

# Quality of Life and Burden of Care In Patients with Early Onset Scoliosis Undergoing Casting

Hiroko Matsumoto, Evan Trupia Hasani Swindell, Tara Flynn,  
Jeff Pawelek, Sumeet Garg, Michael Glotzbecker, David Royce,  
James Sanders, Peter Sturm, Michael Vitale

**Division of Pediatric Orthopaedics  
Department of Orthopaedic Surgery  
Columbia University Medical Center**



# Disclosures

---

**Presenter: Hiroko Matsumoto**

**(a) CSF, SRS, POSNA, CPIRF**

**Co-Authors:**

- **Evan Trupia** **No Relationships**
- **Hasani Swindell** **No Relationships**
- **Tara Flynn** **No Relationships**
- **Jeff Pawelek** **No Relationships**
- **Sumeet Garg** **No Relationships**
- **Michael Glotzbecker** **(a) GSSG, CSF**
- **David Roye** **(a) SRS, CPIRF**  
**(b) Stryker**  
**(e) CSF, MedTronic**
- **James Sanders** **(a) CSF, NIAMs**  
**(e) GE, Abbot Labs, Hospira, Abbvie**
- **Peter Sturm** **(a) Depuy Spine**  
**(b) Depuy Spine, Ortho Pediatrics**  
**(c) Pioneer Surgical**
- **Michael G. Vitale** **(a) CSF, SRS, POSNA,**  
**(b) Stryker, Biomet**  
**(e) CSF, FOXPSDSG**

- a. Grants/Research Support
- b. Consultant
- c. Stock/Shareholder
- d. Speakers' Bureau
- e. Other Financial Support

# Introduction

---

## *Current Treatment of EOS*

- Controversial and evolving
- Various “growth friendly” surgical interventions
- Serial body casting is a common non-surgical alternative method



# Introduction

---

When selecting treatments

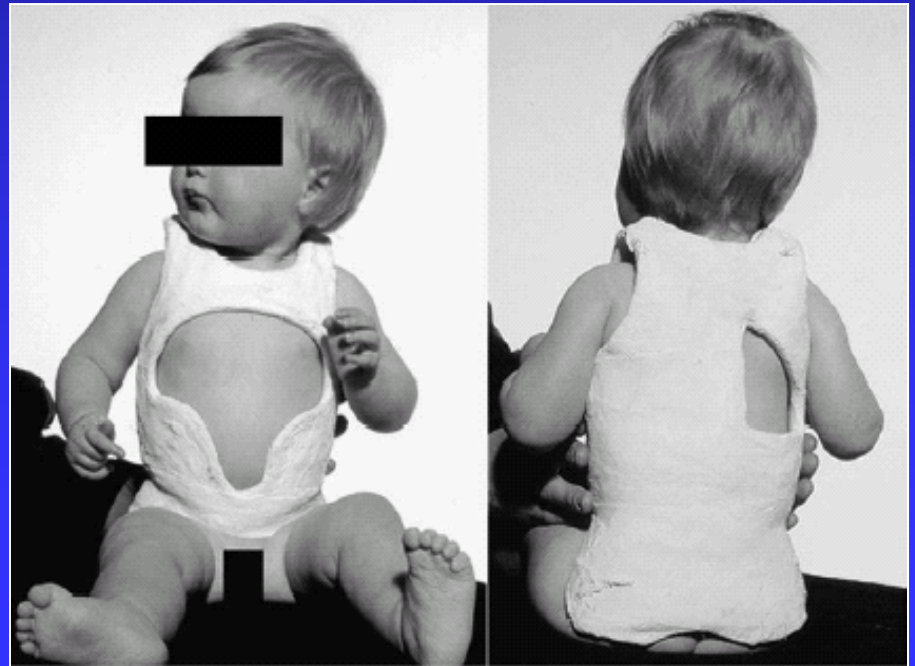
- Important to understand and consider patient's HRQoL and burden of care



# Purpose

---

Examine the health related quality of life and burden of care of patients with EOS undergoing casting treatment



# Methods

---

- **Design**

- Prospective study examining patients' HRQoL and parental and financial burdens pre- and post-casting

- **Participants**

- EOS patients undergoing casting treatment
- No prior scoliosis treatment

- **Procedure**

- The EOSQ-24 and other clinical data collected through 2 multi-center databases



# Number of patients rated for EOSQ-24

---

Total	Pre-Casting	Post-Casting	Pre- and Post-Casting	Idiopathic	Non-Idiopathic
	17.9 $\pm$ 30.2 days prior	292.9 $\pm$ 290.5 days after			
72	32	55	15	47	25

Post-casting = anytime during the casting

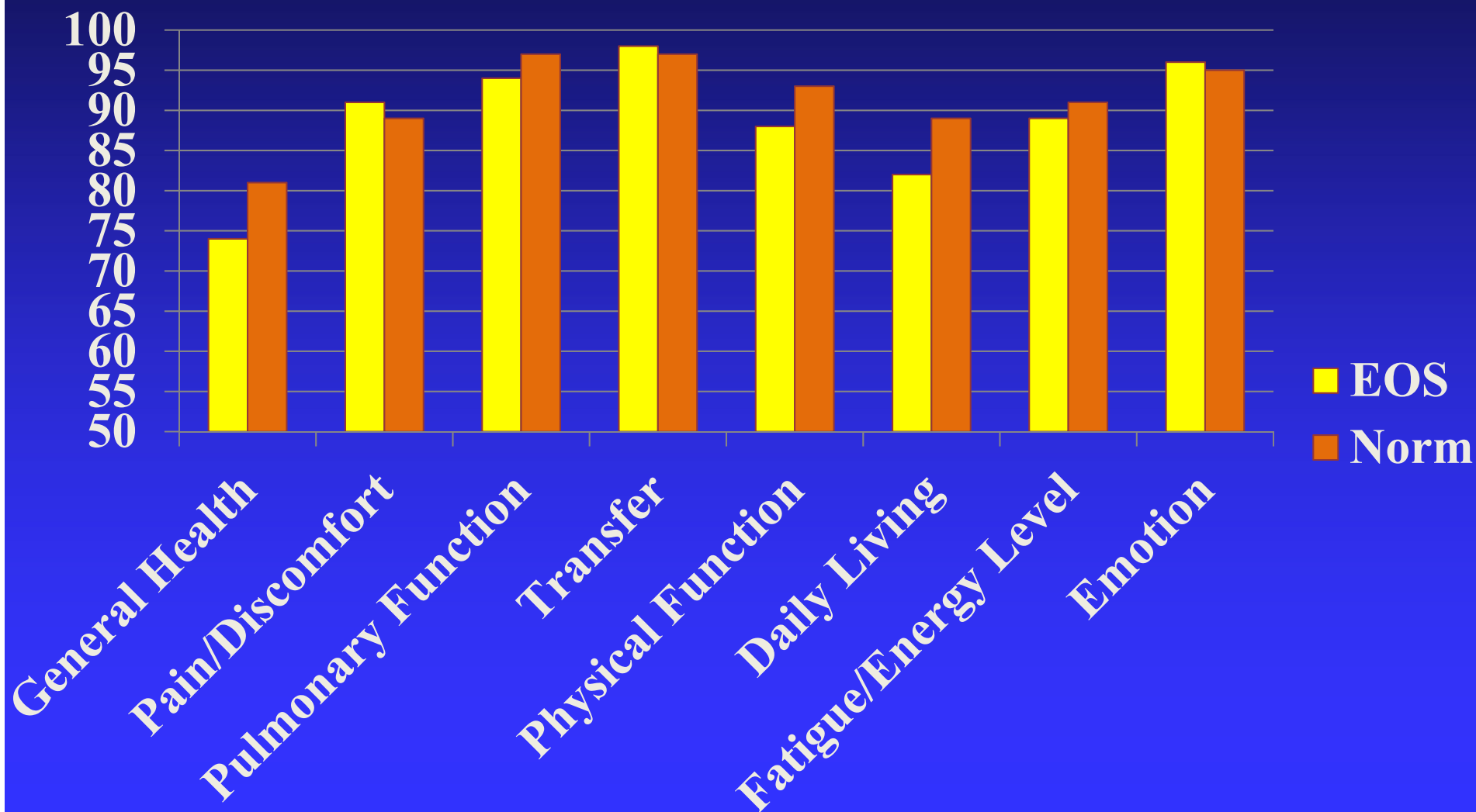
Age at initial casting: 1.8  $\pm$  1.4 (0-6.3)

- No significant correlation between EOSQ-24 scores and age at initial treatment



## Idiopathic: Pre-Casting

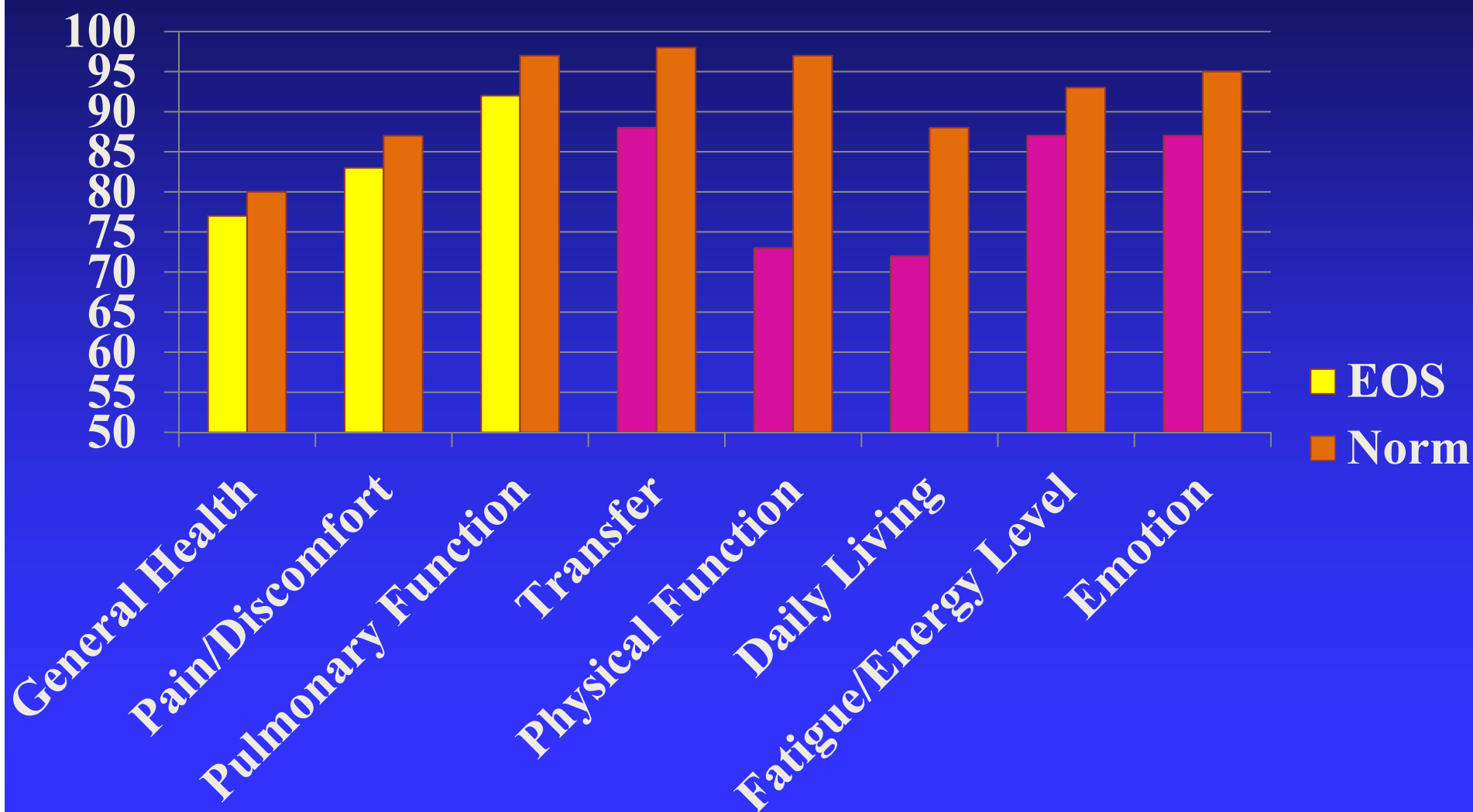
No significant difference in HRQoL compared to norms





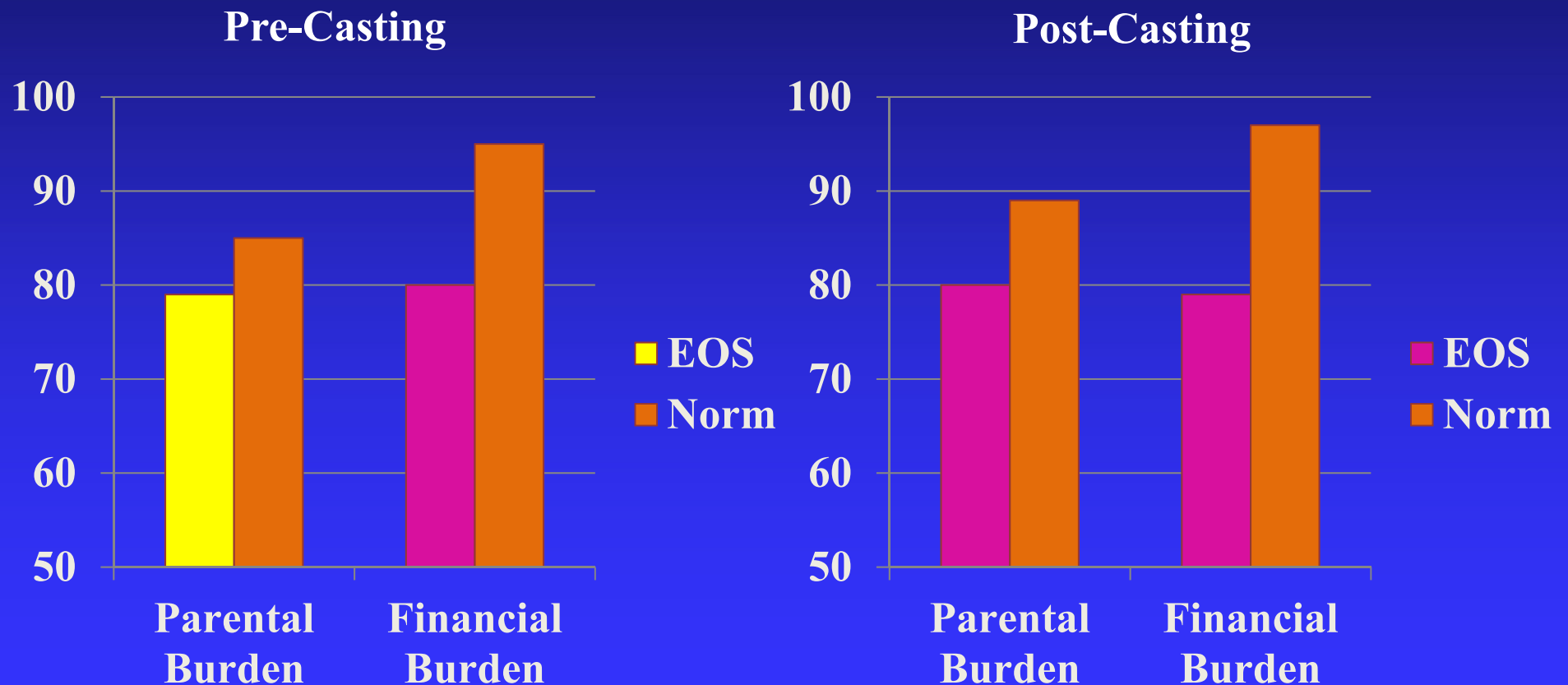
## Idiopathic: Post-Casting

Significantly lower HRQoL compared to norms



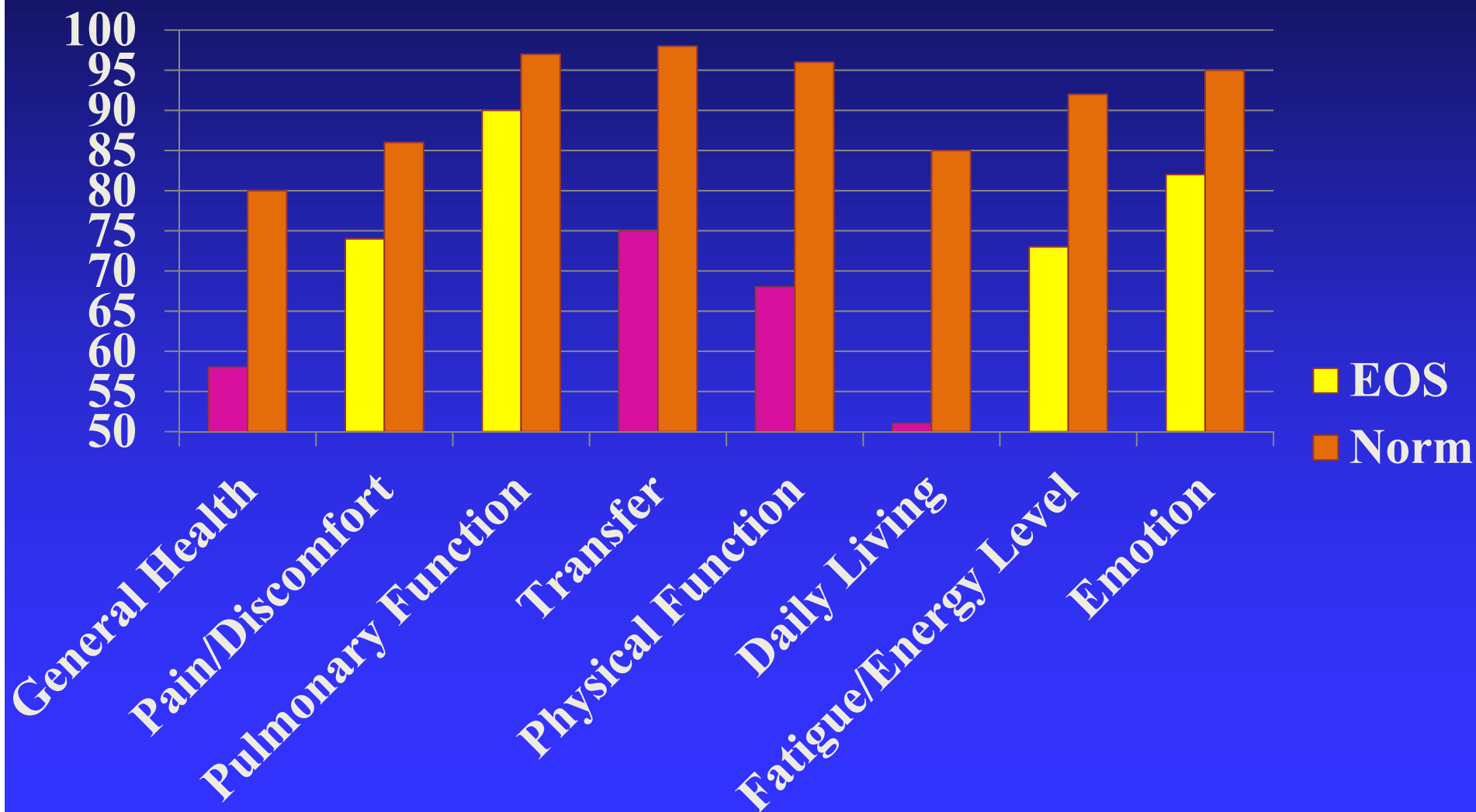
# Idiopathic: Caregiver and Financial Burden

Significantly worse parental burden in post-casting



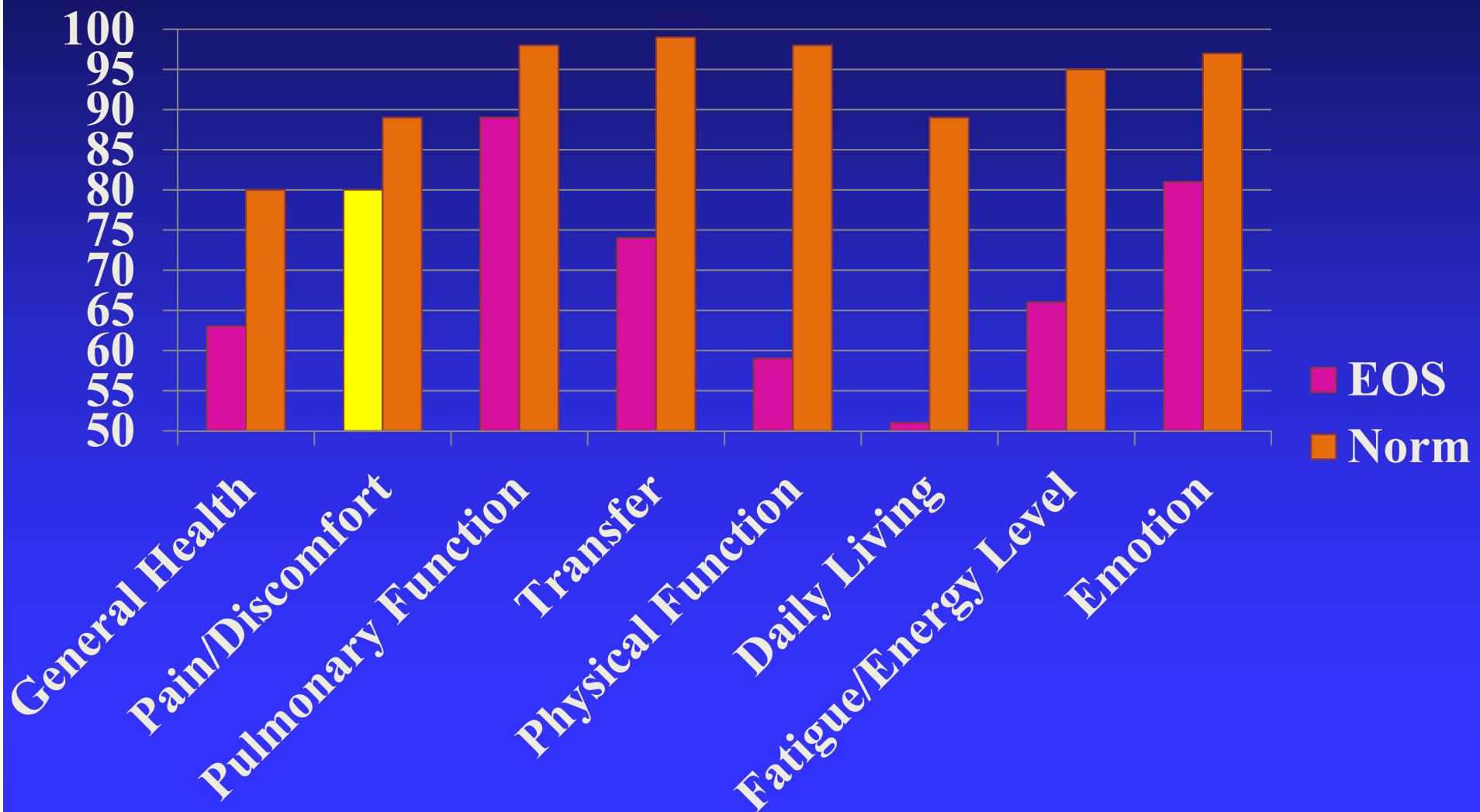
## Non-Idiopathic: Pre-Casting

Some HRQoL significantly lower compared to norms



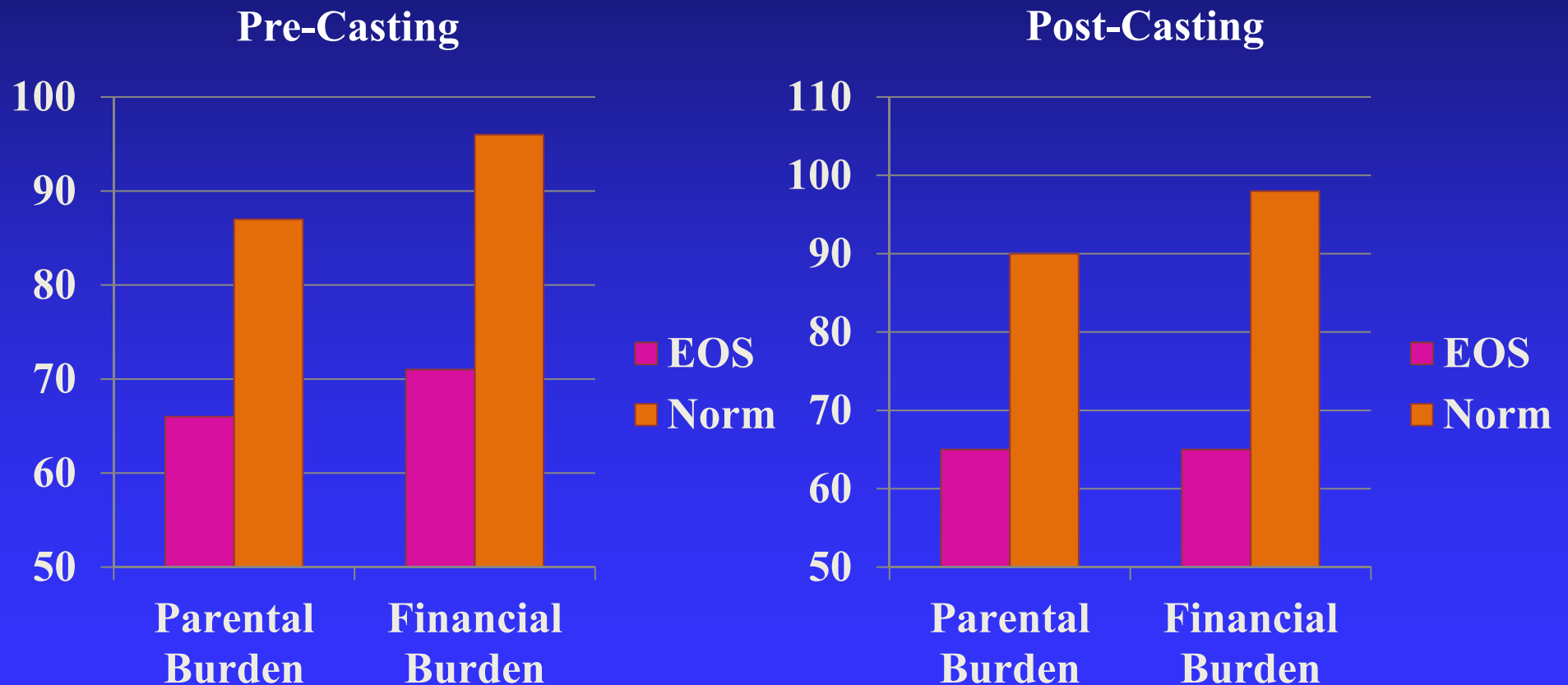
## Non-Idiopathic: Post-Casting

HRQoL significantly lower compared to norms



# Non-Idiopathic: Financial and Parental Burden

Significantly worse at both time-points



# Discussion

---

- EOS patients undergoing casting experience significantly lower HRQoL and higher parental burden compared to norms.
- This is somewhat contrary to our hypothesis of casting having a benign impact.

# Discussion

---

- Before the casting treatment, Idiopathic patients had HRQoL similar to that of norms  
= Surgical patients (ICEOS 2012)
- Age at initial treatment was not correlated with patient's HRQoL  
≠ Surgical patients (ICEOS 2012)  
Younger age at initial sx = worse HRQoL at post-op assessment



# Discussion

---

- It is not possible to discern from this study whether low HRQoL and high Parental Burden is related to:
  - Repeated OR/anesthesia procedures
  - or
  - Having the body in a cast

# Conclusions

---

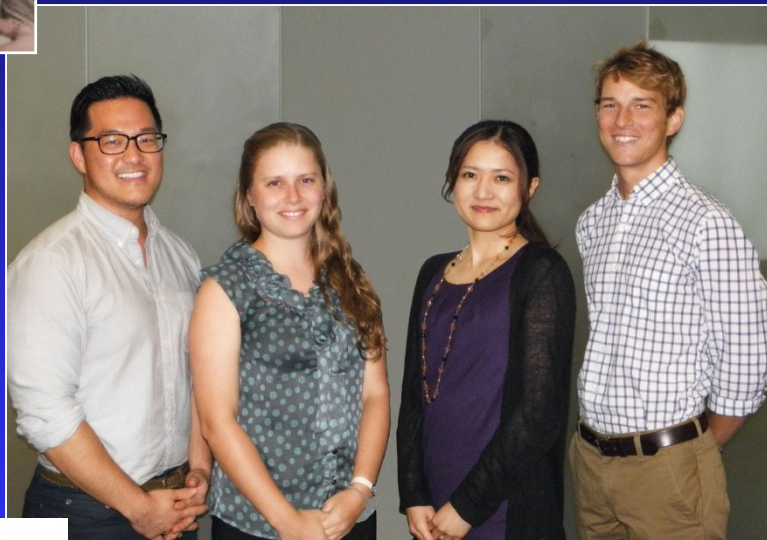
- The EOSQ-24 is able to evaluate the HRQoL, parental, and financial burden of patients undergoing casting treatment
- While casting treatment is considered to have low impact on patients and their families, it still requires careful attention.

# Next Steps

---

- Directly compare HRQoL and burdens before and after casting
  - Currently only N=15, need a larger sample size
- Compare patient's HRQoL and parental and financial burdens between casting and surgical patients

# Thank You



[hm2174@columbia.edu](mailto:hm2174@columbia.edu)