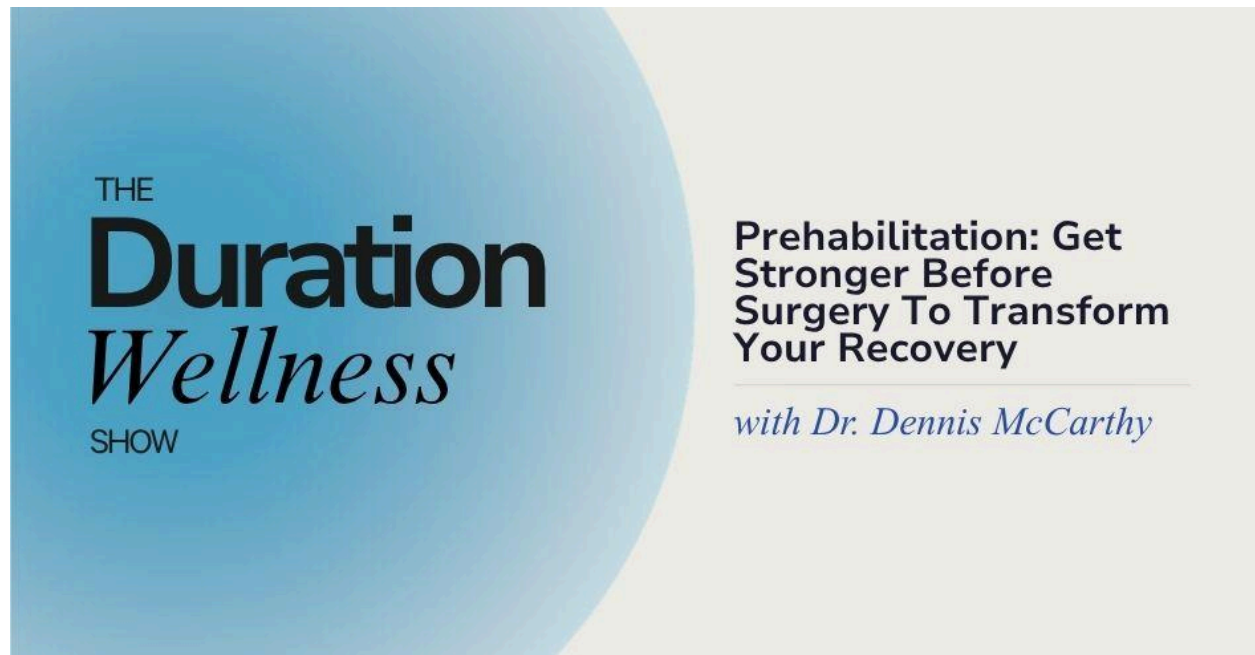




You've heard of rehabilitation—the crucial recovery phase after surgery. But what if you could fundamentally improve your surgical outcome before you even step into the operating room? Welcome to the powerful, often-overlooked world of prehabilitation. [Dr. Dennis McCarthy](#) dives deep into this multifaceted approach, revealing why getting stronger before surgery is the new standard for reducing post-operative complications and accelerating your healing. Learn how optimizing your nutrition, boosting cardiopulmonary fitness, and managing anxiety can give you the muscle reserves and resilience needed to make your recovery faster, smoother, and more successful.

Watch the episode here

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Prehabilitation: Get Stronger Before Surgery To Transform Your Recovery With Dr. Dennis McCarthy

Welcome to another episode. As always, this is not intended as medical advice. This is for educational purposes only. I am Dr. Wells. With me is the wonderful [Dr. McCarthy](#), my dad, an Anesthesiologist with decades of experience, now retired. We are going to be going over a very exciting topic. It is getting stronger before surgery, and why prehabilitation matters. Everybody has heard of rehabbing right after surgery. That you get stronger after surgery, but this is a new topic that's come up and has been shown to be beneficial, called prehabbing. It means that you're getting stronger before. Welcome.

Thank you. Good to be here. Thanks for having me again. It's a pleasure to be with you.

I am very excited. We'll get into it. When you first started practicing, did anyone even talk about prehabilitation?

What Is Prehabilitation And Optimization?

No, prehabilitation is a relatively new term. Some of the concepts have been talked about for a long time. Prehabilitation is getting patients ready for the operation that they're planning. It increases their physical health and makes them more prepared. It's been shown to reduce post-operative complications. In the past, when I started, you didn't talk about prehabilitation, but you did some of the things that prehabilitation encompasses, such as trying to get people to quit smoking.

Tweet: Prehabilitation prepares patients for planned surgery. It improves physical health, increases readiness, and has been shown to reduce post-operative complications.

You would say, "Let's get their diabetes and their high blood pressure under control." Not so much what we talk about now with exercise. If someone had chronic obstructive pulmonary disease, COPD, you would send them to their pulmonologist to get tuned up and as good as they could be. What we used to call it was optimization. Get patients in as good a condition as you can prior to surgery.

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“Dr. Dennis McCarthy is a wealth of knowledge whose decades of experience provide essential context by connecting the past practice of pre-surgical patient “optimization” with today’s advanced prehabilitation trends.”

Even when I was in residency and in training, there were aspects of it. You would counsel patients, “You should stop smoking. Try to be healthier.” You knew that patients who exercised more and were healthier had a lower risk and usually would do better. The whole concept of a true prehabilitation, counseling on that, and getting patients stronger before surgery wasn’t there as much. It’s cool now to see all the data and people are starting to focus on that more to improve outcomes and how you can, before surgery, improve your recovery.

A lot of places are starting to have formal prehabilitation programs. It’s a clinic. You go in. The prehabilitation now is usually multifaceted. It’s not just, “You’re going to quit smoking.” It’s also, “We have this exercise program we want you to do. We’re going to check your nutrition.” Even the

psychological aspect is important. There is counseling and screening for how much anxiety and depression the patients have, because if you have a lot of anxiety and depression, that also impacts your recovery.

That touches on the next question a little bit. What exactly would you say prehabilitation is. How is it different from rehabilitation or rehab that everybody has heard of?

One example people think of with rehab is you get a total knee or a total hip. They're going to send you to the physical therapist. We want to get your mobility as good as possible. It's that type of thing. Prehabilitation is getting you ready for the surgery in terms of muscle strength. One of the aspects is pulmonary. For some patients, particularly those who are at higher risk of pulmonary complications, we'll have them do resistance training for the lungs.

A lot of people might have seen an incentive spirometer. It's a little handheld device that you breathe through. You try to take a deep breath. You do that for a couple of weeks before surgery. That will help your lung function a little bit. Even weight loss, people say, "How much does losing a little weight before surgery help?" It can help quite a bit. There are some operations, such as bariatric surgery. In a lot of bariatric surgery programs, you cannot have the operation until you've lost a certain amount of weight. It makes it easier for the surgeon to do the operation. It makes you recover better.

The Importance Of Increased Strength Before Surgery

That makes sense. We went into it a little bit. Why should patients even think about getting stronger before surgery, instead of just focusing on the recovery after?

Increased strength is going to help you recover faster. If you increase your strength, typically, you're also going to increase your muscle mass a little bit. That's going to help because after surgery, if you don't maintain your protein intake, you start losing muscle mass. The term we use in medicine is called a catabolic state. Instead of building muscles, you're breaking them down. If you're not taking in enough food, your body's going to break down muscle to give you energy. You don't want to be breaking down your muscles after surgery.

We know how important muscles are for everything.

The problem is certain operations, as you might think of gastric bypass, colorectal surgery, or cancer surgery. A lot of times, post-operatively, people are nauseous. They don't have an appetite. It's very difficult for them to maintain the caloric intake and the protein intake that they need postoperatively. If they start behind, malnourished, then it's a real problem for them.

Sometimes, people don't think about those abdominal surgeries. You have a risk of something we call a post-op ileus, which is where your bowels freeze up. Even if you have an appetite, your body isn't moving things along to absorb it. You can eat. Even if you feel like eating, you're stuck until your body catches up. It's another time where you're using up your muscle reserves, so another area where that's important.

In addition, in any operation where you might need post-operative narcotics, those can make you nauseous. That could also interfere with your nutritional intake post-operatively.

Let's get into simple terms in terms of prehabilitation. What nowadays does that involve? You were talking about clinics. Some places have formal clinics. What exactly does it usually involve?

They're going to give you pre-op exercises, if you want to. I already mentioned the inspiratory muscles, but also the muscles of your legs, your arms, your back, and your abdomen. Your abdominal muscles are involved in breathing, so it's going to help you afterwards. Also, for nutrition, make sure that your protein intake is good. They're going to bump up your protein intake. A lot of experts say that a normal adult needs at least 0.8 grams per kilogram body weight of protein. They're going to bump that up to probably 1.2 or 1.5 grams. They're going to increase the amount of protein they want you to take.

That's a lot of protein.

Also, a cardiopulmonary fitness program. There are some people whose normal state is that they're walking maybe 2,000 steps. They're not doing very much. If they could gradually increase it, then that's going to help them also. Not only will it help them with their cardiopulmonary fitness. You may have heard of the expression, being sedentary. I don't know the exact wording of the expression, but being sedentary is the new smoking. Not moving around is bad for you. It causes an inflammatory state.

“Being sedentary is the new smoking. Lack of movement is **harmful to the body**, driving it into a chronic inflammatory state.”



Dr. Dennis McCarthy

[Anesthesiologist](#)

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If you can get people preoperatively to get up and move more, it will improve their cardiopulmonary fitness. One of the things in anesthesia where we would have screening questions to see what risk classification the patient was in is how many metabolic equivalents they can do in terms of exercise. When your body's at rest, just lying on the couch, that's one met. Walking briskly is four mets. You're walking up a flight of steps. Normally, lying on the couch, you're burning about 250 cc of oxygen per minute. A brisk walk would be four times that. That's 1,000.

Postoperatively, to heal your wound and all those things, you're going to be consuming more oxygen. You don't want to be like, "One met is about all I can do." No, you want better because you're going to need more postoperatively. The idea is that nutrition and exercise are going to help your recovery and reduce

your postoperative stay in the hospital. You get out of the hospital sooner. You're even more likely to go home than go to a rehab facility or a nursing home for continued care because you're in better shape and can get home.

The Role Of Patient And Caregiver Education

People might not realize how helpful that is. You go to these rehabs, which are necessary for some people, but you also just then have an increased risk. They're just in facilities. You're going to have a higher risk of other people having flu, RSV, or other colds.

The hospital can be a dangerous place.

If you can be resting in your own home because you've already prehabbed, that takes out a whole other aspect of risk as well. It sounds like it's more than just exercise.

It is. If you help people understand what they're going to expect after surgery, it reduces stress. Another thing a lot of the prehabilitation clinics do is involve the family or the caregivers afterwards. That's been shown to reduce stress both in the caregiver and in the patient. The caregiver knows better what to expect. It's intuitive. Say you had a total knee replacement. It hurts to get up. They want you to get up and walk. If the caregiver doesn't know, they might say, "We'd better not get you up because we don't want to hurt anything. That pain may be a signal not to do anything." Instead, with education, they'll know pain is expected. It's still better to get up and move. It helps everybody.

Tweet: If you help people understand what to expect after surgery, it reduces stress.

It helps the patient, but also the family, because then they can support the patient the way that they need, get them up, and decrease other risks of not moving. It's because one of the risks for big surgeries is that if you're not moving enough, sometimes, you can get blood clots, too. If patients are too scared because they think all of this pain is saying that they shouldn't move, then that increases the risk because they're not up and moving. Those blood clots can form, too. It is very important.

I do agree that involving family is helpful because it's natural for there to be anxiety with certain procedures, what you can do, and not trying to push your body too much. It's not just the patient understanding that, but also the family, so that they can reinforce, "This is safe. This is what the doctor has told you to do." You also have to think that when somebody's recovering after a big surgery, they might not remember everything from before because of the anxiety. It was a lot to comprehend all in one visit.

It's a lot of information.

Identifying High-Risk Patients Who Benefit Most

It's natural for everybody not to remember everything. To have that backup who is also in the appointment, understands everything, and can also discuss it and reinforce what was discussed is very helpful. Who would you say benefits the most from prehabilitation? Is it older people, people with chronic issues, or everyone?

It's going to help the most people who have some preoperative conditions, but it can help pretty much everybody. If you're out training for your marathon, are you still taking in enough protein? What's their vitamin situation, minerals, and things like that? There are still some things, but the older adults in

particular are at risk, because they might have some frailty. They might have lost weight. As you get older, you lose muscle mass. They might have some of that. There are people with chronic conditions. People particularly at risk might be those who have had an unexpected weight loss. They've lost weight, but they weren't trying to lose weight. Those people are particularly at risk and can be helped by this.

There's a whole frailty index that we look at in terms of increased risk, too. It is definitely something for everyone, but especially those people who are in that higher risk category, where this is so important, if they're able to.

In older people, for the frailty testing, they do grip strength. They see how far you can walk in six minutes. That's a pretty standardized test, a six-minute walk test. There are different things they use to see what risk category you're in.

I liked your analogy of a marathon. If anybody is going to do a race, you don't just go and do the race. You train for the race. Why would an elective surgery be any different? You should train for that and try to get your body in the best state for that because it's a very physically demanding pressure on the body. Getting your body as prepared for it as you can has a lot of benefits.

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“You don’t show up on race day unprepared—you train for it. Elective surgery should be **no different**. It’s a **physically demanding** stress on the body, and the better you prepare, the better your outcomes.”

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The Impact Of Smoking And Alcohol On Complications

In most of the programs for smoking, ideally, you would quit 4 to 6 weeks prior to the surgery because that’s going to help your lungs get in better condition. Even if you only quit for a day, you’re not going to have the nicotine in your body. You’re going to have less carbon monoxide. Nicotine is a vasoconstrictor.

A vasoconstrictor means it tightens up your blood vessels. You’re not going to get that blood flow the way it should be. It should have an effect there.

It will reduce wound healing.

That can be a big problem after surgery. You want your surgical wounds to heal.

If you only quit one day, it's still beneficial, although in the first 48 to 72 hours, you might have some increased secretions. After a couple of weeks, that's all better. After 4 to 6 weeks, your lungs will have improved quite a bit.

It is wild to think that in just 1 to 2 months, that can make such a huge difference.

The other thing that a lot of people talk about is, what about if I drink how much alcohol? Alcohol is another one. Alcohol will interfere with your sleep. I did find that one study said that 2 to 3 drinks per day increases your risk of post-operative complications by about 50%.

That's very high.

What about having five drinks per day? Triple the rate of post-operative complications.

Was that daily use, or was that binge drinking?

How many drinks do you have per week? If on the weekend, you drank a case of beer, what's the case? Is it 24 beers?

It depends. Some of them are twelve. Some of them are six.

If you were doing five, it'd still be 35 in a week. Some people probably can get 35 on a Friday, Saturday, or Sunday.

People also don't realize all the effects in terms of alcohol. It's also a diuretic. You're going to be peeing out some of the fluid. You're going to be going into surgery more dehydrated if you're drinking, especially the night before. On another episode, we talked about in terms of it decreases your seizure threshold. Since it's a depressant, if you're withdrawing, you can go into seizures from it. That also has an effect in terms of how much anesthesia they might need. There are a lot of different effects because you might have to give a lot more drugs to try to keep them under. All of that has an effect in terms of recovery there.

There's an effect on sleep. They won't be as well rested. Sleep is an inflammatory process.

Sleep is so important.

It has a multitude of effects.

One of our focuses at Duration Wellness is sleep because it is so essential to everything, decreasing inflammation, recovery, and all of that. You're also not getting quality sleep. We touched on it a little bit, but why would you say improving strength matters before surgery?

It's been shown to reduce your post-op complications. You're less likely to suffer a fall. If you can get your pulmonary muscles stronger, you're going to be able to breathe better, clear secretions, and things like that. It will reduce your risk of post-op complications.

How does better cardiovascular fitness change surgery outcomes?

In terms of healing, cardiovascular is your heart pumping the blood around and how well you can meet your metabolic needs. If you can't pump the nutrition around and the oxygen and things, and even at an

extreme, if your tissues are not getting enough, it impedes wound healing. Your chance of infection is higher.

If you think about it, the blood flow needs to be working well so that your wounds can heal. All of that plays a part in it because your heart and your lungs are giving the oxygen to your blood to get it moving around. If that is not in its best state, all of that is at risk. It does have a big effect there. We touched base on it a little bit earlier, but why would you say breathing exercises are so important?

When we give anesthesia, we know that one of the side effects is that there's a thing we call functional residual capacity. If you have a pulmonary function test, you go in, and they measure how deep a breath you can take, how much you can breathe out, and how much is left in your lungs at the end of your normal breath. The amount in the functional residual capacity, which is the amount left at the end of a normal breath, decreases almost immediately under general anesthesia.

It stays decreased afterwards. We know you're going to have this decrease. That's why one of the risks of pulmonary collapse is that you can get pneumonia. The little air sacs can collapse. The medical term is atelectasis. It makes it a little harder to maintain the oxygen level in your blood. If you can keep taking those deep breaths, because your muscles are stronger, that's going to help you.

We talked about the incentive spirometer. It has a tube. It has a number. You take these deep breaths in. You try to see how big a breath you're taking. We use that a lot of time in the rehabilitation, meaning after surgery, in terms of trying to decrease your pneumonia risk. If you're expanding the lungs the way you need to and exhaling, it's going to clear things. Those airways are going to be working the way they need to. Doing that before makes so much sense because it's getting those lungs to the best place that they can. When you're doing that afterwards, they can hopefully recover much faster to that point.

In terms of clearing, preoperatively, if you're doing incentive spirometer and respiratory exercises, you can help clear it out, particularly in a smoker. I mentioned in the first two or three days, they can have increased secretions. Depending on how much time they have before their operation, if they have only a week and they've quit smoking for a week, the first couple of days, they're making an increase in the amount of secretions they have. The incentive spirometer helps them to cough it out. They'll be stronger and. It helps get their lungs cleaned out prior to surgery.

It makes a difference. It makes sense. Would you say that just walking daily would make a difference?

Absolutely. One of the things some of the prehab clinics do is encourage people to get a step counter. Let's see how many steps you're doing a day. It makes a difference. If you have four weeks before your procedure, you can build up how much you're doing. If you can't walk, maybe you're having a procedure because your leg hurts so much. That's why you need a total knee replacement. "I can't walk. My leg hurts so much." Swim. Maybe you can do a recumbent bicycle.

Even arm exercises and things that are still increasing the cardiovascular demand on your body.

It has been shown to make a difference.

Nutrition, Protein Intake, And Vitamin Screening

It makes sense. Let's touch next on nutrition because that is often overlooked in terms of prehabilitation. This is prepping for surgery and getting yourself in the best shape that you can be for it. How important is nutrition before surgery?

We did touch on this a little bit already with the surgery, creating the catabolic state. Your body is consuming your muscles. The process is called gluconeogenesis. The liver can make sugar out of the proteins for energy. It's breaking down the proteins to make sugar for your body to burn. If you're not taking in enough protein to get your muscles extra ready for this procedure, then you can be at risk. The increased protein intake with a prehabilitation program will help you build more muscle mass. If you want to get your muscles stronger, a little bit bigger, and ready for the surgery, increased protein is going to help you do that.

Tweet: If you're not taking in enough protein to prepare your muscles for surgery, you're increasing your risk. In a prehabilitation program, higher protein intake helps build muscle mass, making your body stronger, slightly bigger, and better prepared for the procedure.

A lot of people don't realize that. After coming out of surgery, sometimes, people will have a little bit of nutrition advice, but not much. It's cool to see that these prehabilitation clinics are coming out where they go over this. For a lot of people, they're not told in terms of increasing their protein intake and what they should be eating before. They know, "I can't eat before my surgery. Don't eat it after midnight." A lot of times, that's the only advice if they're not having one of these clinics and are told.

Part of nutrition, we talk about vitamins, too. Those are going to be important, also.

Do you think that people should be screened for any vitamin deficiencies, like B12 or anything like that?

It's helpful. I don't think it's going to be something where everybody's going to get screened. Hopefully, you're not anemic, but if you're anemic, you may have an iron deficiency anemia. Particularly, for younger women, it's very common to be deficient in iron. A lot of people are low on their vitamin D. That's an important vitamin. The body makes it if you go out in the sun, but people aren't out in the sun as much as they used to be.

If you wear suntan lotion when you're out in the sun, that also decreases the amount of vitamin D your body makes. You might think, "I'm out in the sun," but did you put suntan lotion on? You might be out in the sun, you might be going out for a walk, or you're going shopping, and you're walking out in the sun. For a lot of women, their makeup has sunscreen in it.

There are a lot of people who don't live in Florida like us. There's not as much sunshine. Who would you say is most at risk for deficiencies?

You might not think it, but obese patients are at risk for deficiency. They might not be eating a balanced diet. They may not be getting enough protein. They may have those vitamin deficiencies. We already mentioned elderly patients and people with chronic conditions. We see people with chronic lung disease.

Some of them are very frail. Part of that is probably from appetite. There are people with cancer. That can be difficult to get them to improve. We had mentioned before that people, for some reason, have been losing weight. Even people with depression can reduce their appetite. There may be a number of different factors involved in why people may be at increased risk.

Can improving nutrition beforehand shorten recovery time?

Absolutely. With decreasing inflammation, there are nutrients you can take that have anti-inflammatory properties. Some of the vitamins, some of the supplements, and things like that can help. We already mentioned increasing your muscle strength. Your protein intake can decrease your risk of post-op complications.

All help with recovery. It makes sense.

With wound healing, too. You're building tissue. If you had surgery, something was cut. You need to have that healed.

Sleep Optimization And Screening For Sleep Apnea

Another topic that's pretty important, and sometimes people don't think about, is sleep optimization for surgery and sleep apnea. This is huge, especially prehabilitation and preparing for surgery. How much sleep matters before surgery. Why is sleep quality so important before surgery?

We had mentioned that. It's been shown that it enhances recovery. We had already mentioned some of the reasons why it does. It also reduces your risk of post-op delirium, particularly in the elderly, over 65. It's unfortunately not uncommon for patients to have some delirium in the recovery room and even for the first day. There are things that can be done to try to reduce the chance of delirium or help people recover faster from their episode of delirium. Delirium will increase your risk of post-op complications.

Tweet: Sleep matters before surgery. It has been shown to enhance recovery. It also reduces the risk of post-operative delirium, particularly in patients over 65.

It also improves pain. Lack of sleep increases your pain sensitivity. It amplifies the pain-sensing regions in the brain. They say that's in the somatosensory cortex. There's a particular area in the brain that gets sensitized. At the same time, it dulls the brain's natural pain relief centers. That's an imbalance. It's increasing your pain-sensing area and decreasing your natural pain relief centers. It's a double whammy. Also, you have increased inflammation. You have a reduction in your natural analgesia.

Lack of sleep lowers your body's threshold for pain. When you're well-rested, you're like, "That's a little sore." When you're sleep-deprived, "That's killing me." They say that sleep deprivation causes about 120% increase in activity in that somatosensory cortex, which processes pain, and decreases activity by 60% to 90% in the areas that manage pain. That's significant.

That's huge. Everybody is probably similar in that they don't want to decrease the amount of pain they feel after surgery. If having a good night's sleep has that much of an effect on the pain afterwards, that's huge.

You have a lower tolerance for pain. Minor issues feel more intense. When I'm sleep-deprived, minor issues of all types seem less intense. You're just more irritated.

It's a lot harder to handle when you're sleep-deprived in comparison to if you're well-rested.

I might be reading a book, and someone asks me a question. If I'm sleep-deprived, I might be like, "Can't you see I'm reading over here? Leave me alone." If I'm not, I'll be like, "What's your question?"

It makes a big difference. If someone has sleep apnea, how does that affect anesthesia planning?

Let's go into what sleep apnea is. It's a descriptive term. What is apnea? Apnea means you're not breathing. Sleep apnea is when you go to sleep, and at certain stages of your sleep, you're either not breathing or breathing very shallowly. Your oxygen level can go down. We know we need to breathe. That's a bad thing.

There are varying degrees of severity of sleep apnea. People with sleep apnea also tend to be more sensitive to narcotics. They already had some apnea. They were already having episodes of not breathing well enough while they were sleeping before surgery. After surgery, they're taking narcotics, which depresses their respiration. Double whammy.

It's very dangerous. We're concerned about how well someone's going to breathe afterwards. Sleep apnea is associated with other risk factors. It can be more difficult to help people breathe under anesthesia. We already touched on that they're not getting the right type of sleep. They're going to be in an inflammatory state.

Should patients be screened for sleep apnea before elective surgery? If so, you're going to go over it.

Screening For Undiagnosed Sleep Apnea

That was the next thing I was going to get into. They say a significant number of people with sleep apnea are undiagnosed. One of the things we do preoperatively in anesthesia is a questionnaire that's used fairly commonly, although it's not perfect. It's called the STOP-Bang Questionnaire. It's a screening tool. You ask these questions. Each question gives you a point. If you have over three, you might have sleep apnea. If you have over five, you're going to be pretty sure you've got sleep apnea. The test is very good.

In medicine, we use the terms sensitivity and specificity. What does that mean? Sensitivity means whether it will detect the disease if it's present. If you have sleep apnea, this questionnaire is pretty good at saying you have sleep apnea, even in the 90% range. If the test says you have sleep apnea, you might not. That's the specificity. You might get a positive screening result and not have sleep apnea. We consider it a good test because if someone doesn't have sleep apnea, then they're probably going to do okay after surgery.

If someone does have sleep apnea, we want to know about it. I'll go into this for our audience who might be like, "I wonder if I have sleep apnea because it sounds like that's pretty important," which it is. The risk factors are snoring. The letters spell out STOP-Bang. The S is snoring. Do you snore loudly enough to disrupt a bed partner or be heard through a door? Snoring is a common symptom of sleep apnea. If you snore, that's a point. There's tiredness.

Are you often noticeably sleepy or fatigued during the day? People with obstructive sleep apnea often are. That brings up another reason why you should be concerned if you have sleep apnea. One of the things that injures people with sleep apnea, sometimes, it can be fatal. It's a car accident. They fall asleep driving. The O is observed apnea. We already said apnea is when you stop breathing. Has someone seen you gasp, choke, or stop breathing while sleeping?

For people with sleep apnea, this can happen frequently throughout the night. P, do you have high blood pressure? High blood pressure is associated with sleep apnea. The B is body mass index. Is your body mass index over 35? A is age. If you're older than 50. OSA, obstructive sleep apnea, is more common with aging. Is it neck circumference? Is it more than 16 inches? That's another risk factor. There's gender. Males have a higher risk of sleep apnea.

People might not know they have sleep apnea because they might not completely wake up. You say, “If I’m not breathing, wouldn’t I wake up?” You might wake up just a little, but not enough to full consciousness. There are different stages of sleep. The apnea typically occurs during REM sleep, which is the stage of sleep where you’re dreaming. You disturb a little bit, come out of REM sleep, and start breathing. You wake up tired because you didn’t sleep all that well.

If you’re like, “I have a few of those,” it’s time to see your doctor. Time to make sure. Get checked out for sleep apnea.

Even if you’re not having surgery, it’s important for your health. We mentioned that obesity is a risk factor for the B in BANG, Body Mass Index. If it’s high, it’s typically obesity. It’s not typically the football player with all the extra muscle, but it could be. The high BMI is a risk factor. If you lose weight, your sleep apnea can get better.

Tweet: Get checked for sleep apnea. Even if you’re not having surgery, it’s still important for your health.

For those who know they have sleep apnea, why is bringing in their sleep apnea machine to the hospital a big deal if they’re staying overnight?

We talked about REM sleep and how surgery will interfere with your REM sleep. You want to have as much as possible. Coming into the hospital, if you’re staying overnight, you’re probably getting pain medicine. If you didn’t have a CPAP, then the hospital has CPAP machines. You’re going to be way more comfortable with the CPAP machine that you’re used to. You know how it works. It’s adjusted to you. The face mask fits you correctly. It’ll be much more effective if you bring in your own CPAP.

It means better sleep. We’ve already talked about how important sleep is in terms of even decreasing the delirium risk, but also the inflammation, healing, and all of that. If it helps you sleep better, that’ll help with recovery. We talked a little bit about some lifestyle factors, including smoking and alcohol. Let’s go back around to that and talk a little bit more about it. How far in advance should someone stop smoking?

As far as possible. I heard a podcast on someone who runs a pre-op clinic. He’s an anesthesiologist. He’s involved in prehabilitation. When he was fifteen, he was diagnosed with ulcerative colitis. Not long after he was diagnosed, he had a bowel perforation and had emergency abdominal surgery. His colon was taken out. He’s had twenty operations since then. He says he is constantly doing prehabilitation because for him, it’s not going to be, “We’re going to operate on you in three weeks.” It’s, “We’re operating on you today or tomorrow.”

He’s at risk of needing emergency surgery at any time. If they said, “You’re going to have surgery. We need to operate on you tomorrow.” Don’t have a drink that night. Don’t have a cigarette that night. For your health, you might want to be that guy who’s like, “I know I might need emergency surgery. I’m always prepared.” You could do that. Look at it like, “I want to be prepared.” For those people who are only doing 2,000 steps a day, increase it to 4,000, 6,000, and 8,000, trying to get to 10,000 steps a day.

Not only does it benefit you if you need surgery, but it also benefits you every day across your life. It increases how long you’re going to live. In terms of specifically how long, ideally, you’ll do 4 to 6 weeks. For someone who’s not doing all these things, part of the problem is that there are some operations where there may be a long lead time. It’s hard to get people to be compliant on some of these things for ten weeks. Ideally, you could start small and do something that you’re capable of doing that you can continue for the long run.

Even small steps, we've talked about how they can make a big difference. Does cutting back on alcohol before surgery change outcomes? We talked about it a little bit.

We did touch on it. Alcohol can delay healing. It has an effect on the immune system. It can increase your bleeding risk. For people who drink a lot, it can increase the amount of anesthesia you need to give the person.

We didn't even talk about how it can affect your electrolytes. Sometimes, in the hospital, especially heavy drinkers, they can have a dangerously low salt level just from the alcohol. You can't go into a surgery with a dangerously low salt level. Sometimes, it has to be postponed. You have to be watched in the hospital. Sometimes, it's even an ICU stay because of how low it is. There's so much that it affects.

Probably, for the average person who's drinking every once in a while, the biggest thing is going to be not drinking, especially the night before surgery. A lot of people don't realize how important it is not to drink the night before surgery. They might say, "I'm feeling a little anxious. This is going to be my calmer." It's not what you should do. You're not going to sleep well. It also has all those other effects that we talked about in terms of decreasing wound healing. It's going to dehydrate you. It's just so much that would affect you for surgery that you don't want.

That diuretic effect will go away. If you don't drink for a couple of days, that diuretic effect is already going away.

We talked about weight loss. There are certain aspects of losing a little bit of weight. If you're overweight, it is helpful. If you've lost a ton of weight, not on purpose, that can also be harmful. Is weight loss helpful or risky before surgery?

Weight Loss Is Generally Helpful To Decrease Complications

It's helpful. I mentioned already that bariatric surgeons will make people lose weight. I had one bariatric surgeon say that he had some patients who were like, "I can't lose weight, but I need this operation." He said he had some that he would wire their jaws shut. That's pretty radical. You can't even open your mouth. You're going to lose weight. Granted, they could still be drinking a bunch of smoothies. That says how important the weight loss was for that.

For that particular operation, bariatric surgery, when they lose weight, the liver tends to shrink. It makes the operation go a whole lot better. For them, it's mandatory. For other operations, it's been shown to decrease the risk after getting your gallbladder out, colorectal surgery, or hernia repair. Part of that is it makes the operation a little bit easier. There's a little more room for the surgeon to work and reduce your risk of anesthetic complications.

Obesity increases your inflammation. When you're in a more inflammatory state, that also makes recovery harder. Your body has to work a lot harder to recover. You want to decrease as much inflammation as you can, which is a big factor, too. Also, you went over the sleep apnea and how big a risk factor that is. Losing weight a lot of times decreases your sleep apnea risk or makes it less severe if you have it.

Treating your sleep apnea will help you lose weight because when you're sleep deprived, you tend to eat more.

Plus, in terms of how it breaks down food and everything, it does increase your inflammation. It can cause some weight gain indirectly because of all the hormone changes and, even if you're not diabetic, put you into a more diabetic-like state. There are a lot of effects there. The big thing is that if you're overweight or obese, weight loss is a huge help, even a little bit of weight loss, before surgery. It's probably a little bit different for those people who are underweight. Those are the patients who we're not saying to go and lose some weight. It depends on what category you're in. For the majority, for a lot of patients, weight loss will help.

If you're obese with a BMI of 40, weight loss is going to help you a lot. It's intuitive. You got more body. You're going to need to have more oxygen to go around your body. It's going to decrease the amount of oxygen you need to deliver. We talked about breathing. You could be obese without sleep apnea, but it's still going to affect your breathing afterwards.

When you're lying down, you have this abdomen pushing on your diaphragm, pushing up. It reduces your ability to breathe. It reduces the functional residual capacity, the amount of oxygen in there. There are a lot of risk factors and a lot of bad things that happen when reducing your functional residual capacity. Losing weight is going to help with that, also.

We have a term. It's called obesity hypoventilation syndrome. You're so big that it makes you not be able to breathe the way that you need to because of the pressure that he was talking about. A little bit of weight loss there can make a huge difference.

We can mention a couple of other things about getting treated in the prehabilitation. If someone had sleep apnea, you would send them to get CPAP preoperatively to help with starting treating all of these things. When you're sleeping, and your oxygen level goes down, that's stimulating to your body. Your body will secrete adrenaline or epinephrine. That's a vasoconstrictor. That's why sleep apnea is associated with hypertension. You can also get pulmonary hypertension. You can get a lot of other things from untreated sleep apnea.

Pulmonary hypertension is hypertension that most people know about, which is high blood pressure. That's a high-pressure system that's in your lungs, which isn't good. That is a lot of stress. It causes a lot of other issues.

Usually, it's with sleep apnea that hasn't been treated for a while. It's not that you just started having sleep apnea, and all of a sudden, you have pulmonary hypertension. It tends to take a little while to develop. If you're tuning in to this and you think, "I wonder if I have it," I had on that STOP-Bang. You can do a Google search, "STOP-Bang sleep apnea," and you'll pull up a lot of information on it. If you say, "I got this. I got that. I have this," it's very beneficial to get treated.

The CPAP is not the only treatment. Some people don't tolerate it. Some people will get an oral appliance, something that goes in the mouth. It helps to hold the jaw forward so that the tongue doesn't fall back and obstruct the airway. There are people who have a variety of surgical procedures that help them get better. There are other things that help treat sleep apnea.

Key Focus Areas For 30 Days Before Surgery

It's evolved. There's a lot more. To wrap up, if you could give every patient 30 days before surgery, what would you tell them to focus on?

I would focus on an exercise regimen and getting stronger. We mentioned the nutrition, protein intake, vitamins, and not to worry about it, which is the anxiety component. It's protein, nutrition, exercise, muscle strengthening, pulmonary, getting their respiratory muscles in shape, and those things.

Tweet: If every patient had 30 days before surgery, they should focus on getting stronger through exercise, nutrition, and protein intake. Build muscle, strengthen respiratory function, and don't neglect the mental side, including anxiety. It's all connected.

It's interesting you mentioned the anxiety component. Everybody is different, but a lot of people are similar. If you have a plan, sometimes that helps decrease your anxiety. This whole prehabilitation plan can help decrease that anxiety because you're preparing. It's like if you're going into an exam and you feel prepared, you feel much better for it. That would translate to this, too. If you're as prepared as you can be, it can help take some of that anxiety component away, too.

We don't like the unknown. There's this fear of the unknown. How much pain am I going to have? How is this going to go? You get those questions. Don't worry. We're going to take care of your pain. We're going to manage this. It helps reduce your anxiety. You'll sleep better.

It helps. Would you say prehabilitation is becoming standard of care?

Absolutely, for a lot of procedures. There aren't quite as many formal prehabilitation clinics, but a lot of surgeons are having their patients do a lot of these things.

I hope that it becomes more standard in terms of surgery centers starting to have these formal prehabilitation training and education, where people learn more about this. Especially when we see such improved outcomes with that preparation, it is so helpful and beneficial.

It's very standard for surgeons to tell patients to quit smoking before surgery. That's pretty standard.

In terms of increasing your protein and your exercise, a lot of surgeons don't have time to go into all of that. It is cool to see some of these prehabilitation clinics where that can be a whole protocol that's starting to be developed. Patients are educated more.

As it becomes more common and they have more studies that show, "This patient got out of the hospital a day sooner after their bowel resection," that saves the hospital a lot of money. It becomes cost-effective to pay for the pre-op clinic because there's a limit. There are different types of pre-op prehabilitation. Are you going to the hospital and having an observed exercise program? Are they giving you this information, and then you're going to do it at home on your own? There are different costs associated with those two different methods of prehabilitation.

Dr. McCarthy's Short-Term Prehabilitation Plan

If you were going to have surgery tomorrow or in a month, what would your prehabilitation plan look like?

Being an anesthesiologist, I have an idea of what to expect. You're still a little anxious because it's me now. I would still try to get a good night's sleep. I would not eat a big fatty meal the night before. I would eat protein. I would check with my anesthesia or surgical team what I could have in the morning if they're going to let me have a high-carb drink pre-op.

A lot of places will say, “Have a carb drink three hours before surgery.” It’s like you mentioned. What would you do to prepare for a marathon? A lot of them do carb loading because you’re going to need some energy. That pre-op carb drink helps with glucose control and things like that afterwards. If I had a longer period of time, then I’m going to focus more on that exercise regimen and make sure I’m taking my vitamins.

I might go get tested for my vitamin levels and iron levels. I’ve had mine tested. I’ve already adjusted my vitamin intakes based on that. If I didn’t have that information, or it was a while ago, I might get tested again. Maybe I need to take some extra. Maybe I need to bump up my vitamin D. Maintain the cardiovascular fitness.

That was so helpful. I’m sure so many people tuning in found that very helpful, too. This was great.

Thank you for having me.

Thanks so much for being on.

It was an interesting conversation. Hopefully, some of the audience will learn some things that’ll help them. If they’re facing an operation, it’ll help reduce their anxiety a little bit.

It’s always good. All of this information is very helpful. You can have a little bit of a better plan. What I love is that it’s a good reminder, even for people who aren’t planning on surgery. It’s good to be as healthy as you can and be prepared. You gave that example of the anesthesiologist who’s always prepared for surgery. The healthier you are, the more you exercise. We cannot plan for everything. If you’re prepared and in as healthy a shape as you can be, it also helps in case you ever have an emergency that you weren’t planning for. It’s useful for everyone.

It’s useful for living a long, healthy life.

Thanks for joining us on this episode.

Thank you.

Important Links

- [Dr. Dennis McCarthy on LinkedIn](#)
- [An Update on the Various Practical Applications of the STOP-Bang Questionnaire in Anesthesia, Surgery, and Perioperative Medicine - PMC](#)
- [Prehabilitation in Patients Before Major Surgery: A Review Article - PMC](#)

About Dr. Dennis McCarthy

Dennis McCarthy, MD, is an accomplished anesthesiologist with decades of experience in clinical practice, leadership, and academic medicine. Over the course of his career, he worked extensively in private practice, where he was frequently entrusted with leadership roles, often serving as head of his group. Known for his depth of experience and steady leadership, Dr. McCarthy built a career defined by both



clinical excellence and professional respect among his peers. He later continued his work in medicine as an Associate Professor at UF Health, where he contributed to the education and development of future physicians while bringing a wealth of real-world experience to academic medicine.