Chronic Conditions and Exercise

As a leader of an exercise class you will have participants with all levels of ability. Some participants have been active for years while others are new to exercise. In an exercise class you will have participants with a variety of different medical conditions; one participant might be in a wheelchair and another with severe arthritis.

The following section is designed to give you, as a leader, basic guidelines for helping people with different medical conditions. Keep in mind that disease does not limit people and some will be much more capable than others. It is difficult to accommodate for everyone but it just takes a little practice and being aware of limitations of the various chronic conditions.

Ask participants if they have any health concerns that you should be aware of. Encourage them to follow doctor's and physiotherapist's guidelines for activity. If you are in doubt about how an exercise might affect a participant, ask them to check with their health care professional.

The following conditions and other related topics are included in this resource section:

Alzheimer's Disease and Related Dementias
Arthritis
Chronic Pain
Congestive Heart Failure
Coronary Heart Disease/ Coronary Artery Disease (CHD, CAD)
Diabetes
Epilepsy and Seizures
Fibromyalgia
High Blood Pressure (Hypertension)
Hip & Knee Replacement
Lung Disease
The Use of Medications
Mental Illness
Multiple Sclerosis (MS)
Osteoporosis
Parkinson's Disease
Sensory Conditions (vision loss, hearing loss, dizziness/balance loss)
Stroke
Wheelchairs

General Ideas

- Always include a warm up and cool down in the exercise program.
- Show participants proper breathing techniques (exhaling on contraction-the “hard part” and inhaling when releasing the muscle) and end every session with a relaxation exercise. Read a story about a relaxing place while everyone pictures themselves there.
- Keep exercises slow and controlled.
- If you see someone doing something incorrectly make a general statement to the entire group. For example, instead of saying “Mary, you’re doing that wrong” say “Now remember everyone, keep your elbows in when you do this”.
- If participants are getting bored with exercises, talk to leaders in the community for some new ideas.
- Try to do group field trips to a pool or walking track.
- Encourage participants to bring a water bottle to class in order to stay hydrated. Staying hydrated helps your body regulate its temperature.
- Avoid exercising in a place that has poor ventilation and make sure that there is a way to control the temperature (example: windows or a thermostat).
- Remind participants to avoid locking joints. There should always be a slight bend during movements.
- Encourage participants to wear comfortable, loose fitting clothing. The fabric should be breathable. It is a good idea for participants to dress in layers so they can add or remove items as it suits them.

The Use of Medications

Why is it important? Medication use is of great importance when dealing with older adult physical activity because, as we age, the effect the medication has on our body also changes. Taking more than one type of medication greatly increases the risk for adverse effects. Because older adults usually take a larger number of medications than younger adults, they have an increased risk for adverse medication reactions.[1] As well, older adults usually have a decline in kidney and liver function, this affects how medications are broken down and removed from the body. This ultimately results in medications staying in the body longer, causing greater potential for adverse reactions.[2]

There are many reasons why individuals take medications. These may include: relieving symptoms, to prevent further problems, to improve a disease or slow its progress, and to replace substances that the body may normally produce.[3]

It is important you are aware the medications participants take may cause adverse reactions that could affect their physical activity abilities.



Risk Factors? There are certain risk factors that may increase the risk for adverse medication reactions within older adults. Some risk factors include:

- Taking more than one type of medication.
- **Weight and gender.** Smaller body size puts you at greater risk for adverse reactions. Also, women are at greater risk than men. Some have attributed this to a smaller body size, higher proportion of body fat to lean body tissue, and hormonal influences. Moreover, women typically are on more medications than men, putting them at a greater risk for adverse reactions.
- Debilitated or frail state, as well as dehydration or malnourishment.
- A recent change in health status, such as an accident or surgery.
- History of adverse medication reactions.

- **Disease-related symptoms.** It may be assumed that individuals taking medications have at least one type of disease-related symptom. Disease processes have the tendency to worsen age-related changes which ultimately puts individuals at a greater risk for having adverse reactions to their medications.

- An illness which affects either the kidney or liver function. These types of illnesses tend to slow down the excretion of medications. This allows them to remain in the body longer, therefore, increasing chances for adverse reactions.

Important Adverse Reactions: There are many adverse reactions that can be caused by medications individuals are taking. Taking medications, combined with the risk factors listed above, increases the chance for adverse reactions to occur. Here are a few important adverse reactions that can be caused by some common medications taken by older adults. These may affect how an individual is able to participate in a physical activity.

- Fatigue
- Muscle weakness
- Dizziness
- Blurred vision
- Nausea
- Low blood pressure (hypotension)
- Headache
- Decreased rate of breathing
- Heart palpitations

It is extremely important that the individual talks to a health care provider, such as a family physician, if they are experiencing any of these symptoms which limit their ability to be physically active.

References:

[1]Miller, C. (2004). *Nursing for wellness in older adults: theory and practice.* (4th Ed.). Philadelphia: PA. Lippincott Williams & Wilkins.

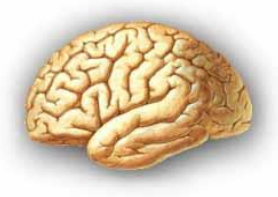
[2] U.S. Food and Drug Administration. (2006). *Medication use and older adults.* Retrieved March 12, 2008, from http://www.fda.gov/fdac/features/2006/406_olderadults.html

[3] Lorig, K., Gonzalez, V., & Laurent, D. (2006). *The chronic disease self-management program.* Stanford University, Palo Alto, CA.

What is it? Dementia is a condition that affects many Canadians and their families. Dementia affects memory, ability to problem solve, organize, make decisions and to carry out daily tasks. Although research is still being done on the exact cause of dementia, there are several risk factors that people can try to modify. Some of these risk factors are: obesity, Type 2 diabetes, high blood pressure, and stress.

Why Exercise? More and more recent research is suggesting that moderate exercise can help aging minds. Exercise increases blood flow to the brain, aiding in mental tasks. Scientists think that exercise might enhance the development of new nerve cells and connections between these cells. In addition, physical activity can cause the release of important chemicals that aid the brain.

- Try to hold classes during the morning, avoid late afternoons.
- Simplify exercises and language used when describing exercises.
- Use minimal equipment.
- Try to use exercises that the participant's care givers might use on a daily basis.
- Make sure to supply ongoing cueing, reminders and encouragement.
- Make exercise sessions upbeat and positive.
- Make handouts of exercises for participants to take home in case they want to exercise at home and can not remember everything done in class.



- Encourage participants to go walking outside of class as a simple exercise activity.
- Add easy-to-use games to the program to make it more fun—perhaps rolling a dice with different exercises on it or kicking a beach ball between participants.

References:

Ever Active Adults: Facilitator's Manual. (2001). Alberta Centre for Active Living. Edmonton Alberta.

Arthritis

What is it? Arthritis is a condition that affects the joints of the body making it painful to move. There are two different types of arthritis; osteoarthritis and rheumatoid arthritis. Osteoarthritis is the most common form. It is caused by breakdown of the cartilage that lines the joints. This results in pain when the bones rub together during movement. Osteoarthritis most commonly affects the spine, hips, hands and knees. Rheumatoid arthritis is an autoimmune disease; this means that your immune system starts to attack other parts of your body. The joints become swollen, red and painful (called inflammation). It most commonly affects the hands and feet.

Why Exercise? Staying active can help decrease pain, improve range of motion, and build stronger joints. Strengthening exercises help build muscle around joints making it easier to move without pain. Flexibility and range of motion exercises help restore joint mobility. If muscles don't get used they become weak, making it more painful to move. Exercise also helps maintain a healthy body weight which also puts less pressure on joints.

- Make sure participants complete a warm up and cool down.
- Have participants (especially those who have arthritis) warm up with flexibility exercises and then move on to strength exercises.
- Encourage participants to exercise their worst joints first.[1]
- Range of motion and strength exercises are extremely important. Make sure that participants know the difference between muscle soreness and joint pain.

- Use light weights.
- If new participants don't feel ready to start with strength exercises have them continue doing flexibility and range of motion exercises while others are working with weights. Also, they could start following the strength exercise movement without the weight at first.
- For participants with painful arthritis in their hands, have them try using Velcro wrist weights so that they don't have to grasp weights or bands.
- Alternate easier exercises with more complicated ones so that participants don't tire out as quickly.[1]

- If movement around joint is too painful, participants can still exercise the surrounding muscles. Have them push against an immoveable object. There will be no movement, but will still strengthen the muscle. For example, if a participant has painful knee arthritis, have them sit so that their shin is against a wall. Instruct them to try to extend their leg in front of them—pushing against the wall. There will be no painful movement but the muscles of the thigh will still be working. Hold these *isometric* contractions for 6-8 seconds. **DO NOT DO THESE TYPES OF EXERCISES IF THE PARTICIPANT HAS HIGH BLOOD PRESSURE**. [2]

- Modify exercises so that participants can do them sitting if standing is too painful.

- If a participant is having an arthritis "flare up" (the joint is warm, painful and swollen) encourage them to stop exercising the joint and rest.[2]

- Avoid extreme neck movements.[3]

- Make sure activities are easy on the joints and low impact.

- Try to encourage participants to time their medication with physical activity if they are experiencing pain while exercising.[4]

- Encourage arthritic participants to try Tai Chi or water-based exercises. [2]

References

[1]Healthy Happy Aging (1991). Wagorn, Y., Theberge, S., Orban, W.A.R.. General Store Publishing House : Ontario, Canada

[2]Arthritis Foundation (2007). Types of exercise. http://www.arthritis.org/types-exercise.php visited on Nov 7, 2007

[3]The Stanford Medical School Health & Fitness Program (1996). Fresh start.

[4]Ever Active Adults: Facilitator's Manual. (2001). Alberta Centre for Active Living. Edmonton Alberta.

Cartoon from
http://webrheum.bham.ac.uk/trans/Arthritis/Osteoarthritis/ArthritisOst.aspx

Chronic pain

What is it? Chronic pain is a condition where people are in pain without relief for long periods of time. It used to be defined as pain that lasts longer than 6 months, but now is defined as pain that lasts longer than the typical healing period for an injury. Doctors dealing with chronic pain are now considering the psychological impact that being in constant pain has on an individual. Treatment of chronic pain usually involves medication and therapy.

Why Exercise? Exercise isn't usually the first thing that people with chronic pain imagine when they think about pain relief. However, exercise can help aid in many factors that contribute to chronic pain. Exercise tells the brain to release "endorphins" which are chemicals that temporally block pain signals and alleviate the anxiety that often comes with chronic pain. Exercise helps people sleep better and boost energy levels. Regular exercise also helps build strength and manage body weight—both important factors in reducing the stress on painful joints. So, encourage participants to start off slow and work at their own pace. They should see benefits in no time!

- Encourage participants to take a warm shower or bath before they exercise to help loosen up the joints. [1]
- Have participants start with short sessions of exercise (5-6 minutes) if they are new to the class. You don't want them to do too much too soon or they might hurt themselves. [1]
- Inform participants that they should expect their symptoms to be a little worse after they first start the exercise program. Once their body is used to exercise, participants should experience some pain relief. [2]
- Show participants proper breathing techniques and end every session with a relaxation exercise. Read a story about a relaxing place while everyone pictures themselves there.
- Include stretching in the class and encourage participants to do the stretching on their own several times throughout the day. [2]
- Have participants go through the following steps when exercising:
  1. Good alignment and mind/muscle relaxing techniques
  2. Flexibility exercises
  3. Strength training
  4. Aerobic type exercises

- Participants should only move on to the next step when they have mastered the one before it. Participants with chronic pain can be practicing their exercise techniques while others in the class do their regular workouts. This should keep participants with chronic pain from feeling rushed.[2]

- Have participants briefly set the weight down in between repetitions or alternate sides. [2]

- Avoid having participants try overhead exercises—arms should not go any higher than shoulder level. [2]

- Encourage participants to try Tai Chi, Yoga or Pilates to help with relaxation and balance. [2]

- Aerobic/cardio exercise sessions lasting for longer then 30 minutes can have a negative effect on participants with chronic pain. [2]

References:

[1]WebMD: *Chronic Pain-Home treatment.* (2007) Retrieved from http://www.webmd.com/pain-management/tc/chronic-pain-home-treatment on December 9, 2007.

[2]Exercise and Chronic Pain: opening the therapeutic window. (2006) Kim Dupree Jones and Janice Holt Hoffman. Retrieved from http://www.icaa.cc/FunctionalU/2006newsletters/Functionalu_Vol4_1.pdf on December 9, 2007.

Congestive Heart Failure (CHF)

What is it? Congestive Heart Failure (CHF) is the inability of the heart to pump enough blood around the body to meet the body's required needs. This makes it extremely difficult for the body to transport nutrients and remove toxins. When the heart is not able to pump efficiently, fluid may begin to accumulate within the tissues, usually in the lower limbs, hands, and abdomen. This accumulation of fluid is known as edema, and may cause an individual to feel fatigued. When fluid begins to accumulate in the lungs, this is known as pulmonary edema and may make an individual feel short of breath and even more fatigued. Some other important signs of CHF are weight gain, persistent cough, and the inability to lay flat.[1]

Why exercise? It is extremely important for individuals with CHF to stay active. Moderate physical activity can actually help the heart muscle become stronger. Many people find that regular physical activity reduces their physical symptoms and allows them to live a more fulfilling life.[2] Regular physical activity has many other health advantages, such as controlling weight and weight loss. Both are extremely important factors when dealing with CHF because extra fluid and weight are extremely demanding on the heart muscle and may make the heart work harder. Regular physical activity also improves circulation and helps to lower blood pressure and cholesterol levels.[3] **It is extremely important for an individual with CHF to consult their family physician before starting any new form of physical activity. This is extremely important because they need to know how much physical activity their heart can actually handle.**

- Make sure participants wear loose fitting and comfortable clothing and comfortable, flat shoes when engaging in physical activity.[4]

- Participants should begin slowly. They should gradually build up their activity to whatever their doctor recommends. A good rule of thumb is that participants should be able to talk while engaging in physical activity. If they are too out of breath to do this, you may encourage them to slow down their activity and not work so hard. Remember, physical activity should not cause them discomfort.

- Make sure physical activity is fun for the participants. Encourage them to bring a friend or family member with them to the activities.

- Encourage participants to remain well hydrated during physical activity. **It is extremely important for participants to check with their family physician before you encourage this because many individuals with CHF will have fluids restricted and will need to limit their fluid intake[4].**

- The most beneficial type of exercise for individuals with CHF is endurance exercises, such as walking. This helps to strengthen the heart muscle.[4]

- Participants should also be encouraged to strengthen their muscles. They can accomplish this through resistance exercises or with light weights.[4]

- Encourage participants to stretch before and after regular physical activity. This will help keep their body loose, maintain flexibility, and reduce the risk of injury during physical activity.[4]

- Individuals with CHF may be on different types of medications to try and strengthen the heart muscle and reduce their symptoms. Many of these medications are designed to reduce their blood pressure. Therefore, you may need to watch the participant to make sure they do not become too dizzy as this will increase their risk of falling.[4]

- A Cardiac Rehabilitation Program is an excellent atmosphere where individuals may exercise in a controlled group environment. Here, staff will help individuals develop and maintain an exercise program that is unique to their individual needs.[4]

References

[1]Saskatoon Health Region. (n.d.). Living with chronic heart failure . . . SWEET heart program.

[2]McKelvie, R., Teo, K., McCartney, N., Humen, D., Montague, T., & Yusuf, S. (1995). Effects of exercise training in patients with congestive heart failure: a critical review. *Journal of American college of Cardiology,* 25(3), 789-796.

[3]American Heart Association. (2006). *Physical activity and a healthy heart.* Retrieved November 20, 2006, from http://www.american.heart.org/presenter.jhtml?identifer=1518

[4]Chest Pain Perspectives. (2008). *Heart failure: patients with left ventricular dysfunction who have not developed symptoms (stage B).* Retrieved March 4, 2008, from http://www.chestpainperspectives.com

Coronary Heart Disease (also see High Blood Pressure)

What is it? Coronary Heart Disease (also called coronary artery disease) is increasingly common among the Canadian population. It is caused by blockages in the arteries making it difficult for blood to flow through. If these blockages become thick enough, the heart does not get enough blood, and causes people pain (called angina). If build-up completely blocks the vessel it may cause a heart attack.

Why exercise? Exercise is one of the most important lifestyle changes that people with Coronary Heart Disease should make! It has recently been proven that exercise can help decrease the build-up in heart vessels, thus decreasing the chance of a heart attack. Exercise helps control cholesterol and blood pressure. Regular exercise helps people carry on with daily tasks and makes them less afraid of a tragic incident such as a heart attack or stroke. Research shows that people who start exercising after a heart attack have better rates of survival and a higher quality of life.

- Make sure participants have met with their doctor prior to joining the exercise group. They should have a good idea of what they can and can not do.
- Participants should talk to their health care provider about their current medications and how they might affect exercise.
- Have participants bring along medications that they are to use if they experience any heart-related pain (such as angina).
- Encourage participants to bring a buddy; their chance of success increases if they come with a friend.
- Make sure to include a warm up and cool down in every session.[1]
- Try to have participants do 8-12 repetitions of 10-12 exercises using a comfortable weight.[1]
- Aerobic exercise helps make the heart stronger. Encourage participants to go for short walks throughout the day.
- Regularly ask participants how they are doing and remind them to monitor themselves.

References:

[1]American College of sports medicine Position Stand: *Exercise for Patients with Coronary Heart Disease* (1994). Retrieved December 12, 2007 from http://www.ms-se.com/pt/pt-core/template-journal/msse/media/0394.pdf

Diabetes

What is it? Diabetes is a condition that affects many people. Some people have Type 1 diabetes. This is when the pancreas no longer produces insulin for the body to use. Insulin helps manage blood sugar levels. Type 1 diabetes is generally a genetic condition. Type 2 diabetes is when the body no longer responds to insulin the way it should (it becomes “insulin resistant”). This means that the body needs help to manage its blood sugar levels. Type 2 diabetes is much more prevalent than Type 1 and in many cases can be managed using exercise and a healthy diet.

Why Exercise? Exercise is critical for diabetes management. Exercise lowers rates of illness and death, increases heart and lung capacity, decreases cholesterol, reduces stress and increases bone strength! Exercise will also improve blood glucose management in Type 2 diabetes. Those who exercise have a lower rate of cancer, dementia and stroke. The exercise guidelines are different from Type 1 diabetes to Type 2; participants are encouraged to meet with their health care professionals prior to starting an exercise program.

- Make sure that participants have eaten prior to exercising. Have juice or candy nearby in case participants start to feel dizzy.
- Because foot ulcers are a common side-effect of diabetes, avoid high impact activities[1] and ensure they have well fitted footwear.
- Have participants avoid injecting insulin in the part of the body they will be exercising if possible. Or don’t exercise the part of the body that was injected.[2]
- Participants who have problems with the nerves in their hands or legs should do exercises from a sitting position. Encourage them to try swimming or biking for an aerobic workout that won’t put stress on their feet.[3]
- Many people with Type 1 diabetes will also have a heart condition such as high blood pressure or Coronary Heart Disease. Make sure to take this into account when instructing exercise.

The following are tips for persons with Type 1 diabetes:

- For new participants have them record their glucose levels every 30 minutes during the exercise session and for many hours after (including overnight if exercise was done in the late afternoon or evening).[2]

- Participants should not exercise if their blood sugars are higher or lower than normal. They should wait until their blood glucose is back to normal before starting. (This is helpful information to pass out to participants who have diabetes when they first join the group).[2]

- A general rule of thumb when estimating how many carbohydrates are needed is 15-30g of carbohydrates for every 30-60 minutes of activity. This is something that the participant will want to talk to their doctor about.[2]

References:

[1]Ever Active Adults: Facilitator's Manual. (2001). Alberta Centre for Active Living. Edmonton Alberta.

[2]Canadian Diabetes Association: *Physical Activity and Type I Diabetes*. (2005) Retrieved from http://www.diabetes.ca/Section_About/type1exercise.asp on December 3, 2007.

[3]FamilyDoctor.org: *Diabetes and Exercise. (2006)* Retrieved from http://familydoctor.org/online/famdocen/home/common/diabetes/living/351.html on November 30, 2007.

Epilepsy and Seizures

What is it? Epilepsy is a common brain or neurological disorder that is characterised by recurring or out of the blue seizures. Epilepsy is also known as a seizure disorder and is usually diagnosed after an individual has experienced at least two seizures that have no known cause.[1] Epilepsy is not as rare as you think; it is one of the most common neurological problems affecting people of all ages. Epilepsy may develop at any age. It is most common in young children, especially those under the age of one. The rate of developing epilepsy declines greatly after the age of ten. However, after the age of 55-60, the rates of epilepsy may begin to rise. This may be attributed to individuals developing brain tumours, Alzheimer's disease, strokes and acquired brain injury.[2]

What is it? A **seizure** may be defined as a sudden alteration in a person's behaviour due to temporary changes in the electrical functioning of the brain. There are many different kinds of seizures, and it is important to know that not all result in a person experiencing convulsions. Seizure types are usually classified into partial seizures (involves only part of the brain) and generalized seizures (involves the whole brain).[3]

Partial Seizures: These types of seizures involve only parts of the brain and the signs and symptoms will vary depending on the location within the brain.

- **Simple partial seizures:** With this type of seizure, the individual will remain conscious, and may have unusual movements or sensations.

- **Complex partial seizures:** Individuals may begin this type of seizure with having an odd taste or smell, or a funny feeling in their stomach. These symptoms are usually followed by a loss of awareness and the individual may make tapping or chewing movements. The individual may be confused after the seizure.

Generalized Seizures: These types of seizures involve the whole brain.

- **Tonic clonic seizure:** These types of seizures are also known as grand mal seizures. The individual may have sudden muscle stiffening where they will usually fall to the floor. You may also notice the individual's body making sudden jerking movements. They may also bite down on their tongue. They are usually confused after the seizure has ended.

- **Absence seizures:** These types of seizures are also known as petit mal seizures. The individual may go blank and stare off, their eyelids may also flicker.

- **Tonic seizure:** The individual's body may stiffen which may cause them to fall. A person will usually recover quickly after this type of seizure.

- **Atonic seizure:** The individual may have a sudden loss of muscle tone which may cause them to fall. A person will usually recover quickly after this type of seizure.

- **Myoclonic seizure:** A person having this type of seizure will have an abrupt jerking of one or more of their limbs.

Why Exercise? Many individuals with epilepsy may avoid physical activity because they are afraid they will have a seizure during their activity. However, it is actually quite rare to experience a seizure while exercising. Physical activity may actually reduce the risk of having a seizure.[4] Nevertheless, before beginning any new form of physical activity make sure the participants know they should consult their family physician first.

- Many individuals with epilepsy will usually be on anti-epileptic medications to prevent their seizures. It is important to know that side effects of these medications may affect them during periods of physical activity. These side effects may include fatigue, problems with coordination, and blurred vision.

- Anti-epileptic medication leads to an increased risk of bone density loss as in conditions such as osteoporosis and osteopaenia. As a result, these participants are at an increased risk for a fracture resulting from a fall. Therefore, it is extremely important that these participants partake in weight-bearing activities which will increase bone and muscle strength.

- It is important that you encourage the participants to exercise responsibly. This involves avoiding exercise-related seizure triggers, such as dehydration, increased body temperature (hyperthermia), low blood sugar levels (hypoglycaemia), and extreme fatigue.

- Encourage participants with diabetes to eat a light snack before coming to exercise; this will prevent their blood sugar from becoming too low.

- Work out in a well ventilated area and encourage participants to take regular rest breaks and drink plenty of water. This will prevent them from becoming too fatigued as well as dehydrated.

References:

[1] Epilepsy.com: Information. Community. Empowerment. (2006). *What is epilepsy?* Retrieved March 10, 2008, from http://www.epilepsy.com/101/ep101_epilepsy

[2]Epilepsy.com: Information. Community. Empowerment. (2006). *Who gets epilepsy?* Retrieved March 10, 2008, from http://www.epilepsy.com/101/ep101_who

[3] Better Health Channel. (2007). *Epilepsy: seizures explained.* Retrieved March 7, 2008, from http://www.betterhealth.vic.gov.au

[4] Better Health Channel. (2007). *Epilepsy and exercise.* Retrieved March 7, 2008, from http://www.betterhealth.vic.gov.au

Fibromyalgia

What is it? Fibromyalgia is a chronic disorder characterized by widespread musculoskeletal pain, fatigue, and multiple tender points. "Tender points" refers to tenderness that occurs in precise, localized areas, particularly in the neck, spine, shoulders, and hips. People with this syndrome may also experience sleep disturbances, morning stiffness, irritable bowel syndrome, anxiety, cognitive problems ("foggy mind") and other symptoms.[1]

Why Exercise? Exercise usually isn't the first thing that people with Fibromyalgia imagine when they think about symptom relief. However, research has shown that many people with Fibromyalgia have less physical endurance than others. These low levels of fitness may be due to the pain, fatigue and depression of Fibromyalgia, but research suggests that people with Fibromyalgia are able to exercise and that exercise may improve overall fitness, as well as help reduce pain and improve symptoms.[2]

- It is important for people with Fibromyalgia to start exercising slowly.[3]
- If new to exercising, begin with gentle, low impact activity and stretching exercises.[3]
- Mornings may be a difficult time to exercise as difficulty sleeping is common with Fibromyalgia.
- There are no specific exercises to avoid.[3]
- Encourage participants with Fibromyalgia to try Yoga, Tai chi or Pilates to help improve symptoms and restore muscle strength.[3]
- Encourage participation in other recreational activities.
- Water therapy can provide a gently form of conditioning. The water alleviates the force of gravity and provides buoyancy as well as mild resistance.[3]
- Slight muscle soreness is typical when beginning any exercise program, but if participants have sharp pain they should contact their doctor to discuss.

References:

[1]What is Fibromyalgia? (2007) Retrieved from: http://www.fmcfs.ca/fm.html January 2015.

[2]Fibromyalgia exercise (2007) Retrieved from: http://www.fmcfs.ca/exercise.html January 2015.

[3]Fibromyalgia and Exercise (2014) Retrieved from: http://www.webmd.com/fibromyalgia/guide/fibromyalgia-and-exercise January 2015.

High Blood Pressure (also called Hypertension)

What is it? Blood pressure is the force of blood against the walls of the arteries. Blood pressure is made up of two numbers, the systolic and the diastolic pressure. The systolic pressure is the force on the artery walls when the blood is being pumped and the diastolic is the force on the artery walls when the heart is resting between beats. When your doctor says your blood pressure is “120 over 80” that means your systolic pressure is 120mmHg (millilitres of mercury) and your diastolic pressure is 80 mmHg (millilitres of mercury). Blood pressure increases with many things such as narrowed arteries, stress, poor diet, and inactivity.

Why exercise? As we get older, the risk of having high blood pressure increases. Exercise is important not only in preventing high blood pressure, but it also helps to control and decrease blood pressure. Exercise increases the circulation in the body making more paths for the blood to get to its destination. Your heart is a muscle and exercise makes it stronger. This enables it to pump more blood with less effort, causing there to be less pressure exerted on your arteries.[1]

- Make sure participants have talked to their doctor to see if there are exercises they should or shouldn’t be doing.
- Encourage proper breathing.
- Participants taking a beta-blocker (medication used for blood pressure), will likely tire easily from aerobic exercise. Keep this in mind in case they can’t keep up with everyone else.[2] Encourage them to do what they can and let them know that they will be able to keep up with others in time.
- Avoid high intensity workouts. Try to have participants work at a level of about 40-65% max heart rate.[2] Have regular heart rate checks every 3-5 minutes.

AGE	40% -65% of max heart rate
65 years old	62-100 beats per minute
75 years old	58-95 beats per minute
85 years old	54-88 beats per minute

- Use weights that are light enough to allow participants to complete 15-20 repetitions.[2]
- Limit overhead exercises such as lifting or overhead reaching.[3]
- Encourage frequent breaks.
- Regularly ask participants how they are feeling and teach them how to self-monitor their intensity.
- Make sure the class includes a cool down period that will allow blood pressure to gradually decrease.[4]
- Remind participants not to grip weights too tight.

References

[1]Mayoclinic.com. High blood pressure and exercise: why activity is key. (2006) By MayoClinic Staff. Retrieved from http://www.mayoclinic.com/health/high-blood-pressure/HI00024 on December 17, 2007.

[2]Kay A. Van Norman (1995). Exercise programming for older adults. Human Kinetics

[3]The Stanford Medical School Health & Fitness Program (1996). Fresh start

[4]American Heart Association (2007). Retrieved from http://www.americanheart.org/presenter.jhtml?identifier=3034814 on December 13, 2007.

[5]Cartoon from www.sllib.org/images/Misc/blood-pressure.gif

Hip and Knee Replacement

What is it? A hip or knee replacement is a surgical procedure where the hip or knee joint is replaced by a prosthetic implant. This is usually done when a hip or knee is damaged due to arthritis or severe joint damage. Hip and knee replacements are becoming increasingly popular. After surgery, people are normally in much less pain and are able to resume daily activities.

Why Exercise? Exercise helps keep new joints in working order. It is important that persons with a new joint follow their physical therapist's orders on how to take care of it. Once they have doctor's clearance to exercise on their own, it is important to keep that joint moving! Exercise also helps maintain a healthy body weight which puts less pressure on the joints. Building up muscles surrounding the hip or knee joint helps restore normal strength. In addition, exercise will help increase circulation to the legs and feet which will help prevent blood clots.

The following recommendations apply to the first six weeks after surgery. However, participants should consult with their physician before no longer abiding by these guidelines.

- Make sure participants have their doctor's approval before going ahead with lower body exercises.
- Participants should receive a copy of the group exercise program and show it to their physical therapist to ensure it does not include any exercises they shouldn't do.
- Incorporate exercises that physical therapists might have given to participants into the program if appropriate for the rest of the group.
- Have participants avoid locking their joints in a strained position. [3]
- Avoid exercises that involve twisting your knee and hip and extreme ranges of motion.[4]

For participants who have had a recent hip replacement surgery:

- Avoid bending at hips beyond 90 degrees and don't bring knees higher than hip level.
- Avoid crossing legs during exercises.
- Make sure participants are sitting upright and not leaning forward at the waist. [1]

Revised 2014

- Include ankle and lower leg exercises to help improve circulation in these areas following surgery.[2]

- Encourage participants to do contraction exercises—contract a muscle and hold for several seconds, then release. These exercises don't involve a lot of movement, if any.[2]

- Avoid any squatting type movements.[1]

- Encourage participants to try water exercises or bicycling if they have pain in their hip joint.[1]

For participants who have had a recent knee replacement surgery:

- Keep bending that knee![5]

References:

[1]The Hip and Knee Institute: *Restrictions to prevent dislocation* (2007). Retrieved from http://www.hipsandknees.com/hip/hiprestrictions.htm on November 26, 2007.

[2]American Academy of Orthopaedic Surgeons: Your Orthopaedic Connection. *Total Hip Replacement Exercise guide.* (Last updated July 2007) Retrieved from http://orthoinfo.aaos.org/topic.cfm?topic=A00303 on November 20, 2007.

[3]About.com:Senior Living. *Healthy Exercise and Hip Replacement.* (2007) Sharon O'Brien. Retrieved from http://seniorliving.about.com/od/exerciseforbeginners/ss/safeexercise_5.htm on November, 20/07.

[4]Vancouver Costal Health: *Exercise Program for Total Hip Replacement (2005).* Retrieved from http://www.phsa.ca/NR/rdonlyres/A7485B1D-2EFC-4848-A200-EFC2998D1AA7/17929/ExerciseBookletforTotalHipReplacement.pdf on November 26, 2007.

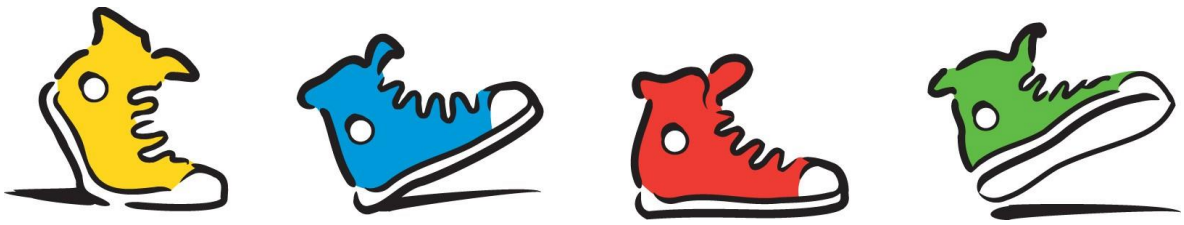
[5]During Your Recovery (2015). Retrieved from http://www.myjointreplacement.ca/page.aspx?pid=707 on January 6, 2015.

Lung Disease

What is it? Lung disease is a term used to describe conditions affect Revised 2014 respiratory system. Generally, there is a limited flow of air through the lungs and airways making it difficult to breathe properly. Many conditions are managed through medication. People can become diagnosed with lung disease for different reasons. Some people are born with conditions, such as asthma. Others can have lung disease due to smoking or other lifestyle factors.

Why Exercise? Starting an exercise program while living with lung disease can be tricky. Many people start exercising and then stop when they find they become short of breath. The trick is to work up slowly with short periods of light-intensity exercise. The more you exercise, the better your body gets at using oxygen. [1] As a result, you can go for longer periods of time without feeling as tired. Regular exercise can also help people go about their daily activities without feeling winded or tired.

- Avoid exercising in cold, dry air.[2]
- The best times for participants with lung disease to exercise will be in the mornings, late afternoons or evenings. Participants should try to clear their lungs of mucus before exercising.[1]
- Encourage participants to use their inhaler and medication before they exercise to help them exercise without shortness of breath.[2]
- Have participants who use inhalers bring it along whenever they exercise.[3]
- Participants should try to breathe slowly. Have them breathe out for twice as long as it takes to breathe in.[1]
- Encourage participants to sit and relax for about 5 minutes before they start exercising.[3]
- Begin at a very low intensity, but encourage participants to work up to higher intensities when they feel ready.[2]



- Participants may feel frustrated if they feel like they can't keep up with the rest of the group. Encourage them to do what they can.

- Encourage participants to take regular breaks throughout the exercise session.[3]

- Arm exercises may be more difficult than leg exercises.[2]

- Try to make a "scent-free environment" in your exercise space. Encourage participants to come without perfume, scented lotions, or other scented products that could irritate those with lung conditions.[3]

- Regularly ask the group how they are doing and remind them to monitor themselves throughout the class to see if they are breathing properly and how they feel.

References:

[1]The American Lung Association: *Exercise and keep active*. (1999). Retrieved from http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=35106 on November 29, 2007.

[2]The Stanford Medical School Health & Fitness Program (1996). Fresh start.

[3]The Lung Association: *Exercise.* (2006). Retrieved from http://www.lung.ca/diseases-maladies/copd-mpoc/living-vivre/exercise-exercice_e.php on November 26, 2007.

Mental Illness

What is it? Mental illness is a term used to describe a variety of emotional and psychological conditions, such as depression, bipolar disorder or season affective disorder (SAD). These conditions are brought on by a chemical imbalance in the brain causing people to be unable to function as they would otherwise. Many people manage mental illness with medication and counselling.

Why Exercise? When someone is living with a mental illness, just getting out of bed can be a chore. So, getting out for exercise is not always the easiest thing. People with a mental illness will benefit not only from the changes that will happen to their body, but they'll also feel like they have a support network and friends. Feelings of depression and isolation may decrease. Participants may experience a sense of pride as they commit to exercise and a healthier lifestyle. Encourage people in your building or community to come join you for your exercises; they will be so glad you did!

- Encourage participants with a mental illness to bring a buddy for support.
- If possible, try to hold classes in the late morning or afternoon. For participants with SAD (seasonal affective disorder), it helps to have as much light as possible. Also, some medications make it difficult for participants to get out of bed early.
- Try to have the class at regular times if possible. Structure is important.
- Celebrate successes in the class. For example, if someone makes it to 10 classes in a row, put their name on a poster or bulletin board.
- Try to have a social focus to the classes. Maybe once a month participants could get together for tea and get to know each other better. Many people with a mental illness feel isolated. Therefore, an exercise class is a great chance for them to make new friends.
- Try to include an educational component to the classes. This is important for those who might not understand mental illness as well as for those *with* a mental illness who might not know how exercise and health can affect their condition. For example, medication for schizophrenia can put people at risk for diabetes. Therefore, it is even more important that they live as healthy as they can.

- Have the group focus on things they are thankful for. Rather than saying "I'm so weak in my arms", have them think about how happy they are that they started coming to the group or how they are starting to feel stronger.

- Make exercises simple so participants with a low self-esteem won't be discouraged.

- Don't single anyone out. If you see someone doing an exercise incorrectly make a general statement to the entire group. For example, instead of saying "Mary you're doing that wrong" say "Now everyone remember, keep your elbows in when you do this".

- If possible, have special outings or guests in the class. Maybe for a day everyone could go mall walking or maybe someone's grandchildren could come to the class to help with equipment.

Multiple Sclerosis

What is it? Multiple Sclerosis (MS) is a neurological condition. The nerves become damaged and this makes it more difficult to transmit signals around the body. MS affects various people differently. Many people have few symptoms for years. As MS progresses, it becomes more difficult for people to carry on with daily tasks and coordinated motor skills.

Why Exercise? Until recently physical activity has been something that was discouraged in persons with MS. However, research and doctors are now saying that physical activity can help ease the symptoms of MS and help people carry on with daily tasks. MS causes people to experience decreased motor skills, muscle endurance and strength—all things which exercise can increase! Although exercise won't cure this widespread disease, it will definitely help improve the quality of life of those who live with it.

- Start participants off with some deep breathing exercises. These will help posture and strengthen the diaphragm muscle. [1]
- Show all participants what "good" posture is. Have them try to maintain it throughout the exercise session. This will help reduce soreness and leg imbalance.[1]
- Make sure the temperature is not too warm to be exercising. Overheating can lead to MS symptoms temporarily becoming worse.[2]
- If possible, participants with MS should do their exercises in front of a mirror so they can monitor the movement.[3]
- Have participants do pelvic tilts in all directions to strengthen the surrounding muscles.[4]
- Include balance exercises in the program. Have participants start off with something as simple as standing with their feet together and trying not to wobble. Make sure there is a chair, wall or partner nearby to help if needed. [1]
- Don't be alarmed if one of the participants has a spasm. If their foot is having a spasm, have them place their foot on the floor and add pressure to their knee (while sitting). It might help to lean over a little bit as well. If someone is having a "shooting leg spasm" (their legs will stick out straight when sitting), have them lean forward. If the spasm is strong, they might not be able to lean by themselves. Have another participant gently help lean them forward.[1]

- Encourage participants to drink cool water regularly during exercise to help manage core temperature.

- Some participants with MS might not be able to do movements on their own. Have them partner up with someone who can gently move their body through the range of motion. [3] Make sure this partner is very careful not to move the limbs too far.

- Participants can use a strap to help them stretch.[4]

- Encourage participants to prop themselves up with pillows if they are feeling unstable.[4]

- If participants have limited feeling in a certain area of their body, make sure they stretch lightly. Overstretching can cause injury.[4]

- Even if participants are not very mobile they can still do eye and face exercises! Have them look at a spot on the wall (pretending its 12 o'clock) and move their eyes to 3, 6, 9 or whatever order you like. Participants can scrunch up their face and hold for a few seconds to get a good face workout.[4]

- Tai Chi and water therapy (not in a therapy pool) are good and safe activity choices.

References:

[1]Multiple Sclerosis Trust: *Exercises for people with MS.* (2006). Liz Betts. Retrieved from http://www.mstrust.org.uk/downloads/exercises.pdf on December 3, 2007.

[2]National MS Society: *Aquatics.* (2006). Retrieved from http://www.nationalmssociety.org/site/PageServer?pagename=HOM_LIB_sourcebook_aquatics on December 3, 2007.

[3]Jeffrey R Larson "Should People with MS Exercise? - Brief Article". Accent on Living. Fall 2000. FindArticles.com. 03 Dec. 2007. http://findarticles.com/p/articles/mi_m0803/is_2_45/ai_69672854

[4]Multiple Sclerosis Society of Canada: *Everybody Stretch.* (2003). Janine Fowler. Retrieved from http://www.mssociety.ca/en/pdf/EverybodyStretch.pdf on December 3, 2007

Osteoporosis

What is it? As we age our bones can become weaker. Some bones are more prone to losing bone mass than others. When someone loses too much bone mass they have “osteoporosis”. Osteoporosis is a very common condition—especially among women. Osteoporosis affects everyone differently. Having osteoporosis makes it easier to fracture a bone if you fall or move inappropriately.

Why Exercise? Exercise can not only stop bone loss, but can also help rebuild bones that have already been weakened by osteoporosis. Bone responds to physical activity by increasing in strength and mass. Resistance exercises help strengthen muscles; this is important to maintain balance. Stronger bodies are less likely to have a fall that could result in a fracture. Also, exercise helps maintain a healthy body weight which will limit the stress on bones.

- Avoid exercises that involve bending at the waist or twisting.[1]
- Avoid quick, jarring movements.[1]
- Exercises that gently stretch the upper back, or strengthen the muscles between the shoulder blades can help improve posture and reduce the risk of compression fractures in the spine.[2]
- Encourage participants who have had a fracture to try swimming or water aerobics.[2]
- Avoid high impact activities such as jumping or jogging.[2]
- Include balance activities such as Tai Chi to help decrease participant’s chances of having a fall which could result in a fracture.[3]
- Encourage participants to keep their tummy muscles tight during exercises.[3]
- Alternate more stressful exercises with simpler ones.[4]
- If participants are feeling too much pressure on their spine, have them lay down on their back, place their arms at their sides, and have their knees bent with feet on the floor.[5]

References:

[1]Ever Active Adults: Facilitator's Manual. (2001). Alberta Centre for Active Living. Edmonton Alberta.

[2]Mayoclinic: *Exercising with osteoporosis: Stay active the safe way* (September 2006). By Mayo Clinic Staff. Retrieved from http://mayoclinic.com/health/osteoporosis/HQ00643 on Nov 15, 2007.

[3]Osteoporosis Canada: *What kind of activity is best?* (2007) Retrieved from http://www.osteoporosis.ca/english/About%20Osteoporosis/Physical%20Activity/What%20Kind%20of%20Activity%20is%20Best/default.asp?s=1 on November 26, 2007.

[4]The Arthritis Society: *Osteoporosis* (2007) Retrieved from http://www.arthritis.ca/types%20of%20arthritis/osteoporosis/default.asp on November 27, 2007

[5]Healthy Happy Aging (1991). Wagorn, Y., Theberge, S., Orban, W.A.R.. General Store Publishing House : Ontario, Canada

Parkinson's Disease

What is it? Parkinson's disease is a neurological condition which is caused by deterioration of the central nervous system. This disorder affects the individual's motor skills and speech. People with Parkinson's disease may have shaky hands, feet, legs, or face, as well as a rigid trunk or impaired movement. Individuals will have different symptoms to varying degrees. Medication is used to manage the affects of Parkinson's disease.

Why Exercise? Although exercise alone will not change the progression of Parkinson's disease, it can help prevent negative secondary effects. Exercise will help improve posture and increase balance—both of which are affected by Parkinson's disease. Exercise will also help people with Parkinson's maintain their flexibility and increase their ability to do aerobic activities such as walking or swimming. Being active improves coordination as well. In other words, exercise can help maintain a good quality of life!

- Posture exercises are very important for people with Parkinson's disease. Have participants stand upright against a wall (or sit straight up in a chair) and practice holding their shoulder blades together for 2-3 seconds at a time. With practice participants will be able to stand (or sit) in this position for longer and longer![1]

- If needed, have participants start balance exercises with a chair or wall nearby for support.

- Have participants do facial exercises. Some ideas are lemon face (pretend that you just tasted something sour), big yawns, or eyebrow raises.[1]

- Encourage participants to keep a relaxed grip on weights and to avoid jerky or rapid movements.

References:

[1]Parkinson's Society Canada (2003). Retrieved January 27, 2008 from http://www.parkinson.ca/pdf/ExerciseBrochure_Eng.pdf

Sensory Conditions

Most participants will have a certain degree of vision, balance, and/or hearing loss. Use the tips below to help make exercise easier for these people.

Vision Loss

- Try to position yourself in a place where everyone can see you. Circles are always a good way to set up if there is enough room.
- Use bright tape or fabric to mark objects that might be bumped into during the program.
- Make sure that newcomers are well oriented with the room and that participants are informed if something has been moved.
- Try to avoid rooms with overly bright or too dim lighting.
- Repeat demonstrations, giving good verbal instructions. Physically guiding the participants might be necessary for those with particularly severe vision loss.

Hearing loss

- Make sure to speak clearly and face participants when you speak.
- Try not to block your mouth while you are speaking.
- Reduce background noise if possible.
- Visual cues are helpful and should be used while describing exercises.
- Printed handouts can be helpful.
- Encourage the individual with hearing loss to sit closer to you.

Dizziness or Impaired Coordination

- Encourage participants to take their time while going from standing to sitting or vice versa.
- Keep exercises slow and simple. Advance to new ones as participants become more confident.
- Time the exercises so there is adequate time for changes in direction and movement.
- Have chairs, a wall or a helper nearby in case assistance with balance is required.

References:

Ever Active Adults: Facilitator's Manual. (2001). Alberta Centre for Active Living. Edmonton Alberta.

Stroke

What is it? A stroke happens when there is an interruption in the flow of blood to the brain. It is sometimes referred to as a "brain attack" because it is similar to a heart attack. A stroke causes a loss of brain function. Some symptoms/effects of a stroke are: vision loss, memory loss, paralysis, altered speech, and muscle weakness.

Why exercise? Activity is important for many reasons after a person has had a stroke. Most importantly, exercise can help decrease the chance of another stroke. Exercise helps reduce blood pressure, lower cholesterol and reduce the risk of heart disease. Exercise can also help ease the depression which many people feel after a stroke. Being active on a regular basis can restore some strength and sensory functions that might have been lost as a result of the stroke.

- Encourage participants to bring a partner or support person.
- Participants with poor balance or weakness following their stroke might find it helpful to use a walker, a cane or chair while they are exercising.[1]
- If both an arm and a leg are affected by the stroke, begin the exercise program from a seated position.[1]
- Participants who have a loss of function in one arm as a result of a stroke should use their strong arm to move their weaker arm through the exercises.
- Participants can be encouraged to alternate exercise with rest breaks until they start to feel better.[2]
- Have participants attempt 10-15 repetitions with a lighter weight.[2]
- Some participants might become depressed. Therefore, try to keep the exercise sessions motivating and upbeat![2] If you know of someone in your community who has had a recent stroke, invite them to join your group. Depression gets worse if people feel isolated.
- Make sure to include some stretching exercises. These will help participants be better able to raise their arms and move their legs.[2]
- If a participant's arm has been affected as a result of the stroke, make sure they do **NOT** raise that arm over their head.
- If a participant is having pain in their affected shoulder, have them see their doctor or physical therapist.

- Tai Chi is helpful in improving balance and flexibility in those who have had a recent stroke.[3]

- Participants with limited use of their hands might find it helpful to use Velcro wrist weights.

- Make exercises simple and give clear instructions. Participants who have had their memory affected by the stroke or have aphasia might be confused by too many directions. Handouts with pictures of the exercises might be helpful for these participants.[3]

- Depending on the type of stroke, speech can be affected and the participants may not understand or be able to express themselves. Help them by demonstrating the exercise first and then by helping them to physically do the exercise. Mirrors can sometimes help as well.

- Some participants might become more impulsive or over enthusiastic following a stroke. Encourage them, at regular intervals, to slow down in order to ensure they don't hurt themselves.

- Encourage participants to find a supervised water therapy program in their community. It is easier to exercise in the water and makes for a fun group outing.

- Participants who are paralyzed or have limited strength on one side should still try to exercise it. Have them use their stronger side to lift the weaker side or have partners assist them through range of motion.

References:

[1]The Stanford Medical School Health & Fitness Program (1996). Fresh start

[2]Gordon, N.F; Gulanick, M; Costa, F; Fletcher, G; Franklin, B.A.; Roth, E.J.; Shephard, T "Physical Activity and Exercise Recommendations for Stroke Survivors: An American Heart Association Scientific Statement From the Council on Clinical Cardiology, Subcommittee on Exercise, Cardiac Rehabilitation, and Prevention; the Council on Cardiovascular Nursing; the Council on Nutrition, Physical Activity, and Metabolism; and the Stroke Council." Circulation 109(2004) 2031-2041. 26 OCT 2006 <http://circ.ahajournals.org/cgi/content/full/109/16/2031

[3]Heart and Stroke Foundation: *Recreational and Leisure Activities. (2006)* Retrieved from http://ww2.heartandstroke.ca/Page.asp?PageID=1965&ArticleID=4969&Src=stroke&From=SubCategoryon November 30, 2007.

Wheelchairs

Why are people in wheelchairs? People can be in wheelchairs for different reasons. Some people have arthritis that prevents them from walking long distances and others may have had a stroke. Some people that are in wheelchairs are paralyzed either from the waist down (paraplegics), from the neck down (quadriplegics) or on one side of their body (hemiplegics). Others are only in wheelchairs for parts of the day. Because everyone is in a wheelchair for a different reason, it is important to understand that they will all have different abilities.

Why Exercise? Physical activity is equally important for people who use wheelchairs as it is for those who are independently mobile. Because they are confined to their chair, they are more susceptible to conditions such as osteoporosis or arthritis. Regular exercise will help maintain body weight, decrease blood pressure and strengthen bones. Strong muscles are important to help people wheel their own chair as well as carry on with other daily tasks. It's important to stretch because muscles and joints tend to become quite tight if they don't move regularly.

- It's very important to include warm up and cool down periods.
- Ask the participant before or after class why they are in a wheelchair and what their capabilities and limitations are.
- Make sure the wheelchair brakes are on and foot pedals are moved out of the way if they are going to be doing leg exercises.
- Try to think of simplified versions of normal exercises using the same movements.
- Have participants try to push themselves up above their chairs. Even if they don't move they will still be getting a good upper body workout.[1]
- Participants in wheelchairs can participate in Tai Chi with the rest of the group. Have them do the positions from their chair to the best of their ability.[2]
- Toss or kick a beach ball around the group. It will help with coordination and they won't even feel like they are exercising.

- Have participants in wheelchairs partner up with another participant (doesn't have to also be in a wheelchair). They can do co-operative exercises such as mirror image exercises (when one participant will follow exactly as the other does) while pressing against each other hands. Try to make sure participants are matched appropriately for strength.[2]

- Have participants do passing exercises from one person to another. This could be passing from the side (twisting motion) or passing to someone in front of them. This can be done from a wheelchair or without.[2]

- Make sure to exercise hands, feet, and ankles in order to increase range of motion and circulation.[3]

- Encourage participants to help lead the group and bring in new exercises and movements.[3]

- Participants might want to use some of the exercises that they have learned in physical therapy.

- Participants that have problems with spasticity should **NOT** use weights.

- Those with limited grip strength in their hands can use Velcro weights.

- Paraplegics and quadriplegics could bring a support person to help them move their arms or legs through safe range of motion. This support person most likely would have been shown the exercises by a professional.

- Quadriplegics and paraplegics should have a body brace or another form of trunk support available when doing upper body work.

- It is important for people who have had one side of their body affected by a stroke to remember to exercise the weaker side. Have them lift their weaker arm with their stronger arm and encourage them to do what they can.

- If the group has access to a pool, supervised water therapy is a great way to exercise no matter what a person's ability is.

- If a participant's arm has been affected as a result of the stroke, make sure they do **NOT** raise that arm overhead as they may injure their shoulder.

- Regularly remind participants to work at their own pace and self-monitor their intensity.

References:

[1]Karla Laubenthal (2000). University of Iowa Health Care. Quick Guide to aerobic exercise for those who use wheelchairs. Retrieved Nov 7,2007 from http://www.medicine.uiowa.edu/cdd/patients/wcexercise.asp

[2]Duane A. Crider; William R. Klinger (2001). Stretch Your Mind and Body: Tai Chi as an Adaptive Activity. Venture Publishing, Inc. State College, PA.

[3]Ever Active Adults: Facilitator's Manual. (2001). Alberta Centre for Active Living. Edmonton Alberta.

Cartoon from **www.personalbest.com/kansas/aug06/fitness.html**

Glossary of Terms

Aerobic exercise: exercise that raises the heart rate and breathing rate. It helps make the heart and lungs stronger.

Aphasia: often caused by a stroke. It impairs a person's ability to communicate through speech, writing or signs. It may also impair their ability to understand what is being said to them.

Atrophy: when muscles decrease in size and become weaker.

Ballistic exercise/ stretching: a quick bouncing type of movement. This is discouraged due to the stress it places on body tissues.

Bone density: refers to the weight and strength of bone. Bone density decreases with osteoporosis or inactivity.

Cardio: see aerobic exercise.

Chronic: a long lasting condition.

Core: the area between the hips and the rib cage. It is important to exercise this area to aid in posture and discourage back pain.

Endurance: the ability to endure prolonged activity.

Elasticity: refers to the tissues of the body and their ability to stretch and return to their original shape.

Fatigue: when a muscle becomes tired and can not work at maximum strength.

Flexibility: the ability of muscles to stretch.

Heart rate: measured in beats per minute. It is the rate at which the heart beats and a good way to monitor intensity.

Hypertrophy: when muscles get larger and stronger.

Ligament: tissue that connects bone to bone.

Range of motion: degree to which a joint can move.

Repetitions (Reps): the number of times an exercise is completed consecutively.

Resistance training/ Strength training: exercises using body weight or equipment. It is done to strengthen muscles.

Sets: a group of repetitions**.** Usually there is a break in between sets for the body to briefly rest. Ex. Someone may complete two sets of 12 repetitions, with a two minute break in between the sets.

Spasticity: condition where certain muscles continually contract and become stiff or tight.

Stability: the body's ability to remain balanced and stable.

Target Heart Rate: a predetermined heart rate zone that differs for people of different ages and conditions.

Tai Chi: a Chinese martial art that is used to promote balance, relaxation and wellness.

Tendon: tissue that attaches muscle to bone.

