



PATIENT NAME: _____

Knee Surgery

Post-Operative Care

And

Rehabilitation Protocol



Leaders in Specialty Orthopaedic Care

Dr. Petre would like to thank the doctors at The Steadman Clinic and the staff at Howard Head Sports Medicine in Vail Colorado for the creation of this rehab protocol. It has been updated and modified to accurately reflect the needs of Dr. Petre's patients.

After Surgery Care and Information

Many questions arise during the first week after surgery. There are many new sensations felt in the body, especially in the operative knee and leg. The following will help answer many of your questions to help relieve normal anxiety.

General Instructions

Take your medications only as prescribed. If they are not working call Dr Petre's team at 410.280.4717 during business hours or the on call physician at 410.268.8862 after hours.

You should try to drink plenty of water after surgery.

Your responsible adult caregiver should stay with you for the first 24 hours after surgery to help you with medications, movement, encourage fluids, activities of daily living, and to help observe you for any possible complications.

Follow your weight bearing and movement restrictions closely.

Elevate your extremity to help reduce swelling.

Use ice to help with pain control and swelling control.

Active calf Pumps: do 10 up and down pumps of your feet every hour while awake.

Foot pump and calf pump rationale: Compression of plantar venous plexus causing return of the blood in your lower legs to your heart.

Stockings: Use the stockings on both legs at all times except showering for the first 2 weeks to help reduce the chance of getting a blood clot.

****Please use the incentive spirometer or 10 deep breaths every one hour while awake. Continue for first week post-op.**

****When lying on back (supine) in bed during days 1-3 post-op, please place 3 pillows behind head and neck to raise head and improve ability to cough and deep breath.**

Call us immediately if you have:

- Pain not controlled by your pain medication (you will always have some pain after surgery, however severe pain not controlled by medication is abnormal)
- Fever more than 101.5. A low grade temperature is normal after surgery. Fevers over 101.5 are abnormal. You do not need to routinely take your temperature, only do this if you feel that you have a fever.
- An increase in leg swelling, redness or foul smelling drainage from wounds.
- Chest pain, shortness of breath or other medical emergency should call 911 and inform our office after the emergency is over.

Returning to work or school:

You may return to work or school light duty only in the immediate days after surgery if pain is tolerable. You must take the time to honor your commitments to physical therapy and office visits. Returning to heavy labor will be determined by your progression through physical therapy and the type of surgery you had.

Knee brace:

Some patients will require a brace, some will not. If you have a brace on in the recovery room, you will need to **wear the knee brace** for 2 weeks or more depending upon the type of surgery you had. Your rehab protocol will have a specific time in the brace. You should sleep in the brace unless otherwise noted. For most patients it will come off for physical therapy daily.

Risk: There are several risks to any surgery that must be taken into account...

Infection: is decreased with a sterile operating environment and antibiotics. Also, careful handling of the incision sites following surgery reduces the risk of infection.

DVT: (deep vein thrombosis, blood clot) is decreased through instituting early motion, mechanical means (foot/ankle pumps) and occasionally medication. Following the pre-operative and post-operative instructions will reduce the risk of deep vein clots.

Pain: with any surgical procedure there is a potential complication of pain. Medication, ice, rest, compression, elevation and therapy reduce post-operative pain.

Numbness: with knee arthroscopy, there is a small chance of numbness in the knee leg or foot region briefly postoperatively. The numbness should resolve over time, but may take weeks.

Wound Care Instructions

Care of your wounds after surgery is very important to ensure a quick recovery and to minimize the chance of infection. Here is a list of **good practices**:

- Keep your incisions clean and dry
- Elevation minimizes swelling which helps wound healing
- Change your dressing every other day to maintain a clean environment unless otherwise instructed
- Leave “steri-strips” or butterfly bandages in place

Here are things you should **avoid**

- Do not let your extremity dangle or swell
- Do not remove the “steri-strips”
- Do not adjust or remove any sutures or staples
- Do not use creams, ointments, vitamins, scar reducers or other products on the wounds
- Do not take a bath, swim, go in a pool/hot tub or otherwise submerge the wound until you are instructed that you can or at least 2 weeks have passed
- by day 3 if no drainage is present the incision should remain uncovered and keep clean clothing only covering the sites.
- Do not allow pets to sit on your lap or sleep in your bed for at least 6 weeks following surgery. Pets may harbor fleas or mites or other organisms that may cause a wound infection!

The original dressing should be removed 24 hours after surgery. Apply an opsite, waterproof dressing over the incision site until you have stopped draining. After drainage has stopped, apply band aids over the incisions. Do this daily or as needed throughout the day if the op-sites or band-aid becomes soiled or wet. Do not put any ointments or lotions over the incisions.

Showering: You may start showering as soon as your first dressing is removed if waterproof bandages or “op-site” dressings are covering your wound to keep them dry. If you do not have waterproof dressings, you may get the wounds wet 3 days after surgery with running water in the shower as long as they are no longer draining any fluid. At this point you may use mild soap on the wounds such as Dial Soap. Do not scrub the wounds. Pat them dry with a clean towel after showering and place a fresh clean bandage.

If you should have any questions or concerns regarding you incisions, the best thing to do is to take a digital picture of the incision and e-mail it to a member of Dr. Petre’s team.

Medications After Surgery

New Prescriptions: Dr Petre will provide you at least two if not more prescriptions for after surgery. These will include:

- A narcotic pain medicine (percocet, vicodin, oxycodone, etc). This medication should only be taken “as needed” for pain. You will likely have some pain after surgery, this medication will help with your pain but will likely not take 100% of the pain away. These medications last 4-6 hours, if you are not experiencing pain, do not take them as they can have side effects such as constipation, nausea, vomiting and respiratory depression. **DO NOT DRIVE** if you are taking narcotics. . **It will help to take your pain medication thirty minutes before therapy** if you are experiencing any pain. You should plan to wean yourself from pain medicine by the time your 2 week visit is to occur.
- A blood thinner such as lovenox, aspirin or coumadin. Depending upon your risk of getting a blood clot after surgery (also called a DVT), Dr. Petre will prescribe you a blood thinner to minimize this risk. Every patient will receive TED stockings to help minimize the risk of clots, these need to be worn on BOTH legs for 2 weeks after surgery
 - High risk patients (lower extremity fractures, joint replacements): Lovenox injections for 2 weeks followed by 4 weeks of aspirin 325mg daily
 - Medium Risk patients (lower extremity arthroscopy or small procedures): Aspirin 325mg daily for 4 weeks
 - Low Risk Patients (shoulder arthroscopy, upper extremity fractures): Early mobilization and ambulation.
- Anti-inflammatory medications: These can be added as needed for additional pain control. Routine daily use can slow down certain type of healing and daily use should be avoided in: Fracture healing, rotator cuff repairs, ligament reconstructions, meniscal repairs. Specific anti-inflammatories may be prescribed in certain surgeries such as hip arthroscopy to prevent the formation of heterotopic ossification.
- Your previous home medications: You should resume any/all blood pressure medications, heart medications, thyroid medications, diabetes medications. Please refrain from taking non-prescribed supplements or over the counter medications until 2 weeks after surgery. Please refrain from taking gout medicines or rheumatoid medicines for 2 weeks after surgery if possible.

Other prescriptions you may receive:

- Ambien: this will aid in sleep and may be prescribed for certain procedures. Only take this medicine at night if you are having trouble sleeping
- Oxycontin: This is a long acting narcotic medication and should only be taken twice a day as prescribed
- Zofran: Zofran is a nausea medication that helps with some of the side effects of narcotics
- Antibiotic: If you were prescribed an anti-biotic after surgery, you should take this exactly as directed. Try not to miss any pills and take the entire prescription until it runs out.

Over the Counter Medications you may want to consider taking:

- Colace or Senna (Senna Kot): Many people get constipation from pain medicine, these medications will help with constipation
- Tylenol (acetaminophen): Tylenol is a good adjunct for pain control because it works in a different way than narcotics and anti-inflammatories. Some narcotics will have tylenol built into the pill already. **If your narcotic prescription has acetaminophen, APAP, or tylenol listed on it, DO NOT TAKE ADDITIONAL TYLENOL.** There is a 4000mg limit per day for tylenol in adults, it can damage your liver if you take more than this amount.

Ice After Surgery and Ice Devices

Ice after surgery is a great way to decrease your pain and reduce swelling. It will speed your recovery and is recommended.

Ice Technique: If you are using ice or ice packs from your freezer, it is most convenient to apply the ice for 20 minutes on and then 20 minutes off. Place a thin piece of cloth between the ice pack and your skin.

Ice with a splint or cast: Ice will help if it is cold enough to penetrate. If you can feel it, then it is working. With a cast or splint, you need to use extra caution to prevent water from leaking into the cast/splint.

Ice and Nerve Blocks: Use caution if you have had a nerve block when using ice in the first 24-72 hours as you may not be able to sense how cold your skin is getting. This puts you at risk of getting frostbite.

Ice Device: You may be prescribed a cooler with a bladder to circulate ice water after surgery. These devices do a great job of keeping your surgical site iced down. If you have difficulty with your device, please call the technical assistance number on the device as the on-call doctor at the office will not likely be able to talk you through trouble shooting the machine.

Physical Therapy

Physical Therapy is a crucial part of your recovery. Most patients will start physical therapy directly after surgery. **You should call to schedule your physical therapy appointment now.** Therapy can start the day after surgery unless otherwise directed. Please see the attached therapy prescription for office numbers and locations. Please ask your therapist to follow the included protocol, we are always happy to discuss treatment modalities, progress and questions with your therapist. If these questions arise, you can encourage them to contact the office anytime via phone or email.



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Annapolis, MD 21401
Tel: 443-481-1140

8638 Veteran's Hwy
Millersville, MD 21108
Tel: 410-729-4508

4175 N. Hanson Court
Ste: 301, Bowie, MD 20716
Tel: 301-805-7004

REHABILITATION PRESCRIPTION

Physical Therapy Occupational Therapy

Patient's Name: _____

Diagnosis: _____

Return to Physician _____

Suggested frequency: 2-3 times/wk Daily Other _____

Duration: Until program is completed Until next MD visit As per plan of care

Evaluate and Treat as Indicated

<input type="checkbox"/> Post Arthroscopy program	<input type="checkbox"/> Spine Consult
<input type="checkbox"/> Total Joint program	<input type="checkbox"/> Osteoporosis Consult
<input type="checkbox"/> Wrist / Hand program	<input type="checkbox"/> Arthritis Consult
<input type="checkbox"/> Cervical / Back program	<input type="checkbox"/> Splint / Bracing
<input type="checkbox"/> Shoulder program	<input type="checkbox"/> Aquatics program
<input type="checkbox"/> Elbow program	<input type="checkbox"/> Back / Neck Education
<input type="checkbox"/> Hip program	<input type="checkbox"/> Work Conditioning program
<input type="checkbox"/> Knee program	<input type="checkbox"/> Work Hardening program
<input type="checkbox"/> Foot / Ankle program	<input type="checkbox"/> Functional Capacity Evaluation
<input type="checkbox"/> Video gait analysis	<input type="checkbox"/> Throwing program

Precautions/Comments/Additional Instructions _____

VOID AFTER 30 DAYS

The physician certifies that the prescribed rehabilitation is medically necessary.

- | | | |
|--|--|--|
| <input type="checkbox"/> S.E. Faust, MD | <input type="checkbox"/> R. S. Hutchison, MD | <input type="checkbox"/> B. M. Petre, MD |
| <input type="checkbox"/> R.M. Verkin, MD | <input type="checkbox"/> A.C. Speciale, MD | |
| <input type="checkbox"/> T.J. Harries, MD | <input type="checkbox"/> C.J. Lashgari, MD | <input type="checkbox"/> T. Adams CRNP |
| <input type="checkbox"/> E.S. Holt, MD | <input type="checkbox"/> P. Bambrah, MD | <input type="checkbox"/> J. VanHassent, PA-C |
| <input type="checkbox"/> P.N. Ove, MD | <input type="checkbox"/> J. H. MacDonald, MD | <input type="checkbox"/> K. Potter, PA-C |
| <input type="checkbox"/> M.F. Brassard, MD | <input type="checkbox"/> D.E. Redziniak, MD | <input type="checkbox"/> C. Platnick, PA-C |
| <input type="checkbox"/> J. Gelfand, MD | <input type="checkbox"/> A.D. Shushan, MD | <input type="checkbox"/> S. Sullivan, PA-C |
| <input type="checkbox"/> D.V Hoffman, DPM | <input type="checkbox"/> A.A. Spirt, MD, PhD | |
| <input type="checkbox"/> C.M. Morganti, MD | <input type="checkbox"/> C. M. Patton, MD | |

Physician Signature _____ Date: _____

OSMC-10- (09/12)

Dear Therapist,

Thank you for continuing the rehabilitation with Dr. Petre's patient following their knee surgery. The intent of this program is to provide *guidelines* for progression of rehabilitation. It provides the basic exercises and techniques you will need to guide the patient to return to normal function. At the 6-8 week follow-up and if appropriate for the patient, Dr. Petre will determine whether the patient is ready to progress to an advanced functional training program for return to sport, a maintenance strength program, or to continue to work on "the basics" before progressing further.

- Utilize the rehab outline and exercise descriptions as a guide. This is a proven program in terms of exercises and treatment, but some patients may need to move slower.
- Utilize clinical decision making to adjust treatments if needed within given guidelines and precautions.
- Progression through each phase of rehabilitation is based on clinical criteria and time frames.
- Understand that the program should be tailored for the individual based on their ability to progress and respond to treatment. This concept should continually be emphasized to the patient. Advancing through the rehabilitation process involves an accurate assessment of joint function, strength, mobility and progressive overload based on the patient's response.
- Do not advance through the protocol faster than prescribed if the patient is "doing well". Most knee protocols are designed to be slow early to prevent the formation of scar tissue.
- Primary Goals for most knee surgery is a normalization of motion by 6 weeks and returning to full function by 3-4 months.

If there are any questions regarding rehab, please call Dr Petre's office at 410.280.4717

Surgery Descriptions

Meniscal repair: The meniscus is sutured back to the joint capsule to provide stability and healing. It can either be done “all-inside” for small tears or “inside out” for large tears.

Meniscal Debridement or Partial Meniscectomy: A meniscus that is torn and not repairable is removed using a series of arthroscopic tools.

Debridement: Removal of small frayed edges of torn tissues by an arthroscopic tool.

Microfracture: A microfracture technique is performed to cartilage lesions on the femur, tibia or patella. A pic (awl) is used to create bleeding of the bony surface where the cartilage is damaged. This blood forms a clot which matures into new cartilage. The clot is delicate and requires minimal weight-bearing and good mobility for proper healing.

Chondroplasty: Minimal cartilage damage is repaired using a motorized shaving tool to shave off any frayed edges.

Synovectomy: A synovectomy is performed in patients who exhibit significant inflammation of the lining of the joint. During this procedure a probe is used to remove the irritated tissue.

ACL Reconstruction: Using a graft tissue (either from the patient or a cadaver), the ACL is rebuilt through small incisions and tunnels drilled in the bone.

PCL Reconstruction: The PCL is reconstructed using a double bundle technique using two cadaver grafts to re-approximate the complete function of the PCL. It is inserted into drill tunnels in the bone and held in place with a combination of screws.

MCL Repair and Reconstruction: The MCL can occasionally be repaired using the existing tissue by sewing it to the bone using special anchors. On occasion, it may be augmented with graft tissue for extra strength.

LCL (FCL) Reconstruction: When the FCL is torn, it is reconstructed using a graft tendon. It is placed anatomically in the outside of the femur and the fibular head and held in place in bone tunnels using screws.

Posterior Lateral Corner Reconstruction: the Posterolateral corner refers to a series of structures in the back outside of the knee. It is often injured as a group and therefore repaired as a group. It is reconstructed using a series of graft tendons to replace the damaged structures in the knee.

Multi-Ligamentous Knee Injuries: This is an injury where multiple structures are torn causing significant damage to the knee. On occasion they can all be repaired at the same time but occasionally will need multiple reconstruction procedures.

Knee Dislocations: A knee dislocation occurs with the tibia and femur are no longer connected properly. This can be a serious injury with risk of losing the leg or permanent nerve or vascular damage. Reconstruction is tailored to the individual patient and injury.

Patella Dislocations/MPFL (medial patella femoral ligament) Reconstruction: Patella dislocations can be due to bony abnormality of soft tissue injury. Most commonly these are treated by reconstruction the MPFL using a donor ligament or the patients own tissue. The ligament is connected between the medial side of the patella and the femur to prevent re-dislocation. Bony alignment may need to be corrected as well. This is often done with arthroscopy to address cartilage injuries and loose bodies.

Meniscal Transplants: A meniscal transplant is transplantation of the medial or lateral meniscus from matched size cadaver to replace a permanently damaged or insufficient meniscus in a patient without arthritis. The transplanted meniscus is secured to the knee using bone tunnels and multiple sutures.

Cartilage Replacement: Cartilage is difficult to grow and therefore there is no perfect solution to cartilage injuries. There are many different types of cartilage replacement including ACI, OATS, Microfracture, donor osteochondral plugs, fresh osteochondral allograft, and metal cartilage plugs.

Osteo-Chondral Defects (OCD's) Repair: A procedure to re-attach a bone/cartilage defect that has broken off the bone and is loose in the knee. It is accomplished with small headless screws to hold the fragment in place.

Arthritis or Degenerative Knee Debridement: "The Package" is designed to address multiple pain generators in the arthritic knee including: meniscal tears, stiffness, scar tissue, cartilage defects, synovitis, plicae and a decrease in the suprapatellar space.

Arthrofibrosis (Stiffness) of the Knee Debridement and synovectomy: Arthroscopic removal of a portion of the joint lining and inflamed or scarred tissue that is not allowing for normal motion. This is often followed by manipulation of the knee to regain motion.

Mal-Alignment or osteotomy: Surgery to cut the bone (tibia or femur) and re-align the leg to address improper alignment leading to improper wear or instability. The cut bone is then held in place with plates and screws to allow for healing.

Knee Replacement: A procedure to treat end-stage arthritis, knee replacement removes the damaged end of the bones of the femur, tibia and patella and replaces them with metal and plastic implants. This removes knee pain from arthritis and gives good function for 15-20 years on average.