Heart Failure

WHAT IS IT ALL ABOUT?

Lifespan Cardiovascular Institute

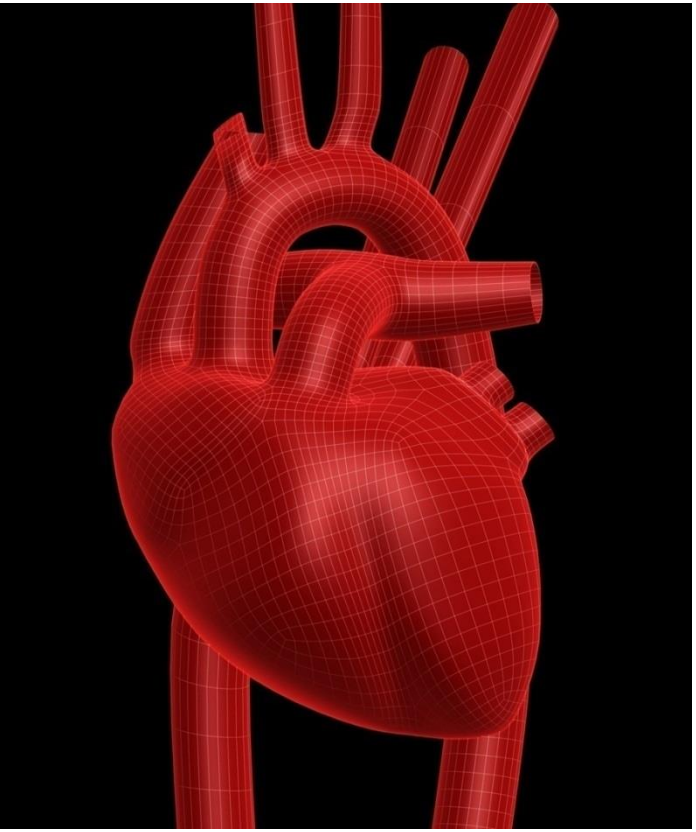
Rhode Island Hospital • The Miriam Hospital
Newport Hospital

Delivering health with care.®

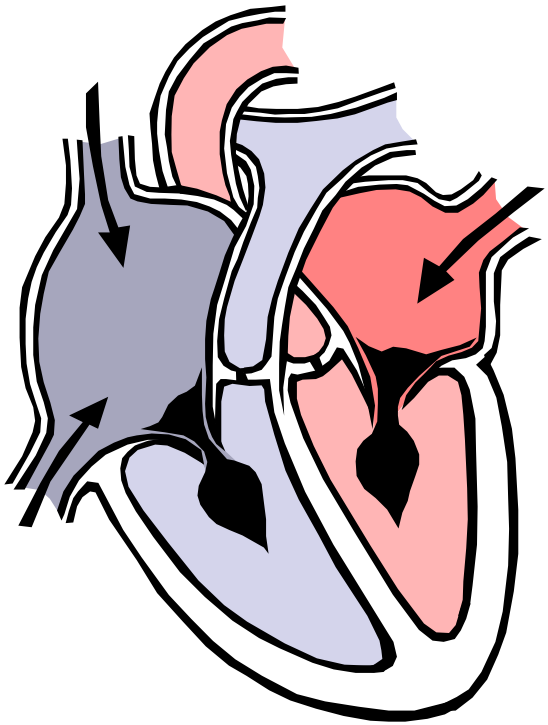
Center For Cardiac Fitness
Pulmonary Rehab Program
The Miriam Hospital

The Heart as a Pump

It beats 60-80 beats per minute x 60 min/I hour x 24 hours=86,400 times/day



How the Heart Normally Works



- Oxygen-poor blood travels from the body to the right side of the heart.
- The heart pumps blood from the right side of the heart to the lungs where it picks up oxygen and returns to the left side of the heart.
- The left side of the heart pumps oxygen-rich blood out to the body

What is heart Failure

- **Heart failure** is as a weakening or stiffening of the heart muscle

- So although it continues to beat, the **Cardiac Output** (the amount of blood that is pumped out with each beat) is less.

What is heart Failure

- Heart failure is usually the result of another condition which weakens the heart
- There are several types of heart failure
- Heart failure has multiple causes

Types of Heart Failure

- Systolic failure weakening of the muscle of the heart that limits its ability to supply the body with enough oxygen. Also called “pump failure”
- Diastolic failure the heart’s ability to fill with blood is limited by stiffening or thickening of the muscle walls.

Congestive Heart Failure

- Definition: The inability of the heart to meet the metabolic (bloodflow) demands of the body at normal “filling pressures.”

- Diminished bloodflow causes symptoms of fatigue, especially with physical activity.

- Elevated pressures in the heart contribute to fluid retention in the lungs, abdomen and legs.

Congestive Heart Failure

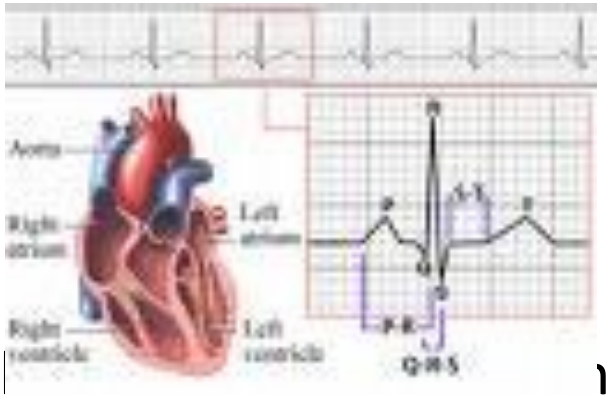
- The number one reason for hospital admissions of adults in the United States.
- The number one consumer of Medicare dollars.
- Predictions for the future suggest it will continue to be the most important problem facing older adults far into the future.

Causes

- Myocardial Infarction (large or multiple)
- Long standing hypertension, left untreated
- Viral infection of the heart valves or muscle
- Valvular disease
- Cardiomyopathy-disease of the heart muscle
- Congenital heart disease-birth defects
- Toxins- Alcohol (excessive), cocaine, some chemotherapeutic drugs

Echocardiogram

- Ultrasound waves are used to reflect various structures of the heart.
- An “echo” is used to evaluate how well the chambers of the heart fill with blood and pump blood to the rest of the body.



- It can also evaluate [illegible] ıction.

- The ejection fraction is a measure of how much blood is pumped to the body with each beat (60% or above is considered normal).

Physiological Effects of Heart Failure

- Increase in heart rate
- Vasoconstriction of blood vessels
- Conservation of water at the kidney level
- Enlargement of the myocardial cells

Signs and Symptoms

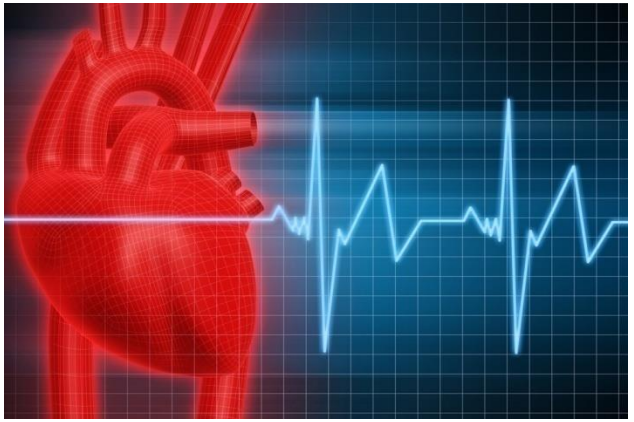
- Increased fluid volume causes
- swelling in the legs, abdomen
- shortness of breath
- decreased ability to do physical activity

Treatments

Medications

- ACE inhibitors (angiotensin converting enzyme)
- Beta Blockers
- Diuretics
- Digoxin

Beta Blockers



- Decrease heart rate
- Decrease the work of the heart
- Decrease irregular heart beats

Diuretics

- Get rid of excess fluid
- Helps with shortness of breath
- Helps with swelling, usually in the lower extremities

Other Therapies

- Bypass surgery, angioplasty or stenting if blocked artery is a major cause of the heart failure syndrome
- Valve repair or replacement (most often mitral or aortic) if blocked or leaky valve is a major cause
- Cardiac transplantation in selected patients

Other Therapies

- **Defibrillators**
  - Annual risk of sudden death is approximately 2-3% with ejection fraction less than 35%
  - Defibrillators can take away this risk
  - They do not make one feel better or improve heart function

- **Biventricular Pacemakers**
  - Heart contraction is often dyssynchronous (or discoordinated) with heart failure
  - Multiple lead pacemakers can re-synchronize (or re-coordinate) heart motion and improve heart failure symptoms and survival

What should I Be Doing

- Eat a low salt diet.
- Weigh yourself everyday and record it.
- Talk to your doctor about activities.
- Follow your medication routine carefully.
- Know when you should call your doctor.

Daily Weights

- A change in weight by 2-4 pounds is usually an indication of a gain in fluid weight
- Pay attention to increased leg swelling

Shortness of breath with activity or at rest.

The need to sleep on more than 1 pillows

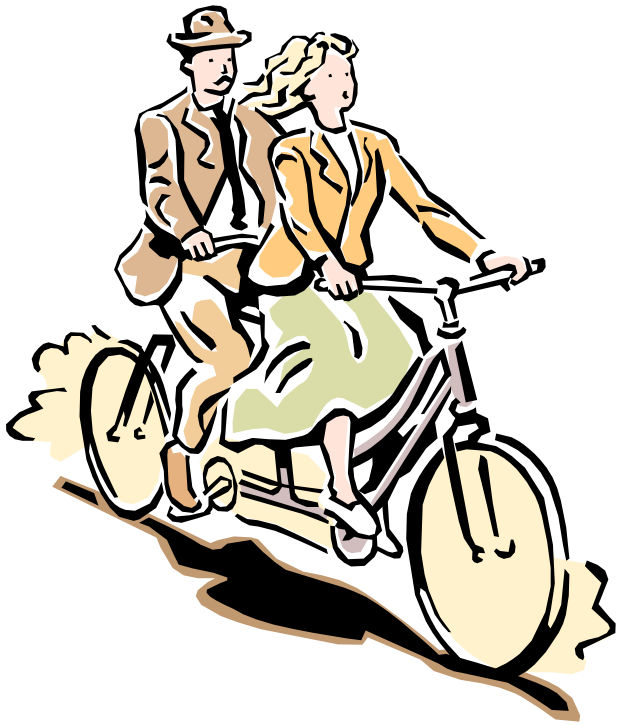
Eat a low salt diet

In general, fresh foods are better than canned, frozen or prepared foods

- Look at food labels – low-salt foods ≤240mg, very low-salt ≤ 35mg.
- People with heart failure should keep sodium intake to less than 2000mg.
- Don’t use a salt substitute unless you check with your doctor.

Talk to your doctor about activity

- Space out activities with periods of rest in between.
- Rest for 30-60 minutes after you eat.
- Start doing exercises slowly and increase gradually.
- Avoid strenuous activities that require you to hold your breath or strain like lifting weights.
- Learn to read the cues your body gives you. When your tired, rest.



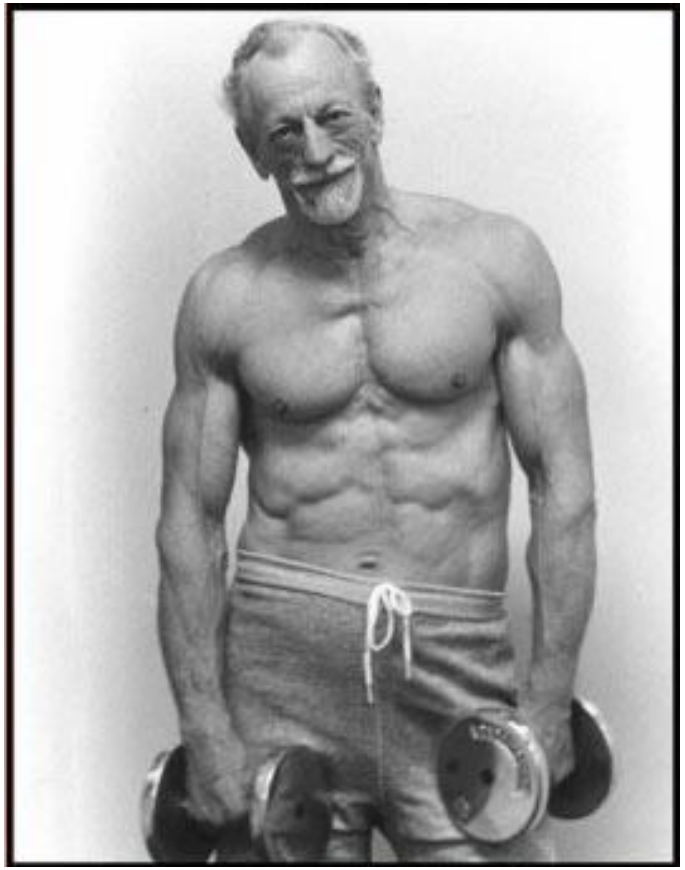
Exercise

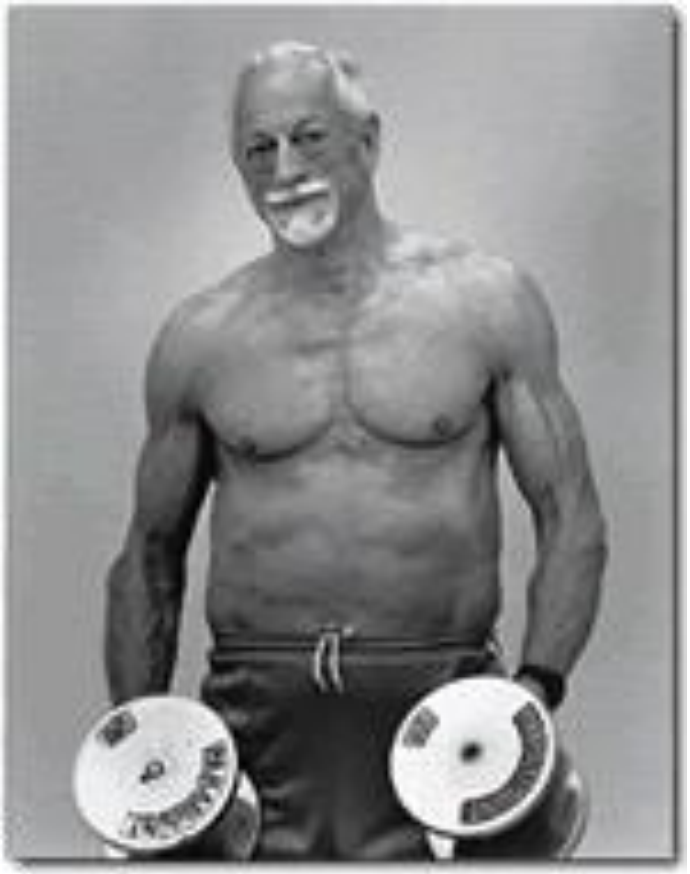
- Exercise therapy essential for patients with heart failure
  - Improves quality of life and sense of well being
  - Improves efficiency of the cirulatory system
  - Decreases hospitalization
  - Probably decreases death rates

- Gone are the days of “bedrest” or major activity limitations for people with cardiac disease

- Best done (at least initially) with professional supervision

John Turner age 67 and 79 yo





- http//www.drabelson.com/seniors.htm

Conclusions

- Heart Failure is a major health problem
- It causes fatigue, shortness of breath and swelling
- Without treatment, it tends to get worse over time as the body reacts to the heart failure state
- By interrupting the body's response to heart failure, it can be effectively treated
- Lifestyle changes (reduced sodium intake and regular exercise) are as important as any medication or procedure in treating the disease