

## OSTEOARTHRITIS AND PRP

- Osteoarthritis (OA)** is a degenerative, chronic, and debilitating condition that affects 37% of adults in Canada. Its incidence increases with age, affecting nearly 45% of Canadian adults over 65.
- There are limited treatments and no cure for OA. The only definitive treatment is total joint replacement. In Canada, wait times for arthroplasty are long and surgery is not always indicated; thus, many patients search out alternative treatments in order to improve their pain and quality of life.
- Platelet-rich plasma (PRP) injections** are an emerging therapy for OA to treat pain, increase function, and delay or decrease the number of patients requiring surgery.

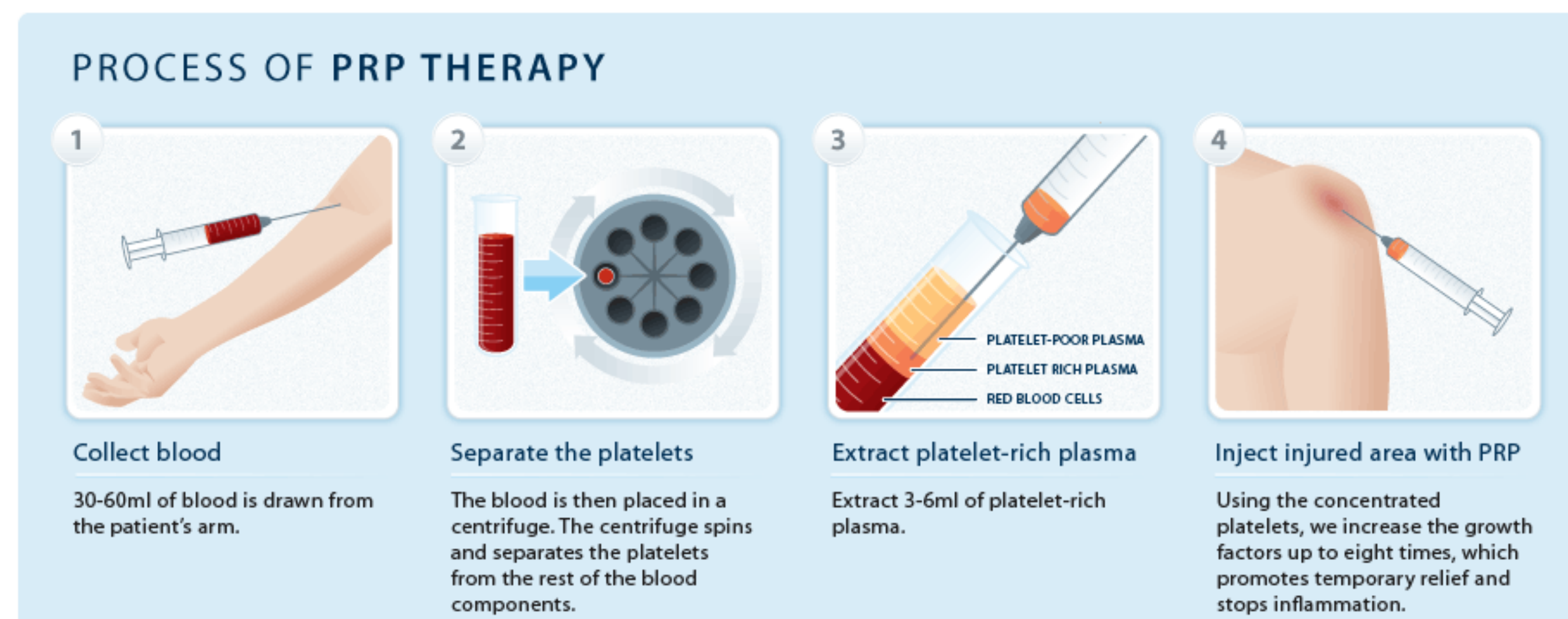


Image Credit: ReBalanceMD

- The Glen Sather Sports Medicine Clinic (GSSMC) at the University of Alberta has offered PRP injections as a treatment option for OA since 2010.
- The effectiveness of PRP for OA is inconsistent in the literature and higher quality evidence is required.

## STUDY OBJECTIVES

- To evaluate effectiveness of PRP in improving pain, functionality, and limitations caused by osteoarthritis through self-reported visual analog scale (VAS) scores
- To evaluate the effectiveness of receiving more than one PRP treatment.

## METHODOLOGY

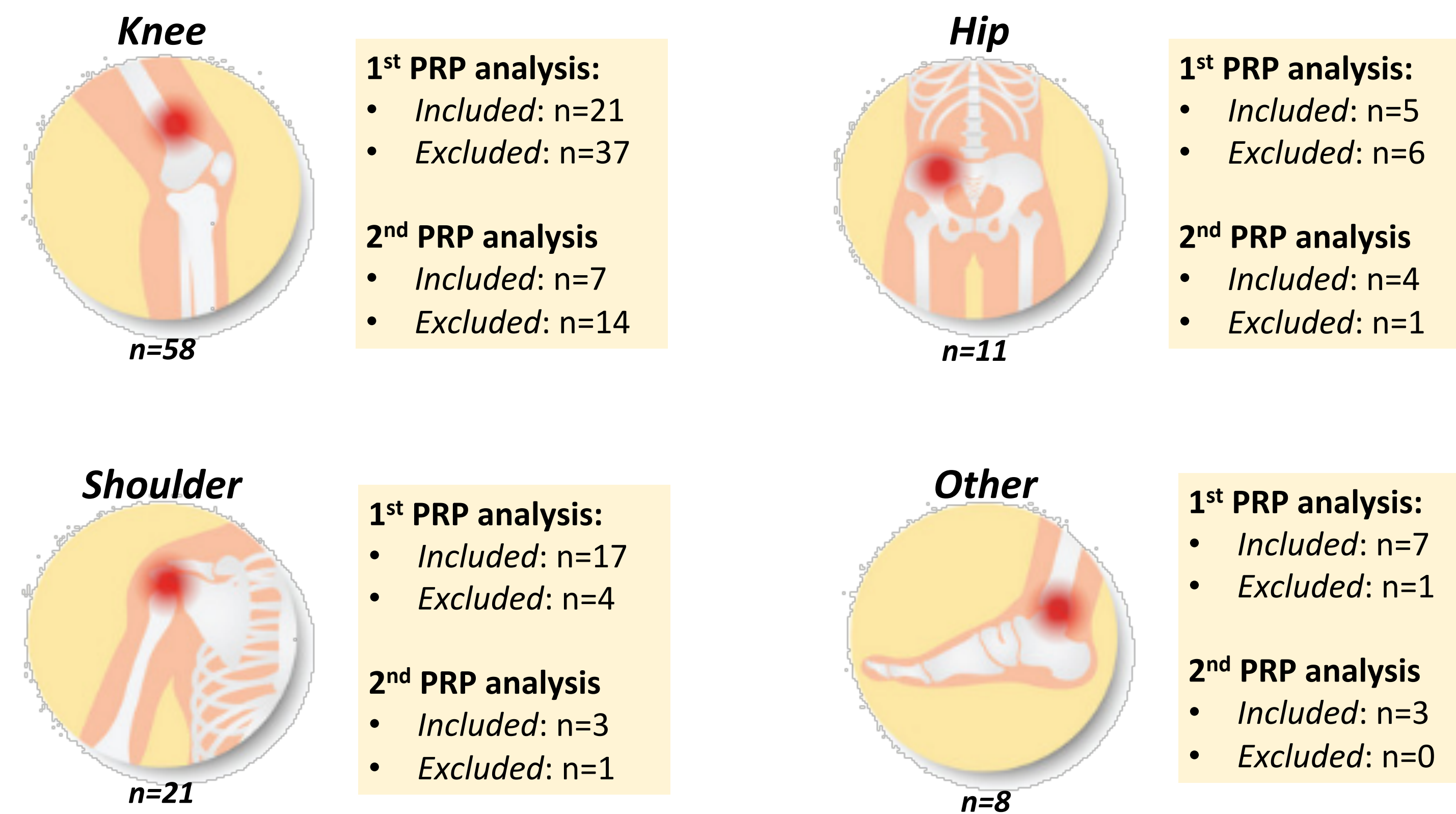
- Design:** Retrospective Chart Review (*interim analyses*)
- Inclusion Criteria:** All patient charts for those receiving PRP at the GSSMC from January 1, 2010 to June 2017 were reviewed.
- Intervention/Instruments:** Visual Analogue Scales (VAS) were used to assess patient pain, function, and activity levels both pre- and post-injection.
- Outcome Measures:** Age, Sex, Affected joint, and VAS scores.
- Analyses:** Descriptive Statistics, paired t-tests, X<sup>2</sup> tests

## RESULTS

### RECORD STRATIFICATION FOR VAS ANALYSES

#### Patients Receiving PRP for Osteoarthritis

January 1, 2010 - June 30, 2017  
(Total n=98, Total Analyzed n=50)



### VAS ANALYSES

#### FIRST PRP INJECTION: VAS Score Changes Pre-Injection vs. First Follow-up

VAS Domains	Knee n=21	Hip n=5	Shoulder n=17	Other n=7
<b>Pain</b>	-0.37 CI -1.30, 0.59 p=0.44	-1.21 CI -3.44, 1.55 p=0.41	-0.87 CI -3.15, 1.40 p=0.42	-2.96 CI -4.42, -1.55 p=0.0022
<b>Functional Limitation</b>	-2.34* CI -3.74, -0.94 p=0.0023	-2.27 CI -4.35, 0.60 p=0.19	-1.02 CI -2.73, 0.41 p=0.13	-3.20* CI -4.49, -1.90 p=0.00091
<b>Physical Activity</b>	-2.59* CI -4.06, -1.11 p=0.0016	-1.43 CI -3.02, 0.35 p=0.11	-1.83* CI -3.19, -0.55 p=0.0091	-1.80* CI -3.16, -0.44 p=0.017

Negative values indicate an improved VAS score. A lower VAS score indicates less pain and fewer functional limitations.

- An initial PRP treatment contributed to an improvement in activities of daily living (ADL) function and physical activity for Knee OA and physical activity for Shoulder OA. 'Other' affected joints reported improvements in all domains.

#### SECOND PRP INJECTION: VAS Score Changes Pre-Injection vs. First Follow-up

VAS Domains	Knee n=7	Hip n=4	Shoulder n=3	Other n=3
<b>Pain</b>	-1.81* CI -3.50, -0.12 p=0.039	-0.6 CI -6.74, 5.54 p=0.78	n/a	n/a
<b>Functional Limitation</b>	-3.59* CI -6.12, -1.05 p=0.014	-1.08 CI -6.49, 6.34 p=0.68	n/a	n/a
<b>Physical Activity</b>	-3.00* CI -5.07, -0.93 p=0.012	-1.05 CI -8.16, 6.06 p=0.67	n/a	n/a

Negative values indicate an improved VAS score. A lower VAS score indicates less pain and fewer functional limitations.

- Only patients who received a second PRP injection for Knee OA (33%) reported significant improvement in pain, ADL function, and physical activity.

## RESULTS

### PATIENT CHARACTERISTICS

SEX	Total n=98	Knee n=58	Hip n=11	Shoulder n=21	Other n=8
<b>Male</b>	69 (70.41%)	40 (68.97%)	7 (63.64%)	16 (76.19%)	6 (75.00%)
<b>Female</b>	29 (29.59%)	18 (31.03%)	4 (36.36%)	5 (23.81%)	2 (25.00%)

X<sup>2</sup> = 0.718, p = 0.87

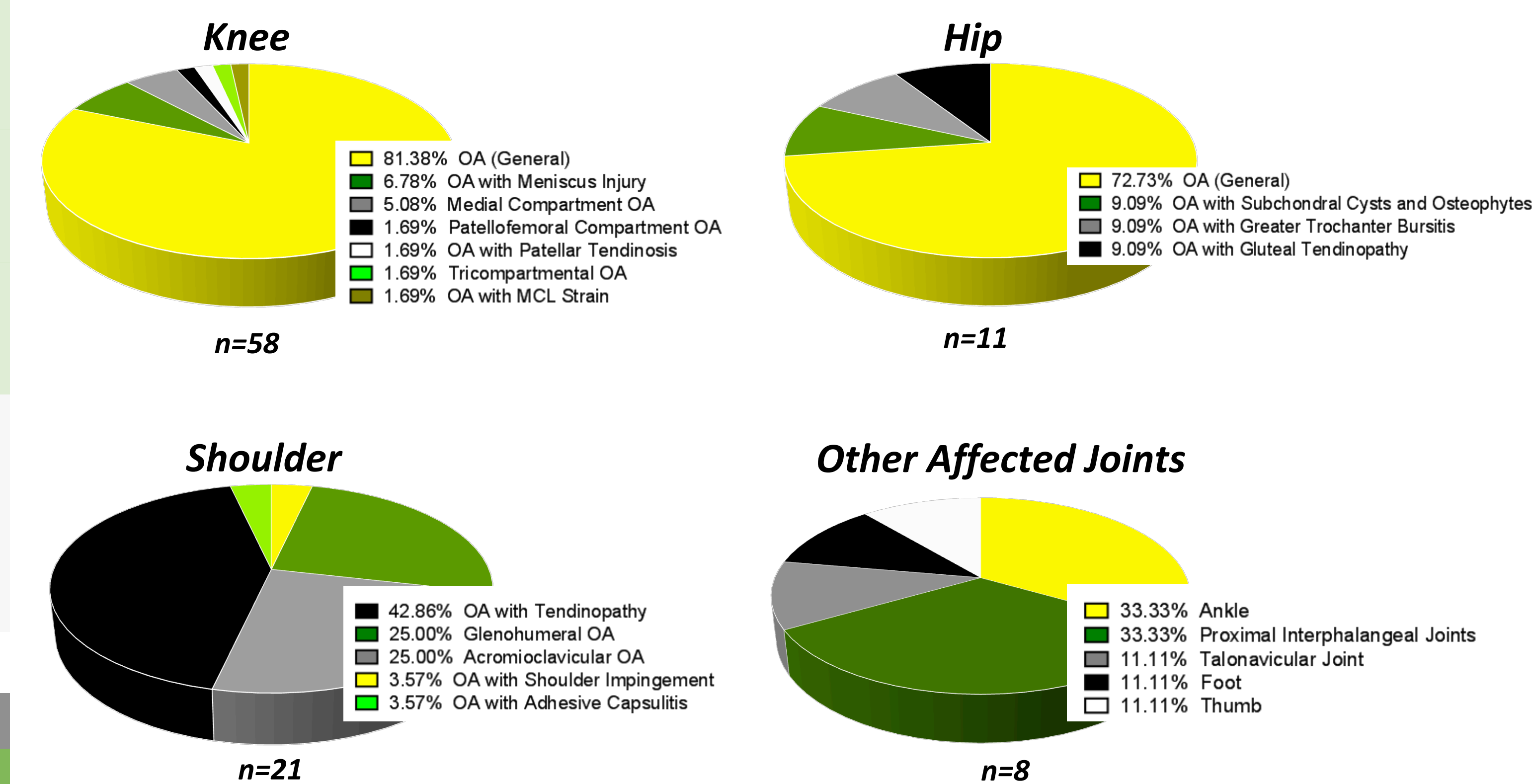
- OA PRP patients at the GSSMC were most commonly male (70.41%) and between the ages of 50-79 years old (79.6%). The most common presentation was Knee OA (59%).
- No significant proportional differences between males and females per affected joint are currently reported.

AGE GROUP	Total n=98	Knee n=58	Hip n=11	Shoulder n=21	Other n=8
<b>30-39</b>	6 (6.12%)	-	2 (18.18%)	4 (19.05%)	-
<b>40-49</b>	10 (10.2%)	6 (10.34%)	2 (18.18%)	1 (4.76%)	1 (12.5%)
<b>50-59</b>	33 (33.68%)	21 (36.21%)	4 (36.36%)	5 (23.81%)	3 (37.5%)
<b>60-69</b>	28 (28.57%)	21 (36.21%)	1 (9.09%)	4 (19.05%)	2 (25%)
<b>70-79</b>	17 (17.35%)	9 (15.51%)	2 (18.18%)	4 (19.05%)	2 (25%)
<b>80+</b>	4 (4.08%)	1 (1.72%)	-	3 (14.29%)	-
<b>Mean Age (years)</b>	<b>60.52 (±11.55)</b>	<b>61.84 (± 9.41)</b>	<b>53.73 (±12.77)</b>	<b>59.85 (±15.74)</b>	<b>62.04 (±9.72)</b>

X<sup>2</sup> = 25.19, p = 0.048

- The age of patients receiving PRP differs between the joint that was injected. Patients of all ages may present with OA.

### Osteoarthritis Diagnoses and Comorbidities by Affected Area



## DISCUSSION & CONCLUSIONS

- Overall, patients' VAS scores decreased from pre-injection to follow-up for both 1<sup>st</sup> and 2<sup>nd</sup> PRP. This score decrease indicates an improvement in pain, ADL function, and activity. However, this was not statistically significant in all cases.
- Our study demonstrates that PRP may provide beneficial and significant improvement in some joints affected by OA, particularly the knee.
- Our analyses are limited by patient follow-up, poor health record charting, and inconsistencies in patient VAS completion. An increased number of OA PRP patients would provide additional power to our results.