American Burn Association
Physical Therapy and Occupational Therapy
Special Interest Group

Treatment of Burn Scars, Early Mobilization, and Training the Burn Therapist

42nd Annual Meeting
Boston, MA
Tuesday, March 9, 2010
MEETING AGENDA

American Burn Association
PT/OT Special Interest Group
Tuesday, March 9, 2010
Back Bay rooms B/C

8:00  Welcome  Daphne A Perry PT, CCCE
8:00 - 8:25  Business Meeting
  Membership Advisory Committee (MAC) Update  Michael A. Serghiou OTR
  Announcements
  Abstract & Manuscript Submission Updates  Reg Richard, MS, PT
  Barbara Knothe Burn Therapist Achievement Award  Jonathan Niszczak, MS, OTR/L
8:25 – 8:40  Update from Burntherapist.com  Jonathan Niszczak, MS, OTR/L

LECTURE:

“Silicone and pressure therapy on severe burn scars: evidence, properties and practice guidelines”

8:40 – 8:45  Introduction of Dr. Eric Van den Kerckhove PT, PhD  Daphne A. Perry PT, CCCE
8:45 – 9:45  Silicone and pressure therapy on severe burn scars  Dr Eric Van den Kerckhove PT, PhD
  Brief question/answer opportunity following lecture

9:45 – 10:00  Break  Refreshments provided by Bio-Concepts, Inc.

WORKSHOP: Early Mobilization, Training the Burn Therapist and Additional Pressure Management Options

10:00 – 11:45  Small Group Break Out Session with Hands on Clinical Instruction:
  25-30 minute presentation at each of the following stations.
  Each attendee will rotate thru each station

A: Early Mobilization: Safe and Effective Treatment of LE Grafts
  Profore and Unna boot demonstrations
  Daphne A. Perry PT
  Dr. Sarvesh Logsetty, M D FRCS(C), FACS

B: Training the Burn Therapist
  Dana Y Nakamura ORT/L, CLT

C: Additional Pressure Management Options
  Malvina Sher PT

11:45 – 12:00  Final Wrap Up and Closure for 2010 Meeting
* Bound Handout sponsored by Bio Med Sciences, Inc.
MEMBERSHIP ADVISORY COMMITTEE

The Membership Advisory Committee (MAC) committee is comprised of dedicated non-physician burn care professionals who serve the ABA in a variety of ways. It is the responsibility of all MAC members to facilitate the appropriate expression of concerns, questions, issues, needs and recommendations that the At-Large Members wish to bring before the Board of Trustees. Members of the MAC Committee attend each of the SIG meetings at the annual meeting in order to disseminate information regarding the ABA activities and general ABA information and opportunities.

Therapist Membership Advisory Committee Members:
Mary Jo Baryza PT, PCS
Ingrid Parry, MS, PT
Michael A. Serghiou OT, MBA

SPECIAL INTEREST GROUPS

Background

Special Interest Groups (SIGs) originated out of the expressed need of the ABA membership to have small, informal groups in which to link with others with similar interests in an effort to exchange ideas, network with colleagues, share information and problem-solve. As the ABA grew, so did the number of SIGs. By 2003, there were 18 SIGs ranging in size from 10 to over 300 individuals attending various SIG meetings in conjunction with the ABA Annual Meeting.

The Special Interest Groups (SIG) hold meetings in conjunction with the Annual Meeting of the ABA. These meetings provide an opportunity for exchange of ideas, networking with colleagues, and information sharing. All ABA meeting participants are encouraged to attend these meetings, which are scheduled at times that do not conflict with the general meeting. These meetings are open to both members and nonmembers of the ABA.

Physical Therapy / Occupational Therapy (PT/OT)
This SIG provides opportunities for professional exchange of ideas, with colleagues on new treatment methods, research activity and clinical problem solving. Another focus is to encourage burn therapist involvement in the ABA. We have recently instituted a three year plan with two Co-Chairs to ensure continuity and consistency.

2010 Chair: Daphne A. Perry PT, CCCE
2010 Co-Chair: Lisa Forbes-Duchart, MSc, OT Reg
2010 Co-Chair: Sam K. Yohannan MS, PT
The BurnTherapist.com web site - is the first site dedicated to the work and endeavors of Burn Occupational & Physical Therapists in an effort to develop outcome based research and clinical improvements for all burn survivors. We are committed to fostering collaborative networking relationships among burn therapists as well as developing clinical research, treatment innovations and improvement in service delivery and care at local, national and international levels.

We also highlight the achievements of Burn Occupational & Physical Therapists as part of the American Burn Association’s Occupational & Physical Therapist Special Interest Group through the yearly Barbara Knothe Burn Therapist Achievement Award. We are a resource for therapist driven research and collaboration to provide the best treatment outcomes for the patients that we serve.

Burn Clinical Pearls (formerly Splinting Quarterly)
Each Quarter (January, April, July & October) we will highlight a splinting endeavor that has been created to work with a challenging surgical intervention or as a result of a unique patient need or request. New designs as well as modifications to an existing, established design are welcomed. Post-operative splints as well as adaptive device splints, casting and any other type of ADL modification gladly are welcome. We will also be archiving all of the submissions so that we can maintain a resource of burn splinting knowledge. Contribute to the accumulated knowledge and submit your splint design to today!

Go to the web site www.burntherapist.com and get involved!
Judy held the distinction as being the most senior therapist member of the ABA among the ranks of both occupational and physical therapy and has held concurrent membership in both the ABA and the AOTA for 35 years. She joined and became a member of the ABA in 1979 and has been an ardent supporter of ABA activities throughout her career.

Judy began her burn rehabilitation experience as a staff therapist at the Western Pennsylvania Hospital Burn Center in 1974 following graduation from Temple University that same year. She worked in burn rehabilitation at several burn facilities throughout her career as a skilled clinician, teacher and stalwart member representative in the ABA. Judy co-authored the first manual dedicated solely to burn patient splinting in 1982. Additionally on her publication roster, she co-authored an early burn manual on scar control as well as four burn chapters and several additional articles and abstracts, including the 1996 ABA Education Resource Manual.

During her ABA tenure, Judy had delivered presentations at five ABA post-graduate courses and workshops as well as moderating another 11 Correlative or Sunrise Symposium Sessions. Additionally, she participated in delivering a segment on “ABA Committee Challenges and Conquests” at the 2008 Quinquennial Plenary Session. Outside the ABA, Judy has lectured on topics associated with burn rehabilitation both on a national and international scale. She sat as part of the initial NIDRR testimony hearings in Washington, DC in 1992 and later was a NIDRR reviewer for the first two rounds of grants in 1994 and then again in 1997.

Throughout her past thirty years of the service to the ABA, Judy has served on several ABA committees. Most notably, she was a member of the inaugural Rehabilitation Committee and served as Program Committee Coordinator for the 21st Annual Meeting, pre-dating the annual meeting organization by the current ABA central office. Furthermore, after serving three years on the Membership Advisory Committee (nee Advisory Committee to the at-Large Membership Committee), she ably ascended to chair the Committee. From 1991 – 1994, Judy served in the capacity of an ABA Board of Trustees member with its inherent committee responsibilities. For her efforts, Judy Carr was recognized as recipient of the Curtis P. Artz Distinguished Service Award from the ABA in 1997.
During the most recent decade leading up to her retirement, Judy has been a member of the Editorial Advisory Board for the Journal of Burn Care & Research as well as a member of the Archives Committee where she had been responsible for the yearly archival displays at the ABA annual meeting. As her final contribution, Judy most recently participated as a representative to a Burn Rehabilitation Summit Meeting whose proceedings were published in the July/August 2009 issue of JBCR, further demonstrating her omnipresent involvement in the ABA burn rehabilitation community all the way up to her retirement in 2009.

Judy has been a mentor to hundreds of clinicians, students, burn survivors and most notably therapists and her inspiration will serve to spur the future generation of burn therapists to reach for and elevate the key role that rehabilitation plays in burns.
www.burntherapist.com
What we have accomplished this far

Jonathan Niszczak, MS, OTR/L
OT/PT SIG Meeting
42nd ABA Annual Meeting
March 9th 2010
Boston, MA

Section Highlights
• OT/PT Members Resource List
• OT/PT Publication Archive
• Kondo Burn Therapist Achievement Award
• Burn Articles
• Clinical Pearls / Splint Quarterly
• Burn Job Links

Frequency of Page Hits
Therapists / Physicians who have made contact via the website

Legend: Green: >20 contacts / Yellow: 5 or less contacts / Gray: 0-1 contacts

What can you do?

- Update your email address on the website
- Submit a “Clinical Pearl”
- Nominate a colleague for the Knothe Award
- Get involved in a SIG or Committee at the ABA
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VISION FOR THE 2010 PT/OT SIG

Treatment of Burn Scars, Early Mobilization, and Training the Burn Therapist

The successful management of scars continues to be the core of what the burn therapist strives to minimize, and when possible inhibit, when providing rehabilitation and treatment to their patients. After last year’s lecture on Scar Biology, and breakout sessions on treatment of Facial Burns, I had wanted to focus in the research behind the inserts and silicone, in essence, the treatment of burn scars using pressure. We are fortunate to have found an expert in that area in Dr Eric Van den Kerckhove PT, PhD from Belgium and are honored that he could join us. We are excited that he will present the latest research and clinical application of pressure and silicone therapy as it has implications for payers and reimbursement issues. To compliment the lecture, there will be a breakout session on further pressure options with different inserts presented by Malvina Sher PT. There has been a lot of talk lately over specialties and competencies with our profession. Dana Y. Nakamura OTR/L, CLT will bring you her information that she has compiled on Training the Burn Therapist. And lastly, we wanted to address the many requests in past years for discussion on Early Mobilization of LE grafts with Unna boots and Profore dressings; is it safe and effective?

Speakers/ Objectives:

LECTURE PROGRAM – SILICONE AND PRESSURE THERAPY ON BURN SCARS

Title: “Silicone and pressure therapy on severe burn scars: evidence, properties and practice guidelines”
Speaker: Dr Eric Van den Kerckhove PT, PhD

Objectives: At the conclusion of this presentation, the participants will be able to:
1. Be able to define the typical features of a hypertrophic scar after burn injury
2. Be able recognize the pitfalls in the application (and related efficiency) of pressure therapy on scars and develop a protocol to solve these problems
3. Be able to judge the level of scientific evidence related to silicone and pressure therapy on burn related scars

WORKSHOP PROGRAM – EARLY MOBILIZATION, TRAINING THE BURN THERAPIST, AND ADDITIONAL PRESSURE MANAGEMENT OPTIONS

Title: “Early Mobilization, Unna boot and Profore”
Speaker: Sarvesh Logsetty, M.D. FRCS(C), FASC and Daphne A. Perry PT, CCCE

Objectives: At the conclusion of this presentation, participants will be able to:
1. Develop a plan for early ambulation immediately post grafting.
2. Refine criteria for restricting patients to bed rest.
3. Modify need to splinting post grafting of lower extremities.
Title: “Training the Burn Therapist”
Speaker: Dana Y. Nakamura, OTR/L, CLT

Objectives: At the conclusion of this presentation, participants will be able to:

1. Refine burn therapy standards of care to meet ABA verification criteria.
2. Develop a facility-specific competency form for training therapists in burn care.
3. Have an effective facility-specific plan for continued competency in burn care.

Title: “Additional Pressure Management Options”
Speaker: Malvina Sher, PT

Objectives: At the conclusion of this presentation, participants will be able to:

1. Improve their knowledge of choosing appropriate inserts for challenging areas.
2. Widen their spectrum on utilizing various scar management materials in nontraditional ways to minimize scarring.
3. Develop problem-solving skills to optimize scar outcome.
Silicone and Pressure Therapy on Severe Burn Scars
By Dr. Eric Van den Kerckhove PT, PhD
CONSERVATIVE TREATMENT OF SEVERE SCARRING WITH SILICONE AND PRESSURE THERAPY: SCIENTIFICAL EVIDENCE, PROPERTIES AND PRACTICE GUIDELINES

Eric Van den Kerckhove¹,²,³

¹UZ Leuven, Burns and Plastics + Department Phys. Medicine and Rehabilitation, Belgium
²FABER, Dept. of Rehabilitation Sciences, Catholic University of Leuven, Belgium
³AZ Maastricht, Department of Plastic Surgery, The Netherlands

Hypertrophic scar formation

- Redness: neovascularisation
- Raised: oedema and ground substances
- Contraction: myofibroblasts
- Sensitive and/or itchy: inflammatory response

Development of hypertrophic scars

- When the dermal layer is damaged
- Wound healing time > 14 days
- Healing: from 12 up to 18 months

Prevalence 7-77%¹

Depending on race, age, location and wound healing variables

**Pathogenesis?**

Different therapeutic techniques

- **“Invasive”:**
  - surgery, laser therapy*, corticoid injections*, US, cytokines injections,…
  - *studies with alternating success and side effects*
- **“non invasive”:**
  - Local topica, massage*, tape, TENS,…
  - *no comparable studies available*

* Reducing inb, evidence based intervention

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**Pathogenesis?**

Different “non invasive” therapeutic techniques

<table>
<thead>
<tr>
<th>Pressure Therapy</th>
<th>Silicone gel sheeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>1983</td>
</tr>
</tbody>
</table>

Worldwide acceptance

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**Historical overview**

Pressure on scars ⟷ documented since 1678
Historical overview
Treatments of burn scars with pressure garments documented since 1968

PRESSURE THERAPY
Scientific evidence

A. Basic research:
- Histological:
  • (myo)fibroblasts reduced collagen synthesis\(^{2,3}\)
  • Elevation of eckapotosis, TGF-β (in vitro, >18h & 20mmHg)\(^{4,5}\)
- Morphological:
  • Realignment of collagen fibres\(^6\)
  • Maturation of collagen\(^7\)

\(^1\)Kaiser W. et al. Arch Dermatol 1975;111:60-64

PRESSURE THERAPY
Scientific evidence

A. Basic research:

- Histological:
  • Scar fibroblasts and TGF-β1\(^8\)

Scar fibroblast diminishes from 24h with 20mmHg
TGF-β1 diminishes from 18h with 20mmHg

Hypothetical working mechanism
ischemia

\(^8\)Liang Wey Chang et al. J Burn Care and Research 2008;29:835-841
PRESSURE THERAPY
Scientific evidence

B. Randomised controlled trials:
- Assessment of clinical parameters in 6 articles:\
  - Height, pigmentation, vascularity, pliability, colour, itch, overall
  - Treatment (4), Prevention (2)
  - No assessment of compliance
- Instruments:
  - Subjective Rating scales (VSSS, incl. Itch in 1) in 5
  - Objective Assessment of erythema in 2
  - Objective assessment of thickness in 1
  - Objective assessment of pressure 4 (follow up 1)

Evidence for thickness


PRESSURE THERAPY
PREVENTIVE MEASURE

MATERIAL AND METHODS

* Patients
  - Number: 60 patients with totalling 76 scars
  - Age: 19 – 56 years (average: 37.5)
  - TBSA: 1 – 30% (average: 8.5%)
* Scars
  - Spontaneously healed wound >14 days
  - Forearm or calf
  - Digital camera or translucent plastic template

Between patient prospective randomised controlled trial: high and low pressure

MATERIAL AND METHODS

* Measuring instrument: Minolta Chromometer CR-300

hardware  software
MATERIAL AND METHODS

• Measuring instrument: Dermascan C

RESULTS

Pressure therapy

• Normal compression class (20 mmHg) better for thickness compared to lower compression (15 mmHg) (p=0.027)
• No difference in redness between the different compression classes
• Differences were developed in the first month

RESULTS

Association Erythema/Thickness

• Significant positive correlation between the redness and the thickness on all 3 testing moments (p<0.001)
• A significant positive association between a total changing in redness and the total changing in thickness over a 3 month period (p<0.001)

Van den Karsthoes E. et al. Butte 2003;51:806-701
SILICONE THERAPY

Historical overview

• Silicone oil: immersion
  conservative eschar definition (Gerow, Miller '63)

• Silicone elastomers: pressure paddings
  Better pressure transfer (Malick '80)

• Silicone gels: contact medium
  improve scar maturation without pressure, occlusion (Perkins '83, Quinn '85)

• Combination therapy

SILICONE THERAPY

Silicone gel sheets, documented since 1983 (Perkins)

SILICONE THERAPY (SGS)

Scientific evidence

A. Basic research:

- In Vitro: Modulation of fibroblast by keratinocyte via hydration¹
- In Vivo: Modulation of woundhealing mediators³
  (e.g. TGF beta2, IL-1)

Hypothetical working mechanisms:

occlusion and hydration¹¹²³,
O2-tension, pressure, temperature, static electricity,

SILICONE THERAPY (SGS)
Scientific evidence

B. Randomised controlled trials:
- Assessment of 6 clinical parameters in 18 trials$^1,2,3$
  - Pliability, color, thickness, texture or regularity, hardness, pain itching, overall
- Instruments:
  - Mostly subjective rating scales (except for pliability 3 and 2 colorimetry, 1 US and 1 laser doppler)

Evidence for pilarity and thickness (+erythema)

MATERIAL AND METHODS
Silicone products

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\begin{align*}
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\text{CH}_3 - \text{Si} & \quad - \text{O} - \text{Si} - \text{CH}_3 \\
\text{CH}_3 & \quad \text{CH}_3
\end{align*}
\]

- Polymer (PDMS) with lipophilic and hydrophobic characteristics
- Oclusive character (pH, pCO₂, permeability...)

MATERIAL AND METHODS
Silicone gel sheet products

4 different products (3 companies):
- Scarbar e, ScarbarLight of Tricollast NV
- Cica-Care of ISN
- Mepiform of Mölnlycke (- Dernatis gel)
MATERIAL and METHOD

Tests

Water Vapour permeability
UV-protection

RESULTS

WVP

<table>
<thead>
<tr>
<th>Reference</th>
<th>Construction</th>
<th>Weight (g/dm²)</th>
<th>Thickness (mm)</th>
<th>WVP (g/m²/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scarba® e</td>
<td>Silicone gel, Power net backing</td>
<td>154 ± 4</td>
<td>1.59 ± 0.02</td>
<td>14.2</td>
</tr>
<tr>
<td>Scarba Light®</td>
<td>Silicone gel, Power net backing</td>
<td>62 ± 1</td>
<td>0.67 ± 0.01</td>
<td>10.6</td>
</tr>
<tr>
<td>Cica-Care®</td>
<td>Silicone gel, Silicone elastomer backing</td>
<td>45 ± 1</td>
<td>0.56 ± 0.01</td>
<td>30.4</td>
</tr>
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UPF (50)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Construction</th>
<th>Weight (g/dm²)</th>
<th>Thickness (mm)</th>
<th>UPF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scarba® e</td>
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<tr>
<td>Cica-Care®</td>
<td>Silicone gel, Silicone elastomer backing</td>
<td>45 ± 1</td>
<td>0.56 ± 0.01</td>
<td>12.4</td>
</tr>
</tbody>
</table>
CONCLUSION PROPERTIES

- ScarbanL had the highest WVP followed by the Mepiform.
- The ideal WVP is still unknown. Generally accepted is 10 g/m² for a normal skin (scar 100)
- The UV protection of the silicone products that contain textile are significantly higher.

PRESSURE THERAPY TREATMENT MEASURE

MATERIAL AND METHODS

- Test group
  - Total: 22 patients
  - Age: 18 - 52 years (average: 30.8)
  - TBSA: 5 - 60% (average: 25.7%)

- Scars
  - Spontaneously healed hypertrophic scar
  - Forearm or calf
  - Transparent plastic template

Within patient randomized controlled trial different pressure medica

RESULTS

- Control compared to general plates (p<0.001) $S$
- Control compared to plastic plates (p=0.37) $NS$
- Control compared to gel or elastomer (p<0.001) $S$

PRESSURE THERAPY
TREATMENT MEASURE

MATERIAL AND METHODS

- Patients
  - Total: 120 patients, 69 Male and 51 Female
  - Age: 3 – 73 years (average 28.2)
  - TBSA: All caucasian

- Scars
  - Trauma (38.3%), surgical (14.2%), burn (47.5%)
  - Late scar age
  - Digital Photography

Between patient comparative controlled total silicon pressure and no pressure

RESULTS

- Significant difference in erythema at 9 and 12 months post healing (p<0.05)


PITFALLS IN DAILY PRACTICE

PRESSURE NEEDED

- acceleration of healing > 15 mmHg
- reduction and realignment > 25 mmHg

BUT

- Concave surfaces\(^1\)
- Compliance\(^1\)
- Pressure loss\(^2,3\)

Actual pressure <10 mmHg

\(\text{pH}<0.05\) in month

SOLUTIONS IN DAILY PRACTICE
CONCAVITIES & SOFT TISSUE

Combination of Pressure and Inserts
Inflatable Silicone Insert System (ISIS)

SOLUTIONS IN DAILY USE
COMPLIANCE

Monitoring the scar with objective and reliable tools and
adjust your therapy when needed

Rising or stabilising erythema is a predictor
for hypertrophic scar formation

SOLUTIONS IN DAILY USE
PRESSURE LOSS

Monitoring the pressure with objective and reliable tools
and adjust your therapy when needed

Pressures always above 20 mmHg on
standardised sites
MATERIAL AND METHODS

- Kikubime pressure sensor
- Two types of pressure garments
  - Warpknit (Lymed)
  - Welfkinit (Tricotlast)

RESULTS

REPRODUCIBILITY OF MEASUREMENTS FOR THE PRESSURE SENSOR

- Good to excellent values for ICC and low SEM in all conditions

<table>
<thead>
<tr>
<th>Time</th>
<th>ICC</th>
<th>SEM</th>
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<tbody>
<tr>
<td>Intra-observer</td>
<td>0</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0.91</td>
</tr>
<tr>
<td>Inter-observer</td>
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<td>0.82</td>
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<tr>
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<td>0.86</td>
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<tr>
<td>Inter-observer</td>
<td>0</td>
<td>0.87</td>
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<tr>
<td></td>
<td>1</td>
<td>0.89</td>
</tr>
</tbody>
</table>

PRESSURE OF THE PRESSURE GARMENTS

- Pressure after one month: significant decrease (38%) (p=0.0004)
- Pressure loss: no significant difference between two types (p=0.77)
  - although trend: warp knit (20%) > weftknit (17.4%)
- Significant higher pressure with warp knit after one month (p=0.006)
  - (22mmHg versus 18.7)
GUIDELINES IN DAILY PRACTICE
TOPOGRAPHY

A. BURNS AND EXTENSIVE TRAUMATIC SCARS
   - Face and Neck
   - Hands (and feet)
   - Extremities and Trunk

B. LINEAR SCARS

C. KEYS TO SUCCES

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GUIDELINES IN DAILY PRACTICE
TOPOGRAPHY

A. BURNS AND EXTENSIVE TRAUMATIC SCARS
   - Face and Neck
     Custom made transparent face mask with silicone liner and/or gel

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GUIDELINES IN DAILY PRACTICE
TOPOGRAPHY

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GUIDELINES IN DAILY PRACTICE
TOPOGRAPHY

A. BURNS AND EXTENSIVE TRAUMATIC SCARS
- Hands (and feet)
- With functional complications: custom made silicone orthosis + PG
GUIDELINES IN DAILY PRACTICE
TOPOGRAPHY

A. BURNS AND EXTENSIVE TRAUMATIC SCARS
- Hands (and feet)
  - Without functional complications: SGS or Scarban glove + PG

GUIDELINES IN DAILY PRACTICE
TOPOGRAPHY

A. BURNS AND EXTENSIVE TRAUMATIC SCARS
- Extremities and trunk
  - Convex sites: SGS + PGT

GUIDELINES IN DAILY PRACTICE
TOPOGRAPHY

A. BURNS AND EXTENSIVE TRAUMATIC SCARS
- Extremities and trunk
  - Concave sites: Custom made silicone insert (eventually ISIS)+ PGT
GUIDELINES IN DAILY PRACTICE

TOPOGRAPHY

B. LINEAR SCARS
   - Similar approach for convex and concave

GUIDELINES IN DAILY PRACTICE

C. KEYS TO SUCCESS
   - Proper hygiene (washing and boiling of Silicone)
   - Progressive build-up
   - 16h till 20h wearing (silicone)
   - Monitoring with objective and reliable tools to prevent pitfalls from happening

GENERAL CONCLUSION

- Silicone gelsheet therapy (SGS) is the only evidence based intervention in scar management working on pliability and erythema of the scar.
- Pressure therapy (>15mmHg) works preventively on the thickness and maturation of the scar
- Both therapies are best to be combined when the redness of the scar persists or increases
- Problem scars need to be monitored and treated in specialised units with a multidisciplinary team
QUESTIONS?
Early Mobilization: Save and Effective Treatment of LE Grafts Profore and Unna Boot Demonstrations

By Daphne A. Perry, PT and Dr. Sarvesh Logsetty, M.D, FRCS(C), FACS
Early Mobilization of LE grafts

- Decor: Safe
- Effective
- Excellent graft take

- More people should do it!

Compressive Therapy of LE grafts

- Determine Appropriate Patients
- Determine Appropriate Splint
- Determine Appropriate Dressing
Compressive Therapy of LE grafts

• Determine Appropriate Patient
  – No vascular issues (palpable pulses)
  – No sensation issues
  – No associated Orthopedic trauma

Compressive Therapy of LE grafts

• Determining Appropriate Splint
  – Which joint needs to be immobilized
• Does the limb need compressive therapy in addition to splints?

Compressive Therapy of LE grafts

• Determine Appropriate Dressing
  – Ace bandage/tensor
    • Tubigrip
    • Unna Boot (3M Convatec)
      • 2 layer system: pressure is applicator dependent
        – Zinc impregnated gauze
        – Coban (flexible cohesive)
    • Profore (Smith and Nephew)
      • 4 layer system: 40 mmHg at ankle, 17 mmHg at knee
        – Natural padding bandage
        – Light conformable dressing
        – Light compression bandage
        – Flexible cohesive
Compressive Therapy of LE grafts

- Unna Boot
  - Developed by Paul G. Unna in the late 1800’s
  - Venous ulcers
  - First graft usage late 1960’s
- Profore
  - Developed in 1995.
  - Venous ulcers
  - No studies to date on use for grafts/burns

Late Mobilization of LE grafts

- Prior to 1980’s (in some cases 2010)
  - Bedrest 5-7 days
  - Elevation of affected limb
  - Required inpatient stay
  - More costly
  - More pain with frequent dressing changes

Early Mobilization of LE grafts

  - N = 100 from 1982 to 1992
  - 3.7% +/- 4.4% TBSA with a Mean age 28.8 +/- 16.9 years old
  - Immediate application of Unna boot in OR, or the next AM
  - Ambulate 4 hours later
  - 65% - sheet grafts and 34% - narrowly meshed grafts
  - 96-97% graft take, respectively – 3 needed regrafting
  - Return to work – 4.7 +/- 3 weeks
Early Mobilization of LE grafts

• Early Ambulation and discharge in 100 patients with burns of the foot treated by grafts  

Unna boot application permits early ambulation, avoids frequent dressing changes, brief or no hospital stay, prompt return to work and excellent graft take.

Early Mobilization of LE grafts

• Early Ambulation post burn wound grafting with Profore dressings  
  A. Esmail, S. Logsetty, U of Manitoba, Poster at 2009 ABA Mtg, San Antonio, Tx.
  – 13 patients Nov 2007 - October 2008 with LE burns
  – Exclusions included vascular, sensation and orthopedic issues
  – STSG to all (from foot/toes to knee) 95% meshed grafts
  – 3 patients had 5 days Bedrest (BR)
  – 10 patients had Profore and ambulation within 24 hours
  – 7 had grafts over joints
  – Both groups had 98-99.7% graft take

Profore is as effective as conservative BR protocol
PROFORE

Developed 1993

Multi-layer bandage system

5 components:

PROFORE: 1st layer

100% viscose fleece

absorbency
protection & padding
pressure redistribution
reduction in limb curvature

PROFORE: 2nd layer

strong nylon fibres
soft cotton yarns

smoothes PROFORE: 1st layer
additional absorbency
PROFORE: 3rd layer

- 88.5% rayon
- 6.5% elastic yarns
- 5.0% nylon
- Sustained compression

PROFORE: 4th layer

- nylon fibres
- elastic yarns
- latex
- compression
- holds bandage position

Application
Application

Application Summary

<table>
<thead>
<tr>
<th>PROFORE:</th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leg wind</td>
<td>Spiral</td>
<td>Spiral</td>
<td>Fig.8</td>
<td>Spiral</td>
</tr>
<tr>
<td>Stretch</td>
<td>None</td>
<td>Gentle</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Overlap 50% for all bandages

Ankle enclosed by all bandages
Supplies needed for Unna Boot Application

Apply a THIN layer of antibiotic ointment over graft

Apply non-adherent dressing over graft
Score the edges of the Zinc paste layer so it lays flat over graft

Start the Zinc layer distal to the graft, overlap by 1/3 to one half and wrap proximally

Wrap three layers of the Zinc layer, cutting each one at the knee and resume wrap at distal most point
Start Coban layer at distal most point & overlap by 1/3 to one half. DO NOT WRAP TOO TIGHT.

Secure end of Coban layer with gentle pressure.
Early Ambulation Post Burn Wound Grafting with Profore Dressings

**Purpose:**

Split-thickness skin graft (STSG) requires immobilization to allow vascular ingrowth. In lower extremity burns this has traditionally be done by maintaining the patient on bed rest post-operatively. Previous studies have shown that using the Unna boot compressive dressing can help prevent shear permitting earlier ambulation while maintaining graft take rates. It is not possible to procure the Unna boot anymore and as such we have started to use Profore™ a new 4 layer compressive dressing. We are presenting our experience over the past two years.

**Methods:**

All Patients who were admitted to the burn ward at HSC in Winnipeg, Manitoba between the dates of January 1/ 2007 and Jan 31/2009 with lower extremity injuries, receiving a STSG were entered into a database.

**Results:** A total of 13 patients were identified, 3 who received the previous standard protocol of bed rest, and 10 who were dressed with the CD. 7 CD patients had grafts that crossed a joint, either ankle or knee. Five CD patients went home as day surgery.

<table>
<thead>
<tr>
<th>Age</th>
<th>LOS Post op</th>
<th>Time to Ambulation</th>
<th>Graft Size</th>
<th>Graft Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non</td>
<td>36.8</td>
<td>4</td>
<td>4</td>
<td>250</td>
</tr>
<tr>
<td>Profore</td>
<td>46.8</td>
<td>2.4</td>
<td>0.7</td>
<td>533</td>
</tr>
</tbody>
</table>

**Conclusions:**

The use of profore is a safe and effective way of protecting the graft, allowing nearly immediate ambulation with almost 100% graft take.
References for Early Ambulation using Unna boot or Profore

Burns/grafts:

Venous Ulcers: (unna boot and profore)
9) Care of venous leg ulcers. Falanga V. Ostomy Wound Manage. 1999 Jan;45(1A Suppl):33S-43S; quiz 44S-45S.


Training the Burn Therapist
By Dana Y. Nakamura, OTR/L, CLT
Objectives
At the conclusion of this presentation, participants will:
1. refine burn therapy standards of care to meet ABA verification criteria
2. develop a facility-specific competency form for training therapists in burn care
3. effect a facility-specific plan for continued competency in burn care

I. ABA Guidelines for the Operation of Burn Centers
   A. Definition of Terms
      Burn therapist: a physical or occupational therapist who has a commitment to the care of burn patients and is responsible for providing rehabilitation services in the burn center

   B. Rehabilitation Personnel
      General
      • There must be a rehabilitation program designed for burned patient at identifies specific goals (CD 14-46).
      Rehabilitation Personnel
      • Physical and occupational therapists in the burn center must be appropriately licensed in their specific disciplines (CD 14-47).
      • Staffing must be based on inpatient and outpatient activity with at least 1 full-time equivalent burn therapist for the burn center (CD 14-48).
      • If a therapist is not permanently assigned to the burn center for inpatients and outpatients, one must be assigned for a period of no less than 1 year (CD 14-49).
      • Burn therapists must receive regular supervision from individuals with at least 1 year of experience in the treatment of burn patients (CD 14-50).
      • There must be a competency-based burn therapy orientation program for all new therapists assigned to the burn center (CD 14-51).
      • Burn center therapists must be provided with a minimum of 2 burn-related continuing education opportunities annually (CD 14-52).
      • The primary burn care therapist must have annual participation in 16 hours or more of burn-related education (can be met by attendance at the annual meetings of the American Association for the Surgery of Trauma, ABA, or any ABA-endorsed meetings or continuing education programs, such as ABLS© or ABLS Now©) (CD 14-53).

II. Rehabilitation Committee Initiative

III. Sample Competency Forms
      • Level I: 0-2 years burn care experience
      • Level II: 2-5 years burn care experience
      • Level III: 5+ years burn care experience (not included in packet)

References
American Burn Association, Guidelines for the Operation of Burn Centers, Chapter 14, Resources for Optimal Care of the Injured Patient 2006, 79-86.

Contact Information
Dana Nakamura, OTR/L, CLT
Occupational Therapist II, Burn Specialty
Wake Forest University Baptist Medical Center
### BURN CENTER COMPETENCY CHECKLIST

**Level I**

<table>
<thead>
<tr>
<th>Performance Criteria/Competency</th>
<th>Orientation (Date/Initial)</th>
<th>Self Evaluation (Code, Date, Initial)</th>
<th>Competency Validation (Code, Date, Initial)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAIN</strong></td>
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<tr>
<td>Pain Assessment</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>• Demonstrates skill in use of pain scale (1-10) to evaluate and document patient pain</td>
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<tr>
<td><strong>MANAGEMENT OF SKIN</strong></td>
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<tr>
<td>Management of Skin</td>
<td></td>
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<tr>
<td>• Demonstrates skills in applying topical agents, lubrication, massage techniques or other treatment to minimize skin pain</td>
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<tr>
<td><strong>MANAGEMENT OF ORDER OF THERAPY</strong></td>
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<tr>
<td>Management of Order of Therapy</td>
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<tr>
<td>• Coordinates with nursing for pre-medication.</td>
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<tr>
<td>• Plans therapy session to minimize length of painful procedures</td>
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<tr>
<td><strong>WOUND CARE</strong></td>
<td></td>
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<tr>
<td>Wound Cleaning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Demonstrates skill in basic wound cleaning</td>
<td></td>
<td></td>
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<tr>
<td>Epidermal Blistering</td>
<td></td>
<td></td>
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<tr>
<td>• Demonstrates knowledge of treatment of blisters and educates patient/family, new staff in debriding blisters to facilitate wound healing</td>
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<tr>
<td><strong>GRAFT CARE</strong></td>
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<tr>
<td>Graft Care</td>
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<tr>
<td>• Able to educate patient/family in position graft to be applied, post-op dressings, post-op positioning and splints, post-op activity and mobility</td>
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<tr>
<td><strong>DRESSINGS</strong></td>
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<tr>
<td>Dressings</td>
<td></td>
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</tr>
<tr>
<td>• Articulates rationale for use of basic wound and graft dressings (SSD, Xeroform, Conformant 2, Sulfamylon solution, Aquacel Ag, Silver Matrix, Silverlon) according to Burn Center protocols</td>
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<tr>
<td><strong>RANGE OF MOTION</strong></td>
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<tr>
<td>Goniometric Evaluation</td>
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<tr>
<td>• Performs and documents complete goniometric ROM evaluation according to AMA Guidelines</td>
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<tr>
<td>Rationale for ROM</td>
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<tr>
<td>• Able to state rationale for ROM, including purpose for stretching skin,</td>
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<tr>
<td>Treatments</td>
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<tr>
<td>---------------------------------------------------------------------------</td>
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<tr>
<td>- Demonstrates A/AA/PROM to all extremities, trunk, neck, and face per Burn Center Guidelines</td>
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<tr>
<td>- Instructs patients/caregivers</td>
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<tr>
<td><strong>Strength</strong></td>
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<tr>
<td>Assessments</td>
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<tr>
<td>- Performs and documents tests according to AMA Guidelines</td>
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<tr>
<td>➢ MMT</td>
<td></td>
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<tr>
<td>➢ Grip Strength</td>
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<tr>
<td>➢ Pinch Strength</td>
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<tr>
<td>Strengthening Program</td>
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<tr>
<td>- Demonstrates skill in use of resistive tools/equipment to meet exercise goals for specific muscle strengthening and general conditioning</td>
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<tr>
<td><strong>Sensation</strong></td>
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<tr>
<td>Sensory Mapping</td>
<td></td>
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<tr>
<td>- Determines appropriateness, refers to OT for full evaluation. <em>(PT)</em></td>
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<tr>
<td>- Determines appropriateness, completes full evaluation. <em>(OT)</em></td>
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<tr>
<td>➢ Proprioception</td>
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</tr>
<tr>
<td>➢ 2-point Discrimination</td>
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</tr>
<tr>
<td>➢ Semmes-Weinstein (monofilaments)</td>
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<tr>
<td>Treatments</td>
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<td></td>
<td></td>
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<tr>
<td>- Desensitization</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- Chooses appropriate treatment modalities to address specific desensitization goals</td>
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<tr>
<td><strong>Dexterity</strong></td>
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<tr>
<td>Jebsen-Taylor Hand Function Test</td>
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<tr>
<td>- For UE burns, refers to OT for evaluation. <em>(PT)</em></td>
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<tr>
<td>- Performs test per standard, records data in a timely manner. <em>(OT)</em></td>
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<tr>
<td><strong>Mobility</strong></td>
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<tr>
<td>Transfers</td>
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<td></td>
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<tr>
<td>- Provides assistance and maintains safety while challenging patient skills</td>
<td></td>
<td></td>
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<tr>
<td>➢ Assisted</td>
<td></td>
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</tr>
<tr>
<td>➢ Bed to W/C</td>
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<tr>
<td>➢ Bed to BSC</td>
<td></td>
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<tr>
<td>➢ W/C to tub</td>
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</tr>
<tr>
<td>➢ W/C to toilet</td>
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<td></td>
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<tr>
<td>- Teaches skills based on general principles and specific patient needs</td>
<td></td>
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<tr>
<td>- Instructs patients and families</td>
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<tr>
<td>Gait</td>
<td></td>
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<tr>
<td>- Demonstrates skill in application of pressure bandages, encourages FWB for LE burns/grafts, limits dependent positioning and time spent in standing still</td>
<td></td>
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</tr>
<tr>
<td>➢ LE graft support</td>
<td></td>
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<tr>
<td>➢ LE burn gait</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>➢ Stairs</td>
<td></td>
<td></td>
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<tr>
<td><strong>Assistive Devices</strong></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
- Demonstrates appropriate guarding of patients and appropriate progression of mobility status
  - Walker
  - Cane
  - Crutches
  - Wheelchair

<table>
<thead>
<tr>
<th>ADL’s</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Self Care</td>
<td></td>
</tr>
<tr>
<td>- Maintains safety of patient.</td>
<td></td>
</tr>
<tr>
<td>- Educates patient and caregivers in techniques</td>
<td></td>
</tr>
<tr>
<td>- Eating</td>
<td></td>
</tr>
<tr>
<td>- Grooming</td>
<td></td>
</tr>
<tr>
<td>- Bathing - techniques of LE elevation during bathing</td>
<td></td>
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<tr>
<td>- Dressing</td>
<td></td>
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<tr>
<td>- Toileting</td>
<td></td>
</tr>
<tr>
<td>- Works with OT to assess need for compensatory techniques or assistive devices in performing basic ADL’s <em>(PT)</em></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Splint Application</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>- Educates patient and family, nursing staff in correct fitting techniques, wearing schedules and care of splints</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Positioning</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Specialty beds</td>
<td></td>
</tr>
<tr>
<td>- Demonstrates ability to adjust the beds and to modify positioning attachments</td>
<td></td>
</tr>
<tr>
<td>- Demonstrates ability to locate and activate safety features of bed</td>
<td></td>
</tr>
<tr>
<td>- Kinnair</td>
<td></td>
</tr>
<tr>
<td>- Bari-Care/Bari-Max</td>
<td></td>
</tr>
<tr>
<td>- Rotobed</td>
<td></td>
</tr>
<tr>
<td>Upper Extremity</td>
<td></td>
</tr>
<tr>
<td>- Determines need and demonstrates skill in use of foam wedges or blue arm elevators</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trapeze/traction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Articulates rationale and instructs patient</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Optimal Positioning</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Makes recommendations for optimal positioning of involved areas to minimize risk of contracture development</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Splinting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Head/Neck/Trunk</td>
<td></td>
</tr>
<tr>
<td>- Assesses need, applies splint appropriately, monitors skin, and involves OT in a timely manner to fabricate or modify splints. <em>(PT)</em></td>
<td></td>
</tr>
<tr>
<td>- Assesses need and applies splint appropriately, monitors skin. <em>(OT)</em></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Upper Extremity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Assesses need, applies splint appropriately, monitors skin, and involves OT in a timely manner to fabricate or modify splints. <em>(PT)</em></td>
<td></td>
</tr>
<tr>
<td>- Assesses need, fabricates/modifies and applies splint appropriately, monitor skin. <em>(OT)</em></td>
<td></td>
</tr>
<tr>
<td>- Anterior elbow</td>
<td></td>
</tr>
<tr>
<td>- Wrist Extension</td>
<td></td>
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</tbody>
</table>
**Lower Extremity**
- Assesses need, applies splint appropriately, monitors skin, and involves OT in a timely manner to fabricate or modify splints. *(PT)*
- Assesses need and applies splint appropriately, monitors skin, adjusts as needed. *(OT)*
  - Knee immobilizer
  - Posterior foot/Foot Drop splint

**Serial Casting**
- Cast removal
  - Demonstrates safety in cutting cast for removal.

**O.R. Procedures**
- Observes appropriate O.R. protocol for infection control while demonstrating skill and efficiency in performing PROM *(PT/OT)*
- Independent with application of splints *(OT)*

**Equipment**
- V.A.C.
  - Articulates rationale for use
  - Able to safely disconnect for functional mobility
  - Able to reprogram for correct therapeutic protocol
- CPM
  - Determines need, orders and sets up UE and LE CPM for appropriate fit to patient
- DME
  - Recommends appropriate equipment based on medical need
  - Contacts appropriate staff for order placement

**DOCUMENTATION**
- Completes per Burn Center and OT/PT Division standards
- Demonstrates ability to teach new staff documentation procedures
  - Consults
  - Medical Chart review
  - Burn Assessment
  - Patient/Family Education forms
  - Multidisciplinary Care Plans
  - Progress notes
    - Goals
    - Recommendations for next level of care
  - Home Exercise Program
  - Charges
  - Coverage

**COMMUNICATION**
- Rounds
  - Actively participates, contributes to patient care plan
  - Provides detailed coverage for therapist attending rounds
    - Wound rounds
    - Grand rounds

**Consults**
- Medical Chart review
- Burn Assessment
- Patient/Family Education forms
- Multidisciplinary Care Plans
- Progress notes
  - Goals
  - Recommendations for next level of care
- Home Exercise Program
- Charges
- Coverage
Family education
- Speaks to patient and family in understandable layman terms
- Is clear, concise and relevant

Staff education
- Participates in staff education on a daily basis
  - Splinting programs
  - Functional activities
  - Functional mobility

**Email**
- Active account

---

**PLAN:**

Key:
- L = Learn skill or information
- P = Practice skill or technique
- V = Validate knowledge
- ED = Continued Education
- DP = See employee’s developmental plan

Staff member assumes the responsibility for seeking competency validation and completion of competency review during assignment to the Burn Unit. Competencies are used for performance reviews and staff development.

<table>
<thead>
<tr>
<th>Staff Therapist</th>
<th>Lead Burn Therapist</th>
<th>Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Date</td>
<td>Date</td>
</tr>
</tbody>
</table>


# Level II

<table>
<thead>
<tr>
<th>Performance Criteria and Competency</th>
<th>Orientation (Date/Initial)</th>
<th>Self Evaluation (Code, Date, Initial)</th>
<th>Competency Validation (Code, Date, Initial)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Key:</td>
<td>Key:</td>
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<tr>
<td></td>
<td></td>
<td>N/A = Not Applicable</td>
<td>CD = Competency Demonstrated</td>
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<tr>
<td></td>
<td></td>
<td>0 = No exposure</td>
<td>VE = Verbally Explains</td>
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<tr>
<td></td>
<td></td>
<td>1 = Performed with Assist</td>
<td>CR = Chart Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Performed with Consultation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>3 = Performed Independently</td>
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</table>

### PATIENT CARE

#### Pain Management

Alternative treatments

- Uses non-pharmacological techniques: visual imagery, distraction/diversion.

#### Wound Care

##### Graft Care

- Demonstrates skill and educates patient/family in debridement of scabs, trimming of graft overlap, care of inclusion cysts
- Demonstrates skills in teaching students, less experienced therapists and Residents appropriate options and precautions.
  - Position graft to be applied
  - Post-op dressings
  - Post-op positioning/splints
  - Post-op activity/mobility

##### Dressings

- Demonstrates skill in application of basic wound and graft dressings (SSD, Xeroform, Conformant 2, Aquacel Ag, Silver Matrix, Silverlon, Sulfamylon solution) according to Burn Center protocols

##### Compressive Wraps

- Determines need, correctly applies
  - Coban
  - Elastomull Lymphedema bandage
- States wearing time and rationale

##### Isotoner/Edema Glove

- Determines need, fits glove properly, assesses success of intervention and adjusts as needed

##### Tubigrip

- Determines need, correctly measures and applies
- States wearing time and rationale

##### Custom Garments

- Determines need, refers to vendor for measuring and ordering
- States wearing time and rationale
- Able to instruct in donning techniques

### Treatment Modalities

Manual Edema Mobilization
- Instructs patient in proper deep breathing technique
- Effectively performs lymphatic stimulation
- Follows up with ROM exercises
- Able to instruct patient/family in rationale for treatment

**Joint Mobilization**
- Effectively performs joint mobilization
- Able to assess effectiveness of intervention

**Scar Massage**
- Performs scar massage with correct technique
- Instructs patient/family in rationale for treatment
- Instructs patient/family in massage for home program

**ADL’s**

**Pressure Garment Application**
- Educates patient and family in donning and doffing, wearing schedule and care of garments
  - Tubigrip
  - Isotoner/Edema Glove
  - Custom Garment

**Prosthetic Training**
- Demonstrates techniques and educates patient/family in correct application of UE and LE stump shrinker, exercises and progression in basic mobility activities
  - Fit stump shrinker
  - Balance & transfers
  - Gait/devices

**Positioning**

**Fabrication**
- Determines need, demonstrates skill in fabrication and application of various positioning devices
- Assesses fit and instructs patient and family in wearing schedule and care of devices
  - Hand flexion wrap
  - Abduction pillow
  - Custom foam positioners

**Trapeze/traction**
- Able to complete basic assembly
- Modifies set-up for optimal patient use for exercises

**Splinting**

**Head/Neck/Trunk**
- Assesses need, fabricates/modifies and applies splint appropriately, monitors skin. *(OT)*
  - Anterior neck
  - Watussi collar
  - Towel splint

**Upper Extremity**
- Assesses need, applies splint appropriately, monitors skin, and involves OT in a timely manner to fabricate or modify splints. *(PT)*
- Assesses need, fabricates/modifies and applies splint appropriately, monitor skin. *(OT)*
  - Axillary conformer
  - Don Joy Shoulder Quadrant Brace
  - T-shirt splint
  - Posterior elbow
  - First webspacer

**Lower Extremity**
- Assesses need, applies splint appropriately, monitors skin, and involves OT in a timely manner to fabricate or modify splints. *(PT)*
- Assesses need, fabricates and applies splint appropriately, monitors skin, adjusts as needed. *(OT)*
  - Knee conformer
  - Hip Spica splint
  - BKA clam-shell

**Dynamic Splinting**
- Assesses need, fabricates and/or applies splint appropriately, monitors skin, adjusts as needed.
  - MP flexion assist
  - Dynasplints®/JAS®
  - Therabite®

**Serial Casting**

<table>
<thead>
<tr>
<th>Cast application</th>
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<tbody>
<tr>
<td>Assesses need, applies cast appropriately</td>
<td></td>
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<tr>
<td>Monitors skin and ROM</td>
<td></td>
</tr>
<tr>
<td>Progresses changes in cast position at appropriate intervals</td>
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<tr>
<td>Educates patient/family in precautions and care of cast</td>
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</tbody>
</table>
  - Ankle dorsiflexion
  - Long-leg
  - Elbow extension
  - MCP block

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<thead>
<tr>
<th>Cast removal</th>
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<tbody>
<tr>
<td>Able to bi-valve when used for ongoing positioning</td>
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**Complications**

**Heterotopic Ossification**
- Articulates rationale for precautions and potential complications.

**Exposed tendons, joints**
- Assesses need for change in therapy plan for treatment of exposed joints and/or ruptured tendons
- Able to articulate treatment options

**COMMUNICATION**

**Education**
- Develops teaching modules
- Participates in training of new nursing staff (job shadowing)
<table>
<thead>
<tr>
<th>Burn Care Course</th>
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<tbody>
<tr>
<td>• Teach Burn Care Course for hospital staff and community</td>
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<thead>
<tr>
<th>Burn Outreach</th>
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<tbody>
<tr>
<td>• Participates in community education regarding burns and burn prevention</td>
<td></td>
</tr>
<tr>
<td>• Participates in Burn Support Group activities</td>
<td></td>
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<tr>
<td>• Participates in International Burn Outreach program</td>
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<thead>
<tr>
<th>Meetings</th>
<th></th>
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<tbody>
<tr>
<td>Burn Therapy Workgroup</td>
<td>• Contributes to discussions, presents issues</td>
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<thead>
<tr>
<th>Burn Quality Improvement</th>
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<tr>
<td>• Attends meeting in absence of lead Burn Therapist, writes up notes and shares with other therapists, Acute Care PT/OT supervisors, Director</td>
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<table>
<thead>
<tr>
<th>Burn Operations Committee</th>
<th></th>
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<tbody>
<tr>
<td>• Attends meeting in absence of lead Burn Therapist, writes up notes and shares with other therapists, Acute Care PT/OT supervisors, Director</td>
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<table>
<thead>
<tr>
<th>Email</th>
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<tbody>
<tr>
<td>• Active account</td>
<td></td>
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<tr>
<td>• Check email 1x/day for communications from lead Burn Therapist, Burn Center Director</td>
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<thead>
<tr>
<th>ORGANIZATION</th>
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<tbody>
<tr>
<td>Prioritization</td>
<td>• Able to state method of organizing the service and prioritization of caseload</td>
</tr>
<tr>
<td></td>
<td>➢ Service</td>
</tr>
<tr>
<td></td>
<td>➢ Caseload</td>
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<tr>
<td></td>
<td>➢ Clinics</td>
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<thead>
<tr>
<th>American Burn Association</th>
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<tbody>
<tr>
<td>• Maintain active membership in ABA</td>
<td></td>
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<tr>
<th>Research</th>
<th></th>
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<tbody>
<tr>
<td>• Participate in ongoing research project</td>
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**PLAN:**

Key:

- **L** = Learn skill or information
- **P** = Practice skill or technique
- **V** = Validate knowledge
- **ED** = Continued Education
- **DP** = See employee’s developmental plan

Staff member assumes the responsibility for seeking competency validation and completion of competency review during assignment to the Burn Unit. Competencies are used for performance reviews and staff development.

Staff Therapist ___________________________ Lead Burn Therapist ___________________________ Supervisor _______________________ 

Date ___________________________                 Date __________________________             Date ______________ ________

Developed 7/07, Revised 1/08, 1/10
Additional Pressure Management Options
By Malvina Sher, PT
Additional Pressure Management Options

Malvina Sher, PT
NewYork-Presbyterian Hospital/Weill Cornell Medical Center
New York, New York

Objectives

• Improve knowledge for choosing appropriate inserts for challenging areas
• Widen the spectrum on utilizing various scar management materials in nontraditional ways to minimize scarring
• Develop problem-solving skills to optimize scar outcome.

Things to Consider

• Age of a patient
• TBSA of involved and healing tissue
• Convexities and concavities
• Scar pliability
• Scar height
Things to Consider

- Function
- Aesthetics
- Patient tolerance
- Wearing schedule

Regions

- Face
- Neck
- Mouth
- Extremities

Perforated Full Face Mask
Occlusive Full Face Mask

Perforated Neck Splint

Occlusive Neck Splint
Occlusive Two Piece Neck Splint

Occlusive Two Piece Neck Splint with Polymer Gel Insert

NECKS with Foam Tubing
NECKS with Polymer Gel Insert

Dynamic Mouth Spring

Tubi Sleeve with Polymer Gel Insert
Clavicular Strap with Polymer Gel Lining

T-Shirt Splint with Back-Pack Strapping

Residual Limb Compression Stocking
Residual Limbs
Compression Stocking and
Pre-prosthetic Arms

Web Spacer
with Polymer Gel Tube

Resources
• LTS®
  – http://www.silon.com
• Orfit®
  – http://www.orfit.com
• Silipos®
  – http://silipos.com