



Less Cardiovascular or Respiratory Disease and Greater Shoulder Function In Sports Active Reverse Total Shoulder Arthroplasty Patients

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Objective

- Recreational sports participation may decrease cardiovascular (CV) and respiratory system (RS) disease.
- This study evaluated the influence of CV or RS disease on the perceived shoulder function and normalcy of sports active reverse total shoulder arthroplasty (RTSA) patients over the initial 5-years post-RTSA compared to non-sports active patients.



Materials and Methods

- Two hundred patients (108 female) participated in this retrospective study.
- The *Sports Active Group* had 52 patients (69.2 ± 9 years of age, male = 57.7%, $n = 30$) who participated in golf ($n = 10$), cycling ($n = 9$), fishing-hunting ($n = 9$), weight training ($n = 5$), swimming ($n = 5$), bowling ($n = 3$), target shooting ($n = 2$), sailing ($n = 2$), archery ($n = 2$), tennis ($n = 2$), hiking ($n = 1$), kayaking ($n = 1$), and flag football ($n = 1$).



Materials and Methods

- The *Non-Sports Active Group* had 148 patients (68.9 ± 8 years of age, female = 58.1%, $n = 86$).
- Patients underwent RTSA for gross rotator cuff deficiency ($n = 92$), osteoarthritis ($n = 88$), failed total shoulder arthroplasty ($n = 8$), non-united humeral head fracture ($n = 6$) or comminuted humeral head fracture ($n = 6$) with similar group distributions ($p = 0.24$).



Materials and Methods

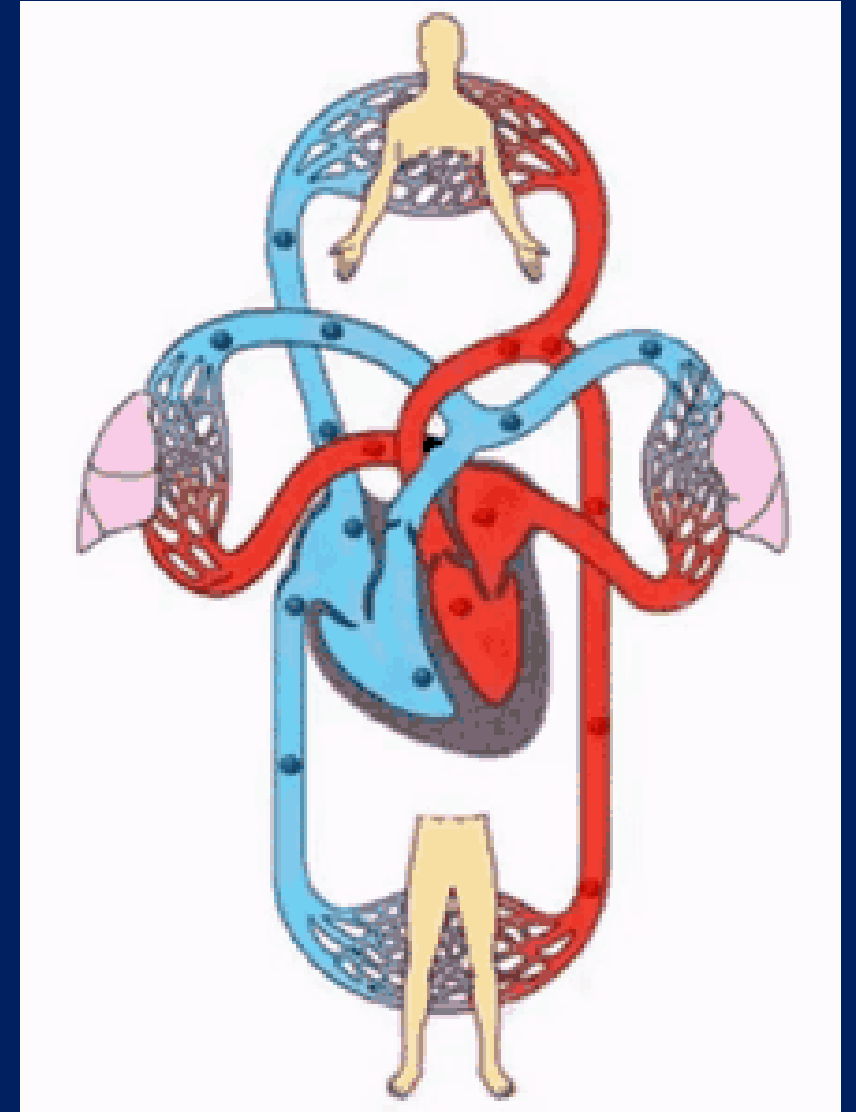
- Patients completed the American Shoulder and Elbow Society (ASES) Score, the Single Assessment Numeric Evaluation (SANE) score, and were evaluated for implant failure/revision. Data was collected pre-RTSA, and at 6-week, 6-month, 1-year, 2-year, 3-year, and 5-year follow-ups.
- Patients were categorized into
 - Group 1** (Sports Active with no CV or RS disease, n = 20);
 - Group 2** (Sports Active with either CV or RS disease, n = 32);
 - Group 3** (Non-Sports Active with no CV or RS disease, n = 28);
 - Group 4** (Non-Sports Active with either CV or RS disease, n = 120)
- Statistical comparisons were made using two-way ANOVA (group, follow-up period) and Tukey post-hoc tests ($p \leq 0.05$).



“How would you rate your affected joint/region of interest today as a percentage of normal (0% to 100% scale with 100% being normal)?”

Results

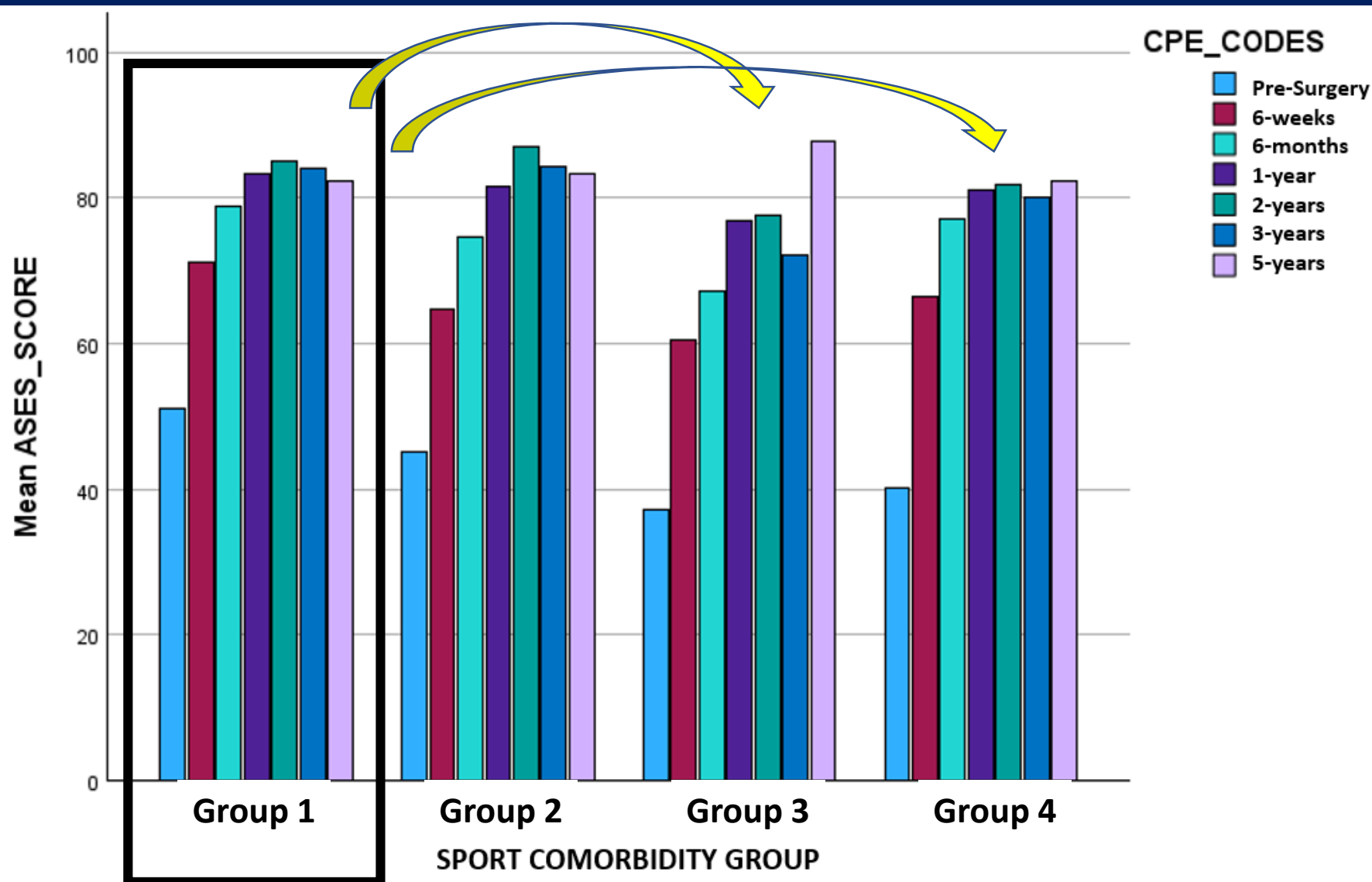
- Groups had similar age and gender distributions ($p \geq 0.24$).
- Overall, the *Sports Active group* had less CV disease (60%, 31/52 patients vs. 75.7%, 112/148 patients, $p = 0.05$).....
-and less RS disease (15.4%, 8/52 vs. 30.4%, 45/148, $p = 0.03$) than the *Non-Sports Active group*.



Results

- Group differences were observed for ASES score ($p = 0.03$) by follow-up period ($p < 0.001$) with Group 1 (Sports Active with no CV or RS disease) displaying higher ASES scores compared to Group 3 (Non-Sports Active with no CV or RS disease) ($p = < 0.001$) and Group 4 (Non-Sports Active with either CV or RS disease) ($p = 0.05$), but not differing from Group 2 (Sports Active with either CV or RS disease) ($p = 0.56$).

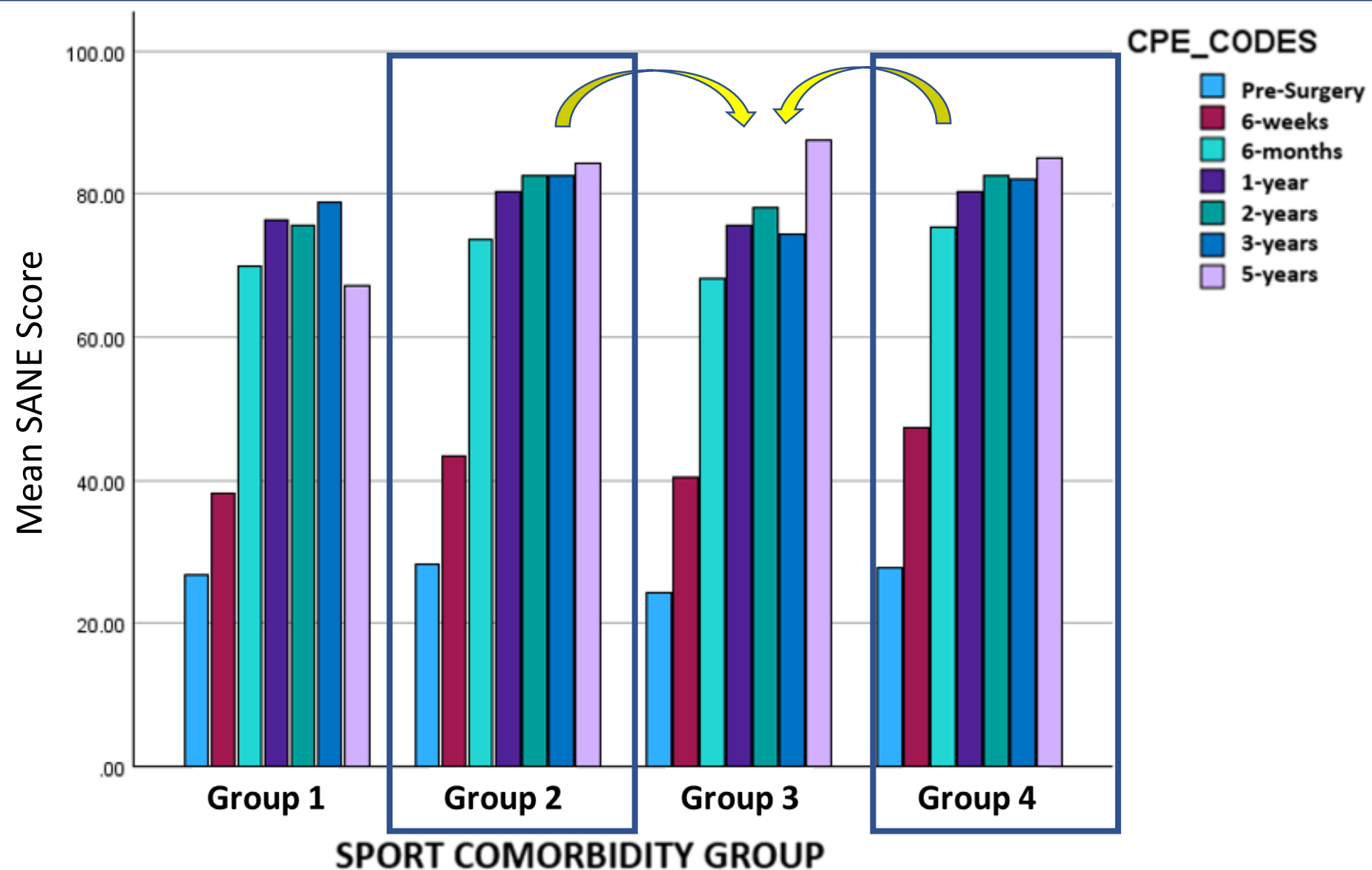
ASES Scores by Time Period



Results

- Group differences were also observed for **SANE score** ($p = 0.012$) by follow-up period ($p < 0.001$) with **Group 2 (Sports Active with either CV or RS disease)** ($p = 0.03$) and **Group 4 (Non-Sports Active with either CV or RS disease)** ($p = 0.004$) displaying higher scores than **Group 3 (Non-Sports Active with no CV or RS disease)** ($p = 0.03$). **Group 1 (Sports Active with no CV or RS disease)** did not differ from the other groups ($p \geq 0.24$).
- Groups had equivalent implant revision rates. **Group 4 (Non-Sports Active with either CV or RS disease)** had more activity or fall-related fractures than the other groups ($p = 0.002$).

SANE Scores by Time Period



Conclusion

Recreational Sports Active patients had less frequent **CV** or **RS** disease and greater shoulder function. Groups had equivalent implant revision rates, however, Group 4 (Non-Sports Active with either CV or RS disease) had more activity or fall-related fractures suggesting possible balance or neuromuscular control impairments.

Whether Sports Active or not, patients with **CV** or **RS** disease were more likely to perceive restored shoulder functional normalcy, perhaps because of reduced needs.

Safe recreational sport continuance should be encouraged in patients who undergo RTSA.



Thanks



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