometimes as an alternative to these.

Many people tend to think of advances in medicine as only high-tech and expensive, such as a new drug, laser, or surgical procedure. They often have a hard time believing that something as simple as comprehensive lifestyle changes can make such a powerful difference in their lives—but they often do.

For over four decades, Dean Ornish, M.D. and his colleagues at the non-profit Preventive Medicine Research Institute and the University of California, San Francisco have conducted pioneering clinical research proving the power of comprehensive lifestyle changes to often reverse and prevent many of the most common chronic diseases.¹ They used high-tech, state-of-the-art scientific measures to prove that these low-tech and low-cost interventions are both medically effective and cost effective.

These include:

• a whole foods, plant-based diet (naturally low in fat and refined carbohydrates);
• stress management techniques (including yoga and meditation);
• moderate exercise (such as walking); and
• social support and community (love and intimacy).

In short—eat well, move more, stress less, and love more.

This program—Ornish Lifestyle Medicine—is the first and only lifestyle program that has been scientifically proven in randomized controlled trials to often reverse the progression of even severe coronary heart disease and other chronic conditions.

When physicians first hear about this program, they sometimes ask for more specifics about what is meant by the phrase “reverse the progression of coronary heart disease.” This questioning is understandable; until 1988, when Dr. Ornish first presented the findings of the landmark Lifestyle Heart Trial at the American Heart Association’s annual scientific sessions² (later published in The Lancet, The Journal of the American Medical Association, and other leading peer-reviewed journals), it was believed that heart disease is progressive by nature, and interventions could only slow down the rate of worsening.

Clinical Improvements

For many years, it was believed that the only major mechanism causing reduced blood flow to the heart (leading to myocardial ischemia or infarction) was coronary atherosclerosis, or plaque. We now know that other mechanisms include changes in vasomotor tone, platelet viscosity, collateral flow, and plaque hemorrhage. These mechanisms are dynamic and can show measurable changes—for better and for worse—in relatively short periods of time.

In this context, “reversing the progression of coronary heart disease” can be measured in different ways:

• **Anatomic** — a decrease in arterial plaque (percent diameter stenosis): As assessed by repeat quantitative coronary angiography in a randomized controlled trial blindly assessed by independent observers (the Lifestyle Heart Trial), there was statistically and clinically significant reversal (regression or improvement) of coronary atherosclerosis after one year³ and even more reversal after five years⁴ in the experimental group, without lipid lowering drugs.
In contrast, the randomized control group showed significant progression (worsening) of coronary atherosclerosis after one year and even more progression of disease after five years. These differences between groups were statistically significant after one year and also after five years.

- **Functional** – an increase in myocardial perfusion (blood flow) to the heart and improvement in its function:

  Overall, there was a 400% statistically significant and clinically significant improvement in myocardial perfusion in the experimental group when compared to the randomized control group after five years. 99% of patients in the experimental group of the Lifestyle Heart Trial showed improvement or no change in their cardiac PET scans after 5 years. In contrast, 45% of controls had worsening perfusion defects, 50% showed no change, and only 5% improved.

  An earlier pilot study found that 8 of 10 patients showed significant improvement in myocardial perfusion as measured by exercise thallium scintigraphy after only one month.

In all of these studies, none of the patients in the experimental group was taking cholesterol-lowering drugs. This enabled researchers to determine the effects of lifestyle changes alone on coronary heart disease without being confounded by the effects of cholesterol-lowering drugs. Since statins are of proven benefit in patients who have coronary heart disease, it would not be possible to conduct a study now in which these drugs were not used. In the Lifestyle Heart Trial, there was a 40% average reduction in LDL-cholesterol after one year without drugs.

In Ornish Lifestyle Medicine, all therapeutic decisions are deferred to each referring physician. Some doctors believe that it’s better to include statins in addition to these comprehensive lifestyle changes; others reason that if regression of coronary heart disease and goals for LDL-cholesterol reduction can be achieved by lifestyle changes alone, then they may reduce or discontinue these medications to reduce costs and side-effects.

### Adherence

Many physicians believe that their patients will adhere to taking cholesterol-lowering drugs but not to making comprehensive lifestyle changes. However, evidence shows that over 50% of patients who are prescribed cholesterol-lowering drugs are not taking them after only four to six months.

In contrast, 85-90% of patients who have gone through the Ornish Lifestyle Medicine program in sites around the country have been able to adhere to this program for at least one year.

**Why?** Because the underlying biological mechanisms that affect health are so dynamic and responsive to lifestyle changes, most people feel so much better, so quickly, it reframes the reason for making lifestyle changes from fear of disease or dying to joy of living. What they gain is much more than what they give up. Also, statin side-effects often reduce adherence.

### Other Improvements

- **Angina:** Patients reported a >90% reduction in angina frequency during the first month of making these lifestyle changes. Most patients become angina-free during that time.

- **Cardiac Events:** There were 2.5 times as many cardiac events in the randomized control group than in the experimental group after five years.

- **Cost Savings:** In a demonstration project, almost 80% of patients who were eligible for revascularization were able to safely avoid it by making these comprehensive lifestyle changes instead. Mutual of Omaha calculated saving almost $30,000/patient in the first year.
In a second demonstration project, Highmark Blue Cross Blue Shield found that overall health care costs were reduced by 50% in the first year when compared to a control group matched for age, gender and disease severity. In the subgroup of these patients on whom Highmark had spent at least $25,000 in the preceding year, there was a 400% reduction in overall health care costs in the first year.

**Depression:** Patients showed a 50% reduction in depression scores after only nine weeks of intervention. Also, there were significant improvements in quality of life measures.9

**Weight:** In the Lifestyle Heart Trial, patients lost an average of 24 pounds in the first year and kept off half that weight five years later.3 In a larger study of 3,780 diverse patients described below, BMI decreased an average of 6% after 12 weeks and by 8% after one year.

**Medications:** Physicians were able to reduce or discontinue medications in many of these patients. These include cholesterol-lowering drugs, anti-hypertensive medications, diabetes medications, and cardiac medications. There was a 40% reduction in mean LDL-cholesterol levels after one year in the Lifestyle Heart Trial.2

**Demonstration Project:** In a demonstration project of 3,780 diverse patients who went through this lifestyle program at 24 sites in Pennsylvania, Nebraska, and West Virginia, there were significant improvements in all metrics after 12 weeks and after 1 year. These include significant reductions in systolic blood pressure, diastolic blood pressure, LDL-cholesterol, triglycerides, BMI, hemoglobin A1C, and functional capacity (in METS).9

**Other benefits:** In addition, this lifestyle program has been shown in a randomized controlled trial to slow, stop or reverse the progression of early-stage prostate cancer.10 It can reverse the progression of type 2 diabetes,7 beneficially improve gene expression in over 500 genes in three months,11 and reverse aging at a cellular level by increasing telomerase12 and telomere length.13

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### Reimbursement

In 2011, after sixteen years of review, the Centers for Medicare and Medicaid Services began providing reimbursement for “Dr. Ornish’s Program for Reversing Heart Disease” in a new benefit category, “intensive cardiac rehabilitation.” This was the first time that CMS has ever provided Medicare reimbursement for a lifestyle medicine intervention to reverse a chronic disease.

Many commercial carriers are now covering the Ornish Lifestyle Medicine program. These include Aetna in all 50 states, Anthem Blue Cross/Blue Shield in 14 states (including New York and California), Blue Shield of California, and others.

Both Highmark Blue Cross Blue Shield (Pennsylvania, West Virginia, and Nebraska) and HMSA (throughout the Hawaiian islands) are providing reimbursement not only for patients with coronary heart disease but also those with type 2 diabetes or who have two or more risk factors.

Both Medicare and commercial carriers are reimbursing 72 hours of intervention. In the Ornish Lifestyle Medicine program, this is provided in 18 four-hour sessions, usually twice per week for 18 weeks:
- one hour of supervised exercise;
- one hour of stress management techniques;
- one hour a support group;
- one hour of a group meal + lecture

People who are employed usually attend from 5:00-9:00 p.m.; others attend at any time during the day. After these 72 hours, patients continue to meet in alumni support groups once/week, either virtually or in person.
Selection criteria for eligible patients:

- Current stable angina pectoris (no time limit)
- Coronary artery bypass surgery (no time limit)
- Percutaneous transluminal coronary angioplasty or stenting procedure (no time limit)
- Heart or heart-lung transplant (no time limit)
- Heart valve repair or replacement (no time limit)
- Acute myocardial infarction (within the preceding 12 months only)

As described earlier, although the intervention is only nine weeks long, adherence to the program has been 85-90% in all sites after one year. Also, in all of the sites, evidence continues to document bigger changes in lifestyle and better clinical outcomes than have ever been reported.

Medicare reimburses the Ornish Lifestyle Medicine program approximately $107/hour for 72 hours, or $7,704/patient. Commercial carriers such as Blue Cross/Blue Shield reimburse at approximately $130/hour for 72 hours, or $9,360/patient.

Since the intervention is provided in groups of 15 patients each, Medicare reimbursement is 15 patients/group x $107/hour = $1,605/hour. Commercial reimbursement is 15 x $130 = $1,950/hour. This level of reimbursement makes offering the Ornish program financially attractive and sustainable.

New incentive payments that will begin in June for selected patients (i.e., those who have had an acute myocardial infarction or who underwent bypass surgery in the preceding three months in 90 geographical areas) will increase reimbursement to more than $18,000/patient.

To learn more about Ornish Lifestyle Medicine, including full-text PDF copies of the studies described above, please visit www.ornish.com. Thank you for your interest.

References:

1. www.ornish.com