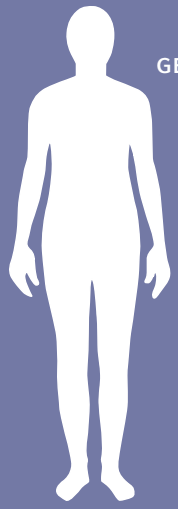
MANAGING SURGICAL PAIN WITH NERVE BLOCKS

Know Your Options

Teleflex®

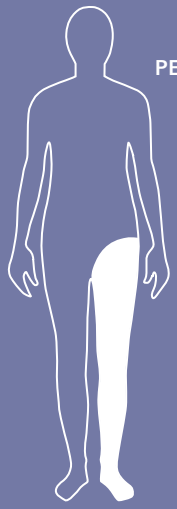
KNOW YOUR OPTIONS

- WHAT IS A NERVE BLOCK
- THE BENEFITS COMPARED WITH GENERAL ANESTHESIA
- HOW IT CAN HELP YOU RECOVER FASTER AND GO HOME SOONER
- POTENTIAL COMPLICATIONS AND SIDE EFFECTS



GENERAL ANESTHESIA

- **Patient is made unconscious**
- **Common side effects are nausea, vomiting, fatigue**
- **Side effects can delay recovery**



PERIPHERAL NERVE BLOCK

- **Controls pain in specific places**
- **Reduced chance of nausea, vomiting, fatigue**
- **Patient typically feels better faster, recovers more quickly, and goes home sooner**

Peripheral nerve blocks provide a safe, comfortable way to reduce pain during and after surgery. They are proven to enable patients to recover quickly, with a reduced chance of the fatigue and nausea associated with having general anesthesia. To help you talk to your surgeon and **anesthesiologist** about your upcoming surgery, this guide provides answers to some of the most common questions about peripheral nerve blocks.

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The information in this booklet is adapted from ***Understanding Nerve Blocks for Surgery and Acute Pain*** by Dr. André Boezaart. We extend our sincere thanks to Dr. Boezaart for the use of this material and his time and dedication to the field of peripheral nerve blocks.

WHAT IS A PERIPHERAL NERVE BLOCK?

Ask your doctor if a peripheral nerve block is right for you.

How does a peripheral nerve block manage pain?

- Keeps nerves from sending pain signals to the brain
- Similar to a dentist numbing part of the mouth before filling a tooth

Peripheral nerves send messages to and from your brain about sensation and movement. A peripheral nerve block delivers numbing medication near the nerve. This temporarily reduces the messages from the nerve to your brain. It's similar to when the dentist numbs a specific area of your mouth before filling a tooth. The most common medications used for blocks include local anesthetics like lidocaine (often used by dentists), bupivicaine and ropivicaine.

How is a peripheral nerve block different from general anesthesia?

- Peripheral nerve block reduces pain in a specific area; general anesthesia makes the patient unconscious
- With nerve blocks, there is a reduced chance of nausea, vomiting and fatigue; common side effects of general anesthesia
- With nerve blocks, the patient typically feels better faster, recovers more quickly and goes home sooner

First, a nerve block is a form of **regional anesthesia** that controls pain in a specific part of the body; **general anesthesia** controls pain by making the patient unconscious. Second, peripheral nerve blocks don't have many of the unpleasant side effects of general anesthesia, including post-operative nausea, vomiting and fatigue. Third, patients typically recover more quickly after surgery that uses a nerve block. They often feel better faster and can go home sooner.

WHAT IS A PERIPHERAL NERVE BLOCK?

Is a peripheral nerve block ever used with other pain control medicines?

- Can be combined with general anesthesia so you wake faster with less pain during recovery
- Sometimes combined with medications for anxiety, stress and pain

Yes, in fact both a nerve block and general anesthesia may be used during surgery so you can sleep through the procedure. It depends on the procedure and your medical history. Combining the two allows the general anesthesia to be light. You'll wake up faster after surgery and have better control of the pain during your recovery. You can also take other pain medications along with a peripheral nerve block if prescribed by your physician. Medications to control anxiety, stress, and pain are often used during nerve block procedures. Effective pain management after surgery may make your hospital stay less stressful and improve your results later on during physical therapy.

Can a nerve block reduce post-operative pain?

- **A continuous infusion catheter** (i.e. Arrow StimuCath®) may be inserted for long-term pain relief*
- The catheter connects to a small portable pump, and can control pain for up to 72 hours

Yes, by using a device called a continuous infusion catheter, like the Arrow StimuCath. The anesthesiologist gently inserts a very small tube (as thin as a strand of angel hair pasta) called a **catheter** under the skin just above the nerve being blocked. This catheter connects to a small portable pump. The catheter and pump deliver a local anesthetic. Pain is relieved as long as the numbing medicine is delivered to the nerve (this is called an infusion), which can be up to 72 hours.

*Long-term is a maximum time of 72 hours.

HOW A PERIPHERAL NERVE BLOCK IS GIVEN

Your anesthesiologist can provide more details about getting a peripheral nerve block.

Will I get a nerve block in a single dose?

- The block can be a single dose or a continuous infusion up to 72 hours

Peripheral nerve blocks can be delivered in a single injection (i.e. Arrow StimuQuik™) or as a continuous infusion (i.e. Arrow StimuCath). Single injections provide pain relief for several hours, while a continuous infusion can be used to control pain for a few days (up to 72 hours), depending on the type and amount of medication administered. As a general rule, many healthcare providers advise their patients to take pain medication when sensation returns to the blocked area. This may feel like "pins and needles."

When will I be given a nerve block, and how is it done?

- Given just before surgery
- The anesthesiologist locates the nerve painlessly with a nerve stimulator
- He or she then numbs the skin and gently inserts a thin catheter
- The catheter sends anesthetic directly to nerve

It's usually done just before surgery in a patient examination room.

First, the anesthesiologist numbs the skin with local anesthesia, inserts a stimulating needle and then uses a small hand-held machine called a **nerve stimulator**. The nerve stimulator sends a low-level electrical signal into your tissue below the skin that helps pinpoint the precise nerve location. The signal will cause a painless muscle twitch, and possibly a tingling sensation. Next, the anesthesiologist gently inserts a very thin catheter (as small as a strand of angel hair pasta) to the nerve location and injects the precise amount of anesthetic needed.

HOW A PERIPHERAL NERVE BLOCK IS GIVEN

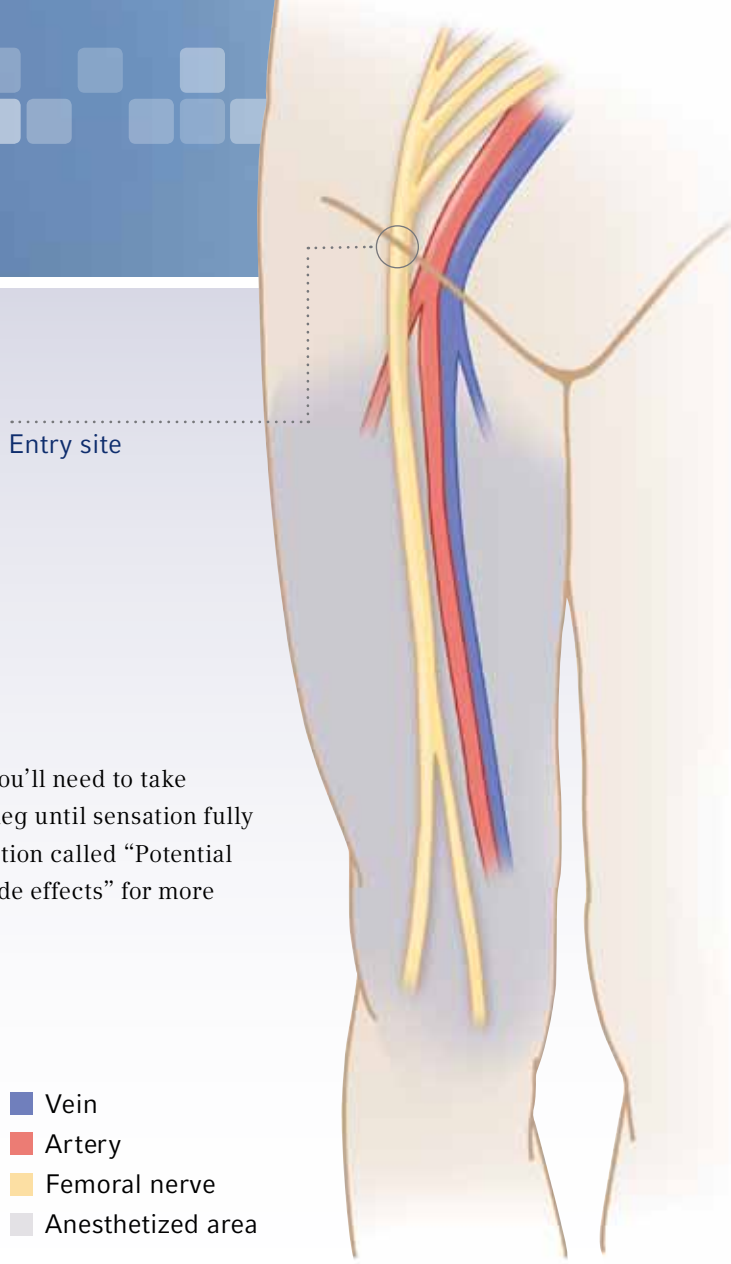
LEG SURGERY: FEMORAL NERVE BLOCKS

Femoral nerve blocks are used for surgery on the thigh and knee. The block numbs the nerve that transmits signals from much of the front and sides of the thigh and knee. This nerve is relatively close to the skin in the groin area and runs down the leg. A separate block of the sciatic nerve is usually required to fully numb the back of the thigh and lower leg. The sciatic block will be done in much the same way as the femoral nerve block.

Here's how the femoral nerve block is typically given:

- The skin around **entry site** is cleaned and numbed
- The anesthesiologist locates the nerve painlessly with nerve stimulator and needle — you may feel a slight tingling sensation or muscle twitch
- He or she then delivers nerve-blocking anesthesia
- If continuous infusion is planned for long-term pain control, a catheter is inserted and connected to a small portable pump
- Numbness usually lasts for several hours with a single dose or until the continuous infusion catheter is removed (up to 72 hours)

Following surgery, you'll need to take special care of your leg until sensation fully returns. (See the section called "Potential complications and side effects" for more information.)

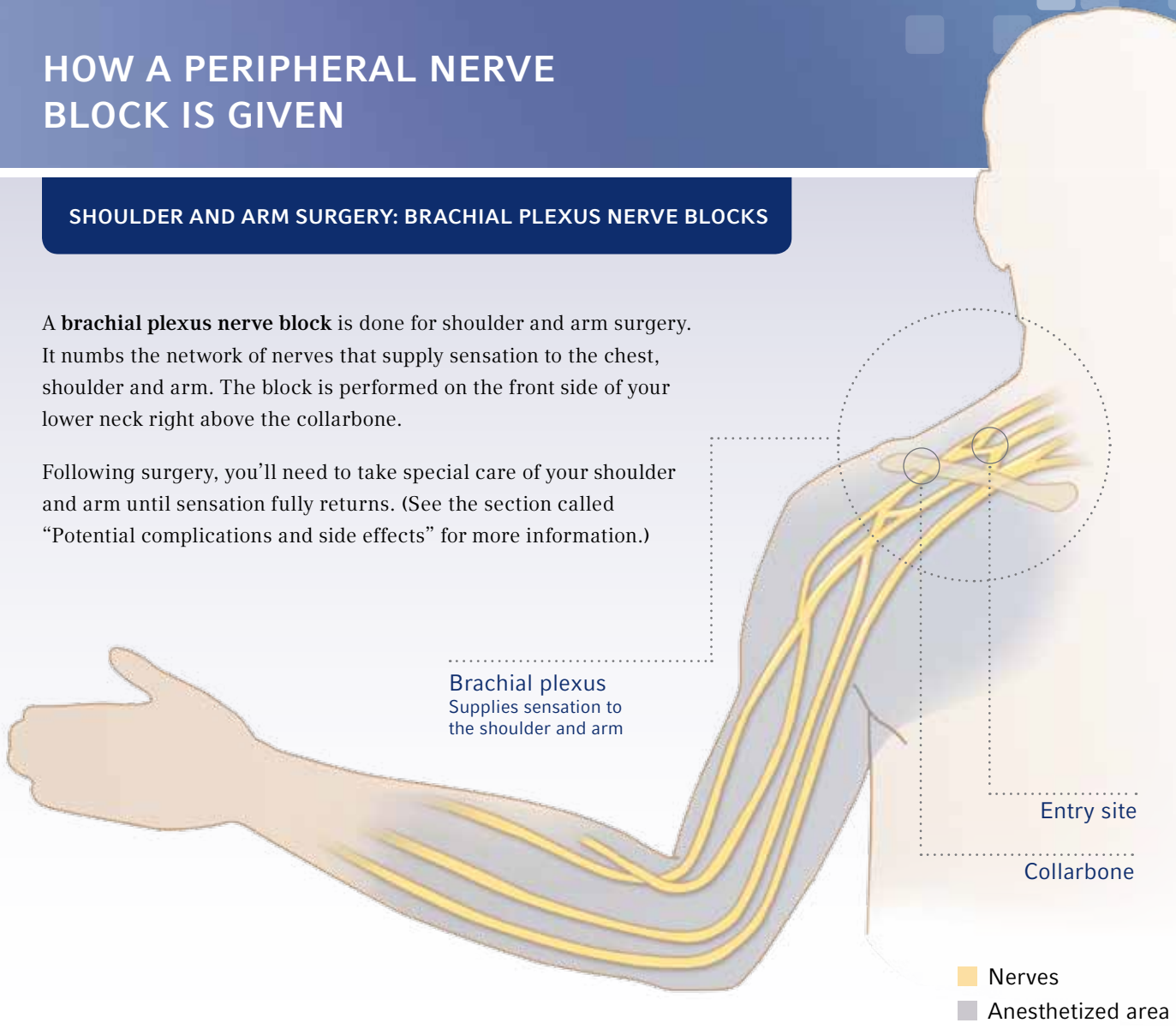


HOW A PERIPHERAL NERVE BLOCK IS GIVEN

SHOULDER AND ARM SURGERY: BRACHIAL PLEXUS NERVE BLOCKS

A **brachial plexus nerve block** is done for shoulder and arm surgery. It numbs the network of nerves that supply sensation to the chest, shoulder and arm. The block is performed on the front side of your lower neck right above the collarbone.

Following surgery, you'll need to take special care of your shoulder and arm until sensation fully returns. (See the section called "Potential complications and side effects" for more information.)



Here's how the brachial plexus nerve block is typically given:

- Skin around entry site is cleaned and numbed
- The anesthesiologist locates the nerve painlessly with nerve stimulator and needle — you may feel a slight tingling sensation or muscle twitch
- He or she then delivers nerve-blocking anesthesia
- If continuous infusion is planned for long-term pain control, catheter is inserted and connected to a small portable pump
- Numbness usually lasts for several hours with a single dose or until the continuous infusion catheter is removed (up to 72 hours)

BENEFITS AFTER SURGERY

How will regional anesthesia improve my recovery?

- Less side effects than general anesthesia; reduced chance of post-operative nausea and vomiting.
- Probably go home sooner
- May improve results during physical therapy
- Typically, full sensation returns three to six hours after infusion ends

Continuous infusions may allow you to go home much faster after surgery. They not only provide better pain control, but also have fewer side effects than traditional oral pain medications, such as opiates. Because you'll be more comfortable, you may also recover faster and enjoy improved results from physical therapy.

The catheter and pump are easy to use. Your nurses will give you and your family helpful information. Once continuous infusion is finished, your doctor will remove the catheter. Full sensation should return 3 to 6 hours after the infusion ends.

INSURANCE COVERAGE

Will there be additional costs for a nerve block?

- Be sure to check with the hospital billing office and your insurance company *before* surgery so you know what is covered

After you talk with your surgeon and/or anesthesiologist about a peripheral nerve block, check with the hospital billing office and your insurance provider about coverage for nerve blocks. To make an informed decision, you should know which costs your insurance will cover, as well as possible deductibles for services like a peripheral nerve block and/or a visiting nurse.

POTENTIAL COMPLICATIONS AND SIDE EFFECTS

Tell your anesthesiologist if you or a family member has had a problem with anesthesia.

Should I tell my doctor about allergies or existing medical conditions?

- Tell your doctor about your allergies, medications, medical history and experience with anesthesia
- If a family member has had a bad experience with anesthesia, tell the doctor that, too

Yes. Tell your surgeon and anesthesiologist about any problems you or a family member have had with anesthesia. That includes injections at the dentist's office. You should also tell your doctor about any allergies or side effects to drugs; any medication taken during the last four weeks, including non-prescription medication and herbal supplements; any bleeding disorder, frequent bruising with minor injuries or recurrent nosebleed; any medical condition involving your heart, lungs, kidney or liver function; nervous system or psychiatric problems; or problems with your metabolic system (like diabetes, thyroid problems or genetic disease).

If I feel anything "funny" during the nerve block, should I tell the anesthesiologist?

Tell the anesthesiologist about any unusual sensations involving:

- Hearing
- Eyesight
- Sense of taste
- Anxiety
- Muscle spasms
- Breathing

Be sure to report any unusual sensations to your doctor, especially at the start of the block procedure, including a metallic taste in your mouth; ringing in your ears; odd hearing or visual sensations; or any feelings of anxiety or muscle spasms. The injection of local anesthetics can sometimes cause a drop in blood pressure or heart rate, which is usually easy to treat. Side effects that require resuscitation are extremely rare and are most often associated with severe pre-existing illness — another reason to tell your surgeon and anesthesiologist about any pre-existing medical conditions.

POTENTIAL COMPLICATIONS AND SIDE EFFECTS

Should I expect some bleeding where the peripheral nerve block is inserted?

- Minor bruises are common; bleeding and infection are not common
- The anesthesiologist and medical team will take special precautions to prevent infection

Minor bruising is common from the block injection and usually goes away in a couple of days, but bleeding and infection at the nerve block puncture site are rare. To reduce the risk, your doctor will thoroughly review your medical history, discuss any medications you're taking (including non-prescription and herbal supplements) and give you a physical examination. The anesthesiologist will take special precautions when he or she performs the nerve block, including cleaning the insertion site. Also, the entire surgical team will wear all necessary protective gear.

What about using ice or a heating pad?

- Don't use them; because the limb is numb, you won't know if ice or heating pads have damaged the skin
- Your doctor may recommend a temperature-controlled device
- Avoid bumps or falls
- Watch for signs of injury and/or infection, including swelling, warmness, or redness
- If you notice any of these, call your doctor

Avoid both ice packs and heating pads on numb limbs. Because you won't feel excessive heat or cold applied to the area, you could damage your skin. Instead, your doctor may suggest a special temperature-controlled device. Also, take care to avoid bumps or falls — because of the numbness you might miss signs of injury or infection, such as swelling, warmness or redness. Even if you do take good care of yourself, check often for these signs; if you notice them, call your doctor immediately.

POTENTIAL COMPLICATIONS AND SIDE EFFECTS

Ask your doctor if a peripheral nerve block is right for you.

Should I avoid any activities after my nerve block?

- Don't walk without crutches
- Don't walk unassisted
- Don't drive or operate machinery within 24 hours after block, or as long as you feel numbness or weakness

If you've had a femoral or sciatic nerve block, don't try to walk without crutches and somebody helping. Unassisted walking may result in bumps or falls that could lead to injury. Also, don't drive or operate any machinery in the first 24 hours after your nerve block and for as long as you feel any numbness or weakness.

Are there any side effects I should know about?

Femoral nerve block:

- Few side effects

Brachial plexus nerve block:

- Most side effects are temporary and go away on their own
- Tell your doctor immediately if you notice anything unusual

Temporary side effects are more common with brachial plexus blocks than femoral blocks. They can happen if other nerves in the arm, shoulder and neck are numbed. These side effects almost always go away by themselves. Still, tell your doctor if you notice unequal pupils or a slight drooping of one eyelid; mild hoarseness or a stuffy nose; or heavy breathing or shortness of breath. This last side effect can occur if a nerve that goes to the diaphragm (a breathing muscle) is numbed. Because of this last side effect, a brachial plexus nerve block may not be ideal for people with lung disease. Other rare, but serious complications may include anesthetic toxicity and nerve damage.

COMMON TERMS

Anesthesia Any medicine that reduces or eliminates pain.

Anesthesiologist The physician who will give you the medication that controls pain during your surgery.

Brachial plexus nerve block Regional anesthesia given for arm surgery. The block is performed on the front side of your lower neck right above the collarbone.

Catheter A thin plastic tube as small as a strand of angel hair pasta that's used to deliver regional anesthesia.

Continuous infusion catheter A catheter used for constant, long-term delivery of anesthesia to a nerve to block pain.

Entry site The place where the anesthesiologist will insert the catheter for your nerve block.

Femoral nerve block Regional anesthesia delivered to your leg for surgery on the thigh and/or knee.

Peripheral nerve Peripheral nerves send messages to and from your brain about sensation and movement.

Regional anesthesia Pain medicine used to control sensation in a particular place. Similar to when the dentist numbs your mouth before filling a tooth.

General anesthesia Medicine that affects the whole body to make you unconscious and unable to feel any sensation at all.

Sciatic nerve block Regional anesthesia delivered to the sciatic nerve to numb the back of your leg.

NOTES

NOTES

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PATENTS:
Arrow StimuCath: U.S. Patent No. 6,456,874

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