REVITAL CANCER REHABILITATION

Get Loud: The Power of Cancer Rehabilitation & Why it Matters

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Disclosures

Dr. Pergolotti and Hillary Hinrichs receive salaries from Select Medical.
The Unmet Needs: Cancer Rehabilitation
A Rise in Survivorship

Figure S2. Average Annual Incidence Rates and Case Distribution by Age, US, 2011-2015

Sources: Surveillance, Epidemiology, and End Results (SEER) program, 18 SEER registries, custom data (2000-2015).

©2019, American Cancer Society, Inc., Surveillance Research
Acute, Late & Lasting Treatment Effects


Table 2
Complications from cancer and its treatment

<table>
<thead>
<tr>
<th>Complication</th>
<th>Cancer and Treatment-Related Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amputation</td>
<td>Sarcoma</td>
</tr>
<tr>
<td>Deconditioning</td>
<td>All cancers, chemotherapy, radiation, surgery</td>
</tr>
<tr>
<td>Gait disorders</td>
<td>Chemotherapy-induced peripheral neuropathy, surgery</td>
</tr>
<tr>
<td>Lymphedema</td>
<td>Breast, gynecological, prostate cancer, lymph node dissection</td>
</tr>
<tr>
<td>Muscle spasm</td>
<td>Chemotherapy-induced peripheral neuropathy, radiation fibrosis, surgery</td>
</tr>
<tr>
<td>Myelopathy</td>
<td>Radiation, pathological fracture of the vertebrae</td>
</tr>
<tr>
<td>Myopathy</td>
<td>Chemotherapy, steroids</td>
</tr>
<tr>
<td>Neuropathy</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Pain</td>
<td>All cancers, chemotherapy, radiation, surgery</td>
</tr>
<tr>
<td>Plexopathy</td>
<td>Radiation therapy; tumor invasion</td>
</tr>
<tr>
<td>Radiculopathy</td>
<td>Chemotherapy, pathological fracture of the vertebrae</td>
</tr>
<tr>
<td>Shoulder dysfunction</td>
<td>Radiation, surgery</td>
</tr>
<tr>
<td>Spasticity</td>
<td>Chemotherapy-induced peripheral neuropathy</td>
</tr>
<tr>
<td>Weakness</td>
<td>All cancers, chemotherapy, radiation, surgery</td>
</tr>
</tbody>
</table>

ReVital Cancer Rehabilitation
Activities of Daily Living

Disability in activities of daily living among adults with cancer: A systematic review and meta-analysis

Josephine Neo a,b,*, Lucy Fettes b, Wei Gao b, Irene J. Higginson b, Matthew Maddocks b,*

*a Tan Tock Seng Hospital, 11 Jalan Tan Tock Seng, 308433, Singapore
b Cicely Saunders Institute of Palliative Care, Policy and Rehabilitation, King’s College London, Denmark Hill, London SE5 8PJ, United Kingdom

33% difficulty with activities of daily living

50% difficult with instrumental activities of daily living

Long-term Physical Function compared to non-cancer controls

Figure. Long-term Trajectories of Physical Function From Preadiagnosis to Postdiagnosis in Women With Cancer and Cancer-Free Controls by Cancer Type and Stage

Cancer Survivors @ Higher Risk for Falls

Motor performance in survivors:
- Slower walking speed
- Shorter stride length
- Longer stride time
- Longer double support time
- Higher concern for falling

Risk factors for cancer survivors:
- Dependence in ADL
- Prior falls
- Poor physical function
- Poor cognitive function
- Sensory impairment
- Urinary incontinence

Health-related Quality of Life (HRQOL)

% REPORTING POOR PHYSICAL & MENTAL HRQOL

25% & 10% cancer survivors

10% & 6% without cancer
Relationship of HRQOL with Poor Survival

**Figure 2.** Kaplan–Meier curve showing the comparison of survival distribution between patients with good or poor SRH. When compared with patients with good SRH, those reporting poor SRH had a significantly worse survival (1-year OS 62.4% vs 82.6%, log-rank P-value < .001).
Pain Increases Likelihood: Adverse Employment & Financial Outcomes

**TABLE 3.** Association Between Pain Category and Employment Outcomes (OR and 95% CI)*

<table>
<thead>
<tr>
<th>Study Employment Outcomes</th>
<th>Mild Pain</th>
<th></th>
<th></th>
<th>Moderate Pain</th>
<th></th>
<th></th>
<th>Severe Pain</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>Upper CI</td>
<td>Lower CI</td>
<td>OR</td>
<td>Upper CI</td>
<td>Lower CI</td>
<td>OR</td>
<td>Upper CI</td>
<td>Lower CI</td>
</tr>
<tr>
<td>Took paid time off from work</td>
<td>1.588</td>
<td>2.723</td>
<td>0.926</td>
<td>1.016</td>
<td>1.780</td>
<td>0.580</td>
<td>1.576</td>
<td>3.277</td>
<td>0.758</td>
</tr>
<tr>
<td>Change to part-time or less demanding job</td>
<td>0.796</td>
<td>0.487</td>
<td>1.302</td>
<td><strong>2.200</strong></td>
<td>3.518</td>
<td>1.376</td>
<td><strong>3.318</strong></td>
<td>5.143</td>
<td>2.141</td>
</tr>
<tr>
<td>Don’t pursue promotion</td>
<td>0.620</td>
<td>0.291</td>
<td>1.318</td>
<td><strong>2.699</strong></td>
<td>5.692</td>
<td>1.279</td>
<td><strong>2.250</strong></td>
<td>4.785</td>
<td>1.058</td>
</tr>
<tr>
<td>Retire early</td>
<td><strong>3.695</strong></td>
<td>8.397</td>
<td>1.626</td>
<td><strong>10.489</strong></td>
<td>25.796</td>
<td>4.265</td>
<td><strong>15.577</strong></td>
<td>35.986</td>
<td>6.743</td>
</tr>
<tr>
<td>Feel less productive</td>
<td>1.492</td>
<td>2.439</td>
<td>0.913</td>
<td><strong>3.561</strong></td>
<td>6.189</td>
<td>2.050</td>
<td><strong>4.383</strong></td>
<td>8.001</td>
<td>2.401</td>
</tr>
<tr>
<td>Stay at job to keep insurance</td>
<td>1.190</td>
<td>1.960</td>
<td>0.722</td>
<td><strong>2.462</strong></td>
<td>4.519</td>
<td>1.341</td>
<td><strong>1.916</strong></td>
<td>3.407</td>
<td>1.078</td>
</tr>
</tbody>
</table>

NOTE. ORs significant at P < .05 are in bold.
Abbreviation: OR, odds ratio.

*Results from multivariable logistic regression analyses (compared with those reporting no pain) controlled for sex, race or ethnicity, age, education (any college v no college), primary cancer site, multiple cancer sites involved, time since last cancer treatment, insurance during prior 12 months, and physician visits during prior 12 months. Questions on employment outcomes were answered only by respondents who indicated that they had worked for pay at a job or business at or following their first cancer diagnosis.
Survivors Health Values & Cancer Treatment Goals

- Self-sufficiency
- Life enjoyment
- Connectedness and legacy
- Balancing quality and length of life
- Engagement in care

A Potential Solution: Cancer Rehabilitation
Role of Cancer Rehabilitation Clinicians in Team

Patient-Clinician Interaction

 Patients

Physicians Providing Oncology Care
Clinicians Providing Psychosocial Support & Spiritual Workers
Palliative Care Clinicians (Including hospice at end-of-life)
Physicians Assistants
Rehabilitation Clinicians
Nurses

Institute of Medicine (IOM) 2013
Cancer Rehabilitation

- Cancer & anticipated side effects
- CANCER REHABILITATION
- Improved function, activity, and participation

Goal → Living well beyond cancer™
Cancer Rehabilitation: The Evidence
Cancer Rehabilitation Research Exploding


Nicole L. Stout, Catherine M. Alfano, Christopher W. Belter, Ralph Nitkin, Alison Cernich, Karen Lohman Siegel, Leighton Chan

Stout et al., 2018
Cancer Rehabilitation: Guidelines

Growth Over Time

1999
IOM: Ensuring Quality Cancer Care

2005
IOM: From Cancer Patient to Cancer Survivor: Lost in Translation

2010
ACSM: Exercise Guideline Round Table

2016
Cancer Moonshot: Blue Ribbon Panel

2016
ASCO: Clinical Pathways in Oncology

2018
NCCN: Guidelines Survivorship

2018
NCPF: Long-Term Survivorship Care after Cancer Treatment

2018
ASCO: Vulnerable Older Adults Guideline

2020
ACSM: Exercise is Medicine in oncology

2020
NCCN: HCT Guidelines

2020
COC: 2020 Standards
# Gynecologic Cancer-Related Functional Disability

## Population & Methods

**84**

Women with history of gynecologic cancers; grouped by evaluation complexity (high/mod/low)

Attended

**~13**

PT/OT sessions (median)

- 17 patient reported outcomes (PRO)
- Net promoter score (NPS)

*Collected as standard of care, evaluated retrospectively*

## Key Findings

**PROs**

- 4 PROs: significant improvement (p<.05)
  - Lower Extremity Functional Scale (LEFS)
  - Modified Fatigue Impact Scale (MFIS)
  - Patient-Specific Functional Scale (PSFS)
  - Lymphedema Life Impact Scale (LLIS)

- 53-61% of patients with high/mod complexity achieved clinically significant improvement

**NPS**

- High satisfaction
- 10/10 median score

**Conclusion:**

ReVital PT/OT improves PRO and is satisfactory for women with gynecologic cancer.
**BREAST CANCER-RELATED UPPER EXTREMITY DISABILITY**

**Population & methods**

| 417 breast cancer survivors with upper-extremity disability |

| Attended | ~10 PT/OT sessions (median) |

- QuickDASH
- Net promoter score (NPS)

*Collected as standard of care, evaluated retrospectively*

**Key findings**

- **QuickDASH**
  - Significant improvement regardless of disability level (p<.05)

- **NPS**
  - High satisfaction
  - 10/10 median score

**CONCLUSION:**

ReVital PT/OT improves upper extremity disability and is satisfactory for people with breast cancer.
**Two-arm, Pragmatic Randomized Control Trial**

- PT – led program versus usual care
- Intervention:
  - Developed with patient input
  - 3-6 sessions

**392 women with breast cancer**

- Inclusion criteria: women with planned axillary node clearance, radiation or existing shoulder issues

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**Results**

Compared to usual care:

- **Shoulder function**
- **Health-related QOL**
- **Confidence returning to regular activities**
- **Pain**
- **Cost**

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In 2,706 BCS who attended PT/OT we found..

✓ Prevalence of common treatment-related rehab needs
  • muscle atrophy, weakness or ataxia
  • lymphedema
  • upper extremity impairment
  • pain
  • scar tissue or fibrosis

✓ Significant improvement in PROMIS® outcomes at discharge for PT & OT (p < .001)
  • Physical health
  • Mental health
  • Physical function
  • Ability to participate and social roles & activities
HEALTH RELATED QUALITY OF LIFE & FUNCTION BY TREATMENT STATUS

Population & methods

115
Adults who attended outpatient cancer rehab

Attended
~9
PT/OT sessions (median)

- PROMIS health related quality of life (HRQOL)
- PROMIS physical function
- PROMIS Social roles and activities
- Handgrip strength
- Timed up and go
* Collected as standard of care, evaluated retrospectively

Key findings

Significant improvement (p<.05)
✓ PROMIS physical health
✓ PROMIS social roles & ability
✓ Handgrip strength
✓ Timed up and go

No difference in the effect of rehab due to treatment status (p>.05)

CONCLUSION:
ReVital PT/OT improves HRQOL and functioning independent of treatment status.
Growing Evidence Across Disease Types

Systematic Reviews

- 71% of studies reported statistically significant results after cancer rehabilitation intervention(s) for at least 1 functional outcome
- Impact on physical functioning
- Impact on fatigue
- Statistically significant improvement from initial evaluation to discharge
Understanding Patient Experience with Outpatient Cancer Rehabilitation Care

Wood et al. 2023

**Methods & Population**
- Patients attended outpatient cancer rehab (N=383)
- Completed Net Promotor Survey® (NPS)
- Descriptive and thematic content analysis

**Key Findings**

**"How likely are you to recommend rehabilitation to family/friends?"**

- 92% Promoters

**"What is the most important reason for your score?"**

- "I felt comfortable with the rehabilitation process"
- "I feel better"

Themes influenced by:
- Staff affect & knowledge/skills
- Clinical care qualities
- Clinic environment

Cancer Rehabilitation: Tell Me More...
Do we have any Volunteers?
Cancer Rehabilitation: Advocacy
We need your help to advocate.
Questions?

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