

# AVANCA

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**The RPD<sup>®</sup> is the only syringe that has  
published outcome data**

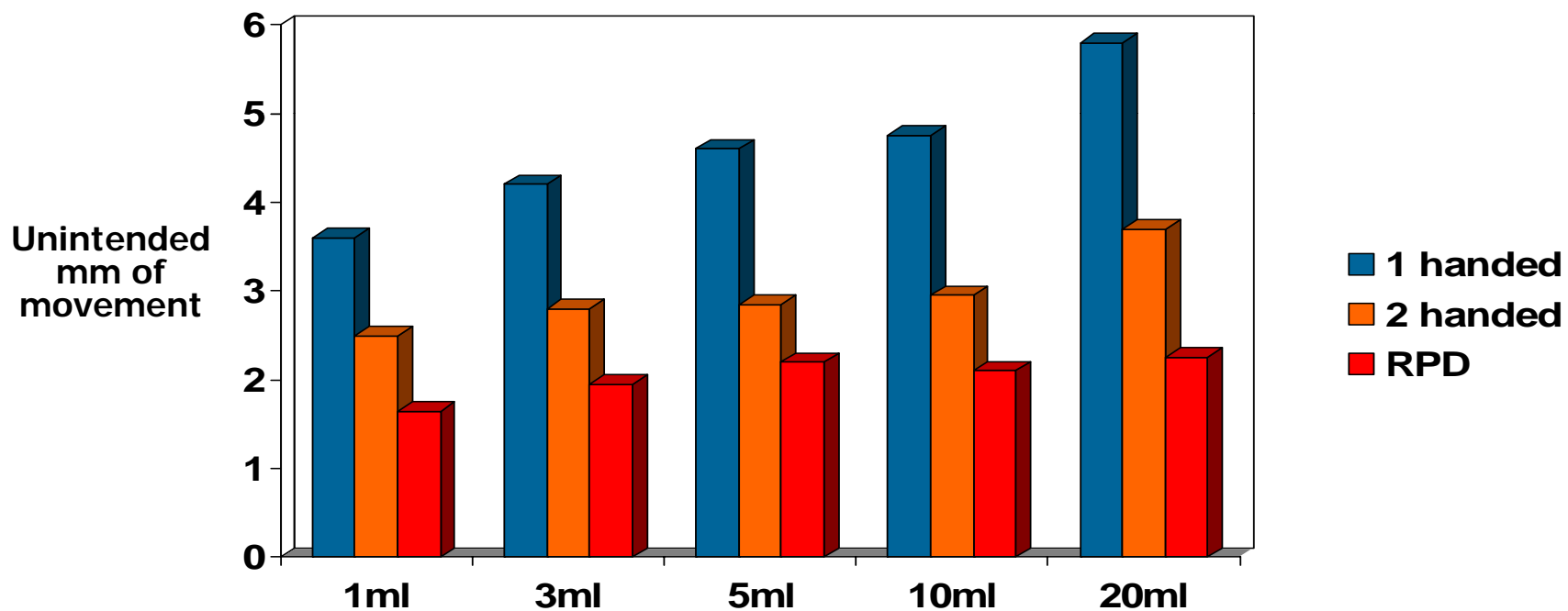
For Release – March 2010

# The RPD® is the only syringe that has published outcome data

## Sources:

- Does Sonographic Needle Guidance Affect the Clinical Outcome of Intraarticular Injections? Journal of Rheumatology Volume 36, Number 9, September 2009, Pages 1892-1902
- Is it worth using ultrasonography to guide injections? Nature Reviews – Imaging – Rheumatology Volume 5, October 2009, 525
- Improving Office-Based Intra-Articular Procedures: Barriers to New Technology and Metrics for Quality Assessment – Poster Cleveland Clinic
- Improved Outcomes with the Reciprocating Procedure Device for Fine Needle Aspiration Biopsy of the Thyroid. J. Vasc Inter Radiol 2007

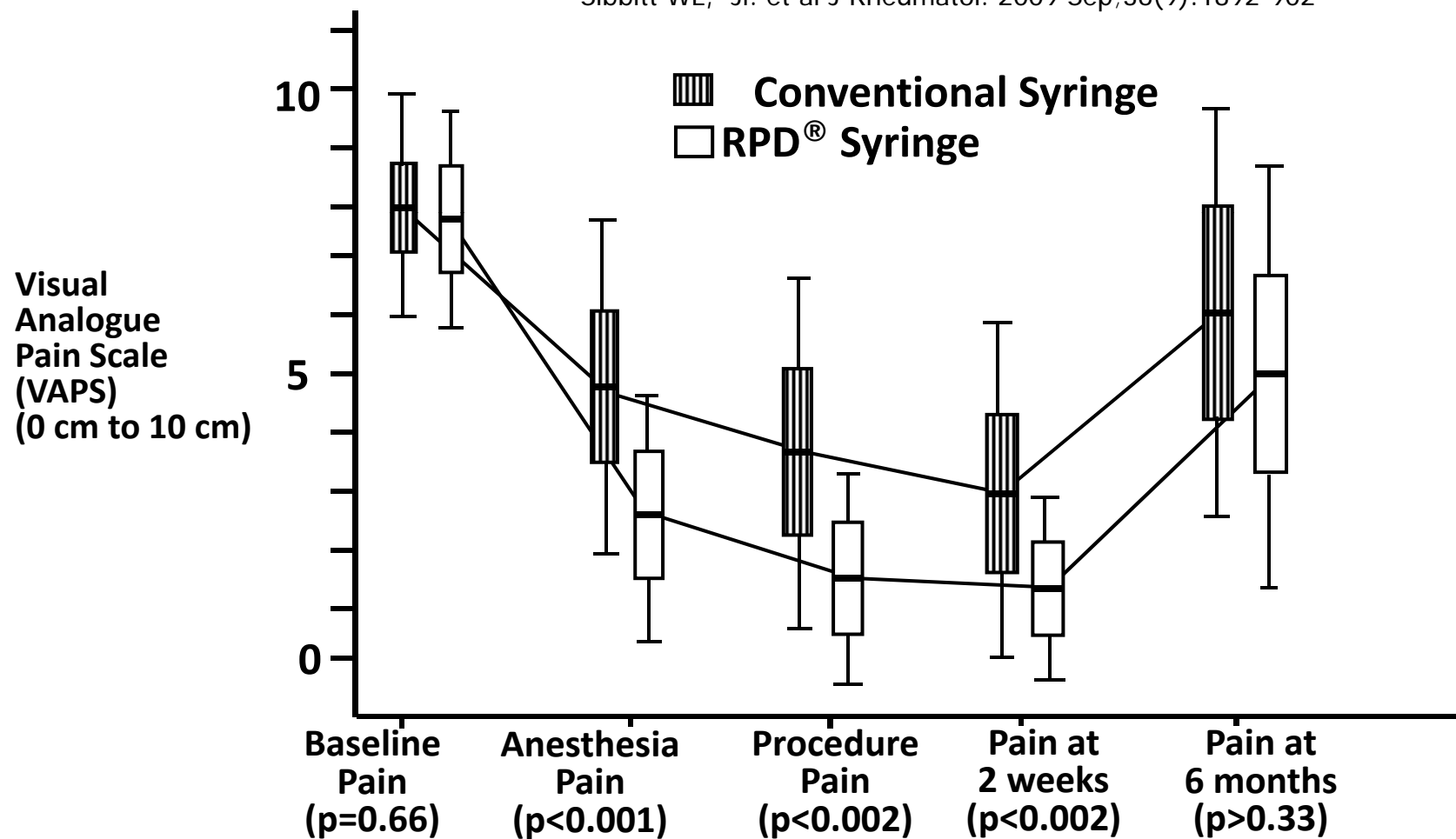
## Physician Control of the Needle Tip and Patient Safety is Markedly Improved with the RPD<sup>®</sup> Syringe



From: *J Rheumatol.* 2006;33:771-8; *J Vas Inter Rad* 2007, Abstract 377;  
*J Vas Inter Rad* 2005, Abstract 195

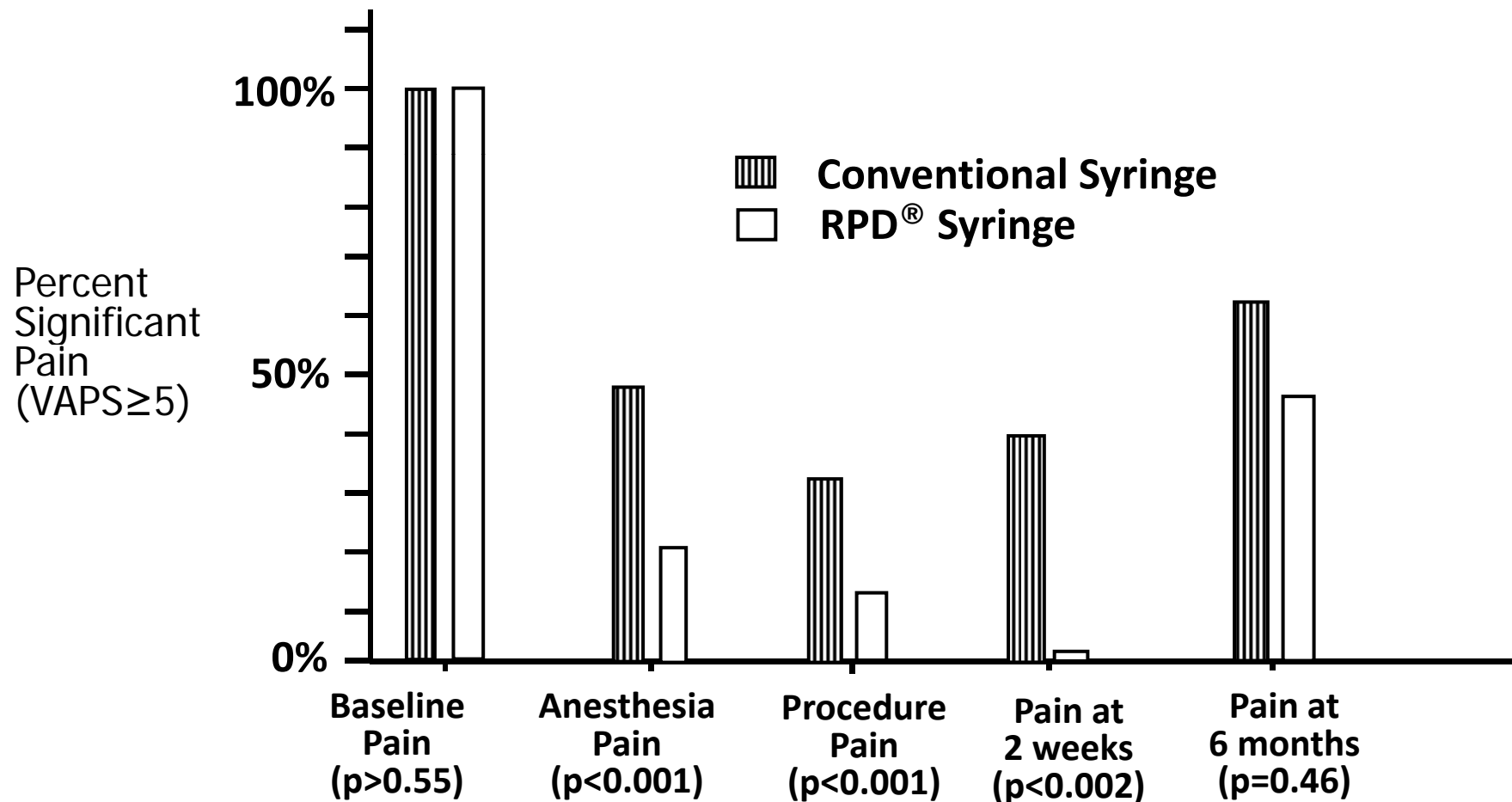
## RPD<sup>®</sup> Improves Procedural Outcome

Sibbitt WL, Jr. et al J Rheumatol. 2009 Sep;36(9):1892-902

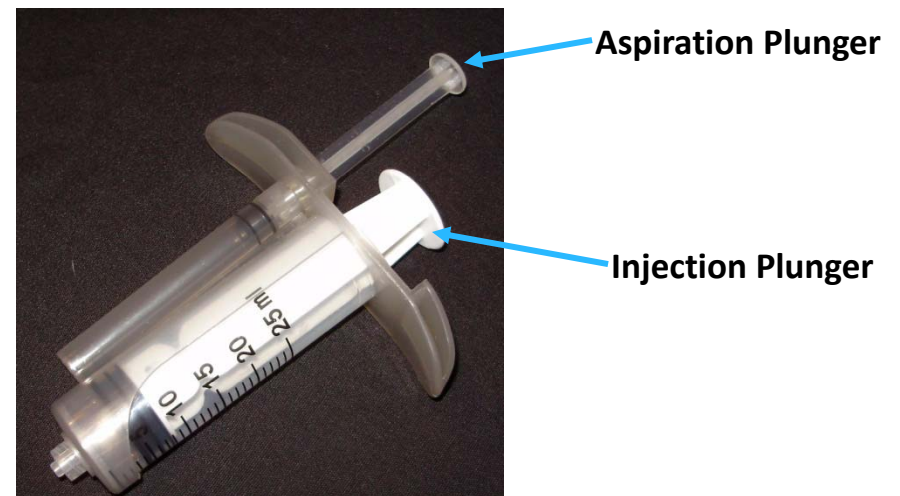


### RPD<sup>®</sup> Syringe Is Less Painful

Sibbitt WL, Jr. et al J Rheumatol. 2009 Sep;36(9):1892-902



- **Injection Plunger**
  - The larger barrel (with volume markings and luer lock) operates similar to any standard syringe.
- **Aspiration Plunger**
  - The second barrel is smaller , non-graduated, and has no needle fitting. The second barrel's only purpose is as the conduit for the aspiration-plunger. This barrel always remain empty.



- **1-handed Aspiration is enabled because the injection and aspiration plungers move in a reciprocating fashion (i.e. in opposite directions).**
- **Aspiration is achieved by PUSHING the aspiration plunger**



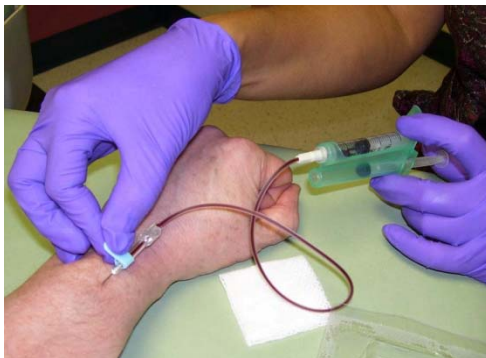
Arthrocentesis



Ultrasound Procedures



Pericardiocentesis



Difficult Vein puncture



Biopsy



Central Lines



Local Anesthesia



Thyroid FNA



Abscess Aspiration



Vein Sclerotherapy



Breast Cyst



Joint Injections

**Volume of aspirated fluids is significantly greater with the RPD<sup>®</sup> compared to the standard syringe**

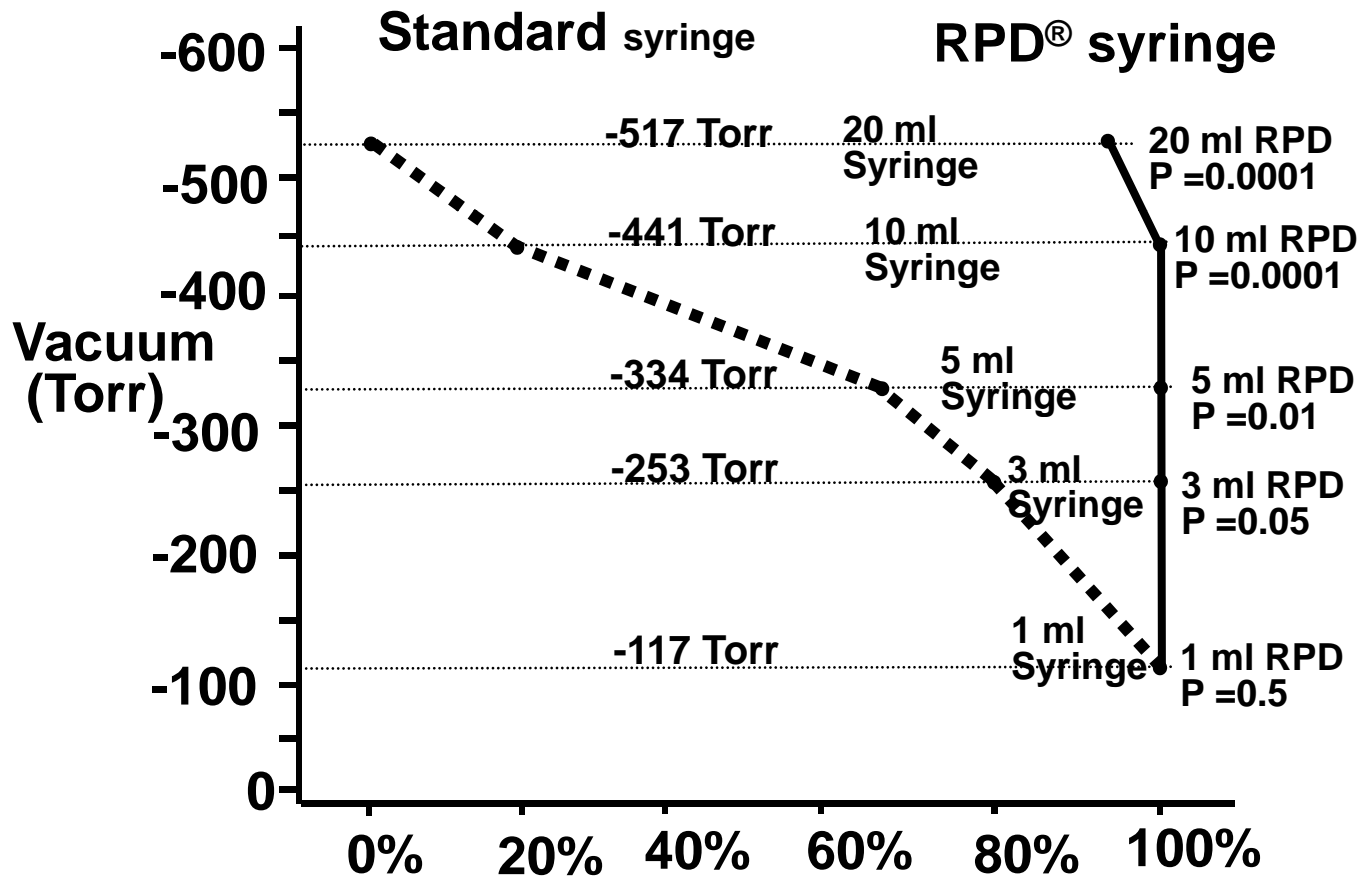
	Standard Syringe	RPD <sup>®</sup> Syringe
Volume of effusion aspirated ( <b>p = 0.12</b> )	9.00 ml	20.9 ml
% aspirates with trace or gross blood ( <b>p&lt;0.001</b> )	64%	18.2%
RBC count ( <b>p &lt; 0.001</b> )	26.7 (1000/ml)	18.9 (1000/ml)

Moorjani et al, 2008, J Rheum, 35: 1124

## **RPD® Benefits Have Been Demonstrated in Multiple Aspiration-Injection Procedures**

- **566 diverse injection procedures, large and small joints**
  - “Integration of Safety technologies into Rheumatology and Orthopedic Practice”  
Moorjani et al, Arthritis and Rheumatism, 2008, 58: 190
- **Administration of local anesthesia**
  - “A Randomized Controlled Trial of the RPD for Local Anesthesia”  
Nunez et al, J Emergency Medicine, 2008, 35: 119
- **Aspiration, biopsy and ablation procedures**
  - “Integration of Safety Technology for Needle Aspiration of Breast Cysts”  
RR Sibbitt et al, Arch Gynecol Obstet, 2008
  - “RPD for Thyroid Cyst Aspiration and Ablative Sclerotherapy”  
RR Sibbitt et al, J Laryngology & Otology, 2008
  - “Needle Aspiration of Peritonsillar Abscess”  
RR Sibbitt et al, Otolaryngology-Head and Neck Surgery, 2008

### The RPD<sup>®</sup> Makes It Easier to Generate Syringe Vacuum



### Percentage of Operators Able to Generate Maximum Vacuum

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**Sonographic Study with the Avanca RPD®**

### Sonographic Studies with Improved Outcome utilizing the Avanca RPD<sup>®</sup>

- 148 IA procedures were randomized to either:
  - palpation-guided with a conventional syringe OR
  - sonographic guided with the 1-handed RPD<sup>®</sup> syringe
- 1-needle/2-syringe technique for all procedures
  - First syringe for local anesthesia, identifying the joint space and aspirating any effusion present.
  - Syringe exchange performed after needle placement assured, and corticosteroid injected into the joint.
- Pain measured on a VAS during the procedure, and at 2-weeks and 6-months post-therapy to evaluate therapy outcome.

### **Procedure For Using the RPD<sup>®</sup> With Sonographic Guidance**

- Manual palpation and marking of the superficial joint anatomy and injection target with a surgical marker.
- Sonographic interrogation of the target joint to define anatomy, determine the presence of effusion, and confirm the optimal needle and anatomic approach.
- Removal of ultrasound gel from the needle entry point, preparation of the joint for sterile injection (chlorhexidene).
- Real-time imaging during the injection procedure, with hard copy of the in-situ needle for documentation and billing.

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## Portable US Unit with Multiple Imaging and Doppler Capabilities



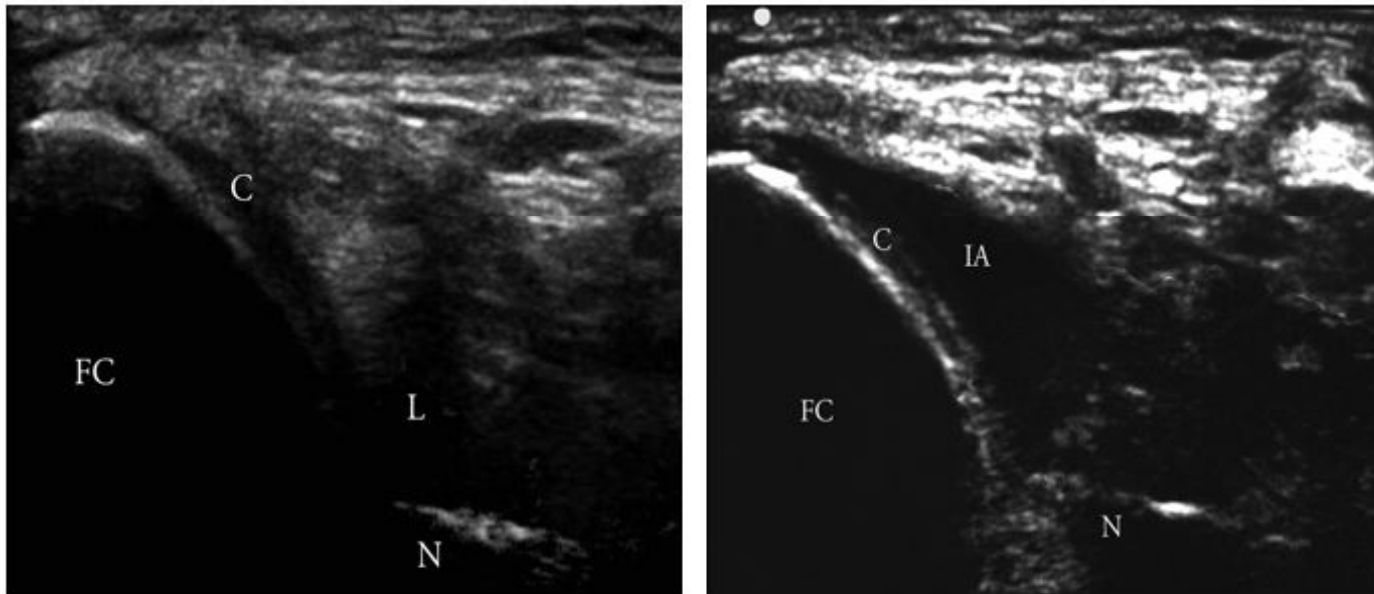
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## Ultrasound-RPD<sup>®</sup> Procedure (2 inch needle) Introducing Needle Towards Medical Femoral Condyle



## **With Ultrasound Guidance RPD can Dilate Intraarticular Space and/or aspirate Fluid assure IA Positioning**

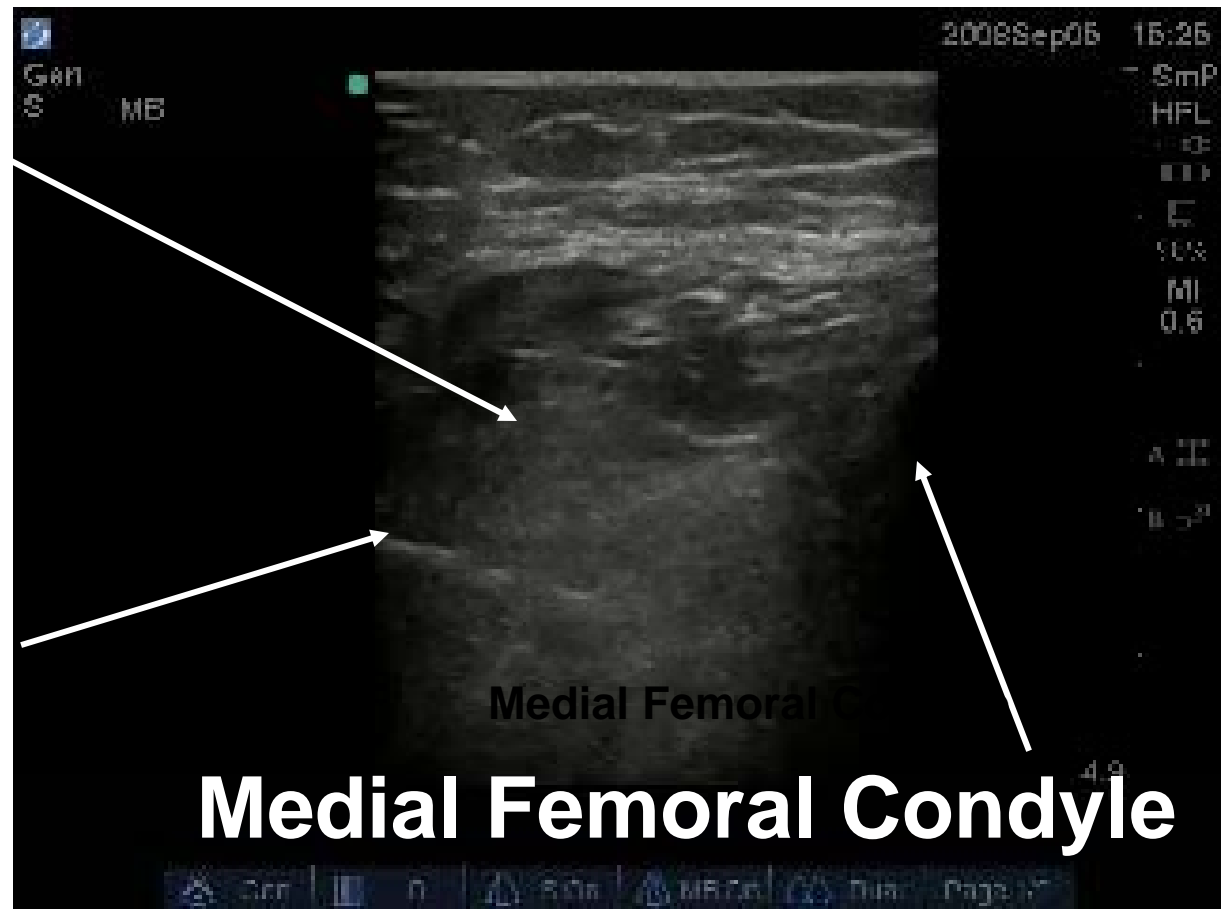


***Sibbitt WL Jr et al J Rheumatol. 2009 Sep;36(9):1892-902***

## Sonography Makes it Easy to Visualize Improper Needle Positioning During Lidocaine Injection

Inappropriate Extraarticular Injection into Fat Pad

Needle Tip



## Sonographic-guided RPD<sup>®</sup> Procedures Improve Outcomes with the RPD<sup>®</sup> compared to the standard syringe

Sibbitt WL, Jr. et al J Rheumatol. 2009 Sep;36(9):1892-902

	Palpation-guided	RPD <sup>®</sup> /Sono-guided
Baseline Pain	7.65	7.32
Mean pain during the injection procedure	4.82*	2.72*
% pts with significant procedural pain	53%*	22%*
Mean pain at 2 weeks	2.99*	1.24*
% responders (VAS improved by $\geq$ 50%)	72%**	90%**
% NON-responders (VAS not improved 50%)	28%*	10%*

**\* P < 0.001, \*\* P = 0.03**

**The RPD<sup>®</sup> significantly improves the performance and outcomes of outpatient injections in a clinically significant manner**

## **RPD<sup>®</sup> Syringe Contact Information**

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