Suture Button Fixation In Latarjet Has Similar Load To Failure And Clinical Outcomes But Lower Bone Resorption Compared With Screw Fixation: A Systematic Review

- **Nayeem Z Hali, FRCS[1]**; Muaaz Tahir, FRCS[2]; Robert Jordan, FRCS[3]; Hubert Laprus, MD[4]; Jarret Woodmass, FRCS(C)[5]; Peter D'Alessandro, FRACS[6]; Shahbaz S Malik, FRCS[1]

1. *Worcestershire Acute Hospitals NHS Trust, Worcester, UNITED KINGDOM*
2. *The Royal Orthopaedic Hospital NHS Foundation Trust, Birmingham, UNITED KINGDOM*
3. *University Hospitals of Birmingham NHS Foundation Trust, Birmingham, UNITED KINGDOM*
4. *St Luke's Hospital, Bielsko- Biała, POLAND*
5. *Pan Am Clinic. Winnipeg, CANADA*
6. *Orthopaedic Research Foundation of Western Australia, Claremont, WA, AUSTRALIA*

Faculty Disclosure Information

- No disclosure: Nayeem Z Hali, FRCS; Muaaz Tahir, FRCS; Robert Jordan, FRCS; Hubert Laprus, MD; Shahbaz S Malik, FRCS

- Jarret Woodmass, FRCS(C)

  Educational consulting for Smith & Nephew

- Peter D'Alessandro, FRACS[7]:

  Consulting Medacta and Smith & Nephew

  Speakers Bureau for Medacta, Smith & Nephew, Arthrex

  Institutional / Education support from Smith & Nephew, Arthrex

Aim

To compare the 2 Latarjet fixation techniques-screw fixation (SF) versus suture button (SB)

- clinical,
- biomechanical, and
- radiologic outcomes.

Methods

- A systematic review was conducted in accordance with PRISMA guidelines using MEDLINE, PubMed and Embase databases.
- The review was registered with the PROSPERO.
- Only comparative clinical and biomechanical studies of Latarjet with SF and SB were included.
- Clinical studies were required to report either functional outcome, patient-reported outcomes measures, recurrent instability, complications, or radiologic outcomes during follow-up for inclusion.
- Biomechanical cadaveric studies reported outcomes in terms of load at failure and failure mechanism.
- Studies were appraised using the MINOR tool.

Results

- 11 Studies - 7 Clinical studies (SB, n = 279; SF, n = 845)
- 4 Biomechanical studies
- 80.9% (SB) and 84.2% (SF) were male
- Follow-up ranged from 6 to 63.6 months.

Results: Clinical

Functional scores – Walch-Duplay score / Rowe score/ VAS for pain

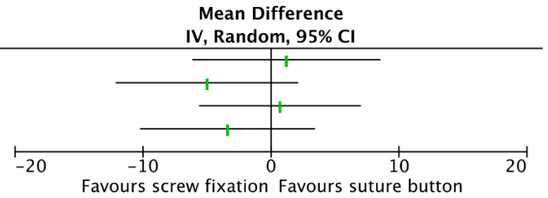
Summary Forest Plots: SB Versus SF : No significant difference

A

Walch-Duplay score

Study or Subgroup	Suture button Mean	SD	Total	Screw fixation Mean	SD	Total	Mean Difference IV, Random, 95% CI
Bonnevialle et al 2021	93	10.9	17	91.8	12.5	22	1.20 [-6.16, 8.56]
Girard et al 2020	88	15	24	93	10	26	-5.00 [-12.13, 2.13]
Hardy et al 2019	71.1	23.4	72	70.4	25.6	232	0.70 [-5.63, 7.03]
Wang et al 2020	88.3	7.5	6	91.7	4.1	6	-3.40 [-10.24, 3.44]

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 2.20$, df = 3 (P = 0.53); $I^2 = 0\%$
Test for overall effect: Z = 0.89 (P = 0.38)

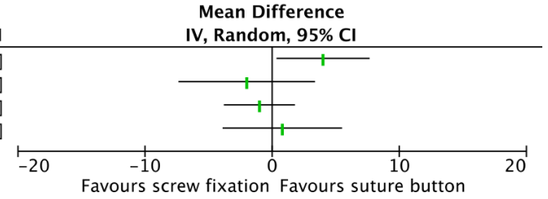


B

Rowe score

Study or Subgroup	Suture button Mean	SD	Total	Screw fixation Mean	SD	Total	Mean Difference IV, Random, 95% CI
Bonnevialle et al 2021	99	2.2	17	95	8.4	22	4.00 [0.34, 7.66]
Girard et al 2020	93	11	24	95	8	26	-2.00 [-7.37, 3.37]
Song et al 2022	94.2	8.9	54	95.2	6	63	-1.00 [-3.80, 1.80]
Wang et al 2020	93.3	4.1	6	92.5	4.2	6	0.80 [-3.90, 5.50]

Heterogeneity: $Tau^2 = 3.31$; $Chi^2 = 5.46$, df = 3 (P = 0.14); $I^2 = 45\%$
Test for overall effect: Z = 0.42 (P = 0.68)

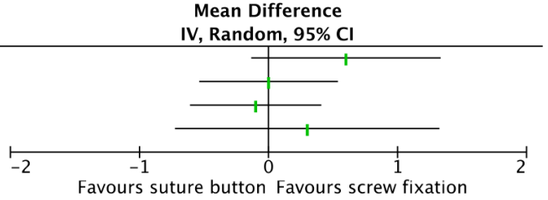


C

Pain visual analogue score (VAS)

Study or Subgroup	Suture button Mean	SD	Total	Screw fixation Mean	SD	Total	Mean Difference IV, Random, 95% CI
Girard et al 2020	0.9	1.7	25	0.3	0.8	26	0.60 [-0.13, 1.33]
Hardy et al 2019	1.3	2.1	72	1.3	1.8	232	0.00 [-0.54, 0.54]
Song et al 2022	1.2	1.4	54	1.3	1.4	63	-0.10 [-0.61, 0.41]
Wang et al 2020	1.5	1	6	1.2	0.8	6	0.30 [-0.72, 1.32]

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 2.66$, df = 3 (P = 0.45); $I^2 = 0\%$
Test for overall effect: Z = 0.62 (P = 0.53)



Results: Clinical

- **Range of motion**: **no** significant difference between SB vs SF
- **Recurrent Instability rate**:
  SB range from **0 - 8.3%** and **SF** range from 0– 2.75%.
  Only one study showed greater recurrent instability rate with SB, p =0.02.
- **Complication rates: SB vs SF, 0 to 12.5% vs 0 to 27%.**
- Two studies reported **greater complications and reoperations with SF** related to **hardware.**

Results

Radiological

- **No significant difference** in **Graft positioning and Union** at final follow-up.
- **Graft resorption** was **greater** in **SF** (range 25.2% - 47.6%) compared with SB (range 10.1% -18.5%).

Biomechanical

- **No significant difference** in maximum load to failure (**SB, range 184-266 N vs SF, range 148-288 N**).

Limitations

- Selection bias – unequal distribution of patient between the two groups.
- Limitations identified by MINORS were the lack of prospective collection of data, unbiased assessment of the study endpoints, follow-up period appropriate to the aim of the study, and lack of loss to follow-up less than 5%.
- The MINORS score ranged from 18 to 22.

Conclusion

- Clinically, **SB** fixation demonstrated **similar functional outcome and range of motion** when compared with SF.
- Potential benefits of **lower rates of graft resorption and hardware-related complications** with **SB.**
- Biomechanically there was **no difference** in **maximum load to failure.**

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