

# 2015 CONFERENCE PROGRAM

ISMR Regional Conference  
Groningen, The Netherlands  
June 18 - 20, 2015

**University Medical Center Groningen**

*"SUPPORTIVE CARE IN HEAD AND NECK REHABILITATION"*



International Society for  
Maxillofacial Rehabilitation

*Welcome to the*  
**International Society for Maxillofacial Rehabilitation  
Regional Conference**



***“Supportive Care in Head and Neck Rehabilitation”***

**June 16-21, 2015  
Groningen, The Netherlands**



It is with great pleasure and honour to welcome all delegates to the 2015 Regional Conference of the International Society for Maxillofacial Rehabilitation (ISMR) “Supportive Care in Maxillofacial Rehabilitation” on June 18<sup>th</sup> -20<sup>th</sup> 2015.

I am proud to that the ISMR allowed us to organize the meeting in my home Institute, the University Medical Center in Groningen, the Netherlands (UMCG). As a delegate you will notice a truly fabulous Academic Care Organization with great educational facilities.

Much gratitude is owed to the faculty of the Center for Special Dental Care and department for Oral Maxillofacial Surgery of the UMCG, who made the current program come true.

The ISMR aims to be the preeminent interdisciplinary international organization in maxillofacial rehabilitation; ‘advancing head and neck - maxillofacial rehabilitation together’, through leadership, education, and outreach.

At this congress we offer a strong and exciting program, with renowned presenters from all over the world, representing many disciplines within maxillofacial rehabilitation and supportive care for head and neck cancer.

As the program aims to focus on the more often devastating effects of head and neck cancer and its treatment, we are very pleased that one of the most important stakeholders in the rehabilitation process, the patient him/herself and his/her relatives, will have an important role in the program.

We have also included topics that often appropriate attention, during our conferences.

We hope to establish good discussions, to help to create more insight into what happens to our patients after they leave the door of the hospital after treatment, and want to get back to their normal lives.

We are certain that this conference will offer its participants a wealth of educational opportunities, but also a great opportunity to meet colleagues and start / maintain relationships. All of these are of great importance to enhance maxillofacial rehabilitation and our patient’s care.

I wish you all a wonderful meeting in Groningen and look forward meeting you.



**Harry Reintsema, President ISMR**



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**ISMR** International Society for  
Maxillofacial Rehabilitation  
**11th Biennial Meeting of the ISMR**  
**Belgrade, Serbia**  
Save the date: 5-8 May 2016



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## Exhibitors

### Bronze Exhibitors

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**Van Dijk bv Laboratorium**



*We wish to thank our Supporting Organizations and Exhibitors for their generous support. This meeting would not be possible without their contributions. We encourage all delegates to visit exhibit booths to review the latest advancements in products and services.*

## ISMR Conference Organizing Committee

- Prof. Dr. Dale Howes, Prosthodontist, Johannesburg, South Africa  
Dr. Betsy Davis, Prosthodontist, Charleston, USA  
Dr. Derk Jan Jager, Prosthodontist, Amsterdam, The Netherlands (represent NVGPT)  
Dr. Anke Korfage, Maxillofacial Prosthodontist, Groningen, The Netherlands  
Dr. Chiquit Linden van den Heuvell, Psychologist, Groningen, The Netherlands  
Dr. Willem Noorda, Maxillofacial Prosthodontist, Groningen, The Netherlands  
Dr. Harry Reintsema, Maxillofacial Prosthodontist, Groningen, The Netherlands  
Dr. Dennis Rohner, Oral Maxillofacial Surgeon, Aarau, Switzerland  
Mr. Jaron Roubos, Maxillofacial Dental Technician, Utrecht, The Netherlands (represent NVGPT)  
Dr. Kees Stellingsma, Maxillofacial Prosthodontist, Groningen, The Netherlands  
Dr. Anita Visser, Maxillofacial Prosthodontist/Geriatric Dentist, Groningen, The Netherlands  
Dr. Max Witjes, Oral Maxillofacial Surgeon, Groningen, The Netherlands

## International Scientific Advisory Committee

- Dr. Claudio Brenner, Surgeon-Prosthodontist, Santiago, Chile  
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Dr. Daniel 'O Connell, Otolaryngology Head and Neck Surgeon, Edmonton, Canada  
Dr. Trevor Coward, Maxillofacial Prosthodontist, UK  
Prof. Dr. Pieter Dijkstra, Physiotherapist, Groningen, The Netherlands  
Dr. Harriet Jager, Dietitian, Groningen The Netherlands  
Prof Vitomir Konstantinovic, Oral Maxillofacial Surgeon, Belgrade, Serbia  
Prof. Dr. Hans Langendijk, Radiotherapist, Groningen, The Netherlands  
Prof. Vojkan Lazic, Maxillofacial Prosthodontist, Belgrade, Serbia  
Prof. Dr. Bonnie Martin Harris, Rehabilitation Scientist, Charleston, USA  
Prof. Dr. Jana Rieger, Speech Pathologist, Director of Research, Edmonton, Canada  
Prof. Dr. Jan Roodenburg, Surgeon, Groningen, The Netherlands  
Ms. Rosemarie Seelaus, Senior Anaplastologist, Chicago, USA  
Dr. Hadi Seikaly, Otolaryngology Head and Neck Surgeon, Edmonton, Canada  
Dr. Caroline Speksnijder, Physiotherapist, Utrecht/Nijmegen, The Netherlands  
Dr. Christine Wallace, Maxillofacial Prosthodontist, Sydney, Australia  
Dr. Alvin Wee, Prosthodontist, Omaha, USA  
Prof. Mary Wells, Cancer Nurse – Health Services, Stirling, Scotland, UK  
Prof. Dr. Johan Wolfaardt, Prosthodontist, Edmonton, Canada



Save The Date!

**11<sup>th</sup> Biennial Meeting of the ISMR**  
**Belgrade, Serbia**  
**May 5-8, 2016**



*“Education, Patient Care, Outreach and Research”*

**Join the ISMR**

***[www.ismr-org.com](http://www.ismr-org.com)***



## Invited Speakers



### **Siri Beier Jensen**

*Clinical Management Guidelines for Salivary Gland Hypofunction and Xerostomia in Head and Neck Cancer Patients*

Section of Oral Medicine and Pathology, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark. Siri Beier Jensen graduated from University of Copenhagen School of Dentistry in 1998. Her research has focused on salivary gland dysfunction and oral complications of cancer therapies. She teaches oral medicine, clinical oral physiology and anatomy on a pre- and postgraduate level and practices oral medicine in a university referral clinic. Chair of the Oral Care Study Group and Section Head of the Salivary Gland Hypofunction/Xerostomia Review Group, Multinational Association of Supportive Care in Cancer/International Society of Oral Oncology. Steering Committee Member of the World Workshop on Oral Medicine. Editorial Board member of the Oral Medicine Section of Journal of Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, Acta Stomatologica Croatica and Oral Diseases.



### **Maria Bouman**

*Surgery for Extra-articular Trismus: A Systematic Review*

Maria Bouman was born on October 1<sup>st</sup> 1984 in Schiedam. After obtaining her high school diploma from the Marnix Gymnasium in Rotterdam, she studied Medicine at the University of Groningen. As a student she conducted a research project on the early outcome of reconstructive surgery in noma patients in Sokoto, Nigeria. Having finished her medical studies in 2009, she gained clinical experience working successively in the intensive care unit in the Martini Hospital in Groningen and in the general surgery department of the Scheper Hospital in Emmen. In 2012 she did a 5 month plastic surgery traineeship in Kolkata, India. She started her specialization in plastic surgery in 2013 and is currently working as a plastic surgery resident in the University Medical Center Groningen (UMCG). Next to her clinical work she has been doing research on reconstructive surgery for trismus, a cooperative project between the departments of maxillofacial surgery, rehabilitation and plastic surgery of the UMCG.



### **Theo K. Bouman**

*Practical Counseling*

Prof. dr. Theo K. Bouman, Ph.D., is an associate professor of clinical psychology at the University of Groningen in The Netherlands, and the Head of the post master training programme for health care psychologist in the North Netherlands area. His main area of interest is experimental psychotherapy, with an emphasis on the assessment, development and evaluation of cognitive behavioural treatments for anxiety disorders and somatoform disorders (especially hypochondriasis / health anxiety, body dysmorphic disorder, and emetophobia). He has authored numerous scientific papers, books and book chapters in the field of clinical psychology, as well as giving many national and international workshops, invited lectures and media presentations. He is a registered health care psychologist, cognitive behavioural therapist, and a distinguished member of the Dutch Association of Behaviour Therapy and Cognitive Therapy (VGCT). In addition he teaches at the Department of Dentistry (University of Groningen) and is the coordinator of the psychology module of the European Erasmus Mundus master programme Network on Humanitarian Action (NOHA).



**Gabriella Constantinescu**

*mHealth and Head and Neck Cancer: The Potential for Mobile Health Devices to Facilitate Dysphagia Treatment*

Gabi Constantinescu is a Ph.D. student in the department of Communication Sciences and Disorders at the University of Alberta, Edmonton, Canada. After completing her MSc. in Speech-Language Pathology in 2007, Gabi joined the team at the Institute for Reconstructive Sciences in Medicine (iRSM) where she worked closely with patients following head and neck cancer. This experience afforded her the opportunity to understand the exceptionally high functional needs of this population and shaped her support for patient care innovation and clinically relevant research. Since starting her PhD, Gabi has been the recipient of several awards, including the Clinician Fellowship from Alberta Innovates Health Solutions, the Rising Star Award from the Graduate Students Association, and the Dr. Alice E. Wilson Award from the Canadian Federation of University Women. Gabi's doctoral work explores the potential of mobile health technology in assisting patients with dysphagia following head and neck cancer.



**Pieter Dijkstra**

*Exercise Therapy for Trismus Secondary to Head and Neck Cancer - A Systematic Review*

P.U. Dijkstra is a physical therapist working in the University Medical Centre Groningen since 1978. After working in that hospital for 10 years he started his PhD research. In 2009 he was appointed professor in Rehabilitation. Currently he is a part time physical therapist and a part time researcher. He has (co)authored over 240 Pubmed indexed papers.



**Ros Dowse**

*Craniofacial Rehabilitation - the Patient's Perspective*

Ros Dowse is a head and neck cancer patient diagnosed 17 years ago with squamous cell carcinoma of the tongue. She has undergone radiation and numerous surgeries over the years, including a hemiglossectomy in 2001 and, more recently, a mandibulectomy in 2013. She is an Associate Professor in the Faculty of Pharmacy at Rhodes University, South Africa and has integrated her experience from her various roles as researcher, teacher, health professional and patient to develop her path of being a patient advocate to the health professions.

**Jourik Gietema**  
*Reducing Morbidity in Chemotherapy*



**Kathryn Green**  
*Guidelines for Nutrition and Monitoring in H&N Oncology Patients*

I received my Bachelor of Science degree from the University of Stellenbosch. I have many years of experience, primarily being a senior dietician at Charlotte Maxeke Johannesburg Academic Hospital and still continue to visit the hospital on a regular basis to continue my learning and further develop my knowledge within the field of Dietetics.

I am currently a Principle Clinical Dietician at Morningside Medi-Clinic hospital with a specialty in Head and Neck Oncology and Critical Care.

"Let food be thy medicine and medicine be thy food"- Hippocrates

This ultimately describes my philosophy when it comes to the treatment my patients and that my belief in providing overall holistic care to all patients through multidisciplinary teamwork and that the development of relationships with all my patients and clients to ensure we make a difference to their treatment and care

I am registered with the Health Professions Council of South Africa (HPCSA), Board of Health Care Providers (BHF), along with the Centre of Diabetes Education (CDE) and a passionate team member of Gift of the Givers disaster relief organization.



**Harriët Jager-Wittenaar**  
*Screening, Assessment and Monitoring of Malnutrition in Head and Neck Cancer Patients*

Dr. Harriët Jager-Wittenaar, PhD, RD, is Professor of Clinical Malnutrition and Healthy Ageing at the Research and Innovation Group in Health Care and Nursing, and lecturer Nutrition and Dietetics at the Hanze University of Applied Sciences, and she is also appointed as senior researcher at the Department of Oral and Maxillofacial Surgery at the University Medical Center Groningen. As clinical dietitian, Harriët Jager-Wittenaar, PhD, RD has performed her PhD research (2010) at the University of Groningen, on the topic of malnutrition in head and neck cancer patients ('Pre- and post-treatment malnutrition in head and neck cancer patients'). Since many years, Dr. Jager-Wittenaar is committed to further improve the recognition and proactive treatment of malnutrition, both nationally and internationally. Therefore, in 2013 she has started the Living Lab Clinical Malnutrition, which is part of the national Centre of Expertise Healthy Ageing. Dr. Jager-Wittenaar is active member of the Action Group A3 of the European Innovation Partnership on Active and Healthy Ageing, in which she is Task leader on Nutritional Screening and Assessment in the Nutrition Subgroup. Dr. Jager-Wittenaar is also member of the European Specialist Dietetic Network (ESDN) for Older Adults Committee in de European Federation of Associations of Dietitians (EFAD). Furthermore, she is a member of the Dutch Malnutrition Steering Group, Dutch Working Group of Oncology Dietitians, the Dietitians Working Group on Malnutrition and the Dutch Platform on Nutritional Assessment. The research program coordinated by Dr. Jager-Wittenaar focuses on three themes: 1) the role of nutrition and exercise in the development and treatment of malnutrition; 2) malnutrition and frailty; 3) nutritional assessment. Dr. Jager-Wittenaar is co-founder of the Pt-Global ([www.pt-global.org](http://www.pt-global.org)) and co-developer of the Pt-Global app.



**Jolanda Kamstra**

*Jaw Dynasplint System for Treating Trismus - An Explorative Study*

Jolanda Kamstra was born in Leeuwarden (21-05-1986) where she completed her pre-university education at the Piter Jelles College. From 2004 until 2010 she studied Dentistry at the University of Groningen.

In 2010 she started with a program in which she has been combining Medicine and her residency at Department of Oral and Maxillofacial Surgery. In 2012 she obtained an Agiko Stipendium for her PhD project. Jolanda Kamstra is married to Wim Drouven and together they have a daughter, Ellemijn.



**Anne May**

*Physical Activity, Physical Exercise and Cancer*

Dr. Anne May is working at the Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht. She holds a Master's degree in Epidemiology and in Human Movement Sciences (with distinction). During her PhD studies she was involved in a randomized controlled trial on effects of exercise and cognitive behavioral therapy on cancer patients' quality of life. After obtaining her PhD degree in 2008, she continued working in the field of exercise-oncology. She is currently the principal investigator of several multicenter RCTs investigating the effects of exercise in patients with breast, colon and esophageal cancer. She is interested in effects of exercise, in the mediators of the effect and also in methodological aspects related to exercise-oncology research. For the latter she received a VENI grant (ZonMW/NWO) to study a novel research design and methodology for exercise-oncology RCTs.



**Betty Meyboom-de Jong**

*Patient Central in Palliative Care at Home*

Born in 1939, was an active general practitioner from 1965-2000. In 1989 she defended her thesis on the reason of encounter and the influence of disease and complaints on functional status of 55000 elderly living at home from 12 practices with 25 GPs. From 1990-2004 she was professor of general practice and head of the department of general practice at Groningen University, engaged in best practices, education of students and GPs and in research of evidence-based practice for patients with chronic diseases. She has a huge interest in palliative care and end-of-life decisions. Since her retirement, she performed a number of advisory functions for the Ministry of Health, hospitals and emergency post of GPs. Since 2008, she is chairwoman of the Dutch National Care for the elderly Program. She is a widow, has two children and three grandchildren.



**Sarah Pringle**

*Human Salivary Gland Stem Cells Functionally Restore Radiation Damaged Salivary Glands*

2000-2004 University of Leeds B.Sc. II(i) Microbiology with Immunology. 2005-2009 King's College London Ph.D. Stem Cell Biology. 2010- present University Medical Ceentrum Groningen, Post-doctoral research assistant. Departments of Cell Biology and Radiation Oncology, University Medical Center Groningen, The Netherlands.



**Jana Rieger**

*Functional Outcomes ORONet Approach | Prehabilitation and the Prevention of Dysphagia in Head and Neck Cancer Patients*

Jana Rieger is the Director of Research at the Institute for Reconstructive Sciences in Medicine and a Professor in the Faculty of Rehabilitation Medicine at the University of Alberta. Since 1999, her research has focused on understanding functional outcomes, including speech, swallowing, chewing and quality of life in patients with defects of the head and neck secondary to cancer and trauma. From 2004 – 2011, she was funded by the Alberta Heritage Foundation for Medical Research as a Population Health Clinician Researcher. Dr. Jana Rieger was one of four successful researchers to receive funding from the Alberta Cancer Foundation's Transformative Program Competition in April 2014. Dr. Rieger and her team received \$1.9 M over the next five years to support research related to developing technological interfaces for dysphagia rehabilitation in patients with head and neck cancer. Dr. Rieger has lectured internationally by invitation on functional outcomes related to defects of the head and neck and has published over 50 articles on research in this area.



**Simon N. Rogers**

*Practical and Evidence Based Approaches to Quality of Life in Head and Neck Cancer Patients*

Simon qualified from Sheffield University Dental School in 1984. He became a Fellow of the Dental Faculty of the Royal College of Surgeons England in 1988 and qualified with honours from Birmingham University Medical School in 1990. In 1994 he passed his general surgical fellowship from the Royal College of Surgeons England and in 1997 won the gold medal in the Intercollegiate Oral and Maxillofacial exit examination. In January 1999 Simon was appointed Consultant Maxillofacial Surgeon at Aintree University Hospital with special interest in oncology and reconstruction. He has been Clinical Director of the Regional Oral and Maxillofacial Unit, and more recently has been the Clinical Head of the Business Unit for Breast, Dermatology, ENT, Ophthalmology and Maxillofacial. In 2000 he was awarded his MD from the University of Birmingham. In 2002 he was awarded a Hunterian Professorship from the Royal College of Surgeons of England. In November 2006 he joined Edge Hill University, Faculty of Health and has a Chair in the Evidence based Practice Research Centre. In 2009 he gave the Nunn Lecture at the annual scientific meeting of the British Association of Head and Neck Oncologists. He has published widely on the subject of patient reported outcome and quality of life. His current focus of clinical innovation and outcomes research is the Patient Concerns Inventory.



**Karel W. Schuit**

*Palliative Care in Head and Neck Cancer: A Multidisciplinary Approach*

1978- Artsexamen Rijksuniversiteit Groningen. 1978-1980 surgery and gynecology in preparation for tropical medicine. 1980-1981 GP training, Groningen University. 1981-Tropencursus Royal Tropical Institute, Amsterdam. 1981-1985 Tropical doctor in Kaplong Kericho district. Kenia. 1985-Present: GP practice in Helpman, Groningen City. 1993-Present: GP-adviser for palliative care Comprehensive Cancer Center, Netherlands. 1993-1999 Research on symptoms of palliative care patients in General Practice. Thesis- "Palliative care in General Practice", University of Groningen. Diploma of Palliative Medicine, University of Wales, Cardiff, England. Hospice doctor "Gasthuis' Groningen City. 2013-Present: Medical coordinator "Provincial Palliative Care Team Groningen"



**Jennifer Marleen Schuurhuis**

*Dental Management of the Head and Neck Cancer Patient*

Marleen Schuurhuis graduated from Dental School in Groningen in 2009. She started working on a PhD-project part-time. This was combined with a part-time job in a general dental practice. Her research focuses on the pre-radiation dental screening and consequent dental treatment of head and neck cancer patients and the oral problems seen during follow-up. It also involves the pre-chemotherapy dental screening and treatment in hematology patients receiving intensive chemotherapy or high-dose chemotherapy followed by autologous stem cell transplantation.



**Martine Sealy**

*The Role of Physical Activity in Malnutrition in Cancer Patients*

Since Martine Sealy graduated as a bachelor in Nutrition and Dietetics at the Hanze University of Applied Sciences in Groningen in 1996 she has worked at several Departments of the Hanze University including the Department of Nutrition and Diätetics in the School of Health Care where she has been working as a lecturer from 2008 till present. In 2014 she graduated from the master study Evidence Based Practice at the University of Amsterdam. Currently she is working on her PhD research project at the Research Group Healthy Ageing, Allied Health Care and Nursing, Hanze University of Applied Science in collaboration with the Department of Oral and Maxillofacial Surgery, University of Groningen, University Medical Center in Groningen. Her research focuses on the role of physical activity in nutritional status and the manner in which nutritional status is assessed in cancer patients.



**Rosemary Seelaus**

*Patient-Centered Treatment Design & Decision-Making Challenges in Facial Prosthetic Rehabilitation*

Rosemary Seelaus is Senior Anaplastologist at The Craniofacial Center, Department of Surgery, Division of Plastic & Reconstructive Surgery, University of Illinois Hospital & Health Sciences System. Seelaus has been practicing clinically for nearly 17 years, and maintains a clinical focus on osseointegration, computer-aided design in facial prosthetic reconstruction, and ensuring efficient and successful treatment outcomes in the psychosocial rehabilitation of facial prosthetic patients. Seelaus is an active researcher, instructor and developer of advanced technology and techniques in anaplastology, with particular interest in the contribution of digital technologies towards improving the surgical and prosthetic outcomes, and access to care for patients worldwide; an area of research and development she has pursued for the entirety of her career. Seelaus is currently involved in research addressing the use of 3D digital imaging and modeling, CAD/CAM and rapid prototyping for surgical and prosthetic reconstruction; and in the use of spectrophotometry and computerized colour formulation to enhance the predictable colouration of facial prostheses. Seelaus maintains active membership in the International Anaplastology Association (IAA), the Board for Certification in Clinical Anaplastology (BCCA), the International Society for Maxillofacial Rehabilitation (ISMR), and the ADT Foundation (Advanced Digital Technology in Head & Neck Rehabilitation). She has served in leadership positions as President, Board Member, Committee and Program Chair. Presently, Ms. Seelaus is Co-Chair of the Special Interest Group in Facial Prosthetic Rehabilitation for the ISMR. She enjoys travel, dancing and outdoor adventures.



**Hadi Seikaly**

*Reducing Morbidity with Surgery*

Dr. Hadi Seikaly is a Professor of Surgery and Oncology at the University of Alberta. He is the Divisional Director and the Zone Section Head for Otolaryngology – Head and Neck Surgery. Dr. Seikaly graduated from the University of Toronto medical school and completed his residency training at the University of Alberta in Otolaryngology Head and Neck Surgery. He then obtained fellowship training at the University of Texas Medical Branch in advanced head and neck oncology, and microvascular reconstruction. Dr. Seikaly returned to the University of Alberta as an attending in the division of Otolaryngology Head and Neck Surgery, department of surgery in 1996. Dr. Seikaly has a large practice dedicated to head, neck, and skull base oncology and reconstruction. His research interests include functional surgical and reconstructive outcomes, microvascular head and neck reconstruction, submandibular gland transfer medical modeling and digital surgical planning as it applies to the head and neck region. Dr. Seikaly is the Director of Head and Neck Surgery Functional Assessment Laboratory (HNSFAL) at the Institute of Reconstructive Sciences in Medicine and is the director of the Head and neck Research Network. He has been a PI or collaborator on numerous research grants receiving funding from various agencies, including CIHR and Terry Fox Foundation. He has published over 130 peer reviewed papers and book chapters. Dr. Seikaly is the recipient of the prestigious Top 10 teacher award in the department of surgery for the past 12 years. He is a member of numerous surgical societies, nationally/internationally and has been invited as a visiting professor to over 50 institutions lecturing on all aspects of Head and Neck Oncology and reconstruction. Dr. Seikaly is the Co-editor of the Journal of Otolaryngology Head and Neck Surgery.



**Jenny Slatman**

*Facing One's Loss of Face*

Jenny Slatman, PhD, is associate professor of philosophy at the department of Health, Ethics and Society, at Maastricht University. Before having obtained her degrees in philosophy (MA and PhD at University of Amsterdam, DEA at University of Paris XII), Slatman was trained as a physiotherapist and worked for a couple of years in a primary health center in Amsterdam. Amongst her publications are numerous articles about the meaning of embodiment in health, medicine and culture. She is the author of various monographs, including *L'expression au-delà de la représentation. Sur l'aïsthésis et l'esthétique chez Merleau-Ponty* (Paris, 2003) and *Our Strange Body. Philosophical Reflections on Identity and Medical Interventions* (Amsterdam, 2014). In 2010 she received a VIDI grant from the Netherlands Organization for Scientific Research (NWO), for the 5-years project *Bodily Integrity in Blemished Bodies*. This project explores how people experience their own body, their bodily identity and integrity, after disfiguring breast, head and neck cancer. [www.jennyslatman.nl](http://www.jennyslatman.nl)



**Caroline Speksnijder**

*Patient-Reported Outcomes of Care*

In 1998 Caroline Speksnijder obtained her degree in Physical Therapy at Rotterdam University, her MSc degree of Human Movement Sciences as well as Epidemiology at Maastricht University in 2002, and her MMPT degree of Orofacial Physical Therapy in 2008. In May 2011 Caroline obtained her PhD on her thesis 'Function after oral oncological intervention, reconstruction and rehabilitation' at the University of Utrecht (UU). From that time she works as a senior researcher at UMC Utrecht and Radboudumc Nijmegen. The focus of her research is on head and neck cancer, functioning of head and neck, and physical therapy. This year she started to develop a new augmented reality training to study orofacial motor control. Caroline's teaching experience includes courses in epidemiology as well as physical therapy.



**Roel Steenbakkers**

*Reducing Morbidity in Radiotherapy*

1999-1999 Resident Radiation Oncology (not in training) at the Department of Radiation Oncology at the Radboud University Medical Center in Nijmegen. 2000-2000 Resident internal medicine (not in training) at the *St. Maartens Gasthuis* in Venlo. 2000-2002 PhD-student at the *Netherlands Cancer Institute – Antoni van Leeuwenhoek Hospital* in Amsterdam. 2002-2009 Resident Radiation Oncology in training at the *Netherlands Cancer Institute – Antoni van Leeuwenhoek Hospital* in Amsterdam. 2009-Present Radiation Oncologist at the Department of Radiation Oncology at the *University Medical Center Groningen*.



**Martijn M. Stuiver**

*Exercise for Prevention and Treatment of Shoulder Complaints after Neck Dissection; Does One Size Fit All?*

Dr. Martijn M. Stuiver is a clinical epidemiologist and physiotherapist at the Netherlands Cancer Institute. His research interests include the impact of cancer treatment on physical functioning, and cancer rehabilitation. His clinical specialty as a physiotherapist is in head and neck oncology and oncology rehabilitation. He is also a university lecturer at the Academic Medical Center – University of Amsterdam, where he teaches methodology and biostatistics in the master of science program “Evidence Based Practice”. Martijn is board member of the Onconet foundation, which aims to improve accessibility to and quality of physiotherapy in the Netherlands for people with cancer.



**Joyce van der Geer**

*Mouth Opening, an Important Predictor for Developing Trismus in Patients Receiving Radiotherapy*

Joyce van der Geer is a first year master student dentistry at the University of Groningen. Her bachelor thesis, about safety of pharmacological sedation in patients with special needs was nominated for the best dentistry bachelor thesis 2015 in the Netherlands. She is involved in research and hopes to follow a DMD PhD program focussed on trismus in head and neck cancer patients.



**Lisette van der Molen**

*To PEG or not to PEG?*

Dr. Lisette van der Molen (PhD MA SLP) is since half 2006 affiliated at the Department of Head and Neck Oncology & Surgery of the Netherlands Cancer Institute (NKI) in Amsterdam. Presently, she is the coordinator of the in May 2009 implemented Head and Neck Rehabilitation Program and (research) coordinator of the Speech and Language Pathology Department of the NKI. Besides, she is co-promoter of PhD-students and tutorial coordinator within the research group of the University of Amsterdam, supervising BA/MA students. Her areas of interest are Head & Neck oncology, preventive (swallowing) rehabilitation, dysphagia, and trismus.



**Sue Walter**

*The Role of Palliative Medicine in the Curative Stage of Head and Neck Cancers*

Dr. Sue Walter is a specialist palliative physician in private practice in Johannesburg, South Africa. She also holds a Masters degree in Psychology and Palliative Medicine and is currently completing her PhD in bioethics and Health Law. Dr. Sue Walter is a founder of the palliative charity 11 Angels foundation which assists those who cannot afford palliative care. She is also the head of the clinical ethical committee at the Medi group hospitals. She has published numerous papers and a book. She is the palliative specialist for the Morningside/Sandton head and neck team.



**Johan Wolfaardt**

*Henk Verdonck Memorial Lecture: Through the Looking-Glass...What Would Henk Have Seen?*

Dr. Wolfaardt is a Full Professor, Division of Otolaryngology-Head and Neck Surgery, Department of Surgery, Faculty of Medicine and Dentistry, University of Alberta. He is also Director of Clinics and International Relations, the Institute for Reconstructive Sciences in Medicine (iRSM), Edmonton, Alberta, Canada. Dr. Wolfaardt is a co-founder of iRSM. His clinical interests are in the area of Maxillofacial Prosthodontics with particular emphasis in the area of head and neck reconstruction, osseointegration and treatment outcomes. His research interests involve treatment outcomes and digital technologies in head and neck reconstruction. Dr. Wolfaardt has a special interest in quality management and he led the quality initiative that enabled iRSM to register an ISO9000 quality system for the clinical and research aspects of osseointegration care. Dr Wolfaardt has published over 100 papers in refereed journals and contributed to a variety of texts. He has lectured both nationally and internationally on Maxillofacial Prosthodontics, head and neck reconstruction, osseointegration, functional outcomes in head and neck reconstruction, and advanced digital technology. Dr. Wolfaardt has served on Boards of the International College of Prosthodontists, the American Academy of Maxillofacial Prosthetics, the International Society for Maxillofacial Rehabilitation, and the Advanced Digital Technology Foundation (ADT) for Head and Neck Reconstruction. Dr. Wolfaardt is past President of the International Society for Maxillofacial Rehabilitation and the ADT Foundation. Dr. Wolfaardt was awarded Honorary Membership by the Canadian Dental Association in 2011. The Alberta Dental Association and College presented the Award of Excellence to Dr. Wolfaardt in 2013. In 2014, the American Academy of Maxillofacial Prosthetics honored Dr. Wolfaardt with the Andrew J. Ackerman Memorial Award.

*The views and opinions expressed in this activity are those of the presenter and do not necessarily reflect the views of the International Symposium or supporting institutions.*

## Social Events

### Thursday, June 18<sup>th</sup>

**Welcome Reception: Foyer of the Stadsschouwburg**

**Time: 18:00**



Please make plans to join your colleagues at this conference opening event. This reception is offered to you by the University of Groningen, the Municipality of Groningen and the Province of Groningen. The reception will be situated in the foyer of the Stadsschouwburg located approximately 5 minutes from the UMCG.

*Fee: No fee required for delegates and paid accompanying guest(s)*

*Dress: Business Casual*

### Friday, June 19<sup>th</sup>

**Poster Session**

**Time: 15:00**

The Program Committee considers posters an important contribution to the success of this conference. Many of the presentations will provide information that is thought to be better suited to the higher level of exposure and interaction that a poster presentation affords. Poster presentations are seen as an extremely important venue for information exchange. Please join us in the Fonteinpatio in the UMCG.

**Conference Dinner** *Reservations required*

**Time: 18:00**



Join us at a one and a half hour boat trip from Groningen Central Station to the characteristic village of Garnwerd. Experience the city and the typical Dutch countryside from the water, enjoying the first courses of an exquisite dinner, served with matching wines. Watch the sails of the windmill turning as we get off board at Garnwerd aan Zee to continue the walking dinner and - for those interested - to visit the mill.

*On-Site Delegate Fee: \$125 USD / person*

*Dress: Smart Casual (No ties necessary; Can be chilly)*

# Conference Program Schedule

	Time	Activity	Presenter
<b>Tuesday 16th</b>			
		<i>Pre-Conference Workshop: Advanced Digital Planning and Prefabrication in Oral Maxillofacial Rehabilitation for Head and Neck Rehabilitation Teams</i>	UMCG Organization
<b>Wednesday 17th</b>			
		<i>Pre-Conference Workshop: Advanced Digital Planning and Prefabrication in Oral Maxillofacial Rehabilitation for Head and Neck Rehabilitation Teams</i>	UMCG Organization
		Special Interest Groups to Meet:	
		SIG- Facial Prosthetic Rehabilitation	Rosie Seelaus- USA
		SIG- Oral Hygiene / Supportive Care	Richelle Chuka- CA & Hester Groenewegen- NL
	17:00-19:00	Recognition Reception for Local Organization <i>(Invitation Only)</i>	Local Organization
<b>Thursday 18th</b>			
		<b>Session Chair: Dale Howes</b>	
HRQOL	9:00-9:15	Welcome and Introduction	ISMR & Local Organization
	9:15-9:45	<i>Craniofacial Rehabilitation- The Patient's Perspective</i>	Ros Dowse- ZA
	9:45-10:15	<i>Practical and Evidence Based Approaches to Quality of Life in Head and Neck Cancer Patients</i>	Simon N. Rogers- UK
	10:15-10:30	Discussion	
	10:30-11:00	Coffee Break	
		<b>Session Chair: Jan Roodenburg</b>	
Morbidity Reduction	11:00-11:20	<i>Reducing Morbidity with Surgery</i>	Jan Roodenburg- NL
	11:20-11:40	<i>Reducing Morbidity in Radiationtherapy</i>	Roel Steenbakkers- NL
	11:40-12:10	<i>Reducing Morbidity in Chemotherapy</i>	Jourik Gietema- NL
	12:10-12:30	Panel Discussion	Jan Roodenburg- NL
	12:30-14:00	Lunch	
		<b>Session Chair: Johan Wolfaardt</b>	
Palliation	14:00-14:20	<i>The Role of Palliative Medicine in the Curative Stage of Head and Neck Cancers</i>	Sue Walter- ZA
	14:20-14:40	<i>Patient Central in Palliative Care at Home</i>	Betty Meyboom-de Jong- NL
	14:40-14:55	<i>Palliative Care in Head and Neck Cancer: A Multidisciplinary Approach</i>	Karel Schuit- NL
	14:55-15:10	Discussion	
	15:10-15:40	Coffee Break	
		<b>Session Chair: Chiquit van Linden van den Heuvel</b>	
Psychology	15:40-16:00	<i>Facing One's Loss of Face</i>	Jenny Slatman- NL
	16:00-16:20	<i>Practical Counseling</i>	Theo Bouman- NL
	16:20-16:40	<i>Patient-Centered Treatment Design &amp; Decision-Making Challenges in Facial Prosthetic Rehabilitation</i>	Rosemary Seelaus- USA
	16:40-16:55	<i>The Value of a Support Group in Cranio-Facial Cancer</i>	Sabine Hark- ZA
	16:55-17:10	<i>Patients Perceived Change Following Implant Retained Oral Rehabilitation</i>	Richelle Chuka- CA

17:10-17:30 Panel Discussion Johan Wolfaardt- CA  
 18:00 **Conference Reception hosted by the Municipality, Province of Groningen and RUG**

## **Friday 19th**

### **Session Chair: Monique Stokman**

#### **Xerostomia & Dental Management**

8:30-8:50 *Clinical Management Guidelines for Salivary Gland Hypofunction and Xerostomia in Head and Neck Cancer Patients* Siri Beier-Jensen- DK  
 8:50-9:10 *Dental Management of the Head and Neck Cancer Patient* Jennifer Marleen Schuurhuis- NL  
 9:10-9:30 *Human Salivary Gland Stem Cells Functionally Restore Radiation Damaged Salivary Glands* Sarah Pringle- NL  
 9:30-9:45 *Therapeutic Modalities of Radiation Mucositis in Patients with Oral Cancer* Radivoje Radosavljevic- RS  
 9:45-10:00 Discussion  
 10:00-10:30 Coffee Break

### **Session Chair: Caroline Speksnijder**

#### **Nutrition**

10:30-10:50 *Screening, Assessment and Monitoring of Malnutrition in Head and Neck Cancer Patients* Harriët Jager-Wittenaar- NL  
 10:50-11:10 *Guidelines for Nutrition and Monitoring in H&N Oncology Patients* Kathryn Green- ZA  
 11:10-11:25 *The Role of Physical Activity in Malnutrition in Cancer Patients* Martine Sealy- NL  
 11:25-11:40 *Functional Benefits of Implants Placed During Ablative Surgery* Jan-Willem Wetzels- NL  
 11:40-11:55 Discussion  
 11:55-13:30 Lunch

### **Session Chair: Harry Reintsema**

#### **Outcomes**

13:30-14:00 *Henk Verdonck Memorial Lecture: Through the Looking-Glass... What Would Henk Have Seen?* Johan Wolfaardt- CA  
 14:00-14:20 *Functional Outcomes ORONet Approach* Jana Rieger- CA  
 14:20-14:40 *Patient-Reported Outcomes of Care* Caroline Speksnijder- NL  
 14:40-15:00 Coffee Break

#### **Poster Session**

15:00-16:30 **Poster Session-** Moderator sessions per topic  
 18:00-22:30 **Conference Dinner & Boat Trip to Garnwerd aan Zee (Elective Event for all) Reservation Required**

## **Saturday 20th**

### **Session Chair: Pieter Dijkstra**

#### **Rehabilitation**

8:30-8:42 *Mouth Opening, an Important Predictor for Developing Trismus in Patients Receiving Radiotherapy* Joyce van der Geer- NL  
 8:42-8:54 *Surgery for Extra-articular Trismus: A Systematic Review* Maria Bouman- NL  
 8:54-9:06 *Exercise Therapy for Trismus Secondary to Head and Neck Cancer - A Systematic Review* Pieter Dijkstra- NL  
 9:06-9:18 *Jaw Dynasplint System for Treating Trismus - An Explorative Study* Jolanda Kamstra- NL  
 9:20-9:40 *Exercise for Prevention and Treatment of Shoulder Complaints after Neck Dissection; Does One Size Fit All?* Martijn Stuiver- NL  
 9:40-10:00 *Physical Activity, Physical Exercise and Cancer* Anne May- NL  
 10:00-10:15 Discussion  
 10:15-10:45 Coffee Break

**Dysphagia****Session Chair: Dan O'Connell**

10:45-11:05	<i>Prehabilitation and the Prevention of Dysphagia in Head and Neck Cancer Patients</i>	Jana Rieger- CA
11:05-11:25	<i>mHealth and Head and Neck Cancer: The Potential for Mobile Health Devices to Facilitate Dyphagia Treatment</i>	Gabriella Constantinescu- CA
11:25-11:45	<i>To PEG or not to PEG?</i>	Lisette van der Molen- NL
11:45-12:00	<i>Ultrasound Imaging for Analyzing Lateral Tongue Movements During Mastication</i>	Lianne Remijn- NL
12:00-12:15	Discussion	
12:15-12:20	<b>Poster Award Presentation</b>	
12:20-12:35	<b>Conference Adjournment + Belgrade 2016 Announcements</b>	

**Workshops**

12:30-13:30	Workshop Lunch ( <i>Workshop Participants Only</i> )	
13:30-15:00	<i>Pt-Global App</i>	Harriët Jager-Wittenaar- NL
	<i>Oral Care / Pre Radiation Decisions</i>	Henk Bijl & Marleen Schuurhuis- NL
	<i>Trismus Workshop</i>	Pieter Dijkstra & Harry Reintsema- NL
	<i>Psychological Counseling</i>	Theo Bouman&Chiquit van Linden van den Heuvel- NL
15:00-15:30	Coffee Break	
15:30-17:00	<i>Pt-Global App</i>	Harriët Jager-Wittenaar- NL
	<i>Oral Care / Pre Radiation Decisions</i>	Henk Bijl & Marleen Schuurhuis- NL
	<i>Trismus Workshop</i>	Pieter Dijkstra & Harry Reinstema- NL
	<i>Psychological Counseling</i>	Theo Bouman&Chiquit van Linden van den Heuvel- NL

**Sunday 21st**

ISMR Board Meeting

Colloquium Room OMS UMCG S3-105

*The Program Committee reserves the right to modify the program schedule as circumstances might dictate. Views expressed by speakers at this meeting are solely their own and do not necessarily reflect the positions or policies of the conference program committee*



## Poster Presentations

<b>Poster#</b>	<b>First Name</b>	<b>Last Name</b>	<b>Abstract Title</b>
1	Firas	Alshammari	<i>Peel Bond Strength Between Silicone and Acrylics</i>
2	Doke	Buurman	<i>Prosthetic Rehabilitation of the Irradiated HNC Patient: A Literature Review</i>
3	Richelle	Chucka	<i>Implant Utilization and Loading in Surgical Designed and Stimulated Reconstruction</i>
4	Yan	Dong	<i>A New Method to Improve Implant Osseointegration in Irradiated Bone</i>
5	Marloes	Engelen	<i>Translation and Cross-Cultural Adaptation of the LORQ into Dutch</i>
6	Willem	Fennis	<i>CBCT Based Obturator Prosthesis in Patient with Limited Mouth Opening</i>
7	Sue	Gosen	<i>Scapular Flap Maxillofacial Reconstruction with Osseointegrated Implants</i>
8	Bassam	Hassan	<i>Virtual Prosthodontics Patient: A Novel Approach for Maxillofacial Rehabilitation</i>
9	Ho Beom	Kwon	<i>Finite Element Analysis of the Implant-Supported Protheses after Mandibular Reconstruction</i>
10	Matshediso	Mothopi-Peri	<i>A Continuum of Prosthodontic Rehabilitation in a Patient with Hemi-Maxillectomy</i>
11	Dan	O'Connell	<i>Maxillofacial Reconstruction an Evidence Based Approach</i>
12	Maaike	Stalpers	<i>Speech Aid Prothesis</i>
13	Meriting	Thokoane	<i>Extra-Oral Implants Rescue a Failed Nasal Prosthesis</i>
14	Pascal	Van De Pol	<i>Mouth Cap for Extreme Tongue Protrusion Following Oncologic Treatment</i>
15	Rodica	Mindruta-Stratan	<i>Health Care in Head and Neck Oncology and Maxillofacial Prosthetic in PMSI Institute of Oncology Republic of Moldova</i>
16	Andreas	Artopoulos	<i>Validation of 3 Digital Stereophotogrammetry Devices for 3D Facial Imaging</i>

# Workshop Overview

## Pre-Conference Workshop

June 16 & 17      ***Advanced Digital Planning and Prefabrication in Oral Maxillofacial Rehabilitation for Head and Neck Rehabilitation Teams***

## Workshops #1 & #5

June 20      ***Nutrition App: A Tool to Assess Malnutrition Status in Head and Neck Oncology Patients***

**Instructor:** Dr. Harriët Jager-Wittenaar, Professor of Clinical Malnutrition and Healthy Ageing, Hanze University of Applied Sciences, Groningen

**Description:** The Pt-Global app is based on the Scored Patient-Generated Subjective Global Assessment (PG-SGA) developed by Dr. Faith Ottery and introduced by Dr. Jager for the assessment of malnutrition as well as help for guidance and support of head and neck oncology patients to obtain an optimal nutritional status. The use of the tool will be explained and demonstrated in the workshop.

## Workshops #2 & #6

June 20      ***Oral Care and Pre-radiation Decisions in Head and Neck Oncology***

**Instructors:** Dr. Henk Bijl, Radiation Oncologist UMCG and Dr. Marleen Schuurhuis, Dentist-researcher UMCG

**Description:**

Head and neck oncology patients in need of radiotherapy as part of their oncology treatment, need a thorough oral / dental screening aiming for the identification and irradiation of possible oral foci based on a well thought and sound dental treatment plan to prevent future sequela from dental problems in relation to post radiation damage. Based on the contemporary radiotherapy treatment protocols and their characteristics, the decision making process to develop a dental treatment plan for head and neck radiation patients will be explained and illustrated based on casuistics.

## Workshops #3 & #7

June 20      ***Physical Training Options for Trismus in Head and Neck Oncology Patients***

**Instructors:** Prof. Dr. Pieter Dijkstra, Physiotherapist and Epidemiologist UMCG, and Dr. Harry Reintsema, Maxillofacial Prosthodontist UMCG

**Description:**

Trismus is a debilitating complication seen in many head and neck oncology patients. The consequences for patients in their daily life and strategies to prevent or treat trismus problems by physical training and stretching methods will be explained and illustrated in this workshop. Several tools and techniques for diagnostics and treatment will be demonstrated and can be practiced.

## Workshops #4 & #8

June 20      ***Psychological Counseling***

**Instructors:** Prof. Dr. Theo Bouman, Psychologist, Faculty of Behavioral and Social Sciences, RUG and Dr. Chiquit van Linden van den Heuvell. Psychologist UMCG

**Description:**

Psychological problems and disorders can be seen in head and neck oncology patients. Professionals in head and neck oncology care should be able to recognize and acknowledge these conditions. However one should be aware when compassion stops and where professional treatment is needed. Multidisciplinary approaches will be discussed.

\* Please note workshops 1-4 repeat as workshops 5-8

# Oral Presentation Abstracts



Thursday, June 18

1

Invited Speaker

## **CRANIOFACIAL REHABILITATION- THE PATIENT'S PERSPECTIVE**

**Ros Dowse**

**Faculty of Pharmacy**

**Rhodes University**

**Grahamstown, South Africa**

### **Background:**

Maxillofacial surgery saves lives but also traumatises patients and changes our lives forever. After negotiating the often heartless healthcare system during periods of surgery and hospitalisation, we have to re-enter the “normal” world where, as well as dealing with the debilitating often disfiguring physical sequelae of surgery, we have to gradually adjust to our new, altered selves and to find how and where we now fit into “normal” society. During this rollercoaster of experiences, we often lose our “patient voice”, and retreat into helplessness, despair and frustration. How do patients make meaning of their new lives and find the will to survive and possibly even thrive?

### **Purpose:**

Within the context of my 17 year course of oral cancer-related treatments and illness experiences, the purpose of this presentation is to open a window on the reality of trying to survive life post-maxillofacial surgery physically, psychologically and socially, and to reflect on the need for and meaning of “maxillofacial rehabilitation”.

### **Approach:**

According to the ISMR website, “Head and neck cancer patients have post-treatment functional disabilities that can be restored by means of surgical reconstruction combined with oral and facial prostheses”. But what does “restored” actually mean? Does it mean I will look normal? Will I be able to function normally in terms of speaking, eating, drinking, swallowing? And if not, how do I then negotiate life? Medical science is grounded in investigation and measurement and, accordingly, patient experience is quantitatively investigated using health-related quality of life measures that aim to assess physical, mental and social wellbeing. The output is a number – meaningful for researchers, the medical system and those formulating health and public health policy – but what real insight into a patient’s reality does that number afford, and does it reflect patient experiences within the health system? In attempting to comment on the issues presented above, I will describe the tools and props I use to negotiate my daily life and will attempt to provide some (limited) insight into the relationship between a life measured by a number and a life lived in all its complexity and imperfections.

2

Invited Speaker

## **PRACTICAL AND EVIDENCE BASED APPROACHES TO QUALITY OF LIFE IN HEAD AND NECK CANCER PATIENTS**

**Simon N. Rogers**

**Oral Maxillofacial Surgeon, Aintree University Hospital**

**Leeds, United Kingdom**

In this short presentation there will be focus on four elements:

1. Patients priorities: The balance between survival at all cost and cure but with unbearable side-effects. How can we get this right?
2. Patient Concerns Inventory: Question Prompt List to help patients and clinicians identify issues and get intervention. The PCI has allowed a better understanding of what are the main priorities for patients during follow-up and allows clinicians to refine their aftercare. <http://www.patient-concerns-inventory.co.uk>
3. Main factors that influence HRQOL: The problem pool “What will I be like”
4. HRQOL related to oral rehabilitation: This section will touch on which patients to rehabilitate and also the potential outcomes following rehabilitation.

## 3

Invited Speaker

### REDUCING MORBIDITY WITH SURGERY

Hadi Seikaly

Otolaryngology Head and Neck Surgeon

Edmonton, Canada

This presentation will focus on new and innovative surgical techniques and strategies that reduce the surgical and overall treatment morbidity of head and neck cancer. The presenter will discuss and elaborate on the following approaches:

- 1) The use of surgery as a modality for de-escalating treatment intensities while maintaining survival outcomes
- 2) The role of surgical gland transfer in reducing xerostomia after radiation treatment
- 3) Surgical innovations in reducing shoulder and other morbidities of neck dissection
- 4) The use of new reconstructive techniques in improving patient outcomes and function

## 4

Invited Speaker

### REDUCING MORBIDITY IN RADIOTHERAPY

Roel Steenbakkers

Radiation Oncologist

UMC Groningen, The Netherlands

The majority (> 70%) of all patients with head and neck cancer are treated with (chemo) radiation with or without surgery. Besides administering radiation to the tumor, adjacent normal tissues are inevitably co-irradiated, often leading to radiation induced side effects (RISEs). Examples of RISEs are xerostomia and dysphagia, which are frequently reported and with a major impact on quality of life.

The last decade, much effort has been made to reduce RISEs. A major step to reduce the radiation dose to organs at risk (OARs) compared to conventional radiotherapy is the development of intensity modulated radiotherapy (IMRT). With IMRT the dose delivered to parotid glands and swallowing muscles is reduced, resulting into less xerostomia and dysphagia. Still, after two years, patients suffer from xerostomia and are tube-feeding dependant in 40% and 15%, respectively.

Radiotherapy with protons results in highly conformal dose depositions in the tumor with significantly less dose OARs compared to IMRT. However, radiotherapy with protons is more expensive (2.0-2.5 times) than the currently used IMRT and the availability will be limited.

Even with the best radiation technique, there will be always patients where the OARs can not be spared. The tumor is too close or even invading the OARs for these patients. For these patients stem cell therapy is currently being developed. For example; before radiotherapy salivary stem cells are collected from the parotid glands and are given back after radiotherapy (autologous stem cell transplantation). This way the salivary gland function can be stored and life lasting xerostomia can be avoided.

## 5

Invited Speaker

### REDUCING MORBIDITY IN CHEMOTHERAPY

Jourik Gietema

Medical Oncologist

UMC Groningen, The Netherlands

## 6

Invited Speaker

### **THE ROLE OF PALLIATIVE MEDICINE IN THE CURATIVE STAGE OF HEAD AND NECK CANCERS**

**Sue Walter**

**Specialist Palliative Physician**

**Johannesburg, South Africa**

It is a common misconception amongst physicians, families and patients that palliative medicine is only used in the terminal stages of disease. In fact, it has been established that impeccable monitoring of symptoms and management of their control, not only improves patient compliance to curative intervention but also results in improving prognosis.

Most patients that are referred for palliative intervention are referred too late in their disease when symptoms are out of control and morale is low. The old idea that palliation starts when active intervention ends is not true. Palliation is holistic care and tight symptom control and patients should be assessed by a palliative physician at the time of diagnosis. Palliative services must be run concurrently with curative treatment in order to optimize outcome.

This presentation addresses common myths around palliative care, referral entry points and ethics related to palliative care and decision making.

## 7

Invited Speaker

### **PATIENT CENTRAL IN PALLIATIVE CARE AT HOME**

**Betty Meyboom-de Jong**

**Physician General Practitioner**

**Groningen, The Netherlands**

When curation is no longer possible, the phase of palliative care begins. In the Netherlands, patients usually will then be referred back to the general practitioner. Palliative care focusses on the quality of life and not longer on curation and survival. The patient needs and wishes are central in palliative care. Originally palliative care was developed for oncology patients but nowadays it is also utilized for other patients in the end phase of other incurable diseases as COPD, heart failure, neurological diseases as M. Parkinson and ALS, stroke and dementia. We distinguish according to the model of Lynn and Adamson: disease palliation, symptom palliation, end of life care and aftercare for the relatives.

Good palliative care is based on 4 C's: Comprehensiveness, Communication, Continuation and Coordination. Comprehensive care comprises physical, mental, social and spiritual care. The patient ideally is in control, he chooses and decides what he wants after advice from the GP and the nurse. The patient's wishes are registered in a care-plan that directs the care-givers. Listening is often more important than speaking and advising. To be present and make time to sit and listen is important. Communication between the specialist and the GP at the start of the palliative phase when the patient is referred back to the care of the GP is absolutely necessary. The oncology of the UMCG developed a format for the discharge message containing the disease history, treatment and complications, state of the disease, prognosis etc. Continuation: The GP who is responsible for palliative care has to inform his patient when he is not available and he has to inform his locum during nights, and weekends. Cooperation is needed between GP, the patient and his caregivers, with the nurse and eventually other caregivers.

Since many relatives, volunteers and caregivers often are engaged in caring for the palliative patient, coordination of care is needed. The home care nurse together with the GP are the coordinators and have to agree whom the patient or his relatives will contact if problems arise. If needed the GP can consult the palliative care team or a specialist.

In the Netherlands, a patient can choose for euthanasia at the end of life. That is still punishable but under strict conditions the doctor who performs euthanasia is not convicted. The requirements are discussed.

## 8

Invited Speaker

### **PALLIATIVE CARE IN HEAD AND NECK CANCER: A MULTIDISCIPLINARY APPROACH**

**Karel W. Schuit**

**General Practitioner**

**Medical Coordinator of the Provincial Palliative Care Team**

**Groningen**

In this lecture I will illustrate the various aspects of palliative care for head and neck cancer patients in the the end stage of the disease.

A patient cared for by a general practitioner and hospice doctor from their daily practice in the local hospice will be presented in the powerpoint.

Using this patient as a basis I will reflect on the more general somatic, psychosocial and spritual problems presented by this category of patients.

Head and neck cancers are often local diseases with ulcers, fistulae and present a threat for a so-called blow out caused by invasion of arteries. Anticipation of this possibility gives rise to an extra psychological burden, added to the fact that the palliative trajectory is relatively longer than in metastatic cancer. Metastases tend to shorten the trajectory because of the spread to vital organs, thus shortening the prognosis as well as the time patients spend suffering.

This presentation will hopefully clarify the role of the GP in the Dutch context as the central and coordinating figure of palliative care. Of course palliative care is, just like family medicine, in the first place general care, where above all paying attention to psychosocial stress is essential.

Moreover, it will be emphasized that good communication skills are essential for good care. The GP has a head start in these matters because the GP training is highly invested in communication skills and GP's often have a long standing relationship with the patients and their families.

## 9

Invited Speaker

### **FACING ONE'S LOSS OF FACE**

**Jenny Slatman**

**Associate Professor, Maastricht University**

Treatment of head and neck cancer, especially surgical treatment, leaves apparent visible marks on a patient's body. In contrast with scars on other body parts, facial scars, even if they are concealed by a facial prosthesis and/or make-up, virtually never go by unnoticed. A facial scar or defect indeed implies a clearly visible marker for other people. As such the facial scar often interrupts every day social interaction: people stare at you; they wonder what is wrong with you; they hesitate whether it is appropriate or not to ask what happened to you etcetera. In my talk I will linger on patients' experiences of "being different" because of their facial disfigurement. In the first part of my talk, I will explain how facial disfigurement disrupts one's normal embodiment on the basis of the (phenomenological) idea that we normally are not so aware of our own face; normally we just use our face to face the world. Facial disfigurement interrupts this taken for grantedness of the face. In the second part of my talk I will discuss how people handle facial disfigurement while using facial prostheses. This part is for a great deal based upon a completed qualitative empirical study [1]. This study consisted of in depth interviews with people using facial prostheses. The interviews were analyzed while using a phenomenological approach, i.e. an approach that focuses on the different ways in which people can experience their own body, their own face. We identified three different ways these people experience and perceive their own face: 1) as a perceiving face (i.e. the site of (disturbed) sense perception); 2) as a sensed face; and 3) as an observable face. In my talk I will make clear what these three dimensions of the face mean, and what their implications are for the degree to which people with facial disfigurement are disturbed in their daily activities, the degree to which they are disabled. While zooming in at bodily experiences, our study also puts forward that facing one's loss of face entails a great deal of bodily doings (e.g. developing new habits and routines). It is also therefore that I prefer the term "handling" above the term "coping" which in most literature only refers to psychic adeptness and resilience.

[1] G.Yaron, G. Widdershoven, M. van den Brekel & J. Slatman. Facing a disruptive face: disfigurement and disability as a function of embodied selves, prostheses and contexts. *Body & Society* (submitted November 2014).

# 10

Invited Speaker

## **PRACTICAL COUNSELING**

**Theo Bouman**

**Associate Professor of Clinical Psychology  
University of Groningen, The Netherlands**

Any type of cancer not only leaves physical but certainly also psychological scars. Despite the emphasis on the medical aspects of cancer treatment, psychological factors can hardly be ignored. In this lecture we will provide a brief summary of these psychological factors and the way they can be recognized and dealt with by health care professionals. Emotional effects of head and neck cancer are often quite profound, ranging from worrying, anxiety, and depression to anger and even rage. In addition, the disease will change patients' perspectives in their life and future: fear about what might happen and sadness about what will be lost. In the case of head and neck cancer, a patient's appearance may change due to the disease or its treatment. As a consequence body image and feelings of self-worth are negatively influenced, as well as relationships with other people. For professionals delivering care to head and neck cancer patients it is important to be aware of these emotional, cognitive and behavioural reactions in their patients, but also in themselves. In addition, realizing to what extent one can deal with these reactions, and when to refer to specialized psychological care is crucial in the care for these patients.

# 11

Invited Speaker

## **PATIENT-CENTERED TREATMENT DESIGN & DECISION-MAKING CHALLENGES IN FACIAL PROSTHETIC REHABILITATION**

**Rosemary Seelaus**

**The Craniofacial Center**

**University of Illinois Hospital & Health Sciences System**

**Department of Surgery, Division of Plastic & Reconstructive Surgery, College of Medicine**

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**Chicago, USA**

Reconstruction of facial deficits with external prostheses is well established as a treatment option when surgical reconstructive options are limited or not preferred. When treatment for these patients is carefully planned and carried out by experienced clinicians, successful psychosocial rehabilitation is observed and often described by both patient and clinician. However, the precise factors that contribute to a patient's psychosocial rehabilitation is complex. Medical, vocational, social, emotional, behavioral and cultural conditions play a role in patient rehabilitation, resilience and coping strategies throughout the treatment experience. Paramount to the patient's rehabilitative potential is a supportive network of family and community. For the clinician, presentation of treatment options and defining treatment goals most appropriate for the individual patient can be daunting given the complexity of these presenting conditions.

Historically, debate among peer professionals has raised questions related to treatment design in facial prosthetic reconstruction that predictably contributes toward successful rehabilitation for patients with acquired facial deficiencies. Today, in an environment of high-tech healthcare, pressure on clinicians to employ techniques to decrease costs, and improve efficiency of care may, or may not be in the patient's best interests or contribute to their psychosocial rehabilitation. New questions emerge about optimal treatment design that provides a value-added experience for clinician and patient alike; and, that offers the greatest contribution toward rehabilitation.

This presentation explores the decision-making challenges faced by today's clinicians in structuring a patient-centered approach to treatment. By revisiting historical questions in facial prosthetic rehabilitation and presenting emerging clinical dilemmas, we engage in a new dialogue aimed at defining 'best practices' in treatment design & clinical decision-making to optimize an improved patient rehabilitative experience in today's high-tech healthcare environment.

# 12

## THE VALUE OF A SUPPORT GROUP IN CRANIO-FACIAL CANCER

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Private Practice  
Morningside, Johannesburg, South Africa

**Keywords:** Support, Patients, Cancer

**Purpose:** Clinical evidence confirms that, while support groups do not prolong patient's lives, they improve their QOL. Additionally patients, their caregivers and clinicians can benefit from such groups. The forum creates a platform in which patients share their experiences, gain information and practical advice, offer and receive emotional comfort and moral support, facilitating a better understanding of their disease, treatment and sequelae leading to compliance, improved communication between patient and physician and empowering patients. The study objective was to evaluate the success of a head and neck support group in South Africa - its impact on patient's management of cancer and ensuing treatment, their needs and requirements in relation to the treatment sequelae and impact on their QOL and the management of such a group.

**Methods & Materials:** It was based on a Visual Analogue Scale, using Google Forms. 31% of members participated, all at different stages of disease and/or treatment. 50% have had CHRAD. Questions addressed to patients ranged from their attendance, benefits gained, their individual relationship within the support group, personal research conducted and their socio-psychological well-being pre- and post-operatively. Responses were automatically registered on Google Form and calculated. The information was kept anonymous and confidential.

**Results:** The Results: 75% attended for at least 1 year. 91% felt they gained more than expected and their QOL had increased. 41.7% started attendance on completion of treatment; however 91.7% recommend attendance from onset of diagnosis. 83% of patients conducted home-research on their disease and treatment. All participants agreed on the need for information on new treatment modalities. 83.3% of patients wished for members of the specialist team to also attend. 91.7% of the group felt positive support for common psychological denominators like belonging, inner strength, emotional support and felt a reduction of, amongst others, their fear, anger and found strength and value by the camaraderie within the group.

**Conclusion:** A support group, run by patients for patients, appears to be of value by supporting their psycho-social requirements and providing a common identity but need input from treating professionals, both specialist and para-medical.

# 13

## PATIENT'S PERCEIVED CHANGE FOLLOWING IMPLANT RETAINED ORAL REHABILITATION

Chuka, Richelle \*, Constantinescu, Gabi, Wolfaardt, Nayar, Suresh, Johan, Rieger, Jana  
Institute for Reconstructive Sciences In Medicine (IRSM)  
Edmonton, AB, Canada

**Purpose:** Implant retained oral rehabilitation is often used to restore function and aesthetics after treatment for head and neck cancer (HNC). This process is resource intensive employing an interdisciplinary approach. It is of significance to identify a patient's specific need prior to treatment. This investigation sought to evaluate how well the patient's perceived needs have been met after treatment.

**Methods & Materials:** A retrospective chart review was conducted on individuals who completed oral rehabilitation following HNC treatment between 2000 and 2014 at the Institute for Reconstructive Sciences in Medicine (iRSM). The Patient Perceived Change (PPC) questionnaire was used to evaluate the degree of change after treatment. Before treatment, patients identify a specific need (i.e., "to be able to chew through meat such as steak"). The patient need(s) are ranked in order of significance and classified into four categories (function, appearance, psychosocial, and other). After prosthetic delivery, patients rate the perceived degree of change on each of the identified needs. A five-point Likert-type scale is used with the greater the score, the more positive the perceived degree of change (1 = much worse, 2 = worse, 3 = no difference, 4 = better and 5 = much better). The average degree of change per patient as well as per category of need were recorded to determine if the outcomes are better than the 3 = no difference (60% equivocal response).

**Results:** Sixty-seven patients met the inclusion criteria. Descriptive statistics were used to determine the average degree of change and category of need. The average degree of change was 80% per patient as well as the highest priority category of need. Function was the most reported category of need. The average degree of change for function was 80%, followed by 84% for aesthetics, 96% for psychosocial and 80% for other. Within the category: function, 66% of the patient's specific need was to have "improved chewing" followed by "improved comfort" and "improved speech." The average degree of change for improved chewing was 86%, 84% for improved comfort and 88% for improved speech.

**Conclusion:** In this study, the PPC reported outcomes were better than the equivocal 60% equivocal response. The PPC is an important modality in the iRSM quality system that fosters conscious continuous improvements to patient-based treatment outcomes during rehabilitation.

## Friday, June 19

### 14

Invited Speaker

#### **CLINICAL MANAGEMENT GUIDELINES FOR SALIVARY GLAND HYPOFUNCTION AND XEROSTOMIA IN HEAD AND NECK CANCER PATIENTS**

**Siri Beier-Jensen**

**Oral Medicine and Pathology**

**University of Copenhagen, Denmark**

This lecture will discuss the MASCC/ISOO evidence-based clinical management guidelines for salivary gland hypofunction and xerostomia in head and neck cancer patients. Current approaches for clinical management of salivary gland dysfunction include (I) masticatory/gustatory or pharmacologic stimulation of residual secretory capacity of the salivary glands and/or (II) use of oral mucosal lubricants. Evidence of other stimulatory approaches is also being addressed, including acupuncture and neuroelectrostimulation. Prevention or reduction of salivary gland dysfunction is another approach that can be considered for selected head and neck cancer patients.

### 15

Invited Speaker

#### **DENTAL MANAGEMENT OF THE HEAD AND NECK CANCER PATIENT**

**Jennifer Marleen Schuurhuis**

**Department of Oral and Maxillofacial Surgery**

**University Medical Center Groningen**

**University of Groningen, The Netherlands**

Pre-radiation dental screening of head-neck cancer patients aims to identify and eliminate oral foci of infection to prevent post-radiation oral problems. The evidence for the efficacy of dental screening is unclear, however. Our systematic review of the literature on this topic showed a great heterogeneity in patient groups, dental screening techniques, definitions of oral foci of infection and techniques for eliminating foci (1). It also showed that most papers lacked essential details on how dental screening was performed as well as a clear definition of an oral focus of infection. Thus, the evidence for efficacy of elimination of oral foci of infection to prevent post-radiotherapy oral sequelae is inconclusive. Consequently, the efficacy of pre-radiation elimination of oral foci of infection remains unclear. No conclusions can be drawn what has to be considered as an oral focus of infection and whether pre-radiation elimination of oral foci should be mandatory. Therefore, there is a need for prospective studies with well-defined criteria for oral foci of infection, a clear description of which foci were eliminated and how, a detailed description of pre-radiation dental screening, clearly described patient and tumor characteristics, and a detailed dental history and dental status. Such a prospective study was started in the University Medical Center in Groningen in 2011. In addition to the outcome of the systematic review, the preliminary results of this study will be presented.

(1) Schuurhuis JM, Stokman MA, Witjes MJ, Dijkstra PU, Vissink A, Spijkervet FKL. Evidence supporting pre-radiation elimination of oral foci of infection in head and neck cancer patients to prevent oral sequelae. A systematic review. *Oral Oncol* 2015;51:212-20.

# 16

Invited Speaker

## HUMAN SALIVARY GLAND STEM CELLS FUNCTIONALLY RESTORE RADIATION DAMAGED SALIVARY GLANDS

Sarah Pringle

Post-Doctoral Research Assistant, Dept. of Cell Biology & Radiation Oncology  
UMCG Groningen, The Netherlands

Hyposalivation and consequential xerostomia are deleterious sequelae of salivary gland (SG) ablation, commonly caused by radiotherapy treatment for head and neck cancers. Patients experience lifelong difficulties with speech, swallowing, eating, sleeping and dental caries. Replenishment of saliva-producing cells by stem cell therapy represents a potential remedy for hyposalivation. Here we show that single cell-derived salispheres from human SG self-renew and differentiate into organoids *in vitro* and proliferate and functionally differentiate *in vivo* in xenotransplantation models. Transplanted cells restored saliva production and improved regenerative potential of irradiated SGs. Microarray and protein analysis suggested that, in addition to functional engraftment, human cells stimulate  $\beta$ -catenin-mediated Wnt signaling, extracellular matrix/cell interactions and stem cell proliferation in recipient SGs, thereby augmenting SG functional recovery. Thus, we show for the first time that human salispheres contain stem cells capable of self-renewal and differentiation and rescue of saliva production, and represent a viable therapeutic option.

Sarah Pringle<sup>1,2</sup>, Martti Maimets<sup>1,2</sup>, Marianne van der Zwaag<sup>1</sup>, Monique A. Stokman<sup>2,3</sup>, Djoke van Gosliga<sup>1,2</sup>, Erik Zwart<sup>4</sup>, Max J. H. Witjes<sup>3</sup>, Gerald de Haan<sup>4</sup>, Ronald van Os<sup>4</sup>, and Rob P. Coppes<sup>1,2\*</sup>.

# 17

## THERAPEUTIC MODALITIES OF RADIATION MUCOSITIS IN PATIENTS WITH ORAL CANCER

Radosavljevic, Radivoje \*, Lazic Vojkan, Konstantinovic Vitomir, Djordjevic Igor

School of Medicine University Of Pristina In Kosovska Mitrovica

Department of Dentistry

Belgrade, Serbia

**Keywords:** Quality of Life, radiation mucositis, questionnaire

**Purpose:** The significance of multi-dimensional influence of maxillofacial tumors brought about an increased interest of patients "Quality of Life". The studies of Quality of Life give clinical information about the disease effects, therapy and undesired effects. The advantages for the patient in these studies are such that they can express their opinion on the negative aspects of the disease and contribute in making therapeutic decisions since the period of outliving is not directly connected with the improvement of QOL.

**Methods & Materials:** This study prospectively evaluates and compares quality of life in 30 patients with oral cancer primarily treated surgically with consecutive prosthetic and radiotherapy using the questionnaires: BMS (0.,control)-visual qualification of patients symptomatology, QLQ C-30 and H and N35 by the EORTC. Patients were divided into 3 groups by 10 respondents. By random selection, one group (control), had standard protocol in radiation mucositis therapy while the second and third group (experimental groups), had „Stomatovis“ and „Gelclair“ besides the standard therapy. Statistical calculations were performed using the software SPSS 17.0 for Windows (SPSS Inc, Chicago, USA). P-values ( $p < 0.05$ ) were marked as statistically significance. The distribution of quantitative variables was based on using the mean, median and standard deviation. Mann-Whitney U test and Kruskal-Wallis test were employed to compare different groups of quantitative variables.  $\chi^2$  test and Fisher test were used for qualitative variables analysing.

**Results:** „Gelclair“ added to standard therapy protocol in treatment of radiation mucositis had influence on reduction of pain in the 2. and the 3. phase of QLQC30 questionnaire and BMS control test. The patients of this group had better results of global health quality of life in the 2. phase than the other experimental and control group, and better emotional status in the 3.phase of treatment. Analysis of the H&N35 questionnaire for all three groups signifies easier deglutition in the 1.phase and pain reduction, less trouble with social eating and felt less ill in later stages of radiation therapy.

**Conclusion:** „Gelclair“ added to standard therapy protocol in treatment of radiation mucositis improved the patients "Quality of Life" with oral carcinoma on radiation therapy.

# 18

Invited Speaker

## **SCREENING, ASSESSMENT AND MONITORING OF MALNUTRITION IN HEAD AND NECK CANCER PATIENTS**

**Harriët Jager-Wittenaar**

**Professor of Clinical Malnutrition and Healthy Ageing**

**Dietitian**

**Groningen, The Netherlands**

Malnutrition is common in head and neck cancer patients. Already at diagnosis about 20% to 50% of the patients suffers from critical weight loss, an important characteristic of malnutrition. As malnutrition negatively impacts clinical outcome, survival, quality of life and frailty status, early recognition of malnutrition is of utmost importance. Early recognition may facilitate effective treatment, and even better, might facilitate prevention of malnutrition.

The nutritional care process is an interdisciplinary responsibility. In addition to systematic screening of early signs of malnutrition, i.e. weight loss and reduced food intake, systematic evaluation of presence of symptoms is important, to reduce the risk for development of malnutrition. In head and neck cancer patients, dysphagia, loss of appetite and changes in smell and taste are known to be strong predictors of malnutrition.

In this lecture, the Patient-Generated Subjective Global Assessment (PG-SGA) will be discussed. The PG-SGA (© FD Ottery, 2005, 2006, 2015) is a valid instrument used worldwide for more than 20 years, and utilized for screening, assessment and monitoring of malnutrition and its risk factors.

# 19

Invited Speaker

## **GUIDELINES FOR NUTRITION AND MONITORING H&N ONCOLOGY PATIENTS**

**Kathryn Green**

**Principle Clinical Dietician, Morningside Medi-Clinic Hospital**

Patients with head and neck cancer face unique challenges in maintaining adequate nutrition. Both the disease itself and the treatments, especially surgery and radiation therapy, have significant negative impact on upper digestive tract function and oral intake is often insufficient during and after therapy. Head and neck cancer patients also frequently present malnourished at the time of diagnosis and prior to the beginning of their treatment. Chemo-radiotherapy causes or exacerbates symptoms, such as alteration or loss of taste, mucositis, xerostomia, fatigue, nausea and vomiting, with consequent worsening of malnutrition. It is important to identify alternative feeding routes to prevent further weight loss or toxicity to neoadjuvant therapies and avoid increased or prolonged treatment time, which is associated with a poor clinical outcome.

# 20

Invited Speaker

## **THE ROLE OF PHYSICAL ACTIVITY IN MALNUTRITION IN CANCER PATIENTS**

**Martine Sealy**

**Nutrition & Dietetics, Hanze University & UMCG**

Malnutrition is a frequent problem in patients with head and neck cancer. Prevention or timely treatment of malnutrition is of great importance because deteriorated nutritional status can have a negative effect on clinical outcome in head and neck cancer patients.

Malnutrition is a multidimensional problem, in which a nutritional disbalance causes loss of weight and muscle mass, either or not accompanied by inflammatory activity, resulting in functional decline.

Thus far, little is known about the role of physical activity in both the development and treatment of malnutrition in cancer patients. Although positive effects of exercise on fatigue and quality of life have been reported, the relationship between physical activity and prevention and treatment of malnutrition needs to be further elucidated.

In this presentation, current insights and hypotheses on the relationship between physical activity and nutritional status in patients with cancer will be discussed.

# 21

## FUNCTIONAL BENEFITS OF IMPLANTS PLACED DURING ABLATIVE SURGERY

Wetzels, Jan-Willem \*, Koole, Ron; Meijer, Gert; De Haan, Anton; Merkx, Matthias; Speksnijder, Caroline Radboudumc  
Department of Oral and Maxillofacial Surgery  
Nijmegen, Gelderland, Netherlands

**Keywords:** dental implants, mouth neoplasms, prosthodontics

**Purpose:** The aim of this study was to assess the objective and subjective masticatory function in edentulous oral cancer patients rehabilitated with (1) an implant-retained denture, (2) a conventional full denture, or (3) no dentures. Two protocols for prosthodontic rehabilitation were compared: placement of implants during ablative surgery (DAS) and conventional prosthodontics with optional placement of implants postsurgery (P).

**Methods & Materials:** In total, 56 edentulous oral cancer patients were recruited at two institutions; one institution used the DAS protocol, the other the P protocol. Assessments took place before surgery, and 0.5, 1, and 5 years after surgery. Forty healthy controls were measured once. Masticatory performance, bite force, and eight questions on masticatory ability and denture function were assessed and analyzed using linear mixed-effects models.

**Results:** Eighteen patients received implants during ablative surgery, nine received implants post-surgery, and 29 received no implants. Implant-retained dentures demonstrated the highest bite force and the least problems with solid food and food choice. Masticatory performance was equal for implant-retained and conventional dentures. After 5 years, implant-retained dentures from patients in the DAS cohort demonstrated higher bite force (39.8%,  $P < 0.001$ ) and masticatory performance (28.5%,  $P = 0.001$ ) than those from patients in the P cohort.

**Conclusion:** In patients treated for oral cancer, implant-retained dentures produce the highest overall masticatory function, especially when implants are placed during ablative surgery.

# 22

Invited Speaker

## HENK VERDONCK MEMORIAL LECTURE: THROUGH THE LOOKING GLASS...WHAT WOULD HENK HAVE SEEN?

Johan Wolfaardt  
Prosthodontist  
Edmonton, Canada

Advanced digital technologies held an early adopter fascination for Henk Verdonck. Advanced digital technologies are assistive to the transformation that has already occurred and continues underway in head and neck reconstruction. Many of these technology platforms are stable and serve a surgical design and a surgical guide additive manufacturing workflow. Approaches to surgery are evolving rapidly and surrounding this is convergence of virtual reality, navigation and robotics. These approaches will be disruptive to the present technology paradigm employed in head and neck surgery. While these changes are underway, other far reaching developments are taking place within a broader economics of technology context. This broader technology context is presently challenging to contemplate. Henk Verdonck, in always being a step ahead, would have been peering into the looking glass to understand what awaits ahead. The presentation will speculate on what Henk may have seen.

## 23

Invited Speaker

### **ORONet: DEVELOPMENT OF PATIENT-DRIVEN OUTCOMES MEASURES IN ORAL REHABILITATION**

**Jana Rieger & Johan Wolfaardt**  
**Speech Pathologist, Director of Research**  
**University of Alberta**  
**Institute for Reconstructive Sciences in Medicine**  
**Edmonton, Canada**

Management of the loss of dentition with osseointegrated implants has become a common restorative option for individuals with head and neck cancer. The literature surrounding the clinical outcomes of implant-based dentistry in general is characterized by numerous measures that lack standardization and a clear relationship with patient satisfaction. These factors make it very difficult to synthesize results across studies and to understand what the outcomes mean to patients.

ORONet (Oral Rehabilitation Outcomes Network) is an international group of clinicians and researchers who wish to improve patient dental health through better understanding of patient-centered prosthodontic outcomes. The group set out to identify the most valid, discriminating and feasible outcome measures that are in current use, with an aim to identify those that should drive future research.

The intent of this presentation is to provide the audience with: an overview of the development of the ORONet group; a discussion of the current drive towards patient-based outcomes; and a description of the ORONet process as it relates to the functional outcomes domain.

## 24

Invited Speaker

### **PATIENT-REPORTED OUTCOMES OF CARE**

**Caroline M. Speksnijder**  
**Physiotherapist**  
**University Medical Center Utrecht**  
**Department of Oral and Maxillofacial Surgery and Special Dental Care**  
**Utrecht, The Netherlands**

The patient-reported outcome (PRO) is a standardized method for measuring patients' views of their health and health related quality of life. PROs can play an important role in patient-centered health care by focusing on the patient's health goals guiding therapeutic decisions. Thereby, PROs can be used for comparative effectiveness research, practice improvement, assessment of the performance of clinicians and organizations, and as a metric for value-based payments. To encourage the use of PROs in clinical practice and performance measurement, the National Quality Forum (NQF) in the United States has described a pathway for developing PRO-based performance measures that integrate measurements of both clinical practice and performance. However, the feasibility of integrating the use of PROs for these various purposes related to oral rehabilitation has not yet been demonstrated on a wide scale.

Recognizing this problem, an international group of clinicians, educators, and scientists formed the Oral Rehabilitation Outcomes Network (ORONet) to promote strategies for improving health based on comprehensive, patient-centered evaluations of comparative effectiveness of therapies for oral rehabilitation.

Saturday, June 20

25

Invited Speaker

## **MOUTH OPENING, AN IMPORTANT PREDICTOR FOR DEVELOPING TRISMUS IN PATIENTS RECEIVING RADIOTHERAPY**

Joyce van der Geer

Master Student

University of Groningen, The Netherlands

**Introduction:** Fibrosis after receiving radiotherapy for head and neck cancer may lead to a restricted mouth opening. This study aimed to analyse predictors for developing trismus (a maximal mouth opening of  $\leq 35$  mm) at the next follow-up visit in head and neck cancer patients receiving radiotherapy.

**Methods:** In this study, 641 participants were included and used for analysis. The maximal mouth opening was measured prior to and 6, 12, 18, 24, 36 and 48 months after radiotherapy. Patients, tumour and therapy characteristics were used in the logistic regression analysis as possible predicting factors for trismus.

**Results:** During the first six months, 28.1% of the patients developed trismus. There after the incidence of trismus declined. Maximal mouth opening was a strong predictor for developing trismus at the next follow-up visit.

**Conclusion:** By measuring the mouth opening regularly, early identification of patients at risk for trismus is possible. Early exercise therapy for increasing mouth opening can be appointed specifically to patients at high risk for developing trismus.

26

Invited Speaker

## **SURGERY FOR EXTRA-ARTICULAR TRISMUS: A SYSTEMATIC REVIEW**

Maria Bouman

Plastic Surgery Resident

UMCG Groningen, The Netherlands

Trismus is a debilitating condition affecting the patient's ability to eat, speak and maintain oral hygiene and impacting psychosocial well-being and quality of life. Extra-articular trismus is caused by disorders outside of the temporomandibular joint. Worldwide, the three most important causes of chronic extra-articular trismus are oral submucous fibrosis (a premalignant condition due to betel quid chewing), noma (an orofacial gangrene in malnourished children) and head and neck oncology and its treatments. The aim of this systematic review was to identify surgical treatments, applied to improve mouth opening in patients with extra-articular trismus and to analyse their efficacy in improving mouth opening.

**Methods:** An electronic database search was conducted in PubMed, Embase, Cinahl, and the Cochrane database, followed by a systematic selection process, quality assessment and data extraction and meta-analysis.

**Results:** Thirty two studies, including 651 patients, were analyzed. The median sample size was 11 patients (interquartile range (IQR) 7;26). Methodological quality and quality of reporting were relatively low. Median duration of follow-up was 12 months (IQR 8;22). A weighted mean increase in mouth opening of 19.3 mm occurred after surgical interventions. None of the surgical interventions was clearly superior to others in terms of increase in mouth opening.

**Conclusions:** Surgical procedures can improve mouth opening in extra-articular trismus. However, evidence is of a moderate quality and there is a need for further research.

## 27

Invited Speaker

### EXERCISE THERAPY FOR TRISMUS SECONDARY TO HEAD AND NECK CANCER- A SYSTEMATIC REVIEW

Pieter Dijkstra  
Physiotherapist  
Groningen, The Netherlands

Since 2004 effects of exercise therapy for trismus, secondary to head and neck cancer have not been reviewed systematically. Aim of this study was to update a systematic review published in 2004.

Several databases (4) were searched. Quality of randomized controlled trials and observational studies was assessed by two observers independently using the risk of bias and the MINORS tool respectively. Two-hundred-eleven papers were identified of which 20 studies were included. Considerable clinical-, methodological-, and statistical heterogeneity was found between the studies. Generally, quality was moderate. Exercises to prevent a reduction in mouth opening during radiation therapy were not successful in 5 out of 8 studies. In case-studies increase in mouth ranged between 17 and 24 mm. In 8 therapeutic studies mouth opening increased between -1.9 and 13.6 mm. Not one type of exercise or stretching technique was superior. Clinical guidelines are hard to provide based on the results of this systematic review.

## 28

Invited Speaker

### JAW DYNASPLINT SYSTEM FOR TREATING TRISMUS- AN EXPLORATIVE STUDY

Jolanda I. Kamstra, DMD<sup>1</sup>  
Harry Reintsema, DMD<sup>1</sup>  
Jan L.N. Roodenburg, DMD, PhD<sup>1</sup>  
Pieter U. Dijkstra, PT, PhD<sup>1,2</sup>

1. University of Groningen, University Medical Center Groningen, Department of Oral and Maxillofacial Surgery, the Netherlands
2. University of Groningen, University Medical Center Groningen, Center for Rehabilitation, Department of Rehabilitation Medicine, the Netherlands

#### Background:

The Dynasplint Trismus System® (DTS) can be used to treat trismus secondary to head and neck cancer. Effects of DTS exercises have only been evaluated as change in mouth opening and patient's perspective is unknown.

#### Methods:

Patients were instructed to exercise with the DTS for at least 16 weeks. Changes in mouth opening, pain, (mandibular) function, quality of life, and symptomatology were evaluated, as well as patient's perspective.

#### Results:

Eighteen consecutive patients were included. Baseline mouth opening was 22.6 mm (sd 7.6). After DTS exercises mouth opening increased (7.1 mm, sd 4.7) and symptomatology improved significantly ( $p < 0.05$ ). Patient's perspectives were diverse. Reported were effectiveness, positive feelings of the results, and recommendations of DTS exercises to other patients. About half of the patients thought DTS exercises were a burden.

#### Conclusion:

Mouth opening increased significantly after DTS exercises. In general, patients were satisfied.

## 29

Invited Speaker

### EXERCISE FOR PREVENTION AND TREATMENT OF SHOULDER COMPLAINTS AFTER NECK DISSECTION; DOES ONE SIZE FIT ALL?

Martijn Stuiver

Clinical Epidemiologist and Physiotherapist  
Netherlands Cancer Institute

Neck dissection is an important aspect of the surgical treatment of head and neck cancer. In many patients, this procedure leads to the well documented "shoulder syndrome". The syndrome consists of shoulder pain, changes in posture (most notably winging of the scapula and dropping of the shoulder girdle), and limited active range of motion of the shoulder. These symptoms are related to functional deficits of the Trapezius muscle as a result of damage to the eleventh cranial nerve (accessory nerve) during the neck dissection. To date, nerve sparing procedures are considered the norm, but even when preserving anatomical continuity of the accessory nerve, functional deficit due to neuropraxia occurs in many patients.

Evidence on the effectiveness of shoulder rehabilitation is scarce. In a number of studies, different approaches to exercise interventions aimed at improving shoulder function have been examined. The results of these studies are inconsistent; while some show promising results, others find no clinically relevant effect.

It should be recognized that although neck dissection related shoulder disability can have a profound impact quality of life for some patients, it can be a mere 'pebble in the shoe' for others. Also, delivering rehabilitation in this patient population can be challenging, due to the burden of adjuvant treatment, the presence of competing or interacting psychosocial problems, low health literacy, and limited financial resources.

Shoulder rehabilitation after neck dissection should not be considered a "one-size fits all" intervention. There is a need for additional research to develop optimal rehabilitation interventions, but we face another challenge that is at least as important; to identify which patients are most likely to benefit from which type of intervention.

## 30

Invited Speaker

### PHYSICAL ACTIVITY, PHYSICAL EXERCISE AND CANCER

Anne May

Julius Center for Health Sciences & Primary Care  
University Medical Center Utrecht, The Netherlands

Higher levels of physical activity are associated with a lower risk of developing several types of cancer. Also after diagnosis, being physical active (e.g. 3/week 1 hour walking with moderate intensity) is related to a 40-60% decreased risk of cancer-related or all-cause mortality, especially in patients with breast, ovarian, colorectal or prostate cancer.

For many patients, cancer and its treatment are associated with physical and psychosocial side-effects, including reduced physical fitness and function and increased risk of anxiety, depression and fatigue, which has a negative influence on patients' quality of life. Physical exercise interventions have the potential to beneficially affect these outcomes. Several meta-analyses have convincingly shown beneficial effects of exercise interventions on cancer patients' quality of life, fatigue, physical functioning and fitness after completion of treatment. Generally, effects of exercise interventions during cancer treatment were smaller, which might be caused by the concurrent treatment. Interestingly, in addition to beneficial effects on fatigue or fitness, two large randomized controlled trials (RCT) in patients with breast cancer reported a higher chemotherapy completion rate in the exercise intervention group compared to usual care control.

So far, most exercise-oncology RCTs were performed in patients with breast, prostate or haematological cancer. Less research has been done in patients with head and neck cancer, who probably differ in characteristics, treatment and side effects. In addition to symptoms as fatigue and decreased physical functioning, patients with head and neck cancer often have difficulties swallowing, breathing and speaking and shoulder disability. These factors need to be taken into account when designing an exercise intervention. A recent systematic review concluded that exercise programs for patients with head and neck cancer were safe and feasible. Promising early evidence supporting positive effects of exercise on lean body mass, muscle strength, fatigue, physical functioning and quality of life was found, both during and following treatment. However, the RCTs performed so far were small and included less than 50 head and neck cancer patients. Future RCTs are needed focussing on the frequency, type, intensity, duration, and timing of the intervention and the impact of the intervention for the different types of head and neck cancer.

During the presentation results of recent Dutch RCTs showing positive effects on breast and colon cancer patients' fatigue levels during chemotherapy will be shown and results across studies will be discussed. Moreover, results of a feasibility study of a multidisciplinary rehabilitation program on health related quality of life in advance head and neck cancer patients will be presented.

# 31

Invited Speaker

## **PREHABILITATION AND THE PREVENTION OF DYSPHAGIA IN HEAD AND NECK CANCER PATIENTS**

Jana Rieger

Speech Pathologist, Director of Research

University of Alberta

Institute for Reconstructive Sciences in Medicine

Edmonton, Canada

Forty years ago, the first article on swallowing therapy appeared in the literature. It wasn't until twenty years later that articles related specifically to dysphagia therapy for head and neck cancer began to appear. In that early research, strategies such as diet modifications (e.g., pureed food, thickened liquids), positional modifications (e.g., head turn, chin tuck), and behavioral interventions (e.g., effortful swallow, Mendelsohn maneuver) were explored. Behavioral interventions described by these early researchers were aimed at rehabilitation of impaired swallowing physiology in the post-treatment period. In 2006, however, the first report of pre-treatment swallowing exercises for prevention of dysphagia in head and neck cancer patients appeared in the literature. Nearly a decade later, the jury is still out on the efficacy of prehabilitation for prevention of dysphagia in this population.

In this presentation, you will be provided with an overview of the evidence that currently exists on the efficacy of using behavioral interventions for dysphagia rehabilitation. Following this, the concept of prehabilitation will be explored from the perspective of cancer in general and, then, in relation to head and neck cancer specifically. Issues related to compliance, program flexibility, and standardization of therapy will be explored. The presentation will close with a discussion of what we still need to learn about prehabilitation as we move into the future of supportive care for head and neck cancer patients.

# 32

Invited Speaker

## **mHEALTH AND HEAD AND NECK CANCER: THE POTENTIAL FOR MOBILE HEALTH DEVICES TO FACILITATE DYSPHAGIA TREATMENT**

Gabriella Constantinescu

University of Alberta

Edmonton, Canada

Swallowing impairments affect the health, economics and quality of life of up to two thirds of head and neck cancer (HNC) patients. Although an effective therapy that couples intensive exercise with visual biofeedback exists, limited resources and outdated technology have made this intervention poorly accessible. The majority of swallowing treatment still relies on patient adherence to home programs. Mobile health (mHealth) technologies and applications have received increased attention in the past six years as a technological solution to gaps in existing healthcare delivery models. Despite the hype and impetus in development on the technology side, the successful integration of mHealth in day-to-day clinic and patient routine lies in the demonstrated benefit drawn from these technologies. Development of such technologies requires a systematic approach, one that integrates input from a multidisciplinary team with clinician and patient feedback.

This talk will focus on describing the potentials of mHealth in delivering swallowing therapy to patients, under the remote supervision of their clinician. An overview of the research completed to date will be shared, outlining the selection of the most appropriate technology for biofeedback in the mHealth device and patient input used to guide the user interface design.

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Invited Speaker

### TO PEG OR NOT TO PEG?

Lisette van der Molen

Dept. of Head and Neck Oncology & Surgery  
Netherlands Cancer Institute

Prophylactic placement of a feeding tube in patients who will be treated for head and neck cancer is still debatable. Enteral (tube) feeding via a percutaneous endoscopic gastrostomy (PEG), percutaneous radiological inserted gastrostomy (PRG), or nasogastric (NG) tube is often required in response to dysphagia, dehydration, weight loss or other side effects that can negatively influence oral intake before and/or during treatment, and eventually the treatment outcome. However, tube placements are not without risks, and also negative side effects such as prolonged tube feeding, and swallowing problems, are regularly reported in the literature.

In this presentation an overview of the most recently published data will be given. Based on the literature the advantages and disadvantages of the use of a prophylactic gastrostomy in the Head and Neck patient population will be given.

## 34

### ULTRASOUND IMAGING FOR ANALYZING LATERAL TONGUE MOVEMENTS DURING MASTICATION

Remijn, Lianne \*, Weijers, Gert, Nijhuis-Van Der Sanden, Maria W.G., Groen, Brenda E. De Korte, Chris L.

HAN, University of Applied Sciences  
Institute of Health Studies  
Nijmegen, Netherlands

**Keywords:** tongue movements, ultrasound, cerebral palsy

**Purpose:** In this study we intent to develop a method to analyze dynamic tongue movements during mastication and to evaluate the feasibility of the used method.

**Methods & Materials:** Biplane ultrasound images of tongue movements of four adults without oral motor disabilities and two adults with oral motor disabilities as result of cerebral palsy were acquired by using an iE33 real-time 3D ultrasound scanner equipped with an X7-2 matrix-array transducer (Philips Ultrasound, Andover, MA, USA). The participants were given three pieces of wheat bread and instructed to eat in their usual way. Tongue movements were analyzed in the coronal and sagittal planes using B-mode and M-mode ultrasonography by a custom written Matlab program.

**Results:** The inter-rater and intra-rater agreement for manual tracing of tongue contours in B-mode and M-mode was good (ICC = 0.81 and 0.84, respectively). There were significant differences between the adults with and without cerebral palsy for movement frequency in the horizontal direction in both coronal and sagittal planes. In the coronal plane differences were found for movement frequency and range of vertical movement. Data obtained from sagittal images, with exception of vertical frequency, indicated no differences between the adults with and without cerebral palsy

**Conclusion:** The protocol developed in this study (using B-mode and M-mode) proved to be valid and reliable. By applying this protocol to individuals with and without oral motor disabilities, we were able to demonstrate the clinical application of our protocol for evaluating differences in tongue movements during mastication.

# Poster Presentation Abstracts



# Poster # 1

## PEEL BOND STRENGTH BETWEEN SILICONE AND ACRYLICS

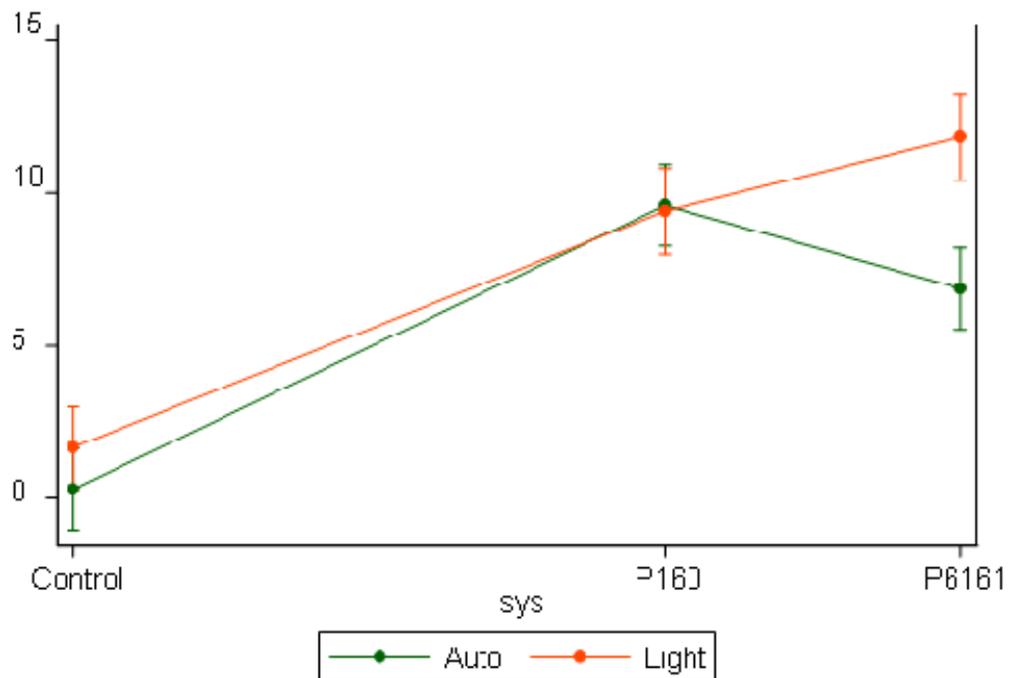
Alshammari, Firas \*  
College of Health Medical Technology  
Prosthetic Dentistry  
Baghdad, Iraq

**Purpose:** To investigate the effect of new platinum primers on peel bond strength of silicone elastomer to acrylic resins.

**Methods & Materials:** Materials and methods: Peel bond strength of Cosmesil Z004 to two acrylic resins was assessed using two primers (Med6-161 and Med160) and no primer (control group). Sixty samples were prepared and divided into six groups according to the combination of acrylic resin, silicone, primer and no primer. All samples were then exposed to load in a universal testing machine with a cross head speed of 25 mm/min until failure. Data was analysed using STATA 12.1 software. Values of mean peel force between light and auto-polymerising acrylic resins were compared using two-way ANOVA.

**Results:** The interaction between primers and acrylic resins had a significant effect on peel bond strength between Cosmesil Z004 and acrylic resins. Med6-161 primer significantly improved peel bond strength of Cosmesil Z004 to light-polymerising acrylic resin. However, Med160 primer enhanced peel bond strength between Cosmesil Z004 and auto-polymerising acrylic resin.

**Conclusion:** The combination of primer and acrylic is important in improving the bond strength. However, further investigation of different primers, silicones and different surface treatments to achieve the optimum bonding is need.



## Poster # 2

### PROSTHETIC REHABILITATION OF THE IRRADIATED HNC PATIENT: A LITERATURE REVIEW

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Maastricht University Medical Center  
Department of Cranio-Maxillofacial Surgery  
Maastricht, The Netherlands

**Purpose:** With this literature review, we examined publications related to prosthetic oral functional rehabilitation of irradiated head and neck cancer patients in a 5-year period from 2007 to 2012.

**Methods & Materials:** A PubMed search was conducted for articles related to: oral function in irradiated patients and oral rehabilitation after RT in head and neck oncology. Key terms used were "head neck cancer", "radiotherapy", "edentulous jaw", "prosthetic", "chew\*", "masticat\*", "dental status", "OHRQoL" and "eat\*". Limit activation terms were "English" and "publication between September 2007 and August 2012".

**Results:** Thirty-one articles met the inclusion criteria. Sixteen articles reported on Oral Health Related Quality of Life, eleven articles on Chewing, Mastication and Eating and six on Dental Status and Prosthetic Treatment. From the reviewed literature, we can conclude that radiated patients score worse on chewing and mastication directly after cancer treatment and have larger food restrictions. Reason for this probably is the overall higher tumor stages for the patients that needed (additional) RT. With the higher tumor stage, they needed more extensive surgery and dental focus elimination, which caused a more affected dental stage. Besides that, additional RT caused a longer intervention period, mucositis, xerostomia and trismus that has a negative impact on the oral system. Occlusal (dental) rehabilitation seems to improve dental status, and with that, the objective and subjective functional outcomes, including eating.

**Conclusion:** There is a great lack of information about the (type of) prosthetic rehabilitation. New prospective trials are needed to learn about the rehabilitation of oral function in HNC.

## Poster # 3

### IMPLANT UTILIZATION AND LOADING IN SURGICAL DESIGNED AND SIMULATED RECONSTRUCTION

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**Purpose:** Fibular Free Flap (FFF) jaw reconstruction involving oral rehabilitation has evolved in the surgical reconstruction and oral rehabilitation techniques. Precise Jaw Reconstruction Rehabilitation (JRR) is important to the Integrity of the jaw structure as well as oral functions. Three-dimensional (3D) digital surgical design and simulation (SDS) techniques has the potential to reduce time to treatment completion as well early functional oral rehabilitation.

**Methods & Materials:** A retrospective chart review was conducted on patients who completed oral rehabilitation at the Institute for Reconstructive Sciences in Medicine (iRSM). Patient charts of adult HNC subjects who underwent FFF reconstruction between 2000 and 2014 from iRSM were reviewed. Subjects were excluded if they underwent a bone containing augmentation to the FFF reconstruction. The non SDS group consisted of patients who underwent a conventional, non-guided FFF reconstruction, and non-guided implant installation after the FFF reconstruction. The SDS group underwent a guided FFF reconstruction, and guided implant installation during the reconstructive surgery. The outcome measures included: 1) Implant utilization (difference between the number of implants installed and number of implants connected to the implant retained prosthesis) and 2) Loading rate (time to prosthetic connection from the FFF reconstruction). Two raters recorded the outcome measures as well as the patients' demographics. The Mann-Whitney U test was utilized to analyze the data.

**Results:** Nineteen subjects were eligible for the study. Eleven were in the non-SDS group and 8 in the SDS group. There was a significant difference between the two groups in the utilization rate ( $U = 22.500$ ,  $N_1 = 8$ ,  $N_2 = 11$ ,  $p = 0.04$ , two-

tailed). The time to prosthesis connection was also significant between the two groups (SDS = 598 days, non-SDS = 1698 days,  $p = 0.001$ ). Patient demographics between groups were similar with respect to age, gender, reconstruction site, disease, radiation therapy, chemotherapy and prosthesis type.

**Conclusion:** The findings in the present study revealed a statistically significant higher utilization and loading rate of implants in the SDS group. SDS allows the interdisciplinary treatment team to work together to create a virtual plan that is accurate, predictable and allows the surgeon and maxillofacial prosthodontist to have a designed outcome when treating complex FFF reconstructions involving the jaws.

## Poster # 4

### A NEW METHOD TO IMPROVE IMPLANT OSSEOINTEGRATION IN IRRADIATED BONE

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**Keywords:** adipose tissue-derived stem cells, implant, radiotherapy; osseointegration

**Purpose:** To evaluate the effect of osteogenic and angiogenic bi-lineage differentiated adipose tissue-derived stem cells (ADSCs) sheet on implant osseointegration in the irradiated bone.

**Methods & Materials:** The lower hindlimbs of rats had external irradiation of a single dose of 20Gy. Eight weeks later, osteogenic and angiogenic bi-lineage differentiated ADSCs sheet-implant complex (Group A) was implanted in the tibia of the irradiated rat. Osteogenic differentiated ADSCs sheet-implant complex (Group B) and traditional pure Ti implant (Group C) were served as control groups. After eight weeks of implantation, Micro CT assay were conducted in vivo. Then the pull-out tests were proceeded and the rest of specimens were utilized to make hard tissue slices to analyze the implant osseointegration.

**Results:** The results of micro CT analysis showed that the bone volume ratio increased significantly in Group A compared with the control groups, while the trabecular separation decreased significantly in Group A compared with the other two groups. The bone-implant contacts were  $63.48 \pm 5.82\%$ ,  $56.28 \pm 6.16\%$ ,  $42.35 \pm 7.22\%$  and the maximal pull-out forces were  $105.57 \pm 8.73\text{N}$ ,  $92.81 \pm 6.34\text{N}$ ,  $77.59 \pm 7.04\text{N}$  for Group A, Group B, Group C respectively. Both bone-implant contacts and maximal pull-out forces were significantly higher in Group A than the control groups.

**Conclusion:** The osteogenic and angiogenic bi-lineage differentiated ADSCs sheet-implant complex could improve osseointegration in irradiated rat, which provided a new approach to improve osseointegration of the implants in the regions received radiotherapy.

## Poster # 5

### TRANSLATION AND CROSS-CULTURAL ADAPTATION OF THE LORQ INTO DUTCH

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Centre for Special Oral Care

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**Keywords:** questionnaire, oral rehabilitation, translation

**Purpose:** Nowadays, research on denture satisfaction is mainly focused on the oral health related quality of life (OHRQoL). Many instruments have been developed for measuring OHRQoL, for example the OHIP-49 and its shortened version for the edentulous patients. Since these questionnaires mainly focus on the influence of dental/denture problems

on quality of life, they do not go into details considering different aspects of oral rehabilitation and denture functionality. To be able to further investigate denture satisfaction in the head and neck cancer and denture maladaptive patient, a questionnaire is needed that focuses on quality of life and the various aspects of oral function, in detail. The Liverpool Oral Rehabilitation Questionnaire (LORQ) was developed in 2004 to better assess the issues and problems related to patients undergoing oral rehabilitation. The objective of this study was to translate and adapt the LORQv3 into a Dutch language version and to evaluate the validity of the resulting LORQv3-NL.

**Methods & Materials:** The LORQv3 was translated by 6 different translators into Dutch through the use of the so-called forward-backward approach, following the guidelines for cross-cultural adaptation of health related quality of life measures. The four forward translations were compared and synthesized into one common version by an expert panel. The resulting common forward translation was translated back into English by two independent, professional translators. The two back-translations were discussed again by the expert panel, comparing equivalence between the two versions.

**Results:** No tremendous difficulties were encountered during any part of the translation and adaption procedure. Some items of discussion were questions 18 and 19. The question is whether the subject has any natural teeth. 'Teeth' in English refers to front teeth as well as premolars and molars. In Dutch the straightforward translation of 'teeth' actually means the front teeth only. Therefore, in the Dutch translation it is changed into teeth and molars. Instead of the straightforward translation some idiomatic equivalences had to be found for the following words or phrases: 'food particles', 'upset' and 'denture'. For these words several translations are possible which would have been understandable by a Dutch speaking person. Discussion was mainly based on which word would be easiest understandable and mostly used.

**Conclusion:** The LORQv3 is translated and culturally adapted into the Dutch language. Now, efforts can be made to further evaluate the internal consistency, reliability, and validity of the resulting LORQv3-NL.

## Poster # 6

### CBCT BASED OBTURATOR PROSTHESIS IN PATIENT WITH LIMITED MOUTH OPENING

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Oral Maxillofacial Surgery & Special Dental Care  
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**Keywords:** obturator prosthesis, limited mouth opening, virtual model

**Case Presentation:** Limited mouth opening is frequently observed after surgical and/or radiation therapy in patients with head and neck cancer. In extreme cases, fabrication of an obturator prosthesis with conventional or digital impression techniques may not be possible due to limited access. This case report presents a combined digital and conventional approach in a patient with an intraoral defect and limited oral access. First, a virtual model of the maxilla and the defect was obtained using cone-beam computed tomography (CBCT). Second, this virtual model was printed after which a preliminary obturator prosthesis was made with conventional techniques. Third, this obturator prosthesis was customized with an intraoral soft relining material. After evaluation of function, this soft relining material was converted into acrylic resin. Accuracy of fit of the obturator prosthesis was evaluated with a flexible fiber-optic scope.

## Poster # 7

### SCAPULAR FLAP MAXILLOFACIAL RECONSTRUCTION WITH OSSEOINTEGRATED IMPLANTS

Gosen, Sue \*, Carcamo, Marcela; Pacheco, Cristobal; Montes, Rodrigo; Brenner, Claudio.  
Fundacion Orema; Instituto Nacional Del Cancer; Universidad De Los Andes  
Santiago, Region Metropolitana, Chile

**Keywords:** Scapular flap, maxillofacial rehabilitation

**Case Presentation:** The Orema Foundation is an interdisciplinary health center tailor-made for cancer related, acquired and congenital defects of head and neck patients. In Chile, head and neck cancer used to have a substandard treatment in the public and private areas. Patients received only surgical and anatomic reconstructive treatment, which was not a definite solution. To withstand this situation, on March 2014 the Orema Foundation, with the National Cancer Institute as a national network, commenced an integral maxillofacial rehabilitation and reconstructive treatment program, obtaining beneficial results. Five patients belonging to this program with different oncologic pathologies will be analyzed. They went through scapular flap surgery with the installation of osseointegrated implants in the same surgical procedure, gaining time from osseointegration, therefore diminishing the risks of possible complications derived from posterior chemotherapy and/or radiotherapy. The implants were installed in the scapular flap itself, or through it directed to another anatomic field. Our approach in this poster is to consider the use of scapular flaps as an alternative treatment for maxillofacial rehabilitation of major defects combined with osseointegrated implants.

## Poster # 8

### VIRTUAL PROSTHODONTICS PATIENT: A NOVEL APPROACH FOR MAXILLOFACIAL REHABILITATION

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Oral Implantology and Prosthetic Dentistry  
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**Keywords:** Facial scanning, Cone Beam CT, Digital Intraoral Impression

**Purpose:** To propose a novel virtual prosthodontics patient workflow integrating digital intraoral impression, extraoral facial scanning and Cone Beam CT for full, three-dimensional (3D) guided implant placement coupled with immediate loading of CAD/CAM prefabricated, screw-retained provisional prosthesis in full mouth fixed-prosthesis upper cases.

**Methods & Materials:** In this case series 20 upper edentulous patients in need for a complete implant-retained fixed prosthesis were recruited. Pre-operative extraoral facial scans (Pritidenta , Leinfelden, Germany), digital intraoral impressions (TrueDef, 3M ESPE, Germany) and CBCT (Accuitomo 170, Morita, Japan) were digitally integrated using three-dimensional software tools to create a virtual patient replica. A complete CAD/CAM milled, screw-retained prosthesis based on the digital planning data was then fabricated for each patient (Avadent, Tilburg, The Netherlands). A surgical guide based on the ideal virtual prosthetic setup (CoDiagnostix 9, DentalWings, Dusseldorf, Germany) was then milled and supported on three mini-implants. Fully guided implant placement using the Straumann® Guided Surgery system was performed and 5-6 implants in the edentulous upper jaw were inserted. The provisional prosthesis was subsequently immediately loaded. Digital extra- and intra-oral scans were repeated following prosthesis insertion and clinical fit between preoperative planning and post-operative result was assessed.

**Results:** Twenty provisional prostheses on 5-6 implants were placed with clinically acceptable fit. Following loading, prosthesis failure was noted in three cases.

**Conclusion:** Preliminary results of the proposed digital surgical/prosthetic workflow combining the information from intraoral, facial and CBCT scanners are promising. Further research is required to address the issues of guided surgery accuracy and the precision of the registration procedure of facial, intraoral and CBCT information and the virtual prosthetic setup design.

## Poster # 9

### FINITE ELEMENT ANALYSIS OF THE IMPLANT-SUPPORTED PROSTHESES AFTER MANDIBULAR RECONSTRUCTION

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Department of Prosthodontics  
Seoul, Korea (South)

**Keywords:** Mandibulectomy, finite-element, fibula

**Purpose:** The purpose of this study was to analyze biomechanical behaviors of the implant-supported prostheses in reconstructed mandible using three-dimensional finite element analysis.

**Methods & Materials:** The models for finite element analysis were developed based on the human computed tomography data. The patient underwent mandibulectomy and reconstructed surgery using fibula free flap. On the graft virtual implant placements were performed and prostheses were constructed. The left mandibular premolars and molars remained unaffected as intact natural dentition. Three types of finite element models were created based on the prosthesis designs. Unilateral oblique loading of 300N on both sides of the mandible and constraints on muscle attachment areas were applied. To evaluate the biomechanical behavior of the models, von Mises stresses and displacements of the models were analyzed.

**Results:** With loads on natural teeth and implant-supported prosthesis, the stress distribution patterns of the natural mandible were more uniform than those of the reconstructed fibula. When loading was applied at the area of reconstructed fibula in the one-piece prosthesis model, stress was concentrated at the cortical bone around the neck of the implants. The divided prosthesis model showed a less uniform stress distribution. Displacements of the components on the fibula was positively correlated with the distance from the muscle attachment areas. When the loading was applied to the implant prosthesis on the reconstructed fibula, the model with divided prostheses showed greater displacements than that with splinted prosthesis.

**Conclusion:** Using finite element analysis it was shown that the implant-supported prosthesis placed in free fibula graft might function successfully in terms of biomechanical behavior. The splinted implant prosthesis showed more favorable stress distribution and less displacement than the separated prostheses models in the reconstructed mandible.

## Poster # 10

### A CONTINUUM OF PROSTHODONTIC REHABILITATION IN A PATIENT WITH HEMI-MAXILLECTOMY

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Department of Oral Rehabilitation  
Johannesburg, Gauteng, South Africa

**Case Presentation:** Factors influencing the choice of treatment can change at any point in time. For example general health and socio-economic circumstances may change for the better or for the worse. This patient illustrates the fact that versatility in treatment planning will enable clinicians to take advantage of the changing circumstances of patients. A 71 year old male had a right hemi-maxillectomy due to a resection for the treatment of mucomycosis of the palate. During this surgical procedure he lost teeth from the canine in the second quadrant to the last molar in the first quadrant, also leaving him with a defect in the right maxillary buccal vestibule.

The patient also had asthma, hypertension, urinary problems and diabetes mellitus type 2. Due to his medical condition and socio-economic status at the time, non-invasive cost effective treatment options were carried out for him. A removable upper denture with acrylic obturation was constructed. Retention was not optimal, and over the next 5 years, 3 dentures/obturators had been constructed. During this time, though, the patient showed much improvement regarding his health, and funds were obtained to enable implant rehabilitation to be undertaken. Five implants were placed and he was rehabilitated with a bar-retained implant supported denture. After a year he complained about the retentiveness of this prosthesis. The bar-retained prosthesis was then converted to a fixed Implant Supported Prosthesis (ISP) with a removable obturator.

In this patient his health and socio-economic status played a large role in his initial choice of treatment. Later with improvement in his health and assistance from the government with funds for his treatment, his treatment options could be taken to another level.

## Poster # 11

### MAXILLOFACIAL RECONSTRUCTION AN EVIDENCE BASED APPROACH

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**Keywords:** Maxillofacial, Reconstruction, Outcomes

**Purpose:** To review all pertinent topics related to midface and maxillary reconstruction including current classification schemes and reconstructive techniques. Review functional outcomes of 10 patients undergoing maxillary reconstruction. Provide evidence based guidelines to optimize midface and maxillary reconstruction.

**Methods & Materials:** The current indications as well as advantages and disadvantages of multiple different reconstructive approaches are reviewed. Techniques, functional outcomes, and survival analysis of 10 patients treated for maxillary / midface defects are reviewed.

**Results:** Defects in this area represent a unique challenge to the reconstructive surgeon as the complex anatomy of this area can be challenging to repair and reconstruct. Free tissue transfer remains the best reconstructive option. Osseous reconstruction allows for dental rehabilitation in the appropriate patient

**Conclusion:** Multiple reconstructive pathways can be followed in restoring maxillary and midface defects. The surgeon and rest of the reconstructive team must make individualized evidence-based decisions based on the nature of the defect as well as the specific needs and concerns of the patient when selecting the optimal reconstructive approach for each patient

## Poster # 12

### SPEECH AID PROTHESIS

Stalpers, Maaïke \*, Engelen, Marloes; Van Der Stappen, Jeanne; Weijs, Willem; Takes, Robert; Van Heumen, Celeste  
Radboud UMC  
Special Dentistry  
Nijmegen, The Netherlands

**Case Presentation:** A 12-year-old boy had problems with his speech due to a defect in the soft palate caused by surgical removal of a synovial sarcoma. The speech of the patient was measured. He scored high on hypernasality on nasometry, above the normal values. Given the size and severity of the defect in the soft palate logopedic potential to improve the speech were limited. At the Centre for Special Dentistry the speech was improved by a speech aid prosthesis. The treatment consisted of making a denture with an attached obturator. The obturator prevented air leakage through the nose. New measurements with acoustic nasometry showed scores within the normal values. The nasality in the speech largely disappeared. Conclusion: The obturator is an effective and relatively easy solution for palatal insufficiency, obviating the need for extensive reconstructive surgery with often disappointing functional results.

## Poster # 13

### EXTRA-ORAL IMPLANTS RESCUE A FAILED NASAL PROSTHESIS

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Department of Oral Rehabilitation  
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**Case Presentation:** The patient, a burns survivor, presented with missing alar and tip of the nose. The bridge of the nose was preserved as well as the nasal septum, and we considered that there would be sufficient residual tissue surface area to support a conventional adhesively-retained prosthesis. However, due to the epiphora from the left eye and the irregular scarred skin, the adhesion was insufficient. An implant-supported prosthesis was therefore considered. This could have meant sacrificing the bridge of the nose and the septum in order to achieve an optimum path of insertion, as well as to provide anti-rotation for the prosthesis. Instead, by using angulated implants, we were able to preserve the bridge of the nose and produce a prosthesis with acceptable aesthetic and biomechanical outcomes.

## Poster # 14

### MOUTH CAP FOR EXTREME TONGUE PROTRUSION FOLLOWING ONCOLOGIC TREATMENT

Van De Pol, Pascal \*, M. Engelen, Y.A.P. Boerman-Wijers  
Radboud UMC  
Nijmegen  
Nijmegen, Gelderland, The Netherlands

**Case Presentation:** Mouth cap for extreme tongue protrusion following oncologic treatment. P. van de Pol 1, M. Engelen, DDS 1, Y.A.P. Boerman-Wijers 2 1 Centre for Special Oral Care, Radboud University Nijmegen Medical Centre, The Netherlands 2 Department of Cranio-Maxillofacial Surgery, Radboud University Nijmegen Medical Centre, The Netherlands A 79-year old female presenting with a squamous cell carcinoma of the right inferior alveolar bone. Treatment consisted of ablative surgery and reconstruction intra-orally by a radial forearm flap and extra-orally by a local skin flap, followed by radiation therapy. After radiation therapy, recurrence of the squamous cell carcinoma led to an abscess and the loss of tissue in the chin area. Furthermore, this led to extreme protrusion of the tongue extra-orally. The treatment was continued as palliative care. The protrusion of the tongue made the patient suffer from an extremely tired feeling in the temporomandibular joint, dryness of the tongue and pain, and impaired esthetics. The maxillofacial prosthodontics department was asked to come up with a 'simple' device to help the patient with her complaints caused by the tongue protrusion. A mouth cap was fabricated to support the tongue and push it intra-orally. An impression was made using putty and silicon material covering the lower part of the face and actively pushing the tongue intra-orally as far as possible. The mouth cap was held in position by an orthodontic collar band. Although some problems came up fitting the mouth cap the patient felt satisfied with the result. She felt less tired, the tongue was pushed further intra-orally and was less dry. Although the cap also leads to impaired esthetics, it doesn't catch the eye as much as the protruding tongue.

## Poster # 15

# HEALTH CARE IN HEAD AND NECK ONCOLOGY AND MAXILLOFACIAL PROSTHETIC IN THE PMSI INSTITUTE OF ONCOLOGY REPUBLIC OF MOLDOVA

Mindruta-Stratan Rodica<sup>2</sup>; Van Oort Robert\*, Luca Valentina<sup>2</sup>; Pogonet Vadim<sup>2</sup>; Vilcu Iwan<sup>2</sup>; Reintsema Harry<sup>1</sup>; Strabbing Anton<sup>3</sup>; Cernat Victor<sup>2</sup>; TsiBirna George<sup>2</sup>

<sup>1</sup>: Oral Maxillofacial Surgery, University Medical Centre Groningen, the Netherlands

<sup>2</sup>: PMSI Insitute of Oncology, Chisinau, Republic of Moldova

<sup>3</sup>: Medisch Spectrum Twenthe, Centre for Maxillofacial Prosthetics

### Background:

The population of the Republic of Moldova is 3 550 000. PMSI Institute of Oncology – the head cancer hospital providing specialized head and neck oncology service for cancer patients. Head and Neck Surgery Oncology department established 35 years ago. Annually the H&N Department treats around 2200 patients a year. In June 2010 OMF Prosthetic service officially opened by Prime Minister.

Republic of Moldova has no developed cancer rehabilitation services. Palliative is not yet a specialty in the country and specialized palliative care services covers < 10% of estimated country needs.

Supportive care for cancer survivors is not well defined.

### Materials and Methods:

**2007** - Project "Smilesformoldova" started with support of UMCGroningen; **2009** – Team training, UMCGroningen; **2010** - **Service** opened. **Multidisciplinary team** established: Head and Neck surgeon, dentist, prostodontist, dental technician, nurse, radiotherapist and palliative care doctor (all part time)

**2010** – **Ongoing expert hands on consultancy** 2 times a year and distant support (Robert van Oort, Harry Reintsema and Anton Strabbing); **2010** - MF Prosthesis service covered by National Insurance Company; **2014** - Law in place (100% free rehabilitation for H& N, mammary gland and orthopedic cancer patients approved by the Parliament)

### Results:

**407** cancer patients benefited of MF prosthesis rehabilitation service during the last 5 years.

Prosthesis type/activity	2010-2011	2012	2013	2014
Ocular	20	54	50	68
Auricular	1	0	2	1
Maxillary	8	12	6	1
Nasal	2	1	0	1
Facial	2	7	2	1
Combined	2	0	3	
Orbital	5	4	5	3
<b>Nr consult/advises</b>	<b>7</b>	<b>20</b>	<b>17</b>	<b>35</b>
<b>Periodical revisions</b>	<b>35</b>	<b>40</b>	<b>69</b>	<b>74</b>
<b>Waiting list</b>				<b>8</b>
<b>Total</b>	<b>82</b>	<b>138</b>	<b>154</b>	<b>192</b>

Prices for H& N MF Prosthetic patients developed and approved. National Insurance Company covers full H & N Prosthetic rehabilitation service cost for cancer patients. Accreditation for medical activity for the next 5 years passed in December 2014. Continuing medical education for the staff – locally (one per year). Consultancy for each H&N cancer patient treated in the IO. Effective collaboration with ophthalmological service in the country established. A new approach in postsurgical rehabilitation for cancer patients: multidisciplinary team in H&N prosthetic service in the Institute of Oncology developed.

### Conclusion:

The project is considered as an example of a successful collaboration of committed international team. The service became a qualitative high standard in cancer care in Moldova. Continuing evolution of the service is in progress.

## Poster # 16

# VALIDATION OF 3 DIGITAL STEREOPHOTOGRAMMETRY DEVICES FOR 3D FACIAL IMAGING

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**Affiliations:**

1. Clinical Research Fellow in Maxillofacial Prosthetic Rehabilitation & Clinical Teacher in Removable Prosthodontics
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**Location:** Academic Centre of Reconstructive Science, King's College London Dental Institute, London, UK

**Keywords:** 3D face scanning, digital stereophotogrammetry, Di3D, 3dMD, Vectra XT 3D

**Purpose:** The aim of this study was to assess the accuracy and precision of 3D imaging of the face with 3 commonly used digital stereophotogrammetry devices under standardized conditions.

**Methods & Materials:** One active (3dMD) and two passive (Di3D, Vectra XT 3D) digital stereophotogrammetry devices were used to image: a) a high precision freeform reference object traceable to National Physical Laboratory (NPL) standards (freeform object), b) a 3D printed resin model of the middle third of the face, fabricated using a reference CT scan (midface model), c) the face of a human subject (subject). Linear measurements between selected landmarks were carried out on the freeform object, midface model and subject with digital calipers, and these were replicated on the 3D imaging data acquired with each system to allow comparisons of reproducibility of linear measurements between a direct approach and the 3 experimental systems. Further 3D comparisons were carried out between 3D surface data acquired with each system and reference CAD data of the freeform object and CT data of the midface model, respectively, following iterative closest point registration in mesh manipulation software (Cloud).

Data acquired by linear measurements were analysed using mixed models analysis with the Sidak method. Bland-Altman limits of agreement between direct measurements and measurements on 3D acquired data were also calculated. 3D surface comparisons produced colour-coded maps of surface deviations showing qualitative information. Percentage points within increments of  $\pm 0.5\text{mm}$  and  $\pm 1\text{mm}$  deviation between experimental and reference data were calculated for the midface model, and within increments of  $\pm 0.25\text{mm}$  and  $\pm 0.5\text{mm}$  for the freeform object.

**Results:** Linear measurements data showed statistically significant differences between techniques at the 5% level of significance. For subject data, 3dMD data were in agreement to direct measurements. Di3D data were in agreement to direct measurements only when texture information was utilized to locate the landmarks used, but not when the landmarks were located on the surface (STL) data without texture. Vectra XT 3D data were not in agreement to direct measurements, but were in agreement to Di3D data. For freeform object data and midface model data, there were no significant differences between techniques.

3D surface comparisons data showed high accuracy of surface reproduction of the freeform reference object with all systems, with >95% of all measured data points within 0.5mm from the CAD data. For the midface model, 3dMD data showed >95% of all measured data points within  $\pm 1\text{mm}$  from the reference CT data, while corresponding values for Vectra XT 3D were 95% and for Di3D 90.4%.

**Conclusion:** Results indicated significant differences between direct linear measurements on a human subject and measurements carried out on 3D acquired data with the Di3D and Vectra XT 3D systems, which could be explained by landmark positioning errors, variation in facial expression and imaging errors. When imaging inanimate objects, all systems were in agreement to direct measurements data. 3D surface comparisons provided further evidence on the accuracy of surface reproduction of the 3 experimental devices. Task specific validation of imaging systems is indicated prior to clinical application.

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