DIVISION OF PLASTIC SURGERY
ANNUAL RESIDENT RESEARCH DAY

Friday, May 25th, 2018

Ivey Spencer Leadership Centre
551 Windermere Road, London
Amphitheatre A
The Educational Foundation of the Canadian Society of Plastic Surgeons has provided a Continuing Medical Education Grant in support of our program.
This program was supported in part by Educational grants from the following:

**Platinum Sponsor:**

![Allergan Logo]

**Gold Sponsors:**

![AbbVie Logo]

![KCI Logo](https://example.com/kci.png)

![MENTOR Logo](https://example.com/mentor.png)

![Stryker Logo](https://example.com/stryker.png)
Silver Sponsors:

Aspen Pharmacare Canada, Inc. looks forward to bringing you a full range of anaesthetic products, including EMLA®, XYLOCAINE®, DIPRIVAN®, SENSORCAINE®, and NAROPIN®.

*All trademarks are registered trademarks of the Amneal group of companies.

COMPRESSION WEAR
Silver Sponsors:

Southmedic

TSG Medical

EXCLUSIVE CANADIAN DISTRIBUTORS OF THE SYNOVIS GEM MICRO COUPLER

Bronze Sponsor:

ScarlessCanada.ca

Other Sponsorship:

Remington Medical
SOLVING THE WORLD’S TOUGHEST HEALTH CHALLENGES TAKES ALL OF US.

It takes the will to find a new way forward. And no one gets there alone.

That’s why AbbVie teams with peers, academics, clinical experts and others to take on the most complex health challenges.

Uniting the best of pharma with the boldness of biotech, together we’re going beyond conventional thinking to innovate end-to-end approaches that make a real difference.

Starting with science, we arrive at solutions that help millions of patients around the world live better.

Learn more at abbvie.ca

PEOPLE. PASSION. POSSIBILITIES.
How are you managing incisions...

Visit our booth to learn more about Active Incision Management with PREVENA™ Therapy.
Reshaping breast aesthetics & reconstruction.

Offering a world-class breast portfolio to address your patients’ individual needs.

All trademarks are the property of their respective owners. © 2015 Allergan. All rights reserved.
Introducing
MENTOR® MemoryGel™ Xtra
Breast Implants

The Soft, Natural Feel Patients Desire,* Now with Increased\textsuperscript{1-3}

\textbf{Projection}
More projecting than 90\% of corresponding Natrelle\textsuperscript{®} Inspira profiles by base width

\textbf{Fullness}
Precision-filled with our proprietary cohesive gel

\textbf{Firmness}
Comparable firmness against Natrelle\textsuperscript{®} Inspira Breast Implants

\begin{center}
Preferred by 9 out of 10 Consumers*\end{center}

8. Mentor Worldwide LLC. Mentor Worldwide Sales Data
\*In-person consumer survey with 452 respondents
2. Product Dimensions for MemoryGel\textsuperscript{™} and MemoryGel\textsuperscript{™} Xtra Breast Implants and Mentor R&D Compression
3. When compared to MemoryGel\textsuperscript{™} Breast Implants
Shaping the future of breast reconstruction

Stryker is proud to introduce the SPY Portable Handheld Imager | SPY-PHI

Utilizing SPY Fluorescence Imaging technology that provides surgeons with a convenient, compact solution for real-time perfusion assessment in breast reconstruction and other open surgeries.*

- Brilliant image quality
- Flexible working distance and wide imaging field with ambient light immunity
- Multiple visualization modes

See more. Do more.
Objectives:

1. To learn about the key research areas within the division of plastic surgery with a goal to stimulate further collaboration.
2. To learn more about the principles of qualitative and quantitative research.
3. To learn about the use of new technology in plastic surgery.
4. To learn about new developments in hand and upper limb surgery research.
5. To learn about new developments in cosmetic plastic surgery.
Dr. Jamey Bain is a hand and peripheral nerve surgeon at McMaster Children’s Hospital and also the Hamilton General Hospital for a mixed adult/pediatric surgery practice. He is a Professor of Surgery at McMaster University and Head of the Division of Plastic Surgery. His special interest is the management of peripheral nerve problems particularly obstetrical brachial plexus injuries. He also manages adult and congenital hand pathology and contributes to microsurgical reconstructive problems at Ontario’s second busiest trauma center. He completed his medical school at University of Western Ontario and then trained in Plastic Surgery in Toronto. He was in the Surgical Scientist program and completed his MSc under Dr. Mackinnon’s supervision evaluating peripheral nerve allografting, during his residency. He completed his training with another Fellowship year in Toronto before moving to Hamilton. What started as a maternity locum turned into a 25 year stay at McMaster, first as Chief of Service at Chedoke McMaster Hospitals, then the Hamilton Health Sciences. He served 10 years as the Associate Chair Research for the Department of Surgery before becoming the Head of the Division. His family activities have included skiing, hiking, go kart racing, and any new challenges the 3 children encourage. Two English mastiffs round out the family responsibilities.
AGENDA

7:30 – 8:00 a.m.  Registration & Breakfast with the Sponsors
(Cherry Room & Nutrition Hub)

8:00 – 8:05  Welcome and Introductions
(Amphitheatre A)

8:05 – 8:35  Dr. James Bain, Visiting Professor
“Brachial Plexus Birth Injuries: Current State of the Art and Science”

8:35 – 8:40  DISCUSSION

8:40 – 8:48  Dr. Spencer Chambers (PGY1)
“The Impact of Scaphoid Malunion on Radioscaphoid Joint Contact: A computational study”

8:48 – 8:56  Dr. Jesse Hackett (PGY1)
“Investigating the Role of Hypertonicity in Facial Nerve Synkinesis”

8:56 – 9:04  Dr. Kathleen Nelligan (PGY2)
“Health utility values in breast reconstruction: A systematic review”

9:04 – 9:10  DISCUSSION

9:10 – 9:18  Dr. Kitty Wu (PGY2)
“Characterizing breast capsular contracture: a translational study of primary fibroblast behaviour”
# AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:18 – 9:26</td>
<td>Dr. Logan McGinn (PGY3)</td>
<td>“Does the injection of calcium hydroxylapatite improve the appearance of longitudinal neck lines?”</td>
</tr>
<tr>
<td>9:34 – 9:45</td>
<td></td>
<td><strong>DISCUSSION</strong></td>
</tr>
<tr>
<td>9:45 – 10:15</td>
<td></td>
<td><strong>Morning Break with the Sponsors</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Cherry Room &amp; Nutrition Hub)</td>
</tr>
<tr>
<td>10:15 – 10:45</td>
<td>Dr. Jennifer Robinson, Visiting Alumna</td>
<td>“Transgender Top Surgery: Expanding the Scope of Care”</td>
</tr>
<tr>
<td>10:45 – 10:53</td>
<td>Dr. Troy Ng (PGY4)</td>
<td>“Mastectomy flap necrosis after nipple-sparing mastectomy and immediate implant-based reconstruction: An evaluation of tumescence and sharp dissection technique on surgical outcomes”</td>
</tr>
<tr>
<td>10:53 – 11:01</td>
<td>Dr. Christine Nicholas (PGY4)</td>
<td>“Outcomes of Surgery for Recurrent or Persistent Carpal Tunnel Syndrome”</td>
</tr>
<tr>
<td>11:01 – 11:10</td>
<td></td>
<td><strong>DISCUSSION</strong></td>
</tr>
</tbody>
</table>
AGENDA

11:10 – 11:18  Dr. Ashley Kim (PGY5)
“The Impact of Botulinum Toxin on the Aging Brow: A Randomized, Split-Face Study”

11:18 – 11:26  Dr. Emily Liu (PGY5)
“Do anterior interosseous nerve transfers cause pronation weakness?”

11:26 – 11:34  Dr. Caitlin Symonette (PGY5)
“Regional wait times and care pathways for patients with non-melanoma skin cancer managed by plastic surgeons”

11:34 – 11:45  DISCUSSION

11:45 – 12:30 p.m.  Dr. James Bain, Visiting Professor
“Management of Iatrogenic Nerve Injuries: Yours and Others”

12:30 – 12:45  DISCUSSION & WRAP UP/EVALUATIONS

12:45 – 1:30 p.m.  Lunch with the Sponsors
(Cherry Room & Nutrition Hub)
PLASTIC SURGERY RESIDENTS

Dr. Spencer Chambers (PGY1)
Dr. Jesse Hackett (PGY1)
Dr. Kathleen Nelligan (PGY2)
Dr. Kitty Wu (PGY2)
Dr. Logan McGinn (PGY3)
Dr. Jessica Truong (PGY3)
Dr. Troy Ng (PGY4)
Dr. Christine Nicholas (PGY4)
Dr. Ashley Kim (PGY5)
Dr. Emily Liu (PGY5)
Dr. Caitlin Symonette (PGY5)
Background: The scaphoid is critical to coordinate the movement of the carpus in synchrony to facilitate complex wrist motion yet maintain wrist stability despite limited tendon and ligamentous support. Alterations to the native scaphoid bony geometry can lead to changes at the wrist joint causing painful, pathologic movement. A clinical pathology that leads to an altered topology is scaphoid malunion which typically manifests with shortening of the bone and flexion of the distal fragment in a “humpback deformity”. The altered shape can impact wrist mechanics leading to abnormal motion, joint wear, and degeneration. Symptomatic patients have been successfully treated with scaphoid reconstruction by means of osteotomy and bone graft insertion to restore normal anatomy. However, no conclusive studies have been reported describing the relationship between the degree of scaphoid deformity and the effect on carpal kinematics and joint contact.

Purpose: The purpose of this study is to investigate the effect of scaphoid malunion on joint contact at the radioscaphoid joint using computational simulation.

Methods: In this computational study, 6 cadaveric wrist models were used. These cadaveric arms underwent active wrist flexion-extension motion trials using an active motion simulator developed by the Roth|McFarlane Hand and Upper Limb Centre (RM-HULC) bioengineering laboratory. Once tested, the arms were digitized and imaged using computational tomography. 3D bone and cartilage models were generated, and a landmark registration technique using fiducial markers was then employed. The scaphoids of these upper limbs were computationally modified to simulate malunion by removing 2mm from the central aspect and rotating the distal pole volarly at 10 degree intervals from 15 to 55 degrees. The area of contact at the radioscaphoid joint as well as the centroid of this contact was then measured using custom software.

Results: There was a statistically significant association between malunion severity and amount of contact at the radiocarpal joint \((p = 0.026)\). The centroid of this contact trended in an ulnar direction for all tested wrist positions \((p = 0.017)\). In the extended wrist position, the centroid also moved volarly \((p=0.009)\).

Conclusion: In this computational study, there was an association between malunion and increased joint contact in all wrist positions simulated (40 degrees flexion, 40 degrees extension, neutral), as well as a trend of that the centroid moved in the ulnar direction. The clinical significance of this contact is yet to be elucidated, but may serve as a basis for understanding the pathophysiology of scaphoid malunion.
Facial nerve synkinesis is often a significantly debilitating sequelae that impacts a patient functionally, socially, and psychologically. While a number of hypotheses exist to explain the underlying pathophysiology of synkinesis, the exact mechanism is still not established. The aim of this study is to assess hyperactivity of the facial nucleus in addition to patterns of voluntary facial muscle activation via electromyography (EMG) in Bell’s Palsy patients displaying synkinesis. We anticipate an increase in excitability and aberrant voluntary activation suggestive of a loss of negative feedback regulation akin to that seen in peripheral nerves.
Health utility values in breast reconstruction: A systematic review

Nelligan K, Sarma S, Ross D, and Doherty C

Purpose: Breast reconstruction involves a spectrum of techniques each of which have varying costs and outcomes. Cost-effectiveness analyses in health care identify which interventions result in the greatest health-related quality of life improvement at the lowest cost; these results are particularly important in the context of limited resources. Health utility values are used to assess the outcomes of therapeutic interventions. For breast reconstruction, such values are variable and not standardized across the literature. The purpose of this study is to identify utility values relevant to breast reconstruction and conduct a pooled analysis in order to assess health-related quality of life outcomes following breast reconstruction procedures and aid future cost-effectiveness analyses.

Method: A systematic review was conducted of Medline and EMBASE for studies reporting on utility values in breast reconstruction. Results were screened by two independent reviewers and disagreements were resolved by consensus. Possible cost-utility analyses or reports of utility metrics as identified by title and abstract were reviewed in full text format. Studies that generated utility values were included in the analysis and pooled averages were generated.

Results: Of 2285 articles screened, 36 were reviewed in full text stage and 20 articles reporting utilities for 30 health states were included. Instruments used to generate utilities included time-trade-off, visual analog scale (VAS), BREAST-Q and HALex in 5, 10, 2 and 2 studies, respectively. Utility values for successful surgery with implant-based and autologous reconstruction were 0.70 (95%CI 0.63-0.75) and 0.86 (95%CI 0.83-0.88), respectively. Utility values for reconstruction with complications ranged from 0.57 (95%CI 0.48-0.66) for total flap loss to 0.71 (95%CI 0.60-0.82) for mastectomy flap necrosis.

Conclusions: Utility values in breast reconstruction are most commonly generated using VAS. Specific utility values are variable and affected by post-operative outcome. This analysis can serve as a reference for utilities and health states for future breast CEA.
Characterizing breast capsular contracture: a translational study of primary fibroblast behaviour

Wu K, Kim S, Yazdani A, DeLyzer T, and Turley E

**Purpose:** Breast capsular contracture is a difficult complication occurring in up to 17% of implant-based breast surgeries. The pathological switch that propels a ‘healthy capsule’ towards contracture is multifactorial and remains incompletely characterized. The objective of this study is to define the fibrotic signature and characterize primary fibroblast behaviour in different grades of breast capsular contracture.

**Methods:** Sixteen breast capsular tissue samples from 11 patients (9 primary augmentation, 7 breast reconstructions with 4 patients receiving radiation) undergoing capsulectomy or capsulotomy were collected and grouped according to the Baker classification (Grade 1 to 4). Capsular tissue was processed for histological analysis (H&E, Masson’s Trichrome) to visualize tissue architecture. Capsular tissue was sectioned into 0.5cm$^2$ pieces and incubated in DMEM media with FBS to allow outgrowth of primary fibroblasts. Fibroblasts were stained for alpha-smooth muscle actin ($\alpha$SMA) and fibroblast activating protein (FAP) immunofluorescence and INK4a to identify fibroblast subtypes.

**Results:** Capsular tissue demonstrates densely organized parallel collagen architecture by Masson’s Trichrome staining and Grade 4 capsules had decreased capsule thickness ($p < 0.001$). Primary fibroblast outgrowth occurred by day 5-14. Fibroblasts from all capsule grades were successfully cultured and passaged, except from patients with previous radiation treatment. Immunofluorescence identified $\alpha$SMA+ myofibroblasts within all capsule grades and an increased proportion of SMA+:FAP+ hybrid activated myofibroblasts in higher capsule grades ($p <0.01$). Two distinct populations of bi-polar and stellate fibroblasts were identified with a higher proportion of bi-polar fibroblasts in higher capsule grades ($p = 0.07$). Grade 3 capsules show significantly higher staining for senescence marker, INK4a.

**Conclusions:** Higher capsule grade was associated with a higher proportion of hybrid activated myofibroblasts positive for both $\alpha$SMA and FAP. Higher capsule grades also contain a higher population of INK4a+ senescent fibroblasts. These are non-replicative cells distinct from myofibroblasts, that contribute to fibrosis by secreting pro-inflammatory/fibrotic cytokines. This is the first demonstration of senescent fibroblast populations contributing to breast capsular contracture formation.
Does the injection of calcium hydroxylapatite improve the appearance of longitudinal neck lines?

McGinn L, and Richards R

Background: The aging neck results in unwanted effects including the development of neck rhytids, platysmal banding and neck fullness. Effective, long-lasting non-invasive treatment of rhytids in particular are relatively limited. Calcium hydroxyapatite (CaHA) is an injectable product which stimulates collagen production and can improve skin elasticity; it has historically been used as a safe and effective agent for hand and facial soft tissue augmentation in temporal, zygomatic and mandibular regions. In this study, we explored the effect of calcium hydroxylapatite injections on the cosmetic appearance of longitudinal neck lines.

Methods: A prospective, longitudinal study in a single surgeon’s practice was conducted. Patients who self-presented to the surgeon’s clinical office for cosmetic concerns regarding fine interplatysmal longitudinal neck lines were considered for the study. Patients were seen at four time-point intervals: day of injection, one-, three- and five-month post-injection for completion of FACE-Q patient reported outcomes questionnaires and standardized photographs. Photographs were assessed via validated photography assessment scales including: Wrinkle Severity Rating Scale, Modified Fitzpatrick Score and Global Aesthetic Improvement Scale (GAIS). Primary outcomes included Appraisal of Neck (FACE-Q) score, Modified Fitzpatrick score and GAIS. Secondary outcomes were complication rate and Patient Perceived Age (FACE-Q) score.

Results: Eight patients meeting inclusion and exclusion criteria were included in the study. All patients were females with a mean age of 57 years and average follow-up of 6.8 months. Appraisal of Neck scores improved on average by _69.2%_ at five months post-injection (p 0.034), however, Patient Perceived Age was relatively unchanged between pre- and five-months post injection (-5.4 vs. -5.5 years; p 0.49). Upon review of final follow-up photos, Wrinkle Severity Rating Scale scores were improved (1.9 versus 1.1; p.0.01), as well as Modified Fitzpatrick Score (1.7 versus 0.4; p<0.001). On average, patients had marked to excellent improvements in the appearance of their fine longitudinal rhytids with a GAIS score of 1.5. The most common complication was subdermal lumps in 62.5% of patients, which all resolved by the three-month follow-up.

Conclusions: Patients with fine longitudinal interplatysmal neck rhytids treated with CaHA injections perceive the appearance of their neck to be significantly improved. Marked improvements are also noted objectively on photography assessment. Despite high risk of palpable subdermal lumps, all were resolved by three months with massage. CaHA may have a role in the treatment of fine neck rhytids; more studies examining this treatment option are required. Currently, additional patients are being enrolled in the study.
The Effect of Socioeconomic Factors on Outcomes of Distal Radius Fractures: A Systematic Review

Truong J, Doherty C, and Suh N

**Background:** Socioeconomic factors are known to affect outcomes for both medical and surgical conditions. The purpose of this systematic review was to assess the current evidence regarding the effect of socioeconomic factors such as income, geographic location, educational level, and occupation on clinical outcomes after distal radius fractures.

**Methods:** A systematic search strategy was performed to identify studies commenting on the effect of socioeconomic factors on clinical outcomes following open or closed distal radius fracture repair. Abstract and full-text screening was performed by two independent reviewers and articles were evaluated by Structured Effectiveness Quality Evaluation Scale (SEQES). Treatment outcomes of interest included but were not limited to pain, function, range of motion, and grip strength.

**Results:** There were 1745 studies that met our inclusion and exclusion criteria for abstract screening. Of these, 48 studies met our inclusion criteria for full-text screening, and 20 studies met our criteria for quality analysis with the SEQES score. There were 3 studies of high quality, 16 of moderate quality, and 1 of low quality. Meta-analyses were not possible due to the variability in outcomes of interest across papers.

**Conclusions:** Patient factors indicative of socioeconomic status are relevant predictors of functional outcome after distal radius fractures. There is currently limited evidence in this area of research, and further examination should be considered to improve outcomes from a patient and system standpoint.
Mastectomy flap necrosis after nipple-sparing mastectomy and immediate implant-based reconstruction: An evaluation of tumescence and sharp dissection technique on surgical outcomes

Ng T, Doherty C, and Brackstone M

Introduction: Mastectomy flap necrosis is a known complication of nipple-sparing mastectomy and immediate breast reconstruction. This study compares outcomes between two mastectomy techniques: tumescent infiltration and sharp dissection versus conventional electrocautery.

Methods: Consecutive patients who underwent mastectomy with immediate reconstruction with either expander or implant over a 36-month period were reviewed. A one-month washout period was observed before and after the sharp dissection technique was introduced. All mastectomies were performed by one of seven experienced general surgeons. Demographic, oncologic, and perioperative details were recorded. The primary outcome of interest was full-thickness mastectomy flap necrosis. Secondary outcomes included need for further surgery and explantation of prosthesis. Statistical analysis was performed with STATA. Student t-test, Chi-squared, or Fisher’s exact tests were used for continuous and categorical variables, respectively.

Results: 141 breasts (75 patients) met inclusion criteria for review. Both groups were similar with regard to age, BMI, radiation status, and mastectomy weight. Implant size was larger in the sharp group (449.4 vs. 335.9 g). 7 patients had mastectomy flap necrosis (2 sharp, 5 cautery; p = 0.24; overall incidence = 5%). All of these patients underwent attempted salvage, with 4 patients requiring implant explantation. Procedure time was not statistically different between groups (187 vs. 185 mins; p = 0.3).

Conclusions: Tumescent and scissor dissection is a safe method for performing mastectomy prior to immediate breast reconstruction with a trend to less risk of mastectomy flap skin necrosis as compared to mastectomy done with electrocautery.
Outcomes of Surgery for Recurrent or Persistent Carpal Tunnel Syndrome

Nicholas C, Ross D, and Doherty C

Introduction: Carpal tunnel syndrome is the most common neuropathy with an incidence of 1-3/1000 every year. Although extensively studied and treated, rates of recurrence can be anywhere between 3 and 19% post release. The purpose of this study was to identify those patients undergoing revision carpal tunnel releases in two surgeons practices over the last 5 years and examine outcomes. Additionally, we attempted to determine whether there might be differences in demographic variables in those patients undergoing revision versus primary carpal tunnel release.

Methods: Operative records of two surgeons’ practices at the Hand and Upper Limb Centre were reviewed and all revision/extended carpal tunnel procedures were identified from 2012 to present. Demographic data including results of nerve conduction studies was collected. A random cohort of primary carpal tunnel patients was selected by identifying those patients undergoing the procedure directly following (or before when required) a revision carpal tunnel procedure and similar demographic data was collected. Data was then compared using t-tests and Chi square tests where appropriate.

Results: 31 revisions (28 patients) were identified. There was a similar distribution of male and female patients with most revisions occurring in the first 5 years after initial release. Only 40% of patients had improvement of their symptoms following their initial release. Nerve conduction studies were not significantly different in patients pre and post first release or between those undergoing primary release and those undergoing revision.

Discussion: Revision carpal tunnel release is not an uncommon procedure. At the Hand and Upper Limb Centre, a revision procedure subjectively improves patients’ symptoms the majority of the time. Ongoing symptoms may thus often be caused by inadequate release. There does not seem to be any predictive factors for those patients requiring revision carpal tunnel procedure other than the presence of spinal neuropathy and previous history of bilateral release.
The Impact of Botulinum Toxin on the Aging Brow: A Randomized, Split-Face Study

Kim A, Wu K, and Richards R

Introduction: Brow descent with age has been felt to be due to both the static force of gravity and the dynamic force of depressor muscles. It is most significant in the lateral brow due to lack of support from the orbital retaining ligaments, gravitational decent of the temporal structures and the downward force of orbicularis oculi. Botulinum toxin has been used to achieve brow elevation. The objective of this study is to analyze the effect of different patterns of botulinum injection on brow elevation.

Methods: This was a pilot study for a single centre, evaluator-masked study in which 6 healthy volunteers under the age of 50, and 5 over the age of 50 were randomized to receive one injection of 6.25 units of botulinum toxin into the orbital orbicularis oculi fibres, with the contralateral side treated with the same total dose injected into the preseptal orbicularis oculi fibres. A blinded evaluator assessed brow position during rest at baseline, 14 and 21 days post treatment. Standardized caliper measurements, digital photography and subject self-assessment were performed at each visit.

Results: Preliminary results demonstrate an improvement in brow elevation that is greater in the age over 50 group. Lateral brow elevation is greater than central brow elevation. Due to low study numbers, statistical significance is not reached. No complications were identified.

Conclusion: This is a pilot study designed to assess the optimal injection technique to address the changes of the aging brow particularly with respect to the lateral brow.
Do anterior interosseous nerve transfers cause pronation weakness?

Liu E, Doherty C, and Ross D

Introduction: The pronator quadratus muscle is denervated in anterior interosseous to ulnar nerve transfer, and the resultant impact on pronation strength has not been investigated in the literature. This study aims to establish normative values of pronation and supination strength, and to understand the impact of hand-dominance and elbow position on peak torque. This will be compared to patients who have undergone anterior interosseous nerve transfer.

Methods: Forty-one individuals participated in the study. Twenty right-handed volunteers served as normative controls, and twenty-one AIN transfer patients were recruited for the study. All individuals underwent standardized physical assessments using the Biodex Dynamometer. Peak prosupination torque values were measured, and ratios were calculated between non-dominant and dominant sides. Pearson correlation coefficients were calculated to assess the relationship peak torque and non-dominant/dominant sides. Normative values were then compared to patients who have undergone AIN to ulnar nerve transfer. Patients were divided into two groups depending on surgical side, and non-dominant to dominant ratios were compared to normative values by ANOVA analysis.

Results: In healthy male volunteers, peak pronation torque values decreased when moving from a flexed (11.3 N·m) to extended position (9.4 N·m, p<0.001). Supination strength in males also decreased from a flexed (9.3 N·m) to extended position (7.0 N·m, p<0.001). In females, no differences were noticed in prosupination strength with changing elbow position. The effect of hand-dominance on prosupination strength was evaluated, with no difference between the non-dominant and dominant sides for pronation (ND:D= 0.98, p=0.14), but decreased strength for supination on the non-dominant side (ND:D = 0.84, p<0.01). In post-operative AIN transfer patients, ND:D ratios decreased for both supination and pronation if surgery was completed on the dominant side, and increased if AIN transfer was conducted on the dominant side (p<0.05).

Conclusion: Establishing normative values of prosupination strength allows for comparison to postoperative AIN transfer patients. The impact of pronator quadratus denervation following AIN transfer has not been investigated, and this study suggests that AIN transfer results in decreased pronation and supination strength.
Regional wait times and care pathways for patients with non-melanoma skin cancer managed by plastic surgeons

Symonette, CJ, Fan S, Hackett, J, and Grant A

Introduction: Non-melanoma skin cancer (NMSC) is one of the most common types of cancer. Although morbidity and mortality are rare, the burden to the patient and the health care system can be significant. Cancer Care Ontario (CCO) has now recognized NMSC as a priority and are beginning initiatives to create clinical pathways for care delivery, improve wait times, and improve the patient experience. The purpose of the current study is to evaluate the current wait times and care pathways for patients referred with a NMSC serviced regionally by plastic surgeons.

Methods: A retrospective cohort of 197 patients referred with a lesion suspicious for a NMSC that ultimately was managed with surgical excision were included. The care pathway from referral, biopsy, lesion excision, and review of pathology were mapped and compared between Plastic surgeons working in an academic and community setting.

Results: The majority of referrals were for elderly individuals with a NMSC affecting the head and neck (70%). Final pathology revealed a basal cell cancer and squamous cell cancer distribution of 57% and 30% respectively. Patients referred for a NMSC received care in a shorter time frame (12 versus 17 weeks, p<0.05) by community Plastic surgeons despite only a minority (26%) of the initial referrals in the community including a pathological diagnosis.

Conclusion: This study provides initial data on the waitlist and care pathways for NMSC care delivery among regional plastic surgeons. In alignment with CCO initiatives, future research is needed to define the impact and areas for improvement of NMSC care for patients and the health care system.
Thank You for Participating in Our Annual Resident Research Day!

Plastic Surgery Resident Research
c/o Mindy Minka, Room D1-204
St. Joseph’s Health Care
268 Grosvenor Street
London, ON N6A 4L6
(519) 646-6100 ext. 65683 Fax: (519) 646-6049
mindy.minka@sjhc.london.on