EXERCISE 101

Exercise Benefits, Guidelines and Principles for Weight Loss and Health

At its most basic, exercise is any type of physical exertion we perform in an effort to improve our health, shape our bodies and boost performance. Obviously that covers a broad range of activities and, luckily, there are plenty to go around whether you want to lose weight, get healthy or train for a sport.

The Benefits of Exercise

Physical activity can bring you many health benefits. I could (and will) go on and on about all the things exercise can do for you, both physically and mentally.

People who enjoy participating in moderate intensity or vigorous-intensity activity on a regular basis benefit by lowering their risk of developing coronary heart disease, stroke, non-insulin-dependent (type 2) diabetes mellitus, high blood pressure, and colon cancer by 30–50% (USDHHS, 1996). Additionally, active people have lower premature death rates than people who are the least active.

The great thing about it is that you don't need much to get the benefits. Even just a few minutes a day can improve your health, well-being and help you:

- Lose weight and reduce stress
- Boost your mood
- Give you more energy
- Help you sleep better
- Increase bone density
- Reduces the risk of developing coronary heart disease (CHD) and the risk of dying from CHD
- Reduces the risk of stroke
- Reduces the risk of having a second heart attack in people who have already had one heart
- attack
- Lowers both total blood cholesterol and triglycerides and increases high-density lipoproteins
- (HDL or the "good" cholesterol)
- Lowers the risk of developing high blood pressure
- Helps reduce blood pressure in people who already have hypertension
- Lowers the risk of developing non-insulin-dependent (type 2) diabetes mellitus
- Reduces the risk of developing colon cancer
- Helps people achieve and maintain a healthy body weight
- Reduces feelings of depression and anxiety
- Promotes psychological well-being and reduces feelings of stress
- Helps build and maintain healthy bones, muscles, and joints
- Helps older adults become stronger and better able to move about without falling or becoming excessively fatigued
- · Improve your quality of life

Motivating Yourself to Exercise

While it's important to know basic exercise guidelines and principles covered on the next few pages, I think the most important step in starting an exercise routine is exploring the idea of motivation. Without that, all the advice in the world won't do you any good. It's important to remember that motivation doesn't just happen. It's something you make happen each and every day. If you have multiple reasons to exercise, you'll always have something to get you moving, even when motivation is short. The hardest part of exercise is getting started...if you can get that far, you've won half the battle. Some ideas:

- Remind yourself of your weight loss goals
- Think of a future event to get ready for (a wedding, a vacation, etc.)
- Consider how much energy you'll have to get more things done
- Imagine how relaxed you'll feel after a workout
- Think of your exercise time as the only time you may get to yourself all day
- Remind yourself how good you'll feel by following through
- Promise yourself a reward for completing your workout
- Think of all the diseases and illnesses your workout could protect you from
- Remind yourself that this workout is necessary to reach your goal

Did You Know? Recommended amount of exercise per week is only 1.5% of your time! (5x/week for 30mins)

SUGGESTIONS FOR OVERCOMING PHYSICAL ACTIVITY BARRIERS

Lack of time

- Identify available time slots. Monitor your daily activities for one week. Identify at least three 30-minute time slots you could use for physical activity.
- Add physical activity to your daily routine. For example, walk or ride your bike to work or shopping, organize school activities around physical activity, walk the dog, exercise while you watch TV, park farther away from your destination, etc.
- Make time for physical activity. For example, walk, jog, or swim during your lunch hour, or take fitness breaks instead of coffee breaks.
- Select activities requiring minimal time, such as walking, jogging, or stairclimbing.

Lack of energy

- Schedule physical activity for times in the day or week when you feel energetic.
- Convince yourself that if you give it a chance, physical activity will increase your energy level; then, try it.

Lack of motivation

- Plan ahead. Make physical activity a regular part of your daily or weekly schedule and write it on your calendar.
- Invite a friend to exercise with you on a regular basis and write it on both your calendars.
- Join an exercise group or class.

Lack of resources

- Select activities that require minimal facilities or equipment, such as walking, jogging, jumping rope, or calisthenics.
- Identify inexpensive, convenient resources available in your community (community education programs, park and recreation programs, worksite programs, etc.).

Weather conditions

- Develop a set of regular activities that are always available regardless of wether (indoor cycling, aerobic dance, indoor swimming, calisthenics, stair climbing, rope skipping, mall walking, dancing, gymnasium games, etc.)
- Look on outdoor activities that depend on weather conditions (cross-country skiing, outdoor swimming, outdoor tennis, etc.) as "bonuses"-extra activities possible when weather and circumstances permit.

Travel

- Put a jump rope in your suitcase and jump rope.
- Walk the halls and climb the stairs in hotels.
- Stay in places with swimming pools or exercise facilities.
- Join the YMCA or YWCA (ask about reciprocal membership agreement).
- Visit the local shopping mall and walk for half an hour or more.
- Bring a small tape recorder and your favorite aerobic exercise tape.

Family obligations

- Trade babysitting time with a friend, neighbor, or family member who also has small children.
- Exercise with the kids-go for a walk together, play tag or other running games, get an aerobic dance or exercise tape for kids (there are several on the market) and exercise together. You can spend time together and still get your exercise.
- Hire a babysitter and look at the cost as a worthwhile investment in your physical and mental health.
- Jump rope, do calisthenics, ride a stationary bicycle, or use other home gymnasium equipment while the kids are busy playing or sleeping.
- Try to exercise when the kids are not around (e.g., during school hours or their nap time).
- Encourage exercise facilities to provide child care services.

THE BASIC PRINCIPLES OF EXERCISE

There are some basic principles that govern the world of exercise, and knowing them can help you set up and manipulate different components of your workout.

The F.I.T.T. Principle

FITT is an easy way to remember the exercise variables you can manipulate to avoid boredom and to keep your body challenged:

- Frequency how often you exercise
- Intensity how hard you exercise
- Time how long you exercise
- Type the type of exercise you're doing (e.g., running, walking, etc.)

When you workout at sufficient intensity, time and frequency, your body will improve (also called the Training Effect) and you'll start to see changes in your weight, body fat percentage, cardio endurance and strength. When your body adjusts to your current FITT levels, it's time to manipulate one of more of them.

For example, if you've been walking 3 times a week for 20 minutes and you've stopped seeing improvement, you could change your program by implementing one or more of the following ideas:

Frequency - Add one more day of walking

Intensity - Add short bursts of jogging, speed walking or hill training

Time - Add 10-15 minutes to your usual workout time

Type - Do a different activity such as cycling, swimming or aerobics

Changing any of these variables every 4 to 6 weeks can help you keep that training effect going.

Progressive Resistance (the Overload Principle)

In order to improve your strength, endurance and fitness, you have to progressively increase the frequency, intensity and time of your workouts. A simple way to stimulate your body is to try different activities. If you normally walk on the treadmill, try riding the bike which will use different muscles and allow you to burn more calories. If you've been doing biceps curls with dumbbells, change to a barbell

Specificity

This principle is just how it sounds...how you exercise should be specific to your goals. If you're trying to improve your racing times, you should focus on speed workouts. If your main goal is simply health, fitness and weight loss, you should focus on total body strength, cardio and a healthy diet. Make sure your training matches your goals.

Rest and Recovery

While we often focus on getting in as much exercise as possible, rest and recovery is also essential for reaching your weight loss and fitness goals. While you can often do cardio every day (though you may want to rest after very intense workouts), you should have at least a day of rest between strength training workouts. Make sure you don't work the same muscles two days in a row to give your body the time it needs to rest and recover.

Recommended Amount of Exercise

Exercise at least 30 minutes a day, 5 days a week. Exercise needs to be part of your everyday life. It does not necessarily mean trying to find time to go to the gym. It can be anything g from walking the stairs instead of taking the elevator, walking during your break instead of sitting around, or doing situps and weight exercises while watching TV. It is about changing how you function in everyday life. Just be more active.

- The main recommendation is to increase whatever you are doing right now.
- If you are not exercising, make a goal for 10-15 minutes, 3 days a week and increase from there.
- The recommended amount of exercise is at least 30 minutes accumulated throughout the
 day on most days. Therefore, the recommended 30 minutes of activity can be accumulated
 in short bouts of activity: walking up the stairs instead of taking the elevator, walking instead
 of driving short distances, doing calisthenics, or pedaling a stationary cycle while watching
 television.
- Gardening, housework, raking leaves, dancing, and playing actively with children can also contribute to the 30 minute-per-day total if performed at an intensity corresponding to brisk walking.
- You can exercise while watching TV. Sit on the floor and do some crunches. Just sitting and watching TV raises your risk of obesity and developing type 2 Diabetes. In fact, each 2- hourper-day increase in TV watching was associated with a 23% increase in risk for obesity, and a 14% increase in risk for developing type 2 diabetes. (Source NIDDK)
- Once you have reached the goal of 30 minutes, 5 times per week, start slowly increasing it
 more. To prevent weight gain, 30 to 60 minutes of moderate physical activity per day is
 recommended, but 60 to 90 minutes of physical activity per day is recommended to sustain
 weight loss.

How Many Calories Am I Burning?

Each of the following exercises is equivalent to 100 calories:

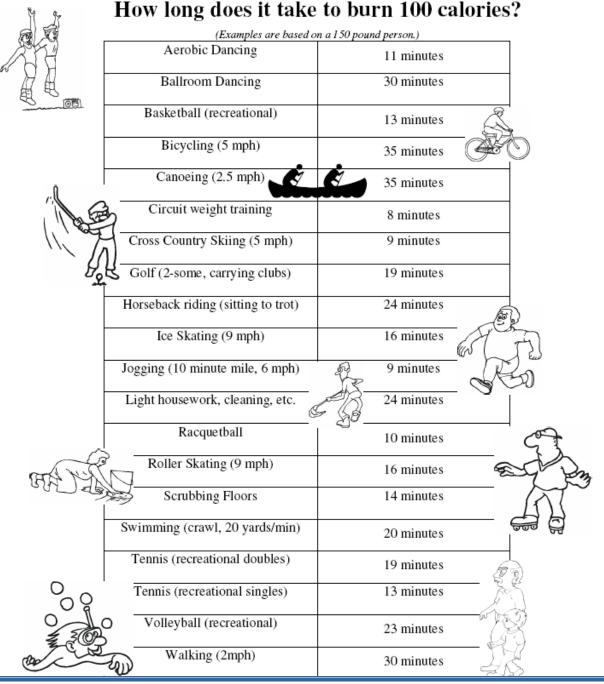
- Walking 1 mile
- Running 1 mile
- Biking for 15 minutes at a rate of 11 miles per hour
- Cross-country skiing for 10 minutes
- Jumping rope for 9 minutes at a rate of 70 jumps per minute
- Playing tennis for 30 minutes
- Swimming for 10 minutes
- 15 minutes of aerobic or step class
- The equipment in the gym will tell you how many calories you have burned.

Tips for getting started:

- Make a weekly exercise plan and stick to it.
- Keep a log of all of your exercise so you can see your progress.
- If your budget allows, find a personal trainer to evaluate you and help you get started this is money very well spent!!
- Start slowly and build up to more as you are able. It doesn't make sense to start gung-ho and then have to take a lot of time off because you are sore or tired.

^{**}Check with your doctor before starting any new physical activity or diet program. **

- Vary your exercise this makes it more interesting. Alternate walking or jogging with swimming, cycling, weight lifting, yoga, aerobic classes, tennis and more!
- Try to incorporate group workouts by taking classes or joining a running/walking club. Form your own group of exercise partners or find one partner this makes it more interesting and you are less likely to slack off.
- Adopt a "no-excuses" policy there is no excuse to keep you from working out. Keep videos
 or exercise equipment in your house in case weather is bad or you find yourself housebound
 for some reason.
- As you become more fit, you will notice a big difference in the way you look and feel. This will help you stay motivated.
- Exercising 5-6 days a week helps you develop a strong habit for exercise.
- If you are seriously overweight or have been sedentary for a long time, see your physician before starting any exercise program.



By: John Berardi

You don't need to be a resource management specialist to know that time is the most valuable finite resource that you have. And as you well know, there's a very



limited amount of it to go around. So if you're smart, you'll figure out ways to get the greatest return on the investment of your time.

While this may be well recognized and applied in many aspects of modern life, it confuses me as to why people seem to ignore this when it comes to their exercise training. From what I see on a daily basis, it's clear to me that most people in the gym are wasting their time investment. They're spending precious hours engaged in strength or endurance training programs that yield little or no results?

Need proof? When was the last time someone in your gym made any noticeable physical progress? In fact, when was the last time that you made any significant physical progress? Exercise training has the potential to yield huge returns on any given time investment. Isn't it a shame that most people don't ever see this magnitude of return?

Despite this disappointing reality, I'm here to tell you that hope is not lost. In fact, there's a very easy way to capitalize on your investment. You see, in most cases the exercise is not the problem. The problem is that people fail to invest in the other important commodity that, in combination with exercise, yields the biggest returns.

They're buying the cart without the horse, the lemonade stand without the lemonade. They're spending their time focused on only the exercise program while ignoring the importance of a sound nutritional program.

Now I could write a dozen articles focused on straightening out the nutritional problems of the world. But those articles are for another day. In this article today, I intend to focus on what is, in my opinion, the most important aspect of exercise nutrition - eating during the post-workout period. The knowledge of how to eat during this time will maximize your efforts in the gym and yield the biggest returns on your time investment.

Remodeling and the Post-Workout Period

Exercise, both strength and endurance training, is responsible for countless health and aesthetic benefits. However the exercise itself is a significant physiological stressor. Perceived symptoms of this "stress" are often mild and include muscle soreness, the need for extra sleep, and an increased appetite.

These symptoms let us know that the exercise has depleted the muscle's fuel resources, caused some minor damage, and that the muscle is in need of replenishment and repair. While the words depletion and damage may sound like negative things, they're not if they only stick around for a

short period of time. You see, these changes allow the muscle to adapt by getting better at the exercise demands placed on it.

Therefore if you're doing endurance exercise, the muscle will become depleted and damaged in the short run, but in the long run it will super compensate, building itself up to be a better aerobic machine. And if strength training is your thing, you'll tear down you're weaker muscle fibers in favor of building up bigger, stronger ones.

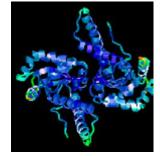
In all cases, exercise essentially tears down old, less adapted muscle in order to rebuild more functional muscle. This phenomenon is called remodeling.

While the remodeling process is much more complex than I can describe here, it's important for me to emphasize that this remodeling only takes place if the muscle is provided the right raw materials. If I plan on remodeling my home I can hire a guy to tear down a couple of walls, a guy to clean up the mess, and a guy to come in and rebuild better walls than the ones that came down.

But if I don't give that guy any bricks, how's he going to get anything done? If I don't give him the bricks, all I'll have in the end is a much smaller, unfinished house.

The same holds true with exercise remodeling. In particular, during the exercise bout and immediately following it, exercise breaks down our muscle carbohydrate stores and our muscle protein structures. Then, the immune system comes in to clean up the mess.

And finally, signals are generated to tell the body to rebuild. However, as I hope you can now see, without the proper protein and carbohydrate raw materials, this building can't take place. You'll be left with muscles that never reach their potential.



So with this analogy, I hope it's obvious that this post-exercise period is not a time to take lightly. Remember, you spent a significant amount of time in the gym breaking down the muscle for a good reason. You want it to be better adapted to future demands.

So to realize full return on your time investment, you need to give the body the raw materials it needs, namely protein and carbohydrates.

Feeding Hungry Muscles

As I mentioned earlier, all trainees (male or female), regardless of their chosen mode of exercise, must take their post-exercise nutrition seriously in order to provide the muscle with the raw materials it needs. As all types of exercise use carbohydrates for energy, muscle carbohydrate depletion is inevitable. Therefore a post-workout meal high in carbohydrates is required to refill muscle carbohydrate/energy stores.

However any ol' amount of carbohydrates will not do. You need to consume enough ands the right carbohydrates to promote a substantial insulin release. Insulin is the hormone responsible for shuttling carbohydrates and amino acids into the muscle. In doing this, carbohydrate resynthesis is accelerated and protein balance becomes positive, leading to rapid repair of the muscle tissue.

Therefore I recommend 0.8g of carbohydrate per 1 kilogram of body weight for speeding up muscle carbohydrate replenishment while preventing excess fat gain (van Loon et al 2000a).

In addition, since muscle protein is degraded during exercise, the addition of a relatively large amount of protein to your post exercise meal is necessary to help rebuild the structural aspects of the muscle. After exercise, the body decreases its rate of protein synthesis and increases its rate of protein breakdown. However, the provision of protein and amino acid solutions has been shown to reverse this trend, increasing protein synthesis and decreasing protein breakdown.

Researchers have used anywhere from 0.2g - 0.4g of protein per 1 kilogram of body weight to demonstrate the effectiveness of adding protein to a post-workout carbohydrate drink (van Loon et al 2000b, Roy et al 1998). As an increased consumption of the essential amino acids may lead to a more positive protein balance, 0.4g/kg may be better than 0.2g/kg.

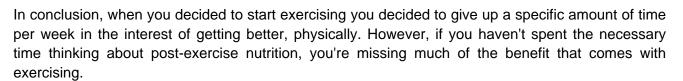
While your post-workout feeding should be rich protein and carbohydrate, this meal should be fat free. The consumption of essential fats is one of the most overlooked areas of daily nutritional intake but during the post workout period, eating fat can actually decrease the effectiveness of your post-workout beverage. Since fat slows down transit through the stomach, eating fat during the post workout period may slow the digestion and absorption of carbohydrates and proteins.

As your post workout feeding should be designed to promote the most rapid delivery of carbohydrates and protein to your depleted muscles, fats should be avoided during this time.

Finally, another important factor to consider is the timing of this meal. It is absolutely crucial that you consume your post-workout meal immediately after exercise. As indicated above, after exercise, the muscles are depleted and require an abundance of protein and carbohydrate. In addition, during this time, the muscles are biochemically "primed" for nutrient uptake.

This phenomenon is commonly known as the "window of opportunity". Over the course of the recovery period, this window gradually closes and by failing to eat immediately after exercise, you diminish your chances of promoting full recovery. To illustrate how quickly this window closes, research has shown that consuming a post-exercise meal immediately after working out is superior to consuming one only 1 hour later.

In addition, consuming one 1 hour later is superior to consuming one 3 hours later (Tipton et al 2001, Levenhagen et al 2001). If you wait too long, glycogen replenishment and protein repair will be compromised.



I assure you that once you start paying attention to this variable in the recovery equation, your time in the gym will be much better invested.

Whole Food Vs. Nutritional Supplementation

Anchored firmly atop their calorie-counting soapbox, nutritionists have traditionally asserted that whole food always trumps supplemental nutrition. For them I have only one sentiment:

Always...it is a meaningless word. -Oscar Wilde

While I wholeheartedly believe that complete, unbleached, untreated, and unprocessed whole food should form the basis of any sound nutritional regimen, there are some instances in which

supplements can actually be superior to whole food. In the case of post-exercise nutrition, I believe that liquid supplemental nutrition is far superior to whole food for the following reasons.

Liquid Meals Are Palatable and Digestible

Typically, after intense exercise, most people complain that eating a big meal is difficult. This is understandable as the exercise stress creates a situation where the hunger centers are all but shut down. However, as you now know, it's absolutely critical that you eat if you want to remodel the muscle, enlarge the muscle, or recover from the exercise.

Fortunately liquid supplemental formulas are palatable, easy to consume, and can be quite nutrient dense, providing all the nutrition you need at this time. In addition, since these formulas are structurally simple (I'll save the biochemistry for another article), the gastrointestinal tract has no difficulty processing them. Your stomach will thank you for this.

Liquid Meals Have a Fast Absorption Profile, Whole Food Is Just Too Slow

The latest research has demonstrated that liquid supplemental formulas containing fast digesting protein (whey hydrolysates and isolates) and carbohydrates (dextrose and maltodextrin) are absorbed more quickly than whole food meals.

To put this into perspective, a liquid post-exercise formula may be fully absorbed within 30 to 60 minutes, providing much needed muscle nourishment by this time. However, a slower digesting solid food meal may take 2 to 3 hours to fully reach the muscle.



Liquid Meals Take Advantage of the "Window Of Opportunity", Whole Foods May Miss It

The faster the protein and carbohydrates get to the muscle, the better your chances for muscle building and recovery. Current research has demonstrated that subjects receiving nutrients within one hour after exercise recover more quickly than subjects receiving nutrients three hours after exercise. Liquid nutrition is making more sense, isn't it?

Liquid Meals Are Better For Nutrient Targeting

During the post exercise period, specific nutrients maximize your recovery. These include an abundance of water, high glycemic index carbohydrates, and certain amino acids (in specific ratios). It's also best to avoid fat during this time. So the only way to ensure that these nutrients are present in the right amounts is to formulate a specific liquid blend. Whole foods may miss the mark.

References:

Levenhagen et al. (2001). Postexercise nutrient intake timing in humans is critical to recovery of leg glucose and protein homeostasis. Am.J.Physiol Endocrinol.Metab. 280(6): E982-993.

Tipton et al. (2001). Timing of amino acid-carbohydrate ingestion alters anabolic response of muscle to resistance exercise. Am.J.Physiol Endocrinol.Metab. 281(2): E197-206.

Roy et al. (1998). Influence of differing macronutrient intakes on muscle glycogen resynthesis after resistance exercise. JAP. 84(3): 890-896.

Van Loon et al. (2000a). Maximizing postexercise muscle glycogen synthesis: carbohydrate supplementation and the application of amino acid or protein hydrolysate mixtures. Am J Clin Nutrition. 72(1): 106-111.

Van Loon et al. (2000b). Ingestion of protein hydrolysate and amino acid-carbohydrate mixtures increases postexercise plasma insulin responses in men. J Nutr. 130(10): 2508-2513.

HOW TO EXERCISE AND LOSE WEIGHT ON A BUSY SCHEDULE

Whether the goal is to lose weight, gain muscle, stick to a diet plan or program, improve the cardiovascular health, or simply to maintain current fitness level - many people all have one common enemy---TIME.

For most of us, the #1 challenge in the quest to stay in shape and/or lose weight is not exercising itself but being able to actually fit an exercise program into our busy schedules.

So how do you do it? How do you balance the demands of family, career, important errands, relationships, organizational responsibilities, and working out? I have found that there are five keys that will help you to be able to fit a consistent workout plan into your already hectic life.

1. Commit to a specific schedule

When you fail to plan you plan to fail. Don't try to haphazardly fit your workouts into your schedule without any rhyme or reason. Don't think you're guilty? If you've every told yourself "I'll workout as soon as I get some time", you were in direct violation of this key principle.

In order to set yourself up for success, you will need to take the time to literally write your workouts into your weekly schedule. In order to be effective, you will want to be following your exercise program at least 3 days per week. Anything less would be kidding yourself.

Therefore, right in the midst of all of your appointments, "to-do" lists, etc., should be a written plan for your weekly workout routine, so that you will never be in the dark as to when you committed to yourself to go.

2. Utilize the weekend

Take advantage of the fact that it only takes 3-5 days per week to put together an effective, results-producing workout. One trick to help you pull it all off is to workout on the weekends. One of the benefits to this course of action is that your schedule is more flexible and under your control during this time.

What is also means is that when the hectic weekdays roll back around, you will only be responsible for working out 1-3 days during the work week.

3. Keep your workouts as a high priority

One of the biggest mistakes that even many people who have scheduled a workout program into their schedule make is allowing it to be bumped off of their schedule to easily.

Although things will occasionally come up that will cause you to have to reschedule the workout you had planned, you must be vigilant in making sure that only the most important emergencies are allowed to temporarily take you off of your plan.

In the event that one of those important emergencies does happen and you can't make it to your workout, reschedule with yourself to make it up on the next possible day that you are available to do so. If your own health, fitness, and efforts to lose weight are not a priority to you, they certainly won't be so to anyone else.

4. Enroll others in your goals

Don't go at this alone. Let the important people in your life know what you are up to. You love interest, spouse, parents, children, co-workers, and close friends will often pitch in and help you to meet your fitness or weight loss commitment to yourself if you make them aware and ask for their support.

Leverage these relationships to delegate some of your normal responsibilities or even allow you to shift appointments that you have with them as you restructure your schedule for your workout. If any of them are into exercise or trying to lose weight themselves, don't hesitate to form a buddy system with them as you move forward with your program.

5. Don't beat yourself up

No matter who you are, there will be times in your workout program that you just aren't able to keep it up as you would like due to outside demands. Don't be too tough on yourself on this.

Remember that it is what you do consistently over a long period of time, not what you do in spurts, that truly counts. Just make sure that you get back on the horse full force as soon as you can and continue to press forward, doing your best to avoid slacking off again.

No matter what goals you have for health, fitness, or weight loss, you CAN fit an effective exercise program into that hectic schedule of yours and be amazingly successful at getting the exact results that you want!

Where Do I Start?

Pick a start date and write it on your calendar. Start date:	
Your starting goal may be to walk 10 minutes for 3 days a we more intense walking at least 3 days a week. The ultimate goal least 30 minutes each day or at least 5 out of 7 days. The 30 mi one time! Take a 10 minute break and walk the stairs or walk a during the day and you've met your goal!	is to get to the point of exercising at nutes does not even have to be all at
If you have not been physically active, this may be a goal to reach for in a few weeks or months. Please meet with your physician or nurse practitioner and together you can determine what is a safe exercise goal to help avoid injury.	
Exercise Goal	Goal time period