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6th European Plastic Surgery Research Council

August 21–24, 2014
Hamburg/Germany






PROGRAM

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Organization and Imprint

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Dept. of Plastic, Reconstructive and Aesthetic Surgery, Hand Surgery
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ANNOUNCEMENT
7th European Plastic Surgery Research Council
MS Cap San Diego
August 27–30, 2015 • Hamburg/Germany

Conference Organization
Conventus Congressmanagement & Marketing GmbH
Sandra Gottschalg
Carl-Pulfrich-Straße 1 • 07745 Jena/Germany
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sandra.gottschalg@conventus.de • www.conventus.de

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Venue
MS Cap San Diego
Luke 3
Überseebrücke • 20459 Hamburg/Germany

Date
August 21–24, 2014

Homepage
For latest information please visit www.epsrc.eu.

Arrival
Public transport
From central station to the MS Cap San Diego

Line	Direction	Destination	Travel time
U3	Schlump–Barmbek	Baumwall	10 min
S1	Wedel	Landungsbrücken	6 min
S3	Pinneberg	Landungsbrücken	7 min

From Hamburg airport to MS Cap San Diego
Take line S1 to station "Ohlsdorf" and change to line U1 (direction "Farmsen"). Exit at station "Kellinghusenstrasse" and change to line U3 (direction Central Station "Süd-Warmbek"/"Wandsbek-Gartenstadt"). Exit at station "Baumwall".

By car
Navigation details: Vorsetzen • 20459 Hamburg

Parking
Parking is available at your own expense in the parking garages near the conference venue (Parkhaus Hafentor, Parkhaus Michel).

Please see page 9 for the exact location of the meeting venue (MS Cap San Diego is highlighted in red)!

Education Credits and Certification
The 6th Meeting of the European Plastic Surgery Research Council has been acknowledged for CME points at the Medical Chamber of Hamburg. Accreditation is valid for German participants only:

Friday, August 22, 2014	11 CME points	Categorie A
Saturday, August 23, 2014	8 CME points	Categorie A

Please don't forget to bring along the labels of the Medical Chamber for every-day registration into the lists of participation.

General Information

Certification of Attendance
Certificates of attendance for registered participants will be available at the check-in.

Name Tags
Participants and registered accompanying guests will receive a name tag with their registration. Admission to the meeting and exhibition area is only allowed with a valid tag. Tags must be worn visibly during the congress and at the social activities. Exhibitors' tag will be provided for the staff of the exhibition booths.

Evaluation
We appreciate your active participation by giving your feedback in our evaluation. Please hand in your completed evaluation at the check-in on your last congress day.

Check-In
You will find the check-in on the upper deck, entrance Luke 3.

Cloakroom
You will find the cloakroom on the upper deck, entrance Luke 3.

Media Check-In
You will find the media check-in on the lower deck in the lecture hall.

Opening Hours	Thursday	Friday	Saturday
Check-In	18^{00}–19^{00}	07^{30}–19^{30}	07^{30}–18^{30}
Media Check-In	18^{00}–19^{00}	07^{30}–19^{30}	07^{30}–17^{00}
Cloakroom		07^{30}–19^{30}	07^{30}–20^{00}
Industrial Exhibition		08^{00}–18^{30}	08^{00}–16^{30}

Internet
An internet pool on the upper deck with free access is provided for all participants.

Language
Official meeting language is English.

General Assembly
The General Assembly of the European Plastic Surgery Research Council will take place on Saturday, August 23, 2014 at 17^{30} hrs. Only members of the EPSRC are requested to attend this meeting, which will be held in the cathedral next to the lecture hall.

Abstract Publication
Abstracts of the long oral presentations (LOP01–44) have been published in the August issue of "Plastic and Reconstructive Surgery" (PRS Vol. #134, Issue #2, August 2014).

Industrial Exhibition

As part of the conference, an industrial exhibition will take place on the premises. Please find an overview and a map of all exhibitors on page 28 in the program. The exhibiting companies are looking forward to welcoming you!

Membership

Membership Application Process:

Applications for Resident, Active and Associate Membership will be considered when each of the items listed below is received by the Executive Office. Only Resident, Active and Associate Members have voting privileges.

Membership Requirements:

1. The completed application form (see www.epsrc.eu)
2. A copy of your curriculum vitae.

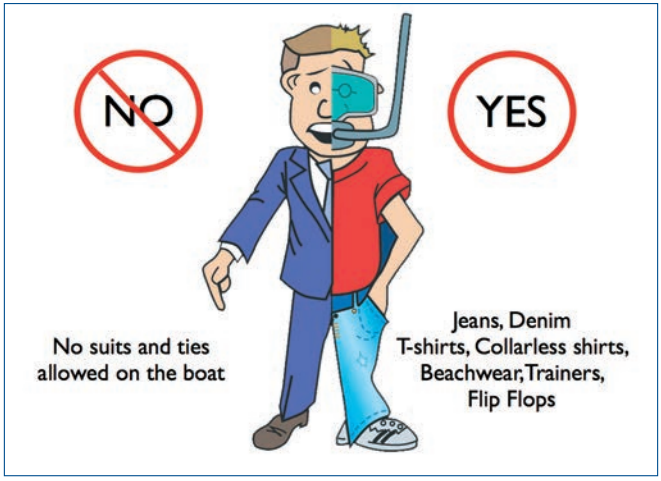
Attendance at a European Plastic Surgery Research Council Annual Meeting is also required. (This may include the meeting in the year in which your application is submitted for vote.)

Payment:

Active/Associate/Senior: 50 Euro
Resident: 25 Euro

Please use the QR-Code to visit the website www.epsrc.eu.

Dress Code for Attendees and Industry Partners



Smoking

Smoking is not allowed inside the congress venue or at other venues for the social functions. Smokers are required to smoke outdoors and in the designated smoking areas.

General Hints for Authors and Presenters

Technical Information

Please prepare your presentation in 4:3 aspect ratio.
A presentation notebook with a PDF reader and MS Office PowerPoint 2010 will be provided. The use of personal notebooks is possible upon agreement. However, it may interrupt the flow of the program in the lecture hall. Please provide an adapter for VGA if necessary.

A notebook, presenter and laser pointer are available at the speaker's podium in the lecture hall. A technical supervisor can help you.

Guidelines for short oral presentations (e-Poster Sessions): Your presentation should not exceed more than 3 slides. Should you exceed your time limit, your presentation will automatically be stopped.

Please note: Certain encodings for video and audio files could lead to problems. Please visit our media check-in.

Should you wish to use non-digital equipment, please contact us. We can be reached at www.epsrc.eu.

Submitting your Presentation

Please submit your presentation at the media check-in in the lecture hall on the day before your presentation, but not later than 2 hours before the presentation should begin. You may view and/or edit your presentation.

For submission, please use a USB flash drive, CD or DVD disc and should not be protected with software.

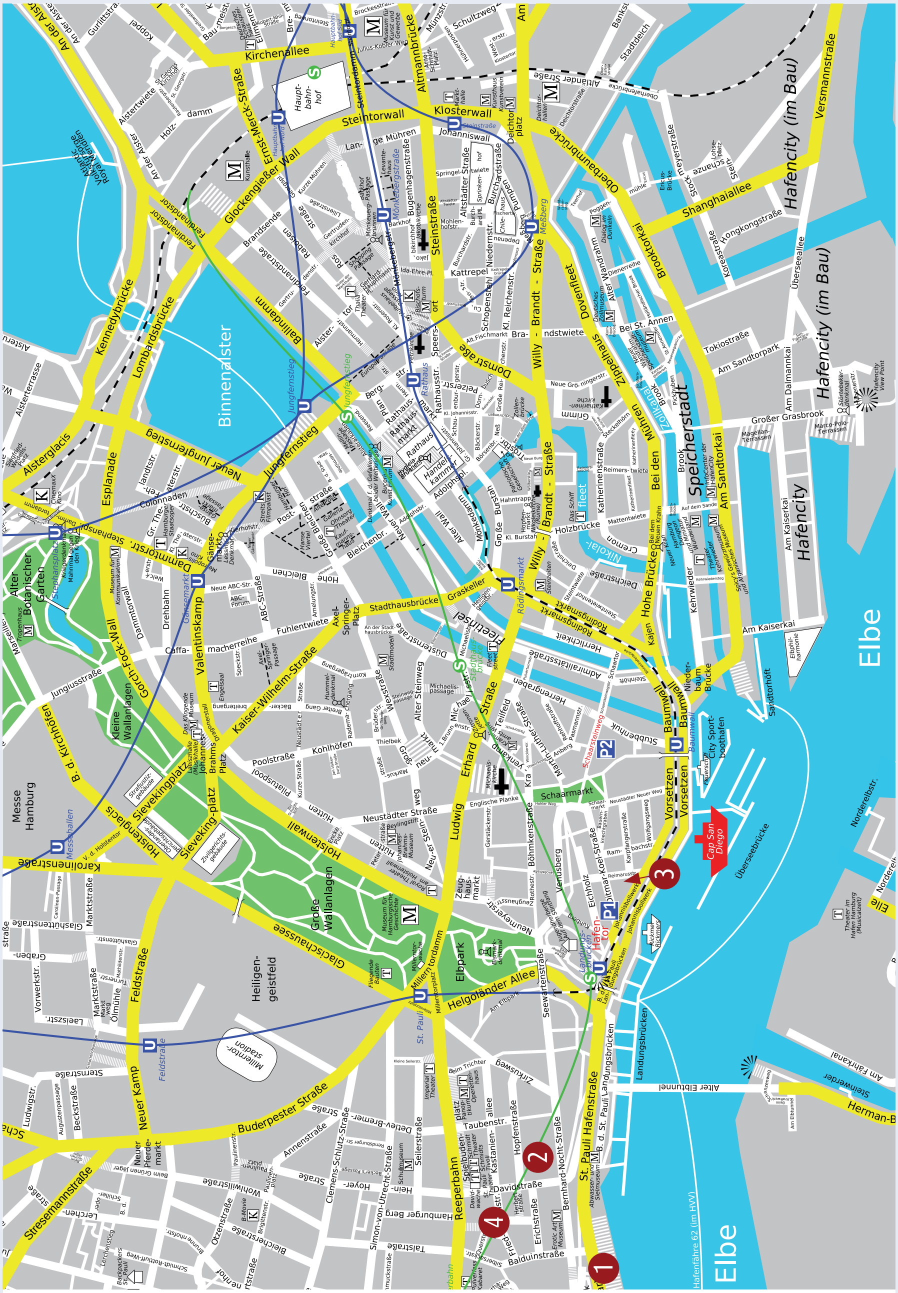
Speaking Time

Please prepare your presentation for the allotted amount of time. Should you exceed your time limit, your presentation will automatically be stopped. Speaking time is assigned as follows (speaking + discussion time):

Keynote Lecture	25 minutes (incl. discussion)
Long oral presentation (LOP)	10 minutes (incl. discussion)
Short oral presentation (SOP)	3 minutes

Prizes and Bursaries

Best oral presentation	500 EUR
Poster prize	250 EUR



1 St. Pauli Fischmarkt
2 Hotel Empire Riverside
3 Hotel Stella Maris
4 Hans-Albers-Eck

Welcome Note of the President of the EPSRC

Welcome aboard friends and colleagues,

It is with great pleasure that I welcome you onboard the MS Cap San Diego for the 6th Annual Meeting of the European Plastic Surgery Research Council (EPSRC). You will find the freighter and the informal attire both exciting and at the same time relaxing, providing a unique atmosphere. Since the first EPSRC meeting in 2009, five tremendously successful Annual Meetings have occurred with great support from plastic surgeons and scientists from not only Europe but Asia, Africa, North America, South America and Oceania. The increasing numbers of enthusiastic EPSRC members have kept our momentum and energy in research to ensure that our ideas arrive at their natural conclusion and fulfil their potential.

This EPSRC meeting is meant to provide a valuable means of disseminating information and ideas through an informal and friendly atmosphere. This allows high quality discussion and interaction on evidence-based studies and translational research in all technical disciplines of plastic and reconstructive surgery, as well as related fields.

Characteristic of the EPSRC meeting is the opportunity to network with surgeons and scientists from around the world, to make new friends in addition to discussing unpublished research from and with leaders in the field. Attending the conference is distinguished faculty from the American Plastic Surgery Research Council (PSRC), the American Society of Plastic Surgeons (ASPS), American Association of Plastic Surgeons (AAPS) and the European Association of Plastic Surgeons (EURAPS).

Over 70 different departments from more than 66 cities from 39 countries and 14 international renown Keynote speakers are contributing and exchanging the results of their work and their ideas. This year more than 170 abstracts have been received and only 25 % were accepted for oral presentations.

Important to the continuous development of EPSRC are those who have assisted me every step of the way: our general secretary Lucian Jiga and our treasurers Ion Zegrea and Rolf Bader together with the Conventus team and this year's Chair and Captain of the boat Lorenz Larcher from Salzburg, who has prepared an outstanding scientific program.

As president of the EPSRC, I do not want to miss out on thanking Lorenz Larcher for his commitment and strong efforts to organize the scientific program with the highest quality and for supporting the aims of EPSRC. I would also like to personally thank and commend the scientific program committee for their assiduous and conscientious efforts in evaluating and scoring the large number of abstracts that were submitted for consideration. I would also like to take this opportunity to thank the American Society of Plastic Surgery and Rod Rohrich, Editor in Chief for the Journal of Plastic and Reconstructive Surgery (PRS) for becoming the official organ for our society.

Welcome Note of the President of the EPSRC

This year's meeting will kick off on Thursday, August 21, 2014 with a welcome reception in the Captain's Salon of the MS Cap San Diego. The scientific meeting will formally begin on Friday, August 22, 2014. There will be no concurrent sessions at any stage of this meeting. Keynote presentations (20 minutes), oral presentations (8 minutes) and industry presentations will be carried during the day followed by short oral presentations (3 minutes) in the evening of August 23rd; allowing the presenters the opportunity to discuss their work in a casual atmosphere. The scientific program will conclude with the awards brunch Sunday morning 08^{30} sharp on the MS Cap San Diego on Sunday, August 24^{th}.

Last but not least, I want to thank our sponsors and exhibitors who also contribute to the success of this meeting and enable us to meet for the 6th time on board the MS Cap San Diego. Hamburg, Germany's 'gateway to the world', is a city that never sleeps. It and the MS Cap San Diego encompass the atmosphere of the EPSRC Annual Meeting perfectly.

I hope that you will enjoy this year's meeting and contribute to our future programs. With your efforts, the European Plastic Surgery Research Council shall continue to grow as the premier scientific body of our specialty.

Truly yours,

Lars Steinstraesser, MD FACS
President EPSRC

Welcome Note of the Chairman of the EPSRC

Dear colleagues, dear Mariners,

It is my pleasure to welcome you to the 6th European Plastic Surgery Research Council (EPSRC) to be held in August 21–24, 2014, in Hamburg, Germany. The EPSRC was founded as a nonprofit organization in 2009 as strongly related plastic surgical community to the Plastic Surgery Research Council (PSRC). The EPSRC is in the privileged position of being one of the main scientific, plastic surgical bridges between Europe the United States, Asia and the rest of the World.

Following the trails of five tremendously successful past-meetings, in 2014 we aim to raise the level of scientific excellence to an entire new level in Europe once again. The EPSRC is privileged by its official organ, the Journal of Plastic and Reconstructive Surgery (PRS) and its editor-in-chief Rod Rohrich, to publish the accepted long oral presentations of the this years meeting.

After reviewing over 170 submitted abstracts from 39 countries world-wide, the scientific committee has selected 44 long oral presentations which will represent the essential core of an outstanding scientific program, addressing topics spanning from Reconstructive Microsurgery, Breast, Head and Neck, Hand, Oncology, Wound healing, Technology and Aesthetic. Again with the great support of the industry we were able to establish a practical microsurgical corner with genuine S&T® Microsurgical Instruments, Synovis® Coupler Devices and Zeiss® Microscopes.

In 2014 further more we want to discuss the most relevant evolutions in fields from extremity reconstruction, perforator flaps and supramicrosurgery, lymphatic microsurgery and microsurgical education and training. In addition, well-known and distinguished keynote speakers from all over the world will share their expertise on excellent topics.

I would like to take this opportunity to express my deepest appreciation and thanks to my dear friend Lars Steinstraesser for his tireless efforts and determination, which have taken EPSRC into the highest hierarchy on the world scientific-arena in Plastic and Reconstructive Surgery. Last but not least, I would like to acknowledge the scientific board and conference organization for their ongoing support, review work and invaluable suggestions, which were pivotal for the organization of this exciting meeting.

The MS Cap San Diego will provide a good occasion for all participants to make new friends and further develop, make grow and strengthen their worldwide scientific network.

I am looking forward to welcoming you onboard the White Swan of the Atlantic in Hamburg in August 2014!

Ahoi!

Lorenz Larcher, MD

Die Fachzeitschrift Ästhetische Dermatologie richtet sich an Dermatologen, Phlebologen, ästhetisch-plastische Chirurgen, Kosmetologen, Lymphologen und Allergologen.

Das Magazin für Ästhetische Chirurgie richtet sich an Ästhetisch-plastische Chirurgen, Gynäkologen, Ärzte für HNO-Heilkunde, Mund-Kiefer-Gesichts-Chirurgen, Senologen und Ophthalmologen.

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Saturday, August 23, 2014

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Saturday, August 22, 2014

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Femoral condyle vascularized bone flap: expanding indications and applications — p. 21

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08^{00}–08^{30} **Opening Ceremony**

Welcome from the EPSRC President
Lars Steinstraesser (Oldenburg/DE)

Welcome from the EPSRC Chairman and Captain of the boat
Lorenz Larcher (Salzburg/AT)

Welcome from the President of the German Surgical Society (DGCH)
Peter M. Vogt (Hannover/DE)

08^{30}–09^{10} **Session I – Burns**
Chairs N. Pallua (Aachen/DE), K. Eisendle (Bozen/IT), B. Merwart (Oldenburg/DE)

08^{30} LOP01 Successful generation of skin tissue via laser-assisted bioprinting (LaBP): assessment in vitro and in vivo
S. Michael, H. Sorg, L. Koch, S. Schlie, C.-T. Peck, A. Deiwick, V. Coger
B. Chichkov, P. M. Vogt, K. Reimers (Hannover/DE)

08^{40} LOP02 Topical effects of recombinant growth hormone on burned wounds
R. Sobec, C. Dobreanu, I. Tichil, A. Somcutean, L. Muntean, D. Gavril
L. Fodor (Cluj Napoca/RO)

08^{50} LOP03 Does Hydrogen Sulphide have a role in burns injury?
F. Akter (Luton/GB)

09^{00} LOP04 Nose burns – analysis in 4 dimensions
J. Bouguila (Sahloul/TN), R. Viard, J. L. Foyatier (Lyon/FR)

09^{10}–09^{35} **Keynote Lecture I**
Burns – the challenge of skin replacement
Peter M. Vogt (Hannover/DE)

09^{35}–10^{20} **Microsurgical Corner/Coffee Break**
Microsurgical Officer on Deck
H. Bürger (Klagenfurt/AT), P. S. Cederna (Ann Arbor, MI/US)

10^{20}–10^{50} **Session II – Head and Neck**
Chairs S. Hollenbeck (Durham, NC/US), M. Kesting (Munich/DE)
K. Schwaiger (Hallein/AT)

10^{20} LOP05 Composite eye and periorbital allotransplantation flap – a cadaveric study from rat model
M. Bozkurt, G. T. Filinte, S. Uygur, C. Ozturk, R. Djohan, M. Semionow
F. Papay (Istanbul/TR)

10[30] LOP06 The need for overcorrection and support with the deep-plane vertical "Hike" flap: preventing and correcting ectropion
S. Sinno, A. Chaudhry, J. B. Chang, B. Zide (New York, NY/US)

10[40] LOP07 Detergent-enzymatic removal of allogenic epitopes of the trachea
M. Den Hondt, P. Delaere, J. J. Vranckx (Leuven/BE)

10[50]–11[15] **Keynote Lecture II**
Tolerance to vascualirized allografts – Is longterm donor cell engraftment necessary?
David W. Mathes (Denver, CO/US)

11[15]–11[55] **Session III – Breast**
Chairs M. Hamdi (Brussels/BE), C. Butler (Houston, TX/US), S. Riml (St. Gallen/CH)

11[15] LOP08 Increasing the survival of transverse rectus abdominis musculocutaneous flap with botulinum toxin-A injection – a comparison of surgical and medical flap delay methods
G. Temiz, N. Yeşiloğlu, M. Sarcı, H. Şirinoğlu, A. C. Akpınar, D. Filinte
G. T. Filinte (Istanbul/TR)

11[25] LOP09 Biomarkers in breast cancer as preoperative predictors of adjuvant radiation treatment and cancer recurrence
L. J. Sandberg (Oslo/NO), M. W. Clemens, J. C. Koshy, W. F. Symmans
A. S. Caudle, C. Wei, H. M. Kuerer, V. Valero, T. A. Buchholz
S. J. Kronowitz (Houston, TX/US)

11[35] LOP10 Survival rates in patients with breast cancer diagnosed by screening in Middle Hungarian Region
M. Ujhelyi, M. Bidlek, E. Kovacs, G. Rubovszky, N. Udvarhelyi, M. Bak
Z. Matrai (Budapest/HU), T. Nyari (Szeged/HU)

11[45] LOP11 To resect or not resect – the effects of rib-sparing harvest of internal mammary vessels in microsurgical breast reconstruction
K. Weichman, S. Wilson, P. Saadeh, N. Karp, M. Choi, J. Levine
V. Thanik (New York, NY/US), N. P. Broer (Munich/DE)

11[55]–12[20] **Keynote Lecture III**
Regenerative peripheral nerve interfaces for motor and sensory control of prostheses
Paul S. Cederna (Ann Arbor, MI/US)

12[20]–13[45] **Microsurgical Corner/Lunch Break**
Microsurgical Officer on Deck
G. Germann (Heidelberg/DE), M. Hamdi (Brussels/BE)
M. R. Zenn (Durham, NC/US), Y. Demirtas (Akatlar Mah/TR)

13^{45}–13^{55} **Cruise Fellowship**
Travel Report Cruise Fellowship Winner 2013
F. Toia (Palermo/IT)

13^{55}–14^{35} **Session IV – Aesthetic**
Chairs S. Khan (Stony Brook, NY/US), Z. Jandali (Oldenburg/DE), O. Salameh (Wien/AT)

13^{55} LOP12 Desmoplastic melanoma – a 12-year experience with sentinel lymph node biopsy
N. P. Broer (Munich/DE), K. Weichman, M. Walker (New York, NY/US)
C. Goldberg, S. Buonocore, D. T. Braddock, R. Lazova, D. Narayan
S. A. Ariyan (New Haven, CT/US)

14^{05} LOP13 Experimental advances in hair restoration surgery
E. Raposio, G. Caruana (Parma/IT)

14^{15} LOP14 Assessing approaches to the inferior turbinate in rhinoplasty – a systematic review of the literature
S. Sinno, A. Chaudhry, K. Mehta, P. Saadeh (New York, NY/US)

14^{25} LOP15 Nipple shields as additional tool to pocket irrigation in reducing capsular contracture after cosmetic breast augmentation
S. Giordano, A. Salmi (Turku/FI)

14^{35}–15^{00} **Keynote Lecture IV**
Reconstruction of perineal and pelvic tissue defects
Hannu Kuokannen (Tampere/FI)

15^{00}–15^{40} **Session V – Oncology**
Chairs P. S. Cederna (Ann Arbor, MI/US), C. Piazza (Brescia/IT), T. Schenck (Munich/DE)

15^{00} LOP16 Malignant melanoma thickness and risk of future malignancies
K. Young, A. Ives, T. Jones, J. Verne, A. Varey, Y. Ben-Shlomo (Bristol/UK)

15^{10} LOP17 An outcomes based evolution of 800 implant based breast reconstructions with acellular dermal matrix
K. Weichman, S. Wilson, V. Thanik, A. Hazen, J. Levine, P. Saadeh, M. Choi
N. Karp (New York, NY/US), N. P. Broer (Munich/DE)

15^{20} LOP18 1-cm versus 2-cm excision margins for patients with intermediate thickness melanoma
S. Giordano, I. Koskivuo (Turku/FI)

15^{30} LOP19 Multiple familial pilomatrixomas spanning three generations – A cutaneous marker of underlying disease?
I. King (East Grinstead/UK), K. Rahman, A. Henderson
M. Ragbir (Newcastle/UK)

15^{40}–16^{05} **Keynote Lecture V**
ADSC – their role in rejuevenation tissue – Is aging skin history?
Günter Germann (Heidelberg/DE)

16^{05}–16^{35} **Microsurgical Corner/Coffee Break**
Microsurgical Officer on Deck
G. M. Huemer (Linz/AT), J. Janis (Columbus, OH/US)

16^{35}–17^{00} **Keynote Lecture VI**
AV Loop in reconstructive microsurgery – technical details
Murat Topalan (Istanbul/TR)

17^{00}–17^{30} **Session VI – Microsurgery**
Chairs L. P. Jiga (Oldenburg/DE), P. Neligan (Seattle, WA/US), P. Mandal (Graz/AT)

17^{00} LOP20 Fibro-Lipo-Lympho-Aspiration (FLLA) – a lymph vessel sparing procedure (LVSP) for treatment of advanced lymphedema
C. Campisi, C. Campisi, M. Ryan, E. Fulcheri (Genoa/IT)

17^{10} LOP21 Total lower lip and complete chin reconstruction after full thickness tissue defects
A. Paraskevas, E. Sabri, (Paris/FR)

17^{20} LOP22 Utilizing indocyanine green angiography in the evaluation of varying levels of venous congestion in a novel rat model
A. Nasser, M. Fourman, R. Gersch, B. Phillips, H. His, M. Gelfand, A. Dagum
D. Bui (Stony Brook, NY/US)

17^{30}–17^{55} **Keynote Lecture VII**
Tools for wound healing and tissue regeneration
Hans-Günther Machens (Munich/DE)

17^{55}–18^{10} **Break**

18^{10}–18^{20} **ASPS**
American Society of Plastic Surgery (ASPS) – now and future perspective
C. Butler (Houston, TX/US)

18^{20}–18^{50} **PSRC Highlight Session**
Chairs D. W. Mathes (Denver, CO/US), L. Larcher (Salzburg/AT)

18^{20} Hardesty Award
N. Carrothers (New York, NY/US)

18^{30} Snyder Award
D. Cooney (Baltimore, MD/US)

18^{40} Shenaq Award
P. S. Cederna (Ann Arbor, MI/US)

19^{30} Social Evening
Luke 3, MS Cap San Diego
For further information please see page 29.

Scientific Program • Saturday, August 23, 2014

08^{00}–08^{25} **Keynote Lecture VIII**
Perioperative and intraoperative strategies for reducing complications
Jeffrey Janis (Columbus, OH/US)

08^{25}–09^{15} **Session VII – Other**
Chairs Y. Demirtas (Akatlar Mah/TR), J. Janis (Columbus, OH/US)
A. Haumer (Basel/CH)

08^{25} LOP23 Impaired regenerative ability of aged and diabetic adipose derived stem cells is caused by depletion of cell subpopulations
D. Duscher, R. C. Rennert, M. Januszyk, Z. N. Maan, A. Whittam,M. Rodrigues G. G. Walmsley, M. S. Hu, A. McArdle, K. Senarath-Yapa, D. Atashroo E. Zielins, R. Tevlin, M. T. Longaker, G. C. Gurtner (Stanford, CA/US)

08^{35} LOP25 An ancient wound dressing newly discovered – spider silk for wound healing
J. W. Kuhbier, C. Liebsch, A. Hillmer, K.-H. Waldmann, K. Reimers, C. Radtke P. M. Vogt (Hannover/DE)

08^{45} LOP27 The effects of implantation of differentiated embryonic stem cells (dESC) and differentiated bone marrow-derived mesenchymal stem cells (dMSC) on lymphangiogenesis in a mouse lymphedema model
C. Demirdover, H. Guc, H. S. Vatansever, C. Karaca (Izmir/TR)

08^{55} LOP28 Challenges to correctly and quantitatively measure subjective symptoms from infraorbital nerve injury associated with zygomaticomaxillary complex fractures
M. Okochi, K. Ueda, H. Okochi, Y. Mochizuki (Fukushima/JP)

09^{05} LOP29 Human stem cells and hydrogel β-TCP/PCl versus hydrogel β-TCP/PLGA scaffolds in human thumb regeneration
C. Weinand (Cologne/DE), E. Weinberg (Cambridge, MA/US), C. M. Neville R. Gupta, F. Shapiro, J. P. Vacanti (Boston, MA/US)

09^{15}–09^{40} **Keynote Lecture IX**
Lymphatic Supramicrosurgery – myths and state of the art
Jaume Masià (Barcelona/ES)

09^{40}–10^{15} **Microsurgical Corner/Coffee Break**
Microsurgical Officer on Deck
H. Kuokannen (Tampere/FI), C. Butler (Houston, TX/US)

10[15]–10[40] **Keynote Lecture X**
How to demystify microsurgery – tips and tricks
Michael R. Zenn (Durham, NC/US)

10[40]–11[20] **Session VIII – Reconstructive**
Chairs M. R. Zenn (Durham, NC/US), G. Germann (Heidelberg/DE)
H. Kuokannen (Tampere/FI)

10[40]
LOP31 Reliability and validity of RPNI signaling of gait phases during voluntary walking
A. Nedic, D. Ursu, J. Moon, C. Hassett, R. Gillespie, N. Langhals, P. S. Cederna
M. Urbanchek (Ann Arbor, MI/US)

10[50]
LOP32 Enhancement of neuritic outgrowth in vitro by adipose-derived stromal cells
C.-T. Peck, R. Schnabel, A. Fülbier, S. Strauß, P. M. Vogt, K. Reimers
C. Radtke (Hannover/DE)

11[00]
LOP33 Engineering of axially vascularized bone grafts for the treatment of avascular bone necrosis
R. Osinga, L. Tchang, A. J. Todorov, I. Martin, A. Scherberich
D. J. Schaefer (Basel/CH)

11[10]
LOP34 Free versus local flaps for foot and ankle wounds in the era of pedicle perforator flaps
S. Hollenbeck, C. Ligh, J. Cho, A. Senghaas, I. Pien, P. Butala, H. Levinson
D. Erdmann (Durham, NC/US)

11[20]–11[45] **Keynote Lecture XI**
Aesthetic advances in autologous breast reconstruction
Moustapha Hamdi (Brussels/BE)

11[45]–12[25] **Session IX – Education**
Chairs B. Yigit (Duzce/TR), W. Kuzon (Michigan, IN/US), J. Masià (Barcelona/ES)

11[45]
LOP35 Cervical model of hemiface allotransplantation in rats
E. Petrascu, I. Zegrea, D. Zamfirescu, I. Lascar (Bucharest/RO)

11[55]
LOP36 Mastering lymphatic microsurgery – an innovative training model with living tissue
C. Campisi, C. Campisi, M. Ryan (Genoa/IT), L. P. Jiga (Oldenburg/DE)
M. Ionac (Timisoara/RO)

12[05]
LOP37 Public perceptions of plastic surgery – analysis and implications for the future of our specialty
S. Sinno, A. Chaudhry, J. Barr, S. Wilson, P. Saadeh (New York, NY/US)

12[15]
LOP38 Teaching flexor tendon repair
N. P. Broer (Munich/DE), S. Buonocore, M. Walker
G. Thomson (New Haven, NY/US)

12^{25}–12^{50} **Keynote Lecture XII**
Free and pedicled perforator flaps in posttraumatic and elective reconstruction
Georg M. Huemer (Linz/AT)

12^{50}–14^{20} **Microsurgical Corner/Lunch Break**
Microsurgical Officer on Deck
H.-G. Machens (Munich/DE), J. Masià (Barcelona/ES)
J. Sacks (Baltimore, MD/US), M. Topalan (Istanbul/TR)

14^{20}–14^{45} **Keynote Lecture XIII**
Femoral condyle vascularized bone flap – expanding indications and applications
Heinz Bürger (Klagenfurt/AT)

14^{45}–15^{35} **Session X – Hand**
Chairs H. Bürger (Klagenfurt/AT), J. Sacks (Baltimore, MD/US), F. Toia (Palermo/IT)

14^{45} LOP40 Release of severe contractures of hand fingers with two stages reconstruction
Z. Buja, H. Arifi, E. Hoxha (Pristina/AL)

14^{55} LOP41 Experience with vein conduit in the management of nerve gap
C. Ilokanuno, I. Onah, C. Ezinwa (Enugu/NG)

15^{05} LOP42 Short-term delivery of fibrin-bound VEGF protein in osteogenic grafts – increased vascularization with efficient bone formation
M. Burger, N. Di Maggio, R. D. Largo, I. Martin, A. Scherberich, D. J. Schaefer
A. Banfi (Basel/CH), J. A. Hubbell (Lausanne/CH)

15^{15} LOP43 A vascularized nerve graft substitute generated in a chamber bioreactor
M. S. Engin (Samsun/TR), Y. Demirtas, A. Karacalar (Istanbul/TR)
T. Neimetzade (Baku/AZ)

15^{25} LOP44 The role of autologous nerve fragments implantation in enhancing peripheral nerve regeneration
A. V. Mariolo, G. Zabbia, F. Plescia, C. Cannizzaro, S. D'Arpa, A. Cordova
F. Moschella (Palermo/IT), G. Salimbeni (Pisa/IT)

15^{35}–16^{00} **Keynote Lecture XIV**
Preparation for abdominal wall transplantation
Justin Sacks (Baltimore, MD/US)

16^{00}–16^{30} **Microsurgical Corner/Coffee Break**
Microsurgical Officer on Deck
D. W. Mathes (Denver, CO/US), G. M. Huemer (Linz/AT)

16^{30}–17^{15} E-Poster-Session

16^{30} SOP1
Splinting after surgical correction for Dupuytren's contractures of the hand
O. Samargandi, P. Larouche, J. Nevin (Jeddah/SA)

16^{33} SOP2
Venous thromboembolism risk assessment compliance in plastic surgery – a multi-cycle audit
R. Agha, P. Stephens, M. Tyler (Ayelsbury/UK)

16^{36} SOP3
Time-related changes in the bacterial profile and antimicrobial resistant strains in burn wounds in CUH
S. Creedon, J. Clover (Cork/IE)

16^{39} SOP4
Love position a new innovation in breast surgery
E. Sabri, F. Petit (Paris/FR)

16^{42} SOP5
Versatility of indocyanine green near-infrared angiography in evaluation of microvascular anastomosis
T. Iida, H. Yoshimatsu, M. Mihara, I. Koshima (Tokyo/JP)

16^{45} SOP6
The usage of closed system drainage in liposuction to improve the final result and decreasing complication
A. Salah (Cairo/EG)

16^{48} SOP7
Comparison of systemic heparinization protocols for Zones 1 and 2 artery-only replantations
H. Kwon, S.-N. Jung (Uijeongbu/KR), J. Y. Lee, Y. J. Jeong (Incheon/KR)

16^{51} SOP8
Priming with proangiogenic growth factors and endothelial progenitor cells improves revascularization in linear diabetic wounds
M. Ackermann, A. M. Pabst, T. Ziebart, M. A. Konerding (Mainz/DE)

16^{54} SOP9
Skeletal facial deformity in patients with β thalassemia major – report of one tunisian case and a review of the literature
J. Bouguila, H. Khochtali (Sahloul/TN)

16^{57} SOP10
Canine Olfactory Ensheathing Cells cultured on three dimensional spider silk constructs for application in spinal cord injury
C. Radtke, D. Schroeder, K. Reimers, P. M. Vogt (Hannover/DE)

17^{00} SOP11
Successful nucleofection of adipose-derived stroma cells with Ambystoma mexicanum epidermal lipoxygenase (AmbLOXe) to enhance regeneration
S. Michael, A. Fülbier, R. Schnabel, S. Strauß, P. M. Vogt, K. Reimers
C. Radtke (Hannover/DE)

17[03] SOP12 2nd degree burn wounds of the face – O2C Laser Doppler and digital photoanalysis evaluation after treatment with β-Glucan or provitamine pantothenic acid
C. Weinand, D. Thieme, P. C. Fuchs, R. Lefering (Cologne/DE)

17[06] SOP13 Wound healing complications with intraoperative brachytherapy for head and neck cancer – a unique form of radiation injury
D. Narayan, E. Geiger, B. Basques, C. Chang, A. Alcon (New Haven, NY/US)

17[09] SOP14 Pilot study – Influence of severe thermal injury to bone metabolism 12–36 months after trauma in adult patients
E. Maurer, G. K. Muschitz, C. Muschitz, G. Ihra, H. Resch, T. Rath (Innsbruck/AT)

17[12] SOP15 In vivo changes in nipple-areolar complex perfusion after breast augmentation with implants
N. P. Broer, E. Teng, K. Weichman, S. Voigt, A. Forte, S. Kwei (Munich/DE)

17[30]–19[30] **General Assembly**
Cathedral, Luke 3, Lower deck

19[30] **Social Evening**
Pool deck, MS Cap San Diego
For further information please see page 29.

EPSRC Lighthouse Endowment Fund

EPSRC Lighthouse Endowment Fund

The missions of the EPSRC Lighthouse Endowment Fund are the delivery of high-quality patient care through the contribution to innovations in medicine through basic and translational research and clinical outcome studies, and the education of medical students, postgraduate trainees, residents and consultants to insure an adequate supply of academic plastic surgeons for the future. This Society is a non-profit organization managed by and for the benefit of the young plastic, reconstructive and aesthetic surgery research community. The annual EPSRC meeting will offer an exciting opportunity for young plastic surgery researchers to discuss their latest work and future challenges in a uniquely informal, interactive format for basic science and clinical outcome research. The EPSRC meeting will provide a valuable means of disseminating information and ideas in a way that cannot be achieved through the usual channels of communication – publications and presentations at large scientific meetings.
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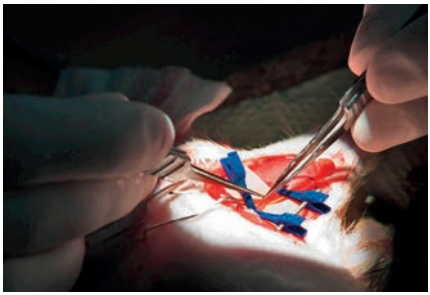
Microsurgical Corner

The microsurgical corner contains five fully-equipped work-stations, bringing the fascinating world of microsurgery up, close and personal for all EPSRC attendees. Young colleagues, willing to experience microsurgery „live", will have the chance to perform microvascular anastomosis using ex-vivo models (chicken legs), throughout the meeting. Working with top-quality magnification (Carl Zeiss GmbH), microsurgical instruments and sutures (S & T AG) everyone interested to attain microsurgical techniques will find here besides expert advice from our faculty, all the informations needed regarding microscopes, instrumentation, microsurgical sutures and so on.
Through the kind support of our sponsor, Synovis Micro Companies Alliance Inc., the microsurgical work-stations will be provided with the GEM Microvascular Anastomotic Coupler™ and the proper instrumentation to exercise mechanical microvascular anastomosis, an ever-evolving technique which has become a standard technique in reconstructive microsurgery.

Important

1. This is not a practical course but only a booth offering a unique hands-on experience in performing microvascular anastomosis. No diplomas of any kind will be issued.



2. Places will be distributed on the "first come, first served" basis for all EPSRC attendees interested to experience microvascular anastomosis.

3. The microsurgical corner will be only available during the official congress breaks.

Registration

For registration, please sign in at the registration desk.

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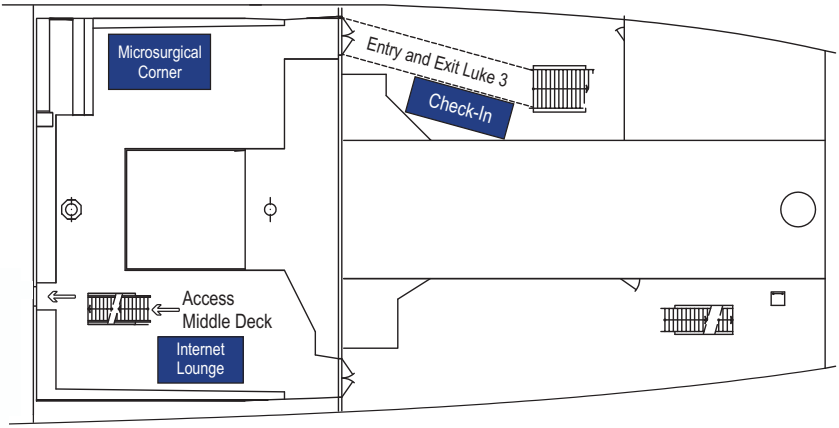

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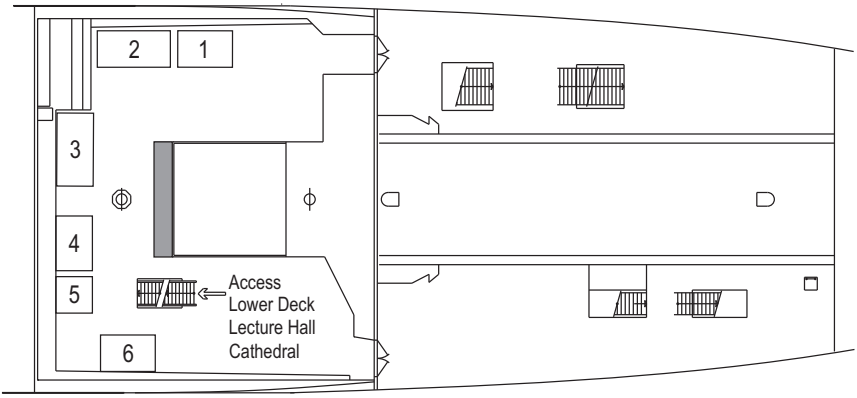

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Welcome Reception

EPSRC invites you to kick off the Annual Meeting on Thursday, August 21 with the Welcome Reception in the "Captain's Salon" on board the MS Cap San Diego. Join us for a casual Meet and Greet within the maritime setting.

Date	Thursday, August 21, 2014
Time	19^{00}–22^{00}
Venue	Captain's Salon, MS Cap San Diego
Costs	included for Participants, 35 EUR for Accompanying persons

Social Dinner

You are invited to round off the scientific program in casual atmosphere. Take some time to refresh contacts or even to make new contacts! Food and beverages are provided.

Date	Friday, August 22, 2014
Time	19^{30}–00^{00}
Venue	Luke 3, MS Cap San Diego
Costs	included for Participants, 35 EUR for Accompanying persons

Date	Saturday, August 23, 2014
Time	19^{30}–00^{00}
Venue	Pooldeck, MS Cap San Diego
Costs	included for Participants, 35 EUR for Accompanying persons

Program after the Social Dinner

Date	Saturday, August 23, 2014
Time	00^{00}
Venue	Hans-Albers-Eck* Hans-Albers-Platz 20, 20359 Hamburg
Costs	not included for Participants and Accompanying persons

Farewell Brunch

Finally, we will start our day with a farewell brunch before we say "Goodbye & See you again!"

Date	Sunday, August 24, 2014
Time	08^{30}
Venue	Captain's Salon, MS Cap San Diego
Costs	included for Participants, 10 EUR for Accompanying persons

Insider Tip – Hamburg Fish Market*

Hamburg's traditional open-air market on Sunday mornings is an absolute must for every visitor! Every Sunday morning customers come from near and far to bargain with vendors praising wares of virtually every type at Hamburg's oldest, most traditional open-air market, dating back to 1703. Let's enjoy the spontaneous amusement on the street. You can watch the fishermen trade their catch while listening to music and chilling in the sunrise. Any world-weariness will soon be forgotten.

Date	Sunday, August 24, 2014
Time	05^{30}–09^{00}
Venue	St. Pauli Fish Market/Große Elbstrasse

*Please note this is not an official program event. Those interested should ask at the check-in desk.

General Terms and Conditions

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Registration is subject to capacity limitations. Registration must include the name of any accompanying person to ensure their inclusion into the planning of the social program. Upon receipt of registration invoice or confirmation, registration is considered official and effectual. This document is a valid VAT invoice which may be submitted to the local tax and revenue office for tax purposes.

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Fees for the scientific Program of the event, the social evening and the social program will be charged in the name and on behalf of the company Conventus inclusive the statutory VAT rate of 19% (as of 2010).
All fees are due upon receipt of the registration invoice or confirmation form. Transfer payments must include the name of the participant and the invoice number, otherwise they will not be accepted. All major credit cards are accepted.

Scope of Services

Event fees and day tickets include participation in the scientific program only. Included in this fee are a program book (including the abstracts), tickets for the social program, a name tag and a certificate of attendance. These items are generally handed out at the venue.

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Any changes in booking, after booking confirmation has been issued, will result in a handling fee of 15.00 EUR. Any requested additions to existing reservations or reservations made during the event on-site will be processed according to availability.

Event Cancellation, Refunds

There is limited capacity for all events. For certain events a minimum number of participants is required. If the minimum number of participants is not reached, the organiser reserves the right to cancel all or parts of the event on a short-term notice. In this case, all paid fees will be fully refunded.

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20 July 2011

LOP01: Successful generation of skin tissue via laser-assisted bioprinting (LaBP) – assessment *in vitro* and *in vivo*

*S. Michael[1], H. Sorg[1], L. Koch[2], S. Schlie[2], C.- T. Peck[1], A. Deiwick[2], V. Coger[1], B. Chichkov[2], P. M. Vogt[1], K. Reimers[1]

[1]Medical School Hannover, Plastic, Hand and Reconstructive Surgery, Hannover, Germany

[2]Lasercenter Hannover, Department of Nanotechnology, Hannover, Germany

Questions:

The creation of complex three-dimensional (3D) tissue poses a great challenge in the field of tissue engineering (TE) since the functionality of a tissue is strongly dependent on its 3D structure. TE may be used for the treatment of burn injuries. Especially in case of large and deep burns, an adequate skin substitute is needed to avoid excessive scarring and infections. Our aim is the production of a skin equivalent which mimics physiological skin as closely as possible.

Methods:

To realise our goal, we used laser-assisted bioprinting (LaBP). It offers the possibility to position cells in a precise spatial 3D pattern. Skin equivalents were printed consisting of 20 layers of keratinocytes on top of 20 layers of fibroblasts. Resulting constructs were kept *in vitro* or implanted into full-thickness wounds in the dorsal skin fold chamber preparation in mice. Analyses were done histologically and by immunodetection.

Results:

After 10 days of *in vitro* culture, separate layers of keratinocytes and fibroblasts could still be seen. The keratinocytes formed a dense tissue including adherens and functional gap junctions. Also *in vivo*, after 11 days, the skin substitutes were still vital and tightly connected to the surrounding host tissue. A dense epidermal tissue was formed by the printed keratinocytes and the skin constructs were similar to normal mouse skin in histological analysis. A beginning vascularisation occurred. Moreover, hints for a beginning differentiation of the printed keratinocytes were found.

Conclusion:

In conclusion, LaBP of cultured skin cells is an adequate technique to create skin equivalents and offers great potential for the field of tissue engineering.

LOP02: Topical effects of recombinant growth hormone on burned wounds

*R. Sobec[1,2], C. Dobreanu[1], I. Tichil[1], A. Somcutean[1], L. Muntean[1], D. Gavril[1], L. Fodor[1]

[1]Emergency County Hospital Cluj Napoca, Romania, Plastic Surgery and Burn Unit, Cluj Napoca, Romania

[2]"Iuliu Hatieganu" University Of Medicine and Pharmacy, Cluj Napoca, Romania

Introduction:

Burns, a pathology with major social impact, have severe repercussions upon the quality of life of the patients. The objective of our study is to speed the wound healing of the burned areas with minimal scarring. Herein we have investigated the influence of recombinant growth hormone on burn wound healing.

Material and Methods:

10 New Zeeland white male rabbits have been used. On each animal four deep 2nd degree burns were inflicted with a copper instrument, one on each flank and one on each ear. On one side we applied only hyaluronic acid (HA) (control) and on the other side (study), HA with recombinant growth hormone (rGH). Semi-occlusive dressing was used. The dressings were changed every two days for two weeks. Eight weeks later, skin biopsies were harvested from the burned areas for pathology and immunohistology examination. The rabbits were monitored serologic for systemic effects of rGH.

Results:

Clinically, no infection appeared on the burned areas. A higher wound contraction was observed on the side were only HA acid was used. No important differences in serology before and after topical administration of rGH have been observed. Lower degree of inflammation ($p<0.05$), increased amount of collagen ($p<0.05$), vascularization ($p<0.05$), respectively myofibroblasts

activity were observed on the study side, both on the flanks and ears.

Conclusion:

Recombinant Growth Hormone improves the burn wound healing on rabbits.

LOP03: Does Hydrogen Sulphide have a role in burns injury?

*F. Akter[1]

[1]*GSTT, luton, United Kingdom*

Over the last few decades the scientific community has seen an increase in the number of studies on the endothelium and its' local mediators such as nitric oxide (NO). More recently the toxic gas hydrogen sulphide (H_2S) has been recognised as a signalling molecule and has been proposed as an important endogenous gaseous transmitter by analogy to NO and another gaseous transmitter, carbon monoxide, With the discovery of hydrogen sulphide as a novel gasotransmitter, the scientific community has seen an increase in studies looking at its role in vascular tone and inflammation. Its role in the vasculature and its mechanism of action appears to complex and inconclusive. Its role in mediating inflammation appears to be equally perplexing and appears to have two very different roles- one as a mediator of inflammation and one as an inhibitor of inflammation. What is clear, however is that it certainly does have a role to play. This role is particularly of interest in burns injuries. Severe burns injuries is characterised by an inflammatory response which can progress to a systemic response leading to sepsis, shock and multi-organ failure. Therefore identifying agents which can reduce the duration and complications of burns injuries is of great interest. It appears that H_2S acts to promote inflammation in the initial period post injury but at later stages reduces inflammation and improves wound healing. This biphasic action of H_2S in burns is a novel concept and although not yet studied is promising due to its potential therapeutic role.

LOP04: NOSE BURNS: analysis in 4 DIMENSIONS

*J. Bouguila[1], R. Viard[2], J. L. Foyatier[2]

[1]*Sahloul Hospital, Maxillo-facial and Plastic Surgery, Sahloul, Tunisia*

[2]*Saint Luc Saint Joseph Hospital, Plastic Reconstructive and Aesthetic Surgery, Lyon, France*

Introduction:

The nose is the central organ of the face. It has two essential roles, aesthetic and breathing. In facial burns, it is commonly damaged seriously with grotesque facial disfigurement. Being visible in the frontal and profile views with this disfigurement, the patient suffers both socially and psychologically.

This study aimed to discuss surgical techniques that could ameliorate nose scars and airway obstruction.

Materiel and Methods:

The authors describe 12 adult patients (8 females and 4 males) requiring total and subtotal nasal reconstruction with scars resulting from severe burns 2 to 7 years previously. The patients were treated by skin grafting for resurfacing, locoregional flaps and when the burns are extensive; we used tissue expanders or expanded full-thickness skin grafts. Ages, sexes, aetiology of burn, facial burn sequelae, surgical techniques, aesthetic and fonctional results are discussed.

Results:

Patient age ranged from 20 to 53 (average 41). The clinical appearance, discussed by 3 surgeons and subjective patient feelings, after a 9-month follow-up period suggest considerable improvement in the aesthetic features. The result is good in 86% of cases and acceptable in the other cases. Eleven patients had functional airways and one required nasal airway support and was awaiting secondary surgery to correct persistent obstruction.

Conclusion:

The nose is a three-dimensional organ; therefore its reconstruction is more difficult and precise than other parts of the face. Maintaining symmetry, contour and function are essential for a successful nasal reconstruction. Multiple factors help to determine the optimal repair method,

including the size of the defect, its depth and location. Satisfactory social life is recovered only after multiple surgical interventions and long-term rehabilitation and physiotherapy.

LOP05: Composite eye and periorbital allotransplantation flap:
A cadaveric study from rat model

*M. Bozkurt[1], G. T. Filinte[1], S. Uygur[1], C. Ozturk[1], R. Djohan[1], M. Semionow[1], F. Papay[1]
[1]Kartal Dr. Lütfi Kırdar Training and Research Hospital, Plastic, Reconstructive and Aesthetic Surgery, Istanbul, Turkey

Introduction:
Composite allotransplantation of the eye and the periorbital soft and bony tissues is a novel technique to restore vision if functional recovery is enabled.The first successful eyeball allotransplantation model in rats was described by our group previously. The aim of this study is to describe a composite tissue allotransplantation model of eyeball and periorbital tissues on cadavers.
Materials and Methods:
Five fresh human cadavers were used in the study. The flap was bordered inferiorly with the infraorbital rim, medially with the nasal dorsum, superiorly with the eyebrow and laterally with the lateral orbital rim. To be included in the pedicle of the flap the facial artery and superficial temporal artery branches of external carotid artery and external jugular vein were preserved. The borders of the skin and subcutaneous tissues of the periorbital region were incised according to the planned skin island which was outlined previously and bony tissue was reached. Frontal bone was exposed through a coronal incision and a frontal osteotomy was performed to reach the frontal lobe of the brain. Retraction of the frontal lobe exposed the internal jugular vein and ophthalmic artery which is a branch of internal carotid artery. In order to provide a venous outflow to the composite flap, a "box osteotomy" was performed to the orbit to include the cavernous sinus. Indocyanin was injected from the pedicle of the flap and the perfusion of the flap was confirmed with SPY Elite System to identify perfusion zones (fig 1).
Conclusion: The composite allotransplantation of the eye and the periorbital soft and bony tissues may provide a new hope for reconstruction of the vision. However, there are some technical challenges of the procedure. The presented study aims to provide a solution to the specific problem.

LOP06: The Need for Overcorrection and Support with the Deep-Plane Vertical "Hike" Flap: Preventing and Correcting Ectropion

*S. Sinno[1], A. Chaudhry [1], J. B. Chang[1] , B. Zide[1]
[1]New York University, Plastic Surgery, New York, United States

Background:
The deep-plane cervicofacial "hike" flap as described by Zide et al is based anatomically on the same principles as deep-plane rhytidectomy. It offers a highly vascularized substrate of tissue which can be mobilized cephalad to support the eyelid and maintain cheek position.
Overcorrection of the deformity with this flap is required to prevent ectropion. Herein we review several cases which presented with complex cheek and lower lid deformities that were treated with this overcorrected, well-supported platform flap.
Methods:
A retrospective chart review was performed of several unusual cases that presented for cheek and eyelid reconstruction. The charts were reviewed for patients who had undergone deep-plane cervicofacial "hike" flaps, then filtered for just those who had overcorrection of their deformity in anticipation of the need for additional support to prevent ectropion.
Results:
Three patients underwent a deep-plane cervicofacial "hike" flap with overcorrection, accomplished either by suturing the cheek advancement to the deep temporal fascia or using drill holes and Mitek sutures. Each case had or could have had lower eyelid malposition, and was assisted by this technique. The results obtained provided very high patient satisfaction. No revision surgery was needed.

Conclusions:
An overcorrected, well-supported, and vertically transposed deep-plane "hike" flap may be key to prevent commonly seen lower lid ectropion. The gravitational and cicatricial effects that distort the lid may be obviated. The results obtained with this technique validate this flap's use as a useful tool in the management of patients with complex cheek and eyelid defects.

LOP07: Detergent-enzymatic removal of allogenic epitopes of the trachea
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Question:
Decellularization of trachea to remove allogenic epitopes is the first step towards successful bioengineering. We performed six human allogenic trachea transplantations. After prefabrication of the construct with host vascularized fascia and repopulation of the inner lining with autologous buccal mucosa, we were able to stop immunosuppression despite of preservation of allogenic chondrocytes. Seven years later, we do not observe any sign of rejection. Based on these results, we introduce a gentle detergent-enzymatic removal of allogenic epitopes of the inner tracheal lining.
Methods:
Rabbit tracheas were agitated in distilled water for 72 hours at 4°C. We exposed specimens to 1 to 3 detergent-enzymatic cycles. Detergent treatment with 4% sodium deoxycholate rotating for 4 hours at room temperature was followed by incubation with 50 kU/ml deoxyribonuclease for 3 hours at 37°C and agitation in distilled water for 41 hours at 4°C. In the last cycle, final washing was extended to 72 hours. We performed histology and microCT. Uniaxial tensile testing compared mechanical properties to native trachea.
Results:
After 1 cycle removal of epithelium, submucosal endothelium and mixed glands was complete. Chondrocytes were preserved. Mechanical testing showed no significant difference with native trachea after 3 cycles.
Conclusion:
We present a mild decellularization using only 1 to 3 cycles. DNA content of specimens is substantial due to residing chondrocytes, though we hypothesize that these cells, embedded into a dense matrix, are not visible for the immune system as we demonstrated in the clinical model. As such, we are able to preserve main structural elements necessary for the adherence of autologous epithelial and endothelial cells.

LOP08: Increasing the survival of transverse rectus abdominis musculocutaneous flap with botulinum toxin-A injection – a comparison of surgical and medical flap delay methods
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Introduction:
Recent studies have established the positive effects of botulinum toxin-A (BT-A) on flap survival. In this study, the effects of BT-A on the survival rates of transverse rectus abdominis musculocutaneous (TRAM) flap (F) were compared with those of surgical delay (SD).
Material and Methods:
Forty female Wistar rats were randomized in five groups (n=8) to investigate the effects of intramuscular BT-A injection in an inferior epigastric vessel (IEV) based TRAM F model. Fig. 1 and 2 show the study plan and distribution of the groups. In all groups, laser Doppler flowmetry was performed on all F in the preoperative period, before F harvest and one week after F harvest. One week after F harvest, necrotic and viable tissue was determined with digital photographic

planimetry method. Animals were sacrificed, and biopsies were taken from the rectus muscle and four zones of TRAM to assess IEV dimensions, vascularity (with CD31) of the F and apoptosisa. All data were statistically analyzed.

Results:

No significant differences were found all parameters of Sham and control groups ($p > 0.05$), whereas all parameters of delay groups were significantly superior to those in the control and sham groups ($p < 0.05$). When compared with other delay groups, surgical plus BT-A delay group, the viable F areas, vessel dimensions, and intensity and blood flow of tissue were significantly higher than those in the other groups ($p < 0.05$), whereas apoptosis rates were similar($p > 0.05$).

Conclusion:

We believe that preoperative BT-A therapy is a feasible method to improve circulation of rat TRAM flap.

figure 1

Groups	Day 0	Day 14	Day 30
Control group	Flap harvest[2]	-	-
Sham group	Intramuscular isotonic saline injection[3]		Flap harvest
Btx-A[1] delay group	Intramuscular Btx-A injection		Flap harvest
Surgical delay group	Surgical delay[4]	Flap harvest	
Surgical delay+ Btx-A delay group	Intramuscular Btx-A injection	Surgical delay	Flap harvest

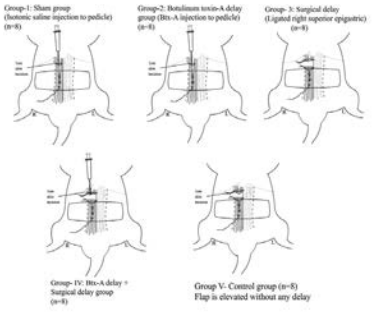
[1] Btx- A: Botulinum toxin-A injection was 10 IU /0.2 cc saline per rat.

[2] Transverse rectus abdominis musculocutaneous (TRAM) flap harvest : 6X3 cm sized inferior epigastric pedicle based TRAM flap was planned 1cm under the xyphoid and the superior portion of the muscle was transected following the ligation. Then a medical grade silicone sheet was inserted under the flap which is followed by the suturation of the flap onto its bed.

[3] 0.2 cc isotonic saline was injected into the rectus muscle superior to the planned skin flap, 1 month before the flap harvest.

[4] Surgical delay procedure includes ligation and electrodessication of superior epigastric artery and vein with the superior portion of the rectus muscle via a 2cm incision 1cm below the xiphoid.

figure 2



LOP09: Biomarkers in Breast Cancer as Preoperative Predictors of Adjuvant Radiation Treatment and Cancer Recurrence – The Dawn of Genomics in Plastic Surgery Practice.

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Question:

Can factors that are critical for preoperative planning of breast reconstruction be predicted by using biomarkers?

Methods:

A retrospective review was performed of 1859 consecutive cases undergoing mastectomy and breast reconstruction between 1999 and 2010. The cases were grouped into 5 subgroups based on status of estrogen and progesterone receptors, HER2-neu, Ki67, and Nuclear Grade. The association between disease subgroup and Recurrence Free Survival was assessed by Cox proportional hazard model, and the association between disease subgroup and Post Mastectomy Radiation Treatment (PMRT) was assessed using logistic regression model.

Results:

Compared to all other subgroups combined, the Triple Negative Breast Cancer subgroup was significantly associated with an earlier onset of locoregional or distant recurrence, or earlier

death, with an unadjusted hazard ratio of 2.38 (95%CI: 1.68-3.36) (p <0.0001) and an adjusted HR of 1.81 (95%CI: 1.25-2.63, p=0.002) - adjusted for clinical stage, Menopausal Status and Nuclear Grade. Clinical stage and menopausal status were independent predictors of PMRT status. Without adjustment for other variables, HER2 enriched subtype (ER negative, PR negative and HER2 positive) was associated with significant higher odds of receiving PMRT as compared to all other groups (Odds ratio=1.66, 95% CI: 1.16-2.39, p=0.006), however, it was not an independent predictor of PMRT after adjusted for clinical stage and menopausal status.

Conclusion:

Our study shows that biomarkers can be useful to preoperatively predict early recurrence or death of breast cancer and also the need for PMRT, which can assist in planning for the appropriate timing and technique for breast reconstruction.

LOP10: Survival rates in patients with breast cancer diagnosed by screening in Middle Hungarian Region

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Introduction:

Breast cancer is one of the most frequent invasive cancers for women worldwide. Decrease of breast cancer mortality has to be achieved through high quality screening associated with adequate oncologic therapy of diagnosed tumors. The objective of this study was to assess survival rates in patients with breast cancer diagnosed by screening in Middle Hungarian Region, and presents the results.

Methods:

Between 2002 and 2009, 47 718 women were examined by organized nationwide screening program in the National Institute of Oncology in Budapest. According to to physical examination, mammogram and the result of breast ultrasound 1361 women had fine needle aspiration cytology performed and a total of 298 patients with a diagnosis of breast cancer were discovered. We reviewed medical records and pathology reports. We grouped the patients into four tumor categories by receptor expression. The average of the follow-up was 55.77 months (range 3-127 months).

Results:

Early diagnosed tumors (stage 0, I and II) accounted for 88 % of all the cases analyzed. Overall, 78.2% were Luminal-A (n=201), 10.2% Luminal-B (n=26), 5% of cases were TN (n=13) and 6.6% were HER-2 over-expressed (n=17). Significant differences in the clinical characteristics studied were observed by breast cancer subtypes. A total of 47 deaths occurred during the follow-up period. The overall survival rate of breast cancer patients at the end of the study was 81.71%. Women with TN had higher risk of death as compared to the other subtypes of breast cancer.

Disscusion:

Survival as the major clinical outcomes defines the efficacy and quality of health care system. The evaluation of breast cancer diagnosed by screening survival outcomes and comparison of results with neighbor countries in the Middle and Eastern Europe can help to extend our knowledge of breast cancer screening and effective treatment.

LOP11: To Resect or Not Resect: The Effects of Rib-Sparing Harvest of Internal Mammary Vessels in Microsurgical Breast Reconstruction

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Introduction:
The internal mammary vessels are the used as recipients in the majority of microsurgical breast reconstructions. Commonly the costal cartilage is harvested, however, the use of rib-sparing techniques has been popularized. Here we compare outcomes of patients undergoing traditional costal cartilage harvest to those undergoing a rib-sparing approach.

Methods:
A retrospective review of all patients undergoing microsurgical breast reconstruction at a single institution between November 2007 and April 2013 was conducted. Patients were divided into two cohorts: traditional cartilage sacrificing and rib-sparing harvests. Outcomes were assessed including arterial thrombosis, venous thrombosis, hematoma, postoperative pain, fat necrosis, postoperative breast revision, and need for autologous fat grafting.

Results:
A total of 291 patients underwent 469 microsurgical breast reconstructions. 63.1%(n=296) underwent traditional rib harvest while 36.9% (n=173) had a rib-sparing approach.
Patients undergoing rib-sparing techniques had greater incidence of fat necrosis (10.4% (n=18) versus 3.0% (n=9) p=0.0016), hematoma (6.4%(n=11) versus 2.4% (n=7) p=0.0438) and decreased operating time from 425.3 minutes versus 465.5 minutes (p=0.001), when compared to rib sacrificing. Moreover, there was no difference in incidence of secondary breast revision, fat grafting, volume of fat grafting, or flap loss.

Conclusions:
Rib-sparing harvest of internal mammary vessels is a feasible technique. However, it does not decrease the rate postoperative revision and fat grafting. Additionally, there is a trend towards increased postoperative complications, suggesting the purported benefits of this technique may be limited.

LOP12: Desmoplastic melanoma: a 12-year experience with sentinel lymph node biopsy.

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Objetive:
Given the paucity of data regarding nodal involvement in desmoplastic melanoma (DM), we decided to review the incidence of nodal metastasis in our patients with DM to better define guidelines regarding the performance of sentinel lymph node biopsy (SLNB) in this specificmelanoma subtype.

Methods:
Using a prospectively maintained database, we reviewed all patients who underwent treatment for melanoma at the Yale Melanoma Unit in a twelve-year period (1998-2010), during which 3531 cases were treated. We identified 24 patients (0.7%) diagnosed with DM. These patients' records were studied for clinical and histologic parameters and clinical outcomes.

Results:
Twenty-two patients from the DM group had SLNB, of which four (18%) were diagnosed with micro-metastasis. These four patients were all treated with completion lymphadenectomy and none had additional positive nodes in the remainder of the nodes. Patients were followed after surgery for a median of 25 months (range 2-60 months). Two patients (9%) developed local

recurrence, two (9%) in-transit recurrence, and six (27%) showed distant metastases (three patients were pure DM and three patients showed mixed morphology). Patients with mixed DM had a higher rate of nodal metastasis (25%) vs those with pure DM (14%).

Conclusions:

Other authors have reported that patients diagnosed with pure DM were less likely to have a positive SLN (0-2%) than those patients with the mixed DM subtype (12-16%). Our findings of higher incidence rates of regional lymph node metastases in both the pure and mixed DM subtypes (14% and 25%) compel us to continue to still recommend that SLNB be considered in patients with both subcategories, pure and mixed DM.

LOP13: Experimental advances in Hair Restoration Surgery

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Question:

When performing hair transplantation procedures, it is of the foremost importance to try to obtain the maximum survival rate possible of transplanted micrografts. We present an *in-vitro* model to test hair graft survival and growth after various surgical procedures.

Methods:

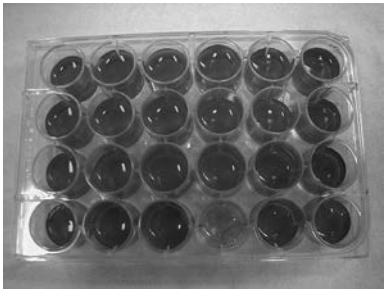
A total of 1020 human anagen hair follicles was obtained from 50 male patients and thus randomly assigned to one of the following groups: Group A (control), conventional micrografts cultured as dissected; Group B (experimental), conventional micrografts preserved (before culture) for five hours in a storage medium; Group C (control;), conventional micrografts preserved (before culture) for five hours in saline at room temperature; Group D (experimental), conventional micrografts preserved (before culture) for 5 hours at1°C; Group E (experimental), "plucked" hair follicles; Group F (experimental), follicular units; Group G (experimental) skeletonized micrografts. Hair follicles from all the groups were then cultured for 10 days.

Results:

A statistically significant difference was found between the survival rate of follicles from Group B (98%) and Group A (87%), as well as between the growth rate of Group E (mean 10-day shaft growth =2.36 mm) and Group F (mean 10-day shaft growth =2.23 mm) as compared to Group A. No statistically significant differences were found between the growth rate of follicles from Group C and Group D or from Group G and Group A.

Conclusions: According to our data, the described method is, in our opinion, an useful adjunct in order to quantitatively evaluate the effects of various procedures in the field of hair transplantation surgery.

figure 1



LOP14: Assessing Approaches to the Inferior Turbinate in Rhinoplasty: A Systematic Review of the Literature

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Purpose:

While many different techniques exist for treating inferior turbinate hypertrophy, a systematic review of these techniques does not yet exist in our literature.

Methods:

A MEDLINE, PubMed, and Cochrane Database search was performed for inferior turbinate surgery which yielded 1,210 studies. This search was then narrowed by analyzing titles containing the keywords turbinectomy, inferior turbinectomy, partial turbinectomy, submucousal turbinectomy,

electrocautery, laser cautery, cryotherapy, cryosurgery, hypertrophied inferior turbinates, nasal obstruction, nasal turbinates.

Results:

This yielded 42 relevant studies. In terms of subjective improvement of nasal obstruction, partial turbinectomy rated highest with 87% of patients stating decreased nasal obstruction. This was followed by electrocautery (86.7%), laser cautery (85.4%), submucousal resection (80.23%), total turbinectomy (69%), and cryotherapy (60%). Submucousal resection and laser cautery were found to have the greatest change in nasal airway resistance, .75 Pa/cm^3, followed by total turbinectomy (.69), cryotherapy (.6), and partial turbinectomy (.55). Surgeons were found to prefer partial turbinectomy (47.65%) followed by turbinate outfracture (42.5%). Post-operative bleeding and atrophic rhinitis was most commonly reported with total turbinectomy (12.9% and 39% respectively) while synchiae and crusting were most prevalent with electrocautery (34% and 63% respectively).

Conclusion:

Many approaches toward treating inferior turbinate hypertrophy in rhinoplasty have been utilized in the literature.

A systematic review of the evidence reveals that partial turbinectomy appears to provide largest decrease in nasal obstruction, while total turbinectomy and electrocauterization have higher levels of complications.

LOP15: Nipple shields as additional tool to pocket irrigation in reducing capsular contracture after cosmetic breast augmentation

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Question:

Capsular contracture (CC) is the most commonly reported complication of augmentation mammaplasty, probably due to bacterial biofilms on breast implants arising chronic inflammation.

We investigated the effectiveness of nipple shields together with povidone-iodine-antibiotic irrigation of the breast pocket to prevent capsular contracture.

Material and Methods:

The charts of 333 consecutive patients who underwent primary augmentation mammoplasty between 2009 and 2010 were reviewed. Patients underwent breast augmentation-mastopexy, secondary augmentation, revision, reconstruction, and not receiving pocket irrigation were excluded. One hundred sixty-five women were included into the analysis and were divided into 2 groups on the basis of occlusive nipple shield use. All patients in the series underwent augmentation with the same surgeon via the inframammary approach, dual plane pocket, topical irrigation with a povidone-iodine-antibiotic solution.

Group A comprised 60 patients underwent augmentation receiving only pocket irrigation, while group B included 105 women underwent augmentation receiving occlusive nipple shields and pocket irrigation. Postoperative complications included occurrence of infection, hematoma, seroma, and CC.

Results:

Mean (SD) postoperative follow-up in groups A and B was 38 (13) months and 34 (3) months, respectively. The postoperative superficial wound infection rate was 1.67% and 0.95%, the seroma rate was 0% and 1.9%, and the hematoma rate was 1.67% and 0.95% in groups A and B, respectively. Three CC cases (Baker grade 3 or 4) in group A and no cases in group B were reported (5% vs 0%, p=0.04).

Conclusion

Use of nipple shields with topical povidone-iodine and antibiotic irrigation might further reduce the CC rate in long-term periods.

LOP16: Malignant melanoma thickness and risk of future malignancies.

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Introduction:
Malignant melanoma has been shown to be associated with an increased risk of developing further primary malignancies. We hypothesised that an increase in melanoma Breslow thickness would further increase the risk of subsequent primary malignancies.
Methods:
A retrospective cohort study, all malignant melanomas diagnosed in England between 1996 and 2005 with a minimum five-year follow up period, using the English National Cancer Data Repository. The exposure was defined as Breslow thickness of initial malignant melanoma. All further primary malignancies were identified. Standardised Incidence Ratios (SIRs) were calculated adjusting for gender, age, follow up period and income-based deprivation. Poisson regression was used to determine risk associated with Breslow thickness.
Results:
The cohort consisted of 61,196 malignant melanomas, (438,447 person years), in which 6,684 further primary malignancies were diagnosed. We observed an increased risk for all other non-skin malignancies (117%; 95% CI 114%-120%). Amongst the ten most common non-skin malignancies, the following showed the greatest increased risk: multiple myeloma (221%), non-Hodgkin's lymphoma (167%) and renal (149%). We found a dose response effect with Breslow thickness for melanoma (p value for trend <0.0001) and all non-skin malignancies (p value for trend <0.0001).
Conclusion:
Breslow thickness is a prognostic indicator for melanoma risk and also some other malignancies. Developing a greater understanding of the associations between multiple malignancies may guide research into susceptibility germline mutations and/or shared environmental factors.

LOP17: An Outcomes Based Evolution of 800 Implant Based Breast Reconstructions with Acellular Dermal Matrix
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Introduction:
The use of acellular dermal matrix (ADM) in implant based breast reconstruction has been an area of significant debate. The evolution from aseptic ADM to sterile ADM along with increasing experience has encouraged the development of clear indications for the use of ADM. Here, we explore our institutional experience with ADM to highlight outcomes and indications for use.
Methods:
A retrospective review of all patients undergoing immediate implant based breast reconstruction at a single institution between November 2007 and November 2013 was conducted. Strict guidelines for use were instituted in November 2010 and sterile "ready to use" ADM was introduced in November 2011. Outcomes of breasts were analyzed into three cohorts: traditional submuscular coverage, aseptic ADM, and sterile ADM.
Results:
A total of 498 patients underwent 790 breast reconstructions with ADM, 82% (n=648) aseptic and 18% sterile (n=142). The use of ADM significantly decreased from 74.7% in 2010 to 19.3% in 2013. However, the use of ADM in direct implant reconstructions has significantly increased from 18.8% in 2010 to 45.9% in 2013 (p=0.0004). Major infectious complications have significantly decreased from 8.7% in 2010 to 2.6% in 2013 (p=0.03) and are similar to total submuscular coverage at 1.4%. Additionally, after the introduction of sterile ADM, major infectious complications (10.3% (n=56) to 5.6% (n=8) (p=0.112)) and explantation (7.7%(n=50) to 2.8%(n=4) (p=0.004)) has decreased.

Conclusions:
Acellular dermal matrix is a useful adjunct in immediate implant-based breast reconstruction. The development of strict guidelines for use along with the availability of sterile ADM has dramatically lowered complications and explantations.

LOP18: 1-cm versus 2-cm excision margins for patients with intermediate thickness melanoma

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Question:
The optimum excision margins are still unclear in patients with intermediate thickness melanoma. The aim of this study was to compare the outcome of 1-cm margins with 2-cm margins in patients with tumour thickness of 1.1-4.0mm.
Methods:
This is a retrospective study based on matched-pairs design. Equal patient cohorts were constructed in terms of gender, age, Breslow thickness and the anatomic location of the primary lesion. There were 80 patients who underwent an excision with 1-cm margin and 80 patients with 2-cm margin. Follow-up data were analysed by Kaplan-Meier method and Cox regression model.
Results:
After a median follow-up time of 41 months, there were no differences in relapse-free survival or melanoma-specific survival between study groups. The wound was closed directly in 62 patients (78 %) in the 1-cm group and in 36 patients (45 %) in the 2-cm group ($p<0.001$).
Conclusions:
According to our results, 1-cm margin may be sufficient in melanomas of 1.1-2.0 in Breslow thickness. In thicker tumours (2.1-4.0 mm), this recommendation cannot be given due to the low number of patients and follow-up events.

LOP19: Multiple familial pilomatrixomas spanning three generations: a cutaneous marker of underlying disease?

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Pilomatrixomas are benign cutaneous tumours derived from hair matrix cells of unclear aetiology. Pilomatrixomas commonly demonstrate somatic mutations in CTNNB1, a gene coding beta-catenin, a protein involved with hair follicle development. Multiple familial pilomatrixomas rarely occur and are most often associated with autosomal dominant conditions such as myotonic dystrophy and familial adenomatous polyposis (FAP). Reported literature documents only nine families with multiple familial pilomatrixomas and no demonstrable underlying association. We present a tenth family with five members who uniquely span three generations. No evidence of myotonic dystrophy, FAP or other known associations was found. Extreme tiredness, behavioural problems and sensory disturbances were common features across three generations but bore no temporal relation to the pilomatrixomas. The existence of a germline mutation in CTNNB1 to explain these symptoms is yet to be shown. Pilomatrixomas are potentially cutaneous markers of significant underlying pathologies. Patients presenting with multiple or familial pilomatrixomas should be thoroughly assessed for other pathologies and offered genetic screening to ensure that important diagnoses are not inadvertently overlooked.

LOP20: Fibro-Lipo-Lympho-Aspiration (FLLA): A Lymph Vessel Sparing Procedure (LVSP) for Treatment of Advanced Lymphedema

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Lymphedema is an often poorly recognized disease causing significant morbidity in advanced cases. Chronic lymphedema develops irreversible fibrotic and adipose excess tissue. In these chronic cases, lymphatic microsurgery helps to resolve the lymph stasis that adds to swelling. Notwithstanding the success of microsurgery, there often remains significant adipose tissue in the affected limb that contributes to residual lymphstasis and risk of infection.

Methods:

The authors discuss a recently developed Fibro-Lympho-Lipo-Aspiration technique (FLLA) to improve this chronic swelling of patients with advanced lymphedema, using a Lymph Vessel Sparing Procedure. Brorson and colleagues have presented liposuction as a relatively recent treatment for advanced stages of lymphedema; however, liposuction can be associated with varying degrees of tissue damage, including that of the lymph vessels. In patients with lymphedema, the lymph vessels and channels are often dilated in chronic cases and thus may be difficult to avoid with the liposuction cannula. FLLA gives surgeons a method to reduce the risk of further lymphatic injury in these vulnerable patients.Using blue patent violet, together with the photodynamic eye procedure with Indocyanine Green Fluorescent Micro-Lymphography, to highlight the lymphatic pathways in the limb, the excess adipose tissue is carefully aspirated with a tumescent method.

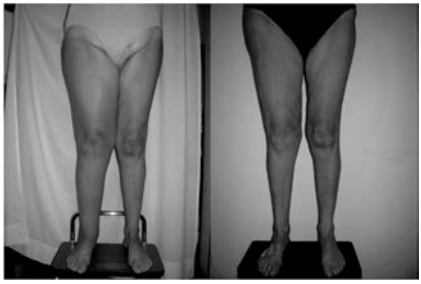
Results:

The post-operative results from the initial series of 30 patients are shown, providing evidence of the efficacy of this technique in limb-reshaping whilst maintaining the optimal lymphatic flow restored by previous Lymphatic Microsurgery.

Conclusion:

FLLA represents a novel adjuvent technique to remove residual tissue that contributes to a blockage in lymphatic flow without fear of risk to existing lymphatic structures.

figure 1



LOP21: Total lower lip and complete chin reconstruction after full thickness tissue defects

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Introduction:

Full thickness tissue defects involving both the lower lip and the chin is a challenging deformity, the most elegant and appropriate reconstructive technique is the combination of a free flap to reconstruct the chin and two Abbe flaps to reconstruct the lower lip.

Patients and methods:

Two patients with total thickness tissue defects involving both the lower lip and the chin secondary to malignant tumor removal. The total lower lip reconstruction can be performed with double Abbe flaps; this technique is easy and gives satisfactory results aesthetically and functionally. The chin reconstruction has been performed by the antero-lateral thigh free flap which is very adapted because it is thin and pliable. The free flap is folded to itself in order to replace both

the skin (exterior) and the vestibular (interior) aspect of the missing chin. The superior edge of the folded free flap is deepithelialized and the two paraphiltral Abbe flaps are sutured to it.

Results:

The cosmetic and functional results were very satisfactory. Oral competence was very good because the lower lip reconstruction with the use of the Abbe flaps re-establishes the oral sphincter function of the oricularis muscle

LOP22: Utilizing Indocyanine Green Angiography in the Evaluation of Varying Levels of Venous Congestion in a Novel Rat Model

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Question:

Flap venous congestion can lead to flap necrosis and remains a challenge to the reconstructive surgeon. Current standard of practice relies on clinical judgment to identify flaps that have compromised outflow; however no quantitative measurement is currently available. Here we sought to determine the utility of ICG Angiography to quantify varying levels of venous congestion at early time points in a rat hindlimb model.

Methods:

Male Sprague Dawley rats underwent partial lower limb amputation, leaving only the femoral vessels and femur intact. Unilateral femoral vein occlusion was performed at occlusions of 25%, 75%, 85%, 92% or 100% of vessel diameter. The relative perfusion level of occluded and non-occluded contralateral control limbs was tracked with ICG Angiography throughout a 10 minute time course. Perfusion levels at 2 minutes post injection as well as initial slope of ICG inflow were analyzed and compared between all groups.

Results:

ICG Angiography detected statistically significant ($p < 0.05$) differences in limb perfusion two minutes following ICG injection in the 100% (16.3% ± SD 10.0), 92% (35.78% ± SD 33.46) and 85% (48.46% ± SD 23.88) occluded limbs compared to contralateral control limbs (87.71% ± SD 13.37) but did not detect any differences in the 25% (91.72% ± SD 20.89) and 75% (84.78% ± SD 23.88) occlusion groups. Significant differences were also found between the slopes of the 85% (0.60 ± SD 0.48), 92% (.39 ± SD 0.50), and 100% (0.15 ± SD 0.13) occlusion groups when the slope of each limb was compared to control (1.65 ± SD 0.40).

Conclusions:

ICG Angiography was able to quantify 85% and 100% levels of venous occlusion. However, in this model, no differences were found in perfusion levels of ≤75% venous occlusion versus control. Further research is necessary to further characterize the utility of quantitative ICG Angiography.

figure 1

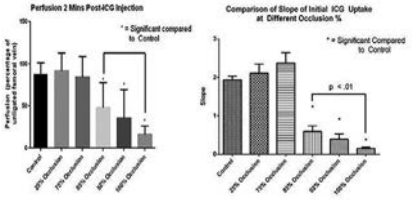
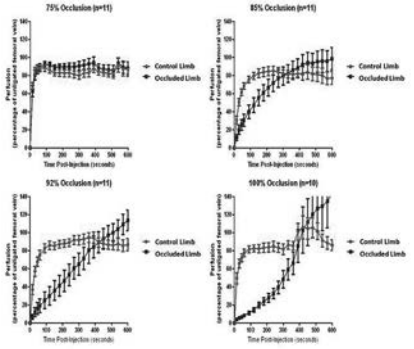


figure 2



LOP23: Impaired Regenerative Ability of Aged and Diabetic Adipose Derived Stem Cells is Caused by Depletion of Cell Subpopulations

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Introduction:

Neovascularization is essential for tissue repair. Both aged and diabetic patients suffer from a reduced neovascular response leading to complications in wound healing. While it has been shown that mesenchymal stem cells derived from adipose tissue (ASCs) promote tissue regeneration, it also becomes increasingly clear that their function is impaired in aged and diabetic populations. Here we investigate the impact of aging and diabetes on the regenerative potential of ASCs.

Methods:

ASCs were harvested from young, diabetic and aged mice and their viability, proliferation, neovasculogenic capacity and regenerative cytokine profile were compared. Furthermore, their effect on wound healing was determined and microfluidic single-cell gene expression analysis was performed.

Results:

Aged and diabetic ASCs are compromised in their ability to establish a vascular network both *in vitro* and *in vivo* (*$p<0.05$). This is likely due to reduced expression of pro-angiogenic and anti-oxidative cytokines (Angpt-1, VEGFa, HGF, SOD3 and SOD2; *$p<0.05$). Seeding onto a regenerative biomimetic hydrogel fails to rescue the functional impairment of aged and diabetic ASCs resulting in delayed wound healing (*$p<0.05$) and reduced wound-vascularity upon healing (*$p<0.05$). Utilizing single cell transcriptional analysis to examine the composition of the ASC population, we identified a subpopulation of cells defined by the expression of genes associated with stemness, tissue remodeling and vasculogenesis, which was diminished in aged and diabetic mice.

Conclusion:

Our results implicate a novel pathophysiologic mechanism underlying ASC dysfunction in aged and diabetic populations and that the utility of autologous ASCs for cell-based therapies in these patients may be limited.

LOP25: An ancient wound dressing newly discovered - spider silk for wound healing

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Introduction:

Spider silk is known for ist outstanding mechanical properties combined with a high biocompatibility. Its application as a wound dressing was popular in ancient times. However, other wound dressings replaced spider silk in the last centuries.

The aim of this study was to investigate spider silk as wound dressing with modern methods.

Material and Methods:

In a pilot study, an indian runner duck (*Anas platyrhynchos*) suffering from chronic wound on the foot caused by a trauma was filled with a bundle of spider silk. Healing was documented via digital photography.

To prove safety and potential influences in the healing process, full thickness wounds of 1, 9 or 16 cm^2 were set on the dorsal skin of sheep (*Ovis aries*) and treated with spider silk. Skin biopsies were taken after 2, 4 and 6 weeks, after 8 weeks skin was explanted and analyzed histologically. Untreated wounds served as controls.

Additionally, vascular reactions to spider silk were investigated in the hen egg chorioallantoic membrane (CAM).

Results:
In the wound of the duck, clinical inflammation decreased after 3 days, complete wound closure could be observed after 8 days.
The dorsal wounds in the sheep did not show significant differences, however, tendential differences were seen in the histologies regarding epidermal thickness, number of skin appendages and vascularization.
Neovascularization could be proven in the CAM as neovessels tended to grow along spider silk fibres.
Conclusion:
We could show benefitial effects of spider silk in a chronic, inflammated wound of a duck. Safety could be proven in a sheep model, neovascularization occured in both histological investigations as well as the CAM.
Spider silk might be advantgeous in particular in chronic wounds as it seems to promote neovascularization.

LOP27: The Effects of Implantation of Differentiated Embryonic Stem Cells (dESC) and Differentiated Bone Marrow-Derived Mesenchymal Stem Cells (dMSC) on Lymphangiogenesis in a Mouse Lymphedema Model.

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Introduction:
Lymphedema is an abnormal collection of protein-rich fluid in the interstitium caused by a blockage or dysfunction of the lymphatic system. Despite both surgical and conservative treatment modalities clinical success is limited. In this study, the effects of implantation of differentiated embryonic stem cells (dESC) and differentiated bone marrow-derived mesenchymal stem cells (dMSC) on lymphangiogenesis are investigated in a mouse lymphedema model.

Material and Methods:
Forty five Bulb-C mice were categorized into 5 groups. One week after establishment of secondary lymphedema on mice tail, dESC, dMSC, dESC medium, dMSC medium, and saline are given to groups 1, 2, 3, 4, and 5, respectively. Tail diameter measurement is performed daily. The development of lymphangiogenesis and lymphedema status on the tail were evaluated histologically H-E and immunohistochemically (VEGF, FGF-2, LYVE-1, and Prox markers).
Results:
Statistically significant ($p<0.05$) decrease are obtained in tail diameter in the groups given dESC and dMSC compared to the other groups. In histological and immunohistochemical evaluation, statistically significant lymphangiogenesis was determined in dESC and dMSC groups compared to the other groups. However, no statistically significant difference between dESC and dMSC is seen.
Conclusion: The effects of dESC and dMSC implantation in lymphangiogenesis in a mouse lymphedema are examined. Clearly, additional investigations in larger animal species are warranted, but our present method may provide a novel strategy for therapeutic lymphangiogenesis for patients with severe lymphedema in the near future.

LOP28: Challenges to correctly and quantitatively measure subjective symptoms from infraorbital nerve injury associated with zygomaticomaxillary complex fractures.

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Purpose:
We investigated the effectiveness of current perception threshold (CPT) neurometer to estimate the paresthesia of cheek lesion after unilateral zygomaticomaxillary fracture (UZF). We also clarified the mechanism of hypoesthesia of cheek lesion using CPT.

Materials and Methods:
We conducted a retrospective study of patients who had undergone open reduction and internal fixation, and whose subjective symptoms, Semmes-Weinstein monofilament (S-W) and CPT testing values were examined. Differences between the affected and unaffected side for S-W and CPT values were analyzed by t test preoperatively and at 1 and 5 years postoperatively.
The ratio of S-W values of the affected side to the unaffected side was calculated, as well as that of the CPT values. The Kruskal-Wallis test was then performed to compare pre-operative and 1 year postoperative results, preoperative and 5 years postoperative results, as well as 1 and 5 years postoperative results.
Results:
All patients (6 men and 4 women) had paresthesia at 1 year and even at 5 years postoperatively. S-W testing showed the same results on both sides in all cases at 5 or more years postoperatively, In a CPT values, differences were observed at every frequency until 1 year postoperatively between both siedes. However, the values at2000Hz improved at 5 years postoperatively. Preoperative differences were significantly greater at 250 Hz and 5 Hz than at 2000 Hz. The values at 5 Hz showed significant differences between preoperatively and 5 years postoperatively. The values at 250 Hz showed a tendency to improve between preoperatively and 1 year postoperatively.
Conclusion:
The CPT testing reflects subjective symptoms better than S-W testing. The possible cause is considered to be a disorder of nerve fibers, which transmit temperature and pain.

LOP29: Human stem cells and hydrogel *β*-TCP/PCl versus hydrogel *β*-TCP/PLGA scaffolds in human thumb regeneration

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Background:
The absence of the thumb from either trauma or congenital defect renders a patient in severe disability and loss of function in daily life.
Question:
What is the best β-TCP based biomaterial for tissue engineering human thumb bones?
Methods:
In our experiment, we used three-dimensional printed (3DP) scaffolds from a CT scan of a human distal phalanx to test ability to support bone formation in vivo. Human mesenchymal stem cells (hMSCs) were expanded, suspended in collagen I and fibrin glue hydrogel and applied onto 3DP β-TCP/PCL or β-TCP/PLGA scaffolds. Acellular constructs and scaffolds only served as controls. Constructs were implanted subcutaneously into nude mice for 6 weeks. Samples were then evaluated using high resolution VCT scanning, histologically by Toluidin blue, van Kossa and alkaline phosphatase stain and biomechanically.
Results:
In vivo high resolution VCT scanning revealed densities closer to native bone in cellular β-TCP/PLGA specimens than in β-TCP/PCL specimens. Histologically collagen I hydrogel β-TCP/PLGA specimens had superior bone tissue, although radiopacities were detected in collagen I and Fibrin glue β-TCP/PCL samples. Biomechanical compression testing, however showed higher stiffness in cellular β-TCP/PCL collagen I than in β-TCP/PLGA. Expression of bone specific proteins was highest in cellular β-TCP/PLGA collagen I specimens Statistical analysis confirmed high correlations between volumetric CT and biomechanical values and expression of bone specific proteins.

Conclusions:
This new approach could be potentially used in the surgical reconstruction for patients with bone loss of the hand.

LOP31: Reliability and Validity of RPNI Signaling of Gait Phases during Voluntary Walking

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Introduction:
Regenerative Peripheral Nerve Interfaces (RPNIs) are neurotized muscle grafts that control prostheses through electromyography (EMG). RPNI signals have not been quantified during phases of voluntary movements. This study: a) characterizes active RPNI signaling compared to background activity and b) defines the reliability and validity of RPNI function during gait phases of rat walking.
Materials and methods:
Rat groups were: Control (n=3), RPNI (n=3), Denervated (n=3). Bipolar electrodes were implanted onto the soleus muscles in each group. The Control group was left intact. The Denervated group had the tibial nerve transected. For RPNIs, the soleus muscle was freely grafted to the ipsilateral thigh and neurotized by the transected tibial nerve. While walking on a treadmill, rats were videographed and raw EMG signals were simultaneously recorded. Outcome measurements were integrated EMG (iEMG) and iEMG normalized (NiEMG) to stance, swing, or sit gait phase.
Results:
Majority of EMG activity was observed within the stance phase—70% for Control and 79% for RPNI—as expected for active soleus postural muscles. Stance NiEMG signals were greater than swing NiEMG averages for Control and RPNI groups (Fig 1). The Denervated group stance and swing NiEMG signals were not different without peripheral nerve control. Fidelity of RPNI stance activity (NiEMG signal to background signal) was 5.6 to 1, or double the Control signal fidelity. Correlations between iEMG and stance time for the Control (r=0.74) and RPNI (r=0.76) indicate strong signal reliability (Fig. 2).
Conclusion:
Measurements of fidelity, reliability, and validity for RPNI signal detection all exceeded normal probability ($p<0.05$) during voluntary movement.

figure 1

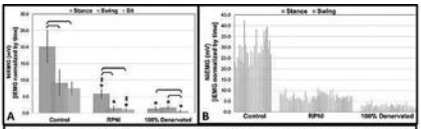

Figure 1. Summarized and individual EMG gait cycle data from Control, RPNI, and 100 % Denervated groups. (**A**) Bars represent iEMG normalized by stance, swing, or sit times. Each bar is a mean±SD value of 32-64 gait cycle values from three rats within each group. Stance NiEMG was significantly higher ($p < 0.05$) than swing or sit NiEMG within Control and RPNI groups. Stance NiEMG was 5.6 times higher than sit NiEMG within the RPNI group. Swing NiEMG and sit NiEMG were not statistically different within the RPNI group. (**B**) Stacked bars represent integrated EMG normalized (NiEMG) by stance or swing time for each individual gait cycle analyzed. Stance NiEMG was higher than swing NiEMG for all gait cycles in the Control and RPNI groups. For the 100% Denervated group, stance NiEMG when compared to swing NiEMG was greater for 12 gait cycles and less for 24 gait cycles.
↷ *Statically significant differences within a group (Dunn's rank order; $p < 0.05$).*
* *Statistically significant difference compared with Control (Bonferroni; $p < 0.001$).*
‡ *Statistically significant difference compared with 100% Denervated (Bonferroni; $p < 0.001$).*

figure 2

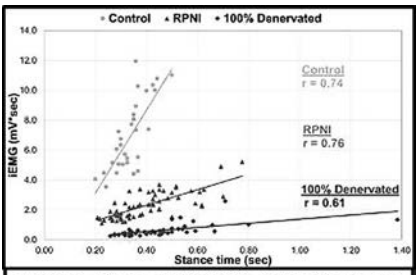

Figure 2. Stance iEMG versus stance time (length of time foot was in contact with the treadmill; Heel Strike to Toe Off). Each data point represents one gait cycle. iEMG signal strength was the strongest in Control and weakest in 100% Denervated. iEMG increased with stance time for all groups. The correlation between stance iEMG and stance time was characterized with a Pearson correlation coefficient or r value. Control has an r value of 0.74 and RPNI has an r value of 0.76. 100% Denervated had an r value of 0.61 likely due to signal from surrounding muscles.

LOP32: Enhancement of neuritic outgrowth *in vitro* by adipose-derived stromal cells

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Introduction:
Severe peripheral nerve injuries can lead to loss of sensory and motor functions. Results after surgical repair is often disappointing and methods to improve outcome are of clinical demand. One possibility is additional cell transplantation for structural repair and secretion of growth factors. Adipose-derived stromal cells (ASCs) are a promising source of multipotent adult stem cells. We used an *in vitro* co-culture model of ASCs with primary afferent dorsal root ganglion (DRG) neurons to study the in detail the interaction of injured axons and ASCs.

Material and Methods:
ASCs were isolated from fat tissue of adult rats and characterized. Their phenotype was confirmed by differentiation. Next a co-culture system of ASCs and DRG neurons was established. In this *in vitro* model of neuritic outgrowth, the effect of the ASCs on neuritic elongation, length and number was assessed.

Results:
Expression of stem cell markers could be detected and stem cell character was confirmed. Moreover, osteogenic, adipogenic and glial differentiation of the ASCs could be demonstrated. In the co-culture experiments, DRG neurite length was significantly increased compared to the control with DRG cells alone, however, no difference could be found regarding the number of elongating neurites. Neuritic outgrowth was directed towards the ASCs and direct cell-to-cell contact could be observed.

Conclusion:
Our study shows a dynamic interaction between both cell types with guidance of neuritic growth towards the stem cells. No induction of aberrant neuronal growth due to contact with ASCs could be found. These are very promising results regarding a potential future use of ASCs in peripheral nerve regeneration.

LOP33: Engineering of Axially Vascularized Bone Grafts for the Treatment of Avascular Bone Necrosis

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Question: The goal is to generate a tissue engineered vascularized bone graft, potentially replacing the autologous vascularized bone graft in the treatment of avascular bone necrosis.
Methods: A 1,25mm hole was drilled into a cylindrical HA-scaffold of 1x1cm, which was then seeded in a perfusion bioreactor system with human SVF cells. After 5 days, the seeded scaffold was placed into a 2mm thick Tutobone® layer, which mimics avascular bone. A permeable membrane was wrapped around the entire construct to prevent cell ingrowth from outside. It was subcutaneously implanted in the left groin region of a rat by simultaneously inserting a ligated arteriovenous (AV) bundle of the deep inferior epigastric vessel through the drill hole. After 4 and 8 weeks the constructs were explanted. An Indian ink/gelatine mixture was injected into the abdominal aorta to assess vascularization of the construct. The grafts were analyzed histologically, assessing bone formation and vascularization. The origin of the tissue and vessel forming cells was analyzed by in situ hybridization and immuhistochemistry using human markers.
Results:
After 4 weeks, a vascular system had developed throughout the entire scaffold both in the seeded and unseeded constructs. After 8 weeks, the tutobone was revitalized. The unseeded constructs only contained a sparse layer of cells, producing little matrix. In the seeded constructs on the other hand, a dense layer of cells produced 'osteoid like' matrix at four weeks. The analysis of cell origin and the further assessments at 8 weeks are ongoing.

Conclusion:
The AV bundle is functional and provides vascularity throughout the entire scaffold. The cells producing 'osteoid like' matrix are dependent on the seeding process with SVF.

LOP34: Free versus Local Flaps for Foot and Ankle Wounds in the Era of Pedicle Perforator Flaps
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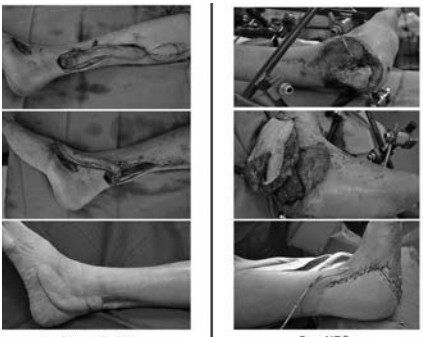
Introduction:
Free flaps have been the modality of choice for complex foot and ankle defects. There is an evolving interest in local flaps (ie. pedicle perforator and propeller) and we set out to compare the two approaches.
Materials and Methods:
An IRB approved retrospective review was performed between 2010 and 2013 to identify patients undergoing foot and ankle flaps. Ninety-two patients undergoing a total of 94 flaps were identified. Patient characteristics and outcomes were evaluated and compared using descriptive statistics and Student's t-test.
Results:
Fifty-five patients underwent 56 free flap reconstructions. Thirty-seven patients underwent 38 local flap reconstructions. The mean age between groups did not differ significantly (55 vs 57 yo, free vs local; NS). Patients that underwent free flaps had a significantly higher rate of having 3 or more co-morbidities (49% vs 16%, free vs local; $p<0.05$). Patients that underwent free flaps had significantly larger wound defects (74 vs 14 cm squared, free vs local; $p<0.05$) and were significantly more likely to have sustained a recent trauma (46 vs 7%, free vs local; $p<0.05$), Figure 1. The rate of flap loss and eventual BKA did not differ between the 2 groups (Flap loss: 9 vs 11%, free vs local; NS and BKA: 6 vs 5%, free vs local; NS).
Conclusions:
Free and local flaps offer excellent coverage in select patients. Free flap patients were more likely to be ill, have larger defects from trauma associated wounds. In contrast, local flap patients were healthier and had wounds more commonly associated with elective orthopedic procedures or cancer resections. Still, both groups have relatively high rates of flap loss and eventual amputations, indicating the complexity of foot and ankle reconstruction.

figure 1



LOP35: Cervical model of hemiface allotransplantation in rats
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Introduction:
From the composite auricle to total face allotransplantation, many models have been described to investigate basic immunology and rejection in face transplantation. In this study we performed a new model of hemiface allotransplantation in rat in the posterior cervical region.
Material and Methods:
A total of seven allotransplantations were performed in the experimental group. The donors were Brown Norway (RT1(n)) rats and the recipients were Lewis (RT1(1)) rats. In the pilot study, 10 isotransplantations (Brown Norway to Brown Norway) were performed in heterotopically (n = 10) in the posterior cervical region to establish the surgical technique. Composite hemifacial

allografts were harvested on the external jugular vein and the common carotid artery. The graft was transplanted heterotopically and revascularized using the recipient common carotid artery for end to side anastomosis and the external jugular vein for end to end anastomosis.

Results:

Operating time was 120 ± 15 minutes for the donor and 170 ± 10 minutes for the recipient. After the operation, general health and weight of the rats was monitored daily in order to emphasize clinical signs of rejection (erythema, edema, hair loss, desquamation, ulceration and progressive atrophy of the flap, and also the signs of infection or obstruction of the flap vessels). All syngeneic grafts survived long term (>100 days). Allograft rejection in experimental group occurred within 15 ± 2 days. Hematoxylin and eosin stains of syngeneic grafts revealed normal muscle and skin histology. Allogeneic grafts showed rejection patterns for face transplantation.

Conclusion:

This is the first description of a rat hemiface allotransplantation model in the posterior cervical area. The main advantages of this model are reasonable operating time and proper clinical examination of the.

LOP36: Mastering Lymphatic Microsurgery: An Innovative Training Model with Living Tissue

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Question:

Advanced microsurgical techniques have emerged as a promising approach for the treatment of lymphatic stasis and associated diseases but achieving international standards is limited by a scarcity of adequate training models.

Method:

A safe and adaptable *in vivo* experimental porcine model was developed that provides the opportunity to practice many essential microsurgical techniques in the same animal. From this initial study that mapped the anatomical pathway of the hind leg of common-breed pigs (*Sus scrofa domesticus*), an ideal Microsurgical training model has been developed from this anatomical detail, giving the opportunity to use it for artery-to-artery anastomoses, vein-to-vein anastomoses and lymphatic-to-lymphatic anastomoses.

Results:

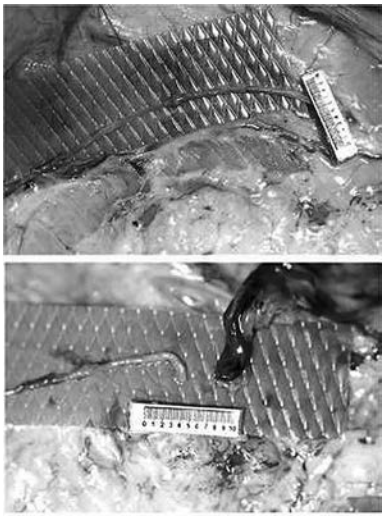
This is innovative and cost-effective training model is very flexible due to the use of pigs, which gives the surgeon the ability to practice with vessels similar to that of humans and observe the outcome over a long period of time.

Conclusion:

This is an example of the new kind of *state of the art* research in lymphatic disease which, having already established the overall efficacy of microsurgery when applied early in the disease course, is moving onto examining the subtleties of the best surgical techniques

figure 1

figure 2



LOP37: Public Perceptions of Plastic Surgery: Analysis and Implications for the Future of our Specialty

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Background:
The general public largely misunderstands the role that plastic surgeons play in patient care. We sought to identify public perceptions of plastic surgery in a major U.S. urban setting.
Methods:
A short, anonymous survey was distributed to the public in all major boroughs of New York City. Respondents were asked to choose the surgeon they thought were experts in twelve specific clinical issues representative of required competencies by both the Plastic Surgery Residency Review Committee and the American Board of Plastic Surgery.
Results:
A total of 1000 surveys were collected. Respondent demographics were: 53% female, age (6% under age 21, 31% age 21-24, 46% age 25-40, 10% age 41-54 and 8% age 55 and older) and education level (4% did not finish high school, 10% finished high school/GED, 19% completed some college, 43% have a college degree, 12% have a masters degree and 13% have a doctorate degree). Percent of respondents who chose plastic surgeons as experts in the following procedures: rhinoplasty- 61%, mandible fracture- 12%, blepharoplasty- 71%, cleft lip and palate surgery-46%, thumb replantation- 32%, hand/finger fracture- 18%, rhytidectomy- 85%, breast reconstruction- 87%, breast augmentation- 96%, open leg wound- 15%, open wound on the face- 40%, and botox- 47%.
Conclusions:
Unfortunately, many conditions at the core of plastic surgery remain outside the realm of plastic surgery in the opinion of this group.
Level of Evidence: III

LOP38: Teaching Flexor Tendon Repair

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Background:
We sought to validate if measures to asses surgical skill used in the other fields of surgery, were applicable in measuring resident proficiency in hand surgery. We investigated the use of an instructional video to determine its roll in speeding time to proficiency. Finally we sought to determine if improvement in resident's performance correlated with other objective measurements.
Methods:
8 plastic surgery residents w/out experience performing FTR, were randomized within PGY level to the use of an instructional video or not. Residents performed five zone 2 repairs, of the profundus tendon in cadaveric hands. Residents received a one on one teaching session, as well as individual feedback after each repair. Instructional material demonstrated a 4 strand modified Kessler repair with a locking epitendinous suture. Each participant completed

the repairs, over 2 sessions. Performances were videotaped and analyzed in a blinded fashion, using a 15 point Check list and a graded global scale, by two attending surgeons. Repairs were analyzed in a tensile testing machine, measuring WoF before, and after repair. Repair strength, was measured as the load (N) to failure.

Results:

Interator reliability between the blinded graders was found to be good to excellent. Significant improvement occurred in both groups after the one on one teaching session. The instructional video group scored significantly better than the non-video group early on, followed by a leveling of performance. Pullout strength increased for both groups, but never reached the peak strength reported for this repair. Changes in WoF before and after repair did not correlate with improved performance.

Conclusion:

Cadaveric repairs enhanced residence performance and are a useful simulation prior to operative experiences. Validated measures used in other specialties to assess surgical skill can be used in hand surgery.

LOP40: Release of severe contractures of hand fingers with two stages reconstruction.

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Introduction:

Sever and old contractures
of hand fingers, usually is not possible to fully release at the only operation, but needs two or more surgical intervention. The presence of severe a skin contracture over a prolonged period of many years, can produce the shortening of musculo-tendinous units and neuro-vascular structures, and deformation of joints.

Materials and methods:

This study including our experience in the surgical treatment for last six years activity: from 2007-2012.A total number of 5 patients with sever fingers contractures of hand treated and operated in the Department of Plastic and Reconstructive Surgery, Pristina, Kosovo, were studied.

Results:

From all 5 patients with sever finger contractures of hand were 2 men and 3 womens, ranging in age from 5 to 30 years, 2 patients were children, and 3 adults.From analysis of this sever contractures, notice that: 3 contractures were in DIP joints, and 2 contractures in PIP joints.The contractures rate of joints were ranging from 110 to 130 grade. For cover the wound we used full thickness skin graft, and Kirschner wire for fixation of joints for four weeks.We made done the full release of this contracture successfully with two surgical intervention, in generally within three month.

Conclusion:

The surgical treatment of sever contractures of hand fingers is a difficult process and often requires the application of a combination of surgical techniques, and the development of individual programs of treatment.Reconstructive procedures on patients with sever contractures often take too long time and require many operative procedures.

Key words:

sever contractures, surgical techniques, reconstruction.

LOP41: Experience with vein conduit in the management of nerve gap.

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Background:

Nerve gaps are seen in injuries to limbs often in association with other soft tissue injuries. It has also been associated with post-traumatic upper limbs injuries involving sharp objects like knives, glass etc. Failure to repair the nerve injuries has incapacitating effect on the patients and attendant psychological, physiological, occupational and economical consequences Most patients in this series presented late after inadequate initial management at the time of injury which is common in this environment resulting in nerve gaps > 5cm after neuroma resection.

Aim:
The aim of this series is to highlight the use vein conduit in the repair of nerve gaps and the outcome of this management modality in our environment
Methodology:
Case notes of five patients with this condition managed in our unit were retrieved from the medical records department and summarized bringing out the salient highlights of the presentation, intra-operative findings, nature of repair and outcome of follow up Literature on already existing body of knowledge concerning the condition was reviewed and compared with our index patients. Clinical photographs taken were put up for illustration and clarity.
Results:
All the patients had vein conduit repair and were followed up for 3 years with overt functional improvement
Conclusion:
Use of vein conduit in the repair of nerve gap > 4cm still gives acceptable result without significant donor site morbidity
Key words:
Vein conduit, nerve gap

LOP42: Short-term delivery of fibrin-bound VEGF protein in osteogenic grafts: increased vascularization with efficient bone formation
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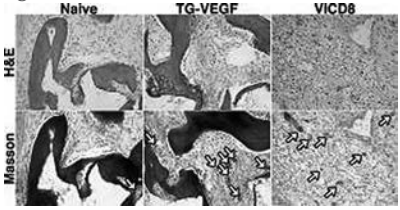
Question:
Spontaneous vascularization of BMSC-loaded osteogenic grafts in vivo is too slow to allow survival of the progenitors in constructs larger than a few millimeters. We previously found, that sustained over-expression of VEGF by genetically modified human BMSC was effective to improve vascularization of tissue engineered bone grafts, but also caused an undesired increase in osteoclast recruitment with excessive bone resorption. Here we hypothesized that short-term delivery of VEGF protein bound to fibrin gels may improve graft vascularization without impairing bone formation.
Methods:
Primary human BMSC were retrovirally transduced to express VEGF linked to CD8, as a surface marker, or just CD8. Recombinant VEGF was engineered with a transglutaminase substrate sequence (TG-VEGF) to allow covalent cross-linking into fibrin hydrogels. BMSC were seeded on apatite granules in fibrin pellets. Bone formation and vascularization were determined histologically 1, 4 and 8 weeks after ectopic subcutaneous implantation in nude mice.
Results:
One week after implantation, both the constructs with naive BMSC and fibrin-bound TG-VEGF and those with VEGF-expressing BMSC (VICD8) displayed increased vascularization compared to the controls with naive BMSC only. After 4 weeks fibrin gels were completely degraded in all conditions. After 8 weeks both fibrin-bound TG-VEGF and VEGF-expressing BMSC induced significantly increased vascularization compared to naive BMSC only. However, while bone formation was severely impaired with VEGF-expressing BMSC as expected, fibrin-bound recombinant TG-VEGF allowed the formation of bone tissue as efficiently as by naive BMSC alone.
Conclusions:
These data suggest that short-term delivery of recombinant VEGF protein, providing an attractive and clinically applicable strategy to ensure both rapid vascularization and efficient bone formation.

figure 1



LOP43: A Vascularized Nerve Graft Substitute Generated in a Chamber Bioreactor

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Introduction:

A means to construct a vascularized nerve graft substitute for treatment of long nerve defects was sought.

Material and method:

A chamber bioreactor was designed on the White New Zealand Rabbit's superficial inferior epigastric pedicle (SIEP) and using autologous Schwann cell (ASC) suspension, a tissue of vascularized Schwann cells was constructed. This construct was comparatively tried on3 cmsciatic nerve defect. In group-1, a3 cmsegment of the sciatic nerve was excised and used as a nerve graft. In group-2, a3 cmnerve defect was bridged by a silicone tube filled with ASC suspension. In group-3, a 3 cm defect was bridged by a silicone tube containing SIEP, and suspension without Schwann cells. In group-4, the arteriovenous pedicles were dissected bilaterally and introduced into a silicone tube, and sealed. The chambers were filled with ASC suspension. After 3 weeks, one of the constructs was harvested for analysis, while the other was coapted to a 3 cm nerve defect. After 5 weeks, electrophysiological and histological analyses were done.

Results:

The results suggest that groups 2 and 4 have achieved better nerve transmission velocities. Immune histochemical analyses revealed that the chambers prepared via tissue engineering contained tissues with high vasculature and abundant Schwann cells (Figures 1, 2). These constructs were compatible with nerve regeneration and provided comparable nerve transmission velocities.

Conclusion:

According to our literature review, this is the first achievement of engineering a nerve graft substitute containing vascularized Schwann cells. Therefore we believe that this study has yielded very significant results which will provide basis for future studies.

figure 1

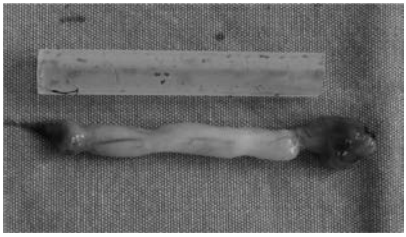
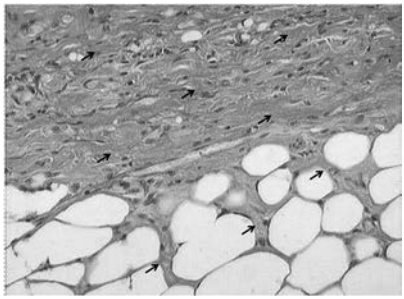


figure 2



LOP44: The role of autologous nerve fragments implantation in enhancing peripheral nerve regeneration.

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Question:
The aim of this study was to assess the effect of seeding a nerve suture with autologous nerve fragments. Our hypothesis is that the fragments could improve axonal regeneration.
Methods:
on 20 Sprague-Dawley rats a 15mm sciatic nerve defect was created and grafted. In the study group (n=10) a 1mm nerve segment was minced and seeded around the distal suture. In the control group (n=10) no fragments were seeded.
Rats were sacrificed at 4 (n= 10) and 12 weeks (n= 10) and number of regenerated fibers, fiber area and density, Soleus and Gastrocnemius muscles mass indexes, and walking track analysis in the 12 weeks group were evaluated. The Student *t*-test was used for statistically analysis.
Results:
A significantly (p= 0,042 and 0.032) higher number of regenerated axons (235 vs 160 and 378 vs 306)and fiber area (561 μm^2 vs 405 μm^2 and 883 μm^2 vs 661 μm^2, p= 0,043 and 0.033) were found in the study group both at 4 and 12 weeks. The Soleus muscle weight ratio at 12 weeks was significantly higher than in the control group (0,72 vs 0,40, p= 0.0207). Differences in Grastrocnemius muscle weight ratio and walking track analysis were not significant.
Conclusions:
Our results show that nerve fragments seeded around the distal nerve suture increase the number of regenerated axons, the fiber area and the Soleus mass index.

SOP1: Splinting after surgical correction for Dupuytren's contractures of the hand

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Background:
Splinting has been advocated post-operatively, however evidence has been of poor quality and the decision to splint seems to be based on clinical experience and expert opinion.The goal of this study is to assess the role of splinting of the hand after surgical correction of Dupuytren's contracture in improving the extension, and improving patient quality of life.
Methods:
A comprehensive literature review was conducted for articles published between January 1946 and October 2013 and assessment was undertaken by two independent reviewers. Articles were selected using specific inclusion criteria. We included studies evaluated adult patients, all type of splinting after any surgical technique, and only randomized controlled trials (RCTs). The main outcomes were improvement in total joint extension. Other outcomes included the Disability of the Shoulder and Hand (DASH) score and recurrence.Methodological quality of randomized controlled trials was assessed using the Cochrane risk of bias tool.
Results:
Three RCTs were identified and included in the final analysis. The length of follow up all examined studies ranged from 3 to 12 months. Three RCTs were included in the metanalysis of the main outcome, 235 patients in the main analysis, in which 115 patients have used splint after surgery. There was no statistically significant difference between the mean joint extension between splint and control groups. (MD = 0.95; CI 95% = -7.17, 9.06). Only two studies reported the DASH score, however, There was no statistically significant difference in the mean score between

splint and control groups (MD = -0.21; CI 95% = -5.53, 5.11). Recurrence was not reported in the included studies.

Conclusions:

Splinting of the hand after surgical correction of Dupuytren's contracture has no beneficial effect.

figure 1

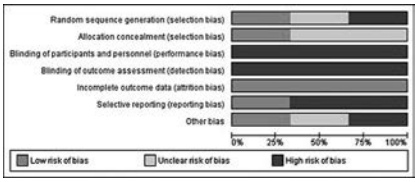
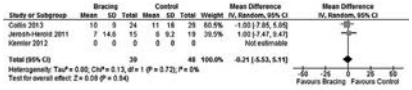


figure 2



SOP2: Venous Thromboembolism Risk Assessment Compliance in Plastic Surgery: A Multi-cycle Audit

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Background:

Venous Thromboembolism (VTE) is an international patient safety issue. Lifetime incidence is 1 in 20, approximately half associated with prior hospitalisation and two-thirds potentially preventable. VTE prevention is now recognised as a clinical priority for the NHS by the National Quality Board and the NHS Leadership Team.

Objective:

To determine the compliance of the Burns Unit with VTE risk assessments (in line with NICE Clinical Guideline CG92 and Trust Policy on VTE). If deficient, changes would be implemented and performance re-audited. If successful, this pilot would be extended to other wards.

Methods:

A baseline audit was completed over three weeks in September-October 2013. 11 patients were admitted, three not having a risk assessment completed. Staff education sessions on VTE were held. The inpatient board on the Burns Unit was modified to facilitate inter-professional communication and VTE status visibility.

Results:

Six audit cycles over six weeks were completed, with 100% compliance (20 patients). The system was exported to wards 16a, 16b and the Surgical Assessment Unit where a baseline audit showed a median of 50% compliance and initial results showed a sustained increase to 100% compliance two days post-implementation (six audit cycles).

Conclusion:

The package of interventions utilised is a viable way of increasing VTE risk assessment compliance in Plastic Surgery.

SOP3: Time-related Changes in the Bacterial Profile and Antimicrobial Resistant Strains in Burn Wounds in CUH

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Background:

Wound infections are one of the most important and potentially serious complications that occur following burn injury. Previous studies have shown a change in the bacterial profile of burn wounds both across time for units as a whole and in burn wounds during the course of an inpatient hospital stay. The bacterial profile of burns swabs has not been assessed previously at Cork University Hospital (CUH), nor their change in time. This information is now understood to be important in order to help decrease burn wound infection.

Methods:

This retrospective study included patients admitted to the burn ward, 2D, in CUH, between January 1st 2006 and December 31st 2012. Swabs of each burn wounds checked for colonisation by resistant and non-resistant bacteria.

Results:
Of 809 clinical samples taken from 329 patients admitted to ward 2D in CUH, pathogens were found in 507 samples (62.7%), in which 395 pathogens (77.9%) were Gram Positive Bacteria and 108 pathogens (21.3%) were Gram Negative Bacteria. The four most prevalent bacterial species isolated were Staphylococcus aureus (209, 25.8%), Coagulase-Negative Staphylococcus (102, 12.6%), Gram Negative Bacilli (54, 6.7%) and Pseudomonas aeruginosa (24, 3.0%). Antimicrobial resistance was found in 91 patients (27.7%), from which 126 clinical samples were taken.
Conclusion:
In-depth knowledge of the bacteria causing infectious complications and of their antibiotic susceptibilities is a prerequisite for treating burn patients. High resistance to certain drugs was seen in these species, while drug sensitivity is significantly low in MRSA and Pseudomonas. The nature of microbial wound colonization, flora changes, and antimicrobial sensitivity profiles should be taken into consideration when using empirical antimicrobial therapy in burns patients.

SOP4: Love position; a new innovation in Breast surgery
*E. Sabri[1], F. Petit[1]
[1]*Aesthetic medical office, Plastic surgery, Paris, France*

A simple innovation in breast surgery is the patient position. Love position; It is the position of which the patient is in a sitting position opening the legs and the surgeon is positioning between the legs of the patient, in which he is in the middle, the both breasts are in front of him.
In classic way of breasts surgery is to be on one side of the patient, starting by this side then the surgeon changes the side to other one to operate the other breast, then he goes to the middle near the feet of the patient to see the symmetry of breasts, all these things are leading to waste of time, much more movement, less aseptic, and it is impossible to do synchronized double side operation. While in love position we don't need to switch the side, reduce the risk of sepsis, easier breasts shaping, direct visual control, and synchronize double side operation which are more comfortable to surgeon and all these lead to save time

figure 1

SOP5: Versatility of Indocyanine Green Near-infrared Angiography in Evaluation of Microvascular Anastomosis
*T. Iida[1], H. Yoshimatsu[1], M. Mihara[1], I. Koshima[1]
[1]*University of Tokyo, Tokyo, Japan*

Introduction:
Various types of methods have been utilized to evaluate the patency after microvascular anastomosis. However, each method has limitations and shortcomings. Recently Indocyanine-green (ICG) near-infrared angiography has been introduced in plastic and reconstructive surgery. We introduced it to free flap transfer for precise and real-time evaluation of the microvascular anastomosis.
Patients and methods:
We performed ICG angiography in 71 cases of free flap transfer. Four types of ICG near-infrared cameras were used; PhotoDynamicEye system (Hamamatsu Photonics), HyperEye Medical System (Mizuho Medical Industry), ICG-integrated operative microscope (Carl-Zeiss Pentero, Olympus OME). ICG angiography was also used for the following purposes: 1) detecting the location of the perforators; 2) evaluation of flap perfusion. 3) evaluation of microvascular anastomosis

Results:
Vascular thromboses were detected in 3 cases. In 2 cases, arterial thromboses were detected intraoperatively. Venous anastomosis was detected postoperatively in the other case. Two cases were salvaged by reanasomosis and one case resulted in partial necrosis. Several characteristic findings were noted, two of which we named "blackout-sign" and "to-and-flo sign."
Conclusion:
ICG angiography has many advantages as follows: 1) dynamic, real-time and precise images of both arterial and venous blood flow are available. 2) less invasive. 3) low cost. We believe that ICG angiography can be one of routine examinations for evaluation after microvascular anastomosis.

SOP6: The usage of closed system drainage in liposuction to improve the final result and decreasing complication
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The liposuction surgery has resulted in breakthrough in body Conturing. alot of refinement has been introduced to the techniques and used instruments to improve the final results and decrease complication.Of the known complication is prolonged post operative odema, seroma and fat embolism,The emulsified fat after liposuction may be forced with external pressure from garment into opened blood vessels leading to fat embolism , blood, serous fluid and emulsified fat accumulated in early post operative period may obscure the result and prolong the time needed by the patient to see the final result especially in large amount liposuction.We introduce the closed vacuum drainge introduced with especially made guide wires as a method of enhancing the results and decreasing the complication suggesting better final outcome
Material and Methods:
two groups of total 50 patient underwent liposuction from abdomen with average liposuction of 5 liter of fat using tumscent technique
Group A . at the end of operation closed vacum drainage was introduced using a giude wire to the subcutenous plane .the patients was discharged with foam badding and pressure garment, the vac drain was removed after one week without any antibiotic coverage
Group b was done without the closed vac drainage.
the odema , bruising , seroma and aesthetic result was compared between the two groups at 1 week and 1 month and 3 month
Results:
the postoperative odema and swelling as well bruising was significantly lower in group a with much more satisfaction of the patient and surgery team
There wasnt any case of fat embolism in both groups Infection rate was similar in both groups (none)
Conclusion:
we conclude that adding this simple step to the proccess of liposuction will enhance the better outcome of the process and decreasing complication allowing for more surgeon and patient satisfaction

SOP7: Comparison of systemic heparinization protocols for Zones 1 and 2 artery-only replantations
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[2]*Catholic University of Korea, Uijeongbu, Korea, Republic of*
[3]*Incheon St. Mary's Hospital, Plastic and Reconstructive Surgery, Incheon, Korea, Republic of*

Introduction:
We compared the clinical results of intermittent versus continuous systemic heparinization in patients undergoing single-digit replantation with single artery-only anastomosis.
Material and Methods:
This study included 61 institute patients who underwent artery-only anastomosis for the replantation of zones 1 or 2 single-digit amputation from January 2004 to October 2011. Patients with concomitant injuries, degloving hand injuries, venorrhaphy, revisional operation

24 hours postoperatively, the first 5 cases of each operator, and patients younger than 10 years of age were excluded. Protocol 1 (27 patients) consisted of aspirin, prostaglandin E1, heparin-soaked gauze on fish-mouth incision, and intermittent intravenous bolus heparin injections (25,000 U). In protocol 2 (34 patients), after a loading dose of 12,500 U of heparin, the heparin fluid (12,500 U in 500 ml of 5% dextrose) was infused continuously at a rate of 20 ml/hr. The infusion rate was regularly adjusted to maintain a target aPTT level of 51-70 seconds. Cases showing viable replant on discharge without secondary revision during follow-up were deemed a success. Blood loss (a 15% drop in hemoglobin), transfusion, and thrombocytopenia were also assessed.

Results:

Heparin-induced thrombocytopenia was not observed. Blood loss (p=0.125) and transfusion rates (p=0.092) did not differ statistically. Protocol 2 (91.9%) showed a statistically significant higher success rate than protocol 1 (59.3%, p=0.0051).

Conclusion:

In cases of replantation with single artery-only anastomosis for zones 1 or 2 single digit amputation, continuous systemic heparinization can improve the surgical outcome without increasing bleeding risk or transfusion rate, compared to intermittent systemic heparinization.

SOP8: Priming with proangiogenic growth factors and endothelial progenitor cells improves revascularization in linear diabetic wounds

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[2]*University Medical Center of the Johannes Gutenberg-University Mainz, Department of Maxillofacial and Plastic Surgery, Mainz, Germany*

Question:

In the present study, we investigated whether proangiogenic growth factors and endothelial progenitor cells (EPCs) induce favourable effects on cutaneous incisional wound healing in diabetic mice.

Methods:

The proangiogenic effects of human EPCs were initially analyzed using a HUVEC *in vitro* angiogenesis assay and an *in vivo* Matrigel assay in nude mice (n=12). For the diabetic wound model, 48 Balb/c mice with streptozotocin (STZ)-induced diabetes were divided randomly into 4 groups (12 mice in each group). Subsequently, 3, 5 and 7 days before a 15-mm full-thickness incisional skin wound was set, group 1 was pre-treated subcutaneously with a mixture of vascular endothelial growth factor (VEGF)/ basic fibroblast growth factor (bFGF)/ platelet-derived growth factor (PDGF) (3.5 µg of each), group 2 with 3.5 µg PDGF and group 3 with an aliquot of two million EPCs, whereas the control animals (group 4) were pre-treated with 0.2 ml saline solution. The wounds were assessed daily and the repaired tissues were harvested 7 days after complete wound closure.

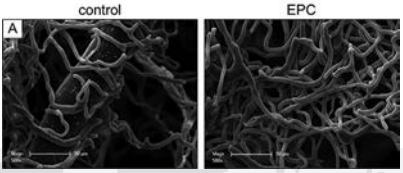
Results:

The angiogenesis assay demonstrated significantly increased sprout densities, areas and lengths in the EPC-treated group (all $p<0.01$). In the Matrigel assay, significantly increased microvessel densities, areas and sizes (all $p<0.001$) were also detected in the EPC-treated group. In the STZ-induced model of diabetes, the animals pre-treated with a combination of proangiogenic factors and EPCs showed in general, a more rapid wound closure. Vessel densities were >2-fold higher in the mice treated with a combination of proangiogenic factors and EPCs ($p<0.05$) and tensile strengths were higher in the groups treated with proangiogenic growth factors compared to the controls ($p<0.05$).

Conclusions:

These results suggest a beneficial effect of pretreatment with proangiogenic growth factors and EPCs in incisional wound healing.

figure 1



SOP9: Skeletal Facial Deformity In Patients With β Thalassemia Major: Report of One Tunisian Case and a Review of the Literature

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[1]*Sahloul Hospital, Maxillo-facial and Plastic Surgery, Sahloul, Tunisia*

Introduction:

β Thalassemia is an inherited genetic disorder of hemoglobin synthesis characterized by a reduction of β chains of globin. Typical features of patients with β thalassemia are skeletal modifications, particularly in the skull and in the facial bones. In thalassemia major, involvement of the facial skeleton can result in severe disfigurement, often referred to as „rodent facies". Various surgical approaches to correct the facial deformity have been advocated; however, treatment remains controversial (1).

Case report:

The patient reported first noticing changes in the configuration of her face at the age of 9. Maxillary overgrowth and severe dental deformity produced progressive disfigurement and difficulty chewing. The patient reported cessation of additional maxillary overgrowth in her early 20s.

The physical examination revealed particularly prominent malar eminences and severe hypertrophy of the maxillary in all 3 dimensions, but especially in the vertical and lateral aspect leading to the characteristic "rodent face". She had also, mandibular retrognathia. Intraoral examination showed a skeletal Class II dental relationship. Hematology and anesthesiologist consultation was obtained, and no orthognathic surgical maneuver to reposition the upper jaw was considered owing to multisystemic disorders, the extent of the patient's deformity and the bone quality.

Conclusion:

The worse the patient's systemic condition, the more unstable and more complicated the surgical procedure.

Patient with multisystemic disorder and severe deformity, such as in our case, with a complete lack of cortical bone for bone fixation, might not be amenable to such procedures.

Thorough knowledge of the multiple systemic manifestations, therapy, and prognosis of this syndrome is necessary to formulate a safe, comprehensive surgical plan for these patients (2,3).

SOP10: Canine Olfactory Ensheathing Cells cultured on three dimensional spider silk constructs for application in spinal cord injury

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[1]*Hannover Medical School, Plastic-, Hand and Reconstructive Surgery , Hannover, Germany*

Introduction:

The development of effective treatments for spinal cord injury is of considerable medical interest. It is assumed that intrinsic repair might be supported by providing additional cell transplantation such olfactory ensheathing cells (OECs) combined with an ideally structured microenvironment at the site of injury. Spider silk is a proteinaceous fibre with low immunogenicity and high support of cell migration and adhesion. Here, we determined the in vitro characteristics of canine OECs seeded on spider silk as prerequisite for future in vivo experiments.

Methods:

Native spider silk was harvested and transferred onto frames to provide a three-dimensional structure for the canine OECs. OECs were seeded onto the spider silk construct in high cell numbers. To analyse the viability and migration of the seeded OECs on the silk time lapse recordings with a Live Cell Imaging System were photographically documented every 15 minutes over a period of 3 hours.

Results:

The images clearly showed that the OECs survived, integrate and fully aligned on the spider silk fibers. The cells could be maintained in a three dimensional structure in longterm culture. Moreover, extensive migration could be observed on the spider silk fibres. The fibres were used as a scaffold on which long filopodia were formed and typical characteristics of canine OECs were expressed.

Conclusion:
OECs seeded onto spider silk might have considerable advantages concerning transplantation in injured spinal cords. The production of an artificial construct using spider silk as a three-dimensional matrix holds promising potential regarding neural regrowth within the CNS.

SOP11: Successful nucleofection of adipose-derived stroma cells with *Ambystoma mexicanum* epidermal lipoxygenase (AmbLOXe) to enhance regeneration

*S. Michael[1], A. Fülbier[1], R. Schnabel[1], S. Strauß[1], P. M. Vogt[1], K. Reimers[1], C. Radtke[1]
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Introduction:
Adipose-derived stromal cells (ASCs) are especially suited for a possible clinical application of gene therapy, since these cells are abundant and easily accessible as autologous cells by liposaspirates with only minimal damage at the donor site. Unfortunately, they are difficult to transfect. As nucleofection is generally very efficient, we used this technique to transfect ASCs. The vector contained a gene encoding for the *Ambystoma mexicanum* epidermal lipoxygenase (AmbLOXe), which is a promising bioactive enzyme in regenerative processes. The aim of the study was to transfect ASCs with AmbLOXe to enhance their regenerative potential in nerve regeneration even more.
Materials and Methods:
The ASCs were isolated from the inguinal fat pad of adult Lewis rats and subsequently transfected in passage 1 using Nucleofector® 2b and the hMSC Nucleofector kit. Transfection efficiency was determined measuring co-transfected green fluorescent protein (GFP) in a flow cytometer.
Results:
ASCs could be successfully transfected. High initial transfection rates were achieved with an average of 79.8 ± 2.82 % of GFP positive cells but longer cultivation periods reduced the number of positive cells below 5 % after four passages. Although successful production of AmbLOXe transcript could be demonstrated further studies will be performed to investigated the potential impact on axonal regeneration.
Conclusion:
In conclusion, our study demonstrates the feasibility of ASCs to be transfected with high efficiency and therefore to serve as a vehicle of AmbLOXe transport for gene therapeutic purposes.

SOP12: 2nd degree burn wounds of the face: O2C Laser Doppler and digital photoanalysis evaluation after treatment with β-Glucan or provitamine pantothenic acid

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Background:
Treatment of burns is dependent on depth and aesthetic region. Various cremes are used potentially supporting reepithelialization and having antimicrobial effects. Since recently the O2C Laser Doppler is on the market available to evaluate microvascular perfusion.
Question:
Is Pantothenic acid creme more useful in the treatment of 2° superficial burns wounds of the face than beta-glucan creme?
Methods:
Out of 20 patients from January 2012 to December 2012 with facial burns 7 were admitted to our study. Inclusion criteria were age between 18 and 65 years and SSDB of the both cheeks. Exclusion criteria were skin diseases, Diabetes mellitus, autoimmune diseases, renal insufficiency, cancer and pregnancy. In exactly marked locations on each burned cheek wounds were treated at scheduled times using pantothenic acid or beta-Glucan. Digital photos of the same regions of interest were taken daily from the same predefined distances. Microcirculation was measured at the same regions of interest for 7 days at scheduled time points using the O2C Laser Doppler. Data were evaluated using the SPSS program.

Results:
Wounds treated with β-Glucan showed a faster reepithelialisation than wound treated with pantothenic acid. β-Glucan group burns were clinically hard to distinguishable from not injured skin after 7 days of treatment. O2C Laser Doppler measurements showed a faster increase in SO2, microvascular perfusion, hemoglobin content and blood flow. This had a good correlation with clinical results.
Conclusions:
β-Glucan creme therapy of SSDB results in esthetically superior outcome and faster reepithelialisation than pantothenic acid treatment.

SOP13: Wound Healing Complications with Intraoperative Brachytherapy for Head and Neck Cancer: A Unique Form of Radiation Injury
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Background:
Intraoperative brachytherapy (IOBT) can improve survival and disease control after head and neck tumor extirpation. Flap reconstruction is used to resurface the radioactive implants. The purposes of this study were to characterize the wound healing complications experienced by patients undergoing reconstruction with IOBT following tumor ablation and to identify risk factors predicting complications and need for re-operation.
Methods:
A retrospective review of reconstructions with IOBT at our institution between 2005 - 2013 was conducted. Patient details and the number and type of flap complications and instances of re-operation were recorded. Logistic regressions were performed to identify risk factors associated with the occurrence of one or more flap complications, as well as with the need for re-operation.
Results:
Ninety-three patients with mean age 64 ± 12 years were included in the study. Overall, 48 patients (51.6%) experienced at least one flap complication, the most common of which was flap dehiscence (32% of patients). Thirty-two patients (34% of the cohort) had to be taken back to the operating room at least once for flap debridement or revision. On multivariate analysis, only the placement of mandibular hardware with flap reconstruction was significantly associated with the risk of developing any type of flap complication (OR = 3.7, p = 0.009) or with subsequent return to the operating room (OR = 3.9, p = 0.012).
Conclusions:
This study demonstrated a very high complication rate for flaps used to cover brachytherapy implants, but many of the patient complications could be managed non-operatively. Avoiding the use of mandibular hardware with IOBT suggests a method of reducing complications with reconstruction.

SOP14: Pilot study – Influence of severe thermal injury to bone metabolism 12–36 months after trauma in adult patients
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Introduction:
A severe thermal injury induces a catabolic sitation, an increase of proinflammatory cytokines and endogenous glucocorticoids, as well as changes in calcium and vitamin-D metabolism. Experimental and clinical studies have shown that already during the early phase of burn injury, caused by the trauma itself but also by immobilization, a loss of bone matrix takes place. In severely burned pediatric patients impaired

body growth and reduced bone density result as long-term effects of this trauma. However, a comprehensive study of late effects in severely burned adult patients in terms of bone-specific remodeling processes is still lacking.

Methodology:

Serum levels of bone metabolic parameters (calcium, phosphate, 25-hydroxy-vitamin D, 1,25 dihydroxy-vitamin D, intact parathyroid hormone, alkaline phosphatase, bone-specific alkaline phosphatase, lipoprotein a, C-telopeptide, osteocalcin, ostase and aminoterminal propeptide of type I procollagen - P1NP) are investigated in adult patients with deep II-III ° burns of more than 30% TBSA area affected 12–36 months after thermal trauma.

Objective:

The aim of this study is to evaluate the influence of a severe thermal injury to bone metabolism 12-36 months after trauma compared to healthy individuals.

SOP15: In vivo changes in nipple-areolar complex perfusion after breast augmentation with implants

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Goals/Purpose:

The purpose of this study is to examine in vivo changes in blood supply to the NAC after implant breast augmentation surgery using MRI technology.

Method:

Using high-resolution MRI images obtained with a 3T magnet, bilateral breast images of 10 women with previous breast augmentation were compared to a control population of 15 women. In total, 20 implanted breasts (12 subglandar and 8 submuscular) were compared to 30 control breasts. Several aspects of the medial and lateral blood supplies to the breast were documented: diameter of the originating blood vessel at the level of the chest wall, distance between the nipple and most distally visualized aspect of the medial and lateral blood supply, and dominance of the medial versus lateral blood supply.

Results:

In the control population, the mean calibers of the medial blood supply decreased by 10% from 2.3mm to 2.1mm (p=0.538) versus a 21% increase on the lateral supply from 1.8mm to 2.2mm (p=0.102). The distances between the nipple and the medial and lateral vessels both increased by 48% for the medial supply, from 21.6mm to 32mm (p=0.002), and the lateral supply increased by 45% from 25.8mm to 37.1mm (p=0.057).

Conclusion:

Our results indicate that the medial supply was appreciably less dominant in our implant population compared to our control population. While both supplies were diminished to the NAC, the lateral supply increased in caliber at the level of the chest wall, suggesting an augmentation in lateral flow similar to a delay phenomenon.

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