

The Bad News

What will happen to you if you do not exercise? What type of changes can you expect to occur as you age and remain inactive? Let's take a look at the typical aging sedentary person.

Cardiovascular Fitness:

In order for your car to work well, you've got to run it. Makes sense doesn't it. Well our body works in the same way. Your heart is a muscle just like any other muscle. If you condition your heart, it becomes a strong pump so that at rest, it doesn't have to beat as quickly. So that maybe 23 hours a day, 7 days a week, your heart is beating more slowly and efficiently. An Olympic level athlete can have a resting heart rate of 30 beats per minute. But if you don't condition it, it becomes a very weak and inefficient pump. When a weak heart contracts, it can only generate a small amount of force and so a minimal amount of blood is ejected to all the tissues in the body. As a result, a weak heart has to pump more rapidly to get the oxygen to all the areas in the body. A sedentary individual can have a resting heart rate of 80, 90, or 100 beats per minute. That's up to 70 more beats per minute in comparison to a highly competitive athlete. Imagine any piece of equipment or machinery - if you have to use it more often, the chance for wear-and-tear and breakdown is greater. You can clearly see

why someone who is sedentary will experience more significant problems to their heart.

If you remain sedentary, your aerobic capacity decreases at a rate of 10% per decade after the age of 25. This means that you'll be huffing and puffing a lot more when engaging in any kind of physical activity. Household chores and other activities that you do every day will start to become more challenging and in your older years, they will become maximal efforts. Consider the types of activities that are a maximal effort for you right today - maybe an all out sprint, lifting a really heavy box or piece of furniture. Well one day these types of activities will be impossible. A maximal effort in your later years will be trying to get out of your chair, climbing a set of stairs or carrying a bag of groceries. You can imagine if regular activities become extremely strenuous, most people start to avoid these movements to reduce fatigue. This becomes a vicious cycle. Because of a sedentary lifestyle, an individual's aerobic fitness is reduced. This results in daily movements becoming very tiring. This causes them to avoid moving as much. This negatively impacts their aerobic fitness so movement becomes even more exhausting and they move even less and so on.

Muscle Tissue:

Consider this. As you age you can expect to experience a 33% reduction in muscle fibers. One third of your muscle mass - gone! Women can experience

an even more significant loss such that, a sedentary woman, by the age of 80, will have only about a third of the muscle she had at the age of 40. This equates to an individual losing approximately 3kg (7pounds) of muscle each decade with this loss accelerating after the age 45. It's interesting to note that this loss is dominated by a loss in the number and size of fast twitch muscle fibers. These muscle fibers are the ones responsible for allowing an individual to move quickly, and to maintain agility, reaction time, strength and power. This is one of the major contributing factors causing someone older to move very slowly. Notice as they get out of a chair, cross the street or try to make it across a room. It's not that they want to move that slowly. In reality they physically cannot move any more quickly due to the loss in these particular muscle fibers.

This loss in muscle mass significantly and negatively affects numerous other health factors and can lead to many complications. Read on.

Metabolic Rate:

Muscle tissue is energy burning tissue. Just having one pound of muscle on your body causes you to burn an additional 30-40 calories per day. When you start to lose muscle, this negatively impacts your Resting metabolic rate and you start to expend fewer calories every day. You can expect a 2% reduction in metabolic rate each decade after the 2nd decade with this loss paralleling the loss in muscle mass. This results in reduced caloric requirements - approximately 100 calories

less per day - and can lead to creeping obesity, a phenomenon most aging adults experience.

Body Fat:

On the topic of creeping obesity, you can expect to experience an average weight gain of 10 pounds per decade. Women's body fat levels will increase from 25% to 43% body fat and men will increase from 18% to 38% body fat as they age. This increases the risk for obesity related disorders such as hypertension, diabetes, osteoarthritis and coronary artery disease - in fact, increased fatness triples the normal risk for heart disease and stroke.

Furthermore, body fat distribution changes as we age such that more internal body fat is deposited - a more dangerous type of fat deposit. And as women's estrogen levels drop, they typically start to store fat more like a man increasing their risk for heart disease. You probably won't be surprised to learn that 52% of women in their 50's are overweight and more than a third of women age 30-49 also weigh too much.

Strength:

As you can imagine, a loss in muscle strength is a direct result of the loss in muscle mass that occurs as we age. At about the age of 50, strength starts to decrease such that, older adults can expect to have only 50% of the strength of young adults. This decline in strength is linked with increased risk of falls, increased frailty and loss of functional independence.

Bone Density:

Bone density decreases at a rate of 1% per year after the age of 35 so that eventually bone becomes brittle, porous and weak. For a woman, the first 5 to 10 years after menopause, annual bone loss increases to average 2% per year. Thus a woman can easily lose 15-30% of her peak bone mass by age 60. This results in an increased risk for fractures to the forearm, lumbar, wrist, vertebrae, and hip regions. In fact, twenty-five percent of post-menopausal women have enough bone loss to be diagnosed as Osteoporotic - 25 million Americans have been affected by osteoporosis with 80% of these being women. You will be very surprised to learn that more women die each year from hip fractures related to osteoporosis than from breast cancer, uterine cancer and ovarian cancer combined...each year about 300,000 people in the United States are admitted into the hospital with hip fractures because of osteoporosis...Half of the victims never go home again...and 1 in 5 (20%) die from complications within a year. These are alarming statistics.

Estrogen deficiency appears to be the most important cause of this bone loss. You should be aware of the risk factors for developing osteoporosis which include: being female, aging, family history of osteoporosis, inactivity, early menopause or hormone loss, poor diet or diet low in calcium, small/thin frame, abnormal absence of menstrual periods, anorexia nervosa or bulimia, smoking, excessive alcohol or caffeine intake, long periods of immobilization, use of certain medications (steroids, anticonvulsants, excessive thyroid hormones,

certain cancer treatments), and low testosterone levels in men. Although women suffer from osteoporosis to a far greater magnitude than men (5:2 female:male risk ratio), men are still susceptible from suffering from this health concern. Of the five million American men suffering from low bone density, two million already have the disease.

Changes in Posture and Gait:

Do you know a relative that seems to get shorter every year? Well this is not just your perception - this is a reality. We definitely get shorter as we age. You can expect to lose about 10-15cm in height as you age. There are thousands of women with compression and wedge fractures of the spine that aren't even aware of it! And with each vertebral fracture, we lose approximately 1 cm in height.

These changes, in combination with weak and tight musculature, lead to the typical Kyphotic posture of an older individual - the hunch back posture. This results in a forward shoulder and head posture. Not very attractive!

And we also change our Gait - our walking and standing posture. We position our feet in a wider stance to give us more stability. We shorten our walking stride to help maintain our balance. We are unable to lift our feet very high. And all our movements become more slow and cautious due to our loss in balance and fear of falling and hurting ourselves. We will start to shuffle forward instead of walk. Add these changes to the fact that we may be taking medication and our visual

acuity may be reduced and you can see why there is an increase in falls as we age. Say good-bye to the spring in your step.

Loss in Functional Ability:

Activities that you do every day such as walking, climbing stairs, household chores, rising from chairs, carrying bags, shopping, and taking public transport become maximal efforts and exhausting and fatiguing movements. One study found that 76-year-old subjects couldn't negotiate a 50cm step. Imagine not even being able to climb stairs by yourself. Twenty-eight percent of males and sixty-six percent of females over the age of 74 couldn't even lift 10 pounds. Imagine how this affects your ability to carry your own groceries or lift your grandkids.

The loss in muscle mass negatively affects your balance so that older adults have a strong fear of falling. The statistics demonstrate one in three adults over the age of 65 will fall at least once a year. Twenty percent of persons 75 years or older require medical treatment due to falls and over 50% of those hospitalized from a fall will die within one year of the fall due to secondary complications.

Connective Tissue:

As we get older, we will experience a general loss of water. Approximately 60% of our body weight is water so you can imagine that as we start to lose water mass, our tissues are not going to function optimally.

Our connective tissue will also start to become more rigid and inflexible resulting in postural changes, increases in the chances of developing back and shoulder pain and other injuries.

General Aches and Pains:

We will experience degenerative changes in joint cartilage causing more nagging aches and pains. Various forms of arthritis are the number-one source of pain and disability in the United States. The term "arthritis" covers more than 120 related rheumatic diseases including osteoarthritis, rheumatoid arthritis, fibromyalgia, bursitis, tendinitis and carpal tunnel syndrome. All of these cause pain and limited movement in the joints and related tissues. Bones, cartilage, synovial membranes, bursae, muscles, tendons or ligaments can all be involved. The most common form of arthritis is osteoarthritis, also known as degenerative joint disease, and occurs most commonly at the hips, knees, fingers and vertebral columns. The next most common are rheumatoid arthritis, an autoimmune disease that is one of the most serious and disabling forms of arthritis; and fibromyalgia, a muscular disorder. All forms of arthritis will limit someone's level of activity because of fatigue, pain and the fear of pain. These factors ultimately will reduce the ability to walk, bathe, dress and perform other household chores.

We will also notice that our ability to bounce back after an injury is reduced.

Remember when you were young and you could recover from an injury in no

time. But now as we age, injuries will result more easily and will be more difficult to treat.

Gastrointestinal Tract:

There will be a decrease in digestive secretions in the mouth, stomach, pancreas, and intestines which can reduce the ability of the mouth and the GI tract to effectively digest and use carbohydrates, proteins, fats, vitamins and minerals. This will make it more difficult for us to obtain the nutrients we need to stay healthy.

We also know that as someone ages, they may begin taking multiple medications, which can negatively affect digestion, and decrease appetite. For example, taking aspirin for arthritis can cause gastrointestinal bleeding; and laxatives taken for constipation, if taken in excess, can interfere with absorption of fat-soluble vitamins or increase potassium excretion.

In addition, postural changes and tissue degeneration will result in gastrointestinal disturbances such as bloating, cramping, gas and gastric acid - always embarrassing for anyone.

Hormonal Changes:

As we age there are noticeable changes to our hormonal levels such that a female will experience drops in estrogen levels and males, a drop in testosterone levels. You've probably heard more about these changes occurring to women

and that's because the reduction in testosterone levels is more gradual and not as noticeable in men.

Females will start to notice their hormonal balance is off demonstrated by heavier periods, longer periods, more closely spaced periods or bleeding during intercourse. This is usually a good sign that she is starting to experience the beginning stages of menopause, which usually occurs 8-10 years before her last menstrual cycle. Generally, estrogen levels start to decrease between the ages of 35-40 years with women noticing the symptoms between the ages of 42-47 years. The average age of menopause, defined as a loss of menstrual cycle for 12 months, occurs at around 51 years. During this stage, many women complain of hot flashes, problems sleeping, night sweats, depression, irritability, loss of concentration, weight gain, and changes in fat distribution.

Emotional Changes:

As we age many people, both men and women experience an emotional rollercoaster.

Many people are excited about getting to the age when they'll be free from the kids. They look forward to having the time to travel and involve themselves in various recreational pursuits. Many women enjoy not having to endure the

hassle of monthly periods and others enjoy being able to have sex with their husbands without a concern for getting pregnant.

But then there are the down periods. People start to recognize that their body is not looking and feeling like it used to. They start to question where their 20-year-old body went and are realizing that their body has perhaps seen the last of mini-skirts and bikinis.

While others start to contemplate death and question what's left. Others begin to search frantically for a higher meaning to life and begin to grasp for a stronger, more spiritual foundation.

And then there's the typical midlife crisis many men experience as they begin to age. It's a time for reflection and reassessment and for many, the realization that time is slipping by. This often leads many men to grasp for their youth one more time attempting to achieve this through the new sports car, snappy clothing or playful pursuits.

Many women are stereotyped as becoming more irritable and experiencing severe mood swings as they age. These may be related to sleep deprivation caused by hot flashes and to neurotransmitter changes associated with aging. Or it may be that many women take a stand during this period in their life - they

become more assertive - almost as if to say "I've given so much my whole life to my family and now it's time I stand up for myself. I deserve it!"

Sexual Patterns:

Women experience some physiological changes that affect their sexual patterns. Their vaginal wall thins and dries and their natural lubricant is reduced. This results in painful intercourse. Many women have been found to experience a shorter orgasmic phase making sexual intercourse less enjoyable.

While men seem to have got it made in this regard because they are fertile into their 8th decade, it does take longer for them to achieve an erection. Another positive note though, they can keep their erection longer before ejaculation. But once they do ejaculate, their orgasm is less forceful and their resolution stage is longer - takes them a bit longer to recover before being ready to go again. So for men, there are some positives and some negatives with aging and their sexual behaviours.

Pelvic Floor Dysfunction:

Some of the changes to our pelvic floor functioning can be a real concern for a lot of people. As a woman's estrogen levels drop, she is more likely to experience urinary incontinence – an extreme urgency to go to the bathroom and often not being able to make it. Stress incontinence, another dysfunction, also causes a woman to lose urine when she coughs, laughs, sneezes, jumps, or participates in

high impact classes or activities. This is a result of a pubocoxogeal muscle weakness and women are more affected as they age because they have only one sphinctor muscle in comparison to men who have two.

Changes to Senses:

As we age, we will experience definite changes to our vision, hearing and taste.

Many individuals as they age, complain of a loss of visual acuity affecting their ability to drive, recognize people, read, go to movies, or play cards. Many will experience a sensitivity to glare while others will suffer from glaucoma or cataracts.

As we age, there will be less flexibility inside our ear making background noises more apparent. This results in an individual being unable to distinguish conversation from background noise. This can be very frustrating as many will struggle to try to hear what's being said while others will become very sensitive to loud noise so that loud sounds actually become painful to them.

As we age we will also experience a progressive loss of taste buds. This will often result in a decreased sensitivity to salt and sugar causing many older individuals to increase the salt and sugar contents in their diet in hopes of improving the taste of foods. Often, when food can't be seen or its aroma can't

be enjoyed, food starts to lose its appeal causing some people in their later years to actually start to lose weight due to a lack of appetite.

Changes to skin, hair and teeth:

You don't need any scientific studies to tell us that we will experience changes to our skin, hair and teeth.

Our skin will lose its elasticity and becomes dry and wrinkly. Various types of spots will form on our skin.

It's kind of ironic but as we age, we will start to lose hair where we once had it - on our heads - and grow it where we've never had it before - on our face, in our nose and ears, and on our breasts. The texture of our hair will change becoming more frail and thin and we will begin to lose our natural color turning gray.

Our teeth enamel will thin, become stained and gum disease will become more prevalent. As a result, chewing and swallowing will become more difficult.

Changes to Memory:

Many studies indicate that as we age, we will notice a reduction in memory, such that many people comment that they require more time to process and recall information. It's the typical "where are the keys...the scissors...the checkbook??"

Changes to Sleep Patterns and Energy Levels:

Many people comment that as they age, they have difficulty getting to sleep and experience frequent waking. Many women suffer from disruptions to their sleep due to night sweats and hot flashes as they endure menopause.

Can you believe we're finally done? That was kind of depressing, wasn't it?!

This chapter was here to purposefully make you consider the consequences of living a sedentary lifestyle. I guess it was a bit of a scare tactic. But here's the good news. Most of the age-associated changes we've just discussed can be prevented, reduced in their severity or managed by participating in a regular health and exercise program. If this isn't enough evidence to convince you to start or maintain a fitness program, I don't know what would do it.