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# Comparison of surgical techniques for anterior shoulder instability

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| **Submission date**<br>29/09/2026 | **Recruitment status**<br>Recruiting | [_] Prospectively registered<br>[_] Protocol<br>[_] Statistical analysis plan<br>[_] Results<br>[_] Individual participant data<br>[X] Record updated in last year |
| **Registration date**<br>01/10/2026 | **Overall study status**<br>Ongoing | |
| **Last Edited**<br>01/10/2026 | **Condition category**<br>Musculoskeletal Diseases | |

**Plain English summary of protocol**
Not provided at time of registration

## Contact information

**Type(s)**
Principal investigator, Public, Scientific

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## Additional identifiers

## Study information

**Scientific Title**
Comparative outcomes of arthroscopic surgical techniques in anterior shoulder instability with glenoid bone loss

**Study objectives**
Primary Objective
To compare the clinical and functional outcomes of arthroscopic Bankart repair and Dynamic

Anterior Stabilization (DAS) in patients with chronic anterior shoulder instability and subcritical glenoid bone loss (10–20%)

Secondary Objectives
1. To evaluate postoperative shoulder stability, recurrence of instability, functional outcomes, complications, and return to daily and sports activities following the two surgical techniques
2. To assess the relationship between the extent of glenoid bone loss and postoperative clinical and functional outcomes
3. To identify clinical and morphological factors associated with postoperative outcomes and recurrence of anterior shoulder instability

## Ethics approval required
Ethics approval required

## Ethics approval(s)
Approved 29/11/2024, Riga Stradins University Research Ethics Committee (Dzirciema iela 16, Riga, 1007, Latvia; +371 67409105; pek@rsu.lv), ref: 2-PĒK-4/694/2024

## Primary study design
Interventional

## Allocation
Randomized controlled trial

## Masking
Blinded (masking used)

## Control
Active

## Assignment
Parallel

## Purpose
Treatment

## Study type(s)

## Health condition(s) or problem(s) studied
Recurrent anterior shoulder (glenohumeral) instability with subcritical glenoid bone loss 10-20%

## Interventions
Intervention 1: Arthroscopic Bankart Repair

Arthroscopic repair of the anterior capsulolabral complex using suture anchors to restore anterior glenohumeral stability.

Intervention 2: Dynamic Anterior Stabilization (DAS)

Arthroscopic dynamic anterior stabilization using the long head of the biceps tendon to augment the anterior labrum and provide additional dynamic stabilization of the glenohumeral joint.

This was a single-center, prospective comparative clinical study.
Patient presenting with complaints of recurrent anterior shoulder instability were prospectively screened for eligibility according to clinical and radiological criteria and selected for the study. All patients underwent preoperative magnetic resonance imaging (MRI) for the assessment of soft-tissue injuries and computed tomography (CT) for the evaluation of glenoid bone loss.
30 patients underwent dynamic anterior stabilization (DAS group), whereas 30 patients underwent isolated Bankart repair (Bankart group), which is the control group. Group allocation was performed using computer programme.

Surgical Procedures and Tissue Sampling
All surgical procedures were performed arthroscopically by one surgeon.
Intraoperative tissue specimens were obtained from both groups for subsequent histopathological examination. In the DAS group, a bone specimen was collected from the anterior glenoid surface together with a segment of the long head of the biceps tendon. In the Bankart group, specimens were obtained from the anterior glenoid bone surface and the anterior labrum. All specimens were processed according to the same standardized histopathological protocol.

Histopathological Examination
All collected tissue specimens were fixed in 10% neutral-buffered formalin and embedded in paraffin. Bone core biopsies obtained from the anterior glenoid measured approximately 6-8 mm in length, whereas soft-tissue specimens (both LHB and Labrum) measured approximately 8-12 mm. Sections of 3 µm thickness were prepared and stained with hematoxylin and eosin. Histopathological assessment of the soft-tissue specimens included evaluation of inflammatory cell infiltration. The number of inflammatory cells, including lymphocytes and leukocytes, was assessed in ten high-power fields at x400 magnification and expressed as cells per mm3.
Bone tissue histomorphometry was performed according to the 2012 update of the American Society for Bone and Mineral Research (ASBMR) Histomorphometry Nomenclature Committee recommendations [11]. The assessed parameters included core length, tissue area, bone area, and bone volume. Osteonecrosis was defined by the presence of bone trabeculae containing empty osteocyte lacunae, and the results were expressed as the percentage of necrotic bone trabeculae.
Peritrabecular fibrosis was graded using a four-point scale: grade 0, regular bone trabeculae with distinct paratrabecular borders; grade 1, focal budding, hooks, spikes or paratrabecular apposition of new bone; grade 2, diffuse paratrabecular new bone formation with thickening of the trabeculae and occasional focal interconntections; and grade 3, extensive interconnected new bone formation with substantial effacement of the marrow spaces.

Statistical Analysis
Categorical and non-parametric data were analyzed using the Chi-square test and the Mann–Whitney U test, respectively. Correlations between the clinical or histopathological variables were evaluated using the Pearson Chi-square (x2) test. A p-value of $<0.05$ was considered statistically significant. The GraphPad Prism 12. version software was used for data analysis.

## Intervention Type
Procedure/Surgery

## Primary outcome(s)

1. Recurrence of anterior shoulder instability measured using Scores - Constant Shoulder Score, ASES Score, Oxford Shoulder Instability Score, Pains score (VAS) at 1, 3, 6, 12, and 24 months post surgery

### Key secondary outcome(s)

### Completion date
31/08/2029

## Eligibility

### Key inclusion criteria
1. Patients aged ≤50 years
2. History of anterior shoulder dislocation and/or subluxation
3. Persistent anterior glenohumeral instability
4. MRI-confirmed anterior labral injury and Hill–Sachs lesion
5. CT-confirmed glenoid bone loss of 10–20% of the total glenoid articular surface

### Healthy volunteers allowed
No

### Age group
Adult

### Lower age limit
18 Years

### Upper age limit
50 Years

### Sex
All

### Total final enrolment
0

### Key exclusion criteria
1. Patients aged >50 years
2. Concomitant injuries or pathological conditions involving other structures of the shoulder joint
3. Multidirectional shoulder instability
4. Previous surgical procedures on the affected shoulder
5. Acute infection
6. Coagulation disorders
7. Systemic diseases, including diabetes mellitus (DM), rheumatoid arthritis (RA), gout, and autoimmune diseases (AIDs)

### Date of first enrolment
01/12/2024

### Date of final enrolment

31/08/2027

# Locations

**Countries of recruitment**
Latvia

# Sponsor information

**Organisation**
SIA ORTO klīnika

**ROR**
https://ror.org/04tggq083

**Organisation**
Riga Stradiņš University

**ROR**
https://ror.org/03nadks56

# Funder(s)

**Funder type**

**Funder Name**
ORTO Klīnika

# Results and Publications

**Individual participant data (IPD) sharing plan**

**IPD sharing plan summary**
Not expected to be made available

**Study outputs**

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---|---|---|---|---|
| Participant information sheet | | | 30/09/2026 | No | Yes |