Intervention Management: A New Approach to Ongoing Issues

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Speakers Disclosure

- Janelle Tipton – Nothing to disclose
- Ellyn Matthews – Nothing to disclose
- Diane Cope – Nothing to disclose
- Sandra Mitchell – Nothing to disclose

What Led to PEP (Putting Evidence into Practice)?

- ONS recognized and was committed to improving nursing-sensitive patient outcomes (NPSOs) by providing evidence-based resources.
Primary Goal of PEP
(Putting Evidence into Practice)

- Identify and disseminate the best available scientific evidence to help nurses improve nursing-sensitive patient outcomes (NSPOs)
- Primary audience for PEP is nurses; however, the intervention recommendations can be helpful for other disciplines

(Johnson, 2014)

Evidence-Based Practice

- Integrates best evidence from well-designed studies with a clinician’s expertise, including patient assessment and practice data, along with a patient’s preferences and value

(Melynk & Fineout-Overholt, 2012)

History of PEP
(Putting Evidence into Practice)

- 1998: ONS members defined oncology nursing-sensitive patient outcomes, beginning the EBP movement
- 2006: Volume 1: The first PEP topics & resources were released in pocket cards, focusing on 4 areas:
  - CINV
  - Fatigue
  - Prevention of infection
  - Sleep-wake disturbances

(Brown, 2015)
History of PEP
(Putting Evidence into Practice)

- Volume 2 (2009):
  - Caregiver Strain and Burden
  - Constipation
  - Depression
  - Dyspnea
  - Mucositis
  - Peripheral Neuropathy
- 2009
  - Pain
  - Prevention of Bleeding
- 2009
  - Anorexia/Cachexia
  - Anxiety
  - Diarrhea
  - Lymphedema

History of PEP
(Putting Evidence into Practice)

- 2011
  - Cognitive Impairment
  - Hot Flashes
  - Radiodermatitis
  - Skin Effects
- 2014
  - PEP Pocket Guide: updates to all 20 topics
    (Irwin & Johnson, 2014)

ONS PEP Resources

- Color coded to provide a quick look to help discern the level of evidence available for each intervention
PEP Weight of Evidence Classification

Mode

- **Recommended for Practice** –
  Interventions for which effectiveness has been demonstrated by strong evidence from rigorously conducted studies, meta-analyses, or systematic reviews, and for which expectation of harms is small compared with the benefits.

- **Likely to be Effective** –
  Interventions for which effectiveness has been demonstrated by supportive evidence from a single rigorously conducted controlled trial, consistent supportive evidence from well-designed controlled trials using small samples, or guidelines developed from evidence and supported by expert opinion.

(Mitchell & Friese, nd; Johnson, 2014)

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**Recommended for Practice**

- Interventions for which effectiveness has been demonstrated by strong evidence from rigorously-designed studies, meta-analyses, or systematic reviews, and for which expectation of harms is small compared with the benefits
- Supportive evidence from at least two well-conducted randomized controlled trials that were performed at more than one institutional site and that included a sample size of at least 100 participants
- Evidence from a meta-analysis or systematic review of research studies that incorporated quality ratings in the analysis and included a total of 100 patients or more in its estimate of effect size and confidence intervals
- Recommendations from a panel of experts that derive from an explicit literature search strategy and include thorough analysis, quality rating, and synthesis of the evidence

(Mitchell & Friese, nd; Johnson, 2014)

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**Likely to Be Effective**

- Interventions for which the evidence is less well established than for those listed under “recommended for practice”
- Supportive evidence from a single well-conducted randomized controlled trial that included fewer than 100 patients or was conducted at one or more institutions
- Evidence from a meta-analysis or systematic review that incorporated quality ratings in the analysis and included fewer than 100 patients or had no estimates of effect size and confidence intervals
- Evidence from a synthetic review of randomized trials that incorporated quality ratings in the analysis
- Guidelines developed largely by consensus/expert opinion rather than primarily based on the evidence and published by a panel of experts that are not supported by synthesis and quality rating of the evidence

(Mitchell & Friese, nd; Johnson, 2014)
PEP Weight of Evidence Classification Model

- **Benefits Balanced with Harms** – Interventions for which clinicians and patients should weigh the beneficial and harmful effects according to individual circumstances and priorities.

- **Effectiveness not Established** - Interventions for which there are currently insufficient or conflicting data or data of inadequate quality, with no clear indication of harm.

  (Mitchell & Friese, nd; Johnson, 2014)

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PEP Weight of Evidence Classification Model

- **Effectiveness Unlikely** – Interventions for which lack of effectiveness has been demonstrated by negative evidence from a single rigorously conducted controlled trial, consistent negative evidence from well-designed controlled trials using small samples, or guidelines developed from evidence and supported by expert opinion.

- **Not Recommended for Practice** - Interventions for which lack of effectiveness or harmfulness has been demonstrated by strong evidence from rigorously conducted studies, meta-analyses, or systematic reviews, or interventions where the costs, burden or harms associated with the intervention exceed anticipated benefit.

  (Mitchell & Friese, nd; Johnson, 2014)

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Navigating the ONS PEP Webpages

- ONS website [https://www.ons.org/practice-resources/pep](https://www.ons.org/practice-resources/pep)
PEP and Quality Connection

- ONS Strategic Plan (2012-2016) Quality Pillar is to develop a culture of quality in daily practice among nurses caring for patients with cancer or at risk for cancer
- The Get Up, Get Moving campaign is designed to improve the quality of care by engaging students, nurses, and organizations to improve the physical activity of individuals with cancer
  (Beck, 2014)

ONS & Quality Measures

- Breast Cancer Care (BCC) quality measures
  - Examples:
  - Intervention for fatigue: Exercise Recommendation
  - Intervention for psychosocial distress
  - Intervention for sleep-wake disturbances

- Breast Cancer Survivorship (BCS) quality measures
  - Examples:
  - Symptom intervention: Fatigue
  - Symptom intervention: Sleep
  - Symptom intervention: psychosocial distress


Flipping your Mindset

- Pick an evidence-based intervention first, and then use it to manage many frequently-experienced symptoms or clinical problems
Cognitive Behavioral (CB) Interventions/Approach

Ellyn E. Matthews, PhD, AOCNS, CBSM, FAAN
Associate Professor
Elizabeth Stanley Cooper Endowed Chair in Oncology Nursing
University of Arkansas for Medical Sciences
Little Rock, Arkansas

CB Approach in Cancer

- A broad family of therapies for individuals with cancer with the most evidence in:
  - Sleep-wake disturbances
    - Garland et al, 2014; Ijkekkeboom et al, 2010; Langford et al., 2012; Wanchai et al., 2011
  - Depression/anxiety
    - Hart et al., 2012; Naaman et al., 2009; Diborn et al., 2006
  - Caregiver burden
    - Lanford et al., 2012; Northouse et al., 2010
  - Fatigue
    - Bower et al., 2014; Larkin et al., 2013; Wanchai et al., 2011

Principles of CB Approach

1. Identify negative or unhelpful thoughts and beliefs*
2. Examine the association among thoughts, feelings, and behaviors*
3. Recognize helpful and unhelpful behaviors*
4. Establish goals to apply new behaviors that facilitate effective coping*
5. Develop/enhance problem solving skills*

*related to an identified problem(s) and may be delivered in individual or group settings, in person, by phone, internet, or other methods
Indications: CB Approach and PEP Levels of Evidence

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Wake Disturbance</td>
<td>Recommended for Practice</td>
</tr>
<tr>
<td>Caregiver Strain/Burden</td>
<td>Recommended for Practice</td>
</tr>
<tr>
<td>Depression</td>
<td>Recommended for Practice</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Cognitive Impairment</td>
<td>Effectiveness not established</td>
</tr>
<tr>
<td>Hot Flashes</td>
<td>Effectiveness not established</td>
</tr>
</tbody>
</table>

What is the Evidence for Sleep Interventions in Cancer Populations? (ONS PEP)

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended for Practice</td>
<td>Cognitive Behavioral Therapy for Insomnia</td>
</tr>
<tr>
<td>Likely to be Effective</td>
<td>Exercise</td>
</tr>
<tr>
<td>Benefits balanced with harm</td>
<td>Mindfulness based stress reduction</td>
</tr>
<tr>
<td>Effectiveness not established</td>
<td>Pharmacologic therapies</td>
</tr>
<tr>
<td></td>
<td>Acupressure, Acupressure, Cranial Stimulation, Electroencephalography neuro-feedback, expressive writing, healing touch, massage, mind-body-spirit therapy / Qigong, relaxation, imagery, meditation, yoga, psycho-education</td>
</tr>
</tbody>
</table>

CB Approach for Insomnia: Cognitive Behavioral Therapy for Insomnia (CBTI)

- **CBTI** is a *specific form* of the CB approach
- A multi-component approach aimed at eliminating perpetuating factors of insomnia by modifying sleep schedules, habits, and misconceptions that are responsible for chronic insomnia (Morgenthaler et al., 2006; Morin & Benca, 2012)
- Exemplar for understanding CB approach for persons with cancer
### CBTI Standard Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Purpose/Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>sleep restriction</td>
<td>consolidates sleep and gradually increase it until an optimal sleep time is achieved</td>
</tr>
<tr>
<td>stimulus control</td>
<td>instructions designed to discourage sleep-incompatible behaviors and reinforce a regular sleep-wake schedule</td>
</tr>
<tr>
<td>sleep hygiene</td>
<td>promotes good sleep habits such as regular meals and a light bedtime snack; habitual exercise; limited use of caffeine, nicotine, and liquids in the evening; and a sleep-promoting bedroom</td>
</tr>
<tr>
<td>cognitive restructuring</td>
<td>Alters dysfunctional thoughts/beliefs and anxiety about sleep and set reasonable expectations</td>
</tr>
</tbody>
</table>

(Morgenthaler et al., 2006; Morin & Benca, 2012)

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### CBTI Dose and Delivery

**Sessions**
- Range from 2-8; average 6-8
- Total duration 3-14 hours; average 6 (Matthews et al., 2013)

**Delivery modalities**
- Individual or small group settings
- In-person, telephonically, internet, apps, CDs, or mixed methods

**Can be self-paced**
- Internet, workbooks

**Homework**
- Home-based sleep diary assessment
- Sleep hygiene practice

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### When is CBTI Useful?

- Anytime from pre-diagnosis to end of life when sleep-wake disturbance occurs
- Some components can be delivered inpatient (stimulus control, sleep hygiene education, cognitive therapy)
- Most often scheduled in outpatients / post-cancer treatment
- Patients and caregivers may benefit from CBTI (Carter, 2006)
Precautions and Contradictions

- Sleep restriction may need to be modified during active treatment when additional sleep is needed for recovery
- If other sleep disorders such as sleep apnea are suspected, these disorders need to be evaluated and addressed first - to increase the likelihood of sleep improvement

CBTI Delivery Workforce

- Sleep specialists certified in CBT, CBTI
- APRNs are uniquely positioned to provide CBTI; studies show Masters level practitioner patient outcomes meet or exceed standard outcomes (Fields et al., 2013a, Fields et al., 2013b)
- RNs with specialized training/supervision
- Where to get CBTI training or certification?
  - Society of Behavioral Sleep Medicine
  - http://www.behavioralsleep.org

CBTI Challenges and Solutions (Patient/Caregiver)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited knowledge about:</td>
<td>• General sleep education</td>
</tr>
<tr>
<td>• Sleep and health</td>
<td>• Validate sleep concerns</td>
</tr>
<tr>
<td>• Non-drug treatments</td>
<td></td>
</tr>
<tr>
<td>• Insomnia is expected, low priority in cancer care</td>
<td>• Education (individualized)</td>
</tr>
<tr>
<td>• Lack of routine assessment of sleep</td>
<td>• Empower patient/caregivers to bring up sleep topics during regular encounters</td>
</tr>
<tr>
<td>• Low self-efficacy for making behavioral changes</td>
<td>• Coaching and encouragement to enhance patient self-management</td>
</tr>
</tbody>
</table>

CBTI Challenges and Solutions (Patient/Caregiver)
### CBTI Challenges and Solutions (Provider/Organizational)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited knowledge of Sleep, health, recovery</td>
<td>Assess educational needs</td>
</tr>
<tr>
<td>Effective Non-drug treatments</td>
<td>Provide targeted multi-modal sleep education (e.g., journal clubs, ONS chapter meetings, organizational workshops)</td>
</tr>
<tr>
<td>Resources</td>
<td>Autome sleep assessments</td>
</tr>
<tr>
<td>Lack of routine assessment</td>
<td>Use sleep disorder algorithms</td>
</tr>
<tr>
<td>Clinical time constraints</td>
<td>Develop referral pathways</td>
</tr>
<tr>
<td>Lack of self-efficacy</td>
<td></td>
</tr>
<tr>
<td>Lack of organizational support</td>
<td>Use nursing leadership teams, empowered by patient data</td>
</tr>
</tbody>
</table>

### Making a Difference - Encounter/Shift at a Time

- Ask about sleep problems routinely
  - “ticker” to follow-up at next visit/encounter
- Target sleep issues most important to patient/caregiver
- Provide brief individualized education
  - tackle one behavior change at time
- Identify local sleep resources for referral
  - keep resource materials organized and accessible
- Address hospital-based sleep disturbance
  - Develop/implement environmental sleep management protocols
  - Facilitate good sleep hygiene

### Tips to enhance patient adherence and self-management

- Acknowledge the difficulties associated with changing sleep-wake behaviors
- Incorporate goal-oriented, patient-centered counseling style
- Minimize expectations for perfection
- Explore/resolve behavior change ambivalence and issues
- Partner with patient to find the best way to track/monitor sleep improvements
- Celebrate successes!
Costs/Reimbursement issues

- Healthcare costs are greater for individuals with moderate-severe insomnia compared to those without insomnia (McCrae et al., 2014).
- Many plans do not cover CBTI, group it into their mental health benefits category, or reimburse for all or part of your sessions.
  - Patients who can’t afford sessions out-of-pocket may want to try less expensive options like group therapy, telephone sessions, or Internet counseling.


Measuring Quality of Cancer Care

- **Structure**
  - Assesses infrastructure of care setting
  - Does a cancer center have a sleep specialist to provide CBTI?

- **Process**
  - Determines if services are consistent with oncology care standards
  - Does provider routinely assess sleep disturbance in cancer survivors?

- **Outcome**
  - Evaluates patient health as a result of intervention or care received
  - Do patients report less anxiety and insomnia after CBTI?

Quality Process Measures: Breast Cancer Care

Documented assessment/interventions before/during treatment (aggregate rates from 39 pilot sites in 2010).

- Pretreatment assessment: 37% for sleep disturbance, 65% for fatigue, 76% for distress.
- Continuing assessment: 27% for sleep disturbance, 62% for fatigue, 56% for distress.
- Intervention: 12% for sleep disturbance, 10% for fatigue (exercise intervention), 32% for distress

Fessele, Yendro, Mallary. CJON, 2014.
Quality Process Measures: Post-tx Survivorship

Documented assessment/interventions in 12 months after BC treatment (aggregate rates from 42 pilot sites in 2012).
- Assessment: 23% for sleep disturbance, 60% for fatigue, 41% for distress.
- Intervention: 5% for sleep disturbance, 10% for fatigue, 12% for distress

- These results suggest gaps in care between the evidence-based best practice and actual practice during the data collection time period.

Fessele, Yendro, Mallary, CJON, 2014.

Recap/Summary

- Strong evidence from rigorous studies, meta-analysis, and systematic reviews, to support the use of CB interventions in sleep-wake disturbance, caregiver burden, depression
- Less evidence to support CB use to improve anxiety and fatigue.
- Insufficient data to support the use of CB interventions for cognitive impairment and hot flashes

Next Steps

- Implementation science to increase the CBT, CBTI reach into oncology practices
  - Investigate delivery of less staff intensive delivery modes such as internet and self-administered interventions
- CBT studies to determine effect sizes over time and delineate predictors of that effect, such as timing, adherence, and cancer diagnosis/treatment
Progressive Muscle Relaxation (PMR)

Diane G. Cope, PhD, ARNP, BC, AOCNP
Oncology Nurse Practitioner
Florida Cancer Specialists and Research Institute
Fort Myers, Florida

Overview
- Type of therapy created to help patients deal with anxiety
- Invented by American Physician, Dr. Edmund Jacobsen in 1929
- Purpose – Create awareness of body and physical sensations through process of muscle tension and relaxation: Reduction in anxiety, stress

PMR: Utilization in Cancer

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Chan et al. (2011); Goerling et al. (2014); Zhou et al. (2014)</td>
<td></td>
</tr>
<tr>
<td>CINV</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Arakawa (1997); Luebbert et al. (2001); Molassiotis et al. (2002); Miller et al. (2004); Redd et al. (2001)</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Goerling et al. (2014); Zhou et al. (2014)</td>
<td></td>
</tr>
<tr>
<td>Sleep-Wake Disturbances</td>
<td>Effectiveness not Established</td>
</tr>
</tbody>
</table>
**Progressive Muscle Relaxation (PMR)**

- Learned technique to monitor and control muscle tension
- Professional training session or self-learned
- Darkened room with total physical and mental relaxation
- Tense one muscle group; other muscles relaxed

(Robinson, Segal, R., Segal, J., & Smith, 2015; Tameling, 2014)

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**Progressive Muscle Relaxation and Cancer**

- Anytime from pre-diagnosis to survivorship to end of life when anxiety/depression/CINV issues exist
- Can be delivered/performed inpatient/outpatient/home
- Low-cost, no reimbursement issues
- Patients and caregivers

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**Progressive Muscle Relaxation Approach**

**Components: Vary per person**

- Mental
- Quiet environment
- Darkened room
- No distractions

(American Holistic Nurses Association, [Ahna], 2016)
Progressive Muscle Relaxation Method

- Self-Trained
  - Educational materials
    - Internet
    - Apps
      - Autogenic Training and Progressive Muscle Relaxation - $$$
      - Relaxation - $$$ - Free trial
      - Relaxation Tools - Free
  - CDs
- Professionally trained
  - Psychologist
  - Mental Health Counselor
  - Physical Therapist
  - Nurse

Progressive Muscle Relaxation Method

- Usually twice a day for one week then shortened form
- Start at feet; total 16 muscle groups
  - Right foot, left foot, right calf, left calf, right thigh, left thigh, hips, buttocks, abdomen, chest, back, right arm and hand, left arm and hand, neck, shoulders, and face

Precautions and Contradictions

- Precautions
- Rare
  - Increased anxiety with (PMR) related to heightened awareness of body sensations.
  - Pain, heart palpitations, muscle twitching, and crying spells
- Contraindications (Thought disorders that distort reality)
  - Schizophrenia and other forms of psychosis

(Robinson, Segal, Segal, and Smith. 2015)
Nurse/Patient/Caregiver
PMR Challenges and Solutions

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Commitment</td>
<td>Educational programs</td>
</tr>
<tr>
<td></td>
<td>Group practice sessions</td>
</tr>
<tr>
<td>Time Management</td>
<td>Nurse/patient schedule</td>
</tr>
<tr>
<td>Conducive environment</td>
<td>Work place</td>
</tr>
<tr>
<td></td>
<td>Home</td>
</tr>
<tr>
<td></td>
<td>Office setting</td>
</tr>
</tbody>
</table>

Tips to Enhance Patient Adherence

- Patient assessment
- Patient education
- Coaching
- Follow-up

(MRNA, 2016)

Making a difference one encounter/shift at a time....

- Ongoing anxiety assessment
- Brief patient and caregiver training session
- Facilitator of patient PMR
- Follow-up evaluation
Outcome Measures

- Tools
- Patient Health Diary
- Quality of Life Index – Cancer Version

Summary: Progressive Muscle Relaxation

Next Steps

- Large randomized trials
  - Anxiety
  - Depression
  - CINV
  - Sleep-wake disturbance
- Education
  - Nursing
    - University
    - Workplace
- Practice
  - Implementation

Summary: Progressive Muscle Relaxation

- Low cost therapy involving tension and relaxation of muscle groups
- Goal: to reduce anxiety (Likely to be Effective)
- Additional benefits for depression and CINV (Likely to be Effective)
- Additional benefits for sleep-wake disturbances and fatigue
Exercise and Physical Activity Prescription: Moving the Evidence into Practice
Sandra A. Mitchell, PhD, CRNP, AOCN®, FAAN
Research Scientist and Program Director, Outcomes Research Branch; Division of Cancer Control and Population Sciences and Oncology Nurse Practitioner; Experimental Transplantation and Immunology Branch
National Cancer Institute
Rockville, MD
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April 28, 2016
Oncology Nursing Society Congress, San Antonio, TX

Exercise and Physical Activity During and Following Cancer Treatment

- National guidelines recommend that patients with a cancer diagnosis engage in regular physical activity
- Patients should aim for at least 150 minutes of moderate intensity physical activity each week.
- Research confirms the benefits of regular exercise in reducing fatigue, maintaining quality of life, and improve overall prognosis and survival
- Association between low levels of physical activity and risk of recurrence
- Only a minority of survivors (<40%) are meeting ACS-recommended physical activity levels
- Vital need to find effective ways to inform and motivate all cancer patients to be physically active

Indications for Exercise and Physical Activity Prescription: ONS PEP Outcomes

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue - Exercise</td>
<td>Recommended for Practice</td>
</tr>
<tr>
<td>Fatigue - Comprehensive rehabilitation</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Fatigue - Yoga</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Sleep-Wake Disturbances - Exercise</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Lymphedema - Exercise</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Anxiety - Exercise</td>
<td>Likely to be Effective</td>
</tr>
<tr>
<td>Depression - Exercise</td>
<td>Likely to be Effective</td>
</tr>
</tbody>
</table>
Effects of Exercise and Physical Activity During and Following Cancer Treatment

- Exercise improves:
  - Cardiorespiratory fitness
  - Strength
  - Body composition (overweight/obesity, sarcopenia/muscle loss)
  - Physical function
  - Fatigue
- Exercise may favorably affect:
  - Cardiometabolic parameters
  - Quality of life and well-being
  - Lymphedema
  - Sleep, Mood, Body Image
  - Employment/return to work

Exercise Prescription During and Following Cancer Treatment: Intervention Targets

- Regain and improve
  - Physical function
  - Aerobic capacity (cardiopulmonary fitness)
  - Strength
  - Flexibility
- Improve body composition (increased lean mass)
- Improve body image, quality of life, sense of well-being
- Improve function:
  - Cardiorespiratory
  - Muscular
  - Endocrine
  - Neurologic/Cognitive/Psychosocial

Exercise Prescription During and Following Cancer Treatment: Intervention Targets

- Reduce or delay recurrence of second primary cancer
- Reduce, attenuate, or prevent long-term and late effects of cancer treatment
- Reduce risks for comorbidities (including cardiovascular disease, obesity, osteoporosis)
- Improve physiological and psychological ability to tolerate current or future cancer treatments
- Reduce/delay short-and long-term disability and dependence
**Components of an Exercise/Physical Activity Prescription**

- Assess current level of physical activity, exercise patterns, cardiorespiratory fitness, health status, disease stage, current treatment approach, potential risks, fitness goals, and barriers to implementation
- Establish fitness and physical activity goals
- Prescribe exercise/physical activity:
  - FITT: Frequency, Intensity, Time, Type
- Incorporate a plan to enhance motivation and adherence and produce behavior change:
  - 5As Behavior Change Approach: Advise, Assist, Arrange, Agree

Based on information from: Sallis et al. (2014). Progress in Cardiovascular Diseases, 57: 375-386

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**Components of an Exercise/Physical Activity Prescription**

- Provide referrals:
  - Referral to a community-based, unsupervised program
  - Referral to a supervised exercise program (often group-based)
  - Referral to a comprehensive rehabilitation program
  - Referral to an exercise professional (PT, trainer, physiatrist)
  - Referral to cardiology or physiatry for clearance and/or to develop an exercise program appropriate for current health and fitness abilities and goals
- Resources:
  - Recommend mobile health tools (accelerometer, smartphone app, social media)
  - Provide education about the role of exercise and reduction in sedentary behavior in achieving short- and long-term outcomes

Based on information from: Sallis et al. (2014). Progress in Cardiovascular Diseases, 57: 375-386

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**Principles of Physical Training and Exercise Prescription**

- Prescription is specifically designed to induce improvements in the primary outcome (cardiorespiratory fitness, muscle strength, balance
- Specificity
- Progression Overload
- Recovery
- Individualization

Exercise sessions are progressively increased in intensity and duration – hence training stress is increased across the intervention.

Based on information from: Sasso et al. (2015). Journal of Cachexia, Sarcopenia and Muscle, 6: 115-124
Referral to Rehabilitation Professional or Exercise Specialist

- Referral to a rehabilitation professional such as a physiatrist, physical therapist, or exercise specialist can be helpful in providing specific and detailed recommendations about the type, intensity, and frequency of exercise in which the patient should engage.
- Ongoing follow-up and supervised exercise programs:
  - strengthen motivation and adherence
  - support advancement of exercise program as functional capacity improves
  - enhance safety and efficacy for special populations

General Education about Exercise and Physical Activity During Cancer Treatment

- Obtain approval from their oncology team before starting an exercise program.
- Consider waiting for one chemotherapy cycle before beginning vigorous exercise, if patient has not been regularly active and wishes to start an exercise program. Slow walks several times per day are typically well-tolerated, and can be a good way to remain active.
- Have vital signs (temperature, pulse/heart rate, blood pressure, respiration rate) monitored regularly. If participating in moderate-to-vigorous exercise, have their blood pressure and heart rate monitored before, during and after exercise to ensure that participation in exercise is appropriate and safe.
- Exercise with a partner, caregiver or exercise professional for safety reasons.

General Education about Exercise and Physical Activity During Cancer Treatment

- Immunocompromised patients should check with their team about the need to avoid public fitness facilities and activities (e.g., swimming), where there may be an increased risk of exposure to viral and/or bacterial infection.
- Avoid swimming if undergoing radiation therapy treatments or if they have a tunneled central venous catheter or PICC line.
- Stop exercise and contact your healthcare team if they have any of the following symptoms during exercise or after an exercise session:
  - Disorientation, dizziness, blurred vision or fainting
  - Sudden onset of nausea, vomiting
  - Unusual or sudden shortness of breath
  - Irregular heart beat, palpitations, chest pain
  - Leg/calf pain, bone pain, unusual joint pain or pain not caused by injury
  - Muscle cramps or sudden onset of muscular weakness or fatigue.
American College of Sports Medicine (ACSM) Guidelines for Exercise During and After Cancer Treatment

- Avoid inactivity
- Return to normal daily activities as quickly as possible after surgery
- Continue normal activities and exercise as much as possible during and after non-surgical treatments
- Patients with metastatic disease and selected toxicities/complications (e.g. neuropathy, cardiac, pulmonary, osteoporosis, asthenia/weakness, arthralgias, upper or lower extremity functional impairments, sarcopenia, neurologic disorders, myelosuppression) will require modifications and supervision
- Breast, prostate, colon, hematologic, gynecologic:
  - Recommendations the same as age-appropriate guidelines for all Americans
  - Build to 150 minutes weekly of moderate intensity activity (brisk walking, bicycling, swimming, deep water walking/running) over at least 1 month
  - HSCT recipients may exercise daily but reduce intensity and progression of intensity


<table>
<thead>
<tr>
<th>Tailoring Physical Activity Guidelines: Special Considerations</th>
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<tbody>
<tr>
<td><strong>During treatment:</strong></td>
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<tr>
<td>- Too vigorous programs may increase fatigue</td>
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<tr>
<td>- Home-based treatment may be most accessible and easier to adhere to during treatment; home-based treatment can be augmented through telephone support-emails and face-to-face sessions with professionals</td>
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<tr>
<td>- Compromised immunity requires clearance before using public gyms and/or pools</td>
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<tr>
<td><strong>Osteoporosis/Bone metastases:</strong></td>
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<tr>
<td>- Low impact, attention to fall risk</td>
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<tr>
<td><strong>Lymphedema/Swelling/Inflammation:</strong></td>
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<tr>
<td>- Issues should be resolved before vigorous training involving affected extremities</td>
</tr>
</tbody>
</table>
Tailoring Physical Activity Guidelines: Special Considerations

- Peripheral Neuropathy/Balance/Weakness:
  - Balance and falls may be a concern: stationary reclining bike vs. treadmill; walking poles
- Arthralgias/Myalgias:
  - Consider water-based exercise, stationary biking
- Comorbidities:
  - May need clearance by cardiology before pursuing an exercise program
  - Pulmonary rehabilitation may be helpful for patients with shortness of breath
  - Cardiac conditions will require modifications and increased supervision for safety

Relative Contraindications to Exercise and Vigorous Physical Activity

- Allow adequate time to heal after surgery or a procedure
- Do not exercise patients who are experiencing
  - Extreme fatigue
  - Severe anemia
  - Ataxia
  - Avoid upper body exercises in breast cancer patients with acute arm/shoulder problems
- Clearance by cardiology for those with cardiovascular comorbidities (arrhythmias, chest pain, shortness of breath, peripheral edema, history of CAD)

Costs and Reimbursement

- Many exercise programs are free or low cost
- Many insurers provide coverage for evaluation and ongoing or periodic treatment by rehabilitation professionals
- Financial barriers may include co-pays, service caps
Motivating Exercise and Physical Activity in Clinical Environments: Think Realistically

- Motivation to change behavior may be more or less pressing at different times
  - Cancer diagnosis and completion of treatment may two highly ‘teachable moments’
- Ours is a sedentary society and most patients are sedentary and have been that way for much of their life
  - Expectation that they will perform 30 minutes of exercise on most days of the week is unrealistic
- Provide education to ensure patients understand their opportunity for risk reduction
- Set exercise goals
- Appreciate barriers and offer options
- Reduce sedentary behavior through self-monitoring and technology
- Reward/praise/reinforce being physically active
- You can only manage what you measure: track adherence to exercise, daily physical activity, barriers, and progress

Outcomes Measurement

- Patient-reported outcomes
- Performance-based measures
- Sensor-based measures

Technology for Promoting Physical Activity in Patients

- Benefits:
  - Evidence to support their accuracy and clinical utility, however they have been underutilized in clinical practice
  - Augment clinician-patient relationships
  - Support goal setting and outcomes monitoring
  - Increase the autonomy and engagement of patients
  - Provide for novel remote monitoring
- Technologies:
  - Pedometers and accelerometers
  - Wearable sensors to track distance, speed and elevation
  - Tools/apps to track calorie expenditure, food intake, heart rate, and sleep
  - Smart phone applications to capture progress and send/receive motivational messages, reminders
  - Social media
FITT — Frequency, Intensity, Time, and Type of Activity

When you put a lot of effort into increasing physical activity, you want results! Whether you are a beginner or have experience, FITT will help you build your physical activity program. By following FITT, you are striving to manage your weight and improve your health.

**FREQUENCY**

*How often are you active?*

**Everyone:**
- Be active 5 or more days of the week.
- Start slowly and gradually increase your physical activity.

**Beginners:**
- Start with 2-3 days of aerobic activity (activity that increases your heart rate). Gradually increase to at least 5 days/week.

**Experienced:**
- Continue with aerobic activity 5+ days/week.
- Add in 2 days (Tuesday, Thursday) of strength training.

**INTENSITY**

*How hard are your heart and muscles working?*

**Everyone (including Beginners):**
- Always warm-up, cool-down, and stretch.
- Be active at a moderate intensity (like a brisk walk or gardening).
- Be active at a rate that allows you to talk.
- Slow down if you have trouble breathing or if you can’t catch your breath.
- You should stretch after aerobic or strength training.
  A stretch should never be painful. Some discomfort is normal. You want to feel a slight pull of the muscle.

**Experienced:**
- Build intensity for aerobic exercise by increasing speed (fast/sprint walk for 30 seconds followed by 1 minute brisk walk) and/or incline/resistance (hills on treadmill, greater workload on bike).
- Increase intensity for strength training by adding weight or only resting 30 seconds between sets.
**Aerobic activity** is when the body’s large muscles move together and your heart beats faster than usual. Examples include aerobics, swimming, running, walking, kickboxing, dancing, and cycling. This type of activity burns the most calories and promotes weight loss.

**Strengthening activity** is when the body’s muscles work against a force or weight. Examples include elastic bands, weights, or body weight.

**Flexibility** lengthens a muscle while increasing range of motion. Examples include self-stretch, yoga, Pilates, and chair stretching routines.

**Lifestyle activity** occurs during normal, everyday activity such as vacuuming, walking the dog, mowing the lawn, participating in a walking meeting at work, or dancing.

**TIME**

_How long are you active?_

**Everyone:**

- Try to stay active for at least 10 minutes without stopping. Remember, some activity is better than no activity. It is okay to build up to 10 minutes.
- Aim for a total of at least 30 minutes of activity throughout the day. For weight loss, increase this to 60 minutes per day.
- Set a goal for the week based on total minutes of physical activity.
- Increase the length of time you are active before increasing the intensity of the activity.
- There are no time goals for strength training.
- You should stretch after aerobic or strength activity. For muscles that were used, hold each stretch for 15-30 seconds. Repeating stretches will increase flexibility.

**TYPE**

_What are you doing?_

**Everyone:**

- All types of physical activity are important...so mix it up.
- Aerobic—these make your heart beat faster—bicycling, dancing, swimming, mowing the lawn.
- Strength—carrying wood, lifting dumbbells.
- Flexibility—seated stretches, yoga.
Using the ONS Putting Evidence Into Practice (PEP) Webpages

Navigating to the PEP main webpage:

The PEP main webpage is located at https://www.ons.org/practice-resources/pep. It may also be accessed by going to www.ons.org, clicking on the Practice Resources tab, and selecting Putting Evidence Into Practice (see below).

Navigating among the PEP webpages:

The main PEP page (pictured in part below) and all the PEP topic pages include a menu bar (highlighted) on the left side of the window where you may access the pages related to each PEP topic. The main page also describes the processes used in PEP and the categories for assigning levels of evidence to the interventions.

PUTTING EVIDENCE INTO PRACTICE (PEP)
Weight-of-Evidence Classification

PEP TOPICS
Anorexia
Anxiety
Caregiver Strain and Burden
Chemotherapy-Induced Nausea and Vomiting
Chemotherapy-Induced Nausea and Vomiting—Adult
Chemotherapy-Induced Nausea and Vomiting—Pediatric

PEP Rating System Overview
ONS PEP resources are designed to provide evidence-based interventions for patient care and teaching. PEP topic teams of nurse scientists, advanced practice nurses, and staff nurses summarize and synthesize the available evidence in PEP topic areas. These resources can be used to plan individual patient care, patient education, nursing education, quality improvement, and research. If you have a question about how to apply these PEP topics to your practice, ask a nurse on ONS staff at clinical@ons.org.

Before you get started, here’s a brief overview of PEP terminology.

- Topics are patient-centered outcomes, such as symptoms, that are selected by a survey of ONS members and determination of availability of evidence in the topic.
- PEP evidence syntheses answer the question of what interventions are effective in preventing or treating the outcome of interest. Topic teams categorize the interventions by consensus application of the ONS PEP Classification Schema into the categories outlined here.

Recommended for Practice
Interventions for which effectiveness has been demonstrated by strong evidence from rigorously...
PEP topic pages:

Each PEP topic page provides a brief description of the topic and a listing of all the interventions that have been evaluated and their assigned levels of evidence. Clicking on an intervention name displays a page devoted to that intervention within that topic. An intervention may pertain to more than one topic but may not have the same level of evidence assigned in different topics. The topics of CINV, diarrhea, pain, and prevention of infection have been divided into subtopics, each having a corresponding webpage. PEP topic pages also include on the right side of the window a search strategy and link to a pertinent *Clinical Journal of Oncology Nursing* PEP article (Note that the topic of skin effects does not have a related PEP article.).
PEP intervention pages:

Intervention pages give a brief description of the intervention and the level of evidence assigned. Reviews of the articles used to categorize the intervention are listed, organized according to the type of article: research evidence, systematic review/meta-analysis, and guideline/expert opinion. Clicking on the citation for the review reveals the actual review.

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Gabapentin

**PEP Topic: Hot Flashes**

**Description**

Gabapentin is in a class of medications called anticonvulsants. Gabapentin treats seizures by decreasing excitability in the brain. Gabapentin has been studied for its effect in patients with cancer who have neuropathic pain or symptoms of peripheral neuropathy. It changes the way the body senses pain. It has also been studied for its effect on anxiety, chemotherapy-induced nausea and vomiting, and hot flashes.

**Likely to Be Effective**

**Research Evidence Summaries**

  
  [doi:10.1080/13695800902736021]

  
PEP article reviews:

To open and close the article review, click on the small arrow to the left of the citation or the citation itself.


doi: 10.1200/JCO.2010.29.9230

Study Purpose:

Evaluate the efficacy of venlafaxine versus gabapentin for hot flashes in breast cancer survivors

Intervention Characteristics/Basic Study Process:

Patients were randomly assigned to receive venlafaxine for 4 weeks, then after a 2-4 week washout receive gabapentin for 4 weeks, or to have the medications in the reverse order. Patients were given venlafaxine 37.5 mg daily for 7 days and then 75 mg daily for 21 days. Gabapentin...
Implementing Exercise Interventions in Nursing Practice
Sandra A. Mitchell, PhD, CRNP, AOCN®, FAAN


