

Guide to Intra-Articular Injections



Introduction

Disclaimer

The purpose of this guide is to provide general guidelines and visual representation of proper intra-articular needle placement. This guide is not conclusive and administration of intra-articular products should only be done by licensed veterinarians.

Indication For Use In Dogs

Intra-articular injections of biologic products (Platelet Rich Plasma and/ or Bone Marrow Derived Stem Cells) can be useful in numerous indications for dogs, including:

- Use in the multimodal approach to combination therapy for OA in addition to rehabilitation therapy medical management
- For patients with residual post-operative intra-articular symptoms (effusion, discomfort, lameness) despite medical management and rehab
- For episodes of acute exacerbation of lameness and pain
- For patients intolerant or non-responsive to NSAIDs
- As a supplement or alternative to oral medical treatments
- For patients in which their OA has already progressed
- Post surgical lavage (synovial fluid replacement at time of surgery)

Regenerative Therapy Benefits

Stem Cells

- Contribute to generating new tissue
- Chemotactic for progenitor cells
- Supply growth factors
- Make extracellular matrix
- Angiogenesis
- Anti-apoptosis
- Anti-inflammatory
- Anti-fibrotic

Platelet Rich Plasma

- Positive effects on angiogenesis and extracellular matrix remodeling
- Stem cell recruitment and chemotaxis
- Cell proliferation and differentiation
- Potent source of growth factors important in regenerative process
- Fibrin for matrix/ scaffold

Clinical Application Algorithms

| Condition: | Treatment Options/ Schedule: |
|---|---|
| Mild Osteoarthritis and Synovitis | 1 PRP injection with 14 day follow-up to check improvement. If no improvement seen, administer 2nd PRP injection. |
| Moderate Osteoarthritis | 1 PRP injection with 14 day follow-up to check improvement. If no improvement seen, administer 2nd PRP injection. Repeat if necessary or transition to PRP/Stem Cell. |
| Severe Osteoarthritis | PRP every other week (2-3 injections) or PRP/Stem Cell combination followed by booster injection in 9-12 months if needed. |
| Acute Postoperative (8-12 weeks)- Residual effusion/inflammation | 1 PRP injection with 14 day follow-up to check improvement. If no improvement seen, administer 2nd PRP injection. |
| Ligament/Tendon Tear (<50%) | PRP/Stem Cell combination (not a high volume injection- do track marks under ultrasound guidance) |

Forelimb Injections

Shoulder Injections

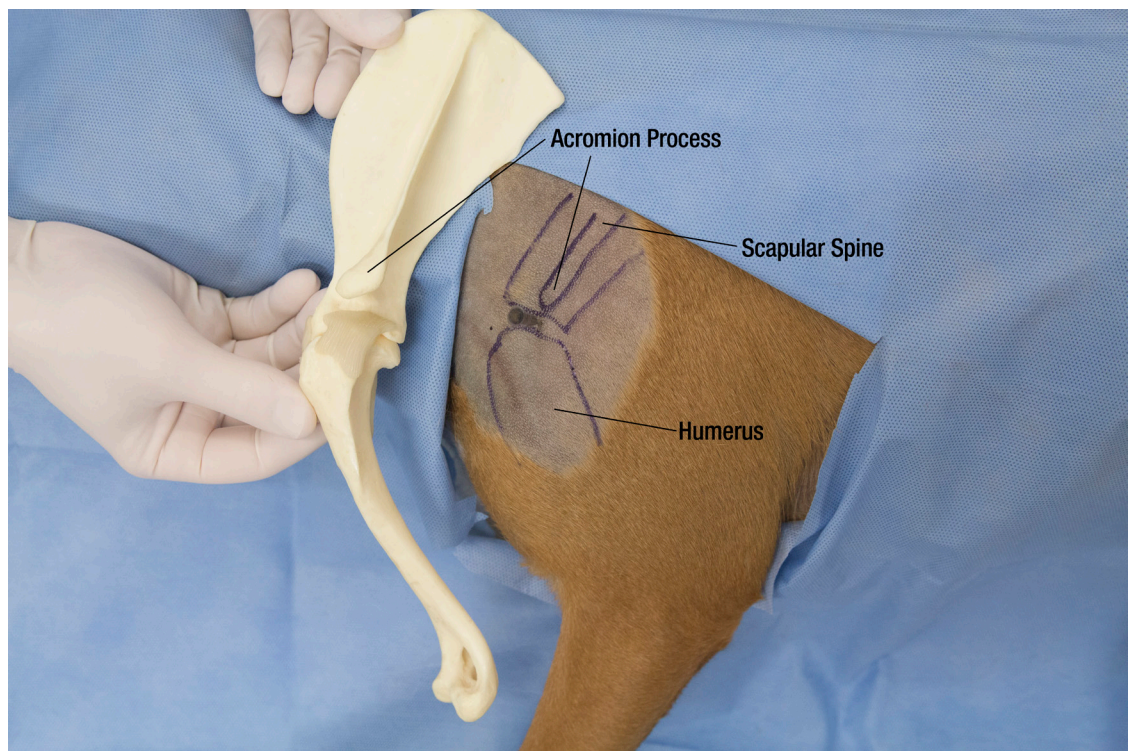
Key Guidelines

Common Indications: Osteoarthritis, OCD, Medial Shoulder Syndrome, Bicep Tenosynovitis

Recommended Needle: 22 gauge, 1.5"

Syringe for Aspirating Synovial Fluid: 5 or 6 mL

Landmark for Blind Injection: Acromion Process



Injection Volume Guidelines

| Size of Dog | Total Injection Volume (mL) |
|--|-----------------------------|
| Miniature (<10 lbs, ex: Yorkie, Toy Poodle) | ½ |
| Small (10-25 lbs, ex: Sheltie, Boston Terrier) | ½-1 |
| Medium (25-50 lbs, ex: Border Collie) | 1-1 ½ |
| Large (50-100 lbs, ex: Labrador Retriever) | 1 ½-2 |
| Giant (>100 lbs, ex: Great Dane) | 2-3 |

Forelimb Injections

Elbow Injections

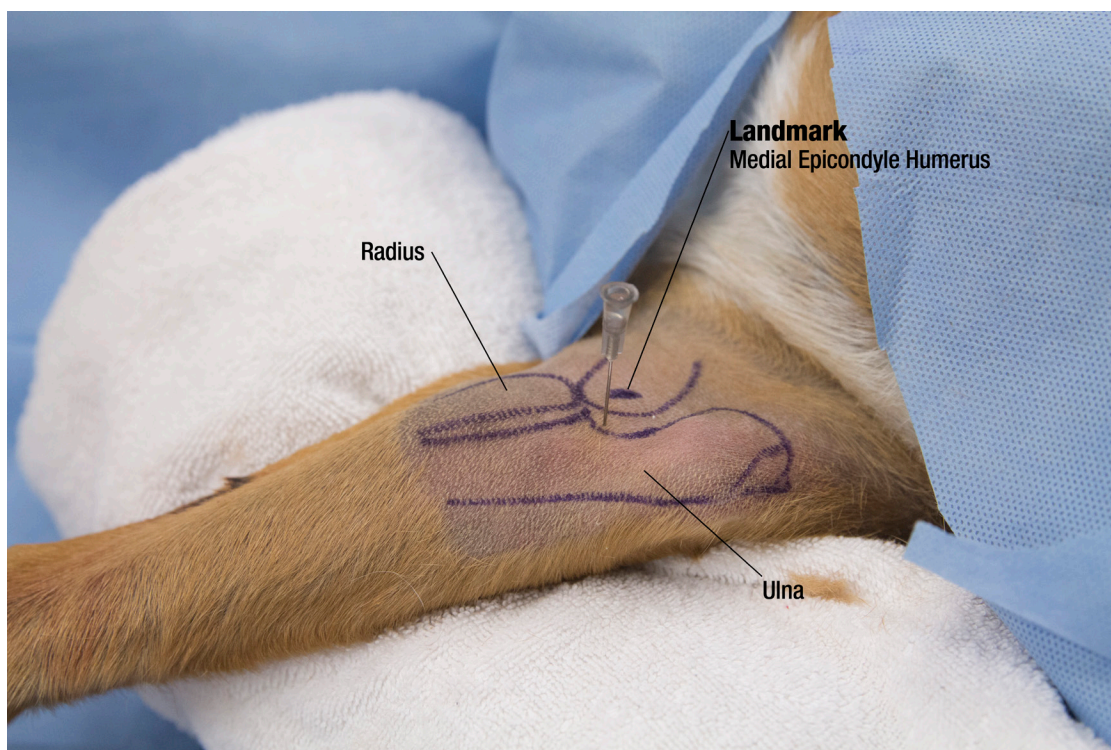
Key Guidelines

Common Indications: Osteoarthritis

Recommended Needle: 22 gauge, 1.5"

Syringe for Aspirating Synovial Fluid: 5 or 6 mL

Landmark for Blind Injection: Medial Epicondyle Process



Injection Volume Guidelines

| Size of Dog | Total Injection Volume (mL) |
|--|-----------------------------|
| Miniature (<10 lbs, ex: Yorkie, Toy Poodle) | ¼- ½ |
| Small (10-25 lbs, ex: Sheltie, Boston Terrier) | ½-1 |
| Medium (25-50 lbs, ex: Border Collie) | 1-1 ½ |
| Large (50-100 lbs, ex: Labrador Retriever) | 1 ½-2 |
| Giant (>100 lbs, ex: Great Dane) | 2-2 ½ |

Forelimb Injections

Carpal Injections

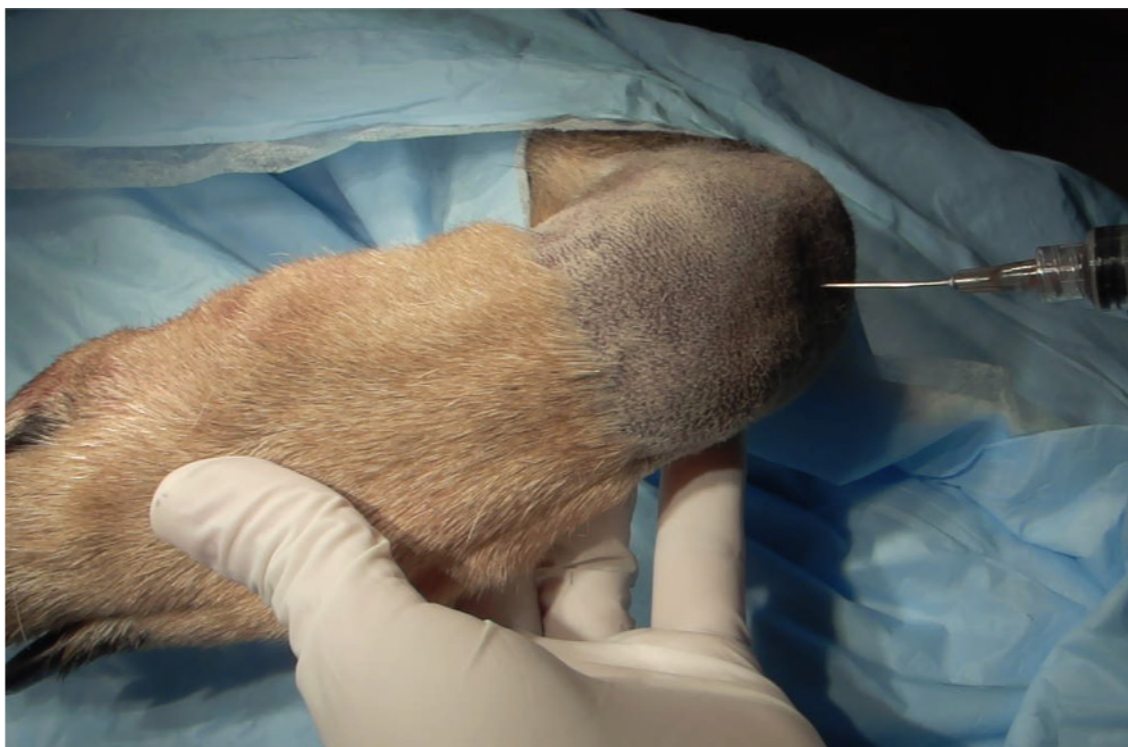
Key Guidelines

Common Indications: Osteoarthritis

Recommended Needle: 22 gauge, 1.0"

Syringe for Aspirating Synovial Fluid: 5 or 6 mL

Landmark for Blind Injection: Antebrachial Carpal Joint



Injection Volume Guidelines

| Size of Dog | Total Injection Volume (mL) |
|--|-----------------------------|
| Miniature (<10 lbs, ex: Yorkie, Toy Poodle) | < ¼ |
| Small (10-25 lbs, ex: Sheltie, Boston Terrier) | ¼ - ½ |
| Medium (25-50 lbs, ex: Border Collie) | ¼ - 1 |
| Large (50-100 lbs, ex: Labrador Retriever) | ¾ - 1 |
| Giant (>100 lbs, ex: Great Dane) | 1 |

Hind Limb Injections

Hip Injections

Key Guidelines

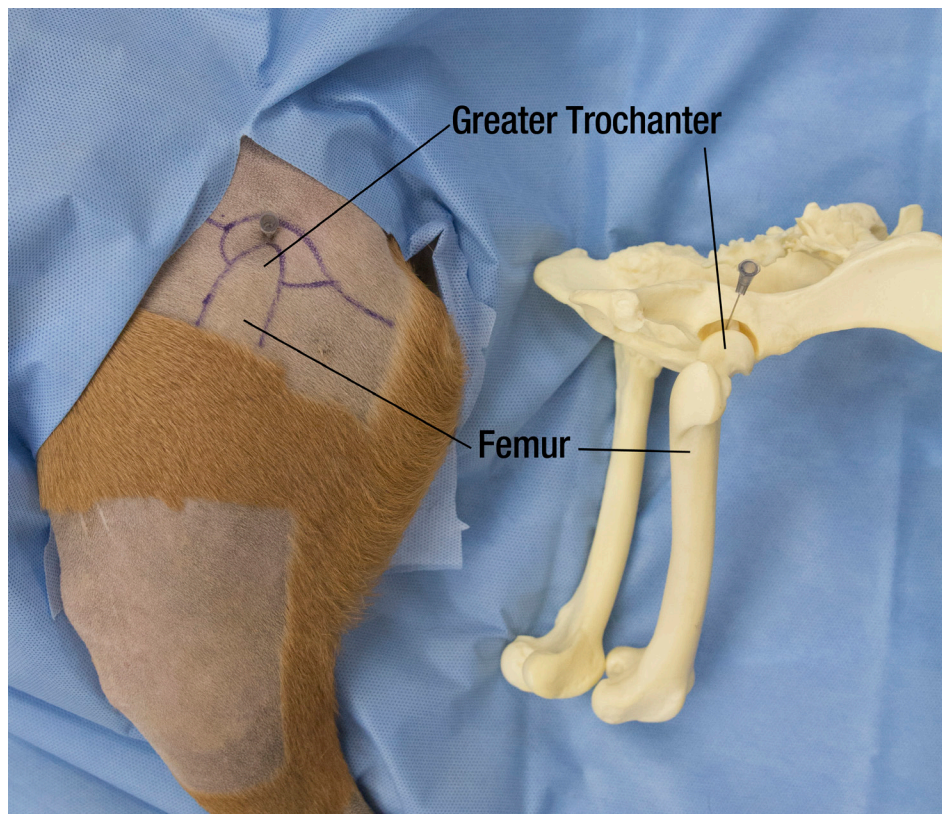
Common Indications: Osteoarthritis

Recommended Needle: 22 gauge, 1.5" or 2.5-3" Spinal Needle for Larger Breeds

Syringe for Aspirating Synovial Fluid: 5 or 6 mL

Landmark for Blind Injection: Greater Trochanter

Treatment Recommendation: Apply traction and external rotation to open joint space.



Injection Volume Guidelines

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| Small (10-25 lbs, ex: Sheltie, Boston Terrier) | ½-1 |
| Medium (25-50 lbs, ex: Border Collie) | 1-1 ½ |
| Large (50-100 lbs, ex: Labrador Retriever) | 1 ½ -2 |
| Giant (>100 lbs, ex: Great Dane) | 2-3 |

Hind Limb Injections

Stifle Injections

Key Guidelines

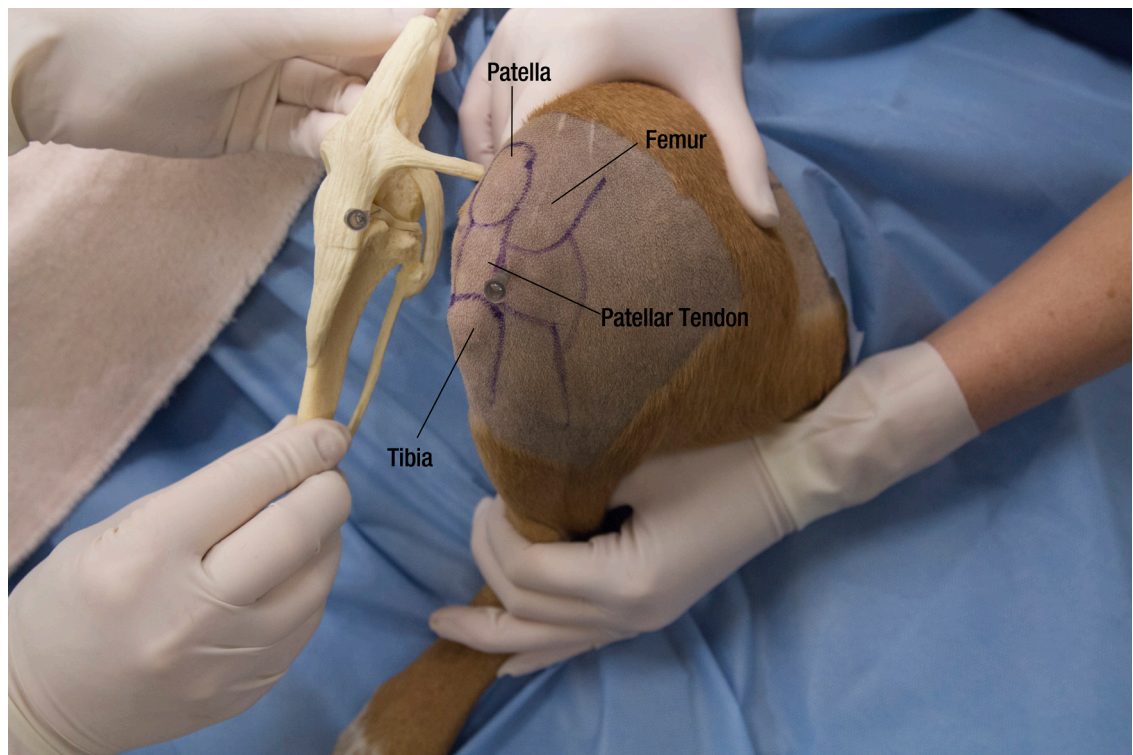
Common Indications: Osteoarthritis, Meniscal Injury, Early Partial Tears

Recommended Needle: 22 gauge, 1.5"

Syringe for Aspirating Synovial Fluid: 5 or 6 mL

Landmark for Blind Injection: Patellar Tendon

Treatment Recommendation: Flex hock and stifle and apply abduct traction to open/align joint space. Insert needle perpendicular to joint to the right of the patellar tendon.



Injection Volume Guidelines

| Size of Dog | Total Injection Volume (mL) |
|--|-----------------------------|
| Miniature (<10 lbs, ex: Yorkie, Toy Poodle) | ½ |
| Small (10-25 lbs, ex: Sheltie, Boston Terrier) | ½-1 |
| Medium (25-50 lbs, ex: Border Collie) | 1-1 ½ |
| Large (50-100 lbs, ex: Labrador Retriever) | 1 ½ -2 |
| Giant (>100 lbs, ex: Great Dane) | 2-3 |

Hind Limb Injections

Hock Injections

Key Guidelines

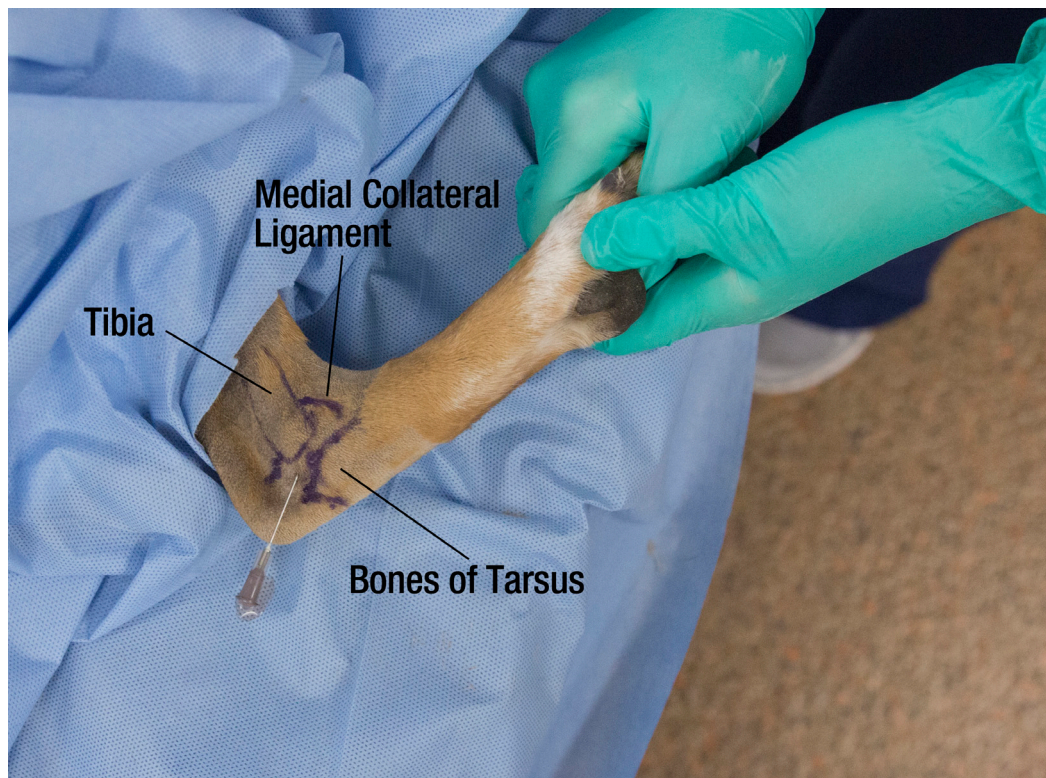
Common Indications: Osteoarthritis

Recommended Needle: 22 gauge, 1.0"

Syringe for Aspirating Synovial Fluid: 5 or 6 mL

Landmark for Blind Injection: Medial Compartment Space

Treatment Recommendation: Put hock into deep flexion (do a range of motion). Insert needle caudally at a 45° angle.



Injection Volume Guidelines

| Size of Dog | Total Injection Volume (mL) |
|--|-----------------------------|
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| Small (10-25 lbs, ex: Sheltie, Boston Terrier) | ¼ - ½ |
| Medium (25-50 lbs, ex: Border Collie) | ¼ - 1 |
| Large (50-100 lbs, ex: Labrador Retriever) | ¾ - 1 |
| Giant (>100 lbs, ex: Great Dane) | 1 |