

A Disease Process Module:

UNDERSTANDING CHF

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Developing Top-Notch CNAs, One Inservice at a Time



A Disease Process Module:

UNDERSTANDING CONGESTIVE HEART FAILURE

We hope you enjoy this inservice, prepared by registered nurses especially for nursing assistants like you!

Instructions for the Learner

If you are studying the inservice on your own, please do the following:

- Read through **all** the material. You may find it useful to have a highlighting marker nearby as you read. Highlight any information that is new to you or that you feel is especially important.
- If you have questions about anything you read, please ask _____.
- Take the quiz. Think about each statement and pick the best answer.
- Check with your supervisor for the right answers. You need **8 correct** to pass!
- Print your name, write in the date, and then sign your name.
- Keep the inservice information for yourself and turn in the quiz page to _____ no later than _____.
Show your Inservice Club Membership Card to _____ so that it can be initialed.
- Email In the Know at feedback@knowingmore.com with your comments and/or suggestions for improving this inservice.

After finishing this inservice, you will be able to:

Identify the structures and functions of the heart involved in CHF.



List at least 3 things that can cause CHF.



Describe three symptoms of congestive heart failure.



Identify three unhealthy lifestyle choices and describe the benefit of eliminating them.



Identify two ways you can help your client relieve stress and fatigue.

THANK YOU!



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A Disease Process Module:

Understanding Congestive Heart Failure

THE HARDWORKING HEART!

- You think you work hard? How would it feel to work your entire life without rest? No sleeping allowed. And, to make matters worse, your boss keeps throwing high fat foods, cigarette smoke, and stress at you. This is the life of the heart.
- The heart's job is to continuously pump blood through 60 thousand miles of blood vessels. To do this, it beats about 100,000 times every day. That's 35 million beats in a year!
- Whether the boss is awake or asleep, the heart must continue to beat. When the boss is awake and active, the heart's job gets even harder.
- When the heart is weakened by age, damaged by illness or wounded by lifestyle, it can't pump efficiently or effectively.
- When the heart has a hard time pumping the blood to all those miles of blood vessels, some of the blood "backs up."



- Congestive Heart Failure, also known as CHF, is a condition in which the pumping action of the heart is weak.
- Heart failure is *congestive* when blood backs up instead of flowing forward.
- With congestive heart failure, the heart is *trying*, but it just can't push blood quickly enough throughout the body. As a result, the body doesn't get the oxygen and nutrition it needs to function.
- Heart failure is a serious condition that currently has no cure. Nearly 6 million people in the United States suffer from heart failure.
- Keep reading to find out how you can help most clients with CHF live active and healthy lives!

SOME FASCINATING FACTS ABOUT THE HEART

- Cross your heart. *Did you make a cross on the left side of your chest?* The heart is actually closer to the center of the chest, between the lungs. It sits at an angle, pointing to left side of the chest, which makes it seem like it is located there.
- Make a fist with your hand. The heart is about the size of your clenched fist..
- The heart is a muscle. In fact, it's the hardest working muscle in the body.
- For the average person, the heart beats 100,000 times every day. That's 36.5 million times a year and 2.5 billion times in a lifetime!
- In general, women have a faster heart rate than men.
- The sound of a heartbeat is actually made by the closing of *valves* inside the heart.
- Throughout a person's lifetime, the heart pumps the equivalent of about 1 million barrels of blood!
- Each time the heart beats, it pumps "old" blood from the *veins* through the lungs so it can pick up oxygen. Then it pumps this "new" blood out the *arteries* into the body.
- An adult has about 6 quarts of blood which gets pumped around and around the body, several times a minute.
- Even at rest, the heart muscle works harder than an Olympic runner's legs during a sprint!
- If a person's blood vessels were stretched out flat, they would measure over 60,000 miles.
- When pumping, the human heart creates enough pressure to squirt blood a distance of thirty feet.
- The aorta, the largest artery in the body, is nearly the diameter of a garden hose. Capillaries, on the other hand, are so small that it takes ten of them to equal the thickness of a human hair.
- Blood is pumped from the heart to give oxygen and nutrients to the cells. Every cell in your body gets fresh oxygen *every 60 seconds*.
- Red is the color of blood and has come to symbolize love, devotion and loyalty. That's why Valentine hearts are red!

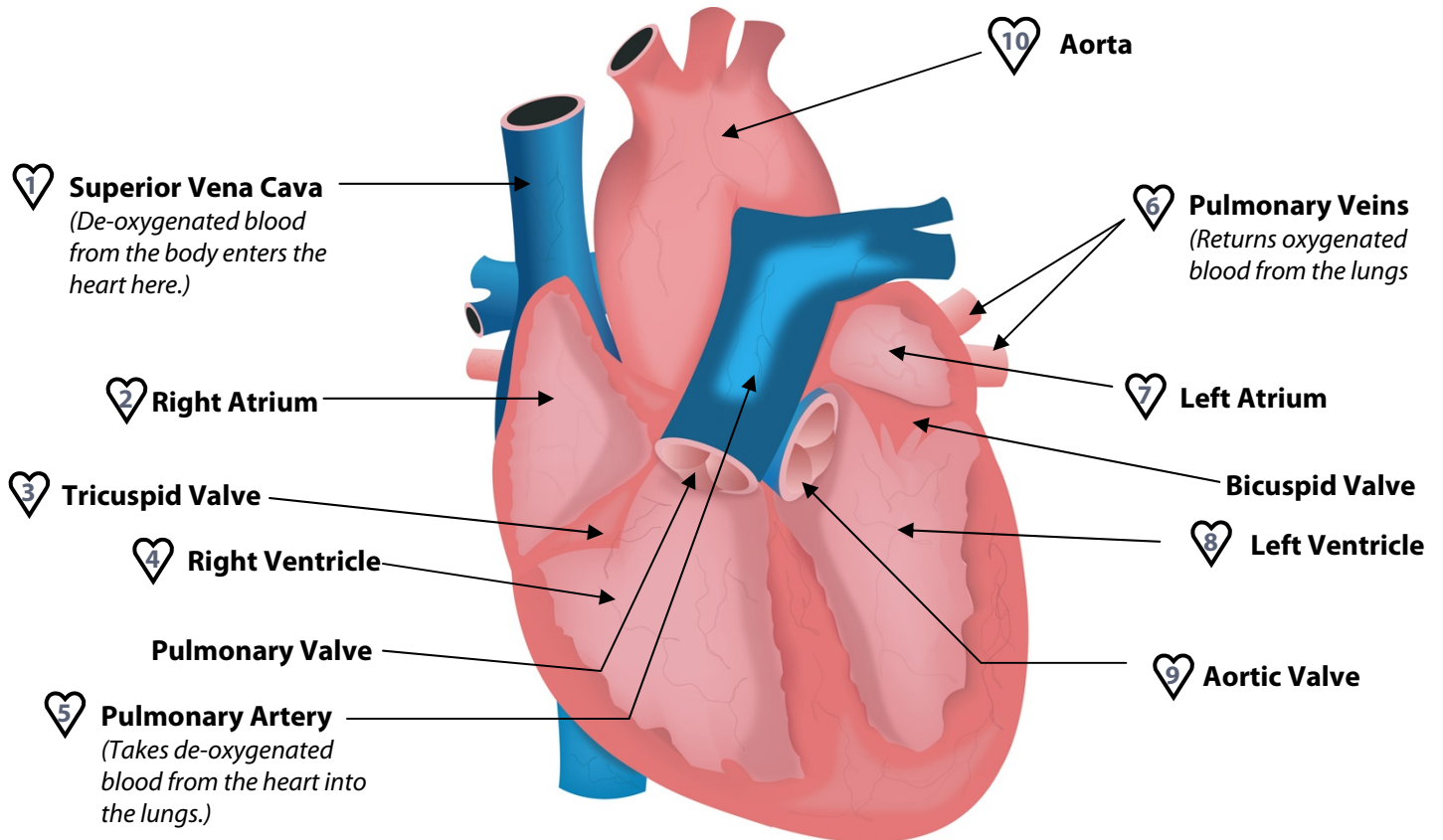
"When I was 52, I woke up after eight hours of heart surgery -- that's a big deal..."

~ David Letterman

- Imagine squeezing a tennis ball. The force it takes to squeeze is about the same amount of force the heart uses to pump blood out to the body.



HEART ANATOMY & BLOOD'S AMAZING JOURNEY



TRACE THE PATH OF BLOOD THROUGH THE HEART

- De-oxygenated blood (blood that has dropped off its oxygen to places in the body) enters the heart through the **SUPERIOR VENA CAVA**.
- The first stop is the **RIGHT ATRIUM**.
- When the right atrium becomes full, the **TRICUSPID VALVE** opens, allowing the blood to enter the right ventricle.
- When the **RIGHT VENTRICLE** becomes full, it contracts (squeezes) and pushes the blood through the pulmonary valve into the pulmonary artery.
- The **PULMONARY ARTERY** carries blood out of the heart, into the lungs, to pick up oxygen.
- The oxygenated blood re-enters the heart through the **PULMONARY VEINS**.
- The blood stops to collect in the **LEFT ATRIUM**.
- When the left atrium becomes full, the **BICUSPID VALVE** opens, sending the blood into the **LEFT VENTRICLE**.
- When the left ventricle becomes full, it contracts with enough force to push the blood up through the **AORTIC VALVE** into the aorta.
- Oxygenated blood in the **AORTA** is pushed out of the heart and into the body so it can deliver oxygen to every body part and organ.

WHAT'S REALLY HAPPENING WITH CHF?

- The term "Heart Failure" is misleading. The word failure makes it sound like the heart stops, or fails to function. But, that is not really the case. The heart keeps pumping, just not as well as it used to pump.
- Every organ, every muscle, and every cell in the body needs oxygen to survive.
- The heart has two jobs. The first job is to continuously pump the de-oxygenated (used) blood to the lungs to pick up oxygen.
- The second job is to pump that freshly oxygenated blood out of the heart and into the entire body to nourish all those muscles and organs.
- With heart failure, oxygenated blood enters the left side of the heart from the lungs, but the ventricle can't pump hard enough to push all the blood out to the body, so some is left behind.
- The blood backs up, causing fluid to leak back into the lungs. This is known as **LEFT-SIDED HEART FAILURE**.
- When fluid backs up into the lungs, the client will have difficulty breathing. This is called pulmonary congestion.
- Heart failure can happen on the right side, too. Blood enters the right ventricle as it should, but the ventricle can't pump hard enough to get the blood into the lungs, so some is left behind. This is called **RIGHT-SIDED HEART FAILURE**.
- The kidneys respond by causing the body to retain water and sodium. Fluid builds up in the legs, ankles, and feet. This is called *edema*.
- The body becomes "congested" with fluid. This is why it is called "congestive" heart failure.
- Over time, blood left behind *stretches* the ventricles, and they become even weaker, like a worn out rubber band.



WHAT CAUSES CHF?

CHF usually develops slowly—due to some type of damage to the heart muscle.

The damage can be caused by a number of things, including:

- Scar tissue from a heart attack.
- Hardening of the arteries.
- Untreated high blood pressure.
- Diseases of the heart valves (usually from rheumatic fever).
- Birth defects.
- Diseases of the heart muscle.
- Severe lung disease.
- Uncontrolled diabetes.
- Toxic exposure to drugs or alcohol.
- Old age.
- Pregnancy. (In rare cases, CHF can develop shortly before or after a woman gives birth.)
- Viral infections.
- Severe anemia.
- Thyroid disease.

SIGNS AND SYMPTOMS OF CHF

FATIGUE:

- Fatigue is often the first symptom of CHF. However, it usually goes un-reported until it becomes severe.
- Congestive heart failure causes the heart to pump less blood to the tissues in the body. This means that people with CHF don't get enough oxygen and nutrition sent to their muscles. That is what causes them to suffer from fatigue.
- When people feel tired, or worn out easily by routine exercises, they will naturally rest more and modify the amount of exercise they do in order to avoid feeling tired. They don't usually report this right away to a doctor or nurse.
- It's important to report when a client is feeling fatigued by routine activity.

DYSPNEA (SHORTNESS OF BREATH):

- Dyspnea is another early symptom of heart failure. Depending on the severity of the illness, dyspnea may be seen in different ways:
- Dyspnea at Rest— Some people with CHF may get short of breath while just sitting and resting.
- Dyspnea on Exertion— Others get short of breath on exertion. These clients will need to alter their routine to include frequent breaks, and will need help doing strenuous activities like housework.
- Orthopnea— Some CHF clients will get short of breath when lying down. These clients will often sleep sitting up in a chair.

SUDDEN WEIGHT GAIN:

- It is not unusual for people with CHF to gain weight in a short period of time due to fluid retention.
- Monitor weight daily and report even small changes to the nurse. Weight gain of 3 or more pounds in less than a week may be an emergency.

EDEMA:

- Heart failure keeps the kidneys from getting rid of extra fluid that the body doesn't need. This causes edema (swelling), especially in the legs, feet and abdomen.
 - Edema can also be caused by blood backing up into veins throughout the body.
 - Monitor your client for any swelling of the feet, legs, or abdomen.
 - When you press your thumb on an area of edema, you will notice a "dent" remains after you pull your finger away. Notify the nurse if you observe this.



Some additional signs and symptoms you may see in a client with CHF include:

- **MEMORY LOSS & CONFUSION**
 - **PALPITATIONS (RACING HEART)**
 - **COUGHING**
 - **ABDOMINAL DISCOMFORT**
-

HOW IS CHF DIAGNOSED?

- **LISTENING:** The doctor may notice a rapid heartbeat or an abnormal heart rhythm. There may also be a “crackling” sound in the lungs.
- **CHEST X-RAY:** Checks the size of the heart and looks for fluid in the lungs.
- **BLOOD TEST FOR BNP:** BNP (B-type natriuretic peptide) is a hormone released by the ventricles of the heart when pressure rises, signaling a failing heart.
- **URINALYSIS:** Increased BUN and creatinine may indicate kidney failure which is often associated with congestive heart failure.



- **ULTRASOUND:** This painless test (called an echocardiogram) allows the doctor to examine the pumping action of the heart and to see how well the heart valves are working.
- **EXERCISE STRESS TEST:** This test helps the doctor learn how well the heart functions while at rest and during physical exercise.
- **ELECTROCARDIOGRAM (ECG):** This test gives the doctor information about abnormal heart rhythms.

HOW IS CHF TREATED?

The most important part of the treatment plan for a client with CHF is the lifestyle change. (See page 6.) Losing weight, becoming more active, quitting smoking, managing stress, avoiding alcohol or drug abuse and maintaining a low fat, low sodium diet are all important first steps.

In addition to lifestyle changes, the client with CHF will likely be on one or more medications. **Some common medications are:**

- **DIURETICS** help with water retention. They promote diuresis (or rapid fluid loss). You will likely observe strict I & O with clients on diuretics because what goes in must come out again!
- **ARB's** (Aldosterone Receptor Blockers) are used to treat high blood pressure. Some possible side effects include headache, dizziness or lightheadedness and flu-like symptoms.

- **ACE INHIBITORS** (Angiotensin Converting Enzymes) relax blood vessels and lower blood pressure. Side effects may include cough and occasional rash.
- **VASODILATORS** help dilate (enlarge) blood vessels so blood can move more easily through them. Side effects are: sudden drop in blood pressure, headache and dizziness. Monitor blood pressure closely and report sudden drops to the nurse immediately.



- **BETA BLOCKERS** help slow the heart rate and reduce blood pressure. They are often used in combination with diuretics or ACE inhibitors. Clients on beta blockers may have dizziness or lightheadedness, and decreased ability to participate in strenuous physical activity.

HOW LIFESTYLE CHOICES EFFECT CHF

Examples of unhealthy lifestyle choices that cause or worsen congestive heart failure include:

- **A HIGH FAT DIET:** Consuming an abundance of fatty foods can lead to obesity and high cholesterol levels—both of which contribute to heart problems.

Life expectancy would grow by leaps and bounds if green vegetables smelled as good as bacon. ~Doug Larson

- **A HIGH SALT DIET:** Consuming too much salt can also cause people with CHF to retain excess fluid.
- **LACK OF EXERCISE:** People with heart failure who are inactive suffer from a steady decline. But, those who exercise (with their physician's approval) typically show significant improvement.
- **HIGH BLOOD PRESSURE:** Having high blood pressure and *not* controlling it is a major risk for CHF.
- **SMOKING:** Tobacco smoking is a major cause of heart disease, including congestive heart failure.
- **DIABETES:** Having diabetes and *not* controlling it can worsen congestive heart failure.
- **ALCOHOL AND/OR DRUG ABUSE:** CHF tends to damage the liver. Overuse of alcohol or drugs puts additional stress on the liver.
- **STRESS:** Being constantly "stressed out" can raise blood pressure levels permanently, putting more strain on the heart.
- **CHRONIC DEPRESSION:** Studies have shown that *chronic* depression is linked with a higher risk of developing high blood pressure and heart disease.



Krispy Kreme Doughnuts, everybody loves them. But I thought this was interesting on the box, "Konsult Kardiologist".

~David Letterman

- **BEING OVERWEIGHT:** Carrying extra pounds puts stress on the heart—which is especially bad for people with CHF. (Their hearts are already working overtime!)

FACTS ABOUT CHF

- The risk of heart failure increases with age since the heart muscle loses some of its pumping power as we get older.
- There are some children with heart failure, but it usually comes from a birth defect—not from disease.
- People who have mild heart failure can often live very normal lives—they may not even know that they have the condition!
- People with severe heart failure often become unable to walk more than a few steps or breathe comfortably.
- CHF affects men and women about equally, but seems to progress faster in men.
- The symptoms of heart failure may not appear until someone has had the condition for many years.
- African Americans are twice as likely as Caucasians to develop—and die from—congestive heart failure.
- People with diabetes are 2 to 8 times more likely to develop CHF than people without diabetes.

TIPS FOR WORKING WITH CLIENTS WITH CHF

CHECK DAILY WEIGHTS:

- Many CHF clients need to be weighed every day to check for increasing congestion and edema.
- Their medications may need to be adjusted if their weight is suddenly too high or too low. So, an accurate weight is very important!
- Be sure to weigh your clients on the same scale, at the same time of day, and wearing the same amount of clothing.

MONITOR VITAL SIGNS CLOSELY:

- Some medication doses are adjusted daily based on blood pressure results taken by you. Be sure to get accurate and timely results, and report your findings to the nurse.
- CHF and the medications used to treat it can affect a client's pulse rate. Record accurate pulse rates with each blood pressure and report abnormal results to the nurse.
- Remember: pulmonary congestion is when fluid backs up into the lungs. This can be a dangerous situation for the CHF client. Respiratory rates should be assessed accurately and on time. Any respiratory rate that falls outside the normal range of 12-20 should be reported immediately.

ASSESS ACTIVITY TOLERANCE:

- If a CHF client is experiencing shortness of breath, be sure to encourage plenty of rest.
- If your CHF client is not short of breath or too tired, encourage light exercise.

IF ORDERED, RECORD STRICT I & O:

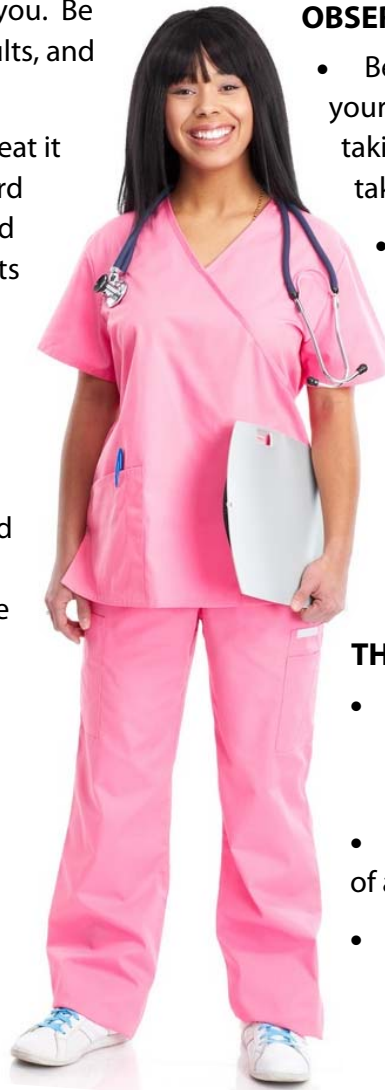
- People with CHF who take in more fluids than they excrete will develop edema. Because fluid balance is so important for CHF clients, you may be asked to record I & O amounts.
- Try to measure fluids at eye level for a more accurate reading.
- Follow Standard Precautions when measuring output.
- Check with your supervisor about how to record output for a client who wears diapers.

OBSERVE YOUR CHF CLIENTS CLOSELY:

- Be sure to tell your supervisor if you notice your CHF clients adding salt to their food, taking over-the-counter medications, or *not* taking their prescribed medications.
- Also, report any physical problems you observe with your CHF clients, such as:
 - Difficult breathing
 - Increased edema
 - Blue lips or fingernails
 - Jaundice (yellowish skin or eyes)
 - Confusion
 - Dizziness

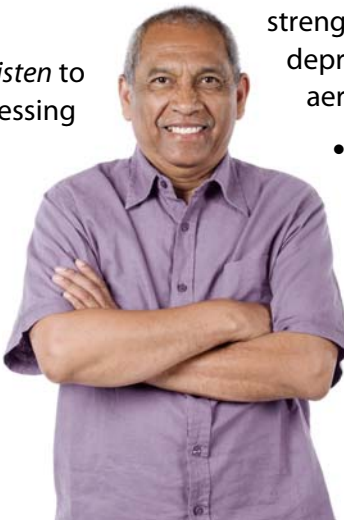
THE CHF CLIENT AT HOME:

- Encourage clients being cared for at home to take medications at the same time every day.
- Suggest that they keep an updated list of all their medications and doses.
- Be sure the client and family members know what to do in an emergency. If not, help them come up with a plan.



HELPING CHF CLIENTS MANAGE THEIR STRESS

- Try playing some music for your clients. They may enjoy hearing a soothing melody or a popular tune from the past.
- Whenever possible, take time to really *listen* to your clients—especially if they are expressing their feelings about their illness.
- Allow your elderly clients to make as many of their own decisions as possible. This allows them to feel “in control” and may keep them from becoming stressed by a loss of independence.
- Encourage family members to visit, especially for meals.
- Encourage your clients to find something to laugh about every day. (Studies show that laughter can strengthen the immune system, reduce depression and even provide a substitute for aerobic exercise!)
 - Be patient with elderly clients who are dealing with chronic illnesses. It may sound to you like they are constantly complaining about their health, but would you trade places with them...even for just *one day*?
 - Let your words and actions show that you care. If your client is comfortable with physical contact, try giving a hug or holding a hand.



HELPING YOUR CHF CLIENTS AVOID FATIGUE

- Note any activities that seem to bring on, or worsen, a client’s fatigue. Avoid or modify those types of activities, if possible.
- Alternate periods of activity with periods of rest.
- Remember that pain is a real energy zapper. If your CHF client suffers from chronic pain, be sure to schedule periods of activity shortly after the client’s pain medication.
- Avoid rushing a your CHF clients and allow for periodic rest breaks. (Plan for *ten to fifteen minutes of rest* for every hour or two of activity.)
- Ask your supervisor about getting some assistive devices for a fatigued CHF client, such as a shower chair, a bedside commode, a long handled bath brush and shoe horn, and an elevated toilet seat.
- Ask your clients to rate their fatigue from “zero” (no fatigue) to “ten” (the worst possible fatigue). Report the response to your supervisor so that the entire health care team is aware of the problem.



YOGA FOR CHF? Most people who try yoga find it helps reduce stress and alleviate fatigue. Yoga is a low impact form of deep breathing, stretching and meditation. For clients who get approval from their doctor, yoga can make a significant difference in their quality of life and reduce some of the discomforts associated with CHF.



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A Disease Process Module: Understanding Congestive Heart Failure

EMPLOYEE NAME
(Please print):

DATE: _____

- *I understand the information presented in this inservice.*
- *I have completed this inservice and answered at least eight of the test questions correctly.*

EMPLOYEE SIGNATURE:

SUPERVISOR SIGNATURE:

Inservice Credit:

<input type="checkbox"/> Self Study	1 hour
<input type="checkbox"/> Group Study	1 hour

**File completed test
in employee's
personnel file.**

Are you "In the Know" about CHF? Circle the best choice or fill in your answer. Then check your answers with your supervisor!

- The heart has two jobs. One is to send de-oxygenated (used) blood to the lungs to pick up more oxygen. The other job is to:**
 - A. Filter the blood for toxins.
 - B. Regulate hormone levels.
 - C. Send fresh blood out to the body.
 - D. Help you find a spouse.
- TRUE OR FALSE**
The right ventricle sends blood to the lungs.
- TRUE OR FALSE**
The right atrium receives blood from the lungs.
- TRUE OR FALSE**
Clients with orthopnea may prefer to sleep sitting up in a chair.
- Which lifestyle choice(s) should the CHF client consider changing?**
 - A. High-fat, high sodium diet
 - B. Being overweight
 - C. Smoking
 - D. All of the above
- TRUE OR FALSE**
Diuretics are medications that help clients with CHF eliminate excess fluid.
- TRUE OR FALSE**
People who have mild heart failure can often live very normal lives—they may not even know that they have the condition.
- TRUE OR FALSE**
Since clients with CHF have a problem with their heart, it is not necessary to monitor their respiratory rate.
- One way to help your client with CHF lower their stress level is:**
 - A. Discourage them from talking about their illness so they won't worry.
 - B. Take control. The less they have to do for themselves, the better.
 - C. Encourage them to listen to their favorite music.
 - D. Tell family members its best not to visit during meals.
- TRUE OR FALSE**
A good rule of thumb is to plan for ten to fifteen minutes of rest for every hour or two of activity.