出國報告（出國類別：短期進修）

外科住院醫師訓練制度之考察及整形外科顯微皮瓣重建手術之進修

服務機關：國立台灣大學醫學院附設醫院外科部

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出國期間：100 年 05 月 01 日至 100 年 05 月 30 日

報告日期：

單位主管核章：

摘要

學生於民國一百年五月，前往 STANFORD HOSPITAL 醫療中心進行為期一個月的短期進修考察。

主要考察美國外科住院醫師訓練模式，學習成效及評核標準。進修內容主要包括重建外科顯微手術及手外科顯微重建手術，並。在整形外科部主任 JAMES CHANG 及顯微重建主治醫師 GORDAN LEE 指導下參與醫療中心整形外科顯微重建病人術前評估，術後加護病房及一般病房照顧，顯微皮瓣手術及一般整形外科手術觀摩，門診病人診療，並藉由參與該科部之各項教學活動，如每天手術病例術前討論晨會，住院醫師期刊閱讀會，主題討論會，及基礎醫學研究會議來學習。

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進修時間為民國一百年五月，前往 STANFORD HOSPITAL 醫療中心進行為期一個月的短期進修考察。

進修內容主要包括重建外科顯微手術及手外科顯微重建手術。在整形外科部主任 JAMES CHANG 及顯微重建主治醫師 GORDAN LEE 指導下參與醫療中心整形外科顯微重建病人術前評估，術後加護病房及一般病房照顧，顯微皮瓣手術及一般整形外科手術觀摩，門診病人診療，並藉由參與該科部之各項教學活動，如每天手術病例術前討論晨會，住院醫師期刊閱讀會，主題討論會，及基礎醫學研究會議來考察。

參與顯微手術觀摩:

- 頭頸部癌症重建(ALT FLAP, FIBULA FLAP)
- 乳房重建(TRAM, DIEP FLAP)
- 胸廓重建 (LATISSIMUS DORSI MYOCUTANEOUS FLAP)

- 下肢端創傷重建 (ALT FLAP)
- 斷指顯微重接 (DIGIT REPLANTATION, SGAP FLAP)

考察期間舉辦之會議及討論會:

- MAY 5TH: STANFORD 整形外科年度臨床及基礎研究會議
- MAY 17TH: GRAND ROUND: ARTIFICIAL LIMB WITH PROSTHESIS
- MAY 18TH :HAND TRANSPLANTATION PREPARING MEETING
- MAY 24TH : 耳朵重建工作坊: BURT BRENT EAR CARVING WORKSHOP

STANFORD 外科部與整形外科的教學活動如下：

星期一：MORBIDITY AND MORTALITY SURGERY ROUND

星期二： RESIDENT CONFERENCE

PLASTIC SURGERY EDUCATION CALENDAR

星期三: STANFORD PLASTIC SURGERY LECTURE SERIES

JOURNAL CLUB

星期五：CHIEF'S ROUND

三、心得

I. 外科及次專科整形外科住院醫師訓練制度之考察

臨床住院醫師訓練:

美國的外科住院醫師制度，以 STANFORD 整形外科六年訓練制度為例，在第一及第二年的外科訓練上，著眼於全面的各領域訓練，包含 PGY 一般醫學訓練，到麻醉科，眼科，小兒外科，神經外科，血管外科，急診等次專科病房訓練，在進入第三年住院醫師後，著重加強重症外科(燒燙傷，創傷，加護病房)及次專科整形外科領域的訓練，第四年住院醫師開始整形外科各領域如手外科，顱顏外科，顯微手術，美容外科的巡迴訓練，於第六年時擔任總醫師，擔當起行政及指導住院醫師，實習醫師之教學角色，並負責大部分手術，術前評估，術後照顧，以達到成熟之外科技巧。住院醫師訓練期滿得到次專科認證後可以選擇特殊領域研修(FELLOWSHIP): 顯微外科，手外科，顱顏重建外科進行一到兩年的訓練，在主治醫師協助之下，完成較困難複雜之重建手術及術後照顧。

基礎醫學或臨床研究訓練:

從第四年住院醫師起，有四個月以上時間安排進行基礎醫學或臨床上之研究(附錄一)，在主治醫師指導下進行主題式的研究，在整形外科方面，著重於如動物之顯微皮瓣，軟組織、脂肪幹細胞基因組織工程，傷口癒合生長因子等。STANFORD 醫療中心相當重視研究，加上大學本身有相當強的工學院及醫學院，近年更投注數億美金興建幹細胞研究中心。在來自國家衛生研究院的經費支持下，有許多設備完善的研究室，有質與量相當成就的論文發表。外科住院醫師在這樣的環境之下，除了紮實的臨床訓練外，也被要求具備有臨床或基礎研究之能力。不過和我們臺灣面臨同樣的問題，臨床工作的繁重很難讓住院醫師有全心全意專注在研究上的時間與精力。為了加強住院醫師研究上的能力及時間，在 STANFORD 外科次專科，也正研擬增加住院醫師訓練年限，像 2012 年整形外科住院醫師訓練改制由六年為七年，在新增加的一年讓住院醫師全心投入實驗室參與研究。這一次的進修，有機會參加年度研究發表，在臨床顯微重建，組織工程，困難傷口癒合分析方面，各實驗室都有許多的成果展現。

外科住院醫師訓練學習目標及訓練評核:

各外科次分科對於住院醫師不同年級時有明確的訓練目標(附錄一)，在不同次分科領域輪訓時，明訂需要知道的相關知識及該熟練的技術，以手外科為例，是第四年住院醫師輪訓共四個月的排程，期間對於先天性手畸形，手外傷，手部腫瘤，上肢功能重建有明確的學習目標。在訓練其間，有不同方式不同面向的評核並給予回饋，如主治醫師回饋，年度評核，360 評核等，讓住院醫師可以知道自己學習的成效及盲點來加以改進，這樣的雙向溝通及回饋，對於學習是相當有助益的。

臨床大體解剖訓練:

外科住院醫師訓練過程著重於大體解剖訓練，定期舉辦特定部位(如頭頸部，手部，大腿等)大體解剖工作坊，來了解手術解剖學之構造及各種皮瓣之血管神經走向，整形外科也和大體解剖室合作，在上班期間提供大體供臨床醫師研究。這樣的資源提供及課程設計,可以讓外科醫師對於解剖學在臨床上有更深刻的了解及應用。

II. 顯微皮瓣重建手術之交流進修

STANFORD HOSPITAL 是世界知名的醫療中心，對於癌症術後重建，顱顏重建，創傷重建及顯微手術享有豐富的經驗。每年有許多創傷或者功能喪失的癌症病患被轉介至此醫療中心接受治療。在一個月的臨床醫療考察中，對於他們的癌症中心醫療品質欽羨: 對於癌症病人，病人都享有團隊性跨科部的治療。舉例像頭頸部癌症病患，術前耳鼻喉外科醫師及腫瘤科醫師的討論會是例行的，對於需要切除的範圍及術前術後所需之輔助性化放療都有明確的治療目標及療程。之後若因為廣泛性切除對於病灶需要整形外科重建，病人則會轉介來門診接受和醫師的討論。術後呼吸治療師，吞嚥語言復建師，營養師盡早積極的介入後續照護，病人得以在縮短的療程上得到功能上如語言或吞嚥的進步。

相較於他們，台大醫院整形外科也同樣具有良好之重建及顯微手術水準，對於頭頸部癌症病患在切除後以顯微自由皮瓣手術進行重建。常用的皮瓣包括大腿前外側皮瓣，游離腓骨皮辦，用來重建下顎骨的缺損，及游離空腸皮瓣來重建新的食道及

咽喉部。我們有豐富的經驗及良好的結果。但對於複雜性之肢體創傷以及困難性手部功能重建的經驗卻有限。對於不同受傷機制不同解剖構造之皮瓣重建，需要兼顧功能性及外觀完整性，這次的考察能參與觀摩到他們對於創傷後跨科部的團隊重建，實為難得之機會。

四、建議事項

1.規劃設計區域性大體解剖訓練課程及研究訓練課程

相較於美國的外科住院醫師制度，我們外科部對於臨床外科之全方面醫療訓練，從第一二年各次專科病房，重症 ICU，急診門診病患之照護，都有涵蓋。近年舉辦臨床技能訓練營，對於提升住院醫師基本手術技巧反應有良好成效。但在臨床手術大體解剖訓練及基礎醫學研究，尚欠缺完整之課程規畫及相關資源配合。

2.明訂依據次專科各年級訓練之學習目標及完整客觀的考核評分制度

對於外科住院醫師逐年升級，臨床知識及手術技巧，我們目前尚欠缺完整客觀之考核評分制度，未能依據次專科各年級之訓練建立獨立明確之學習目標及審核標準，來對住院醫師之知識技能及研究加以提升。另外，尚有諸多對於住院醫師的訓練有關的議題，如學術論文之指導，需要進一步的規劃及設計。

3. 鼓勵住院醫師就讀研究所在職專班學習臨床或基礎研究

住院醫師臨床訓練方面，本院外科部設有動物實驗室，及微創手術訓練中心，以提供住院醫師使用，培養其對動物實驗之實際經驗與研究基礎，熟悉手術器械之正確使用方法，練習各種手術的基本技巧。目前有規劃的實驗內容包括資淺住院醫師的動物實驗，練習基本消化外科手術，以及資深住院醫師顯微手術、進階腹腔鏡手術之練習。但是對於臨床及基礎研究，住院醫師在繁忙的臨床工作下班後繼續從事，可以鼓勵住院醫師在職就讀臨床醫學，並給予配套措施。

五、附錄

附錄一　Stanford 整形外科住院醫師訓練評核及學習目標

附錄二　返國後心得報告(民國一百年六月三日整形外科科會報告)

STANFORD UNIVERSITY MEDICAL CENTER
Plastic Surgery Training Program
Rotation Description Form

I. Rotation Format:

Rotation:	Hand Surgery Service	**Rotation Duration:**	4	**Month(s)**							
Institution:	Stanford	**Call responsibility (q):**	q2	**Night(s)**		**In House**		X	**Home**		
Responsible faculty member: (CV attached):		Dr. A. Ladd	**Training Level:**			**1**		**2**		**3**	
II. Goals and Objectives:			**Training Level:**		X	**4**		**5**		**6**	

A. Medical Knowledge

I: Anatomy/Physiology/Embryology

Goal: The resident will achieve a detailed knowledge of the anatomy, physiology, and embryology of the upper extremity and will utilize this knowledge in the complete management of the hand, arm, and brachial plexus.

Objectives:

1. Describe in detail the anatomy and physiology of the muscles, tendons, ligaments, and bones of the hand and upper extremity.
2. Identify in detail the anatomy of the vascular tree of the upper extremity including relationships to the surrounding structures.
3. Identify in detail the anatomy of the major nerves and their branchings in the upper extremity including relationships to surrounding structures.
4. Draw the anatomy of the brachial plexus.
5. Demonstrate the detailed radiographic anatomy of the bony structures of the upper extremity.
6. Utilizes the radiologic techniques, including plain films, CT scan, angiography and MRI of the upper extremities.
7. Discriminate the principles of electrical evaluation and recite knowledge of the techniques of electrical examination of the upper extremities including conduction studies and EMG evaluation.
8. Recite the principles of upper extremity biomechanics.

II: Congenital Disorders

Goal: The resident will achieve familiarity with the spectrum of congenital abnormalities of the upper extremity and perform comprehensive diagnostic evaluation and surgical management of such problems.

Objectives:

1. Recite the classification system for congenital hand anomalies including:
   a. failure of part formation
   b. failure of differentiation
   c. duplication
   d. overgrowth
   e. undergrowth
   f. congenital bands
   g. generalized musculoskeletal anomalies
2. Describe the embryologic development and the physiologic theories which explain the etiology of hand anomalies.
3. Recite the operations including timing and techniques used in the surgical management of hand anomalies.

III. Benign and Malignant Tumors

Goal: The resident will understand the principles of diagnosis and treatment of extremity tumors and undertake comprehensive management of a wide variety of such lesions.

Objectives:

1. Describes the principles and techniques of management of upper extremity tumors.
2. Describe the etiologic factors, epidemiology, and modalities of treatment for tumors of the upper extremities.
3. Describe the clinical manifestations of both soft and hard tissue tumors of the upper extremities.
4. Describe the reconstructive principles and techniques for restoration of form and function after surgical resections.
5. Recite the indications and use of adjunctive therapy (i.e. radiation therapy and chemotherapy) in the management of and the prognosis for upper extremity tumors.
6. Describe the principles and techniques of management for upper extremity tumors, including reconstruction after surgical extirpation, for:
   a. vascular tumors
   b. nerve tumors
   c. benign deep soft tissue tumors
   d. malignant deep soft tissue tumors
   e. primary bone tumors
7. Rationalize the utilization of radiotherapy, medical oncology, hand therapy, occupational therapy, and prosthetics where appropriate for patients with upper extremity tumors.

IV: Trauma

Goal: The resident will understand the principles of diagnosis and treatment of extremity trauma, and perform comprehensive management of acute injuries and other trauma-related problems of the hand and arm.

Objectives:

1. Recite the principles and applications of diagnostic techniques for the evaluation of hand and upper extremity trauma.
2. Describe the techniques for operative management of traumatic injuries of the upper extremity, their indications and contraindications, and their possible complications and the treatment thereof.
3. Explain the indications for, contraindications to, and techniques in nonoperative management of traumatic injuries of the hand and upper extremity.
4. Describe the options for soft tissue coverage of upper extremities including:
   a. skin grafts
   b. local flaps
   c. free tissue transfer

V: Functional Problems of the Upper Extremities

Goal: The resident will achieve familiarity with aesthetic and functional problems of the hand and arm, understand the principles of rehabilitation of the upper extremity and the management including comprehensive rehabilitation of the upper extremity.

Objectives:

1. List the surgical and nonsurgical treatment of nerve compression and entrapment syndromes of the upper extremity.
2. Draw the pathologic anatomy and physiology of upper extremity contractures and Dupuytren's disease.
3. Recite the basic pathophysiology of rheumatoid and nonspecific arthritis of the upper extremity.
4. Describe with the pharmacological therapy of rheumatoid arthritis.
5. Demonstrate the surgical treatment of rheumatoid arthritis, timing of therapeutic treatment and interactions with medical therapy.
6. Describe the common circulatory disorders of the upper extremity including, but not limited to: arterial thromboses, aneurysms, embolic disorders, arteriovenous fistulae, vasospastic disease and scleroderma.
7. Describe the diagnosis and treatment of common pain syndromes including sympathetic dystrophy.
8. Recite the management of upper extremity lymphedema.

VI: Reconstruction

Goal: The resident will understand the principles and techniques of upper extremity reconstruction and apply these to a variety of developmental, traumatic and acquired problems.

Objectives:

1. Recite the diagnostic techniques for evaluation of function including EMG and conduction studies, arteriography, CT scan, and MRI evaluation.
2. Recite the use of tendon transfers.

B. Patient Care

Goal: The resident will provide patient care that is compassionate, appropriate, and effective for the treatment of hand problems.

Objectives:

1. Perform the clinical techniques for physical examination of the hand and upper extremity.
2. Perform the surgical techniques used to treat congenital and developmental hand anomalies.
3. Perform postoperative care of patients with congenital and developmental anomalies of the upper extremity.
4. Apply casts and splints for the preoperative and postoperative care of hand patients.
5. Utilizes the diagnostic techniques for upper extremity tumors.
6. Demonstrate the techniques of management of extremity tumors.
7. Performs the procedures for the acute management and participates in the post-operative rehabilitation of traumatic injuries of the upper extremity including:
   a. fractures and dislocations
   b. nerve injury including brachial plexus
   c. major amputation and avulsions
   d. joint injury
   e. tendon extensor and flexor injury of the hand
   f. muscle and tendon injury of the arm
   g. nail bed injuries
   h. infections
   i. fingertip and other minor injuries
8. Perform the surgical treatment options for contractures.
9. Perform treatment for tenosynovitis and tendon rupture.
10. Describe the indications for and perform the techniques of tendon reconstruction including tendon grafting – sources, methods, indications.
11. Perform the management of nerve injuries including primary, delayed primary and secondary repair.
12. Perform the techniques for reconstruction of the amputated thumb including lengthening, pollicization, free toe to thumb, and free wrap-around techniques.
13. Perform the technical methods of soft tissue coverage including skin grafts, local flaps, distant flaps, and transfers.

C. Practice Based Learning and Improvement

Goal: The resident will investigate and evaluate his or her own patient care practices, appraise and assimilate scientific evidence, and improve patient care practices.

Objectives:

1. Uses information technology to prepare for surgical cases, bringing to the OR the knowledge of current modalities of care and the scientific evidence for that care.
2. Routinely analyzes the effectiveness of own practices in caring for hand patients.
3. Improves own practices in the care of hand patients by integrating appropriately gathered data and feedback.

4. Educates medical students and other healthcare professionals in the practices of hand surgery.
5. Functions independently with graduated advancement and appropriate faculty supervision.

D. Interpersonal and Communication Skills

Goal: The resident will demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and professional associates.

Objectives:

1. Educates patients and families in post operative strategies for hand therapy.
2. Demonstrates compassion for patients and families with traumatic and congenital hand deformities.
3. Provides adequate counseling and informed consent to patients.
4. Listens to patients and their families.
5. Assimilates data and information provided by hand therapists and other members of the health care team.
6. Charts and records accurate information.

E. System Based Practice

Goal: The resident will demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

Objectives:

1. Coordinates all aspects of hand and upper extremity rehabilitation, including splinting, prosthesis use, physical therapy, and sensory re-education.
2. Direct the rehabilitation of upper extremities following trauma by partnering with the following:
   a. Physical Therapy
   b. Occupational Therapy
   c. prosthetic and orthotic specialists
3. Demonstrates knowledge of cost-effective hand care.
4. Advocates for hand patients within the health care system.
5. Understands the basics of the Worker's Compensation.
6. Refers hand patients to the appropriate practitioners and agencies.
7. Facilitates the timely discharge of hand patients.

F. Professionalism

Goal: The resident will demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

Objectives:

1. Develops a sensitivity of the unique stresses placed on families under care for congenital anomalies of the hand.
2. Exhibits an unselfish regard for the welfare of hand patients.
3. Demonstrates firm adherence to a code of moral and ethical values.
4. Is respectful to hand patients and their families especially in times of trauma and stress to the family unit.
5. Respects and appropriately integrates other members of the hand care team.
6. Provides appropriately prompt hand consultations when requested.
7. Demonstrates sensitivity to the individual patient's profession, life goals, and cultural background as they apply to hand surgery.
8. Is reliable, punctual, and accountable for own actions in the OR and hand clinic.

References:

Green's Operative Hand Surgery e-dition: Text with Continually Updated Online Reference, 2-Volume Set by David Green, Robert Hotchkiss, William Pederson, and Scott Wolfe (2005)
Tendon, Nerve and Other Disorders (Surgery of Disorders of the Hand and Upper Extremity) by Raoul Tubiana and Gilbert Alain (2004)
Hand Surgery. 2 Volume Set by Richard A Berger and Arnold-Peter C Weiss (2003)

III. Conference Schedule/Format:

1. Upper Extremity Musculoskeletal Radiology Conference: every other Wednesday a.m.
2. Hand Surgery Didactic Course: Wednesday—weekly
3. Hand Surgery Journal Review: Wednesday p.m., once per month
4. Plastic Surgery Conferences, Tuesday 4:30 – 5:30 pm; and 5:45 pm – 6:45 pm

IV. Method of assessment of resident academic performance

1. Monthly written evaluation of resident by faculty
2. Verbal feedback to resident by faculty
3. Stanford GME House staff survey (annual)
4. Program Evaluation (annual)
5. In-service Examination
6. 360 Evaluation

STANFORD UNIVERSITY MEDICAL CENTER
Plastic Surgery Training Program
Rotation Description Form

I. Rotation Format:

Rotation:	Research	**Rotation Duration:**	4	**Month(s)**							
Institution:	Stanford	**Call responsibility (q):**	q2	**Night(s)**		**In House**		X	**Home**		
Responsible faculty member: (CV attached):		Dr. G. Lee	**Training Level:**			**1**		**2**		**3**	
II. Goals and Objectives:			**Training Level:**		X	**4**		**5**		**6**	

Goal:
To know how to conduct scholarly research.

Objectives:
1. Know how to formulate a study design using the basic principles of the scientific method.
2. Complete a project worthy of submission for publication in a peer-review scientific journal.
3. Utilize computer search capabilities to investigate the current scientific literature, and to help formulate research ideas and projects
4. Utilize electronic and other resources to develop presentations of the research project

It is expected of every to have completed at least one research project. This means a research project requiring planning, preparation, and of significant scope to be published and/or presented at one of the national meetings.

References:
Clinical Research Methods for Surgeons by David F. Penson (2006)
Plastic and Reconstructive Surgery Journal

III. Conference Schedule/Format:

1. Stanford Plastic Surgery Conferences	Tuesday	4:30 pm - 6:45 pm	Every week
2. Quality Assurance Meeting	Tuesday	6:45 pm - 7:45 pm	Every month
3. Journal Club	Tuesday	7:00 pm - 9:00 pm	Alternating every other month
4. Service Review	Tuesday	5:45 pm - 6:45 pm	Quarterly

IV. Method of assessment of resident academic performance

1. Quarterly written evaluation of resident by faculty mentor/advisor
2. Verbal feedback to resident by faculty mentor/advisor

STANFORD HOSPITAL & CLINICS

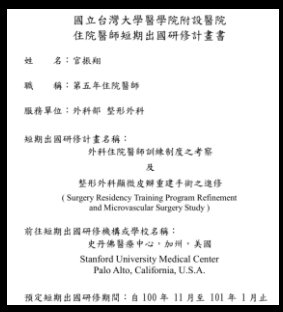
2011-05
Stanford Hospital Plastic Surgery

Microsurgery observership

Hand Surgery observership

First and Most Important of All

- 緣由:
  短期出國研修計畫
- 感謝醫院及主任
- 感謝科內老師及同事的幫忙:
  尤其是傑慧，思恆，廷倫



國立台灣大學醫學院附設醫院
住院醫師短期出國研修計畫書

姓　　名：官振翔

職　　稱：第五年住院醫師

服務單位：外科部 整形外科

短期出國研修計畫名稱：
外科住院醫師訓練制度之考察
及
整形外科顯微皮辦重建手術之進修
(Surgery Residency Training Program Refinement
and Microvascular Surgery Study)

前往短期出國研修機構或學校名稱：
史丹佛醫療中心，加州，美國
Stanford University Medical Center
Palo Alto, California, U.S.A.

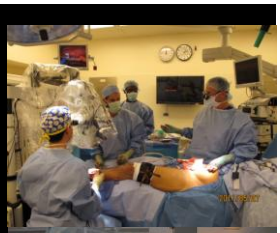
預定短期出國研修期間：自 100 年 11 月至 101 年 1 月止

Why Stanford Hospital?

- Plastic Surgery Team:
  Microsurgery, Hand, Craniofacial, Burn
- Good research team
  Stem cell, Tissue engineering, Wound healing
- Chief:
  Prof. James Chang
  Program director:
  Dr. Gordon Lee

Microsurgery

- 200 free flaps/ year
- 1/3 Breast Reconstruction
  DIEP/TRAM
- 1/3 Head and Neck Reconstruction:
  ALT/ Fibula
- Extremities reconstruction
  Rectus/ALT
- Replantation



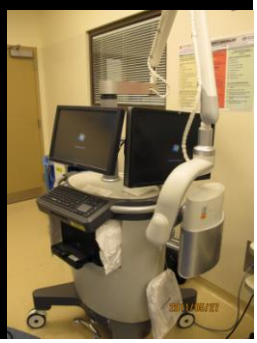
Microsurgery

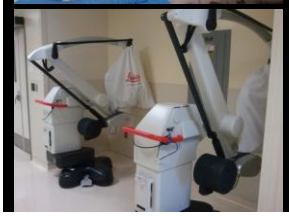
Microsurgery Teams
- Attending
- Micro Fellow*2
- Resident

Flap Elevation
Vascular anastomosis:
Artery: Suture
Vein: Coppler

Microsurgery

- Coppler Microanastomosis
- ICG perfusion scan
- SPY intraop perfusion imaging
- Implantable Doppler monitor



Hand Surgery: 2 weeks

- Plastic Surgery and Orthopedics
- Fellow*2
- Resident (Ortho/PS): 3-months rotations

Hand Surgery: 2 weeks

Clinics, OR:

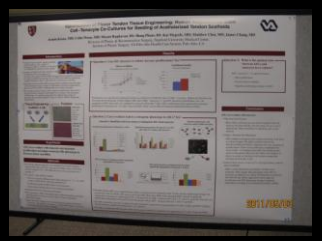
- Carpal tunnel release
- Tenolysis, Arthroplasty
- Distal radius fracture
- Neurolysis, nerve graft
- CMC joint arthroplasty with ligament repair
- Arthroscopy

- Hand Transplant

5/2 Annual Research Symposium

Dr. Rod Rohrich
Dr. Michael Longaker
Clinical/ Scientific session
Presentations/ Posters

- Stem cell
- Wound healing
- Tissue engineering

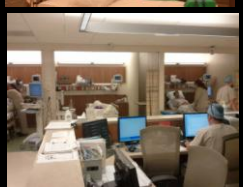


5/24 Ear carving workshop: Dr. Burt Brent



OR and Post-op Unit





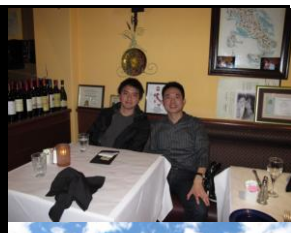
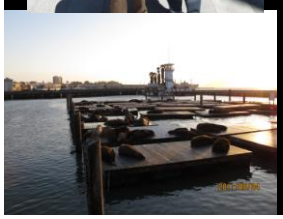
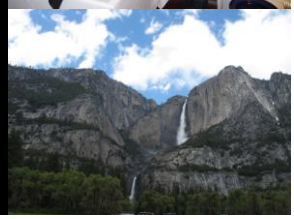

OR and OR lounge









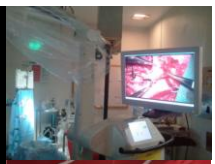
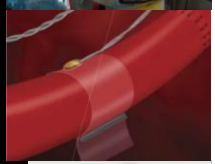
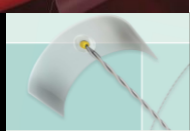




感想

- 出去看看比較: 了解別人，認識自己
- 國外醫療環境 vs 台大醫院
  - 臨床: 工作loading/ Training
  - 基礎研究
- 個人學習
  - Microsurgery technique
  - Reconstruction choice:
    Head and Neck/ Breast/ Extremities
  - Hand Surgery

學習/ 建議

- Microsurgery:
  - Implantable Doppler
  - Microscope output monitor
- Hand Rotation:
  Ortho-Plastic combined
- Research Symposium
- Workshop:
  Maxillofacial/ Ear-carving
- Experienced Surgeon's Talk

Thank You!