THE USEFULNESS OF EXERCISE AND IMPROVEMENTS ON THE QUALITY OF LIFE

The term "Exercise", refer to the human movement and physical activity, which include the mobilization of the Musculoskeletal system, through a structured training program, which rely on the general principles of the exercise Science and depend on the collaboration and correspondence of all the systems of the human body, in order to achieve the maximum production of Work, with the possibly less Energy consumption.

Physical activity (PA) professionals and participants recognize enhanced quality of life (QoL) as a benefit of and motivator for PA (fig .1).

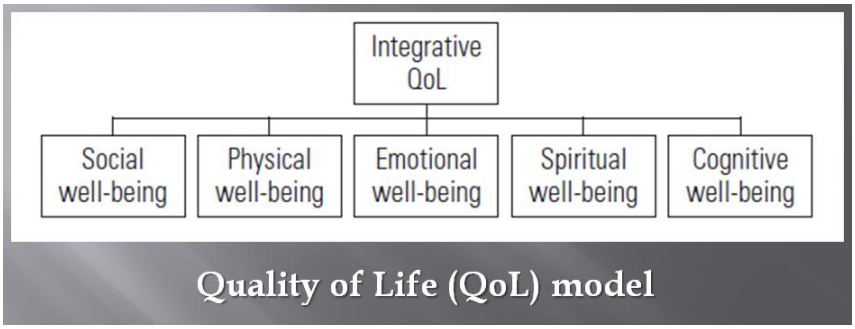

Fig .1; The Quality of Life model

Regular exercise is one of the best ways to enhance the health and fitness. It has many benefits*, including improving the overall health and fitness, and reducing the risk for many chronic diseases. There are many different types of exercise; it is important for someone to pick the right types. Most people benefit from a combination of them:

- **Endurance, or aerobic,** activities increase the breathing and heart rate. They keep the heart, lungs, and circulatory system healthy and improve the overall fitness. Examples include brisk walking, jogging, swimming, and biking.
- **Strength, or resistance training,** exercises make the muscles stronger. Some examples are lifting weights and using a resistance band.
- **Balance** exercises can make it easier to walk on uneven surfaces and help prevent falls. To improve the balance, must try techniques like tai chi or exercises like standing on one leg.

- **Flexibility** exercises stretch the muscles and tendons and can help the body stay limber. Yoga and doing various stretches can make someone more flexible.

***Benefits of Exercise**

To get the most benefit, the person must try to get the recommended amount of exercise** for his/her age.

What are the health benefits of exercise?

Regular exercise and physical activity may

- **Help the weight control.** Along with diet, exercise plays an important role in controlling the weight and preventing obesity. To maintain the weight, the calories someone eats and drink must equal the energy he burns (Energy Balance). To lose weight, must use more calories than eat and drink (Negative Energy Balance) (Fig .2).

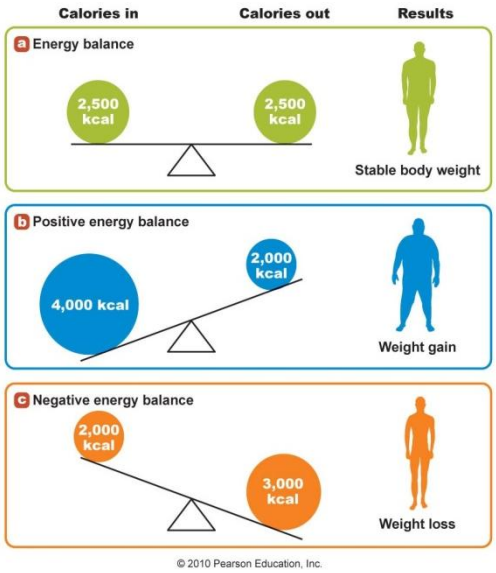

Fig .2; Energy balance and weight control

- **Reduce the risk of heart diseases.** Exercise strengthens the heart and improves the circulation. The increased blood flow raises the oxygen levels in the body. This helps lower the risk of heart diseases such as high cholesterol, coronary artery disease, and heart attack. Regular exercise can also lower the blood pressure and triglyceride levels.
- **Help the body to manage blood sugar and insulin levels.** Exercise can lower the blood sugar level and help the insulin work better. This can cut down the risk for metabolic syndrome and type 2 diabetes. And if someone already has one of those diseases, exercise can help to manage it.

- **Help to quit smoking.** Exercise may make it easier to quit smoking by reducing the cravings and withdrawal symptoms. It can also help limit the weight might be gained after stop smoking.
- **Improve the mental health and mood.** During exercise, the body releases chemicals that can improve the mood and make the person feel more relaxed. This can help to deal with stress and reduce the risk of depression.
- **Help keep thinking, learning, and judgment skills sharp.** Exercise stimulates the body to release proteins and other chemicals that improve the structure and function of the brain.
- **Strengthen the bones and muscles.** Regular exercise can help kids and teens build strong bones. Later in life, it can also slow the loss of bone density that comes with age. Doing muscle-strengthening activities can help to increase or maintain the muscle mass and strength.
- **Reduce the risk of some cancers,** including colon, breast , uterine, and lung cancer.
- **Reduce the risk of falls.** For older adults, research shows that doing balance and muscle-strengthening activities in addition to moderate-intensity aerobic activity can help reduce the risk of falling.
- **Improve sleep.** Exercise can help to fall asleep faster and stay asleep longer.
- **Improve sexual health.** Regular exercise may lower the risk of erectile dysfunction (ED) in men. For those who already have ED, exercise may help improve their sexual function. In women, exercise may increase sexual arousal.
- **Increase the chances of living longer.** Studies show that physical activity can reduce the risk of dying early from the leading causes of death, like heart disease and some cancers. Without regular physical activity, the body slowly loses its strength, stamina and ability to function well. People who are physically active and at a healthy weight live about 7 years longer than those who are not active and are obese.

How Much Exercise a person Need?

The American Heart Association recommends at least 150-minutes of moderate activity each week. An easy way to remember this is 30 minutes at least 5 days a week, but three 10-minute periods of activity are as beneficial to the overall fitness as one 30-minute session. This is achievable! Physical activity may also help encourage the person to spend some time outdoors.

For adults:

At least 30 minutes of aerobic activity on most days.

- Aerobic activities include walking fast, jogging, swimming, biking etc.
- Exercise at a moderate intensity.
- The aerobic exercise can be break into segments of ten minutes or more

Also, must add strengthening activities twice per week.

- Strengthening activities include lifting weights, working with exercise bands, and doing sit-ups and pushups
- Choose activities that work all the different parts of the body - the legs, hips, back, chest, stomach, shoulders, and arms. The exercises must repeat for each muscle group 8 to 12 times per session.

For children and teens:

At least 60 minutes of physical activity every day. Most of it should be moderate-intensity aerobic activity.

- Activities should vary and be a good fit for the child's age and physical development
- Moderate-intensity aerobic activities include walking, running, skipping, playing on the playground, playing basketball, biking etc.

At least 3 days a week the following must be included: vigorous-intensity aerobic activity, muscle-strengthening activity, and bone-strengthening activity.

- Vigorous-intensity aerobic activities include running, doing jumping jacks, and fast swimming
- Muscle-strengthening exercise includes playing on playground equipment, doing pushups and pull-ups
- Bone-strengthening activities include hopping, skipping, doing jumping jacks, playing volleyball, and working with resistance bands

Other groups:

Seniors, pregnant women, and people who have special health needs should check with their health care provider on how much exercise they should get and what types of exercises they should do.

People who are trying to lose weight may need to get more exercise. They also need to adjust their diet, so they are burning more calories than they eat and drink. If the person used to be inactive, may need to start slowly. He/she can keep adding more gradually.

The exercise intensity

The exercise intensity must generally be at a moderate or vigorous level for maximum benefit. For weight loss, the more intense or longer the activity, the more

calories can be burned. Exercise intensity is also shown in the breathing and heart rate, whether someone sweats, and how tired the muscles feel.

There are two basic ways to measure exercise intensity:

- **How someone feel.** Exercise intensity is a subjective measure of how hard physical activity feels to someone while he's doing it — the perceived exertion. The perceived level of exertion may be different from what someone else feels doing the same exercise.
- **The heart rate.** The heart rate offers a more objective look at exercise intensity. In general, the higher the Heart Rate during physical activity, the higher the exercise intensity.

Studies show that the perceived exertion compares *w*ell with the heart rate. A heart rate monitor might be a useful device.

The basic way to calculate the maximum heart rate is to subtract the age from 220. For example, if someone is 45 years old, subtract 45 from 220 to get a maximum heart rate of 175. This is the maximum number of times your heart should beat per minute during exercise. A other more accurate calculation is HRmax= 206,9-(0,67 x age).

Once the person knows the maximum heart rate, he is able to calculate the desired target heart rate zone — the level at which the heart is being exercised and conditioned but not overworked.

The American Heart Association and the Centers for Disease Control and Prevention recommend a general target heart rate of:

- Moderate exercise intensity: 50 to about 70 percent of the maximum heart rate *
- Vigorous exercise intensity: 70 to about 85 percent of the maximum heart rate

*The Mayo Clinic Healthy Living Program recommends a target heart rate of 65 percent to 75 percent of the maximum heart rate for moderate-intensity exercise.

Example:

A simple way to calculate; If the target heart rate of 70 to 85 percent of HRmax for a vigorous exercise:

- *Subtract the age from 220 to get the maximum heart rate [or use 206,9-(0,67 x age)].*

- *Calculate the resting heart rate by counting the heart beats per minute when at rest, such as first thing in the morning. It's usually somewhere between 60 and 100 beats per minute for the average adult.*
- *Calculate the heart rate reserve (HRR) by subtracting the resting heart rate from the maximum heart rate.*
- *Multiply the HRR by 0.7 (70 percent). Add the resting heart rate to this number.*
- *Multiply your HRR by 0.85 (85 percent). Add the resting heart rate to this number.*
- *These two numbers are the training zone heart rate for a vigorous exercising. The heart rate during exercise should be between these two numbers.*

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