



POSNA
PEDIATRIC ORTHOPAEDIC SOCIETY
OF NORTH AMERICA

Asia Pacific Paediatric Orthopaedic
Society (APPOS)



POSNA-APPOS Traveling Fellowship 2018

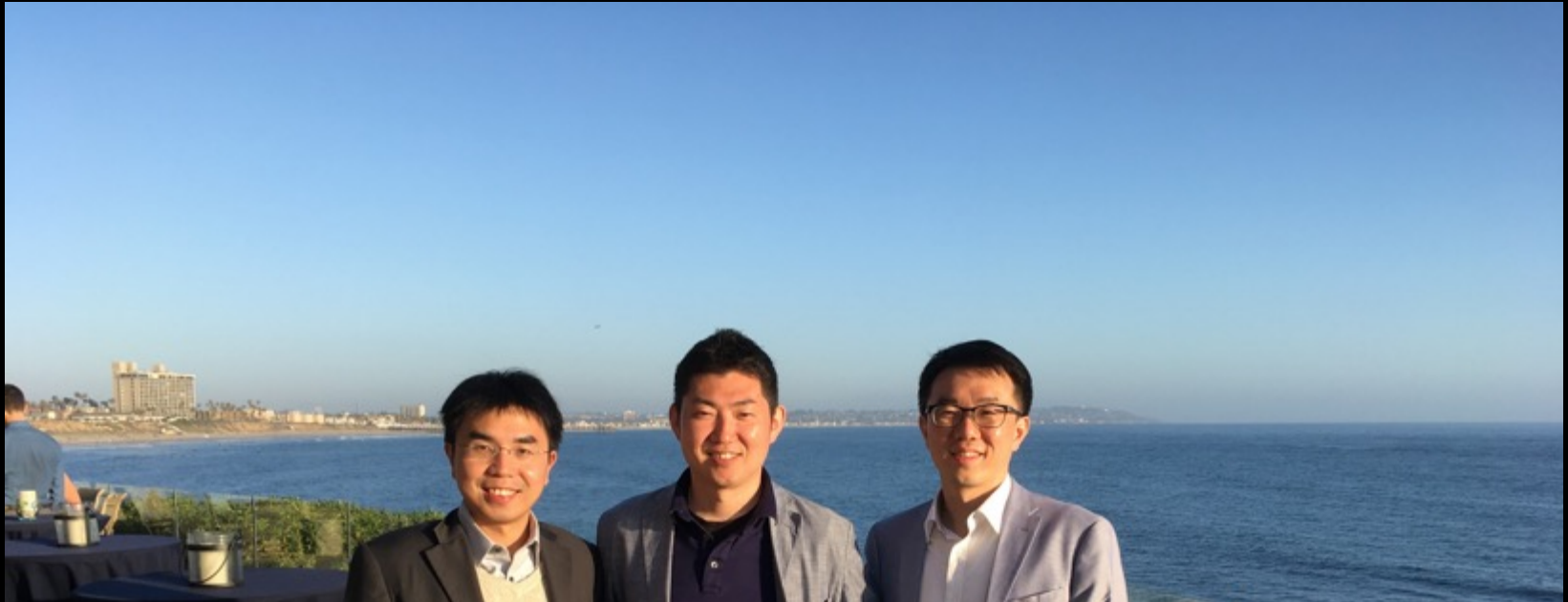
Alec Hung , Hong Kong

Hoon Park, Korea

Ryosuke Yamaguchi, Japan

April 29 – May 13, 2018

Traveling fellows from Asia



Alec Hung

Hong Kong

Prince of Wales Hospital

Chinese University of Hong Kong

Hoon Park

Korea

Gangnam Severance Hospital

Yonsei University

Ryosuke Yamaguchi

Japan

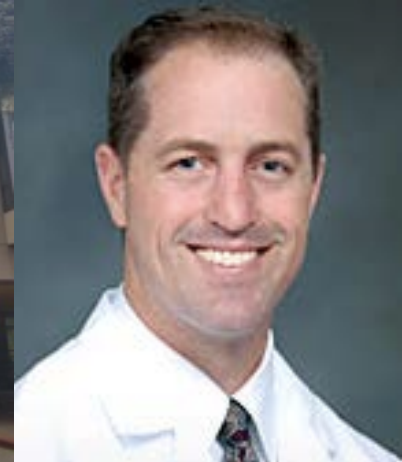
Kyushu University



Seattle Children's Hospital

April 29 - May 1, 2018

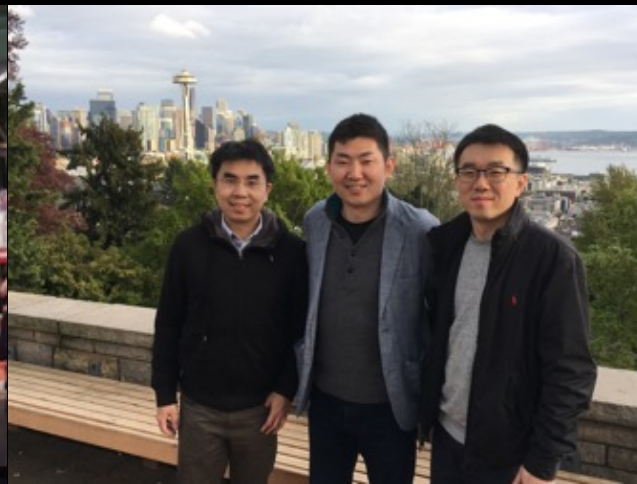
- The Rainy City
- Host : Dr. Klane K. White



Dr. Klane K. White

Day 1 :Tour of Seattle

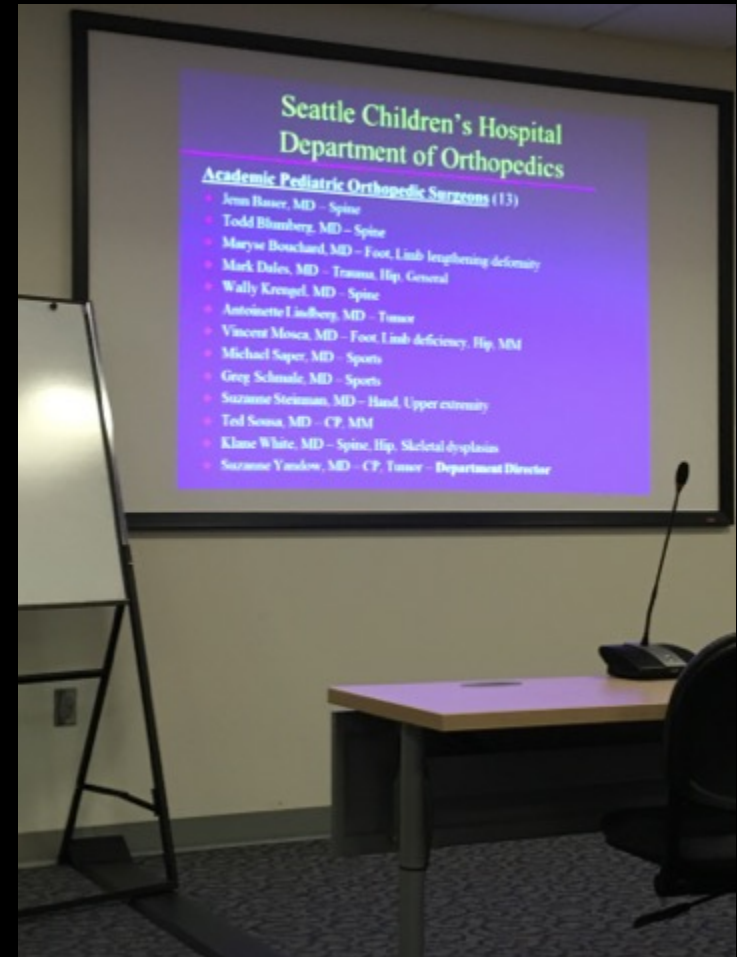
Seattle chocolate, 1st Starbucks, Pike Place Market, Kerry Park



Day 2:

Traveling fellows' presentations

- Hoon Park
 - Best treatment for displaced Salter-Harris II physeal fractures of the distal tibia
- Alec Hung
 - Thumb ossification Composite index (TOCI) to predict skeletal maturity and curve progression in idiopathic scoliosis
- Ryosuke Yamaguchi
 - Closed reduction following skin traction for developmental dysplasia of the hip in walking age



Observe Clinic, Case Conference





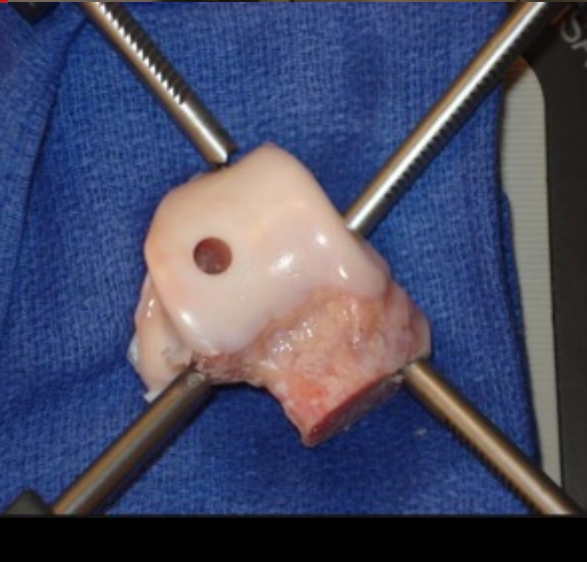
Tours of Hospital with Dr. White





- Dinner at Dr. White's house
- Warmest reception to us





Operative /ER facility

Interesting operation in patients with cartilage defect

Departure to San Diego

- Special thanks to Dr. Klane White
- And
 - Dr. Vincent Mosca
 - Dr. Suzanne Yandow
 - Dr. Ted Sousa
 - Dr. Michael Goldberg

Rady Children's Hospital

San Diego, California, 5/1-5/5

- US - Mexico border
- The Sunny city
- Host - Dr. Eric Edmonds



Dr. Eric Edmonds

Wednesday, May 2

- UCSD Ground Rounds
 - Dr. Eric Edmonds
 - Dr. Julia Sanders



Interesting talks for pediatric orthopedic trauma

Traveling fellows' presentations

- Ryosuke Yamaguchi
 - Treatment strategy for Legg–Calvé–Perthes disease
- Hung Alec Lik Hang
 - Computer aided assisted limb deformity correction, is it feasible?
- Hoon Park
 - Radiographic analysis of juvenile hallux valgus in relation to flatfoot



OR – Dr. Eric Edmonds

- MPFL reconstruction for patella instability
- Broström procedure for ankle instability



Incredibly quick and accurate surgery
No unnecessary radiation

Clinic – Dr. Eric Edmonds and Dr. Andrew Pennock

- Sports and trauma cases
 - Team system (with fellow, physician assistant, athletic trainer, nurse practitioner, etc)



Busy but efficient outpatient clinic system

Quick BBQ lunch Craft beer dinner



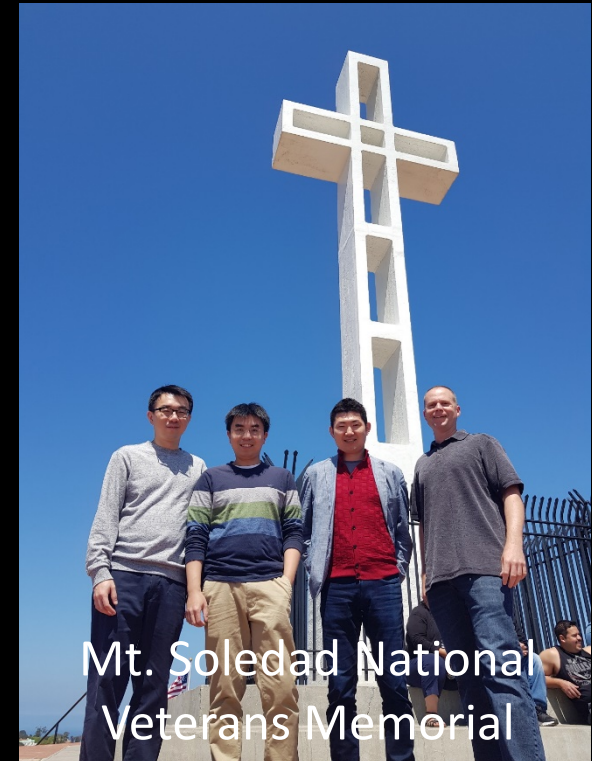
Karl Strauss Brewing Company



Short meeting with Dr. Haemish Crawford

Thursday, May 3

San Diego tour conducted by Dr. Eric Edmonds



Blue sky, No clouds, Comfortable climate

Local Mexican taco lunch



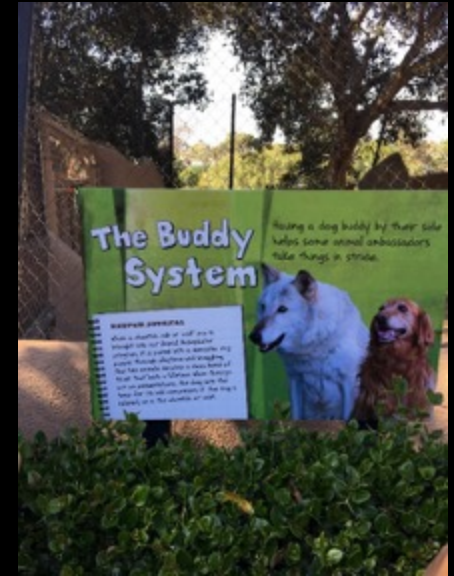
Tacos El Gordo



Lengua (Tongue) Adobada (Spicy pork)
Sesos (Brain)



San Diego Zoo



Dinner with doctors in Rady Children's Hospital



With Dr. Wenger, Dr. Edmonds,
Dr. Upasani and Dr. Pennock

Friday, May 4

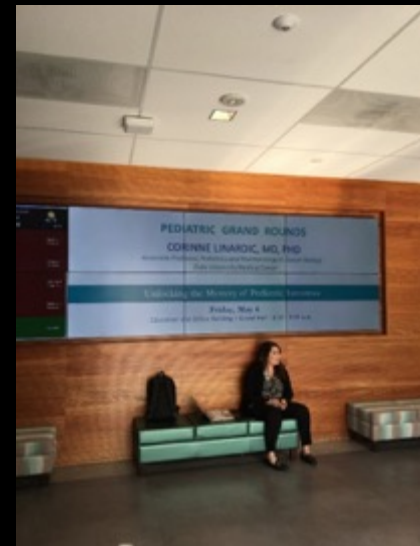
- Case conference
 - Trauma
 - DDH
 - Scoliosis
 - etc



- Biomechanics Research Center

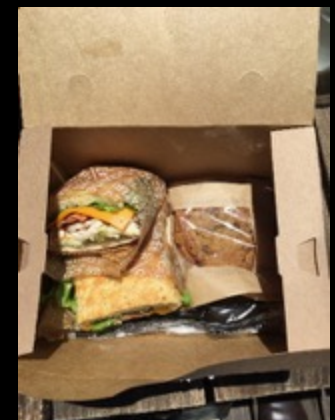
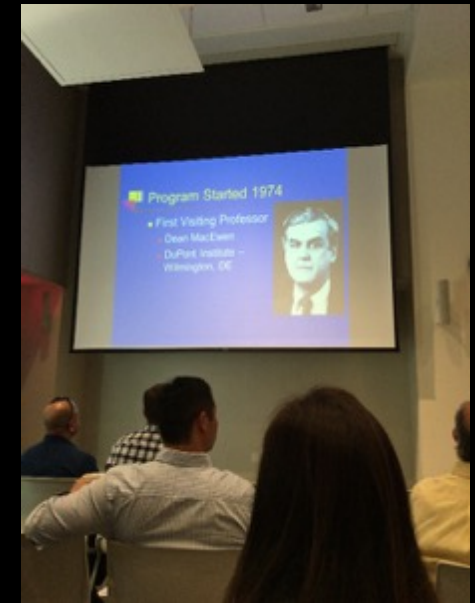


- USCD/RCHSD Pediatric Grand Rounds
 - Lecture by Dr. Corinnel Linardic

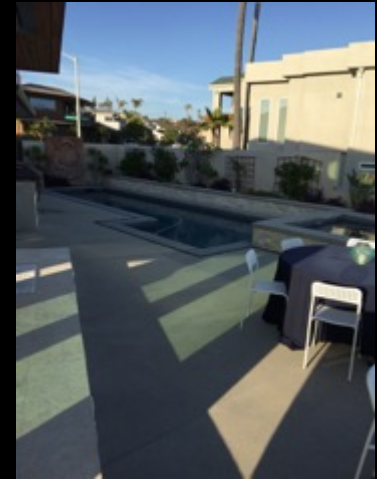


The 45th Annual David H. Sutherland Pediatric Orthopedic Visiting Professorship featuring Haemish Crawford MD (New Zealand)

- Clubfoot
- Early onset scoliosis
- Arthroscopic Bankart repair
- Asymmetric skin fold in DDH
- Osteomyelitis
- SCFE
- Scaphoid fracture
- Pain management by opiate
- Type IIA supracondylar humerus fracture
- MRI in youth baseball players
- AIS
- Epiphyseal dysplasia



Dinner at Dr. Newton's house



With Dr. Newton

Special reception, Great experience

Friday, May 4

- American Osteopathic Academy of Orthopedics
- The 58th postgraduate seminar at Rancho Palos Verdes
 - Pediatric topics (Including Dr. Eric Edmonds)



Precious opportunity to attend D.O. meeting

Departure for Houston



Special thanks to Eric for driving us around San Diego and the staff at Rady Children's Hospital

Texas Children's Hospital

Houston May 6-8

- Largest medical center in the world
- Host: Dr. Scott D. McKay



Dr. Scott D. McKay

May 6, 2018 (Day 1)

Tour of Houston (Dr. Rosenfeld and Dr. Dahl)



Incredible experience !!!



Special thanks to this special tour



Dr. Scott B. Rosenfeld



Dr. Benny T. Dahl



Dr. Indranil (Neel) Kushare

May 7, 2018 (Day 2)

Traveling fellows' Presentations

Alec Hung



Hoon Park



Ryosuke Yamaguchi



- Alec Hung

- Computer aided assisted limb deformity correction, is it feasible?

- Hoon Park

- Best treatment for displaced Salter-Harris II physeal fractures of the distal tibia

- Ryosuke Yamaguchi

- Epidemiology & Prognostic Factors of Pediatric Septic Arthritis

Observe OR- Dr. Rosenfield



Complex hip
reconstruction surgery
after SCFE

Surgical dislocation

Gait Laboratory Visit



Thanks to Dr. Jeffrey Shilt

Dinner – Brennan's of Houston



May 8, 2018 (Day 3) Indications Conference



Discussions over a wide variety of cases:

Spinal deformity

Hip dysplasia

Complex elbow

Foot & ankle trauma

Limb deformities

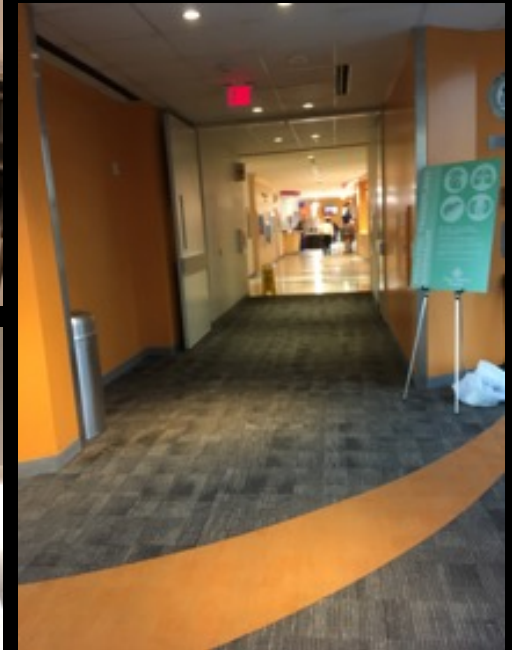
Skeletal dysplasia



Tour of West Campus



Operative Theatre



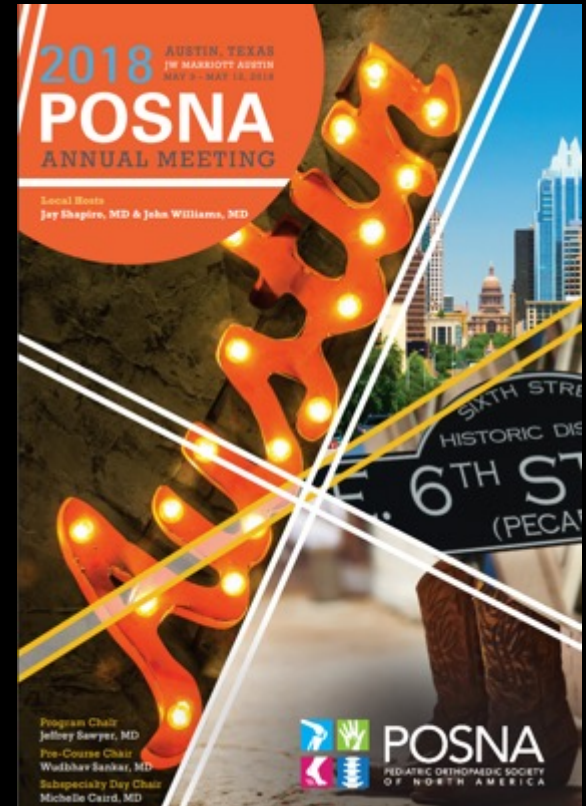
Departure for Austin



Special thanks to Dr. McKay for driving us around Houston and to the Texas Children's Hospital staff

POSNA 2018 Annual Meeting

Austin, Texas - 5/8-5/13




1st day (Wednesday, May 9)

Pre-Course – Natural History of Pediatric Orthopaedics
POSNA Awards presentations



Paper Poster presentation (Alec Hung)

Validation Study of the Thumb Ossification Composite Index (TOCI) in idiopathic scoliosis
 -A stage to stage correlation with Classic Tanner Whitehouse and Sanders' simplified Skeletal Maturity Systems (SSMS)



Validation study of the Thumb Ossification Composite Index (TOCI) in idiopathic scoliosis - a stage to stage correlation with Classic Tanner Whitehouse and Sander's Simplified Skeletal Maturity System (SSMS)

Alec Hung, Lik Hung, Ben Long Shi, Simon Chow, Koon Ho, Wai Wang Chau, Vivian Hung, TP Lau, Bobby KW Ng, Jack CHENG Chun Yiu
 Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong, Prince of Wales Hospital

INTRODUCTION

- Newly proposed Thumb ossification composite index (TOCI)¹
- Simplicity, excellent reliability accuracy to predict skeletal maturity in idiopathic scoliosis (IS) comparable with the Tanner-Whitehouse (TW3) derived Sanders' SSMS system².
- To further improve the understanding and clinical applicability of TOCI, this study was conducted with the objective of to validate the stage to stage correlation of TOCI with the TW3 and SSMS systems from pre-pubertal, at peak height velocity (PHV) to post-pubertal period.

SUBJECTS AND METHOD

- 125 AIS girls
- Hand & wrist X rays - first presentation (pre-menarche) to skeletal maturity
- Minimum of five X rays taken at 6-monthly intervals
- Tanner-Whitehouse 3 staging I-I (total 19 epiphyses), SSMS and TOCI staging
- All distal (DP), middle (MP), proximal (PP), metacarpal bone (MC)
- Association [Chi-square statistics] and Correlation [Spearman, Cramer's V correlation]
- Between each of TW3 staging of DP, MP epiphyses at the thumb (TOCI staging) with TW3 staging of epiphyses of DP, MP, PP, MC at each of ulnar 4 digits; Sander's SSMS staging

OBJECTIVES OF STUDY


To study the correlation of the ossification of the thumb epiphyses (using the new simplified thumb ossification composite index [TOCI]) vs

- Tanner-Whitehouse staging of the epiphyses of the ulnar 4 digits
- Sander's SSMS system

RESULTS 1 (TOCI VERSUS TW3 STAGING)

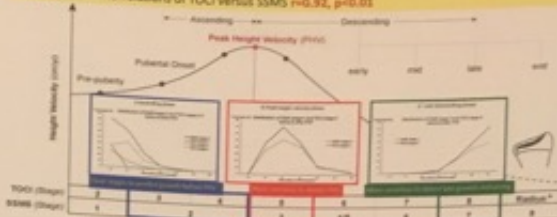
- 645 hand & wrist radiographs from 125 AIS girls reviewed
- 11517 epiphyses suitable for scoring and analysis
- Chi-square test
- Significant association of thumb epiphysis grading vs ulnar 4 digits ($p < 0.02$)
- Cramer's V correlation
 - High correlation [0.48-0.76] of thumb's epiphysis vs each epiphysis at ulnar 4 digits ($p < 0.02$)
 - Overall 71.3 % concordance rate of thumb epiphyses to predict the TW3 staging (Table 1)

Epiphysis	TOCI 1	TOCI 2	TOCI 3	TOCI 4	TOCI 5	TOCI 6	TOCI 7	TOCI 8
Distal (DP)	100	100	100	100	100	100	100	100
Proximal (PP)	100	100	100	100	100	100	100	100
Middle (MP)	100	100	100	100	100	100	100	100
Metacarpal (MC)	100	100	100	100	100	100	100	100



RESULTS 2 (TOCI VERSUS SSMS STAGING)

- High stages correlations for the two systems (Table A and B of the Figure 1) with Somer's delta correlation (> 0.8) and statistical significance ($p < 0.05$)
- Spearman correlations of TOCI versus SSMS $r = 0.92$, $p < 0.05$



A Percentages (%) of SSMS stage in each TOCI stage

SSMS	TOCI 1	TOCI 2	TOCI 3	TOCI 4	TOCI 5	TOCI 6	TOCI 7	TOCI 8
SSMS 7								71.7
SSMS 6						22.7	83.1	28.3
SSMS 5				2.4	36.1	5.3		
SSMS 4			13.3	32	1.3			
SSMS 3		38.4	100	12.1	86.1	7.2		
SSMS 2	43.6			87.9	13.2	1		

B Percentages (%) of TOCI stage in each SSMS stage

TOCI	SSMS 1	SSMS 2	SSMS 3	SSMS 4	SSMS 5	SSMS 6	SSMS 7
TOCI 8							23.2
TOCI 7							86
TOCI 6			1.3	1.9	9.3	87.1	10.7
TOCI 5			39.8	5.8	87.4	81.4	19.6
TOCI 4			38.2	5.3	60.7	5.3	
TOCI 3		15.6					
TOCI 2	100	100					

CLINICAL SIGNIFICANCE

- Newly proposed Thumb Ossification Composite Index (TOCI) for peri-pubertal skeletal maturity prediction in idiopathic scoliosis
- Simpler (2 thumb epiphyses and adductor sesamoid) with excellent reliability
- Extra precision to predict Pre-PHV, PHV and growth remaining profile
- High practicality to bridge the stages with the current widely accepted complex systems (Tanner-Whitehouse (I) method and Sander's SSMS system)

REFERENCES

1. Hung AK, Liang SB, Chow HK, Ng WY, Ho J, Cheng ST. Thumb Ossification Composite Index (TOCI) for Predicting Pubertal Skeletal Maturity and Peak Height Velocity in Idiopathic Scoliosis: A Retrospective Study of 125 Adolescent Girls with Adolescent Idiopathic Scoliosis. *Journal of Adolescent Health*. 2016;59(1):100-106.
2. Tanner JM, Whitehouse J, Healy K, Browne WS, Davies JF, et al. Assessment of skeletal maturity of children from hand radiographs. *British Medical Journal*. 1973;3(1359):746-751.

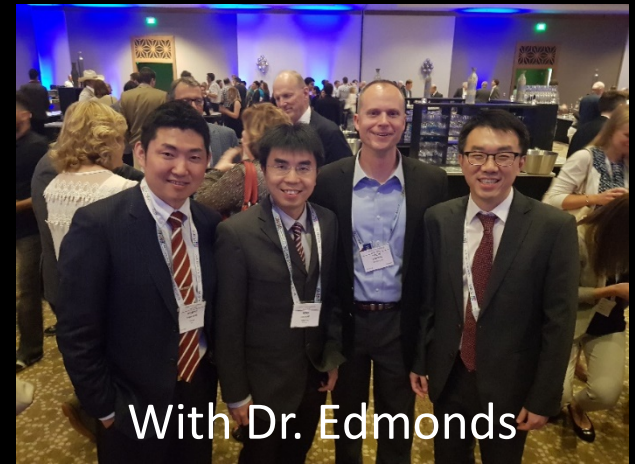
Welcome Reception (Texas BBQ)



With Dr. White



With Dr. Bobby Ng



With Dr. Edmonds



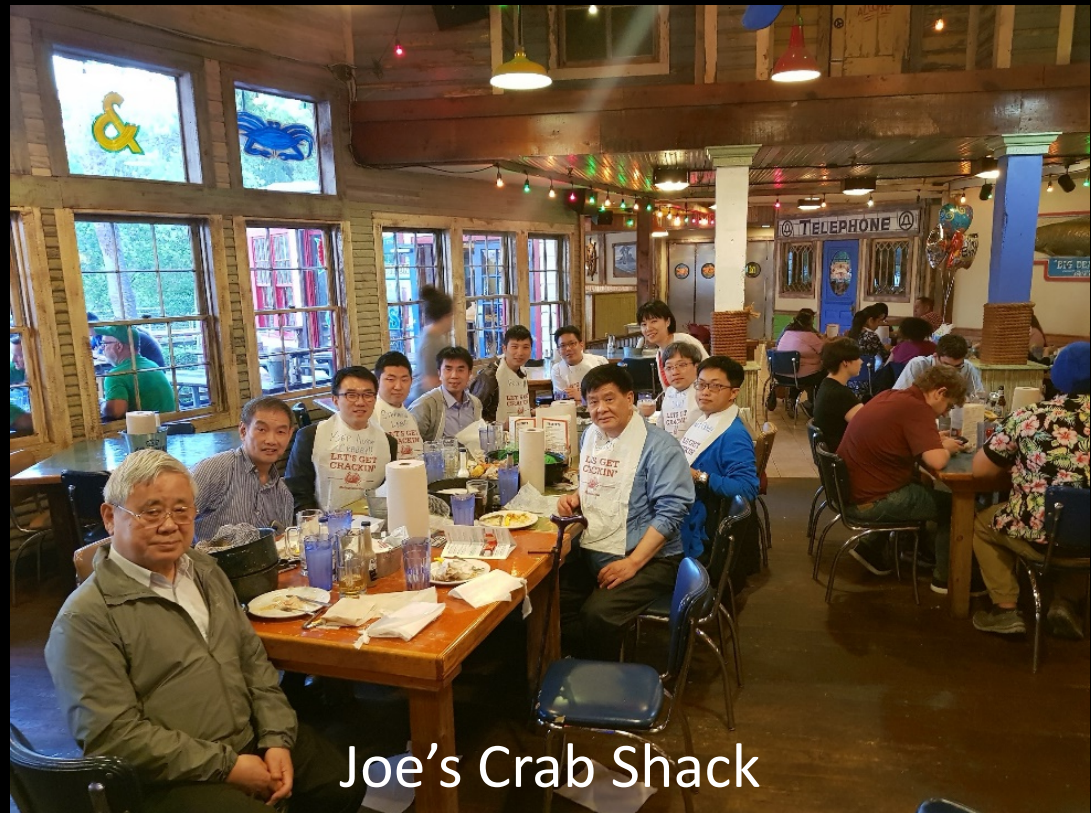
With PAs in Houston



With Dr. Phillips

2nd day (Thursday, May 10)

- Concurrent Sessions (Spine and Sports)
- Symposia Program (Safety, Research, Pain Management, Physician Wellness, etc)



Dinner with Dr. Kuo and Taiwan doctors and Dr. Ng

3rd day (Friday, May 11)

- Award Papers (Clinical and Basic Science)
- Subspecialty Day (Hip, Lower Extremity, Spine, Sports, Trauma and Upper extremity)
- Closing Reception (Austin City Limits)



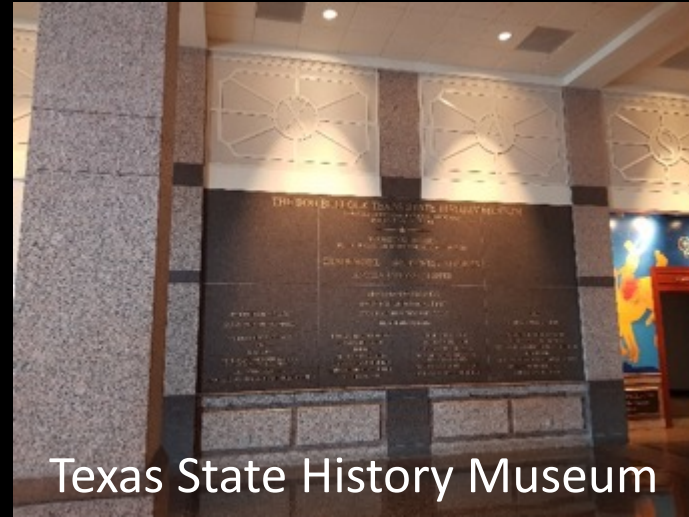
Country Line Dance

4th day (Saturday, May 12)

- General Session (Foot/Ankle, Hip and Congenital Diseases)



Texas Capital



Texas State History Museum



Freming's Steakhouse

Acknowledgements

- POSNA
 - President: Dr. Richard Schwend
 - All members
 - Ms. Melody Raymond
- APPOS
 - Dr. Bobby Ng
 - Our society presidents
- Seattle Children's hospital
 - Dr. Klane White
 - Dr. Vincent Mosca
 - Dr. Suzanne Yandow
 - Dr. Ted Sousa
 - Dr. Michael Goldberg
- Rady Children's Hospital
 - Dr. Eric Edmonds
 - Dr. Dennis Wenger
 - Dr. Peter Newton
 - Dr. Andrew Pennock
 - Dr. Salil Upasani
 - Dr. Scott Mubarak
- Texas Children's Hospital
 - Dr. Scott McKay
 - Dr. Scott Rosenfeld
 - Dr. Benny Dahl
 - Dr. Jeffrey Shilt
 - Dr. William Phillips