

Strong for Surgery is a public health campaign that engages patients and their surgeons to *improve overall health* and *increase the likelihood of a positive surgical outcome*. The presurgical checklists are a communication strategy for patients and clinicians to consider four common risk factors:

NUTRITION

Nutritional status is currently the **single most important independent predictor of outcomes** in any type of surgery. Assessment for unintentional weight loss, change in dietary intake, and gastrointestinal symptoms can indicate that a patient may be at risk and should be referred to a registered dietitian for nutritional counseling. To prevent immune suppression in surgical patients, which increases infection rates, use of a specialized nutrition formula can reduce infectious complications by 40 to 60 percent.

SMOKING CESSATION

Smoking correlates with **40 percent higher prevalence of postoperative complications** and is an independent risk factor for infections and cardiovascular events after surgery. Smokers who undergo spine surgery have a two to three times higher rate of nonunion for spine fusion, are less likely to return to work after surgery, and have more pain and less satisfaction after surgery for spinal stenosis. To improve outcomes in patients currently smoking, providers will advise patients to stop smoking, to choose a quit date, and refer them to available resources.

GLYCEMIC CONTROL

Proper blood glucose control in diabetic patients having surgery can help lower the risk of surgical site infections, support healing, and lower the length of stay. **Establishing control of blood glucose prior to surgery reduces the chance of high blood glucose (hyperglycemia) or low blood glucose (hypoglycemia) during the perioperative period.** Studies have shown hyperglycemia to double the risk of surgical site infections. Checking blood glucose prior to surgery may identify patients that have undiagnosed diabetes—a reported one-third of all patients having surgery—and let clinicians start treatment before hospitalization.

MEDICATION USE

A thorough review of all medications, over-the-counter drugs, supplements, and herbal remedies is important so that the patient can be advised of **which medicines to keep taking and which to discontinue before surgery.** Evidence shows that aspirin and beta blockers can be safely continued throughout the perioperative period for cardiac protection with most surgeries. Some medications increase bleeding risks and should be stopped before surgery. Specific herbal medications (e.g., echinacea, garlic, ginkgo, ginseng, kava, saw palmetto, St. John's wort, valerian) can also increase risks.

Strong for Surgery is a quality improvement program of the American College of Surgeons, that was first developed through the University of Washington, CERTAIN Learning Healthcare network and SCOAP collaborative, all in Washington State

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EAT WELL

It is important to eat healthy foods before surgery. Tell your doctor if you have trouble eating or if you have not been very hungry. Also tell your doctor if you have lost weight without trying or cannot eat at all. Your doctor may want you to see a dietitian, who can help you work out an eating plan. A lab test called an “albumin” level may be ordered to see if you are at extra risk for problems after your surgery because of your nutrition or for other reasons.

BLOOD SUGAR CONTROL

If you have diabetes, you know how important good blood sugar control is. Your doctor needs to know what your recent blood sugar test results have been. On the day of your surgery, your doctor should check your blood sugar before your operation.

Having surgery puts stress on your body, and stress can affect your blood sugar level. Blood sugar that is too high or too low can cause serious problems. Keeping blood sugar in control before, during, and after surgery will reduce your risk of infection in your incision and will help you heal better.

Even if you haven't been told you have diabetes, your doctor may want to check your blood sugar. Many people have high blood sugar and don't know it.

QUIT SMOKING

Smoking increases the risk for many problems after surgery. It can:

- Make it hard for you to breathe
- Make an infection in your wound (incision) more likely
- Increase your chance of having a heart attack

Ask your doctor about how to quit smoking. Quitting will not only reduce these risks but also improve your overall health and even add years to your life.

MEDICINES

Your doctor needs to know what medicines, over-the-counter drugs and supplements, and herbal remedies you are taking. Some of these can increase your risk of bleeding. Your doctor will tell you which ones to stop taking and when to stop them before surgery.

Some medicines should not be stopped. If you are taking one of these, your doctor will make sure the hospital staff knows so that you get the right medicines before and after surgery.

Nutrition before Surgery

Your doctor wants you to recover well from your upcoming surgery. Good nutrition will help get your body ready for surgery, heal better after surgery, and fight infection, too. Eating enough calories, protein, vitamins, and minerals will all help speed your recovery. Here are some tips to get your body in good nutritional shape before surgery:

Eating to Heal

- Eat foods that will help your body heal. Good choices are **protein-rich** foods, **whole grains**, **fruits**, **vegetables**, and **dairy** products.
- Eat at least **three times a day**. Don't skip meals.
- Include protein-rich foods with each meal. Some healthy choices are lean meat, fish, poultry, beans, eggs, cheese, nuts, tofu, milk, cottage cheese, yogurt, and protein drinks.
- Drink at least **6 to 8 eight-ounce cups** of fluid each day to stay well hydrated.
- Add a **daily protein drink** if you cannot eat enough food.

What Else Can I Do to Prepare for Surgery?

Your doctor may ask you to meet with a registered dietitian. If you need to improve your nutrition, gain weight, lose weight, or control blood sugar levels before surgery, a registered dietitian will work with you to create a nutrition plan to help you meet your goals.

Registered dietitian contact information: _____

Supplements

Infection is possible after any surgery. Your doctor may suggest a special supplement drink that can help fight infection and decrease complications by nearly half. These drinks are called **immune modulating** supplements. Talk with your doctor about whether this kind of supplement is right for you.

You can find out more about immune modulating supplements and how to make your surgery safer at facs.org/strongforsurgery.

The Strong for Surgery program recommends testing albumin levels of patients prior to surgery to help determine risk for postsurgical complications. Surgical Care and Outcomes Assessment Program (SCOAP) 2005–2011 data indicates that there is a 200% to 300% increase in rates of re-operation and/or death in patients with an albumin of <3.0 g/dL.

It makes good practice sense to test albumin prior to performing any major surgery to help stratify patient risk. A low albumin will provide clues to the clinician as to the general health of the patient and guide them to look for potentially modifiable factors such as fluid retention and medication changes.

Reasons for low albumin include:

- Liver Disease
- Edema
- Burns
- Nephrotic syndrome
- Sepsis
- Malnutrition
- Inflammation
- Cancer

Low Albumin as an Indicator of Malnutrition—Mixed Results

Historically, albumin has been used as a marker of nutritional status. Until recently, the assumption has been that nutritional intake would positively affect changes in albumin levels. However, recent review of the available literature on adults in which calorie and protein intake was compared to albumin level showed inconsistent results.

American Society for Parenteral and Enteral Nutrition's (ASPEN's) Clinical Guidelines were released in January 2011, and their experts advise that albumin and prealbumin not be used in isolation to assess nutrition status because they are fundamentally markers of inflammatory metabolism (JPEN).

Serum levels of some proteins change during the acute phase response; those that decrease are called negative acute phase proteins (e.g., albumin and pre albumin) and those that increased are called positive acute phase proteins (e.g., C-reactive protein [CRP]).

A decline in protein concentrations may be due to the body's need to increase production of immune mediators during times of stress and decrease the production of other proteins that are not essential for immune function. Since albumin levels are decreased in the presence of inflammation regardless of nutritional status, some practitioners now measure CRP along with albumin and prealbumin to assess for the presence of inflammation.

How Do We Diagnose Malnutrition?

Strong for Surgery recommends a nutrition screening using a presurgical checklist to most accurately detect malnutrition. Patients identified as malnourished should be referred to a registered dietitian for nutritional assessment and intervention. Assuring adequate calorie and protein intake is essential to help the body repair and fight inflammation but may not cause a positive change in albumin levels. Therefore, relying on albumin levels alone may falsely diagnose patients as malnourished. There are simple, more direct indicators of malnutrition included in the Strong for Surgery presurgical checklist. Inadequate nutrient intake or weight loss are clear indicators of compromised nutritional status regardless of serum protein levels.

References:

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What is Strong for Surgery?

- Strong for Surgery is a public health campaign bringing presurgery checklists to doctors' offices to improve clinical outcomes.
- The Strong for Surgery initiative aims to identify and improve evidence-based practices for surgical patients in four target areas: **nutrition**, **smoking cessation**, **medications**, and **blood sugar control**.
- Strong for Surgery's goal is to educate the health care community on effective steps that can be taken to better prepare patients for surgery and provide the best outcomes possible.

Why should I use a preoperative checklist?

- A patient's risk of negative outcomes from surgery can be improved when doctors' offices **standardize best practices** such as education and perioperative care.
- Research globally has shown that use of a checklist **improves patient optimization** for surgery and helps **ensure that important aspects of care are followed** for each case.

What does Strong for Surgery offer to hospitals and clinics?

- Evaluation and planning
- Assistance with process and workflow mapping
- Consultation, facilitation, and training during implementation
- Support to staff throughout the first year to address any challenges

How would we participate?

- Involve staff responsible for patient care
- Adopt the checklist and practices
- Join our network

How can I find out more?

Visit our website and **sign up for our newsletter:** facs.org/strongforsurgery

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