

Get Moving

Maximizing Your Activity After
a Hip or Knee Replacement



*This booklet has been reviewed by the Canadian Physiotherapy Association (CPA).
The Canadian Orthopaedic Foundation also gratefully acknowledges funding
received from the CPA and NEJAC to assist with printing of this booklet*



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Phone number: _____

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Family physician: _____

Phone number: _____

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The Canadian Orthopaedic Foundation gratefully acknowledges the many people who participated in the creation of this booklet. A special thanks also goes to Suzanne Denis MSc BScPT, Advanced Practice Physiotherapist for her immense contributions and to the Bone and Joint Decade Canada and Sunnybrook Holland Orthopaedic & Arthritic Centre for their support of this initiative.

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Introduction

It's time to get moving.

You've had your hip or knee replacement surgery, and after three months or so you're likely seeing significant reductions in pain and improvements in function. Becoming more active now should be part of your continued return to mobility – and is key to the health of your new joint and your overall health.

What does being "active" mean?

For some people, it's a sport or a fitness class.

For some, it's another form of recreation, from gardening to dancing.

And for still others, it's simply incorporating activity into their daily life, like walking to do errands instead of driving.

There is no single definition. But anyone can achieve the benefits of being active – for your strength, endurance, balance, flexibility, energy, weight, outlook, ability to ward off health problems, and much more.

To be sure, different people face different challenges:

- Getting moving after surgery might be a matter of getting back to an old favourite activity – one that you had set aside due to your joint problems, and that you're itching to take up again. In most cases, yes, you can return to mobility.
- Not everyone has a history of activity. Even before your joint problems, you might never have been overly active, or have had a favourite recreational activity that got you moving. That's normal for many people.
- Or perhaps the pain and reduced mobility brought on by hip or knee problems, over months or years, took their toll on your ability – and desire – to be active. You might no longer feel that motivated. That's normal too.

Getting moving now, several months post-surgery, isn't always easy. Maybe you're worried about the impact on your new joint. Maybe you don't know what you can safely do, or which activities are best. Maybe you don't even know how to start.



That's why we've developed this guide. It offers the information and support that you need to maximize your activity after hip or knee replacement surgery.

After all, the goal of that surgery isn't just to reduce pain; it's to allow you to be active. When you get moving, you'll do wonders for your general well-being.

In this guide, you'll find important advice and ideas about:

- The benefits of activity.
- How to get ready to get moving.
- Overcoming common obstacles.
- Finding activities that work best for you.
- Monitoring your progress.
- Considerations like returning to work and nutrition.

We've also included appendices and links to resources that can help you as you become more active.

Much of the content follows basic principles of how to introduce and increase activity into your life. These are the same principles that would apply even if you didn't have a joint replacement.

Once you go through the guide and talk to your surgeon or physiotherapist, you'll see that you actually have very few restrictions.

People who have had revision surgery – replacing all or part of the original replacement – might need to be extra cautious. You should talk to your surgeon about any additional restrictions, but you too are able to safely become more active.

We realize that even after your surgery, you may have arthritis or discomfort in other joints. You might feel that this limits how active you can be. The reality is that part of improving how you feel and of arthritis management is physical activity. So rather than let your symptoms curb your activity, use activity to reduce your symptoms.

We hope this guide helps and inspires you to return to the activities you used to enjoy, try new ones, or take this opportunity to get moving if you weren't that active before.

Because you and your health are worth it!

Part 1: Benefits of Activity

What is physical activity?

The short answer is anything that gets you moving.

A lot of people define physical activity more narrowly, as something like cycling, skiing, or weight training. That's certainly part of it. But being active is much more.

Think of it like this:

Sports and exercise tend to be more structured and “intense” forms of physical activity (even though they can be practiced at any level). That's one type of activity.

Even people who do not have a sport or form of exercise that interests them might still have a favourite recreational pastime – some other type of recreation, like digging the weeds or dancing the waltz – that makes their body work harder than normal. So that's another type of activity.

Sometimes, being physically active starts with simply getting off the couch, with more “active living”. That means purposely adding activity to your life – walking or biking to the store, taking the stairs instead of the elevator, or walking the dog.

There are all sorts of opportunities to add more activity into your daily or weekly schedule. With time, it just becomes part of your routine.

Why be active?

Being active is one of the most important things you can do to improve and maintain your physical and mental health, and your quality of life.

Just some of the benefits of regular activity are:

- Helps to maintain your weight (that's important for your general health and for the sake of your joints – less weight means less stress on them).
- Improves your balance (important to prevent falls).
- Limits the loss of muscle that happens with aging and inactivity.
- Strengthens your heart, lungs, and circulatory system.
- Improves your endurance.
- Increases the life of your joint replacement.
- Strengthens your muscles and joints, and keeps your joints flexible.
- Improves energy levels.



- Improves your posture.
- Improves quality of sleep.
- Improves your mood, helps you deal with anxiety, and keeps your thinking sharp.
- Reduces symptoms and disability experienced with arthritis.
- Reduces your risk of developing certain disabilities and chronic conditions, including arthritis, osteoporosis, heart disease, stroke, chronic obstructive pulmonary disease, type 2 diabetes, high blood pressure, depression, and certain cancers (e.g. colon and breast, and possibly lung and endometrial).

In short, being active helps you to feel better, body and mind, to remain independent and live longer, and to continue to do the things you enjoy.

If you were active in the past, you know these benefits well. And if you weren't that active before, consider this a great time to start. Think of your new hip or knee as the perfect inspiration for a newly active lifestyle, for the sake of your brand new joint – and your overall health.

Part 2: Getting Started

Make sure you're ready

Becoming more active is safe for most people. Three months after a hip or knee replacement, you should face relatively few restrictions on activity. So do you have the green light to start?

- Talk to your surgeon (who is the expert in your joint replacement) and your family doctor (who knows your general health and activity level). Ultimately, follow the direction of your surgeon, who will advise you what you can and cannot safely do.
- Take the questionnaire on physical activity readiness in Appendix 1. If you're between the ages of 19-69, the answers will tell you if you should check with your family doctor first before becoming more active. If you're 70 or over and aren't used to being active, or if you're under 70 and feel that there's some reason why you should not be doing physical activity (e.g. chest pain, dizziness, medications), you should check with your family doctor.
- If you have a chronic health condition – such as arthritis, diabetes, or heart disease – ask your family doctor, specialist or physiotherapist if your condition in any way limits your ability to be active. There is an increasing amount of evidence that activity and exercise has a benefit for many chronic diseases. Work with your health care team to come up with a physical activity plan that matches your abilities. Even a few hours a week of moderate activity is good for you.
- After joint replacements, some activities are more advisable than others, and you may have to modify how you do them. Talk to your surgeon or physiotherapist about some do's and don'ts, and see Part 3, "Finding Activities That Work For You".
- Depending on your readiness (see Appendix 1), consider a fitness appraisal (after you've talked to your family doctor). This is a great way to assess your basic fitness level, so that you can plan the best way to live actively.

For more information, see Appendix 8, your "Getting Started Checklist".



Start low and go slow

When starting or resuming any physical activity – whether or not you’ve had a joint replacement – the best advice for most people is “start low and go slow”. That makes sense for a few reasons:

- If you’ve been away from any activity for even just a few weeks – let alone months, years, or more – it affects your fitness level. Think of gradually increasing both the amount of time you’re active and the effort you make while doing it.
- If you experience discomfort in any other joints, you’ll feel more comfortable and confident easing your way into more activity. Start slowly but surely, and you’ll discover that activity is a key part of treating issues like arthritis and relieving your aches.
- Trying to do too much too soon can lead to injury, aches or discouragement – and those are reasons why people often give up on sports, exercise programs, or even routine physical activities that are part of daily life.

Keep in mind, your body might need a bit of time to adapt to increased activity. So starting slow makes sense. But remember, no matter your age or your condition, you can expect to reap the benefits of being active.

Make it easy to say “yes”

There are big reasons to say “yes” to getting moving – your health and well-being. But you may also use all sorts of reasons to say “no” or “not now”. Do these strike a chord?

1. I’m worried about wearing out my joint.
2. I can’t get motivated.
3. I don’t have time.
4. I don’t like to “exercise”.
5. I don’t want to do it alone.
6. I’m too tired.
7. I’m afraid of falling.
8. The weather is bad.
9. I can’t afford it.
10. I’m too old for this.

You may think of them as reasons – but they’re actually all barriers that you can overcome. No question, it can be tough to get started or keep going. Let’s make it easier. In Appendix 2, you’ll find these 10 common barriers to avoiding activity, and ways to work around them.

Make the most of moving

Once you get moving, what does it take to make a real impact on your well-being? Here's what we know. You'll improve your health and fitness by being physically active for a minimum of 30 minutes a day. Those improvements can go way up – in endurance, strength, balance and flexibility – if you increase that to 60 minutes a day.

One way to look at the key elements to any effort to get moving is by thinking FITT – that stands for Frequency, Intensity, Time and Type. Let's take a closer look at each.

- **Frequency.** How many times a week do you participate in activities? Ideally, physical activity should be performed each day. Of course, how active you are during any given week can vary. Keeping a log is a great way to chart your frequency and remind you of how far you've come or where you still have to go. (See Appendix 9 to track your progress.)
- **Intensity.** How hard do you work? You need to be careful to match your level of intensity to your fitness ability. You can gain many health benefits from regular, moderate physical activity, so what you're doing doesn't have to be strenuous to be beneficial. But think of intensity in terms of things like how fast you're breathing or your heart is beating, how much you're sweating, and how much effort you feel you've put in. Any increases in intensity should be gradual, so your body can adapt.
- **Time.** How much time do you spend on each activity? Just add up your time during each type of physical activity, and gradually increase that by a maximum of 10% each week. If you've taken a 20-minute walk and want to go longer for more benefit, the next week go for 22 minutes (a 10% increase is another two minutes).
- **Type.** What activities are you interested in doing? That's a critical question; when you choose activities that you look forward to, you're more likely to continue.

Over time, you'll probably alter how often you're active, the duration of each activity, the intensity (light, moderate, vigorous), and the types of activities you do. Variety is important. It helps keep you interested, motivated and excited about what you're doing.

In becoming more active, what you do and how you do it depends on your interests, schedule, current activity level, motivation, and many other factors. You'll find what activities work best for you, and that can change over time.

What matters most is simply getting started on something – anything – that brings you satisfaction and health benefits. For your "Getting Started Checklist," see Appendix 8.



Part 3: Finding Activities That Work For You

Get moving safely

Incorporating more physical activity into your everyday routine, exercising, taking up some form of recreation on a casual basis, and competitive sports are all examples of being active. But there's a big difference between them. The difference can come in the frequency and intensity of the activity, and in the "load" on your joint.

Consider the stress of three types of activities:

- Walking at a "normal" speed of 5 km per hour puts a load up to 4.2 times your body weight on your hip and knee.
- Jogging at 9 km per hour puts up to 9 times your body weight on your hip and knee.
- On the lower end, when you use a stationary bike with medium resistance, the load on the hip and knee is only 1.2 times your body weight.

What are the implications after a hip or knee replacement? Here are some general guidelines:

- Activities that involve jumping, running or hopping on land – what are called high-impact activities – usually aren't recommended for people who've had hip or knee replacements.
- In contrast, low-load activities – e.g. walking, swimming, aqua-fit, cycling, and T'ai chi – can be done safely and often.
- Higher-load recreational activities and competitive sports – e.g. skiing, doubles tennis, and hiking – can also be done, but less frequently.
- Sports that have a potential for contact, which include most team sports (e.g. hockey, basketball, soccer) are not permitted.
- You're usually allowed to return to activities and sports that require a high level of technical ability, such as skiing, skating, rollerblading and Pilates – that is, if you're experienced. If not, you probably shouldn't take up a new technically demanding activity – the joint loads can simply be too high, and you might not have the muscle coordination and control to do it safely.

Whenever you're unsure, ask your surgeon about what you can and can't do. For some more detailed guidelines, see Appendix 3.

Modifying activities

How can you make activities work for you? By finding ones that you enjoy and get something from, and learning how to make them easier to do after a joint replacement.

See Appendix 4 for a list of some popular activities, with suggestions of how to modify them to suit your needs. Included on that list are exercise classes; for much more detailed guidelines on joining those classes after a hip or knee replacement, see Appendix 5.

Certain movements can become more challenging or may be off limits due to your replacement. Here are some general guidelines that can apply to a number of activities. Appendix 5 also has some helpful visuals.

If you've had a knee replacement

- Kneeling may be uncomfortable or feel odd, however it will not cause damage to your knee replacement. Consider using a rolled up towel or floor mat either under your knee or under the upper leg/shin, so there is less or no pressure on your kneecap.
- Getting down to and up from the floor may be difficult; using a wall, chair, footstool or aerobic step may help. Practice with your physiotherapist, or at home when someone can help you.
- A full knee bend may be uncomfortable. If you're unable to sit on your heels on the floor (e.g. as in yoga or Pilates), you can usually modify activities by placing a rolled mat or a foam block under your buttocks to limit an extreme knee bend.
- Move your feet to turn instead of twisting your knee.

If you've had a hip replacement

- It's especially important to ask your surgeon about movement and activity restrictions. Unlike knee replacements, restrictions after a hip replacement vary for a number of reasons, including your type of hip implant, your surgery (what muscles the surgeon had to go through), and whether you've had your hip replacement revised.
- Generally not recommended – crossing your leg past the midline of your body, doing forceful repeated end-range bending of your thigh-to-trunk motions (e.g. aggressive rowing), or forcing rotation after a hip replacement.
- Getting down to and up from the floor – using a wall, chair, footstool or aerobic step may help.



Maximizing your benefits

Becoming more active offers all sorts of challenges and satisfaction. But what exactly improves your health and physical abilities? There are four key elements – endurance, strength, balance, and flexibility.

Some activities may work multiple areas. For example, walking improves endurance, muscle strength and balance. Whatever you choose to do once you get moving, address each of the four elements for maximum benefits. Here are some tips:

Endurance

- **How it helps:** Endurance or aerobic activities make you breathe harder and make your heart beat faster. These activities improve your heart, lungs and circulation systems, increasing your energy level.
- **Examples:** Fast walking, swimming, biking, yard work, dancing. If you're heavier or if other joints are painful, biking, swimming and aqua-fit give you a great workout while placing less of a load on your hips, knees and ankles.
- **How much to do:** Do at least 30 minutes of moderate physical activity most days of the week so that you accumulate 2½ hours a week. You don't have to do it all at once; you can benefit from as little as 10 minutes at a time. To determine moderate physical activity, think of a scale from 0 to 10 where "0" is no effort and "10" is working as hard as you can. Moderate physical activity is a 5 or 6 on the scale. You can also use the talk test to gauge your effort; while doing the activity/exercise, you should still be able to talk but have difficulty singing. If it's hard to talk, then you're working vigorously. To challenge yourself you can go harder or go longer.

Strength

- **How it helps:** Strength activities are important to help keep you from losing muscle as you get older. Strong muscles make it easier to do your everyday activities like getting out of a chair, climbing stairs, and carrying your grandchildren. People who've had a joint replacement of the hip or knee, or who have osteoarthritis of the hip or knee, often develop weakness in certain muscle groups (usually the front thigh and side hip muscles). Strengthening these muscle groups can help you to reduce pain, walk normally, improve balance, and maximize your ability to function.
- **Examples:** Weights, resistance bands, activities such as heavy gardening.

- **How much to do:** Having a joint replaced can reduce pain and improve mobility, but won't make your muscles strong. Do strengthening exercises 2 or more days a week, preferably not working the same muscles 2 days in a row. For postural muscles – which allow you to stand longer and walk a distance (front thigh, side hip and calf muscles) – your goal is to build up to 30 repetitions without stopping. For other muscle groups, build up to 10 to 15 repetitions (1 set) of each activity without stopping. You need to do strengthening exercises to the point where it's hard to do another repetition. To challenge yourself, do 2 or 3 sets or increase the difficulty (by adding weights, for instance). See Appendix 6 for more details.

Balance

- **How it helps:** Balance exercises help to prevent falls.
- **Examples:** Many leg strengthening exercises will improve your balance. Standing on one foot, walking on your heels or toes, toe raises, and T'ai chi are among these.
- **How much to do:** 2 to 3 times a week, or as often as you like. Start by using a counter, wall or chair for support. To challenge yourself, try to lessen your hold for support, eventually not holding on at all. If you're steady on your feet, try doing the exercise with your eyes closed or on an unstable surface (e.g. a cushion or Bosu ball).

Flexibility

- **How it helps:** Stretching can help your body stay flexible, allowing you to more easily do the tasks of everyday life, from reaching up to a shelf or down to tie your shoes.
- **Examples:** Range-of-motion exercises and stretches. Range-of-motion refers to the amount your joints can be moved in certain directions. These exercises help to maintain or restore normal joint movement and relieve stiffness. Stretches refer to elongating the muscles, which can also decrease muscle aching after endurance activities. Beyond exercises and stretching, you could include an activity such as yoga (which also improves balance and strength). See Appendix 7 for examples of stretches.
- **How much to do:** Stretching is best when your muscles are warmed up after an endurance activity or a warm shower. Hold each stretch for 30 to 45 seconds. Do each stretch 3 times.



Part 4: Your Progress

Listen to your body

To become more active safely, you have to tell your body what to do, and also listen to what your body is telling you.

- **Pace yourself.** For any activity, pace yourself by starting slow and/or including enough breaks.
- **Build up.** Gradually and progressively, you can increase the duration, frequency and intensity (repetitions or load) of an activity, and the types of activities you do.
- **Soreness is normal.** It's normal to experience some muscle soreness after starting a new activity, resuming an activity after some time off (even just a few weeks), or when increasing your activity/exercise levels.
- **Joint pain is not normal.** Pain – unlike a bit of soreness – is the body's warning sign. Months after surgery, when you are well along on the road to recovery and able to be more active, watch out for sharp pain in your joint, or lasting pain (into the next day) following an activity. Apply ice if you experience swelling. It may be time to modify or stop the activity. Talk to your surgeon, your physiotherapist, or a qualified trainer who is experienced in supporting people with hip or knee replacements.

Activity plans, logs and goals

Monitoring your progress has several benefits. It helps to keep you on track. It allows you to celebrate your successes and also note any problems or obstacles – what they were, when and why they occurred, and how you overcame them. And it can keep you motivated, by focusing on targets and seeing how far you've come. Here are some suggestions:

- Write down your goals, put them where you can see them, and renew them regularly. What will you do over the next week or two to help make physical activity a regular part of your life? Where do you want to be in six months, a year, or two years from now? Remember that small steps lead to big changes over time!
- Keep a log for a week that records any physical activity – from walking to errands to formal exercise to playing a sport – and how much time you spent doing it. The goal is to find ways to increase your activity.

- Create a weekly physical activity plan, one that you think is realistic to manage. It can include any assortment of activities that are good for your endurance, strength, balance and flexibility – what you'll try to do throughout the week. Update your plan as you progress.
- Test yourself. Every month, you can check just how your more active lifestyle is working for you. For instance, pick a fixed distance, like going around your block, and see how long it takes you to walk it. Or time yourself as you stand on one foot without support. The more you get moving, the better you should be at measures of endurance and balance.

See Appendix 9 for some sample worksheets.



Part 5: Other Considerations

Returning to work

Incorporating activity into everyday routines is important. And looking for forms of recreation, exercise or sports is also essential. But recognize that work is an activity too.

Your greatest gains in function will happen in the first three months after surgery. But you will continue to improve, and need to realize that a full recovery from a hip or knee replacement can take up to one year.

What does that mean after you're back at work? Your ability to assume work duties again can depend on everything from your general condition, to your stage of rehabilitation, to your specific job. In some cases, you may require a graduated return to full duties. A job that involves things like heavy lifting, carrying, or climbing ladders might also require some modifications. Certainly, it may take you longer to return in full to a physically demanding job than a more sedentary role.

You know your job best, so discuss all of this with your surgeon, family doctor or physiotherapist, as well as with your employer. The goal is to ensure your long-term recovery by returning to work only when you can, and taking on only what you are physically able to handle safely.

Weight management and diet

Weight management and healthy eating is good for your health in general – and for your bones and joints too.

Did you know that excess body weight contributes to earlier wear of an artificial joint? That obesity – a body mass index (BMI) over 30 – has been shown to increase the risk of knee osteoarthritis more than eight times? Or that excess weight can also increase the risk of hip and back arthritis?

Being overweight, especially when combined with inactivity, can also increase the risk of a number of chronic diseases, and limit your independence.

Here's some good news. A 2010 study noted that nearly 20% of people who had a knee or hip replacement subsequently had a significant weight loss (5% or more of body weight) and a decrease in their BMI. And that can greatly increase your physical ability and reduce pain.

One reason for the weight loss is that joint replacement surgery makes it easier to get moving, and motivates people to adopt an overall healthier lifestyle. So this is a perfect time to take positive steps towards managing your weight and incorporating a healthy diet.

But here's the reality too. For many people, the habits they developed in the months and years prior to surgery are hard to break. Inactivity, excess weight and poor diet often go hand in hand, and that can continue after joint replacement surgery too.

Ideally, part of enjoying a more active lifestyle should include healthy eating. That can be just as much of a challenge as getting moving. For help with weight management and healthy eating tips, consult the Canada Food Guide (see the Resources section). You may want to be referred to a dietician, or talk to your family doctor or physiotherapist to see if any free resources for dietary consultation are available to you.

Healthy eating, along with activity, are big steps toward better health!

When you travel

When travelling, nobody should stay in one position for a prolonged period, especially if you've had a hip or knee replacement. Get out of your seat every 1-2 hours, and walk around to relieve back, hip and knee stiffness. With an aisle seat on the correct side (the side of your replacement), you can also stretch your leg even if you can't get up.

Follow-ups with your surgeon

Most people have excellent long-term results after a hip or knee replacement. Talk to your surgeon about what follow-up is appropriate. Remember, call any time to make an appointment if you're experiencing pain or problems related to your joint replacement, or if you've had a fall and are concerned about the ability of your joint to support your weight.



Summary: You Can Do It!

We all know that being active is good for us – for our physical health and energy, our state of mind and quality of life.

Here's some great news. With your new joint, a more active lifestyle – and all of the benefits that result – is within your reach.

- If you've been active before, it's now possible to get back to what you've done and loved before, or to take up something new. You can do it.
- If you've never been that active, now is the perfect time to use your new knee or hip to help adopt a healthier lifestyle. You still can do it.
- If the knee or hip problems you had before your replacement took away some of your motivation – and even if you still deal with other discomfort – don't worry, it's easier than you might think to start becoming more active. You can do it too.

To help you get moving, here are 10 things to keep in mind:

1. **Anyone can be active.** That's because being "active" means all sorts of things, from an exercise class to sports, from a walk around the block to gardening, from going dancing to taking the stairs instead of the elevator. With that broad definition, anyone, anywhere, at any age, and at any level or ability, can incorporate some activity into their daily life.
2. **You'll help your new joint.** Worried about the wear and tear on your new joint? If anything, being active increases the life of your joint replacement, in addition to all of the other health benefits.
3. **You're ready.** In most cases, by the time three months have passed since your hip or knee replacement, you should face relatively few restrictions on activity. In some cases, if you have other health problems/concerns, you should talk to your family doctor first, but you can get moving, safely. For more, see Appendix 8, your "Getting Started Checklist."
4. **You can find what works for you.** Some activities might be off limits, and others might require modifications. But you can find ones that you enjoy, that fit your lifestyle, and that can accommodate your joint replacement if needed – the choices are endless. See Appendix 4 for some suggestions.
5. **You can overcome any obstacles.** When it comes to a more active lifestyle, it can be tough to get started and keep going. It's always easy to say "no." Fatigue, time, motivation, worry, age – all can be reasons (or excuses) that keep you on the couch. That's a real challenge. Check Appendix 2 for 10 common barriers to avoiding activity, and ways to work around them and say "yes" to getting moving.

6. **You can go at your own pace.** When beginning or resuming any physical activity, “start low and go slow”. That gives your body time to adapt. Over time, you might gradually increase how often you’re active, and the time and effort you put in. You might also add more activities to the mix. For now, what matters most is getting started on any activity that’s rewarding.
7. **Listen to your body.** Don’t worry if you experience muscle soreness when starting a new activity, resuming an activity after time off, or increasing activity levels. That’s normal. But pain isn’t. So if you experience joint pain, either stop or modify the activity. To help tune your body and learn exercises specifically for people with hip and knee replacements, see Appendix 6 (strengthening) and Appendix 7 (stretching).
8. **You’ll feel better in every way.** Being active can help with your strength, endurance, balance, flexibility, muscles, joints, weight, posture, sleep, mood, ability to ward off health problems, and much more. All of this is possible with as little as 30 minutes a day of activity – a small investment for huge rewards.
9. **Make healthy eating part of the lifestyle.** When you watch your diet, it works in tandem with an active lifestyle to achieve more complete health benefits. Being overweight, especially when combined with inactivity, can increase the risk of many chronic diseases, and limit your independence too. Excess body weight also contributes to earlier wear of an artificial joint, and increases the risk of knee osteoarthritis and hip and back arthritis. Healthy eating plus activity addresses weight, and together is a powerful combination to unlock better health.
10. **Track your progress.** Set goals and renew them regularly. Where do you want to be in six months, a year, or two years from now? What will you do over the next week or two that will help you make physical activity a regular part of your life, and contribute to your goals? Making a plan and reviewing your progress (using a log, chart or journal) will help to keep you on track and celebrate your successes. Your new hip or knee literally makes it easier to take steps – and when it comes to activity, even small steps lead to big changes over time.



Resources

To support your efforts to get moving and incorporate more activity into your life, many guides and organizations can help. Check out some of these resources:

Organizations

- Canadian Orthopaedic Foundation: www.movepainfree.org
- The Arthritis Society: www.arthritis.ca

Activity guides

“Staying Active”, **The Arthritis Society**:

www.arthritis.ca – Click on ‘Support Education’, then ‘Online Learning’, then ‘Staying Active’.

“Physical activity and your health”, **Government of Canada**:

www.canada.ca/en/public-health/services/being-active/physical-activity-your-health.html

“Exercise & Physical Activity”, **National Institute on Aging (NIH)**:

www.nia.nih.gov - Under ‘Health Information’, click on ‘Exercise and physical activity’.

Healthy eating

“Canada’s Food Guide”, **Health Canada**:

<https://food-guide.canada.ca/en/>

Appendix 1:

This questionnaire has been printed with permission from
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Physical Activity Readiness
Questionnaire - PAR-Q
(revised 2002)

PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?
<input type="checkbox"/>	<input type="checkbox"/>	2. Do you feel pain in your chest when you do physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	3. In the past month, have you had chest pain when you were not doing physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	4. Do you lose your balance because of dizziness or do you ever lose consciousness?
<input type="checkbox"/>	<input type="checkbox"/>	5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
<input type="checkbox"/>	<input type="checkbox"/>	7. Do you know of any other reason why you should not do physical activity?

If
you
answered

YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.

- take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

DELAY BECOMING MUCH MORE ACTIVE:

- if you are not feeling well because of a temporary illness such as a cold or a fever — wait until you feel better; or
- if you are or may be pregnant — talk to your doctor before you start becoming more active.

PLEASE NOTE: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q: The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

NAME _____

SIGNATURE _____

SIGNATURE OF PARENT _____
or GUARDIAN (for participants under the age of majority)

DATE _____

WITNESS _____

Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.



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PAR-Q & YOU

Physical Activity Readiness Questionnaire - PAR-Q (revised 2002)

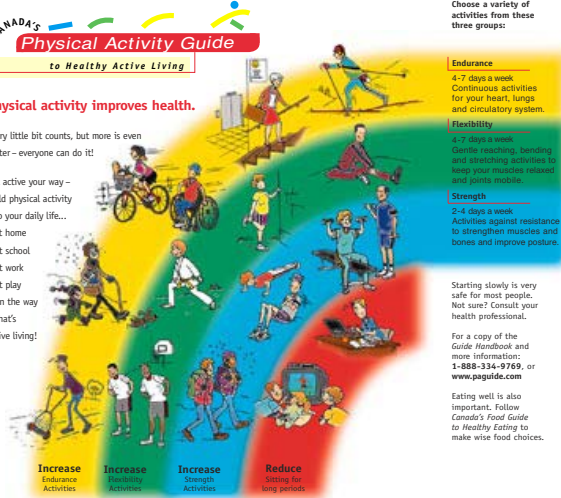
CANADA'S Physical Activity Guide To Healthy Active Living

Physical activity improves health.

Every little bit counts, but more is even better – everyone can do it!

Get active your way – build physical activity into your daily life...

- at home
- at school
- at work
- at play
- on the way ...that's active living!



Increase Endurance Activities
Increase Flexibility Activities
Increase Strength Activities
Reduce Sitting for long periods

Choose a variety of activities from these three groups:

- Endurance**
2-7 days a week
Continuous activities for your heart, lungs and circulatory system.
- Flexibility**
4-7 times a week
Gentle reaching, bending and stretching activities to help your muscles relax and joints move.
- Strength**
2-4 days a week
Activities against resistance to strengthen muscles and bones and improve posture.

Starting slowly is very safe for most people. Not sure? Consult your health professional.

For a copy of the Guide Handbook and more information: 1-888-334-9769, or www.paguide.com

Eating well is also important. Follow Canada's Food Guide to healthy eating to make wise food choices.

Get Active Your Way, Every Day – For Life!

Scientists say accumulate 60 minutes of physical activity every day to stay healthy or improve your health. As you progress to moderate activities you can cut down to 30 minutes, 4 days a week. Add-up your activities in periods of at least 10 minutes each. Start slowly... and build up.

Very Light Effort 60 minutes	Light Effort 30-60 minutes	Moderate Effort 20-30 minutes	Vigorous Effort 10-20 minutes	Maximum Effort
• Strolling • Browsing	• Light walking • Yardwork • Easy gardening • Snowshoeing	• Brisk walking • Biking • Raking leaves • Swimming • Dancing • Water aerobics	• Aerobics • Jogging • Hockey • Basketball • Fast swimming • Football/soccer	• Sprinting • Racing

Range needed to stay healthy

You Can Do It – Getting started is easier than you think

Physical activity doesn't have to be very hard. Build physical activities into your daily routine.

- Walk whenever you can – get off the bus early, use the stairs instead of the elevator.
- Reduce inactivity for long periods, like watching TV.
- Get up from the couch and stretch and bend for a few minutes every hour.
- Play actively with your kids.
- Choose to walk, wheel or cycle for short trips.
- Start with a 10 minute walk – gradually increase the time.
- Find out about walking and cycling paths nearby and use them.
- Observe a physical activity class to see if you want to try it.
- Try one class to start – you don't have to make a long-term commitment.
- Do the activities you are doing now, more often.

Benefits of regular activity:	Risk factors of inactivity:
<ul style="list-style-type: none"> • better health • improved fitness • better posture and balance • better self-esteem • stronger muscles and bones • feeling more energetic • relaxation and reduced stress • continued independent living in later life 	<ul style="list-style-type: none"> • premature death • heart disease • obesity • high blood pressure • adult-onset diabetes • osteoporosis • stroke • depression • colon cancer



Source: Canada's Physical Activity Guide to Healthy Active Living, Health Canada, 1998 <http://www.hc-sc.gc.ca/hppb/paguide/pdf/engGuide.pdf>

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FITNESS AND HEALTH PROFESSIONALS MAY BE INTERESTED IN THE INFORMATION BELOW:

The following companion forms are available for doctors' use by contacting the Canadian Society for Exercise Physiology (address below):

The **Physical Activity Readiness Medical Examination (PARmed-K)** – to be used by doctors with people who answer YES to one or more questions on the PAR-Q.

The **Physical Activity Readiness Medical Examination for Pregnancy (PARmed-X for Pregnancy)** – to be used by doctors with pregnant patients who wish to become more active.

References:

Arraix, G.A., Wigle, D.T., Mao, Y. (1992). Risk Assessment of Physical Activity and Physical Fitness in the Canada Health Survey

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Mottola, M., Wolfe, L.A. (1994). Active Living and Pregnancy. In: A. Quinney, L. Gauvin, T. Wall (eds.), **Toward Active Living: Proceedings of the International Conference on Physical Activity, Fitness and Health**. Champaign, IL: Human Kinetics.

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Thomas, S., Reading, J., Shephard, R.J. (1992). Revision of the Physical Activity Readiness Questionnaire (PAR-Q). *Can. J. Spt. Sci.* 17:4 338-345.

For more information, please contact the:

Canadian Society for Exercise Physiology
 202-185 Somerset Street West
 Ottawa, ON K2P 0J2
 Tel. 1-877-651-3755 • FAX (613) 234-3565
 Online: www.csep.ca

The original PAR-Q was developed by the British Columbia Ministry of Health. It has been revised by an Expert Advisory Committee of the Canadian Society for Exercise Physiology chaired by Dr. N. Gledhill (2002).

Disponible en français sous le titre «Questionnaire sur l'aptitude à l'activité physique - Q-AAP (révisé 2002)».



Canadian Society for Exercise Physiology

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Appendix 2: Overcoming Barriers to Activity

1. I'm worried about wearing out my joint.

- Regular activity/exercise will actually help to strengthen the muscles around your new joint, provide stability, and help your mobility.
- If anything, inactivity is potentially harmful to your new joint replacement, and to your health in general. The extra body weight that tends to come from a sedentary lifestyle puts a greater load on your joint and may increase wear and tear.

2. I can't get motivated.

- Define physical activity broadly. Some people won't try a sport, but love dancing. Others dislike the idea of going to "work out", but don't even realize the range of interesting classes available at their gym or community centre. Ask yourself what activities you enjoy most, and you're sure to find opportunities to do them.
- Write down your progress. Especially if you haven't been that active in the past or for a while, it can be hard to get into it, physically and mentally. Keep a diary to see if you can accumulate at least one activity or exercise period per day. Looking back and seeing what you've been able to do can help keep you moving forward.
- Set activity goals. You might be surprised at your ability to meet them one step at a time – sometimes literally. Most inactive people take less than 5,000 steps a day; 8,000 a day is good, and with 10,000 or more you can be confident you're improving your health and endurance. Pick up a step counter (pedometer) at a sports store or drugstore to track your steps. Trying to reach any goal is a perfect way to get motivated.

3. I don't have time.

- If you don't have a solid block of time to devote to physical activity, spread it out. So instead of a 30-minute walk, three 10-minute walks a day might be an easier way to start.
- Incorporate activity into the time you already use, like getting on the treadmill or stretching while you watch a TV show.
- We all have time for daily tasks, so build more activity into those, like using stairs instead of the elevator, or parking further away from the mall.

4. I don't like to "exercise".

- Physical activity is simply about getting moving – and there are countless ways to do that. If you dislike traditional "exercise," garden, play with your grandchildren, or walk to the grocery store. All are great low impact and moderate intensity activities without even thinking of them as "exercise."

5. I don't want to do it alone.

- Get a friend or family member to be an "exercise buddy," by taking a fitness class or walking together. There's a double benefit – getting moving becomes a social activity too, and doing it together helps you to spur each other on.
- If you don't have a partner to get moving with, join a community centre or a club that does an activity you like – you'll be sure to meet people. You can also see if there's a walking club at your local mall.

6. I'm too tired.

- If being active is getting you tired, remember to start slowly and increase gradually.
- The more active you become, the higher your energy level. So if you feel you're too tired to get moving, just think – soon enough, you'll be less tired because you move.

7. I'm afraid of falling.

- Becoming active will help to avoid falls in the first place, by improving your strength and balance.
- There are plenty of ways to get active and protect yourself from falls. For instance, you can use a wall or counter for support during standing exercises, walk with a cane or walker if needed, do some exercises in a chair, or try swimming. Regular activity is safe, and the more you do it, the more confident you'll be.
- If the ground is icy, you may want to try using "picks" on the end of your cane, removable cleats over your boots, or ski poles (old poles or the newer "Nordic poles") to help your balance.

8. The weather is bad.

- If it seems too cold, wet or hot out, or if you're worried about ice and snow in the winter, walk on a treadmill in the gym, swim at a community pool, or stretch while watching TV. You can be physically active just as easily indoors as you can outdoors.

9. I can't afford it.

- Becoming more active doesn't have to involve joining a gym, signing up for a class, or paying for a sport. It can be as simple – and free – as walking in a mall. Check some of the resources listed in this guide and the appendices for ideas.

10. I'm too old for this.

- As long as you're able to move, find something you enjoy and stick to it; you'll reap the benefits of activity. It's never too late to start again – or start period. When you make it a habit, you'll probably find that it's easier than you think to be active.

Appendix 3: Guidelines for Returning to Activities – Consensus Advice from Hip and Knee Surgeons

Allowed	Allowed With Experience	Not Allowed	Undecided
Golf Swimming Doubles tennis Stairclimber Walking Speed walking Hiking Stationary skiing Bowling Treadmill Road cycling Stationary bicycling Elliptical Low-impact aerobics Rowing Dancing Weight machines	Downhill skiing Cross-country skiing Weightlifting Ice skating/ rollerblading Pilates Snowboarding	Racquetball/squash Jogging Contact sports (e.g. football, basketball, soccer) High-impact aerobics Baseball/softball	Martial arts Singles tennis

Source: "Return to athletic activity after total hip arthroplasty. Consensus guidelines based on a survey of the Hip Society and American Association of Hip and Knee Surgeons." Klein, G. R., B. R. Levine, et al. (2007), *Journal of Arthroplasty* 22(2): 171-5.

Appendix 4: Modifying Common Activities

After hip or knee replacement surgery, you can still enjoy many of your favourite activities by learning how to modify them. This list includes some of the more common activities, but can't cover everything. For guidance, talk to your surgeon and/or family doctor. See also Appendix 3 for guidelines on permissible activities.

Curling

- To decrease the risk of falls, practice the motions required for your delivery and sweeping before getting on the ice, and wear grippers on both feet for sweeping.
- You may want to try an extender/stick for standing deliveries if you are unable to get down into the hack, especially if you have had a hip replacement.
- To more safely and easily walk on ice and get into the hack position, you'll benefit from first working on strength and balance exercises; see Appendix 6 – Strengthening Exercises for People with a Hip or Knee Replacement.

Cycling – road biking/stationary biking/spinning

- Cycling can provide a low-impact, high-intensity heart/lung workout, and builds leg muscle strength and endurance.
- Setting up the bike in the right position will make you more comfortable, limit your chance of injury, and allow you to get the most from your workout:
 - > Seat height – Knee should be slightly bent when pedal is at lowest position.
 - > Handlebar height – With hands on the handlebars, your elbows should be slightly bent so neck, shoulders, arms, and hands are relaxed.
 - > Seat position – With feet on the pedals and the pedals horizontal, bottom of your kneecap should be directly over or just behind the centre of the pedal.
- Pedal straps hold your feet in place on the pedals, allowing you to push down and pull up in a circular motion. This gives you a better workout (by using more muscle groups), and places less load on the knees. (Don't use the straps on the road if you haven't used them before.) See Appendix 5 – Joining an Exercise Class for a visual on how to set up a bike.

Dancing

- Dancing is excellent for balance, coordination, control and strength.
- Try to move your feet rather than twist.
- Limit repeated hopping or stomping.

Exercise classes

- Most classes – other than the pool, spinning and t'ai chi – require some ability to get up and down from the floor or aerobic steps. Talk to your physiotherapist about techniques, and try them with your physiotherapist first, then at home.
- Ask your surgeon if there are any movements or activities you should avoid.
- See Appendix 5 – Joining an Exercise Class.

Gardening

- Kneeling can be difficult after a joint replacement or with hip and knee arthritis. Using an assistive device like the garden kneeler seat, with side handles, helps you get down and up from near ground level.
- See “Modifying Activities” and Appendix 5, for tips on getting up and down.

Golf

- Start slowly with chipping and putting at the driving range before going to the course.
- Use a cart to start. Progress to walking the course starting with 9 holes, and build up to 18 as your stamina increases.
- Use a roller or caddy for your bag. Carrying your bag unnecessarily increases the load on your new joint.
- Use spikeless shoes to decrease the twisting force through the hip and the knee.
- A golf pro can help modify your technique so that you put less twisting force through your new hip or knee.
- See Resources section for a link to “Can I still play golf after a knee replacement?”

Hiking

- Make sure you have a supportive shoe/boot with good treads to limit slipping.
- Walking on uneven ground and down hills requires more strength and balance, so you would benefit from working on those with specific exercises. See Appendix 6 – Strengthening Exercises for People with a Hip or Knee Replacement.
- Using ski or hiking poles can help your balance and decrease up to 20% of the load on your knee during downhill walking.

Pilates and yoga

- These are only recommended if you are experienced and your surgeon approves; gentle only, i.e. Hatha yoga not Ashtanga.
- Modify kneeling as needed and avoid forcing extreme movement.
- If you have had a hip replacement, ask your surgeon if you're allowed to cross your leg past the midline of your body.
- If you have a hip replacement, avoid forced extreme movements and/or repeated thigh-to-trunk movements, especially if combined with twisting and crossing the midline of your body.

Rowing and canoeing

- Make sure you can get on and off the floor first before you attempt to get into these boats.
- Have someone hold the boat while you get in until you can do this easily.
- If you have had a knee replacement, consider using a rolled up towel or floor mat either under your knee or under the upper leg/shin, so there is less or no pressure on your kneecap.
- If you are rowing, avoid forceful repeated end range thigh-to-chest movements.

Skating/hockey

- Only do if you are experienced and your surgeon approves.
- Choose your conditions – good ice surface only.
- No contact hockey.

Skiing – cross-country

- Only do if you are experienced and your surgeon approves.
- Start on well-groomed trails – back country is not recommended.
- Be careful about conditions, i.e. avoid icy and slushy snow conditions, steep hills, and difficult terrain. If you are not sure if you can manage a difficult section of the trail, take your skis off and walk it.

Skiing – downhill

- Only do if you are experienced and your surgeon approves.
- Start on easy and groomed hills.
- Be careful about conditions, i.e. avoid icy and slushy snow conditions, moguls, and very steep terrain.
- Use soft parabolic skis, not racing skis.
- Have your bindings adjusted regularly by a professional.
- You will need excellent quadriceps strength, so exercise accordingly. See Appendix 6 – Strengthening Exercises for People with a Hip or Knee Replacement.

Swimming/aqua-fit

- Using stairs with a handrail rather than a ladder will make it easier for you to get in and out of the pool.
- The flutter kick generally isn't a concern, though some surgeons restrict breaststroke leg movements (i.e. whip kicks); check with your surgeon about restrictions.
- Aqua-fit is recommended, especially if you have arthritis in other joints, as there is no impact through the lower extremities. Keep your legs bent so the water is at neck level (higher water level = less impact). After a hip replacement, ask your surgeon if you're allowed to cross your leg past the midline of your body.
- See Appendix 5 – Joining an Exercise Class.

T'ai chi

- Excellent for balance, coordination, control and strength.
- At the beginning, if your front thigh muscles are weak, don't bend your knees much.

Tennis

- Most surgeons will allow doubles tennis, but not singles as it involves more running.
- Limit deep lunges for the ball.
- Move your feet to turn rather than twist.

Walking

- Make sure you have a good supportive shoe with good shock absorption.
- Nordic poles or old ski poles can help your balance, take some load off your joint, and get your heart and lungs working harder by using your arms plus your legs.

Weights

- Free weights – only do if you are experienced and your surgeon approves; limit deep squats and lunges.
- Weight machines – you can do all arm and trunk exercises; for the legs avoid putting any weights on your ankle while straightening your knee; hamstring curls and leg press are recommended.

Appendix 5: Joining an Exercise Class

Research shows that activity and exercise can result in health benefits for all, including people living with a chronic disease such as osteoarthritis (OA) of the hip and knee. However, you need to know and follow any restrictions that your surgeon or specialist has given you, no matter what activity/program you participate in. You may participate in exercise classes/activities as long as you avoid or modify positions or activities you have been told not to do by your surgeon/specialist and that these exercises/activities do not cause joint pain.

When you exercise you may feel some discomfort in the muscles but should not feel pain in or around the joints. If you feel joint discomfort, discontinue the activity and discuss how to modify the activity with your therapist or surgeon.

Remember to start any exercise program in a progressive manner (gradually increase: your exercise time, number of sessions a week, how hard you work and weights/resistance). If you have been away from any exercise for more than two weeks you will have lost some physical fitness and need to return gradually. Doing too much too soon is the most common cause of injury. The discomfort of doing too much too soon is discouraging and is a common reason why people drop out of their exercise programs within the first two weeks of starting.

Generally high impact activities such as hopping, jumping and running on land are not recommended for any lower extremity joint replacement as this will cause more wear on your joint.

When attending exercise classes each instructor's style and exercise routines may vary tremendously. The same class given by a different instructor may or may not be right for you. We strongly recommend that you first observe the class you want to attend to help you decide if the class and instructor are right for you. When participating in a class for the first time you may want to tell the instructor either before class that you may be modifying certain exercises to suit what you are allowed to do or talk to the instructor after class about modifications of exercises that you should not do or that are difficult for you.

In summary:

- Find out and know what *activities/movements* you *should not* do.
- *Pace* yourself by including small rest breaks.
- *Gradually and progressively increase* exercise/activity, increasing duration, frequency and intensity (repetitions or load) only one at a time.
- Muscle discomfort is to be expected but *not joint pain!*

If You Have a Knee Replacement or Knee Osteoarthritis



Kneeling may be uncomfortable or feel odd, however it will not cause damage to your knee replacement. Whether you have OA knees or a knee replacement, consider using a rolled up towel or floor mat either under your knee or under the upper leg/shin so there is less/no pressure on your kneecap.



Getting up and down from the floor may be difficult; using a wall, chair or aerobic step may help. Practice getting up and down from the floor before class with your therapist, or at home when someone can help you.



You may be able to do your floor exercises on an aerobic step. The more risers you use on the step the less you have to bend.



Avoid twisting your knee as shown in the hurdlers stretch below. If you are standing, move your feet to turn, don't twist your knee.

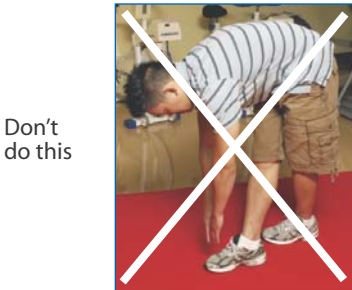


A full knee bend may be uncomfortable for you but you can usually modify these activities as described above. In a Yoga or Pilates class you can modify the child pose by placing a rolled yoga mat(s) or a block under your buttocks to limit extreme knee bend.

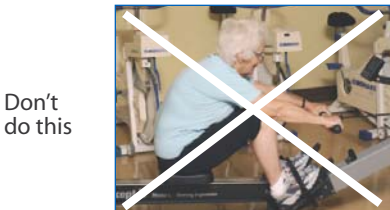
If You Have a Hip Replacement or Hip Osteoarthritis

If you have a hip replacement it is especially important that you ask your surgeon about movement and activity restrictions. Unlike knee replacements, restrictions after a hip replacement vary for a number of reasons including: the type of hip implant you have, what muscles the surgeon had to go through to put your new hip in, and if you have had your hip replacement revised.

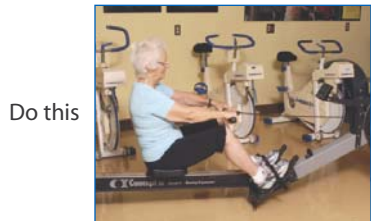
Crossing your leg past the midline of your body, doing forceful repeated end range bending of your thigh to trunk (e.g. aggressive rowing), or forcing rotation after a hip replacement is generally not recommended.



Avoid crossing midline



Avoid forceful flexion



Don't do this



Avoid forcing rotation and flexion

Do this



Those of you with OA may have discomfort with the above movements as well as with twisting motions.

Getting up and down from the floor – see suggestions in the knee replacement section.

Types of exercise classes for people with a hip or knee replacement

Spinning classes

Using a stationary or spinning bike can provide a low-impact, high intensity cardiovascular workout and builds muscle strength and endurance. Setting up the bike in the right position will make you more comfortable, limit your chance of injury and allow you to get the most from your workout. Take some time before the class to familiarize yourself with how to adjust the bike. Once you have adjusted the bike, try a few “test runs” before you start a spinning class to make sure your riding position will be comfortable for 45 minutes. If you experience any type of pain or discomfort, adjust your position.



Bike adjustment knob and handles

- A. Handlebar height
- B. Hand brake and resistance
- C. Seat height
- D. Seat forward/ backward
- E. Pedal strap

How to adjust the bike:



1. **Seat height** – Your knee should be slightly bent when the pedal is at its lowest possible position. Sitting on the bike seat, place your heels on the pedals. As you pedal backwards, your knees should fully extend but not lockout in the pedal down position. If your hips rock side to side, the seat is too high: you will have less pedaling power and place a greater load on the knees and back. If your seat is too low you will bend too much, placing a greater load on your hips, knees and back. You should have a smooth pedal stroke!

2. **Handlebar height** – With your hands on the handlebars your elbows should be slightly bent so that your neck, shoulders, arms, and hands are relaxed, not gripping the handlebars tightly. For beginners, a higher handlebar position is more comfortable, easier and safer and may place less stress on the lower back if you are not flexible. Make sure that the handlebars of the stationary bike are at least as high as the seat or higher (especially if you have had a hip replacement). If the handlebars are too high, too low, too close, or too far away, you may have neck, shoulder, back, and hand pain.



3. **Seat forward and backward position** - With your feet on the pedals and the pedals horizontal, parallel with the floor, the bottom of your kneecap should be directly over or just behind the centre of the pedal. It's better to be a little behind the centre than over it, as this places too much stress on the knees.



4. **Adjusting pedal straps and foot position** - Most stationary bikes have straps that hold your feet in place on the pedals. Having your feet strapped on to the pedals allows you to push down and pull up on the pedals in a circular motion which creates a smooth and efficient pedal stroke by using more muscle groups, provides a better workout, and places less load on the knees. Make sure the ball of your foot is in the centre of the pedal - the best position for comfort and injury prevention. Make sure the straps are comfortably tight without being too restrictive. If your toes are numb, the straps are too tight!

Sometimes the adjustment knobs on the bike get loose and need to be tightened - your seat or handlebars will feel wobbly. Simply slow down, stop and tighten the handlebar and/or seat adjustment knobs.

If you would like more details on how to adjust your bike you can consult reputable websites such as:
<http://sportsmedicine.about.com/od/tipsandtricks/ht/StationaryBike.htm>

Other tips and precautions

To slow down/stop use the hand brake, or the tension knob below the handle bars (usually red); either pushing down or pulling up will slow the fly wheel down. Do not try to stop the pedals suddenly or remove your feet from the pedals without braking first as this may jar your legs and/or back. Because the pedals are directly linked to the fly wheel, which is quite heavy, the pedals and your feet will keep going even when you stop actively pedaling. Avoid sudden starts and stops as this places too much load on the hip and knee.

Keep both hands on the handlebars for all standing drills.

Make sure you have a towel to dry your hands. If your hands get wet as you sweat, the handlebars can become slippery.

Standing places more load on the joints than sitting. Gradually increase the time you spend doing standing drills as your fitness and comfort level increases. You will need enough tension on the fly wheel to do a standing drill with control but not so much that you are “grinding away”. Avoid bouncing from side to side, as well as popping in and out of the seat to stand, as this increases load on the joint. You will be safer and get more leg strength by working in a controlled manner.



If you have had a hip replacement, limit drills with forward leaning of the trunk to a range that does not strain your hip and is comfortable. Forceful end range hip flexion (thigh to trunk movement) is to be avoided.

Your goal should be a pedal speed of about 80 to 100 revolutions per minute (rpm) to develop a smooth controlled pedal stroke. You do not want to go so fast that you are bouncing and out of control nor do you want to “grind away”.

Do not increase the resistance to a point where your pedaling speed drops below 60 rpm as this often results in an unsmooth pedal stroke and grinding away, putting more load on your knee.

A stiffer soled shoe is actually more comfortable for your feet while biking and results in less power loss (better performance with less effort). A soft cushy sole flexes over the pedal which strains the foot more, resulting in discomfort and a lot of wasted energy.

Aqua-fit

If you have never done aqua-fit or are returning to exercise, take more rest periods and go slowly. Deep water aqua-fit provides a good cardiovascular workout, no impact through the lower extremities and requires minimal modifications.

Ask if the pool has stairs. Either fixed or movable stairs with a handrail rather than a ladder will make it easier for you to get in and out of the pool. If movable stairs are available ask if they can be put in place before the class you plan to attend.

Check the recommendations below to see which may apply to you.

If you have had a hip replacement and should not cross your leg past the midline of your body – modify exercise so you only bring your leg to the midline (you will still get the muscle workout).

If you have had a knee replacement and your surgeon does not want you to do a whip kick (i.e. breast stroke) do a flutter kick or scissor kick instead.

If you are tall and find that some of the jumping or running activities are causing discomfort in your feet or legs from the impact then try deep water aqua-fit to eliminate impact, or keep your legs bent so the water is at neck level (higher water level = less impact), or do other leg activities such as walking forward, sideways, backwards, etc.

To make your workout harder you can:

- Increase the speed of the movement
- Work with straight arms and legs
- Do large movements
- Push and pull the water with a cupped hand

To make the workout easier: go slower, bend your arms and legs, and keep your fingers spread.

If your feet get sore with jumping/running/walking you may want to try water socks or shoes, keep the water level at your shoulder level (higher water level = less load) and bring your knees up; you will get a great tummy workout!

Working on a stability ball

This is not highly recommended in a class situation if you have had a hip replacement. For your safety you will need individual assistance from a trainer/therapist to ensure you have exercises that match your level of physical ability. The stability ball is a great way to increase your trunk “core” strength. However, there is a higher risk of falling due to the exceptional trunk and hip strength required to do some of the exercises safely.

Don't do this



Do this



- Use a smaller and/or under-inflated ball, so it is slightly easier to balance.
- Do not kneel on the ball. The risk of falling is too great!
- If your balance or trunk/core strength is poor, consider the risk of falling, especially if you have had a hip replacement.
- Remember, a common movement to avoid after hip replacement is crossing your operated leg past the midline of your body. If your surgeon has told you to refrain from this, avoid doing all exercises where the side of your body is against the ball.

Jumping, hopping, skipping

Replace these activities with: light marching or high stepping (no pounding), sidestepping, ¼ squats, mini lunges (to the front, side and back), etc. Don't forget to move your arms vigorously as this gets more muscles working and will give your heart and lungs a better workout.

Lunges and squatting exercises

Squats

- Start with $\frac{1}{4}$ squats; if comfortable, increase to $\frac{1}{2}$ squats, but no further. This is also recommended for most people without joint problems.
- Always keep your knee aligned over your foot (no knock knees).
- Progress to single leg or using weights only if comfortable.

Lunges

- Start with small lunges so your front knee is bent no more than 45 degrees ($\frac{1}{4}$ squat position) with your feet closer together.
- Keep knee aligned over foot as with $\frac{1}{4}$ squat.
- Progress to using weights only if comfortable.

Don't
do this



Do this



Source: "Tips for People with Hip & Knee Osteoarthritis or Hip & Knee Replacement,"
Holland Orthopaedic and Arthritic Centre, Toronto

Appendix 6: Strengthening Exercises for People with a Hip or Knee Replacement

Below are exercises that focus on the front thigh, side hip and calf muscles that become weak with arthritis, or replacement, of your hip or knee. It is important to note that people require different strengthening exercises based on their individual needs; if you have other areas of weakness you may want to consult with a therapist to target these areas.

See the “How to Progress Exercises” section in this appendix for guidance on improving your muscle strength, muscle endurance and overall function.

Quadriceps (front thigh)

- Helps you climb stairs, walk longer and get out of a chair.
- Note: Do not put any weights on your ankle while straightening your knee as this places much more stress through the patella (knee cap) – See images 1 & 2 below:



General tips:

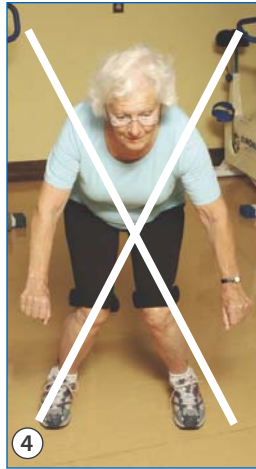
- Keep your knees over your feet (no knock knee or bowed leg positions).
- Do not bend your knees much beyond the tips of your toes (about 50 degrees). More bend will place an increased load on your knee cap.
- You should feel some tension/fatigue/discomfort in the front thigh but no pain at the front of the knee.

Progression from easiest to hardest exercises:

- $\frac{1}{4}$ Wall Squat - back against the wall, feet 1- 2 feet away from the wall.
- $\frac{1}{4}$ Squat - free-standing position shown below in image #3.



Place feet hip width apart with your knees over the feet



Bend your knee up to 50 degrees

- **Leg press** (image # 6) - if you are not comfortable putting your full body weight on your leg OR if you want to put more than your body weight on your leg.
- **Single leg squat** will also challenge your balance (#7).
- Use an **unstable surface** such as a **pillow**, **theradisc** (#8) or **Bosu ball** (#9).



Leg press



Single leg squat



Theradisc



Bosu ball

Gluteus medius (side of hip/buttock)

- Helps you walk normally and longer with less load on your back and hip.

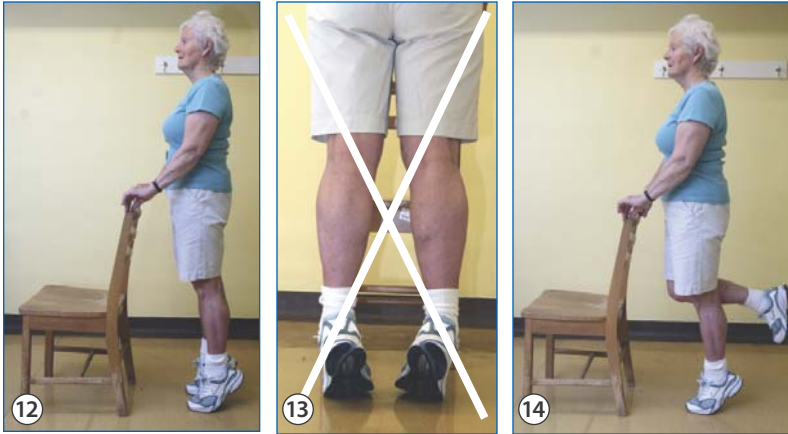


General tips and exercise progression:

- A mirror will help you check that your shoulders and hip remain level.
- Use a counter or other solid surface to help you keep your balance.
- Most bathrooms are perfect places to do this exercise; they have a counter in front of a mirror.
- Standing in front of a mirror, hold onto the counter, and keep your shoulders and hips level as you raise your leg sideways (see image #10).
- To make sure that you are not using other muscles:
 - > Keep your shoulders and hips level
 - > Keep your toe pointing forward, not to the side
 - > Raise your leg straight out to the side, not forward
- Once you can do 30 repetitions without difficulty you can use Thera-Band for resistance OR if you want to increase your balance try the exercise with no hand support. If this is easy, try the exercise with your eyes closed or standing on an unstable surface (Bosu ball or pillow).

Gastrocnemius (calf)

- Helps you walk normally with equal step length and climb stairs.



General tips and exercise progression:

- Stand upright on both feet in front of a counter for hand support.
- Push down through your toes, lifting both heels off the ground (toe raise).
- You should feel some tension or fatigue in your calves and in the front of your thighs.
- Do not roll over on your ankles (see image #13).
- Once you can do 30 repetitions, try this exercise without hand support or close your eyes or stand on an unstable surface such as a Theradisc or Bosu ball to challenge your balance.
- If you want to challenge your balance and strength even more, try the exercise on one leg starting with holding onto a counter and progress as you wish.

How to Progress Exercises (Repetitions and Load)

Muscles such as the quadriceps, gluteus medius and calf work to support your whole body weight every step you take. If you walk a kilometer think of how many steps you take. Do you think an exercise prescription of 10 repetitions will help you achieve your goal?

- Start with 3 sets of 10 repetitions; you can space the sets out at first if you get tired.
- Add one repetition to each set every second day, or as able until you build up to 30 repetitions.
- Perform the exercise in a slow and controlled manner.
- It is more important to do the exercise correctly than to do a bigger movement or add resistance (using a Thera-Band or weight).
- Do exercises on each leg.
- To make the exercise more challenging and to work on your balance, see if you can do the exercise without hand support while maintaining a good position.
- To further increase strength, you can increase the difficulty of the exercise by adding a load (weights or a Thera-Band). When you add a load your muscle will fatigue earlier, so start with fewer repetitions and gradually increase to 30 repetitions again. Repeat this cycle each time you add a load.

Here are a few basic exercise principles:

1. **Specificity of exercise** - If you want to improve your ability to do an activity, the exercise has to work the muscle in the same way as it would work during the activity.
2. **Overload** – Our body adapts to stress/load. Once your muscle has adapted it will not get any stronger unless an even bigger load is placed on it; this can be done by increasing weights/resistance or number of repetitions. To increase muscle strength/endurance you must do your exercises a minimum of 3 times per week.
3. **Reversibility** – Use it or lose it. You must do your exercises at least 2 times per week to maintain your gains.

Appendix 7: Stretching for People with a Hip or Knee Replacement

The muscles that may become tight with osteoarthritis and/or are tight after a hip or knee replacement include the quadriceps (front of thigh), hamstrings (back of thigh), hip flexors (front of hip), and gastrocnemius (calf) muscles. Tightness in these muscles can affect your ability to walk and do your everyday activities with ease and comfort.

The pictures below show the proper positions to stretch. There is often more than one way to stretch each muscle, so choose the option that you prefer and is best for your situation (e.g. if you are outside you may want to stand rather than lie on the ground to stretch).

Muscles and soft tissues are more easily stretched after you have warmed up. For example, it will be less uncomfortable to stretch after a hot shower or an activity such as walking or biking. To effectively stretch you need to go to the point of discomfort and hold the position for 30 to 45 seconds. Repeat each stretch 3 times on each leg.

Quadriceps (front of thigh)



- Standing
 - > Bend your knee, hold your ankle with your hand, if you cannot reach use a towel or belt to assist, as shown in the picture
 - > Pull your heel towards your buttock or pull the ankle and thigh backwards
 - > Keep your thighs together
 - > Tighten your tummy muscles to limit your back arching



- Lying on front
 - > As above and tighten buttocks to keep front hips on bed

• Pull/stretch should be felt in the front of your thigh and groin

Hamstrings (back of thigh)



- Standing
 - > Place your heel on a stool or step
 - > Use a handrail or chair for balance
 - > Lean forward from the hips keeping your back straight



- Lying on back
 - > Bend hip and knee of leg to be stretched
 - > Place towel around your heel to support your leg
 - > Slowly straighten your leg towards the ceiling
- Pull/stretch should be felt in the back of your thigh

Hip flexors (front of hip)



- Standing
 - > Stand with one foot ahead of the other, toes pointing forward
 - > Keep hips level and pointing forward, no twisting
 - > Push hip of the back leg (the one being stretched) forward
 - > Keep your upper body upright
 - > Bending the front knee will increase the stretch



- Lying on back
 - > Sit with both buttocks on the edge of a bed or large, raised and firm surface
 - > Place both hands under your thigh to bring that thigh towards your chest as you lie back
 - > Let the other leg dangle; if it touches the ground straighten the knee
- Pull/stretch should be felt in your groin

Gastrocnemius (calf)



- Stand with your hands on a wall for support
- Place one foot ahead of the other with toes pointing forward
- Bend your front knee to increase the stretch on the calf of the back leg
- Keep back leg straight with the heel on the ground
- Pull/stretch should be felt at the back of the knee and calf

Appendix 8: Getting Started Checklist

If you're just starting to become active or haven't been for a while, this checklist is a good starting point.

- You've completed the readiness for physical activity questionnaire (Appendix 1), or consulted with your family doctor to determine your readiness.
- You know that setting goals that are within reach is the best strategy for long-term gains.
- You have an idea of how much time to devote to physical activity, and when in your schedule you can fit it in.
- You are aware that you may feel increased pain and stiffness at first, but that it should soon disappear.
- You know to listen to your body and to balance increased activity with rest periods during the day.
- You've made a list of fitness activities that you'd really like to do, and researched what's available through other local community resources.
- You've identified appropriate flexibility, strength and endurance activities that will help you become more physically active and mobile.

Adapted from "Physical Activity and Arthritis," The Arthritis Society

Appendix 9: Tracking Your Progress

Goal Setting Worksheet

Take a few minutes to think about what you would like to be able to do in the next 2-4 weeks (short-term goals) and in the next 6-12 months (long-term goals). Write your goals down and put them where you can see them every day to help you keep on track.

Your success relies on having a clear idea of what you would like to be able to do and when. Review and rewrite your short-term goals every 2-4 weeks, monitor your progress and celebrate your success!

Short-term Goals

Write down at least two short-term goals. Consider what you might do over the next week or two that will help you make physical activity a regular part of your life and help you towards your long-term goals.

1.

2.

3.

Long-term Goals

Write down at least two long-term goals. Where would you like to be in six months to one year from now?

1.

2.

3.

Activity Log

Activity logs can be great motivators and help you see your progress. For excellent examples of activity logs that you can use, go to the Resources section “Exercise & Physical Activity: Your Everyday Guide from the National Institute on Aging” web link. Activity logs are on pages 102 – 108. Or if you wish you can use the sample below.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Endurance activity goal – accumulate 30 to 60 minutes of activity daily							
Activity & time (minutes)							
Activity & time (minutes)							
Activity & time (minutes)							
Strength goal – 2-3 times per week, every other day rather than 2 days in a row (See Appendix 6 for exercises)							
Front of thigh	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets
Side of hip	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets
Calf	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets	_____ Reps _____ Sets
Flexibility – 2-3 times per week, every other day rather than 2 days in a row (see Appendix 7 for exercises)							
Front of hip	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps
Front of thigh	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps
Back of thigh	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps
Calf	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps	_____ Reps
Balance – 2-3 times per week							
Activity & time (minutes)							
Total Time							



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