

## INTRODUCTION

Minimally invasive techniques have been developed in many areas of surgery including orthopaedic surgery. General surgery, urology, gynecology, and plastic surgery have all developed techniques involving smaller incisions and less dissection. Benefits include cosmesis, less pain, lower morbidity, and quicker recovery. Recently, minimally invasive techniques have been increasingly

applied to orthopaedic procedures. These include arthroscopic surgery of multiple joints, minimally invasive discectomy and lumbar fusions, and minimally invasive fracture fixation. Comparable advantages have been found with these procedures.

The purpose of this study is to determine whether similar advantages apply to a minimally invasive surgical technique for total hip arthroplasty.

## MATERIALS & METHODS

One hundred twenty-three consecutive Minimally Invasive Surgery (MIS) THAs in patients  $\geq 60$  years of age were followed prospectively. All received cementless, double-wedge, tapered stems (SL-Zweymüller, Plus Orthopedics) and cementless cups (Plusfit, Plus Orthopedics or Reflection, Smith & Nephew Orthopaedics).

Study cases are compared to 52 consecutive, historical controls in patients  $\geq 60$  years of age receiving hybrid THAs (Spectron stems, Reflection cups, Smith & Nephew Orthopaedics) through a standard posterior approach.

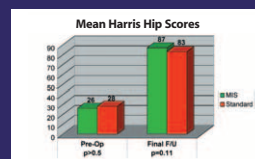
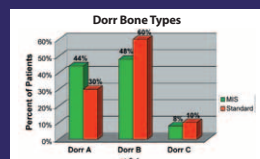
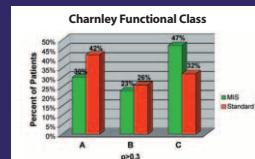
All cases included in the study have minimum 24-month follow-up. Twenty-three cases in the study group and two cases in the control group were excluded due either to death or loss to follow-up,

leaving 100 MIS and 50 standard incision patients as the basis for this study. Both groups were treated similarly with regard to the following factors:

**Anesthesia:** General  
**Pain Management:** PCA x36 hours followed by oral narcotics  
**DVT Prophylaxis:** TEDS, Pneumatic stockings, aspirin, and early mobilization  
**Weight-bearing:** Immediate, full  
**Discharge:** When independent and safe

Both groups were followed at regular intervals with questionnaires, clinical exams, and radiographs. Results were compared using either the Student's t-Test or the Chi-square test for statistical significance.

Demographics		
Demographic	MIS	Standard Incision
Age	71.0 (60-88)	71.1 (60-83)
Weight	160.3 (95-255)	153.0 (90-220)
Male/Female	45/55	17/33
Left/Right	48/52	23/27
Diagnosis	94% Osteoarthritis	92% Osteoarthritis

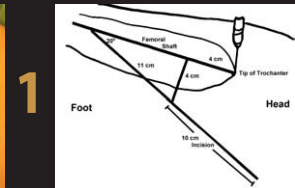


# Advantages of Cementless THA Using Minimally Invasive Surgical Technique

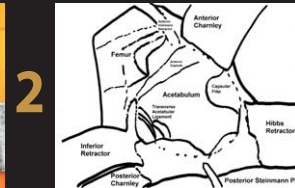
Todd V. Swanson, MD, Las Vegas, NV • Ramy S. Hanna, MD, Orlando, FL

## OPERATIVE TECHNIQUE

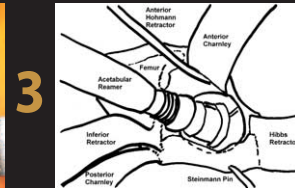
### Incision Placement



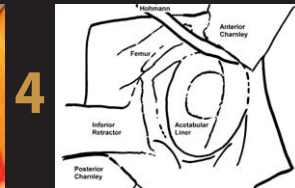
### Acetabular Exposure



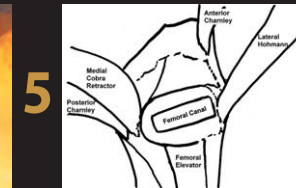
### Acetabular Reaming



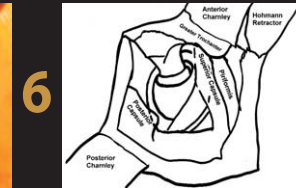
### Acetabular Placement



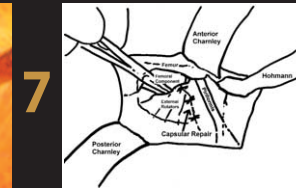
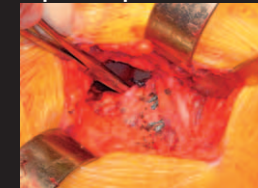
### Femoral Preparation



### Final Components



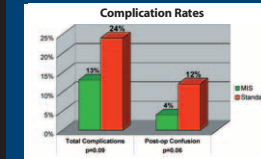
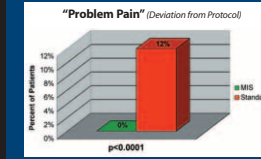
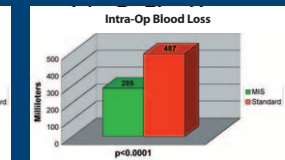
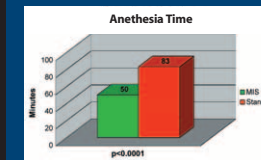
### Capsular Repair



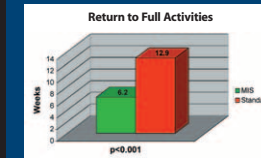
### Wound Closure



## RESULTS



Specific Complications			
	MIS	Standard	p-value
Deep Infection	1%	0	NS
Superficial Infection	1%	0	NS
Wound Healing Problems	0	0	---
VTE (DVT/PE)	1%	2%	NS
Dislocation	3%	2%	NS
Bladder Injury	1%	0	NS
Post-Op Confusion	4%	12%	0.06
Femoral Loosening	0	0	---
Acetabular Loosening	0	0	---
Other	2%	8%	---



Component Position			
	MIS	Standard	p-value
Cup Abduction	40.0° (30°-54°)	43.4° (27°-55°)	<0.002
Cup Antewersion	13.2° (2°-31°)	13.3° (1°-31°)	NS
# Stems Varus >5°	0	0	---
# Stems Valgus >5°	0	0	---

## CONCLUSIONS

Minimally Invasive THA using cementless fixation has several advantages over standard posterior incision THA using hybrid fixation. Whether these advantages are due to the MIS approach, cementless fixation, or a combination of the two remains to be determined.

Development of new instrumentation and better surgical technique

provides excellent visualization, minimal skin retraction problems, and accurate component placement. To date, we have performed this procedure in over 1000 patients and have found the technique to be accurate, reproducible, and advantageous to both patient and surgeon.