

**PHASE I (0 to 7 days after PRP Procedure)**

Physical Therapy	<ul style="list-style-type: none"> <li>No physical therapy at this time as physical therapy begins 7 to 10 days after procedure</li> </ul>
Precautions	<ul style="list-style-type: none"> <li>Immobilization of the joint                             <ul style="list-style-type: none"> <li>Injection to shoulder: shoulder sling</li> <li>Injection to elbow: shoulder sling and wrist splint with provider discretion</li> <li>Injection to wrist: wrist splint</li> <li>Injection to hip and knee: crutches for non-weight bearing of affected extremity</li> <li>Injection to ankle/foot: crutches for non-weight bearing of affected extremity and walking boot</li> </ul> </li> <li>No NSAID use (Advil, Motrin, Ibuprofen, etc.)</li> <li>No ice use</li> </ul>
Exercise	<ul style="list-style-type: none"> <li>Prevent joint from stiffening</li> <li>Gentle passive, active assisted and active range of motion of immobilization device (PROM, AAROM, and AROM)</li> </ul>
Goals	<ul style="list-style-type: none"> <li>Protect the treated area</li> <li>Minimize pain</li> </ul>

**PHASE II (7 to 14 days after PRP Procedure)**

Physical Therapy	<ul style="list-style-type: none"> <li>Begin physical therapy at this time for light, soft tissue mobilization and range of motion work</li> <li>1-2 times per week</li> </ul>
Precautions	<ul style="list-style-type: none"> <li>Body Part:                             <ul style="list-style-type: none"> <li>Shoulder: Discontinue use of sling (may occur at day 10)</li> <li>Elbow: Discontinue use of shoulder sling/wrist splint</li> <li>Wrist: Discontinue of use of wrist splint (may occur at day 10)</li> <li>Hip/Knee: Weight bearing as tolerated with discontinued use of crutches from 2 to 1 to none when able to ambulate pain free (toe-touch)</li> <li>Ankle/Foot: Weight bearing as tolerated with discontinued use of crutches from 2 to 1 to none when able to ambulate pain free (toe-touch)</li> </ul> </li> </ul>

## Platelet-Rich Plasma Protocol

	<ul style="list-style-type: none"> <li>• DO NOT overstress the tendon, lift heavy objects, exercise with weights or perform high impact activities at this time</li> </ul>
Exercise	<ul style="list-style-type: none"> <li>• Continue active range of motion exercises for all joints with pain free range 3 times per day for 5 minute sessions</li> <li>• Upper extremity:             <ul style="list-style-type: none"> <li>○ Arm bike (low resistance)</li> <li>○ Lower body and core strengthening exercises</li> </ul> </li> <li>• Shoulder:             <ul style="list-style-type: none"> <li>○ Arm bike (low resistance)</li> <li>○ AAROM/AROM of shoulder to pain free range</li> <li>○ Shoulder isometrics</li> <li>○ Light stretching of shoulder musculature (pecs, lats, posterior cuff musculature, etc.)</li> </ul> </li> <li>• Elbow/Wrist:             <ul style="list-style-type: none"> <li>○ Arm bike (low resistance)</li> <li>○ AAROM/AROM of wrist and elbow to pain free range</li> <li>○ Wrist and elbow isometrics</li> <li>○ Light stretching to wrist/elbow musculature (wrist flexors/extensors, etc.)</li> </ul> </li> <li>• Lower extremity:             <ul style="list-style-type: none"> <li>○ Bike (low resistance)</li> <li>○ Upper body strengthening exercises</li> </ul> </li> <li>• Hip:             <ul style="list-style-type: none"> <li>○ Bike (low resistance)</li> <li>○ Pool walking</li> <li>○ AAROM/AROM of hip</li> <li>○ Hip isometrics</li> <li>○ Light stretching to hip musculature (quads, hip flexors, glutes, hip ERs, etc.)</li> </ul> </li> <li>• Knee:             <ul style="list-style-type: none"> <li>○ Bike (low resistance)</li> <li>○ Pool walking</li> <li>○ AAROM/AROM of knee</li> <li>○ Knee isometrics (quad sets)</li> <li>○ Light stretching of knee/hip musculature (quads, hip flexors, glutes, hip ERs, hamstrings, etc.)</li> </ul> </li> <li>• Ankle/Foot:             <ul style="list-style-type: none"> <li>○ Bike (low resistance)</li> <li>○ Pool walking</li> <li>○ AAROM/AROM of ankle</li> <li>○ Ankle isometrics</li> <li>○ Light stretching of ankle/foot musculature (gastroc, soleus, foot intrinsics, etc.)</li> </ul> </li> </ul>

## Platelet-Rich Plasma Protocol

Goals	<ul style="list-style-type: none"> <li>Discontinue immobilizing device</li> <li>Progress 10-14 days after procedure</li> </ul>
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### PHASE III (2 to 4 weeks after PRP Procedure)

Physical Therapy	<ul style="list-style-type: none"> <li>Joint and soft tissue mobilizations as needed to restore normal range of motion and joint mechanics</li> <li>2 to 3 times per week</li> <li>Physician follow-up 4 weeks after procedure</li> </ul>
Precautions	<ul style="list-style-type: none"> <li>Maintain low resistance while biking</li> <li>DO NOT overstress the tendon, lift heavy objects, exercise with weights or perform high impact activities at this time</li> </ul>
Exercise	<ul style="list-style-type: none"> <li>Continue active range of motion exercises for all joints pain free range 3 to 5 times per day for 5 minute sessions</li> <li>Stretching exercises for affected area 2 to 3 times per day, 3 to 4 reps, 20 to 30 second holds</li> <li>Strengthening isometric and concentric exercise progressing to eccentric exercise as tolerated</li> <li>Upper extremity                             <ul style="list-style-type: none"> <li>Arm bike (low resistance)</li> <li>Lower body and core strengthening exercises</li> </ul> </li> <li>Shoulder:                             <ul style="list-style-type: none"> <li>Arm bike (low resistance)</li> <li>AAROM/AROM of shoulder to pain free range</li> <li>Shoulder isometric and concentric strengthening progressing to eccentric as tolerated</li> <li>Light stretching of shoulder musculature (pecs, lats, posterior cuff musculature, etc.)</li> </ul> </li> <li>Elbow/Wrist:                             <ul style="list-style-type: none"> <li>Arm bike (low resistance)</li> <li>AAROM/AROM of wrist and elbow to pain free range</li> <li>Wrist and elbow isometric and concentric strengthening progressing to eccentric as tolerated</li> <li>Light stretching to wrist/elbow musculature (wrist flexors/extensors, etc.)</li> </ul> </li> <li>Lower extremity:                             <ul style="list-style-type: none"> <li>Bike (low resistance)</li> <li>Upper body strengthening exercises</li> </ul> </li> <li>Hip:                             <ul style="list-style-type: none"> <li>Bike (low resistance)</li> <li>Pool walking</li> </ul> </li> </ul>

## Platelet-Rich Plasma Protocol

	<ul style="list-style-type: none"> <li>○ AAROM/AROM of hip</li> <li>○ Hip isometric and concentric strengthening progressing to eccentric as tolerated (low impact table exercises-SLR 4-way, LAQ, SAQ, bridges, clams, reverse clams, etc.)</li> <li>○ Light stretching to hip musculature (quads, hip flexors, glutes, hip ERs, etc.)</li> <li>● Knee:             <ul style="list-style-type: none"> <li>○ Bike (low resistance)</li> <li>○ Pool walking</li> <li>○ AAROM/AROM of knee</li> <li>○ Knee isometric and concentric strengthening progressing to eccentric as tolerated (low impact table exercises-SLR 4-way, LAQ, SAQ, bridges, clams, reverse clams, etc.)</li> <li>○ Light stretching of knee/hip musculature (quads, hip flexors, glutes, hip ERs, hamstrings, etc.)</li> </ul> </li> <li>● Ankle/Foot:             <ul style="list-style-type: none"> <li>○ Bike (low resistance)</li> <li>○ Pool walking</li> <li>○ AAROM/AROM of ankle</li> <li>○ Ankle/foot isometric and concentric strengthening progressing to eccentric as tolerated (low impact table exercises-ankle 4-way, ankle pumps, ankle circles, foot intrinsic strengthening, etc.) Note: perform hip and core table strengthening exercises with this</li> <li>○ Light stretching of ankle/foot musculature (gastroc, soleus, foot intrinsics, etc.)</li> </ul> </li> </ul>
Goals	<ul style="list-style-type: none"> <li>● Achieve full pain free range of motion (0/10 pain threshold on VAS)</li> <li>● Decrease pain with activities of daily living (0-2/10 pain threshold on VAS)</li> </ul>

### PHASE IV (4 to 6 weeks after PRP Procedure)

Physical Therapy	<ul style="list-style-type: none"> <li>● 2 to 3 times per week</li> <li>● Joint and soft tissue mobilizations as needed to restore normal range of motion and joint mechanics</li> </ul>
Precautions	<ul style="list-style-type: none"> <li>● Avoid high velocity, high amplitude, high intensity exercise at this time (such as running, jumping, plyometrics, throwing or heavy lifting)</li> <li>● Non-impact activities</li> <li>● Avoid pain post-activity</li> </ul>

<p>Exercise</p>	<ul style="list-style-type: none"> <li>• Moderate resistance on bike</li> <li>• Continue stretching exercises for affected area 2 to 3 times per day, 3 to 4 reps, 20-30 second holds</li> <li>• Focus on eccentric strengthening progression program as tolerated</li> <li>• Incorporation of balance and proprioception exercises</li> <li>• Upper extremity             <ul style="list-style-type: none"> <li>○ Arm bike (moderate resistance)</li> <li>○ Lower body and core strengthening exercises</li> </ul> </li> <li>• Shoulder:             <ul style="list-style-type: none"> <li>○ Arm bike (moderate resistance)</li> <li>○ AROM of shoulder in pain free range</li> <li>○ Shoulder eccentric strengthening as tolerated</li> <li>○ Stretching of tight muscles in affected area (pecs, lats, posterior cuff musculature)</li> </ul> </li> <li>• Elbow/Wrist:             <ul style="list-style-type: none"> <li>○ Arm bike (moderate resistance)</li> <li>○ AROM of wrist and elbow in pain free range</li> <li>○ Wrist and elbow eccentric strengthening as tolerated</li> <li>○ Stretching to tight muscle in affected area (wrist flexors/extensor groups)</li> </ul> </li> <li>• Lower extremity:             <ul style="list-style-type: none"> <li>○ Bike (moderate resistance)</li> <li>○ Upper body strengthening exercises</li> </ul> </li> <li>• Hip:             <ul style="list-style-type: none"> <li>○ Bike (moderate resistance)</li> <li>○ Elliptical (low progressing to moderate resistance as tolerated)</li> <li>○ Pool walking/running</li> <li>○ AROM of hip in pain free range</li> <li>○ Hip eccentric strengthening as tolerated</li> <li>○ Stretching of tight muscles in affected area (quad/hip flexors/glutes)</li> </ul> </li> <li>• Knee:             <ul style="list-style-type: none"> <li>○ Bike (moderate resistance)</li> <li>○ Elliptical (low progressing to moderate resistance as tolerated)</li> <li>○ Pool walking/running</li> <li>○ AROM of knee</li> <li>○ Knee eccentric strengthening as tolerated</li> <li>○ Stretching of tight muscles in affected area (quad/hamstrings)</li> </ul> </li> <li>• Ankle/Foot:             <ul style="list-style-type: none"> <li>○ Bike (moderate resistance)</li> <li>○ Elliptical (low progressing to moderate resistance as tolerated)</li> <li>○ Pool walking/running</li> </ul> </li> </ul>
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## Platelet-Rich Plasma Protocol

	<ul style="list-style-type: none"> <li>○ AROM of ankle</li> <li>○ Ankle eccentric strengthening as tolerated</li> <li>○ Stretching of tight muscles in affected area (gastroc/soleus/foot instrinsics)</li> </ul>
<b>Goals</b>	<ul style="list-style-type: none"> <li>● Progression of isometric strengthening to concentric strengthening and eccentric strengthening as tolerated</li> <li>● Begin to incorporate balance and proprioception activities</li> <li>● Perform all activities of daily living pain free (0/10 pain threshold on VAS)</li> </ul>

### PHASE V (6 to 8 weeks after PRP Procedure)

<b>Physical Therapy</b>	<ul style="list-style-type: none"> <li>● 2 to 3 times per week</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>● Avoid high velocity, high amplitude, high intensity exercise at this time (such as running, jumping, plyometrics, throwing or heavy lifting)</li> <li>● Avoid pain post-activity</li> </ul>
<b>Exercise</b>	<ul style="list-style-type: none"> <li>● Move to high resistance on bike and elliptical</li> <li>● Continue stretching exercises for affected area 2 to 3 times per day, 3 to 4 reps, 20-30 second holds</li> <li>● Strengthening with eccentric exercise focus at a moderate intensity (3-4 sets of 6-12 reps)</li> <li>● Balance and proprioception exercises</li> <li>● Upper extremity             <ul style="list-style-type: none"> <li>○ Arm bike (high resistance)</li> <li>○ Lower body and core strengthening exercises</li> </ul> </li> <li>● Shoulder:             <ul style="list-style-type: none"> <li>○ Arm bike (high resistance)</li> <li>○ Shoulder eccentric strengthening (thera-band drills, manual resistance, etc. for RTC)</li> <li>○ Stretching of tight muscles in affected area (pecs, lats, posterior cuff musculature)</li> </ul> </li> <li>● Elbow/Wrist:             <ul style="list-style-type: none"> <li>○ Arm bike (high resistance)</li> <li>○ Wrist and elbow eccentric strengthening (thera-band, dumbbell exercises, etc.)</li> <li>○ Stretching to tight muscle in affected area (wrist flexors/extensor groups)</li> </ul> </li> <li>● Lower extremity:             <ul style="list-style-type: none"> <li>○ Bike and elliptical (high resistance)</li> </ul> </li> </ul>

## Platelet-Rich Plasma Protocol

	<ul style="list-style-type: none"> <li>○ Upper body strengthening exercises</li> <li>● Hip:             <ul style="list-style-type: none"> <li>○ Bike (high resistance)</li> <li>○ Elliptical (high resistance)</li> <li>○ Pool walking/running</li> <li>○ Hip eccentric strengthening (single leg press, SLS, SL squats, etc.)</li> <li>○ Stretching of tight muscles in affected area (quad/hip flexors/glutes)</li> </ul> </li> <li>● Knee:             <ul style="list-style-type: none"> <li>○ Bike (high resistance)</li> <li>○ Elliptical (high resistance)</li> <li>○ Pool walking/running</li> <li>○ Knee eccentric strengthening (single leg press, SLS, SL squats, etc.)</li> <li>○ Stretching of tight muscles in affected area (quads/hamstrings/glutes)</li> </ul> </li> <li>● Ankle/Foot:             <ul style="list-style-type: none"> <li>○ Bike (high resistance)</li> <li>○ Elliptical (high resistance)</li> <li>○ Pool walking/running</li> <li>○ Ankle eccentric strengthening (heel raises, SLS activities, balance board activities etc.)</li> <li>○ Stretching of tight muscles in affected area (gastroc/soleus/foot intrinsics)</li> </ul> </li> </ul>
Goals	<ul style="list-style-type: none"> <li>● Improve strength and endurance</li> <li>● Pain free (0/10 pain threshold on VAS) 5/5 manual muscle testing on affected limb</li> <li>● Symmetric proprioception of affected limb</li> </ul>

### PHASE VI (8 to 12 weeks after PRP Procedure)

Physical Therapy	<ul style="list-style-type: none"> <li>● 1 to 2 times per week</li> <li>● Incorporation of more sport specific exercise at this time</li> </ul>
Precautions	<ul style="list-style-type: none"> <li>● Avoid pain post-activity</li> </ul>
Exercise	<ul style="list-style-type: none"> <li>● Continue stretching exercises for affected area 2 to 3 times per day, 3 to 4 reps, 20-30 second holds</li> <li>● Strengthening with sport specific eccentric exercise at a moderate intensity (3-4 sets of 6-12 reps)</li> <li>● Balance and proprioception sport specific exercises</li> </ul>

	<ul style="list-style-type: none"> <li>• Can incorporate pre-plyometric exercise progressing to plyometric exercise as tolerated</li> <li>• Upper extremity             <ul style="list-style-type: none"> <li>○ Arm bike (high resistance)</li> <li>○ Lower body and core strengthening exercises</li> </ul> </li> <li>• Shoulder:             <ul style="list-style-type: none"> <li>○ Arm bike (high resistance)</li> <li>○ Shoulder eccentric strengthening (thera-band drills and manual resistance, etc. for RTC)</li> <li>○ Shoulder pre-plyometrics progressing to plyometrics as tolerated (ball throwing activities)</li> <li>○ Stretching of tight muscles in affected area (pecs, lats, posterior cuff musculature)</li> </ul> </li> <li>• Elbow/Wrist:             <ul style="list-style-type: none"> <li>○ Arm bike (high resistance)</li> <li>○ Wrist and elbow eccentric strengthening (dumbbell exercises, thera-band, etc.)</li> <li>○ Wrist/elbow pre-plyometrics progressing to plyometrics as tolerated (ball throwing activities)</li> <li>○ Stretching to tight muscle in affected area (wrist flexors/extensor groups)</li> </ul> </li> <li>• Lower extremity:             <ul style="list-style-type: none"> <li>○ Bike and elliptical (high resistance)</li> <li>○ Return to run protocol (defer to PT)</li> <li>○ Upper body strengthening exercise</li> </ul> </li> <li>• Hip:             <ul style="list-style-type: none"> <li>○ Bike (high resistance)</li> <li>○ Elliptical (high resistance)</li> <li>○ Return to run</li> <li>○ Hip eccentric strengthening (single leg press, SLS, SL squats, etc.)</li> <li>○ Lower extremity pre-plyometric exercise progressing to plyometric exercise as tolerated (mini squat jump, squat jump, skaters, single leg vertical jump, etc.)</li> <li>○ Stretching of tight muscles in affected area (quad/hip flexors/glutes)</li> </ul> </li> <li>• Knee:             <ul style="list-style-type: none"> <li>○ Bike (high resistance)</li> <li>○ Elliptical (high resistance)</li> <li>○ Return to run</li> <li>○ Knee eccentric strengthening (single leg press, SLS, SL squats, etc.)</li> <li>○ Lower extremity pre-plyometric exercise progressing to plyometric exercise as tolerated (mini squat jump, squat jump, skaters, single leg vertical jump, etc.)</li> <li>○ Stretching of tight muscles in affected area (quad/hamstrings)</li> </ul> </li> </ul>
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## Platelet-Rich Plasma Protocol

	<ul style="list-style-type: none"> <li>• Ankle/Foot:               <ul style="list-style-type: none"> <li>○ Bike (high resistance)</li> <li>○ Elliptical (high resistance)</li> <li>○ Return to run</li> <li>○ Ankle eccentric strengthening (heel raises, SLS activities, balance board activities etc.)</li> <li>○ Lower extremity pre-plyometric exercise progressing to plyometric exercise as tolerated (mini squat jump, squat jump, skaters, single leg vertical jump, etc.)</li> <li>○ Stretching of tight muscles in affected area (gastroc/soleus/plantar fascia/anterior tibialis)</li> </ul> </li> </ul>
Goals	<ul style="list-style-type: none"> <li>• Return to sport pain free</li> </ul>

### References:

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