


EXCLUSIVE WEBINAR PRESENTATION

# FOOD *and* FITNESS AFTER CANCER

PRESENTED BY  
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Thursday, June 25, 2020, 2-3 PM EDT

EARN 1 CEU



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### Learning Objectives

- 1**  
Discuss the benefits of being physically active and following a healthy nutrition care plan as a cancer survivor.
- 2**  
Identify and recommend MNT needs and exercise strategies for the long-term care of the cancer survivor as they relate to metabolism and body composition.
- 3**  
Communicate five take home food and fitness ideas to the cancer survivor that they can implement during post treatment.

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### Additionally...

- **Up-to-date** guidelines on nutrition and exercise for the survivor
- The **roles** of the RD and Exercise Physiologist as they work together to fill in the gaps when working with a cancer survivor...and what that "gap" really is!?
- Finally, RDs will be able to **define their role** as a nutrition professional and how to best serve this population



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**The Exercise Physiologist's Role with a Cancer Survivor**

Clinical Exercise Physiology is understanding:

- **Acute** responses and chronic adaptations to exercise training
- The role it plays in disease **prevention** and long-term health **maintenance**
- The **implications** of exercise on long-term physical, social, and economic independence



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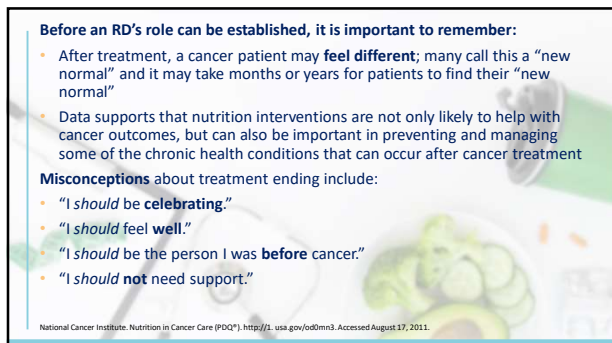
**Before an RD's role can be established, it is important to remember:**

- After treatment, a cancer patient may **feel different**; many call this a "new normal" and it may take months or years for patients to find their "new normal"
- Data supports that nutrition interventions are not only likely to help with cancer outcomes, but can also be important in preventing and managing some of the chronic health conditions that can occur after cancer treatment

**Misconceptions** about treatment ending include:

- "I *should* be **celebrating**."
- "I *should* feel **well**."
- "I *should* be the person I was **before** cancer."
- "I *should* **not** need support."

National Cancer Institute. Nutrition in Cancer Care (PDQ®). <http://1.usa.gov/od0m3>. Accessed August 17, 2011.



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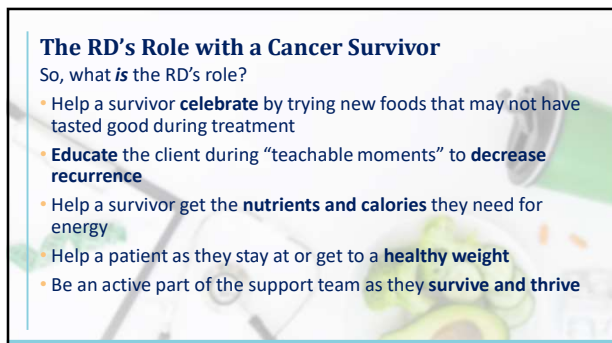
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**The RD's Role with a Cancer Survivor**

So, what *is* the RD's role?

- Help a survivor **celebrate** by trying new foods that may not have tasted good during treatment
- **Educate** the client during "teachable moments" to **decrease recurrence**
- Help a survivor get the **nutrients and calories** they need for energy
- Help a patient as they stay at or get to a **healthy weight**
- Be an active part of the support team as they **survive and thrive**



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### Cancer Survivorship

- Why are there so many cancer survivors?
- The American Cancer Society (ACS) and the National Cancer Institute (NCI) collaborate every 3 years to estimate cancer prevalence in the United States
- Approximately 16.9 million Americans with a history of cancer were alive on January 1, 2019
- Who is a cancer survivor?



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### Cancer Survivorship

Our Oncology Survivorship Committee in Atlanta, GA has a working definition of survivorship:

**“Oncology survivorship is a continuum of specialty care focused on supporting the highly-personalized journey of every cancer patient living with, through, and beyond treatment. Our programs form a community of support to help patients thrive and find life balance while addressing the physical, spiritual, emotional, social, and financial needs unique to oncology.”**

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### Cancer Survivorship

- Cancer survivors are often **highly motivated** to seek information about food choices and physical activity to improve their treatment outcomes, quality of life, and overall survival
- The survivor **looks forward** to the successful completion of therapy and begins to seek self-care strategies to improve their long-term outcomes
- For many, this includes **healthy** weight management, a **healthful** diet, and a **physically** active lifestyle aimed at **preventing** recurrence
- However, a medical professional **must remember** that managing nutrition needs and activity levels can become a challenge

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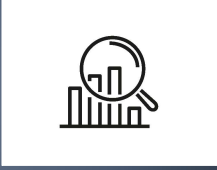
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### Current Cancer-Related Statistics

- 71% of American adults are either obese or overweight<sup>1</sup>
- 27% decline in cancer deaths. Projected 30 million survivors by 2040<sup>2</sup>
- 25% of survivors have fatigue years after treatment<sup>3</sup>
- Breast cancer comprises of 30% of new cases for women<sup>4</sup>
- Prostate cancer comprises of 20% of new cases for men<sup>4</sup>



Smith, Obesity Statistics. Prim Care. 2015:1.  
 Patel, et al. ACSO Recurrence. Medicine & Science in Sports & Exercise. 2019:2.  
 Campbell, et al. Exercise Guidelines for Cancer Survivors. Medicine & Science in Sports & Exercise. 2019:3.  
 Siegel, et al. Cancer Statistics. CA Cancer J Clin. 2020:4.

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### Why Follow a Healthy Nutrition Plan as a Cancer Survivor?

- **Improve** alertness and energy
- **Improve** lean body mass
- **Improve** restorative sleep
- **Boost** the immune system
- **Maintain** a healthy weight
- **Improve** heart health
- **Strengthen** bones
- **Expediate** wound healing



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### After Treatment: Benefits of a Healthy Eating Plan

It can help decrease weight:

- There is a growing number of survivors beginning the cancer treatment process **already overweight or obese**
- Sometimes **additional weight gain** is a complication of treatment (particularly breast cancer); it's very important for a survivor to follow a nutrition plan to lose weight
  - According to NIH, obese breast cancer patients experience more complications related to surgery, radiation, and chemotherapy
  - They also are at increased risk for local recurrence compared to normal-weight women because endocrine therapy is less effective
  - PubMed meta analysis suggested that a low-fat diet reduced risk of recurrence of breast cancer by 23% and all cause mortality of breast cancer by 17%
  - Obesity is associated with a 20-40% increase in risk for breast cancer in postmenopausal women

Morandi, et al. Body Mass Index and Breast Cancer Risk According to Postmenopausal Estrogen/Progestin Use and Hormone Receptor Status. Epidemiologic Reviews. 2014.  
 Gonzalez-Rubio, P., et al., Exercise type and fat mass loss regulate breast cancer-related sex hormones in obese and overweight postmenopausal women. European Journal of Applied Physiology. July 2020.

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**After Treatment: Benefits of a Health Eating Plan**

A healthy eating plan can help **decrease recurrence**:

- There is **strong evidence** that a plant-based diet cuts the risk of recurrence
- Many epidemiologic studies have shown that people who **eat diets rich in fruits and vegetables** and limit in meat and animal fat have **lower rates of some cancers**, including lung, breast, colon and stomach cancers
  - Educating the survivor on a **well-balanced colorful food plan is key!**
  - Antioxidants such as beta-carotene, lycopene, and vitamins A, C, and E, all protect cells from free radicals
  - According to the NIH, there is a strong and **inverse relationship** between a high level of Mediterranean diet adherence and some chronic diseases because of its protective effects in reducing oxidative and inflammatory processes of cells and avoiding DNA damages, cell proliferation, and their survival, angiogenesis, inflammations and metastasis
  - The Mediterranean diet is considered a **powerful and manageable** method to fight cancer incidence.

<https://www.cdc.gov/media/releases/2017/s092017-cancer-obesity.html>; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5437232/>; <https://www.ncbi.nlm.nih.gov/pubmed/24606413>; [https://www.nccih.nih.gov/health/foods\\_for\\_cancer/nutrition.aspx](https://www.nccih.nih.gov/health/foods_for_cancer/nutrition.aspx); <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3770822/>

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**Physical Activity vs Exercise: Definitions**

- **Physical activity:** any bodily movement produced by skeletal muscle that requires energy expenditure
- **Exercise:** a form of physical activity that is planned, structured, and repetitive bodily movement for the purpose of improving and/or maintaining health and physical fitness
- **Aerobic:** primarily stresses cardiovascular system. Typically involves large rhythmic movements (walking, running, cycling) sustained for greater than 10 minutes
- **Resistance:** primarily stresses musculoskeletal system; requires use of simple or compound movements against and external resistance (bodyweight, machines, dumbbells)



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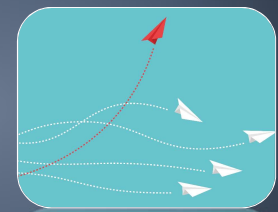
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**Benefits of Physical Activity for the Cancer Survivor**

- **Reduce fatigue:** significant
- **Improve health-related quality of life:** moderate
- **Reduce depression:** significant
- **Reduce anxiety:** significant
- **Improve sleep quality:** moderate
- **Improve physical function:** significant
- **Decrease pain:** variable on cancer type and treatment



Campbell KL, et al. Exercise Guidelines for Cancer Survivors. Medicine & Science in Sports & Exercise. 2019

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**Exercise and Cancer Outcomes**

- Over 3 main cancer types: **breast, prostate, colorectal**
- Patients who are regularly active have:
  - 21-35% lower relative risk of **cancer recurrence**
  - 28-44% reduced relative risk of **cancer-specific mortality**
  - 25-48% decreased relative risk of **all-cause mortality**



Cornie P, et al., The Impact of Exercise on Cancer Mortality, Recurrence, and Treatment-Related Adverse Effects. *Gidemiologic Reviews*, 2017  
Lahart IM, et al. Physical activity, risk of death and recurrence in breast cancer survivors: A systematic review and meta-analysis of epidemiological studies. *Acta Oncologica*, 2015.

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**MNT Needs for Long-Term Care: Metabolism**

- **Metabolism:** refers to specifically to the breakdown of food and its transformation into energy
- There are chronic metabolism issue after cancer treatment (specifically chemotherapy) so MNT must address the possibility of metabolic syndrome.
- 2016 study in Cancer Journal stated "the research strongly suggests that chemo, and the medications (including steroids) increase the risk for metabolic syndrome."
- This is driven in part by sex hormones, (specifically for breast and prostate cancer) because treatment for both diseases is often based on hormone-modifying therapy.
- MNT should include: energy-restricted diets, anti-inflammatory foods, omega 3 fatty acids, high anti-oxidant rich foods.
- Prevention and treatment of weight gain with this population should be an MNT goal

<https://www.medicinenet.com/script/main/art.asp?articlekey=4359>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC387245/>  
<https://www.sciencedirect.com/science/article/pii/S0002939430900688>

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**MNT Needs for Long-Term Care: Metabolism**

- At one end of the energy balance continuum in the oncology setting is **weight gain** and at the other end of the spectrum is **weight loss**
- **Cachexia:** weakness and wasting of the body due to severe chronic illness
- MNT for these patients should include:
  - Multi-modality treatment
  - High calorie, nutrient-dense foods
  - Omega fatty acids
  - 6 mini-meals/day
  - Appetite stimulants
  - Exercise
- There is not a "one size fits all" food plan for the cancer survivor!

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3138871/>  
<https://pubmed.ncbi.nlm.nih.gov/27219902/>

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**MNT Needs for Long-Term Care: Body Composition**

- **Body composition** is an estimate of the proportions of major components of a living body, as water, nitrogen, sodium; more specifically, the proportion of lean body mass to fat
- In a meta-analysis of 38 studies, **low muscle tone** was observed in 27.7% of patients with cancer and associated with poorer overall survival
- Pre-diagnosis of obesity **increases the risk of cancer recurrence and cancer mortality**
- These associations are **most strongly documented** for breast cancer, though overweight and obesity also are associated with a worse prognosis for colorectal and prostate cancer survivors
- Higher BMI increases the risk of aggressive forms of prostate cancer



<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC331674/>  
<http://www.rfttr.org/ENGLISH/>  
<http://www.todaysdietitian.com/newarchives/080114p42.shtml>

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**MNT Needs for Long-Term Care: Body Composition**

Body composition (specifically obesity) has a link to poor long-term prognosis for cancer patients based on several mechanisms:

1. **Increased inflammation**
2. **Elevated levels of insulin and growth factors** such as IGF-1 that promote cancer cell growth
3. **Excess body fat** increases adipose production of estrogen in postmenopausal women, raising levels that promote the growth of estrogen-sensitive cancers

MNT should include:

- **Low glycemic foods** which can enhance loss of fat relative to lean mass
- Protein – a key macronutrient that helps promote leaner body composition
- MNT should also focus on many plant-based proteins, including nuts, seeds, lentils, and soy foods, and lean animal-based protein, like fish, eggs, chicken, and turkey (\*Medi' type plan)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC331674/>  
<http://www.todaysdietitian.com/newarchives/080114p42.shtml>

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**Metabolism and Body Composition: The Impact of Exercise**

Metabolic imbalance in cancer patients typically favors a positive energy balance:

Age associated reduction in RMR + Muscle loss associated w/ treatment (decreased RMR) + Decreased fat metabolism (promoting fat storage) + Chemo, vs. other treatments, results in increased weight gain post-treatment = Weight gain and other metabolic conditions, such as Type II Diabetes

**Exercise**, however, restores RMR through maintaining and increasing muscle mass, and balances energy expenditure with energy intake

Tonorezoy ES, Jones LW. Energy Balance and Metabolism After Cancer Treatment. Seminars in Oncology. 2013

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### Metabolism and Body Composition: *The Impact of Exercise*

Body composition: primary strategy is **simultaneous** weight loss with muscle loss prevention!

Research shows:

- 150 minutes/week at 60-80% HRM for 6 months
- Exercise **decreased** fat mass, and **increased** muscle and bone mineral density (BMD) in breast cancer survivors
- With **little to no change** in caloric intake

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graph TD; A[Sarcopenic Obesity] --> B[Muscle Loss]; A --> C[Increased Fat Mass];
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Irwin ML, et al. Exercise Improves Body Fat, Lean Mass, and Bone Mass in Breast Cancer Survivors. Obesity. 2009

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### Exercise and Cancer: *Common Barriers and Side Effects*

Barriers to Exercise	Side Effects of Cancer
<ul style="list-style-type: none"><li>• Extreme fatigue</li><li>• Anxiety</li><li>• Depression</li><li>• Peripheral neuropathy</li><li>• Exercise intolerance</li><li>• Pain</li><li>• Range of motion limitations</li><li>• Anemia</li><li>• Low white blood cell count</li><li>• Port or colostomy</li></ul>	<ul style="list-style-type: none"><li>• Fatigue</li><li>• Quality of Life</li><li>• Depression</li><li>• Anxiety</li><li>• Cognitive changes</li><li>• Sleep quality</li><li>• Physical Function</li><li>• Pain</li><li>• Anemia</li><li>• Low white blood cell count</li></ul>

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### Nutrition and Cancer: *Common Barriers*

- Taste changes
- Odynophagia (painful swallowing)
- Dysphagia (difficulty swallowing)
- Xerostomia (dry mouth caused by a lack of saliva)
- Enteritis (inflammation of the intestines, usually associated with diarrhea)
- Diarrhea
- Constipation
- Fatigue

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### Nutrition Tips

1. "The journey of a thousand miles starts with one step..." Focus on **1-2 goals** rather than changing everything in your nutrition plan at once
2. Encourage **eating from a rainbow** of vegetables and fruits every day (7-9 servings/ day)
3. Explore **cooking at home** to better control the foods/ingredients you put in your body
4. Educate patients about a **Mediterranean-style** and/or **plant-forward** type food plan
5. **Ask open-ended questions:**
  - "Tell me about the 10 foods that you usually buy at the grocery store..."
  - Work to change some (or all!) of those foods over different nutrition sessions
  - Offer suggestions for gradual, healthy changes

<https://www.aicr.org/cancer-survival/>



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### Exercise Tips

1. **Some activity is better than no activity**
2. **Start low and slow**
3. **Consistency is key!**
4. **A gift you give yourself**
5. **Enjoy the activity!**
6. **Getting started is challenging, but you WILL feel better after**



<https://www.aicr.org/cancer-survival/>

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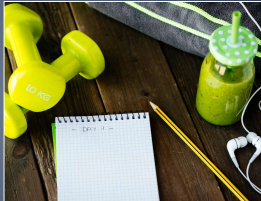
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### Exercise and Nutrition: A Complete Plan

It looks like a program called "The Pink Program" or "Cancer Wellfit" at the Thomas F. Chapman Cancer Wellness Center in Atlanta, GA:

- **Pink** is a 12-week program that includes 3/week exercise classes, nutrition consultation, education, and stress reduction classes dedicated to **breast cancer survivors**
- Cancer Wellfit is a program similar to **Pink** that includes all **cancer types** and is dedicated to long-term **lifestyle modification**
- Survivorship programs are becoming common
- Sometimes called **cancer rehabilitation** (pretreatment care) OR **rehabilitation** programs (after treatment care)
- These may include pain management, smoking cessation, exercise, and nutrition components
- Many offer support groups and cognitive-behavioral therapy, targeting stress management, relaxation training, and coping skills



<https://www.todaydietitian.com/newsarchives/080114p42.shtml>

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**American Institute of Cancer Research (AICR):  
Current Guidelines for Survivors**

After treatment, if possible and unless otherwise advised, systematic review and evidence-based recommendations for survivors are:

- Be **as lean as possible** without becoming underweight
- **Avoid** sugary drinks
- **Limit** consumption of energy-dense foods
- Eat **more of a variety** of vegetables, fruits, whole grains, and legumes, such as beans
- **Limit consumption** of red meats (beef, pork, and lamb) and **avoid** processed meats
- If consumed at all, **limit alcoholic drinks** to 2/day for men and 1/day for women
- **Limit** consumption of **salty and processed foods**
- **Don't use supplements** to protect against cancer
- Limit **sedentary** habits
- **Do not** smoke or chew tobacco

<https://www.aicr.org/cancer-survival/>

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**Current Exercise Guidelines**

Avoid inactivity!

- **Aerobic activity:** at least 150 minutes per week at a moderate intensity or 75 minutes at vigorous
- Can be broken up in **any way**
- More benefits seen when **active most days** of the week
- Resistance: 2-3 days/week at a **moderate intensity**
- Prioritize 8-10 **large muscle groups** with compound motions
- **Non-consecutive days**
- Flexibility: **stretch major muscle groups** for at least 30 seconds



Campbell KL, et al. Exercise Guidelines for Cancer Survivors. Medicine & Science in Sports & Exercise. 2019

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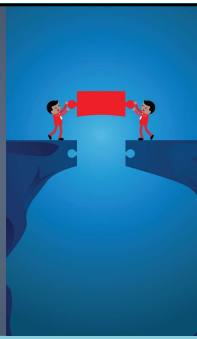
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**RDs and Exercise Experts: Bridging "the Gap"**

- Help patients understand the **difference** between a successful and safe survivorship plan or one that is unsafe or inappropriate
- Understand that this is a **high-risk, immuno-compromised population** and yet they must eat well and exercise on their own
- Help educate **other medical professionals** about how body composition can be integrated into patient care
- Studies show **large-scale lifestyle modification** interventions in MNT and resistance exercise training may be necessary to provide a sufficient stimulus to prevent or slow the cascade of tissue wasting
- Recommend **early intervention** to prevent the deterioration of the patient's body composition



<https://www.ncbi.nlm.nih.gov/pmc/articles/P>

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### Exercise: What is "the Gap?"

Despite substantial evidence supporting health benefits from regular physical activity, many physicians do no screen or advise patients on physical activity... But why?

- Lack of medical training and education?
- Heterogeneity between medical schools?
- Lack resources/knowledge to refer to an exercise specialist?



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### Putting It Into Practice: Serving Your Patients

Help your patients...

- Think outside the box with their treatment team, including exercise physiologists, lymphedema/pelvic floor physical therapists, social workers, outpatient physical therapists, nurse navigators...
- Find an in-person or online survivorship program
- Remember: "cancer survivor" is someone who has been diagnosed with cancer, from the time of diagnosis *through the remainder of life...* help your patients *survive and thrive!*



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### Questions?

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4. Select "Start/Resume" to complete the course and submit the evaluation.
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