

# Evaluation High-Quality of Information from ChatGPT (Artificial Intelligence—Large Language Model) Artificial Intelligence on Shoulder Stabilization Surgery



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**Purpose:** To analyze the quality and readability of information regarding shoulder stabilization surgery available using an online AI software (ChatGPT), using standardized scoring systems, as well as to report on the given answers by the AI. **Methods:** An open AI model (ChatGPT) was used to answer 23 commonly asked questions from patients on shoulder stabilization surgery. These answers were evaluated for medical accuracy, quality, and readability using The JAMA Benchmark criteria, DISCERN score, Flesch-Kincaid Reading Ease Score (FRES) & Grade Level (FKGL). **Results:** The JAMA Benchmark criteria score was 0, which is the lowest score, indicating no reliable resources cited. The DISCERN score was 60, which is considered a good score. The areas that open AI model did not achieve full marks were also related to the lack of available source material used to compile the answers, and finally some shortcomings with information not fully supported by the literature. The FRES was 26.2, and the FKGL was considered to be that of a college graduate. **Conclusions:** There was generally high quality in the answers given on questions relating to shoulder stabilization surgery, but there was a high reading level required to comprehend the information presented. However, it is unclear where the answers came from with no source material cited. It is important to note that the ChatGPT software repeatedly references the need to discuss these questions with an orthopaedic surgeon and the importance of shared discussion making, as well as compliance with surgeon treatment recommendations. **Clinical Relevance:** As shoulder instability is an injury that predominantly affects younger individuals who may use the Internet for information, this study shows what information patients may be getting online.

Anterior shoulder instability events, including dislocations and subluxations, commonly affect the general public, with 1-2% of the population experiencing dislocations during their lifetime, with the rates reported for young athletes being much higher.<sup>1-5</sup> Surgical stabilization for anterior shoulder instability is being increasingly performed for those with primary and recurrent shoulder instability to

reduce recurrent and improve quality of life.<sup>6</sup> The consent process and preoperative planning includes a detailed discussion with the patient regarding the procedure and associated benefits and risks. In addition to clinicians recommending online resources, many patients themselves search for medical information on the Internet.<sup>7-11</sup> Jamal et al.<sup>8</sup> investigated the quality of websites on arthroscopic Bankart repair

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and found that there was wide variability online in the quality and readability in the information on arthroscopic Bankart repair. They recommended that on the basis of these findings, physicians should provide patients with external sources of information that they have produced or vetted to allow patients better understanding of the procedure. Recently, machine learning, or artificial intelligence (AI), as it's known, has become popular among the general population and surgeons due to its potential.<sup>12-14</sup> There is limited data on the reliability, accuracy, quality, and readability of open source AI models to answer questions regarding orthopaedic surgery and shoulder stabilization, in particular. Additionally, it is likely that with expanded applications and use of open AI, the need to evaluate these models will be increasingly important.

The purpose of this study was to analyze the quality and readability of information regarding shoulder stabilization surgery available using an online AI software, using standardized scoring systems, as well as to report on the given answers by the AI (ChatGPT). Our hypothesis was that there would likely be high readability, but low quality of information given by the AI (ChatGPT) software.

## Methods

### Artificial Intelligence

On March 7, 2023, an AI software (ChatGPT), was used with commonly asked questions from patients on shoulder stabilization surgery. These were based on prior studies looking at patient expectations following shoulder stabilization surgery. The list of questions is shown in [Table 1](#). Three named authors (E.T.H., B.S.C., S.G.L., all of whom are residents) reviewed the answers given by the AI software independently. A variety of scoring systems to assess the readability, as well as quality of the information given. Finally, analysis and summary of the answers are shown. The full responses are available in [Appendix 1](#).

### Quality Analysis

The quality of each response was assessed using 2 validated tools: DISCERN<sup>15</sup> score and *Journal of the American Medical Association (JAMA)*<sup>16</sup> benchmark criteria.

The DISCERN<sup>15</sup> score was developed to provide a quality assessment tool of written patient information about management options. It comprises three sections: 8 questions on reliability, 7 questions on treatment information, and lastly, an additional overall quality rating. With a maximum score of 80, a score greater than 70 is classified as "excellent" and a score greater than 50 is classified as be "good".

**Table 1.** Questions

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Do I need shoulder stabilization surgery?
Should I get shoulder stabilization surgery?
Who should get shoulder stabilization surgery?
Can my shoulder dislocation be managed without surgery?
What are the different types of shoulder stabilization surgery?
Which is a better surgery: Bankart repair or Latarjet procedure?
What is the difference between open and arthroscopic shoulder stabilization surgery?
What should I expect after shoulder stabilization surgery?
How likely am I to redislocate after shoulder stabilization surgery?
How likely am I to redislocate after Bankart repair?
How likely am I to redislocate after Latarjet procedure?
How likely am I to return to sport after shoulder stabilization surgery?
How likely am I to return to sport after Bankart repair?
How likely am I to return to sport after Latarjet procedure?
How long until I can return to sport after shoulder stabilization surgery?
What are the complications after shoulder stabilization surgery?
What are the complications after Latarjet procedure?
What are the complications after Latarjet procedure?
How much does shoulder stabilization surgery hurt? How much pain medication will I need?
When can I return to work after shoulder stabilization surgery?
When can I drive after shoulder stabilization surgery?
Will I get arthritis after shoulder stabilization surgery?
How successful is revision shoulder stabilization surgery?

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The JAMA<sup>16</sup> benchmark criteria comprise four axiomatic standards to assess the quality of information: authorship, attribution, disclosure and currency; with each standard scoring 1 point. "Authorship" is important in allowing the reader to identify the origin of the information, "Attribution" deals with content referencing, "Affiliation" addresses any potential conflict of interest an author might have, and "Currency" addresses whether or not the content is current and, therefore, relevant to the reader.

### Readability Analysis

The readability of each response was assessed using the Flesch-Kincaid Reading Ease Score (FRES) and Grade Level (FKGL).<sup>17</sup> FKGL is a modified version of the FRES, generating a score from 0 (unreadable) to 100 (very easy to read) (Ref). Flesch then later adapted this into the FKGL, which denotes the maximum level of schooling a patient must have obtained to be able to read the material, i.e., higher FKGL correlates with information that is more difficult to comprehend.

### Statistical Analysis

Qualitative statistical analysis was performed using Microsoft Excel. The inter-rater reliability (IRR) was calculated for the Discern score with IRR interpreted as 0.01–0.20 as none to slight, 0.21–0.40 as fair, 0.41–0.60 as moderate, 0.61–0.80 as substantial, and 0.81–1.00 as almost perfect agreement.<sup>18</sup>

## Results

### Quality and Readability Analysis

The *JAMA* Benchmark criteria score was 0, as there was no referencing to available source material used to compile the answers. The DISCERN score was 60, and this was considered a good score; the IRR was 0.81. The areas in which it did not achieve full marks were also related to the lack of available source material used to compile the answers, and, finally, some shortcomings with information not fully supported by the literature. The FRES was 26.2, and the FKGL was considered to be that of a college graduate, which is the highest level.

### Questions and Answers

#### Indications

**Q:** Do I need shoulder stabilization surgery? Should I get shoulder stabilization surgery?

**A:** The AI software deferred answering these questions to a medical professional, such as an orthopaedic surgeon, but noted the importance of shared decision making. Furthermore, in all of the included questions, the AI software noted the importance of discussion with a surgeon and shared decision making where appropriate.

**Q:** Who should get shoulder stabilization surgery? Can my shoulder dislocation be managed without surgery?

**A:** It may be recommended for individuals who have recurrent shoulder dislocations or instability that significantly affects their daily activities and quality of life, with common reasons being repeated shoulder dislocations, symptomatic shoulder instability, labral tears, and Bankart lesions. It also noted that nonoperative management is an option, particularly in the instance of a first-time dislocation.

**Q:** What are the different types of shoulder stabilization surgery?

**A:** It described both the Bankart repair and Latarjet procedure, as well as open and arthroscopic surgery, it but did not state that either procedure could be performed arthroscopically.

**Q:** Which is a better surgery: Bankart repair or Latarjet procedure?

**A:** The AI explained how the choice of surgery between Bankart repair and Latarjet procedure depends on several factors, including the specific injury, the patient's age, activity level, and overall health, and the surgeon's preference and expertise. In general, Bankart repair surgery is recommended for patients who have a small glenoid defect or labral tear and have not had a previous shoulder surgery. It is a less invasive surgery than Latarjet and has a quicker recovery time. In contrast, it described how the Latarjet procedure is recommended for patients who have a larger glenoid defect or have had previous shoulder surgery, but that

it has a longer recovery time and a higher risk of complications, but it may provide better long-term stability for patients with more severe shoulder instability.

**Q:** What is the difference between open and arthroscopic shoulder stabilization surgery?

**A:** The AI described differences in the approach and that they will depend on several factors, including the patient's individual condition and the extent of the damage to the shoulder joint.

#### Expectations

**Q:** What should I expect after shoulder stabilization surgery?

**A:** The AI explained the recovery process, including pain in the first few days, the need to wear a sling, the importance of physical therapy and the variable nature of the length of recovery. It also warned of red flag symptoms to watch out for and to contact your surgeon if they occur.

**Q:** How likely am I to redislocate after a shoulder stabilization surgery? How likely am I to redislocate after Bankart repair? How likely am I to redislocate after a Latarjet procedure?

**A:** The AI gave 85%-95% success rates overall, with several patient risk factors playing a role as well as technical factors, and cited a study conducted in the *Journal of Shoulder & Elbow Surgery* but did not say which study. For the Bankart repair, it noted 3-30% recurrence rates, and for the Latarjet procedure, it noted 0-13% recurrence rates.

**Q:** How likely am I to return to sport after shoulder a stabilization surgery? How likely am I to return to sport after Bankart repair? How likely am I to return to sport after a Latarjet procedure?

**A:** The AI gave expected rates of up to 90% overall, but that it depended on the specific surgery and patient factors. It did not specifically answer on specific rates for each procedure, but similar timelines of 4-6 months for low-impact sport and 6-9 months for high-impact sports for both.

**Q:** How long until I can return to sport after shoulder stabilization surgery?

**A:** The AI gave variable times of 4-6 months following arthroscopic surgery for low-impact sports with 6-9 months for high-impact sports and noted open surgery the recovery time may be longer in general with 6-9 months, as expected timelines.

**Q:** What are the complications after a shoulder stabilization surgery? What are the complications after Bankart repair? What are the complications after a Latarjet procedure?

**A:** Overall, the AI gave infection, bleeding, nerve/blood vessel injury, pain, shoulder stiffness, and recurrent instability. Additionally, it noted graft nonunion for the Latarjet specifically.

### Short-Term Expectations

**Q:** How much does shoulder stabilization surgery hurt? How much pain medication will I need?

**A:** The AI explained that pain is dependent on the individual, with most patients needing a few days of prescription medications to manage pain, followed by over-the-counter medications.

**Q:** When can I return to work after shoulder stabilization surgery?

**A:** The AI explained that returning to work depends on the type of work, with a job that requires physical labor or involves repetitive arm motions possibly needing several weeks or months off work to allow for proper healing and rehabilitation. Whereas office-based jobs may allow for a quicker return to work, sometimes as soon as a few days after surgery.

**Q:** When can I drive after shoulder stabilization surgery?

**A:** The AI explained that it's generally recommended to avoid driving until you are no longer taking pain medications, have good range of motion, and have good control of the shoulder, as it depends on patient safety to operate a vehicle.

### Other Questions

**Q:** Will I get arthritis after shoulder stabilization surgery?

**A:** The AI noted there is a potential risk for developing arthritis, which is higher than the general population, but it is low overall, and it depends on patient factors and the type of surgery performed.

**Q:** How successful is revision shoulder stabilization surgery?

**A:** The AI noted that it is less successful than primary surgery, in general, with success rates of 60%-85%.

## Discussion

The most important finding from this study was that there was generally high quality in the answers given on questions relating to shoulder stabilization surgery, but it is unclear where these answers came from with no source material cited. Furthermore, there was a high reading level required to comprehend the information presented. Although, it is important to note that the AI software repeatedly emphasizes the need to discuss these questions with an orthopaedic surgeon and the importance of shared decision making, as well as compliance with the surgeon's recommended treatment.

The Internet has transformed distribution and acquisition of information, allowing patients to access and research on any subject matter, including medical problems. However, there is essentially no or very little regulation of information that is available online, which sets a dangerous precedent and can easily lead to dissemination of false information. Recently, Jamal et al.<sup>8</sup> investigated the quality of websites on

arthroscopic Bankart repair and found that there was wide variability in the quality and readability online in the information on arthroscopic Bankart repair. They recommended that on the basis of these findings, physicians should provide patients with external sources of information that they have produced or vetted to allow patients better understanding of the procedure.<sup>8</sup> As shoulder instability is an injury that predominantly affects younger individuals who may use the Internet for information, they may be more likely to rely on this when deciding on treatment options.

AI has also become popular among the general population and may have the potential to replace internet searches due to its ability to synthesize information, despite how unreliable they can be. As an AI language model trained by open AI, ChatGPT is designed to provide accurate and reliable information to the best of its abilities based on the data and knowledge available, but new research and discoveries may emerge that contradict or update previously accepted information, which this AI draws upon. Additionally, it's important to consider the limitations of AI language models, as there may be gaps or biases in its knowledge and understanding.

Interestingly, most of the information presented by the AI was technically correct, and it provided context to each response, noting the importance of discussion with a medical professional. It gave accurate descriptions when asked about the specific procedures and differences between Bankart repair and the Latarjet procedure. Although it failed to differentiate within open and arthroscopic surgery with each procedure, which may have implications on patient's understanding. The reported rates were in keeping with literature, although it is still unclear where it drew this information from, which could improve the reliability of this software if patients are using it to research their condition. Furthermore, it is noteworthy that it did emphasize the individual patient characteristics and how a "one-size-fits-all" approach could not be given for the majority of questions.

This study evaluated both information quality and readability, in keeping with prior studies evaluating Internet information quality in orthopaedic surgery.<sup>8,9,19-21</sup> Unfortunately, as the information included was not cited or sources given, it scored a 0 on the JAMA benchmark criteria. Similarly, the portion of the DISCERN score that scored poorly was due to a lack of reporting sources but was overall scored as good. However, the majority of this scoring system focused on the scope of the data and as this was open-ended software, it allowed for a wide range of questions and topics that could be asked about. Jamal et al.<sup>8</sup> found that less than half of the information in their review of Internet sources on arthroscopic Bankart repair scored a 2 on the JAMA score, and half did not achieve at least a



50 on the DISCERN score, indicating the majority of the information was poor on the Internet. The HONcode certification recognizes websites that comply with listed standards and publish transparent health-related information, i.e., is a surrogate marker for a website with reliable information, which ChatGPT does not have.<sup>22</sup> Although, prior studies have shown that the HONcode certification did not indicate a website was a more reliable source of information.<sup>23</sup> The high level of readability online has been a well-known issue within the field of medicine. The American Medical Association and the National Institutes of Health recommend a 6th grade reading level to allow for a wider audience to understand the presented information, but the AI readability level was that of a college graduate.

### Limitations

There are several limitations to this study. First, it is an analysis of an AI software, which has its own limitations. Second, it is unclear where it draws its information from, with no cited sources. Additionally, the AI software may continue to improve over time and may be improved from this initial study, with improved input to the dataset, and other AI softwares that are more advanced may be developed. AI software raises several ethical considerations, such as privacy, bias, transparency, and accountability. Furthermore, AI lacks contextual understanding and may produce results that are technically correct but are not applicable to those using it. AI software can be used to make decisions that have a significant impact on human lives, such as hiring decisions, medical diagnoses, and criminal justice. Therefore, it is important to ensure that AI software is developed and used ethically and responsibly. Finally, there may be bias in how the questions were generated with relevant literature screened and surgeons' personal experiences used to draw up the included questions.

### Conclusions

There was generally high quality in the answers given on questions relating to shoulder stabilization surgery, but there was a high reading level required to comprehend the information presented. However, it is unclear where the answers originated, with no source material cited. Although, it is important to note that the ChatGPT software repeatedly emphasized the need to discuss these questions with an orthopaedic surgeon and the importance of shared decision making, as well as compliance with the surgeon's treatment recommendations.

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## Appendix 1

Do I need shoulder stabilization surgery?

Should I get shoulder stabilization surgery?

Who should get shoulder stabilization surgery?

Can my shoulder dislocation be managed without surgery?

What are the different types of shoulder stabilization surgery?

Which is a better surgery: Bankart repair or Latarjet procedure?

What is the difference between open and arthroscopic shoulder stabilization surgery?

What should I expect after shoulder stabilization surgery?

How likely am I to redislocate after shoulder stabilization surgery?

How likely am I to redislocate after Bankart repair?

How likely am I to redislocate after a Latarjet procedure?

How likely am I to return to sport after a shoulder stabilization surgery?

How likely am I to return to sport after Bankart repair?

How likely am I to return to sport after a Latarjet procedure?

How long after shoulder stabilization surgery can I return to sport?

What are the complications after shoulder stabilization surgery?

What are the complications after Latarjet procedure?

What are the complications after Latarjet procedure?

How much does shoulder stabilization surgery hurt?

How much pain medication will I need?

When can I return to work after shoulder stabilization surgery?

When can I drive after shoulder stabilization surgery?

Will I get arthritis after shoulder stabilization surgery?

How successful is revision shoulder stabilization surgery?

Do I need shoulder stabilization surgery?

As an AI language model, I am not qualified to diagnose or provide medical advice. It's important to consult with a medical professional such as an orthopedic surgeon, who can evaluate your specific situation and recommend the best course of treatment for your shoulder issue. They may recommend nonsurgical treatment options, such as physical therapy or medication before considering surgery. Ultimately, the decision to undergo surgery should be based on a thorough evaluation of your condition and a discussion with your doctor about the potential benefits and risks of surgery.

Should I get shoulder stabilization surgery?

As an AI language model, I cannot provide medical advice or diagnose your condition. It's important to

consult with an orthopedic surgeon, who can evaluate your specific condition and recommend the best course of treatment for you.

In general, shoulder stabilization surgery is typically recommended for individuals with recurrent shoulder dislocations or instability that significantly affects their daily activities and quality of life. Your surgeon may consider factors, such as the severity and frequency of your symptoms, your age, your overall health, and your activity level when determining whether surgery is the best option for you.

It's important to have a thorough discussion with your surgeon about the potential benefits and risks of surgery, as well as the recovery process and rehabilitation program. This will help you make an informed decision about whether to proceed with shoulder stabilization surgery or pursue other treatment options.

Who should get shoulder stabilization surgery?

Shoulder stabilization surgery may be recommended for individuals who have recurrent shoulder dislocations or instability that significantly affects their daily activities and quality of life.

Some common reasons why someone may need shoulder stabilization surgery include:

1. Repeated shoulder dislocations: If you have experienced multiple shoulder dislocations, surgery may be recommended to prevent further dislocations.
2. Shoulder instability: If your shoulder feels loose or unstable, and you experience pain, weakness, or limited range of motion, surgery may be recommended to stabilize the joint.
3. Labral tears: A tear in the labrum, which is a ring of cartilage that surrounds the shoulder socket, can cause instability and may require surgical repair.
4. Bankart lesion: A specific type of labral tear that occurs when a piece of bone breaks off from the socket of the shoulder joint can also require surgery.

It's important to consult with an orthopedic surgeon, who can evaluate your specific condition and recommend the best course of treatment for you. They will consider factors, such as the severity and frequency of your symptoms, your age, your overall health, and your activity level when determining whether surgery is the best option for you. They will also discuss the potential benefits and risks of surgery, as well as the recovery process and rehabilitation program, to help you make an informed decision about whether to proceed with shoulder stabilization surgery or pursue other treatment options.

What are the different types of shoulder stabilization surgery?

There are several types of shoulder stabilization surgeries that may be recommended on the basis of the specific condition of the patient. Some of the most common types of shoulder stabilization surgery include:

1. **Bankart repair:** This surgery is used to repair a specific type of labral tear called a Bankart lesion. The surgeon reattaches the torn labrum to the socket of the shoulder joint and may also tighten the ligaments that support the joint.
2. **Latarjet procedure:** This surgery is used to treat recurrent shoulder dislocations and involves transferring a piece of bone from the shoulder blade to the front of the shoulder socket to create a new bone block that stabilizes the joint.
3. **Arthroscopic stabilization:** This minimally invasive surgery involves inserting a small camera into the shoulder joint to visualize the damage and then using small instruments to repair the torn labrum or tighten the ligaments that support the joint.
4. **Open stabilization:** This type of surgery involves making a larger incision to access the shoulder joint and may be necessary for more complex cases.

The specific type of shoulder stabilization surgery recommended will depend on the patient's individual condition and the extent of the damage to the shoulder joint. It's important to consult with an orthopedic surgeon, who can evaluate the patient's condition and recommend the most appropriate treatment option.

What is the difference between open and arthroscopic shoulder stabilization surgery?

The main difference between open and arthroscopic shoulder stabilization surgery is the approach used to access the shoulder joint during the procedure.

In open shoulder stabilization surgery, a larger incision is made in the shoulder to provide the surgeon with a direct view of the joint. This approach allows for more visibility and access to the damaged tissue, making it appropriate for more complex cases. However, it may also result in a longer recovery time and a higher risk of complications.

In arthroscopic shoulder stabilization surgery, a small camera called an arthroscope is inserted into the shoulder joint through a small incision. The surgeon can then visualize the inside of the joint on a video monitor and use small instruments to perform the necessary repairs. This minimally invasive approach typically results in a shorter recovery time and less scarring than open surgery.

The decision to use an open or arthroscopic approach will depend on several factors, including the patient's individual condition and the extent of the damage to the shoulder joint. Your surgeon can help determine which approach is best for you and discuss the potential benefits and risks of each.

What should I expect after shoulder stabilization surgery?

The recovery process after shoulder stabilization surgery can vary depending on the specific procedure performed and the individual patient's condition.

However, there are some general guidelines that you can expect during the recovery period.

In the first few days after surgery, you may experience pain and swelling in the shoulder. Your surgeon will prescribe pain medications to help manage the discomfort, and you may need to wear a sling or brace to immobilize the shoulder and support the healing process.

Physical therapy is an essential part of the *recovery process after shoulder stabilization surgery*. Your surgeon will likely recommend a specific rehabilitation program that will include exercises to restore range of motion and strength to the shoulder. You may start physical therapy within a few days or weeks after surgery, depending on your surgeon's recommendations.

The length of the recovery period can vary, but most patients can expect to return to normal activities within several months after surgery. However, it's important to follow your surgeon's instructions and attend all physical therapy appointments to ensure the best possible outcome.

It's normal to experience some discomfort and stiffness during the recovery process, but if you experience severe pain, fever, or other unusual symptoms, be sure to contact your surgeon immediately.

How likely am I to redislocate after shoulder stabilization surgery?

The likelihood of experiencing a recurrent shoulder dislocation after stabilization surgery depends on several factors, including the specific procedure performed, the severity of the initial injury, and the individual patient's age, activity level, and overall health.

In general, the success rate of shoulder stabilization surgery is high, and most patients experience significant improvements in stability and function after the procedure. According to a study published in the *Journal of Shoulder and Elbow Surgery*, the overall success rate of shoulder stabilization surgery is ~85-95%.

However, there is still a risk of recurrent dislocation after surgery. The risk varies depending on several factors, including the severity of the initial injury and the age and activity level of the patient. Younger patients and those who participate in high-impact activities may be at a higher risk of recurrent dislocation after surgery.

Your surgeon will discuss the potential risks and benefits of surgery with you before the procedure and provide specific recommendations for postoperative care and rehabilitation. Following your surgeon's instructions and attending all follow-up appointments are essential to minimize the risk of recurrent dislocation and ensure the best possible outcome after shoulder stabilization surgery.

How likely am I to redislocate after Bankart repair?

The risk of recurrent dislocation after a Bankart repair surgery depends on several factors, including the



severity of the initial injury, the surgical technique used, and the individual patient's age, activity level, and overall health.

Studies have reported varying rates of recurrent dislocation after Bankart repair surgery, ranging from ~3% to 30%. Factors associated with a higher risk of recurrent dislocation after surgery include younger age, participation in high-impact activities, and the presence of certain bone or tissue abnormalities.

It's important to note that even with a successful Bankart repair surgery, there is still a risk of recurrent dislocation. However, the success rate of this procedure is generally high, and most patients experience significant improvements in shoulder stability and function.

Your surgeon will discuss the potential risks and benefits of surgery with you before the procedure and provide specific recommendations for postoperative care and rehabilitation. Following your surgeon's instructions and attending all follow-up appointments is essential to minimize the risk of recurrent dislocation and ensure the best possible outcome after Bankart repair surgery.

How likely am I to redislocate after a Latarjet procedure?

The Latarjet procedure is a surgical procedure that involves transferring a piece of bone with attached muscle from the shoulder blade to the front of the shoulder socket to provide additional stability to the shoulder joint. The procedure is typically performed for patients who have recurrent shoulder dislocations and significant bone loss in the shoulder socket.

Studies have reported varying rates of recurrent dislocation after the Latarjet procedure, ranging from ~0% to 13%. The success of the procedure depends on several factors, including the severity of the initial injury, the surgical technique used, and the individual patient's age, activity level, and overall health.

Factors associated with a higher risk of recurrent dislocation after the Latarjet procedure include younger age, participation in high-impact activities, and the presence of certain bone or tissue abnormalities.

It's important to note that even with a successful Latarjet procedure, there is still a risk of recurrent dislocation. However, the success rate of this procedure is generally high, and most patients experience significant improvements in shoulder stability and function.

Your surgeon will discuss the potential risks and benefits of surgery with you before the procedure and provide specific recommendations for postoperative care and rehabilitation. Following your surgeon's instructions and attending all follow-up appointments is essential to minimize the risk of recurrent dislocation and ensure the best possible outcome after the Latarjet procedure.

How likely am I to return to sport after shoulder stabilization surgery?

The likelihood of returning to sports after shoulder stabilization surgery depends on several factors, including the type of surgery performed, the severity of the initial injury, and the individual patient's age, activity level, and overall health.

In general, many patients are able to return to sports and other high-impact activities after shoulder stabilization surgery. However, the timing and level of activity will depend on the specific procedure performed and the individual patient's recovery process.

Studies have reported varying rates of return to sports after shoulder stabilization surgery, with some studies reporting rates as high as 90% or more. Factors associated with a higher likelihood of returning to sports include younger age, participation in low-impact sports, and a successful surgical outcome.

Your surgeon will discuss the potential risks and benefits of surgery with you before the procedure and provide specific recommendations for postoperative care and rehabilitation. It's important to follow your surgeon's instructions and attend all follow-up appointments to ensure the best possible outcome and maximize your chances of returning to sports after shoulder stabilization surgery. Additionally, it's important to gradually reintroduce activities and sports under the guidance of your surgeon and physical therapist to minimize the risk of reinjury.

How long until I can return to sport after shoulder stabilization surgery?

The length of time it takes to return to sports after shoulder stabilization surgery varies depending on several factors, including the type of surgery performed, the severity of the initial injury, and the individual patient's age, activity level, and overall health.

In general, patients are typically advised to avoid sports and other high-impact activities for several months after shoulder stabilization surgery to allow for proper healing and rehabilitation. The specific timeline for returning to sports will depend on the specific procedure performed and the individual patient's recovery process.

For arthroscopic shoulder stabilization surgery, patients may be able to return to low-impact sports, such as swimming or cycling within 4-6 months after surgery. For more high-impact sports, such as basketball or football, patients may need to wait 6-9 months or longer before returning to full activity.

For open shoulder stabilization surgery, the recovery time may be longer, and patients may need to wait up to 6-9 months or longer before returning to sports and other high-impact activities.

It's important to follow your surgeon's instructions and attend all follow-up appointments to ensure the best possible outcome and maximize your chances of returning to sports after shoulder stabilization surgery. Additionally, it's important to gradually reintroduce

activities and sports under the guidance of your surgeon and physical therapist to minimize the risk of reinjury.

What are the complications after shoulder stabilization surgery?

As with any surgical procedure, there are potential risks and complications associated with shoulder stabilization surgery. Some of the possible complications include:

1. **Infection:** There is a risk of infection with any surgical procedure, including shoulder stabilization surgery. Your surgeon will take steps to minimize the risk of infection, such as using sterile techniques during the procedure and prescribing antibiotics after surgery.
2. **Bleeding and blood clots:** Shoulder stabilization surgery can cause bleeding, and in rare cases, blood clots may form. Your surgeon will monitor you for signs of bleeding and take steps to prevent blood clots, such as having you wear compression stockings and encouraging early movement after surgery.
3. **Nerve or blood vessel injury:** In rare cases, shoulder stabilization surgery can cause damage to nearby nerves or blood vessels. This can lead to numbness, weakness, or loss of function in the arm. Your surgeon will take steps to minimize the risk of nerve or blood vessel injury, such as carefully planning the surgical approach and using nerve monitoring during the procedure.
4. **Shoulder stiffness:** After shoulder stabilization surgery, some patients may experience shoulder stiffness or reduced range of motion. This can be addressed with physical therapy and stretching exercises.
5. **Recurrent instability:** Despite a successful surgical outcome, there is still a risk of recurrent shoulder instability after surgery. This risk can be minimized by following your surgeon's instructions for postoperative care and rehabilitation.

It's important to discuss the potential risks and complications of shoulder stabilization surgery with your surgeon before the procedure and to follow all postoperative instructions carefully to minimize the risk of complications and ensure the best possible outcome.

Will I get arthritis after shoulder stabilization surgery?

There is a potential risk of developing arthritis after shoulder stabilization surgery, but the risk is generally low. The likelihood of developing arthritis after shoulder stabilization surgery depends on several factors, including the severity of the initial injury, the type of surgery performed, and the individual patient's age, activity level, and overall health.

Some studies have reported that patients who undergo shoulder stabilization surgery may be at a slightly higher risk of developing arthritis compared to the general population. However, the overall risk is still

relatively low, and many patients are able to return to sports and other activities without experiencing long-term complications.

It's important to follow your surgeon's instructions for postoperative care and rehabilitation to minimize the risk of complications and ensure the best possible outcome. Additionally, it's important to maintain good shoulder health and avoid overuse or repetitive stress on the shoulder joint to minimize the risk of long-term complications, including arthritis. If you experience any new or persistent symptoms after shoulder stabilization surgery, it's important to follow up with your surgeon for further evaluation and treatment.

How likely am I to return to sport after Bankart repair?

The likelihood of returning to sports after Bankart repair surgery depends on several factors, including the type of sport, the severity of the initial injury, and the individual patient's age, activity level, and overall health.

In general, many patients who undergo Bankart repair surgery are able to return to sports and other physical activities with appropriate postoperative care and rehabilitation. The success of the surgery in allowing a patient to return to sports can be influenced by the extent of the injury and the patient's commitment to rehabilitation.

The specific timeline for returning to sports after Bankart repair surgery will vary depending on the individual patient's recovery process and the type of sport or activity. In general, patients may be able to return to low-impact sports such as swimming or cycling within 4-6 months after surgery. For more high-impact sports, such as basketball or football, patients may need to wait 6-9 months or longer before returning to full activity.

It's important to follow your surgeon's instructions and attend all follow-up appointments to ensure the best possible outcome and maximize your chances of returning to sports after Bankart repair surgery. Additionally, it's important to gradually reintroduce activities and sports under the guidance of your surgeon and physical therapist to minimize the risk of reinjury.

How likely am I to return to sport after a Latarjet procedure?

The likelihood of returning to sports after a Latarjet procedure depends on several factors, including the type of sport, the severity of the initial injury, and the individual patient's age, activity level, and overall health.

In general, many patients who undergo Latarjet procedure surgery are able to return to sports and other physical activities with appropriate postoperative care and rehabilitation. The success of the surgery in allowing a patient to return to sports can be influenced by the extent of the injury and the patient's commitment to rehabilitation.

The specific timeline for returning to sports after a Latarjet procedure will vary depending on the individual patient's recovery process and the type of sport or activity. In general, patients may be able to return to low-impact sports such as swimming or cycling within 4-6 months after surgery. For more high-impact sports such as basketball or football, patients may need to wait 6-9 months or longer before returning to full activity.

It's important to follow your surgeon's instructions and attend all follow-up appointments to ensure the best possible outcome and maximize your chances of returning to sports after a Latarjet procedure. Additionally, it's important to gradually reintroduce activities and sports under the guidance of your surgeon and physical therapist to minimize the risk of reinjury.

What are the complications after Bankart repair?

Bankart repair surgery is generally considered safe and effective, but as with any surgery, there is a risk of complications. Some of the potential complications that can occur after Bankart repair surgery include:

1. **Infection:** Infection is a potential complication after any surgery, including Bankart repair. Patients will be given antibiotics before and after surgery to help prevent infection.
2. **Stiffness:** Some patients may experience stiffness in the shoulder joint after surgery, which can make it difficult to move the arm.
3. **Nerve or blood vessel damage:** There is a risk of nerve or blood vessel damage during the surgery, which can result in numbness, weakness, or other complications.
4. **Recurrent instability:** In some cases, the repaired tissue may not heal properly, resulting in recurrent instability or dislocation of the shoulder joint.
5. **Pain:** Pain is a common side effect of surgery and can be managed with pain medication and physical therapy.

It's important to follow your surgeon's instructions for postoperative care and attend all follow-up appointments to minimize the risk of complications and ensure the best possible outcome. Additionally, it's important to report any new or persistent symptoms to your surgeon, as they may indicate a potential complication that requires further evaluation and treatment.

What are the complications after a Latarjet procedure?

Like any surgery, the Latarjet procedure has potential risks and complications. Some of the potential complications that can occur after a Latarjet procedure include:

1. **Infection:** Infection is a potential complication after any surgery, including Latarjet procedure. Patients will be given antibiotics before and after surgery to help prevent infection.

2. **Stiffness:** Some patients may experience stiffness in the shoulder joint after surgery, which can make it difficult to move the arm.
3. **Nerve or blood vessel damage:** There is a risk of nerve or blood vessel damage during the surgery, which can result in numbness, weakness, or other complications.
4. **Recurrent instability:** In some cases, the repaired tissue may not heal properly, resulting in recurrent instability or dislocation of the shoulder joint.
5. **Graft nonunion or fracture:** The bone graft may not properly heal or may fracture, leading to instability or pain.
6. **Pain:** Pain is a common side effect of surgery and can be managed with pain medication and physical therapy.

It's important to follow your surgeon's instructions for postoperative care and attend all follow-up appointments to minimize the risk of complications and ensure the best possible outcome. Additionally, it's important to report any new or persistent symptoms to your surgeon, as they may indicate a potential complication that requires further evaluation and treatment.

Which is a better surgery: Bankart repair or a Latarjet procedure?

The choice of surgery between Bankart repair and Latarjet procedure depends on several factors, including the specific injury, the patient's age, activity level, and overall health, and the surgeon's preference and expertise.

In general, Bankart repair surgery is recommended for patients who have a small glenoid defect or labral tear and have not had a previous shoulder surgery. It is a less invasive surgery than Latarjet and has a quicker recovery time. However, it may not be suitable for patients who have a larger glenoid defect or have had previous shoulder surgery.

Latarjet procedure is recommended for patients who have a larger glenoid defect or have had previous shoulder surgery. It involves using a bone graft from the coracoid process of the scapula to reconstruct the glenoid and stabilize the joint. Latarjet procedure has a longer recovery time and a higher risk of complications, but it may provide better long-term stability for patients with more severe shoulder instability.

Ultimately, the choice of surgery will depend on the individual patient's specific condition and should be made in consultation with their orthopedic surgeon.

When can I drive, and/or return to work again after shoulder stabilization surgery?

The timeline for returning to driving, work, and sports after shoulder stabilization surgery can vary depending on the type of surgery, the extent of the injury, and the patient's individual recovery.

Returning to driving typically depends on the individual patient's ability to safely operate a vehicle. It's generally recommended to avoid driving until you are no longer taking pain medications, have a good range of motion, and have good control of the shoulder.

Returning to work depends on the type of work you do and the extent of the surgery. If you have a job that requires physical labor or involves repetitive arm motions, you may need to take several weeks or months off work to allow for proper healing and rehabilitation. Office-based jobs may allow for a quicker return to work, sometimes as soon as a few days after surgery.

It's important to follow your surgeon's instructions for postoperative care and attend all follow-up appointments to ensure a safe and successful recovery. Additionally, it's important to communicate with your employer and coach about your recovery and any limitations or accommodations that may be necessary.

How much does shoulder stabilization surgery hurt? How much pain medication will I need?

Shoulder stabilization surgery can be painful, but the amount of pain experienced can vary widely depending on the individual patient and the extent of the surgery. In general, patients can expect to experience some pain and discomfort for several days to a few weeks after surgery.

After surgery, you will be prescribed pain medication by your surgeon to manage your pain. The amount of pain medication needed can vary, depending on the patient's individual pain tolerance and the extent of the surgery. Most patients will require prescription pain medication for a few days to a week after surgery, followed by over-the-counter pain relievers, such as ibuprofen or acetaminophen, as needed.

It's important to follow your surgeon's instructions for pain management carefully to ensure that you are using medication safely and effectively. In addition to pain medication, other strategies to manage pain after shoulder stabilization surgery may include ice, rest, and physical therapy.

Can my shoulder dislocation be managed without surgery?

In some cases, a shoulder dislocation can be managed without surgery, particularly if it is a first-time dislocation and the injury is not severe. The initial treatment for a shoulder dislocation is typically a process called reduction, which involves manipulating the shoulder joint back into place. This may be done in an emergency room or by a qualified healthcare provider.

After the shoulder has been reduced, a period of immobilization, such as wearing a sling, is usually recommended to allow the injured tissues to heal. Physical therapy may also be recommended to help restore strength and range of motion to the shoulder.

However, in some cases, surgery may be necessary to address the underlying instability of the shoulder joint and prevent future dislocations. Factors that may indicate the need for surgery include repeated dislocations, a significant injury to the surrounding tissues, or a structural abnormality in the shoulder joint that predisposes it to dislocation.

The decision to pursue surgical or nonsurgical management of a shoulder dislocation will depend on a number of factors, including the severity of the injury, the patient's age, activity level, and overall health, and the surgeon's preference and expertise. Your orthopedic surgeon can help you understand your treatment options and make the best decision for your specific situation.

How successful is revision shoulder stabilization surgery?

Revision shoulder stabilization surgery, which is a surgery to address recurrent shoulder instability after a previous stabilization surgery, can be a complex procedure with a variable success rate. The success of revision shoulder stabilization surgery depends on several factors, including the underlying cause of the recurrent instability, the type of previous surgery performed, and the expertise of the surgeon.

The success rate of revision shoulder stabilization surgery varies widely, depending on the specific technique used, but it is generally lower than the success rate for primary shoulder stabilization surgery. Studies have reported success rates, ranging from ~60% to 85% for revision surgery.

Factors that may decrease the success rate of revision shoulder stabilization surgery include bone loss in the glenoid (socket) or humeral head (ball), muscle or ligament damage, and advanced degenerative changes in the joint. In cases where bone loss is significant, a bone graft may be necessary to help restore stability to the joint.

It's important to discuss the potential risks and benefits of revision shoulder stabilization surgery with your surgeon and to carefully consider your options before proceeding with surgery.