From research to action!
Physical activity and exercise in rheumatic diseases

The Swedish Rheumatism Association
The essential exercise

We all honestly know that we need to exercise in order to feel good. It has been shown to be especially important when a person has a rheumatic disease.

The question marks appear here. How much can I as a person with a rheumatic condition train? How intensively? For how long at a time? Is there something that can be immediately dangerous?

The purpose with this text is to give the best possible theoretical foundation for people with some form of rheumatic disease to increase their own custom of exercise and training. The Swedish Rheumatism Association has therefore asked some of the country’s foremost experts in the area to help write what they know about training and exercise for those with a rheumatic disease. The experts are physiotherapists that have many years of experience of the treatment of patients with different rheumatic diseases, and they are also active researchers.

Unfortunately, we cannot account for all 80 rheumatic diagnoses. There is not enough research yet. The introductory chapter by Professor Christina H. Opava describes the state of research and gives tips that should be read by everyone with a rheumatic disease.

Because there are different authors and the knowledge about the diverse diagnoses has come different distances, the various sections appear a little dissimilar. We hope that there can be interesting aspects and tips to think about even if a person has a different diagnosis than that which is described.

A big thanks to all of the participating physical therapists: Helene Alexanderson, Marie Andrè, Carina Boström, Nina Brodin, Kaisa Mannerkorpi, Christina Opava, Britta Strömbeck, Emma Swärdh Sjöquist and Carina Thorstensson and to the companies that contributed to the first edition of this text, namely: Abbott, Roche, Shering-Plough and Wyeth (now Pfizer).

Stockholm September 2011

Anne Carlsson
President of the Swedish Rheumatism Association

Facts

This text was produced the first time in 2008 and has been updated 2011 as physical exercise is good medicine with minimal side effects. About one-third of the illness in Sweden concerns the diseases of the musculoskeletal system where the rheumatic condition dominates. In order to share our knowledge, we have translated this text into English in order to, if possible, reach more people in Europe and the world with the message about physical training for people with rheumatic diseases. Read more on www.reumatikerforbundet.org

References within www.reumatikerforbundet.org might not be totally accurate as we are reconstructing the website. We will try to make it easy for you to find your way all the same.
Health-enhancing physical activity and exercise

This text is directed towards those with rheumatic diseases. It is accordingly about exercise and training for you who have arthritis, osteoarthritis or prolonged widespread pain, for example, fibromyalgia. Further on there are sections on exercise and training for different specific conditions, but a great deal that concerns training is common for everyone and is described in this section.

Pain, stiffness and fatigue often follow along with rheumatic conditions. It is also easy to feel down about the situation, worried about how the disease is going to develop over the long term and how you can make it with everyday living, relationships and work. People often receive suggestions about different treatments from physicians and others within health care. All the more often the suggestions are about exercise and training, which maybe is not what a person wants the most when the body is contrary, energy runs low and mood is at bottom levels. The purpose with this chapter is to describe how exercise and training can contribute to good health with rheumatism so that you can consider how you in particular can and want to be active.

What are physical activity and training?
Physical activity is all of the activities that we do in everyday life and that require more oxygen and muscle power compared to rest. It can thus concern everyday chores, the walk or bike ride to work, playing with the kids or skiing on a beautiful winter day. Health-enhancing physical activity is the physical activity that we do in order to maintain good health in the long term and because we feel generally good from it. Even here it can be about biking, walks and swimming, but it must be performed in such a way that it really gives health benefits. Exercise and training concern activities that we consciously do in order to improve our physical performance. It is planned and structured and is performed in such a way that we become more mobile, stronger and have more stamina. Of course a general feeling of satisfaction and increased well-being also come with training.

Physical activity
Society has during a few decades transformed in such a way that many people spend more and more time sitting. We watch TV, sit in front of the computer, rationalise away household chores and other work at home that before gave a chance for movement and take the car even for travelling shorter distances. Being sedentary has consequently also been given all the more attention as a cause of morbidity and premature death. It even seems as if the time that we spend resting better predicts...
future health than the time we devote to physical activity. Consequently, it concerns seizing all of the occasions to move at home, as well as at work and leisure time. To bake and cook food instead of buying it ready made can be a way to avoid being sedentary. To place the telephone or printer so that you need to get up and move is something like having the remote control for the TV at a little distance. However, it can also be about avoiding escalators and elevators when you have the energy to take the stairs or consciously park a bit away when you are able to walk a stretch to where you are going. Take all of the opportunities for movement and avoid being still! Health-enhancing physical activity (HEPA)

Nowadays, people know that a sedentary lifestyle is harmful to the health. All people are therefore recommended to be physically active. In this way you decrease the risk for so called lifestyle diseases, e.g. obesity, diabetes, high blood pressure, cardiovascular disease, certain forms of cancer, osteoporosis as well as anxiety and depression. With some of the rheumatic diseases, the risk increases for such consequential diseases. Therefore, HEPA is extra important with rheumatism. For you who already have additional diseases beyond your rheumatism, HEPA becomes understandably a way to “kill two birds with one stone” through, e.g. lowering blood pressure, cholesterol and blood sugar values.

In order to receive the good health effects, you should preferably be physically active every day for 30 minutes. Activities should be “moderately intense”. This means that you should perspire easily and become easily out of breath. However, you should not be so strained that you cannot hold a conversation or sing a little song. For you who have difficulty to keep going half an hour at a time, it works to divide up the activities into two or three periods during the day and in that way accumulate your daily dose of HEPA. You can, for example, take a fifteen minute walk in the morning and vacuum for fifteen minutes in the afternoon. The next day you rake leaves for 10 minutes and bike for 20 minutes. It plays less of a role which activities you do. The important thing is that they are moderately intense (=perspire and easily out of breath). According to the latest findings, this moderately intense activities can be exchanged for 20 minutes of cardio three times per week. Also new is that the HEPA should contain strength training two times per week. For the person who has a chronic disease or is over 65 years old, mobility and balance training are additionally recommended when they are needed as well as a plan for physical activity. In Sweden we have ‘physical activity on prescription’, which can be of good help in order to clarify what a person needs to do and how much, how long and how often. Of course different types of activities can be combined so that the number of HEPA occasions per week becomes reasonable. Periodically it can be difficult to keep up with the HEPA, but do not entirely give up then. Remember that it never is too late to begin again and that a little is better than nothing!
**Exercise and training**

Rheumatism can mean that physical performance decreases, i.e. that mobility is limited, strength and endurance in the muscles decline and the aerobic fitness is reduced. This is shown in several scientific studies and even concerns those with comparatively mild and well controlled rheumatism. Because we all normally have a great overcapacity, you may not notice the deterioration before it has gone rather far. When you begin to get out of breath already after ten stairs or feel that the strength in your muscles is not quite enough to get up from a chair, you have already lost a good deal of your capacity. The training then becomes often more complicated and lengthy than if you had exercised your performance regularly.

Rheumatism does not have to mean worsened body functions. There are scientific studies showing that women who have trained regularly since they got rheumatism still have equally good performance ability several years later as those of the same age that do not have a rheumatic disease. Therefore, make sure that you regularly get to undergo testing of your physical performance within company health care, preventive health care or at a physiotherapist. Custom training can then be deployed as soon as the need arises.

**Mobility training**

In periods when the joints are sore and swollen or when it hurts to move to the furthest position, checks and training of the joints' range of motion should be done daily preferably several times per day. You receive the best effect with slow repeated movements where you stop at the furthest point and try to reach a little further without pushing or bending. With troublesome pain conditions your training can need some form of assistance or adjustment, e.g. with pendulum force, shoulder pulley or pool.

**Aerobic exercise**

Aerobic exercise should preferably be done at least three times per week and last at least 20 minutes. Which exercise intensity you should have is decided after a maximum work test or a submaximal (not to complete exhaustion) biking test. A fitness test can also be done on a treadmill or through a walking test, but they give less valid results. If you have a normal body weight, you can also with a rough rule of thumb calculate your maximum heart rate through a simple formula (220-age). The heart rate should later during training be at 60 to 80% of the calculated maximum heart rate. Let us take an example: if you are 50 years old the calculated maximum heart rate is 220 – 50 = 170. During aerobic exercise your heart rate should thus be between 102 (0.6 x 170) and 136 (0.8 x 170).

**Muscle training**

Training of muscle function should be performed at least two times per week. The amount of time depends a little on the purpose of the training and how many muscle groups that are being trained. In a decision about the training load, one proceeds from tests where each individual's maximum performance is measured. In strength training you do fewer repetitions with a larger load on the muscles than with endurance training. The weights in strength training should be so heavy that you have the strength to lift them about ten times, but not more. With lower weights and more repetitions the endurance of the muscles is trained instead.

The guidelines for training that have been described above are general and concern everyone, healthy and ill. When there is rheumatism in the picture, it is appropriate though to contact a physiotherapist. This person can test your performance as well as develop and teach a personally designed training programme. Afterwards it is often excellent to continue the training at home or at a gym. It is important to regularly redo the performance tests and change the dosage to keep up with improved performances. Otherwise the training is not effective.

**What does the research say?**

Rheumatism gives a whole array of symptoms and consequences and it lives in many ways its own life. Symptoms and physical challenges can make it hard to find appropriate forms of training and exercise. Periods of deterioration and improvement that are alternating without you really understanding the reason for it can complicate training because you cannot always follow the laid out schedule. It is also easy to believe that a deterioration that arises at the same time that you have begun or expanded exercise could have been caused by it.

There are today many scientific studies that show that exercise and training have positive effects on rheumatism. Aerobic capacity and strength increase, activities of daily live improve as well as quality of life. Often pain also decreases partly because the body's own pain relief system is activated by muscle work and increase endorphin levels. There are no scientific studies that point to that moderately intensive exercise or training in any way would have a harmful effect on rheumatism neither long term nor short term. Neither with high intensity exercise are there any risks for most of those with arthritis or osteoarthritis. However, for those where the rheumatism already earlier has caused injuries in large joints there can be a certain risk that these are worsened if you exercise at a high intensity with large loads on the joints.

This of course does not mean that all people with rheumatic diseases can exercise in whatever way. First and foremost you should have the all clear sign from your physician. Rheumatism can give complications in the form of cardiovascular or other diseases requiring that exercise and training should be performed in a special way and with a special monitoring. This is relatively uncommon though. More common, however, is that the activities give passing symptoms in the form of increased pain in the beginning especially if you are not used to it. This is closest to be regarded like sore muscles and
decreases when you become more fit. In order to avoid this, it is good to begin with a very low amount of stress on the body, short exercise periods and a lot of time for recovery between exercise and training occasions. To stretch after training is good as well. It is also important to continually increase the exercise intensity and load so that you do not remain on such a low level that there is no benefit. Therefore, see a physiotherapist if it is difficult to make it on your own. The physiotherapist can also give advice on appropriate shoes and other aids for exercise and training, as well as supplement with other treatments in order to facilitate exercise and training.

About getting to it – or maybe not ...
In order to go from words to action and begin to exercise and train, it is not enough to know the advantages. It means to also have it as a part of your life and your everyday routine. How you succeed with it has really very little to do with how difficult your disease is; everyone can exercise in his or her own way. The basics are to exercise one half hour per day at a moderately intense level. Everyone, healthy, sick, old and young, needs to do that. You get improvement in aerobic capacity if your walking speed is increased at two to three occasions during the week or if you switch the walks with fast biking or another more demanding activity, e.g. dance or training at the gym a couple of times per week. Aerobic exercise also includes a great deal of endurance training for the muscles, while strength training demands more. Think accordingly about what you want to prioritise and try not to grab too much at once. Let each thing take its time! You have the easiest to get going if you already earlier in life devoted yourself to sports and exercise. You probably like to move and it fits in your lifestyle and that of those around you. It is more difficult for you who want to, but do not know how or for you who simply do not want to. For you who do not want to but tell yourself that you make it fine without exercise and training, it is about thinking again and maybe thinking a little further than what feels best right now. To be physically active is to make an investment in your future health. For you who do not know how, there is a lot of help to receive within, for example, health care, sports or preventive health care. For those with rheumatic diseases, it is of course your own association with its local branches that is an important resource. Here there is a community that can be supportive in order for you to get going and enjoy physical activity. There is also often a well-educated leader here and access to premises for the purpose. It is important though that you feel where the boundaries of your own ability are and do not get carried away in the competition of who has the strength to do the most.

Whether you are physically active individually or in a group, you can with a few simple measures help yourself through making a concrete plan for it. You simply prepare a type of contract with yourself where you write how, where and when you will be physically active. A physical activity log where you compare the plan with the activities that you really performed can be of great help. It is also about thinking what could prevent the plan from being realised. However, do not satisfy yourself with that, but think in advance how the problem in that case should be solved so that the exercise can be implemented even if obstacles arise or if you have lost your desire for a period. Also get help from family and friends who can be great training partners or cheerleaders.

Finally
• Move as much as possible in your everyday life and avoid being sedentary for long periods!
• Physical activity is more about increasing your well-being and investing in future health than about immediate relief from symptoms.
• Physical performance can be severely impaired without it being noticed in everyday life. Through regular testing one or two times per year it can be detected in time.
• Accurately dosed exercise and training gives the best effect on physical performance ability.
• If you feel insecure, contact a physician to get the all clear sign for training and the physiotherapist to test performance ability and receive a personally designed training programme.
• Get started slowly if you are not used to it. Do not give up during difficult periods.
• Remember that a little exercise and training is always better than none at all.

More reading
Ankylosing spondylitis - AS
(Bechterew’s disease)

Nina Brodin, registered physiotherapist, PhD
Karolinska Institute, Department of Neurobiology,
Care Sciences and Society, Division of Physiotherapy,
Stockholm, Sweden
E-mail: nina.brodin@ki.se
Treatment in ankylosing spondylitis (AS, Bechterew’s disease) is based on the cornerstones of patient education, physiotherapy including exercise, medication and surgery. Today, a large number of different alternatives are available regarding medication. There is agreement that the best treatment results are reached through an individually adapted combination of all the different treatment options.

Patient education has the purpose to give every patient the knowledge and tools to handle his or her own situation in the best possible way. It often includes basic information on the disease and its consequences, how a person himself or herself should navigate forward through the health care system and a wide range of practical tips. Physiotherapy has always been considered important for this group of patients. The foremost purpose of physiotherapy is: to maintain or increase flexibility and strength, to maintain an upright posture, and to decrease pain and improve function and quality of life.

Exercise is one of the most important parts of physiotherapy and self-care. The purpose of exercise is the same as for the individual physiotherapy. It should be performed regularly and have both general and disease specific ingredients. It is just as important with daily flexibility training as with aerobic- and strength training a couple of times per week. Exercise does not only decrease the consequences of the rheumatic disease, but it also considerably reduces the risks of lifestyle related illness, such as cardiovascular diseases, type 2 diabetes, stroke and osteoporosis. Besides, this part of the treatment can mostly be performed on your own.

To be physically active and exercise with ankylosing spondylitis

Regular exercise tailored towards the individual impact of AS gives the best results. Motivating yourself for daily exercise can be easier when you find the type of exercise that you feel is fun and inspiring.

If you feel that you need help getting started, a physiotherapist can help to design and initiate a specific exercise programme. Generally, no types of exercise are forbidden as long as you listen to your body and be aware of how it reacts to different types of exercise. There is a wide selection of exercise to choose from which makes it more likely for you to find a type that you actually like! It is important that you include the following three components in your exercise in order to obtain the largest effects.

- The purpose of flexibility training is to maintain or increase the ability to move. Through flexibility training stooped posture and stiffness in the pelvic- and hip region are counteracted and limitations in the activities of daily life are opposed. Usually, individuals with AS are recommended to implement a simple flexibility training

![Foto: Magnus Fröderberg](image1)

![Foto: Magnus Fröderberg](image2)
programme at least once per day, for example in the morning.

– The role of strength training is to improve muscular function in order to maintain or improve posture as the ultimate aim. Varied exercises are recommended in order to reach the maximal effect. Exercise with small load and many repetitions can be recommended, but also exercise with higher load and fewer repetitions.

– Aerobic exercise has the purpose to increase the individual aerobic fitness I, often experienced as increased endurance, "energy", in everyday life. In aerobic exercise the thoracic function is drilled, stiffness is counteracted and deep breathing can feel easier.

What kind of exercise should one engage in?
From a scientific viewpoint, we cannot yet distinguish the most effective type of exercise, but there is evidence that many different types of training have good effects on the symptoms related to the inflammatory disease.

It is recently shown that a period of team rehabilitation gives good effects on aerobic capacity and quality of life, and also that these effects remain during a long period after the treatment. We also know that home exercises based on flexibility training has better results than no exercise at all when it comes to mobility of the spine. Group exercise is better than home exercise in decreasing pain and stiffness, increasing mobility and improving well-being. The effect on pain and stiffness can be even larger if the group exercise is initiated through an intensive exercise period of a couple of weeks.

The purpose of exercise can also be to improve general health. The recommendations of 30 minutes of moderately intensive physical activity on most days of the week (with the purpose of decreasing the risks of cardiovascular diseases and maintaining good health) that until now have been directed towards the general population are now expanded to people with chronic disease, thus even people with AS.

Your disease specific exercise is preferably combined with more general physical activities, e.g. through water exercise or group exercise twice a week and brisk walks three times per week. Consult your physiotherapist if you want advice on how you set up an exercise programme designed just for you. Of course it is optional for each individual to choose the type of exercise that he or she finds enjoyable and stimulating as most importantly, the exercise needs to be a daily element in life. The following is a short review of common types of exercise appropriate to individuals with AS.

Home exercise/Ball exercise/Flexibility exercise
One of the most important parts of the exercise is that which focuses on maintaining or increasing the mobility of the back, hips and shoulders all in order to maintain as good posture as possible. Flexibility training is recommended at least once per day on a bed, gymnastics mat or sitting on a chair working with your own body as the only medium. In these exercises you should aim at reaching as far as you can to maintain as much range-of-motion as possible. Some examples are lifting the back up while lying on the stomach, sitting on a chair stretching back over the back support and lying on the side with bent legs, rotating with the arm towards the opposite side. Another component necessary to maintain a good posture is stretching. It is particularly important that you stretch out the large muscle groups on the back side of the thighs, the hip flexor muscle on the front side of the hip and the pectorals. Those who have exercised in a gym or at a physiotherapy clinic surely have seen the big rubber balls that can be used for flexibility training, but also in order to strengthen the muscles needed to maintain a good posture. These types of exercise splendidly suites individuals with AS. Also, most of the above described exercises are easy to perform at home or at work.

Walking/Nordic walking
Walking is cheap, safe and something that you can engage in no matter what age or disease status you are in. You only need a pair of good and stable shoes. You retrieve even better effects from walking if you use walking sticks. The extra
load primarily from rotation of the upper body added by the walking sticks is excellent for the individual with AS. Another positive aspect is that you can freely adapt the load by altering the speed you walk in and the surface; from slowly on flat ground to quickly in rough terrain.

**Water gymnastics/Swimming**

Exercise in water facilitates fully extended movement; it relieves the joints and if tempered, immediately reduces pain. Water gymnastics tailored towards AS is quite common within health care, but also within the direction of The Swedish Rheumatism Association. Regular swimming is also an option for many patients. Breast stroke, freestyle or back stroke all give good effects. Choose the technique that you master considering your range-of-motion in the neck, technique or your other disease status.

**Strength training/Gym training**

Strength training in machines or with weights can be individualised with the help of a physiotherapist or another profession with competence in exercise. The emphasis of this type of training is often on exercises that strengthen the postural muscles and increase the rotation or extension of the back. Some elements that provide a positive effect on spinal movement and its strength are, for example, a rowing machine, a turning torso machine or a vertical traction machine.

To combine training in machines (with predetermined range-of-motion paths) and training with weights, elastic bands or by the load of your own body usually gives the best effect. In AS also most racket sports are good since they often focus on stretching and rotating the upper body and at the same time giving good aerobic exercise. If you like, for instance, to play golf it is also very good flexibility training, but golf needs to be supplemented with an activity more focused on aerobic capacity in order for the individual to get the best effect. In all types of exercise it is important that you after the programme stretch the muscles that have been activated. Especially important muscle groups to stretch are pectoral muscles, hip flexor muscles and the back side of the thigh. Ask your physiotherapist or gym instructor to show you how to proceed to adapt the stretching exercises tailored to your body and your conditions.

**General advice and practical tips from the physiotherapist**

Always start exercising in a slow pace, no matter in what type you intend to engage. It is far more beneficial to carefully start up the exercise during a couple of weeks than tearing away and later being forced to discontinue on account of soreness or overexertion. If you have had cortisone treatment for a long time or have it right now and primarily at high doses, always seek advice from your physician and/or physiotherapist before you start exercising.

If you have just had a cortisone injection in a joint, you should rest the next few days and you should avoid heavy exercise during the following week. You can begin lighter exercise and range-of-motion exercise though already after the first day. If you had an injection in a muscle attachment or around tendons, however, you should avoid heavy exercise for a longer period than a week. If you feel any uncertainty, contact your physician or physiotherapist. You who have recently gone through a joint replacement surgery or have a joint replacement in your hip, knee or shoulder should also of course be physically active. You should nevertheless ask your physiotherapist for special instructions of how to adapt your exercise. Certain adjustments of some exercises can be needed.

Osteoporosis, i.e. brittle-bone disease, is relatively common in those with a rheumatic disease. To strengthen your skeleton, it is not recommended to exercise in water only, but to combine that type of exercise with weight bearing exercises like walks, strength training and aerobics. Your physiotherapist can help you find appropriate exercises.

---

**More reading**

- [www.reumatikerforbundet.org](http://www.reumatikerforbundet.org)
- Dagfinrud H, Hagen KB, Kvien TK. Physiotherapy interventions for ankylosing spondylitis. Cochrane Database Syst rev; 2008:23. CD002822
- Westby MD. A health professional’s guide to exercise prescription for people with arthritis: a review of aerobic fitness activities. Arthritis and Rheumatism 2001;45:501-11
Osteoarthritis (OA)

Evidence – what does the evidence say and what we actually do not know

Osteoarthritis (OA) is the most common rheumatic disease. Treatment is mainly symptomatic since there is still no cure available. Exercise is recommended as a first line treatment in national as well as international guidelines and has as good effect on pain as medication. In order to achieve the result, exercise need to be performed for at least six weeks. Just as the effect of medicines disappears as soon as you stop taking it, so too does the effect of exercise disappear when you stop exercising. To achieve a lasting effect from exercise, it must therefore be performed more or less continually. Exercise, however, has several positive "side effects", unlike medicines which often result in unpleasant side effects.

Exercise should be introduced as early as possible during the course of the disease to have the best effect. In more difficult cases of osteoarthritis with deformities, impaired mobility and severe pain, the results are more varied and individual. Some can still reach significant improvement while others become worse from exercise (see even the introductory chapter). Most research on osteoarthritis and exercise has been performed on patients with hip and knee osteoarthritis. The knowledge about effects from exercise on other joints like fingers, spine and ankles is very limited. The risk factors of osteoarthritis could be partially different for different joints, but there is no reason to believe that exercise affects the joints differently in the back or hands compared to the knees. Osteoarthritis can cause deformities, most commonly seen in knees and fingers. People with knee osteoarthritis are often more or less bow-legged or sometimes knock-kneed, while hand osteoarthritis cause knuckles or crooked finger joints. If you see or feel that your joints are crooked, try to keep them in a "neutral" position during movements and activity in order to not put stress on the articular cartilage where it is already weak. You can do this through, for example, using orthotics or by striving for good posture and good alignment of the joints.

It is important to learn how to separate muscle pain caused by exercise (sore muscles) and pain from osteoarthritis. Sore muscles are entirely normal when you start exercising, or if you perform activities that you are not used to. The pain is caused by muscle fibres having strained over their capacity. They react to the effort through building themselves up in order to withstand greater strain in future. Sore muscles are thus not dangerous, and will disappear within a few days. This kind of pain is most often not felt during exercise or activity in the first place, but can be quite intense after one or two days, especially when you perform movements that are similar to those from which you got the sore muscles. If you have sore muscles, you can help the muscle restore and build up itself by increasing the blood flow in the muscle. The easiest way is by being physically active with something else. If you, for example, got sore muscles from walking down a flight of stairs, you may very well walk on flat ground. Your muscles get a good workout without too much strain. To continue with the same exercise over and over again despite sore muscles increase the risk of injury and prolong the healing process.

Strength training and cardiovascular exercises have shown similar effects on pain and function. Exercises supervised by a physical therapist is somewhat more effective than home exercises. An appointment booked for exercise simply increases the likelihood that exercise occurs. Group exercises seem to be somewhat better than exercising alone, but the most important thing is to make the exercise happen. Therefore, the best thing you can...
do is to choose a form of exercise or activity that you enjoy and that could easily be accommodated into your daily life.

**Myth and reality**

**Myth 1. Pain is a warning signal.**
The cartilage has no pain sensors and no nerves and therefore cannot hurt. Pain during exercise is consequently not a sign of further joint damage, and is nothing to worry about as long as you experience the pain as acceptable. In fact, exercising without pain is probably impossible for a start. Any pain achieved during exercise should disappear within 24 hours, or else you have probably gone too hard. Try to learn to feel the difference between sore muscles and other pain (see above).

If you still have pain 24 hours after training, try a lower intensity next time or a shorter period of time. It is also important to remember that pain in osteoarthritis is fluctuating, and what works well at one time may cause too much pain the next, and vice versa. That is entirely normal. Learn to recognise the response from your joints and body at an early stage, and adjust the dosage, intensity and duration of activity or exercise until you can keep pain at an acceptable level.

**Myth 2. Rest is good**
If you avoid moving around when it hurts, there is a great risk that you lose the mobility and strength needed in your daily life (see even the introductory chapter). The body adapts quickly to any activity, or inactivity, i.e. the less activity that you perform in your everyday life, the less you have the energy for and the less exertion is required for you to experience pain. A good rule is therefore to learn how to handle and interpret pain according to the rule on “acceptable” pain (see Myth 1).

**Myth 3. Pain should be expelled with pain**
To “get back up on the horse” and train against the pain often leads to a gradually increase in pain (see the section on sore muscles and Myth 1 above). Learn how to recognise and interpret your pain.

**Myth 4. Exercise cause further damage to the joint**
There is no evidence that exercise at a moderate intensity has a negative impact on cartilage in osteoarthritis. On the contrary it has been shown in several animal studies and sporadic studies of people that those who exercise at a moderate level have a better quality of cartilage than those who are inactive. Exercise on competitive level, i.e. hard training or exercising almost every day in the week, on tribute to an increased risk of developing osteoarthritis. One explanatory factor is that injuries are more commonly occurring in competitive sports and joint injury is a known risk factor of osteoarthritis.

**Myth 5. Creaking noise in my joints is caused by an increase of cartilage**
The fact that it creaks is not dangerous and most often does not hurt. The reason could be that the amount and the quality of the synovial fluid is not as good as it should be. It can also be because the articular cartilage has become “fringelike” and rough like sandpaper instead of smooth like a newly waxed floor. When the joint surfaces then glide against each other it can crunch and creak. In severe cases of osteoarthritis where there is not any joint cartilage at all on the joint surfaces, a muffled sound can arise when bone is conducted against bone instead of cartilage against cartilage.

**Myth 6. The joints deteriorate more and more until they are entirely worn out**
There is a large variety of reasons why a person can get osteoarthritis, and the disease also looks different for various people. The disease goes in phases or relapses, i.e. that a period of more pain and symptoms is followed by a period with less or no troubles at all. These relapses can be of different lengths and of varying severities. In some the disease stops completely, and the troubles can even disappear. It is hard to tell the individual prognosis in advance. Osteoarthritis worsens faster in the obese and those who have weak muscles.

**Hands-on recommendations**

**If you have just decided to start exercising:**
The first step is to strive towards getting in to your 30 minutes of physical activity per day (see the introductory chapter). Start gently, and then gradually increase the intensity and time of activity if it feels good. Remember it is not dangerous if it hurts as long as the pain is acceptable. Sometimes it can be good to take pain killers (e.g. Panodil) before you exercise in order to avoid the peak of the pain and make exercise possible.

Walking is good exercise. Invest in a pair of stable shoes with shock absorbing soles.

Biking can feel relieving for the hips and knees if you still have relatively good range of motion. Avoid steep or long slopes. If going uphill feels tough, climb off of the bike and walk up.

If you have access to a pool, then water based exercises can be a good alternative if you have pain during weight bearing.

**If you are active already:**
Strive after maintaining your level of activity with
a moderate intensity at least 30 minutes per day.

Then add a few minutes of specific exercises for your osteoarthritis. To further remedy the pain, weakness or stiffness, choose one or two exercises to improve a function that you need in your daily life (It can be good to discuss appropriate exercises with a physical therapist in order to ensure best possible benefit). Good specific exercises can be for example to rise and sit down on a chair, to step up/down a stair or to fasten buttons. For some who have difficulty in stretching out the hip joint lying flat and prone for a while can be really good exercise.

Find out the best suitable time point during the day to perform this/these exercises. Ten to fifteen repetitions, or about 5 minutes, once every day is enough. The exercise should be performed with GOOD control and quality. In order for you to not risk hurting yourself and also get the best possible benefit from your efforts, it is best to be rested and to concentrate when you train. If it hurts too much or if the exercise is hard to perform with sustained quality and control, try to find an easier level of the same exercise, for example to rise from a higher chair. Daily exercise, only a few minutes, give rapid results, and already after one week you may notice a difference. After 5-6 weeks you have gotten a new, good habit that you (perhaps) miss if you do not do it.

**Adaptation of exercises, and aids to support activity**

The most important thing concerning exercising with osteoarthritis is that you do something that you enjoy. There are many ways to keep your joints going: dance, go out with the dog or bake. The effect of exercise does not last longer than a month. In order for you to gain a more long term benefit it is important to exercise regularly, and to do that you need to find a form of exercise that you think is fun. Again, the best exercise is the one that is done!

Exercise for a short time with 100% concentration and muscle control rather than a longer time where you do not have the energy to keep your concentration. Through thinking about what you do and how you perform a movement you can further improve the effect of exercise since you also activate the corresponding motor areas of the brain. Choose the intensity and the degree of difficulty so that you are able to perform the movement really slow without losing muscle control. If you, for example, are going to sit down and rise from a chair, you should be able to use your thigh muscles all the way down to stop you from dropping the last bit down towards the seat of the chair. If you drop down you have no effect.
from the last part of the movement, and you strain your joints and muscles unnecessarily when you rise. Through choosing a higher chair or perhaps even a table, you can perform your exercise with full control and consequently with full benefit. Gradually as you become stronger after one or several weeks, you can try again with the more difficult level or intensity. This concerns not only when you are going to rise and sit down, but in all exercises. By using this principle in other contexts in daily life, you can spontaneously exercise several times per day.

Choose one exercise that gets done rather than having a long programme in the drawer that only becomes a bad conscience. Five minutes per day, every day of the week for several weeks gives better results than exercising 45 minutes twice and never again.

Flat arches of your feet can cause pain in knee as well as in the base of the big toe during standing and walking due to an altered joint load. An insole supporting the arch can off load both the big toe and the knee joint. Insoles should be used in stable, supportive shoes and not just when you exercise but also during other weight bearing activities in daily life. Ready-made insoles are available for purchase in shoe stores or sports stores. If you have certain demands, orthopaedic engineers can manufacture insoles, adapted to your feet. Wearing insoles often feels odd over the first few days before the foot has adjusted to the new position. By using insoles for a few at a time in the beginning your feet will gradually get used to the corrected weight bearing position.

Pain from the hip or knee can be relieved by a cane in the opposite hand. Walking aids are often associated with old age or handicap, and therefore not used, at least until they have been tried. People who have tried can often verify that life becomes easier with walking aids. It is about the same as beginning to use eyeglasses. Walking aids allows you to walk and move about in a normal way without limping. If you start limping as a result of pain or stiffness, it puts greater stress on muscles and nearby joints which might cause pain at new sites.

If you feel unstable or uncertain during outdoor walking, a pair of poles can make you feel more secure. Walking with poles makes you use your upper body more actively, leading to a better effect from walking on aerobic capacity.
To become more aware of the alignment and positioning of the knee joint while exercising, using a sleeve can sometimes be helpful. There are different types of knee sleeves, with and without braces and hinges. In order to get knee support that suits you, you should contact a physical therapist. Sometimes consciousness about your movement pattern and the hip-knee-ankle alignment during knee bending is enough to adjust and optimize joint load. No matter which way you prefer, your knees should point over your toes when you bend your knees.

Braces and sleeves are also available for fingers, wrists and ankles. A physical therapist can help you find the kind of brace that suits you and your needs best. Remember that aids are used to enable you to do what you want with less pain or discomfort.

Osteoarthritis schools
Based on current evidence and treatment guidelines for osteoarthritis, we have developed an evidence based osteoarthritis management course for patients with osteoarthritis in hip, knee or hand. We call it “osteoarthritis school”. In an osteoarthritis school you get information about what osteoarthritis is, known risk factors and what you can do in order to feel better. Osteoarthritis schools are often led by a physical therapist and/or an occupational therapist in primary care. We have educated physical therapists all over Sweden to be able to deliver and evaluate this osteoarthritis school in a standardized way. We also involve osteoarthritis communicators, i.e. patients with osteoarthritis who has specific training to talk about the lived experience of osteoarthritis. The can tell how they manage through every day life despite joint problems. They can also give tips and tricks and talk about how exercise has helped them.

We have also developed a National Quality register, to be able to collect all patient reported outcomes before and after this osteoarthritis school. By analysing these outcomes we can learn more about who gets better and who does not, and also reasons for this. By using this information we are able to further improve the management and care for patients with osteoarthritis.

In order to find out more about osteoarthritis schools please see www.boaregistret.se.

References
Would you like to read more about osteoarthritis and training? You can find more information here:

- http://www.arthritis-care.org.uk/Home
- http://guidance.nice.org.uk/CG59
- Basic treatment of osteoarthritis, can also be ordered from The Swedish Rheumatism Association on www.reumatikerforbundet.org
- Hope for osteoarthritis of the knee, an instruction-dvd with four exercises that can be followed at home with differing degrees of difficulty and intensity and information for you who have osteoarthritis of the knee. Can be ordered from The Swedish Rheumatism Association (price 75 SEK). The exercises can also be downloaded as simple drawings from www.reumatikerforbundet.org/files/ovningar_till_filmen.pdf
Juvenile idiopathic arthritis - JIA

Common symptoms of juvenile idiopathic arthritis are pain and stiffness in the joints and muscles which affect the conditions for movement. Movement is a central concept for the growing child and has different dimensions in varying phases of life, e.g. in gross motor development, motor games and sports activities, and early in life shaping behaviour/attitudes towards movement and physical activity.

Evidence for exercise with juvenile idiopathic arthritis
Studies have shown that children/youth with juvenile idiopathic arthritis have reduced fitness and muscle strength compared with healthy children/youth. International guidelines therefore recommend 30 minutes of intensive physical activity three times per week and strength training three times per week. The most important knowledge that the research has shown is that physical activity does not in any way increase the degree of disease activity, but instead studies have demonstrated that pain and tiredness have decreased with exercise.

This knowledge to "secure" exercise has been extremely important when earlier people had a very careful approach to physical activity for those with juvenile idiopathic arthritis. The following is scientific research as well as clinically proven experience that show the same results.

Recommendations for exercise with juvenile idiopathic arthritis
Today we know the value of physical activity for children as well as adults and the good effects on health that are achieved. We also know that for some children/adults the symptoms of juvenile idiopathic arthritis mean an obstacle in finding and carrying out appropriate forms of physical activity. Therefore, early information and support is important.

Preschool children
There is a peak for the onset of juvenile idiopathic arthritis for children in the ages of zero to four years, a time where much of the gross motor development occurs. The following is necessary information and instructions for parents. You help the small child to "warm up" in the morning in order to decrease the consequences of morning stiffness. It can be "morning-play" in the bed combined with exercises where you create movement in the joints before the child begins to put weight on his body. It can be a warm bath with movement games in the bathtub or beginning the day by kicking forward a little car in order to warm up in that way. Children should participate in movement games at day care or preschool, and there is no ban against any activities. Instead, it is about seeing the possibilities and varying activities. It is good to participate in forest walks, walk on uneven ground and climb on slides.

Many preschool children continue to move, but do it in another way, e.g. averting pain, and in that way are their own "coach" and maintain their joy in movement. If the child instead chooses to avoid activity and just wants to sit still, you should try to attract movement the best moments of the day often in the middle of the day. We even instruct parents to help children to try to regain movement in, for example, a knee or foot after inflammation, and that mobility training can occur advantageously when the child is looking at children's TV or alternatively sitting on a parent's knee and reading a book.

School children
Children/youth with juvenile idiopathic arthritis should participate in school athletics. It is a right to have access to scheduled physical activity, and the gym teacher should be well informed of the child's situation. If the child participates in two
gym lessons and has a physical activity one time per week, then the guidelines for physical activity are fulfilled. It is preferable most often that the gym class is not during the first class period because of morning stiffness. A long warm up also facilitates participation in gym classes as well as other sports activities. When the disease is more intense, it is more difficult to participate in explosive activities and jogging can be preferable to a 60-metre race. Material like, for example, softer balls can facilitate participation in ball games. Strength training can be performed in many different ways and it concerns not skipping activities, but instead being measured and varying them. Good instructions from the physical therapist to the child and at certain occasions the gym teacher/sports coach even creates better conditions for the best participation.

A tendency can be seen that spontaneous physical activity is decreasing in teenagers. Social presence is not built anymore on motor games, but demand on performance within sports increases the exclusion and setting grades in gym can sometimes increase the stress. Great support is needed for continued physical activity from physical therapists, parents and teachers. Competitive training can be replaced with alternative training, e.g. dance, aerobics, adapted strength training at the gym. Studies have shown that children/youth with juvenile idiopathic arthritis want to participate in their everyday social life, and it is therefore important to find training opportunities within "healthy activity" and only at special occasions within "physical therapy".

**Effects and adaptation of exercise**

Studies within juvenile idiopathic arthritis have not been able to demonstrate strong evidence of the good effects of exercise. One reason can be that studies are carried out at a clinic, and in order to receive an effect from, for example, cardio the training should be implemented two to three times per week. It has been difficult to get participants in studies to come so frequently to the training. Our proven experience is therefore to implement the exercise in the child’s/youth’s social life. Find the activities that entertain them in order to get the best possible participation. Identify any difficulties that arise with exercise, and find alternatives to these. There is nothing that speaks for children/youth with juvenile idiopathic arthritis not having received an effect from cardio or alternatively muscle training. Instead, it is about the frequency and intensity of the training. With fitness for teenagers it is the same as for adults that they should train at 60 to 80% of the calculated maximal heart rate (220-age), the frequency should be two to three times per week and last for 30 minutes. Spinning, jogging and pool training can be methods to reach this. Strength training can occur through designed training programmes, supervised by a physical therapist or a gym teacher. For the preschool child it can be tips on activities, e.g. jumping on a trampoline, a thick rug, heel raises in order to train the calf muscles, an individually adapted training programme for older children with theraband, strength training, sit ups etc, or an adapted training programme at the gym for our teenagers.

**Read more**

Fibromyalgia (FM/FMS)

Pain and fatigue represent the most common symptoms of fibromyalgia. Many are even troubled by stiffness, sleep difficulties, depression, concentration difficulties and a range of other symptoms. People with fibromyalgia often describe a reduced ability to perform daily activities like standing, climbing stairs, lifting, carrying and working with lifted arms. Activity related pain together with worry and a lack of knowledge on the causes of the pain often lead to lowered activity levels, reduced fitness and reduced muscle function.

Why should people with fibromyalgia train?

Physical training can be aimed at improving physical function and health or to maintain the level of function and preventing the negative consequences of inactivity. Whatever direction that you choose, it is important that the training is planned from the person’s baseline because persons with fibromyalgia have a varying degree of tolerance for training related pain. You can use trial and error on your own, but you can also seek guidance in order to find the right level of training through consulting a physical therapist with competence in rheumatology or pain treatment. Besides improvement in performance ability, people with fibromyalgia experience indirect positive health effects from training like relaxation, positive effect on mood, less pain and greater well-being. Many describe improvements even in other symptoms that they have been troubled by earlier like the need to urinate often, alternately loose and sluggish stools, hypersensitivity to sound, feeling feverish and so on.

Because chronic pain is a major burden on the body, it always results in a burden on many organ systems and leads to physiological stress to which these symptoms are considered to be related. Today there are several studies that show that physical training decreases the effect of stress which in turn improves the general health. It is fine to combine different types of physical activity and training. You can alternate self-training in your own environment with instructor-led training in a group. Training in a group can be advantageous for many since the group can offer the social support that can be needed in order to have the energy to continue with the training. Through listening to each other’s experiences, the group participants can receive tips on new strategies for the self-care of pain and other disease related problems. Whichever type of activity or training

Kaisa Mannerkorpi, PhD, Associate professor in physiotherapy Institute for Medicine/Rheumatology at The Sahlgrenska Academy, University of Gothenburg and Sahlgrenska University Hospital/Physical therapy and Occupational therapy, Gothenburg, Sweden E-mail: kaisa.mannerkorpi@rheuma.gu.se

Foto: Magnus Fröderberg
you choose, it is important that you train regularly for several months in order to reach health effects. All training on the moderate level seems to be able to convey an increased confidence and a more positive view of yourself and your body.

**Training related pain with fibromyalgia**

Training with fibromyalgia should be individually adapted which means that it should be adapted to the individual’s muscle function, oxygen uptake, any joint problems, pain intensity, tolerance for training related pain and objectives for training. The objectives can vary from symptom control to being able to hike in the Alps, but the basic rule is that you should initiate the training at a low level and gradually increase the intensity of the training at the rate that you are able to do it. In order to reach results, it is important that you train regularly and over a long period. In the beginning the amount of training, i.e. the number of hours that you spend on your training, is more important than the training’s intensity. Many people with fibromyalgia have more pain for one to three days after the workout when they have started with a new type of training or increased the intensity of their training. This type of training related pain is not considered to be dangerous, and it usually subsides when the muscles become well adapted to the new form of training or to the increased intensity. Studies show that even the basic pain can decrease in those who train regularly for three to four months.

How well you tolerate training related pain can depend on several things. If the training related pain is a problem for continued training, you should think about if you are training at a level that is too high in relation to your baseline. If you have been inactive for a longer period, you can be weaker than you imagine. Because of muscle weakness you can have overloaded a joint or muscle during training which can have given rise to inflammation in a tendon, ligament or synovial bursa. So called latent (hidden) trigger points in the muscles are not uncommon either in people with fibromyalgia, and they can be activated with strain and excessive load on the body giving rise to increased pain. Even persons with fibromyalgia can have arthritic changes, sunken arches and so on. Musculoskeletal injuries are often treated with specific training which has the purpose to improve the function in the injured joint and muscle. In order to receive help, you should consult a physiotherapist for an examination and individual training programme. At the same time you should discuss your training programme and examine if there are appropriate training alternatives with less load on the body.

The degree of severity of fibromyalgia can vary over time precisely as in other diseases. Even the tolerance for training related pain can also vary over time. Therefore, it is important to know that there are different forms of training and training intensities from which you can choose. There are easy relieving forms of training that can be performed without significantly increasing the pain, e.g. easy training in a temperate pool, and other more demanding forms of training, e.g. aerobic training that require that you challenge the pain somewhat more.

**Walks**

Walks can largely be recommended for everyone and even for people who start at a low level of fitness. Those who have been inactive for a long time are recommended to begin with short 15 minute walks and gradually increase the time to 30 minutes. Walking speed can initially be slow, and gradually increased to a brisk walk. People who cannot do it or do not have the time to train 30 minutes in a row can divide their training into two 15 minute workouts during the day.

**Aerobic exercise**

Walks, Nordic walking, biking, swimming, dance, aerobics and pool training can be performed on an easy or medium intensity level depending on the chosen level of effort. Training on an easy level does not increase the heart rate (pulse), respiratory rate (breathlessness) or body temperature (perspiration) while training at a medium intensity level implies an increased stress on the heart and blood vessels.

Studies have shown that training on an easy level eases the degree of severity of the symptoms and increases well-being, while training at a medium intensity even improves physical capacity.

**Muscle strength and endurance training**

People with FM are most often weaker than healthy individuals. Many people with fibromyalgia find it difficult to go up in muscle strength through training because of training related pain. People with FM should begin to train at a low level, about 40 to 50 % of their maximal capacity. This level of training is considered primarily to increase the endurance of the muscles which means to improve the ability to perform an activity for a long time, for example to go up stairs or work with the arms. When you have trained your endurance well for a while, you can gradually increase the load on the body in order to also affect the components in the muscles that are needed in order to increase the muscle strength. Then you should try to gradually increase the resistance up
to 80% of your maximum capacity. In the past people were warned about strength training in connection to fibromyalgia, but studies in later years have shown that people with fibromyalgia can strength train. Even people over 60 years old can reach improved muscle strength through strength training. In strength training the same rule is valid as in all other training for people with fibromyalgia, namely that you must train a long time before you experience effects because you begin at a lower level that healthy individuals. Measurable effects of strength training have been found after a four to five month training period. Studies have shown that people with fibromyalgia can improve their muscle strength through strength training.

**Pool training**

Pool training is an often used form of treatment for people with rheumatic diseases and pain. The properties of water can be used for a therapeutic purpose because the warmth decreases stiffness and pain, while the buoyancy can be used in order to reach relaxation or relief, for example for a painful knee or hip. The water in itself offers the resistance that is needed in aerobic and endurance training.

You can train from an individual programme or in a group. Training programmes usually contain mobility, endurance and strength training and aerobic exercise as well as sometimes even body consciousness and relaxation training. There are training programmes of varying intensities, and today there are many types of training tools that can be used in order
to increase the resistance in strength training and aerobic exercise or as support in relaxation training. Because training in a temperate pool is often experienced as pleasant, you can in the beginning do a little too much and consequently it is advantageous to begin training in an instructor led group. Training in a temperate pool has been shown to improve physical function and decrease pain, stiffness and depression in people with fibromyalgia.

Relaxation, body consciousness, qigong, tai chi, Feldenkrais, yoga
Pain often leads to muscle tension and contraction of the muscle tissue. This process occurs most often gradually without the individual noticing it. Instead you change your patterns of movement in order to compensate for contractions and weaknesses which in turn can give rise to increased muscle tensions and contractions. Through relaxation and body awareness training, a person can become more conscious of his or her habitual non functioning patterns of movement and learn a more functional pattern.

Body consciousness training is offered most often in the hospital, while many study associations offer similar training in the form of qigong, tai chi and Feldenkrais or yoga. These forms of training have been popular in many groups in society like dancers, actors and others who use the body as a tool in their artistic activity. Body consciousness training has many advantages, e.g. you develop a relationship between body and spirit, a feeling of presence and a more harmonic pattern of movement. There are few studies about these forms of movement for people with fibromyalgia, but it has been show that regular qigong and tai chi lead to positive effects on health even with fibromyalgia.

Stretching
Stretching to the end position of the joints can be used for decreasing the degree of tension and muscle function. People with fibromyalgia are recommended to perform slow stretches under the border of pain for 10 to 15 seconds. Stretching can always be performed when you have pain in the muscles because it can ease pain. You can also add stretching exercises at the end of your regular training programme.

Summary
Knowledge about physical training for people with fibromyalgia has increased significantly over the past decade. In the past it was not believed that people with fibromyalgia could raise their degree of function through training, but today we know that physical training at an adequate level leads to many favourable effects on health. There are, however, two important rules for people with fibromyalgia to remember when they plan their training. The first one is that they are probably somewhat weaker than they have imagined which is why they must start training on a lower level. Secondly, they should train regularly and over a longer time than healthy individuals in order to reach effects. Long term studies show that people with fibromyalgia who continue to train improve their general health and well-being.

Fibromyalgia and chronic pain schools.
The Swedish Rheumatism Association has together with me and other researchers and primary care developed a chronic pain school. It is now being revised and will start again 2012. The association will also offer education for physical therapists and occupational therapists to manage these schools, and will also train qualified fibromyalgia members as patient partners in the schools and as a link to the association and their local activities. The chronic pain school aims to develop self care and coping and specially physical training. We will inform more in www.reumatikerforbundet.org.

Litterature in English
Myositis

Muscle weakness is the most common symptom of polymyositis, dermatomyositis and inclusion body myositis. The lungs can be affected through a change in the lung tissue that can lead to shortness of breath. Despite the fact that most people with polymyositis and dermatomyositis respond to medical treatment with cortisone and immunosuppressive drugs, the vast majority of people develop residual muscle weakness and limitations in activity. The effect of medical treatment is more uncertain in inclusion body myositis. For many years people with myositis have been disadvised from active training from fear that it would exacerbate the muscle inflammation and the illness. However, this view is not scientifically based, but has risen from studies showing that marathon runners have inflammation cells in the muscle tissue and very high serum muscle enzyme values immediately after a race. These changes are normal in such heavy exertion as a marathon and go back within a few days. During the latest decade about 15 studies performed on a small number of individuals were implemented in order to ascertain the effects of different forms of exercise on individuals with myositis.

Is it safe to exercise if you have myositis?
All of the studies that have been carried out have come to the same conclusion that active exercise does not affect the disease negatively. Despite exercise the signs of active muscle inflammation and the serum muscle enzyme values have been unchanged or have decreased. Today there is data that points to that intensive strength training would be able to decrease the disease activity and inflammation in polymyositis and dermatomyositis, as well as in other rheumatic diseases like rheumatoid arthritis. It is nevertheless important that you get started with exercise under the supervision of a physical therapist. If you have just received your diagnosis, had a relapse or have not trained since you obtained the diagnosis, then you should begin at a very low load and intensity, shorter amounts of time and think to vary the muscle groups that you train so that you do not tire out your muscles entirely.

Can muscle function improve by strength or endurance training?
A 15 minute home training programme together with 15 minute walks for 12 weeks can improve your muscular endurance and quality of life if you have polymyositis or dermatomyositis. You can perform this type of programme no matter if you have active muscle inflammation or are in a more stable stage of the disease and the load/intensity can be adapted to your physical capacity. A more intensive strength training programme at around 70 % of your maximum strength can in addition improve muscle strength and ability to perform activities of daily living in stable, low-disease activity polymyositis and dermatomyositis.

A study indicates that creatine supplements together with training are more effective than only training if you have chronic, stable polymyositis and dermatomyositis. Creatine occurs naturally in our muscle tissue and is an important component for the energy cycle of muscles. You can ingest creatine with food like meat and fish. For more information on creatine supplements, ask your rheumatologist.

A relatively new study indicates that individually adapted muscle training that is performed twice daily for 16 weeks can improve muscle strength also in the most affected muscle groups as well as improve ability to walk at a fast pace, walk on steps and stand up from a sitting position in individuals with inclusion body myositis. The other two stu-
studies evaluating muscle training in individuals with inclusion body myositis were not able to show positive effect on more affected muscle groups. However, according to all three studies muscle groups less affected seem to respond better to muscle training and that training is not harmful.

Can fitness be improved by aerobic exercise? People with myositis often have reduced maximal oxygen uptake which means reduced aerobic fitness. The causes of this can be several, like for example, decreased physical activity level or pulmonary fibrosis. There are two studies that show that a 6 week aerobic exercise programme on a bicycle combined with step-up training at 70% of maximal stress on the body improves fitness, muscle strength and ability to perform activities of daily living in chronic, stable polymyositis and dermatomyositis. At the present we do not know how aerobic exercise affects the fitness of people with active polymyositis and dermatomyositis. One study indicates improved fitness after 12 weeks of aerobic exercise in people with inclusion body myositis.

Why is it important to be physically active and exercise when a person has myositis? Besides giving improved muscle function and fitness, regular physical activity can protect against cardiovascular diseases. Physical activity and exercise are likely to even be able to prevent or decrease serious side effects of cortisone like osteoporosis in people with myositis. This has been shown earlier in studies on people with asthma who are medicated with cortisone and in older people. Training can also improve the quality of life with myositis. A few studies argue that training can even lead to decreased disease activity.

Try to find physical activities and forms of exercise that you think are fun and that fit into your daily life. Get in contact with your physical therapist for advice on how you can get started with exercise and how you then should to able to increase the load and intensity of exercise. It can be good to regularly evaluate how your physical capacity has changed which can give motivation for continued training and even increase the safety for you when you exercise. As long as you become stronger, develop better endurance or fitness, you can continue with your exercise. If you go into a relapse, then you might need help to adapt your exercise load and intensity for a period.

Are there any negative aspects of exercise with myositis? Today there are no publications that indicate that any kind of exercise would be able to lead to a relapse with increased disease activity and in such cases where the border for overtraining lies. Because symptoms and degree of muscle weakness and disease activity vary a great deal from individual to individual, it is important to begin training with the guidance of a physical therapist, to start with low intensity / loads and then gradually increase. Further research is required in order to obtain more knowledge on how exercise affects people with myositis in stable phases of the disease as well as with high disease activity, and in order to present more exact guidelines concerning the frequency and intensity of exercise.

More reading
- www.socialstyrelsen.se. Search any of the three specific diagnoses: polymyositis, dermatomyositis or inclusion body myositis.
There are strong reasons for a person with RA to be physically active and exercise. Despite that most of those with RA today receive modern pharmaceutical treatment which dampens the inflammation, a certain amount of pain, fatigue and stiffness often remain – and thus risk of inactivity. With physical inactivity muscle strength and fitness disappear quickly. What can you do yourself in order to increase your quality of life, improve bodily functions, as well as decrease pain and the risk of co morbidity?

Yes, you can be physically active both in your everyday life and through regular training. The human body is built to move. People with RA have just as great a need of this as people without the disease, and physical activity makes you feel good in both body and spirit!

Everyone with RA no matter what degree of illness can and should be physically active. It is really about just finding the type of exercise that is best suited to each person, and to be able to determine yourself which intensity and activity that is appropriate depending on how you feel with the disease. Physical activity and exercise are very important parts of the overall treatment of RA by maintaining and improving bodily functions. There is nothing that points to that exercise at a moderate intensity would be harmful to the vast majority of people with RA. People with RA can perform most types of exercise, but there are some that are especially suitable. However, it is important to try to vary your training, partly because it is more fun and partly so you are more prepared if you for some reason cannot perform any of the types of exercise. It is even important to perform both aerobic fitness and strength training in order to receive the best effect.

Exercise at the gym
Strength training for your muscle function is important not only in order to improve strength and endurance, but also to support the affected joints. Strength training can be done advantageously at the gym with equipment, rubber bands, wrist weights and dumbbells, or with parts of the body as resistance. Even aerobic fitness is important to train in order to improve oxygen uptake ability and reduce the increased risk of consequential diseases. At the gym you can train your aerobic fitness on, for example, a bicycle, a treadmill or a step machine. Most studies of patients with RA have show that aerobic fitness, muscle strength, joint movement, pain, quality of life and activities of daily life are improved through exercising at the gym. The disease activity has not increased either with this type of exercise, but rather the opposite in a portion of the studies. Studies have been carried out in a clinical environment, but the effect can be expected to be the same if you exercise yourself at the gym. It is important to exercise on a sufficient level of intensity and that the load increases in order to have the intended effect. It has been found that women with RA who

Emma Svardh
Sjöquist, registered physiotherapist, MSc
Karolinska Institutet,
Department of Neuroscience, Care Sciences and Society
Division of Physiotherapy, Stockholm, Sweden
E-mail: emma.sjoquist@ki.se
Exercise regularly from the debut of the disease for several years can maintain the same strength and aerobic fitness as women of the same age who have healthy joints.

**Exercise in water**
Exercising in water has long been popular among people with rheumatic diseases and is also an excellent form of exercise that suits most people either if you want to exercise individually or in a group.

Many people who exercise in water experience decreased pain and stiffness in combination with the exercise. The water can then be a good alternative to exercising on land in order to reach the same good exercise results. In the water you can, for instance, perform strength training, aerobic fitness, movement, coordination and stretching. Water can be used as lift power and support for those who are weak and have pain, but can also be used as resistance for movement in strength training. In studies it has been primarily found that activity limitations and aerobic fitness is improved through exercise in water. Individual studies have even shown that muscle strength and quality of life can be improved. In order to get an effect, it is nevertheless important to exercise at a high enough intensity concerning both aerobic fitness and strength. There is starting to be even more deep water exercise, i.e. running with a so-called wet-vest where aerobic fitness is in focus. So far studies are missing on the effect of this type of exercise, but it can still be recommended anyway for people with RA who have difficulty to train with enough intensity on land.

**Biking**
This is an excellent and low priced type of exercise that can be performed individually or in a group, indoors or outdoors. In several studies biking has been shown to be suitable for those with RA who want to increase strength in their legs and improve their aerobic fitness. These studies have, however, used a stationary bicycle indoors, but biking outdoors should give similar effects. The fresh air outside is also a plus. In order to avoid back and neck pain, it is good to bike in as upright a position as possible through, for example, having a high steering. It is additionally important that the seat is positioned at the correct height, i.e. so that your leg is almost stretched out when the pedal is its lowest. Make sure to have a foot brake in order to save your hands.

**Dance and aerobic exercise**
Even if this type of exercise is not as well documented scientifically, people with RA can advantageously participate in dance and aerobic exercise on land. The exercise often needs to be adapted to each individual. The studies that exist on dance inspired aerobics have, however, shown improved walking ability and a better mood.

**Walks and Nordic walking**
Walks are a cheap, simple and safe type of exercise and have in studies been shown to have positive effects on aerobic fitness and mood. They can be implemented individually or in a group, indoors or outdoors. The walks can be done more effectively through walking with poles. Nordic walking relieves the knees, promotes movement in the back, strengthens muscle groups in the upper areas and can give a feeling of better balance. Walking with poles also contributes to an increased length in steps and walking speed which makes it more demanding on the condition than walks without poles. The right length of the poles is if the angle at the elbow is 90 degrees. It is important to hold the wrist stable during Nordic walking in order to not have troubles. Protection for the wrists and maybe an adapted grip on the pole can be a good help.

**Sitting exercises**
Certain people have difficulty in standing or walking, others can think other types of exercise is too difficult, and some think that it is fun with a little easier exercise on their lunch break. Sitting exercises can then be a good alternative in order to stimulate the blood circulation, as well as maintain and improve joint movement, muscle function and coordination. In sitting exercises the body can be used as resistance, but even sticks, balls and other tools can be used.
**Exercise for the foot**

With limber and strong feet, it is easier to move in daily life but even to pursue different forms of physical activity and exercise. Since many people with RA develop troubles in just the foot, exercise for the foot is an important part of self-care in order to maintain and improve the mobility of the foot as well as the foot’s muscle function. The foot is in focus, but the entire leg is often involved in the exercise.

**Exercise for the hand**

The hand is important in a person’s life – and unfortunately a part of the body that is often affected by RA. Exercise for the hand, which in studies has been shown to increase hand strength, decrease pain and maintain function can be performed on your own at home, but there are also groups at some occupational therapist clinics. The purpose of the exercise is primarily to affect the hand’s joint movement, muscle function and blood circulation, but often even contains steps for arms, shoulders and the neck.

**Tai chi/Qi gong**

A few studies point out that these calm types of exercise can also be good for people with RA in order to train balance, movement and knowledge of the body. The advantages are that you can exercise individually and in a group as well as exercise to a certain extent sitting.

**General advice and practical tips from the physiotherapist**

When you begin to exercise, you might experience some increased pain in the beginning, but it is most often “sore muscles” which are not dangerous. The pain should, however, subside after a day or so.

In order to avoid the risk for increased symptoms, the exercise should start very gradually and at somewhat lower intensity than what you can really do in order to later be gradually increased during periods of at least two to three weeks.

The exercise must be adapted the entire time to the fluctuations in the course of the disease through you varying the intensity and load and type of exercises. If you have swelling in your joints in, for example, the elbows but not in the legs, you can advantageously concentrate on leg exercises for one/several weeks.

If you have had cortisone treatment for a long time or are having it right now and primarily in high doses, then contact your physician in connection to that you are starting to exercise.

If you have had a cortisone injection in a joint, then it is recommended to rest the next few days and at have one week’s abstention from heavy exercise. You can, however, to your advantage engage in movement and devote yourself to easy physical activity after the first day. With an injection in the muscle attachment or around tendons, you should avoid heavier strength training for a somewhat longer period than a week.

If you have extensive joint injuries in the big joints primarily in the shoulder and foot, you should be careful with high intensity exercise. In this case speak with your physiotherapist in order to modify your exercise.

In the event that you have gone through a joint replacement surgery, you should be physically active as well as exercise movement and muscle function, but contact a physiotherapist in order to obtain help and advice on how you can modify the exercises.

Many people with a rheumatic disease have osteoporosis to different extents. If you know that you suffer from osteoporosis, speak with a physiotherapist before you begin with a high intensity exercise program. In the case that you only exercise in water, it can be good to supplement that with weight-bearing training in order to strengthen the skeleton and work against the osteoporosis, e.g. at the gym, through walks or aerobics.

**More reading**


http://www.lakartidningen.se/store/artic-lepdf/1/14145/LKT10155970.pdf
Primary Sjögren’s syndrome is characterised by dryness of the eyes and mouth which is caused by reduced function of the tear and salivary glands. Other common symptoms are pain and stiffness. Many patients with primary Sjögren’s syndrome also experience difficulty in performing usual activities in daily life because of reduced function in the joints and muscles. The symptom that is described, however, as the most troublesome, as in several other rheumatic diseases, is extreme fatigue that is chronic and for which it is difficult to find relief. Experience of bad quality of life also comes with the disease. All of this leads to that people are less physically active and as a result with reduced aerobic fitness.

Fatigue
The tiredness that normally arises after physical or mental effort in principle ceases after a person has rested. The fatigue that is experienced with primary Sjögren’s syndrome and several other rheumatic diseases is described as chronic which means that you are just as tired despite that you have rested and that the tiredness is long term. The cause of the chronic fatigue with rheumatic disease is not really known, but scientific literature mentions, for instance, bad sleep, pain, depression and physical inactivity as possible factors.

Physical activity and exercise
The meaning of physical activity and exercise with primary Sjögren’s syndrome is sparsely written about scientifically. It has, however, been shown in one study that fatigue and depression are abated and that physical function and aerobic fitness are improved in women with primary Sjögren’s syndrome who trained Nordic walking regularly for three months. In a follow-up four years later, it was shown that the participants maintained their fitness and that the fatigue showed a tendency towards further improvement.

Treatment – symptom relief
There is unfortunately no cure for primary Sjögren’s syndrome. The purpose of the treatment is to prevent and relieve the disease’s troubles like dryness, pain, depression and fatigue. Consequently, there is reason to in the treatment of primary Sjögren’s syndrome include instruction on daily physical activity and regular aerobic exercise. 30 minutes physical activity per day, i.e. light heart rate raising activities that fit into daily life, decreases the risk of being affected by lifestyle diseases. In order to improve the aerobic fitness, more structured exercise is demanded. The advice that is generally given is exercise 20 to 60 minutes at least 3 times per week on a moderate to high level (you should be really breathless and perspire). It is not dangerous to exercise, but when you have a chronic disease you should consult your physician about what is appropriate in your individual case. A physiotherapist can give custom instructions on suitable activity, starting level, elevation of exercise and appropriate equipment. When the exercise has started, you can continue on your own or in a group together with others. The physiotherapist gives advice on activities in your neighbourhood. Exercise pays, but sometimes it is difficult to get over the start-up problems. It is easier if you choose an activity that you like!

There are thus several important reasons to both be physically active and to exercise when you have primary Sjögren’s syndrome. Lifestyle diseases are prevented, physical function is improved as well as fatigue and depression can be relieved.

To read:
www.reumatikerforbundet.org
www.fyss.se
Systemic lupus erythematosus - SLE

Physical activity and exercise decreases the risk for the so called lifestyle conditions/diseases like obesity, diabetes, high blood pressure, cardiovascular disease, certain forms of cancer, as well as anxiety and depression in the population in general.

Besides the indications for physical activity and exercise that people with SLE share with the population in general, people with SLE have further reasons to be active and train. In SLE reduced physical capacity like, for example, reduced ability to perform maximally on a bicycle test or walking/treadmill test and reduced muscle strength are common. It is also common that oxygen uptake ability and aerobic fitness are reduced. The reduced physical capacity and aerobic fitness together with the increased risk for cardiovascular diseases and osteoporosis in SLE speaks especially for the weight of physical activity and exercise.

SLE can also lead to pain, sleep difficulties, fatigue, worry and depression, as well as reduced health related quality of life, which all can lead to decreased physical activity and exercise. Certain aspects of these consequences should be able to be relieved with help of physical activity and exercise which is described for the population in general. Furthermore, for some people obesity because of long term cortisone treatment can be an additional reason to be physically active and exercise. Physical troubles because of the disease can also lead to increased psychological strain, which is why it is important to reduce the physical consequences through, for instance, physical activity and exercise.

Effects of physical activity and exercise in SLE

The physical activity and exercise that is evaluated scientifically on SLE is limited. Primarily evaluated are the different forms of aerobic exercise with moderate to high intensity for people mainly in a stable phase of their disease and with low to moderate disease activity and none or little organ damage.

The evaluated exercise has been tolerated by people having SLE for over 16 years and has been judged to be safe. The research studies have additionally presented positive effects concerning physical capacity, aerobic fitness and self-rated physical function, health related quality of life, fatigue and/or depression without any reported worsening of the disease. Physical activity and exercise that is led by an educated person can have several advantages compared to self-training.

Strength training and mobility training has been evaluated to a very little extent and muscle endurance training has not been evaluated at all.

In most of the studies where physical activity and exercise in SLE has been evaluated, the disease activity and organ damage has been measured and no increased disease activity or organ damage has been reported.

Not very much is known on how people with high disease activity and/or serious organ damage (severe disease) are affected by physical activity and exercise, which is why caution should be taken into account until we know more. As SLE can express itself in so many ways, there is a need for more scientific studies concerning the effect of physical activity and exercise on different organs and organ systems. There is no study that has completed long term follow-ups longer than one year, which is why we do not know how the disease is affected in the long term by physical activity and exercise. Most studies are performed on women with SLE which is why further studies including men are also needed.

Are there risks with physical activity and exercise with SLE?

That which concerns the population in general regarding when a person should not be physically active and exercise, for example when having an infection, is valid even for people with SLE. As mentioned earlier SLE can express itself in many different ways and for that reason you should talk with your physician about if there are any risks or obstacles in regular physical activity and exercise.

It may mean that the physical activity and exercise should occur in a special way and/or with special supervision of, for instance, a physiotherapist. In cortisone treatment with high doses and/or during long periods, you should not do aerobic exercise at a high intensity or strength training with heavy weights because cortisone, just like extensive inflammation, can decrease the strength of the skeleton and soft tissue. However, physical activity and exercise at a moderate intensity and with low weights are important during cortisone treatment in order to not worsen reduced strength in joints and muscles as well as osteoporosis.

When getting cortisone injections you should talk to your physician about how you should relate to physical activity and exercise in the closest time after the injection. For people who have confirmed osteoporosis, caution should be observed in
physical activity and exercise so that injuries in the musculoskeletal system as well as the breaking of bones does not arise in, for example, a fall.

**Advice from the physiotherapist**

Through regular checks at the physiotherapist one to two times each year, reduced physical capacity and aerobic fitness can be discovered. Because of the disease activity and the degree of severity of the disease, for example with decreased strength in the joints and muscles as well as osteoporosis, people with SLE can need an individually adapted physical activity/exercise programme designed and instructed by a physiotherapist from tests of physical capacity and aerobic fitness. With the presence of hypermobility in a joint, it is especially important to strengthen surrounding muscles in order to obtain a more stable joint. From an adapted programme you can exercise at home, at a gym or in a similar way. The physiotherapist can, if needed, also supplement this with other physiotherapy treatment and/or measures in order to, for instance, reduce pain so as to facilitate being physically active and exercise.

Wrist support, knee protection, good shoes and inserts increase the possibilities to do physical activity and exercise easier. Checks of the activity and exercise at the physiotherapist should in the introductory phase be done regularly, two to three times per month and adjusted as needed. Increase of the dosage, i.e. the intensity, duration, frequency and load, should occur slowly during a two to three week period and preferably in consultation with a physiotherapist. You should additionally evaluate the physical activity and exercise through, for instance, testing your physical capacity and aerobic fitness four to six times per year, in order to change the dosage according to the improvements that occur if the activity and exercise is going to have its full effect. The intensity, duration, frequency and load should in the beginning be lower than that recommended here before. Rest often and have long recovery between workouts and exercise during short periods in the beginning.

Physical activity and exercise with SLE can for some particularly in the beginning give sore muscles, joint troubles and/or fatigue, but it is most often passing. You should then temporarily lower the dosage. If the difficulties persist for a longer time, pool training and swimming can be alternative forms of exercise for a while. With persistent pain/troubles and worse periods of the disease, it can be best to totally refrain from physical activity and exercise until the troubles have decreased and you have gone into a better period of the disease. However, do not give up in difficult periods. Mobility training in the form of engaging in movement in all of your joints should be performed regularly, most often daily, if you have movement restrictions.

Aerobic exercise in a group is a good form of training. Aerobic exercise is comprehensive and most often contains aerobic fitness- and strength training, as well as muscle endurance and mobility training, balance and coordination. Warm-up, cool down and stretching, which is important in all forms of aerobic exercise- and strength training, are most often included. Balance training is important in order to prevent falls and consequently risks for injuries in joints and muscles, due to decreased strength and/or osteoporosis. With the risk for and when having osteoporosis, weight-bearing activities and exercise are especially significant, i.e. exercises where you put weight on the skeleton like standing, walking and jogging. Exercises including loads on the hands like, push-ups, and exercises with high load on the knees like jumping and jogging that is too intensive should be avoided if they cause troubles.
Doing exercises lying down on your stomach can cause troubles and should in that case be avoided. Adapted physical activity and exercise in a group for people with rheumatic diseases or SLE can be an advantage and there physiotherapists and patient organisations like The Swedish Rheumatism Association in cooperation with, for example, health promotion activities can offer a variety of opportunities.

**Motivation for physical activity and exercise in SLE**

For most people with SLE, physical activity and exercise should be seen as a lifelong task which demands a will to be active and train. It can be difficult if a person does not feel physically and/or psychologically well or is afraid to exacerbate his or her disease through physical activity and exercise. Knowledge about the disease, the significance and effect of physical activity and exercise with SLE is therefore an important prerequisite in order to want to be active and train.

Participating in patient education and self help groups can besides increased knowledge lead to that you increase your physical activity. It is not always enough, however, to have the knowledge about the advantages of physical activity and exercise, as it is about making it into a part of your lifestyle as it takes time to be physically active and exercise. Self training is recommended primarily to those people who have on their own, in the past, been physically active and exercised as a part of their lives. Being physically active and exercise together with others and with a coach can increase the opportunity to follow the dosage that is recommended and have the energy to train. To engage partners, friends and others in your physical leisure occupations, can make the physical activity and exercise more fun. A further way to incorporate physical activity and exercise as a part of your life can be to establish a contract with yourself with goals on how, when and where you will be active and train, including your own needs, wishes and possibilities. In this contract you can plan in advance, how obstacles like bad weather, any pain and other troubles in connection with physical activity and exercise should be handled. Pros and cons that are experienced in both the short and long term, with physical activity and exercise with SLE, can be written down. Keeping notes in a training journal can also be a way to increase motivation. The training journal can cover notes concerning what you are active in/training, when, with what intensity, duration, frequency and load as well as positive and negative aspects of the activity/exercise. Regular telephone support, one to four times per month from a coach, preferably a physiotherapist, can increase motivation. The telephone support should consist of motivating conversations around notes in the training journal and follow-up of the contract where goals and how to exercise are revised as needed.

Receiving physical activity given as a prescription by, e.g. a physiotherapist, gives information about how you should exercise and at what dosage which facilitates training. In order to be able to follow the recommended dosage in an easier way, it can in the beginning be good to start with a period of physiotherapist coached and/or instructed activity and exercise. The physiotherapist can then give feedback on how to be active and to exercise, and this can increase confidence in your own ability. Testing out different forms of activities and training can increase the possibility of finding a form that fits into your everyday life. Using, for example, a heart rate monitor and/or an exertion scale increases the possibility of exercise at the right intensity and can also increase the motivation. If the physical activity and exercise bring positive effects, the motivation to continue to be active and train is understandably affected. During physical activity and exercise as self-care, it is especially important to test your physical capacity and aerobic fitness regularly in order to get feedback on if it is improving, discuss how this physical activity and exercise works, as well as adjust the dosage if needed.

**Recommendations on physical activity and exercise with SLE**

Many people with SLE do not reach up to the recommendations for how a person in the population in general should be physically active and exercise in order to receive positive health effects. From the research that is done, the conclusion, however, can be drawn that most adult persons with SLE in a stable phase of their disease with low to moderate disease activity and none or little organ damage should be able to be physically active according to the recommendations on moderate intensity for 30 minutes at least 5 times per week, precisely like the population in general. Physical activity at a moderate intensity increases the heart rate and corresponds to a brisk walk. The same group of people with SLE, according to the above, should be able to pursue aerobic exercise according to the recommendations which are 20 minutes at least 3 times per week at a high intensity. With high intensity is meant that you breathe quickly and have a significantly increased pulse.

That which is evaluated scientifically concerning exercise in SLE is aerobic exercise at a moderate to high intensity (60 to 80% of maximal
heart rate), 20 to 60 minutes, 2 to 3 times per week for 2 to 3 months and up to 1 year. The aerobic exercise can for most persons with SLE lead to improved physical capacity and/or aerobic fitness, self-rated physical function and quality of life, as well as less fatigue and or depression without the disease deteriorating. Walks, bicycling, jogging, swimming, aerobics, pool training and physical activity in the form of more demanding everyday activities like, for example, household work and gardening work have been shown to be suitable. In reference to strength training, too few studies which only have evaluated strength training have been performed in order for it to be able to be said that people with SLE can strength train as recommended for the population in general, i.e. strength training at least two times per week in addition to mobility/balance training when needed. Mobility training in combination with static and dynamic muscle strength exercises for both arms and legs, about 10 exercises about 2 to 3 times per week with increasing weights of 0.5 to 1 kg for 40 minutes, 2 to 3 times per week for up to 7 months, has been shown to be tolerated without worsening the disease, and should be able to be performed by most people with SLE in a stable phase of their disease with low to moderate disease activity and none to little organ damage. The latter is also valid for mobility training alone for 30 to 50 minutes, 3 times per week for 2 months. Strength training longer than 7 months is not evaluated scientifically meaning that we do not know how the disease is affected by longer term strength training. Not much is known about how people with high disease activity and/or serious organ complications (severe disease) are affected by physical activity and exercise which is why caution should be taken into account until we know more.

### Literature references

- Ayán C, Martín V. Systemic lupus erythematosus and exercise. Lupus 2007; 16:5-9
- Boström C, Dupré B, Tengvar P, Jansson E, Opava CH, Lundberg IE. Aerobic capacity correlates to self-assessed physical function but not to overall disease activity or organ damage in women with systemic lupus erythematosus with low-to-moderate disease activity and organ damage. Lupus 2008; 17: 100-4
The Swedish Rheumatism Association
Box 12851 SE 112 98 Stockholm • Telephone 08-505 805 00 • Fax 08-505 805 50
E-mail info@reumatikerforbundet.org • Website www.reumatikerforbundet.org