

WAKE UP TO HEALTH

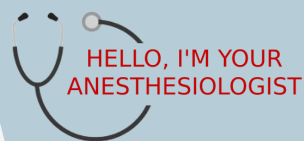
A Patient's Guide To Recovery After Surgery

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Do you know that the recovery after surgery may not be same for every patient?

All patients booked for a similar type of surgical procedure, receive a standard care during and after the surgery. Yet their recovery time may be different. For some, it may be a longer road.

You can influence your recovery after surgery!

You can modify several factors affecting your health before your surgery. It could positively influence your healing and earlier discharge. But it may take several weeks and months of efforts on your part *before surgery* to achieve this.

We created this book to help you!

We have used trusted sources of information to compile the useful information in this book, and included them for you to read in advance of your surgery. We want you to be in the best possible state of health by the time you see us in the clinic. Please talk to a doctor before making any big decisions.

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01

About Anesthesia



Please see references 1-2
for more information

Who is an anesthesiologist?

Anesthesiologists are doctors who specialize in keeping you comfortable, pain free and safe during your surgery. They are trained in monitoring your body functions while you are asleep and managing any problems that may arise during surgery. They are experts in pain management during and after surgery.

Anesthesiologists also help you to optimize your health before the surgery and to have a smooth recovery after the surgery.

What is anesthesia?

Strictly speaking, anesthesia means without sensation. This refers to how once under anesthesia, you do not feel anything, including pain, during your surgery. More broadly, anesthesia has 4 major parts. They are keeping you asleep, pain free, still, and ensuring you don't remember the surgery. This also involves essential techniques to keep you safe and alive, including supporting vital functions like breathing and helping your heart beat effectively.





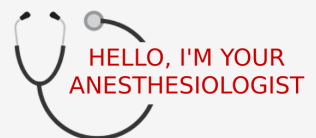
How can an anesthesiologist help you to be unaware and asleep during your surgery?

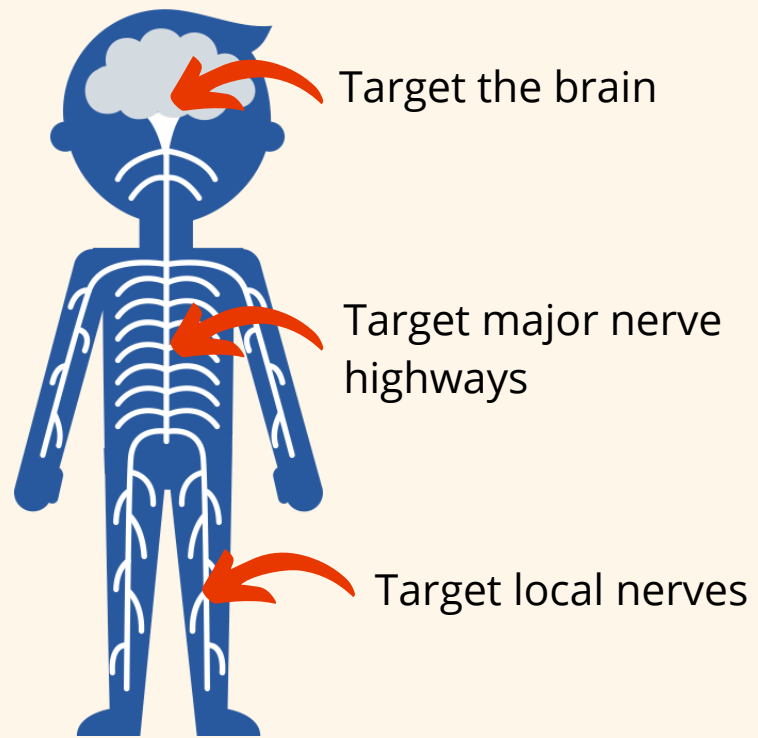
Please see references 2-4
for more information

Anesthesiologists help you to relax, and in most cases, sleep through the surgery, so you are unaware and more comfortable. Anesthesia is the reason many complicated surgeries are possible today.

Anesthesia works through medications and gases that slows down the activity in your brain and helps it to relax and eventually go to sleep.

To understand how this works, you need to know that the brain is made of billions of tiny cells called neurons. These neurons make trillions of connections with each other and talk through the use of special molecules. Anesthetic agents take the place of one of these molecules, acting almost like a tiny “slow down” switch for neurons. Once enough molecules enter the brain, and enough neurons are slowed down, you go to a state of deep sleep.





How does an anesthesiologist help with pain control during and after surgery?

We control your pain through various ways. The most common is using medicine that can slow down sections of the brain that feel pain or stop the pain signals from the injured area reaching the brain through nerves.

Nerves are special structures like electric wires that connect the brain with rest of the body directly or via spinal cord. These nerves provide instant update of the body to brain and carry message from the brain. To prevent painful sensation from a large area, we can choose to switch off the transmission of information at the spinal cord level, or target a group of nerves in your arms or legs to only numb those areas.

Please see references 4 and 5 for more information

What are different types of anesthesia?

Please see references 4-6
for more information

General Anesthesia

General anesthesia acts on the brain to help the patient sleep during their surgery. This can lead to loss of pain, consciousness, reflexes, and short-term memory.

Because these drugs are helping you to stay asleep, you will not usually wake up until the drugs are stopped. These medications can either be injected into veins, be given as an inhalant gas, or both. Once you are asleep we introduce a breathing tube into your throat (your windpipe) and attach it to a ventilator machine to help you breathe.

Local Anesthesia

Local anesthetics are medications that work to numb the area where they are injected. You may already be familiar with local anesthetics if you've had a dentist give you an injection before working on your tooth. They can either be used alone in small procedures or combined with general anesthesia for even better pain control.

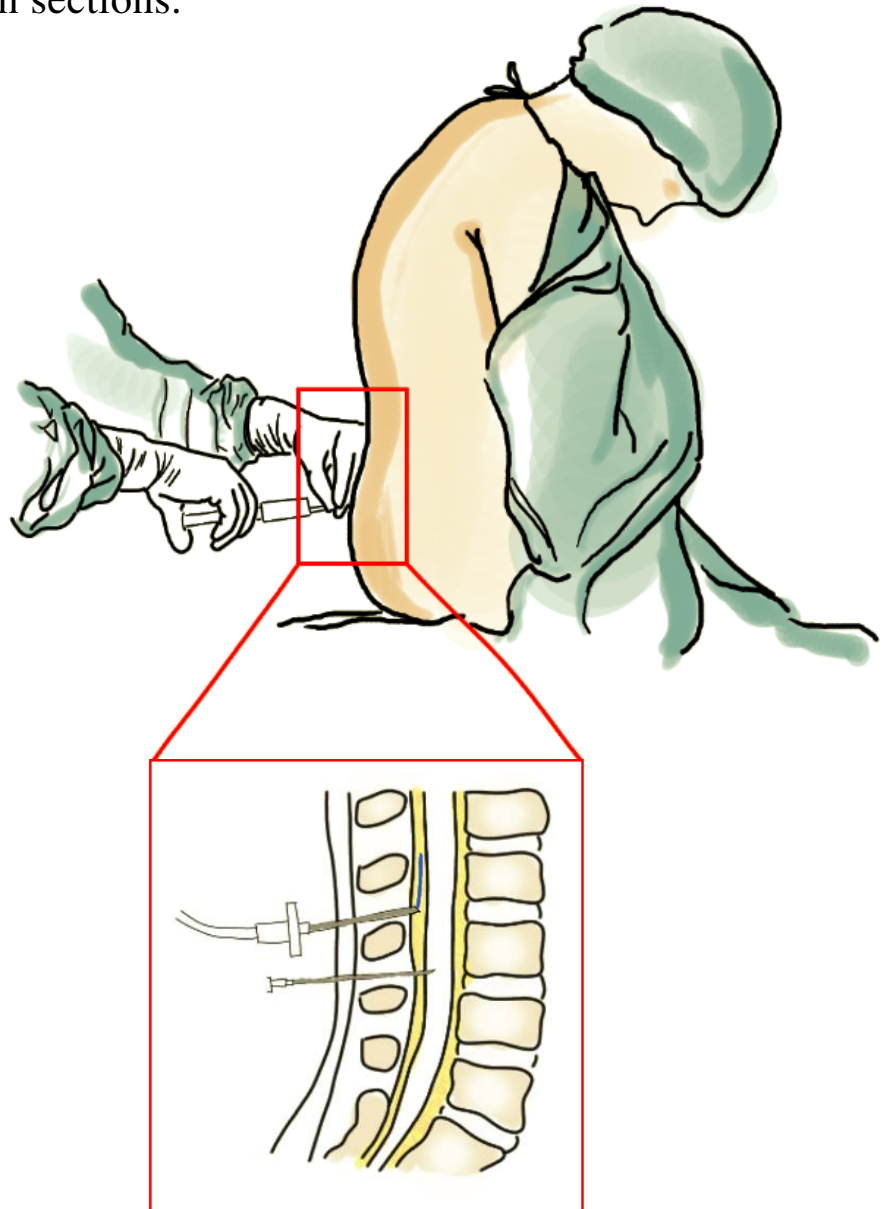


What are different types of anesthesia?

Please see references 4-6
for more information

Regional Anesthesia

In regional anesthesia we use the same drugs as a local anesthetic, but focus it on certain nerves to block pain from large regions of the body, like your entire arm or leg. Quite often, it is injected near the spinal cord, and in doing so, can block pain from most of your lower body. Regional anesthesia allows patients to recover faster after the surgery. It can be used on its own or in combination with general anesthesia. It could be used when the patient needs to be awake and pain free during procedures such as childbirth or cesarean sections.



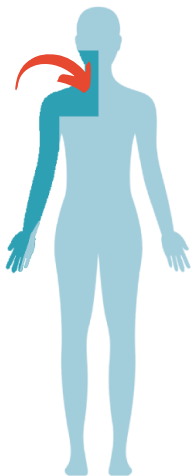
What are nerve blocks?

Please see reference 7
for more information

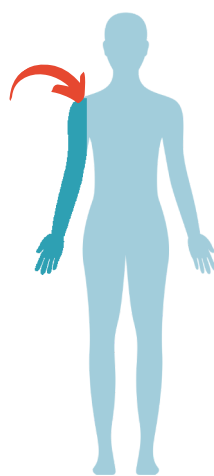
Nerve blocks are part of regional anesthesia and work by temporarily numbing a group of nerves in your arms, legs or body with a local anesthetic. This prevents pain signals from reaching your brain. It allows us to block a wide area with only a little medication.

We use an ultrasound machine to see muscles, bones, nerves and blood vessels inside your body, to ensure we deliver the local anesthetic close to a nerve.

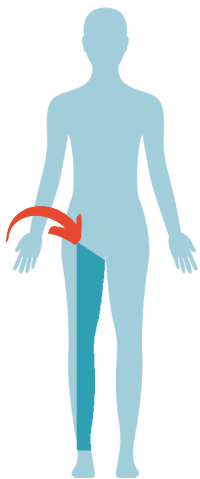
These blocks can last anywhere from a couple of hours to more than half a day, depending on the medications we use. This allows us to help you with pain control for a long time.



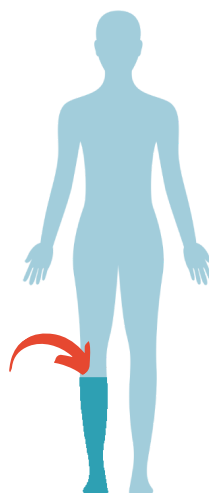
Interscalene Block



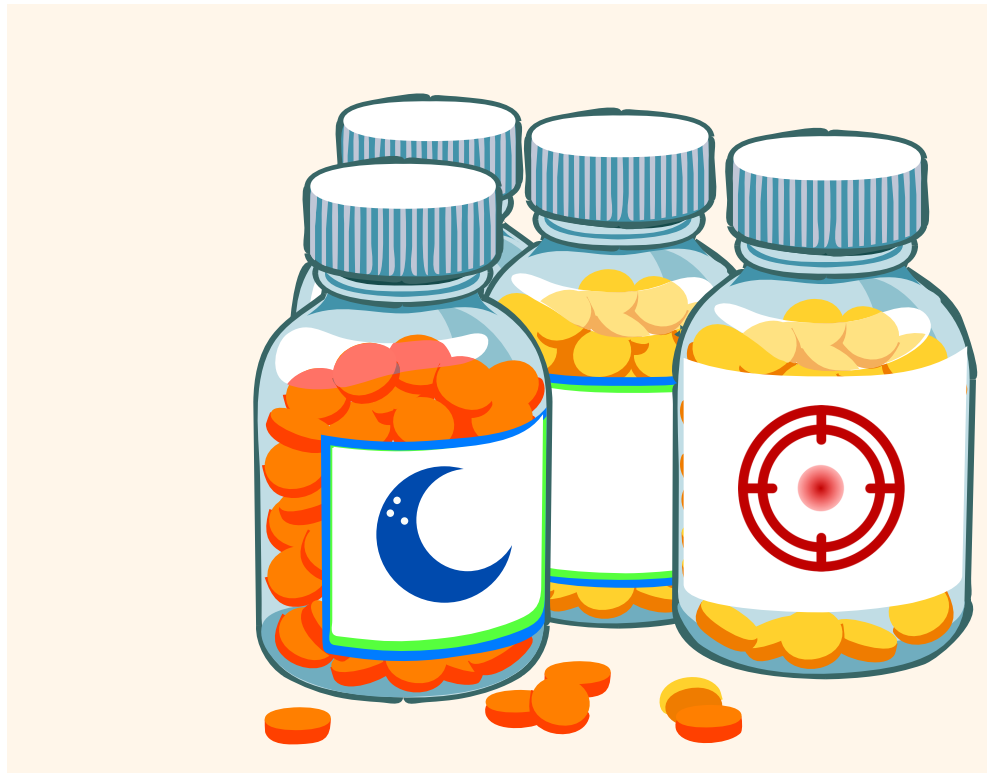
Supraclavicular Block



Femoral Block



Popliteal Block



Please see references 2-6
for more information

What different types of medications are
used in anesthesia?

Sedative-hypnotics:

These medications are used to make you feel relaxed (sedative) and fall asleep (hypnotic). They work by slowing the activity of your brain, making you feel relaxed and sleepy during surgery so that you do not remember anything.

Pain Controlling Medications

Pain controlling medications include opioids, anti-inflammatories, and nerve-blocking agents, all of which can help control the pain from surgery. These may be taken by mouth, administered into a vein or injected close to nerves. We often use a combination of these for maximum pain relief.

Neuromuscular blockers

These medications help your muscles relax and stay still during the surgery. They can also help you breathe better with a ventilator, leading to an easier recovery.

Anti-emetics

A minor and common side effect of general anesthesia is temporary nausea. Anti-emetics are medications that control the nausea and reduce the chances of vomiting, for increased



02

Before Surgery



Please see references 2 and 8
for more information

If you smoke cigarettes, what should you do to prepare yourself for surgery?

Cigarette smoking can be harmful when recovering from surgery. Smoking increases the risk of lung complications, heart complications, delayed wound healing and infection. We suggest patients try and stop smoking as early as possible before their surgery, with at least 2 months of abstinence being ideal. Please let your anesthesiologist know about:

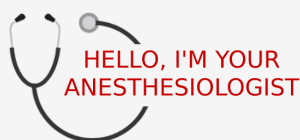
- Your smoking history
- Any aids to quit smoking

If you are considering quitting at any stage before surgery, your family physician can help guide you with your decision.

Please see reference 9 for
more information

If you drink alcohol regularly, what should you do to prepare yourself for surgery?

Regular intake of alcohol increases health risks and affects your recovery after your surgery. You should ideally stop drinking 3-6 months before surgery. Abrupt discontinuation of alcohol may lead to withdrawal symptoms hence it should be a slow and gradual process. Please let your anesthesiologist know about your drinking habits. It would help them to plan for your anesthetic management and the drug dose requirement accordingly.



Please see references 8 and 10 for more information

If you consume marijuana regularly, what should you do to prepare yourself for surgery?

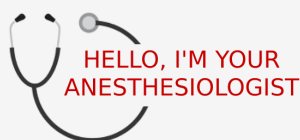
Cannabis, similar to the drugs we give to sedate patients, acts on the brain. Patients who regularly consume marijuana can respond differently to anesthesia, often requiring larger doses of medication. They also often take longer to wake up from anesthesia.

Patients who use marijuana within a few hours of their operation will have an elevated heart rate and a low blood pressure, which can be dangerous, especially for your heart.

Some other complications for patients who regularly consume marijuana include:

- Increased phlegm, coughing, wheezing, and risk of respiratory infections
- Increased airway sensitivity when intubated (similar to an asthma attack)
- Increased sensitivity to pain after surgery

Let your anesthesiologist know how much marijuana you regularly consume, the last time you had consumed any marijuana, and how you consume it (ex. smoking, oils, edibles). In your best interest, you should quit marijuana several weeks before the surgery.





If you snore loudly during your sleep, or you are diagnosed with sleep apnea, what should you do to prepare yourself for surgery?

If you snore loudly during sleep or stop breathing while sleeping:

- Please consider requesting a sleep study from your family physician

Sleep apnea is a health condition wherein you have small periods of time where you do not breathe while you sleep. This can have implications for both your anesthesia and your overall health, and should be discussed with your family physician.

If you have sleep apnea:

- Tell your anesthesiologist about your sleep apnea and about any sleep aids you use (CPAP or BiPAP)

Please see reference 11
for
more information



Please see references
12 and 13
for more information

If you are overweight, what should you do to prepare yourself for surgery?

Patients who are obese or overweight are at an increased risk for complications and side effects from both the surgery and the anesthetic medication they are given.

Extra weight interferes with:

- Locating veins to deliver medications intravenously
- Determining the right dose of medications
- Clearing the medications from your system
- Proper breathing if you have sleep apnea
- Placing a breathing tube

Things you can do:

- Inform the physician about any recent changes in your weight
- Make a plan with your surgical team to lose some weight if it is feasible
- Do not aggressively diet immediately before your surgery
- Prepare yourself for longer recovery times after the surgery



What medications or herbal supplements you should take or avoid during surgery?

Please see references
2 and 14
for more information

Talk to your physician during your pre-operative assessment about any medications, supplements, or herbal remedies you take. Let them know how much of each you take and how often you take them. These substances can interact with anesthesia and have unintended effects.

It can be helpful to bring pictures or actual bottles of all your medication to your pre-operative assessment. Please make sure to talk to your physician about any blood thinners and about any recreational drugs you take. We can then advise you on any changes to your medication plan leading up to surgery.



Please see reference 18
for more information

What is the role of doing regular exercises before surgery?

Exercise therapy before surgery is effective for reducing complications and improving health after surgery.

Exercise can range from walking and deep breathing exercises to weight training and aerobics.

The effects of exercise can be seen in your heart within 3-4 weeks. This is often the time frame between receiving a diagnosis and the surgery.

Starting to exercise can improve your heart and lungs health, strengthen your muscles and prepare you for the stress of surgery.

Talk to your primary care physician about which exercises are right for you before starting.



03

Day of Surgery





Recommendations for jewelry, make-up, nail polish, body piercings, etc. Recommendation for shower and shaving before surgery.

We advise patients to remove all makeup, fragrances, deodorants, scented lotions, nail products, jewelry, and body piercings before coming in for surgery. Removing piercings around the lips and tongue are especially important as they can cause difficulties or injury when using airway equipment and ventilators. Nail polish can interfere with the monitoring of your oxygen levels.

In preparation for surgery, you can take a bath or shower with soap and shampoo and are not required to shave over the area of surgery unless instructed to do so. We may ask you to trim or shave your beard to avoid complications while helping you breathe. Wear clean and comfortable clothes to the hospital. If you are on your period, preferably use pads over tampons.

Please see references 2 and 15 for more information

Please see reference 2
for more information

Recommendation for fasting for solids and liquids before surgery.

Patients are advised to not eat meals, candy or chewing gum after midnight, the night before their operation. You are allowed to drink only certain kinds of clear liquids three hours before surgery. You will receive specific instructions from the hospital regarding this policy. It is really important to follow these instructions because while under anesthesia, food and liquids in the stomach can move back up and enter your lungs. If you are asked to take certain medications, please take it with only a few sips of water on the day of surgery.

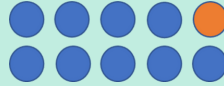
Risks of Anesthesia

Each Blue Dot is 1 Patient.
Each Orange Dot is 1 complication
Try and find the **Orange Dot**

Please see reference 2
for more information

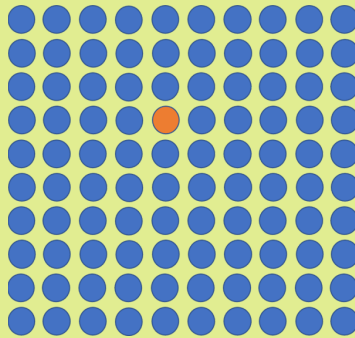
Very Common Risks (1 in 10 Chance)

- Sore Throat
- Sickness
- Shivering
- Temporary Memory Loss



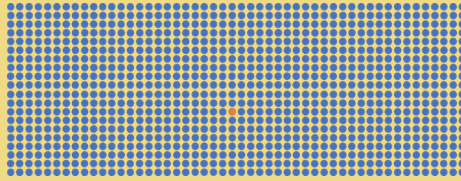
Common Risks (1 in 100 Chance)

- Pain at Injection
- Minor Mouth Injury



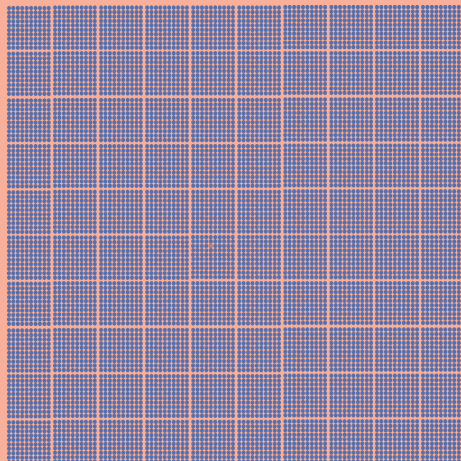
Uncommon Risks (1 in 1000 Chance)

- Minor Nerve Injury
- Equipment Malfunction



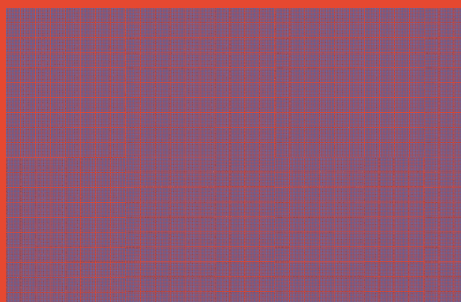
Rare Risks (1 in 10,000 Chance)

- Permanent Nerve Damage
- Corneal (Eye) Scratches
- Severe Teeth Damage
- Deadly Allergic Reaction



Very Rare Risks (1 in 100,000 Chance)

- Awareness During Procedure
- Loss of vision
- Death due to Anesthesia





04

After Surgery





Please see references 4 and 16 for more information

Pain control options after surgery.

Surgery can be painful, and we use multiple options for pain relief to keep you as comfortable as possible before, during and after the procedure. We've discussed these options elsewhere in this book.

You will also have prescriptions for medications, for a few weeks after the surgery to help you deal with any residual pain.

It is important to make sure your opioid medication is used safely, to prevent it from affecting your breathing or making you too drowsy.

It is also important to follow post-operative instructions, as these will help you to heal faster and minimize your pain.



Recommendations for driving, alcohol intake and other sedatives after surgery.

The effects of general anesthesia can linger in your brain for up to 24 hours after administration. Patients are often advised after surgery to refrain from operating any machinery including vehicles, making any big decisions, and drinking alcohol for 24 hours after surgery. Patients using opioids for post-operative pain management at home must also be wary of drowsiness when considering operating a motor vehicle.

Hospital policy may require patients undergoing same-day surgery to arrange for an adult to drive the patient home and remain with them for 24 hours after surgery.

Please see references 2 and 15 for more information



Recommendations for breastfeeding or lactating mothers after surgery.

Mothers undergoing surgery are often worried about the potential health impacts of their medications on their baby's well-being.

While it was recommended in the past, new research shows that it is not necessary to discard or “pump and dump” breast milk after surgery if you are not taking opioids. Most anesthetics are quickly eliminated from the body and therefore, the very low concentrations present in breastmilk pose minimal risk to babies.

Please make sure your anesthesiologist is aware if you are breastfeeding so that you receive breastfeeding-safe medications.

These are trusted sources of information that we used to compile the information in this book. If you have more questions, feel free to read them. Please talk to a doctor before making any large decisions

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Ashish Mathews is a final year Medical Student at McMaster University, who is interested in anesthesia and the treatment of critically ill patients. He has a background in biotechnology and is enthusiastic about knowledge translation, education, and medical innovation. In his free time, you can often find him practicing some magic tricks or tinkering with computers.



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