Eating Drinking, Living after Curative Therapy for Esophageal cancer

Dr. Martin Chasen

Medical Oncologist/Palliative care Physician

Director Cancer Rehabilitation Program

Division of Oncology

Royal Victoria Hospital

MONTREAL

www.mcgill.ca/cnr

Esophageal Cancer

- Twelfth commonest malignancy in men in Canada, Fifth most common worldwide

  (*Canadian Cancer Statistics 2008)*

- Estimated new cases in Canada, 2008 : 4,600
- Estimated deaths in Canada, 2008 : 1,750

- About 30% are considered for potentially curative treatment

- Surgery generally offers the best chance of survival

- Five-year survival is about 10-13 %

Esophageal Cancer

- Esophagectomy has a major negative impact on most aspects of quality of life
- Problems with fatigue, dyspnea, and appetite loss are common.
- Eating disorders frequently lead to poor body image and cause anxiety for the patient and family.

Problems after Esophagectomy

1. Functional complications
2. Loss of Appetite and Body Weight
3. Fatigue

1. Functional complications

A. Dumping Syndrome

- Prevalence range from 4 to 68%
- Refers to a constellation of gastrointestinal and constitutional symptoms
- Early vs Late symptoms

B. Delayed Gastric Emptying and Outlet Obstruction

- Estimated at 38% following esophagectomy.

C. Gastroesophageal Reflux

- Remnant esophagitis range from 38 to 72%

2. Loss of Appetite and Body Weight

A. Physiological changes
B. Psychological factors
C. Disease progression

A. Physiological changes

Before surgery

- Secondary Cachexia eg difficulty Swallowing

After surgery

- Inflammation (catabolism), Physical pain
- Radiotherapy and chemotherapy

B. Psychological Factors

- Serious illness and its treatment do not only affect the body; they also cause biographical disruption (examining how people make sense of their illness in the context of their lives)

- Reconfiguring established social relations and change in the patients self identity

- Social adaptation to physiological change
  =REMAPPING

C. Disease Progression

3. Fatigue

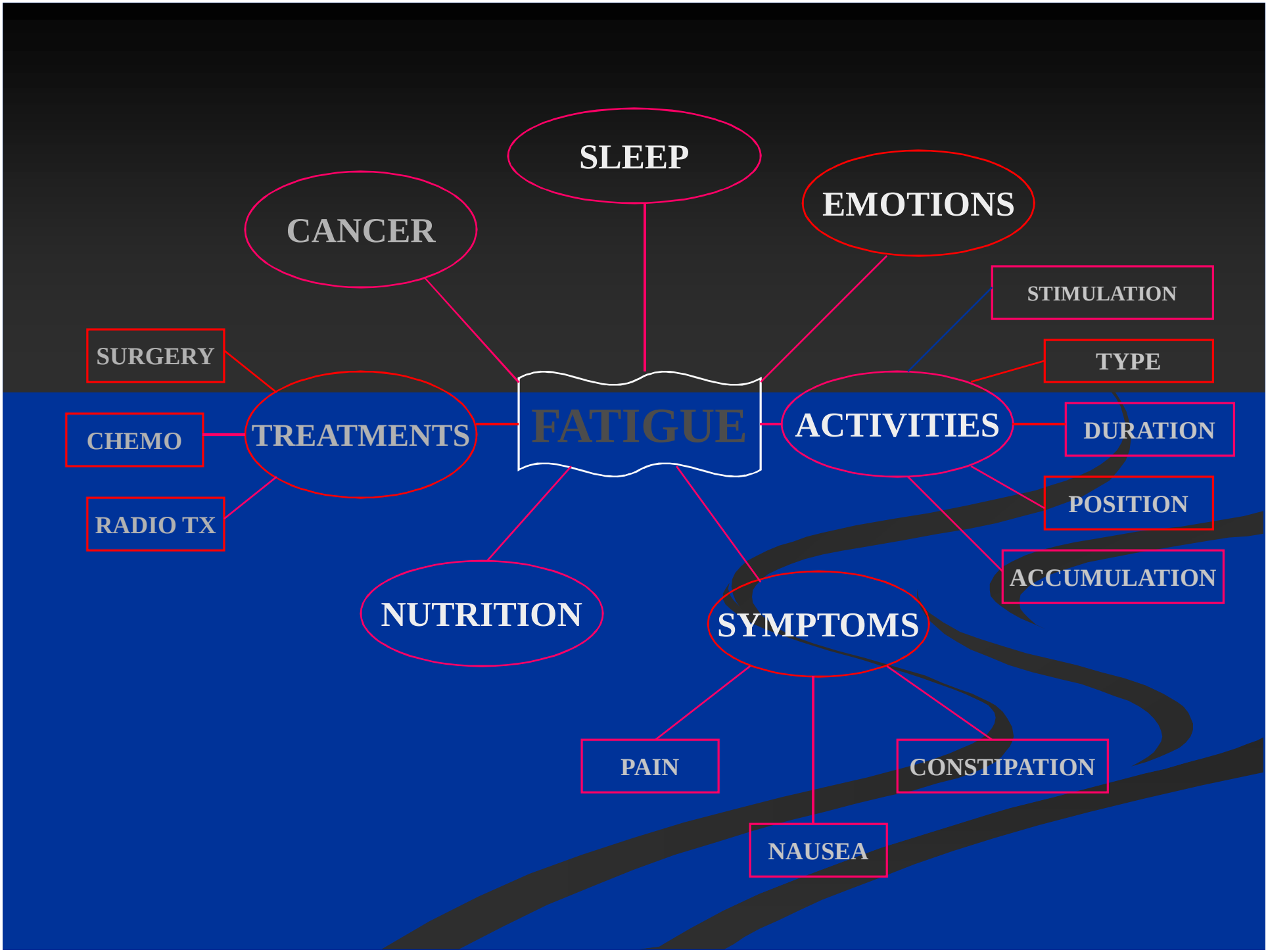
"Persistent, subjective sense of tiredness related to cancer or cancer treatment that interferes with usual functioning "

Two Distinct Meanings:

- Subjective state characterised by feelings of weariness and a perception of decreased capacity for physical or mental work.
- Objective decrement in physical or mental performance, with repeated or prolonged activity.

Three Distinct Dimensions :

1. Physical sensations
2. Affective sensations
3. Cognitive sensations


SLEEP
CANCER
EMOTIONS
STIMULATION
SURGERY
TYPE
CHEMO
TREATMENTS
FATIGUE
ACTIVITIES
DURATION
POSITION
RADIO TX
ACCUMULATION
NUTRITION
SYMPTOMS
PAIN
CONSTIPATION
NAUSEA

American Society of Parenteral and Enteral Nutrition recommends that

All patients undergo nutritional screening as a component of their initial assessment

Nutritional Status is Important

- Predicts the risk associated with treatment
- Predicts response to treatment
- Predicts survival and Quality of Life

Dietary Counseling improves patient outcomes

A prospective, randomized, controlled trial in colorectal cancer patients undergoing radiotherapy.

Paula Ravasco, Isabel Monteiro-Grillo, Pedro Marques Vidal et al.
JCO 23:1431-1438
March 1 2005

At End of RT

- Group 1 – Energy intake increase of 555kcal/d (398 – 758)
  p = 0.002
- Group 2 – Energy intake increase of 296 kcal/d
  (286 – 401)
  p = 0.04
- Group 3 – Energy intake decreased - 285kcal/d
  (201 – 398)
  p < 0.1

Group 1 > Group 2 (p = 0.001)

Quality of Life

At 3 months

G1 patients maintained or improved QoL ($p < 0.02$)

G2 patients maintained or worsened QoL ($p < 0.03$)

G3 patients deteriorated ($p < 0.004$)

Benefits of ↑ Physical Activity for Cancer Survivors

- ↓ Side effects of diagnosis, surgery, treatment
  ↓ Fatigue, depression anxiety, weight loss
  ↓ Psychosocial distress
  ↓ CVD ,Bone loss and fractures
  ↓ Risk of recurrence
  ↓ New cancers
  ↓ BMI, Insulin, Sex hormones

- ↑ Chemotherapy completion rates
  ↑ Overall survival
  ↑ Cancer specific survival

Effects of exercise on cancer-related fatigue

Dimeo et al, 1997[100]	Mixed haematological malignant disease and solid tumours; Post-PBSCT survivors, n=32	Quasi-experimental	treadmill walking 80% heart rate maximum	↑ Functional capacity in exercisers. Less fatigue in exercisers by anecdote	No fatigue measures
Dimeo et al, 1998[101]	Mixed cancer survivors post-PBSCT, n=5	1-group pretest/ post-test	Treadmill walking 80% heart rate maximum	↑ Functional capacity and distance walked in exercisers ↓ Fatigue by anecdote	No fatigue measures, small sample size
Dimeo et al, 1999[102]	Mixed haemat-ological malignant disease and solid tumours PBSCT, n=59	RCCT	Bed cycle ergometer 50% heart rate maximum	↓ Fatigue and psychological distress in exercisers	No exercise outcomes reported
Schwartz, 1999,[103] and 2000[104]	Breast cancer CT, stage 1–3, n=27	1-group pretest/ post-test	Home-based walking or patient's choice 3 times per week	↑ Pretest to post-test walking ability ↑ Quality of life and less fatigue in active exercisers	60% of participant adhered to programme, single group design
Mock et al, 2001[73]	Breast cancer CT, RT, stage 1–3, n=50	RCCT	Home-based walking 4–5 times per week for 30 min	↑ Walking ability in exercisers ↓ Fatigue and other symptoms compared with controls	Exercise was self-reported, 70% adherence in exercise group
Schwartz et al, 2001[105]	Breast cancer CT, stage 2, n=61	1-group pretest/ post-test	Home-based walking or patient's choice 3–4 times per week for 15–30 min for 8 weeks	↑ Pretest to post-test walking ability ↓ Fatigue in active exercisers	61% of participants adhered to programme, single group design
Mock et al, 2002[5]	Breast cancer CT, RT, stage 1–3, n=111	RCCT 2-group	Home-based walking 4–5 times per week for 30 min	↑ Walking ability in exercisers ↓ Fatigue and other symptoms compared with controls	Exercise was self-reported, 72% adherence in exercise group
Schwartz et al, 2002[106]	Melanoma interferon alfa, n=12, plus 16 historical controls	Quasi-experimental 2-group	Patient's choice 4 times per week for 15 min plus methylpheni-date 20 mg daily	↑ Functional ability ↓ Fatigue and cognitive dysfunction in exercisers	100% of participants adhered to exercise, 67% adhered to methylphenidate, small sample size

Assessment and management of cancer-related fatigue in adults; Karin Ahlberg, Tor Ekman, Fannie Gaston-Johansson, Victoria Mock ; Lancet 2003; 362: 640–50. Published online May 7, 2003

Characteristics of Studies Examining Physical Activity Interventions in Palliative Cancer Patients

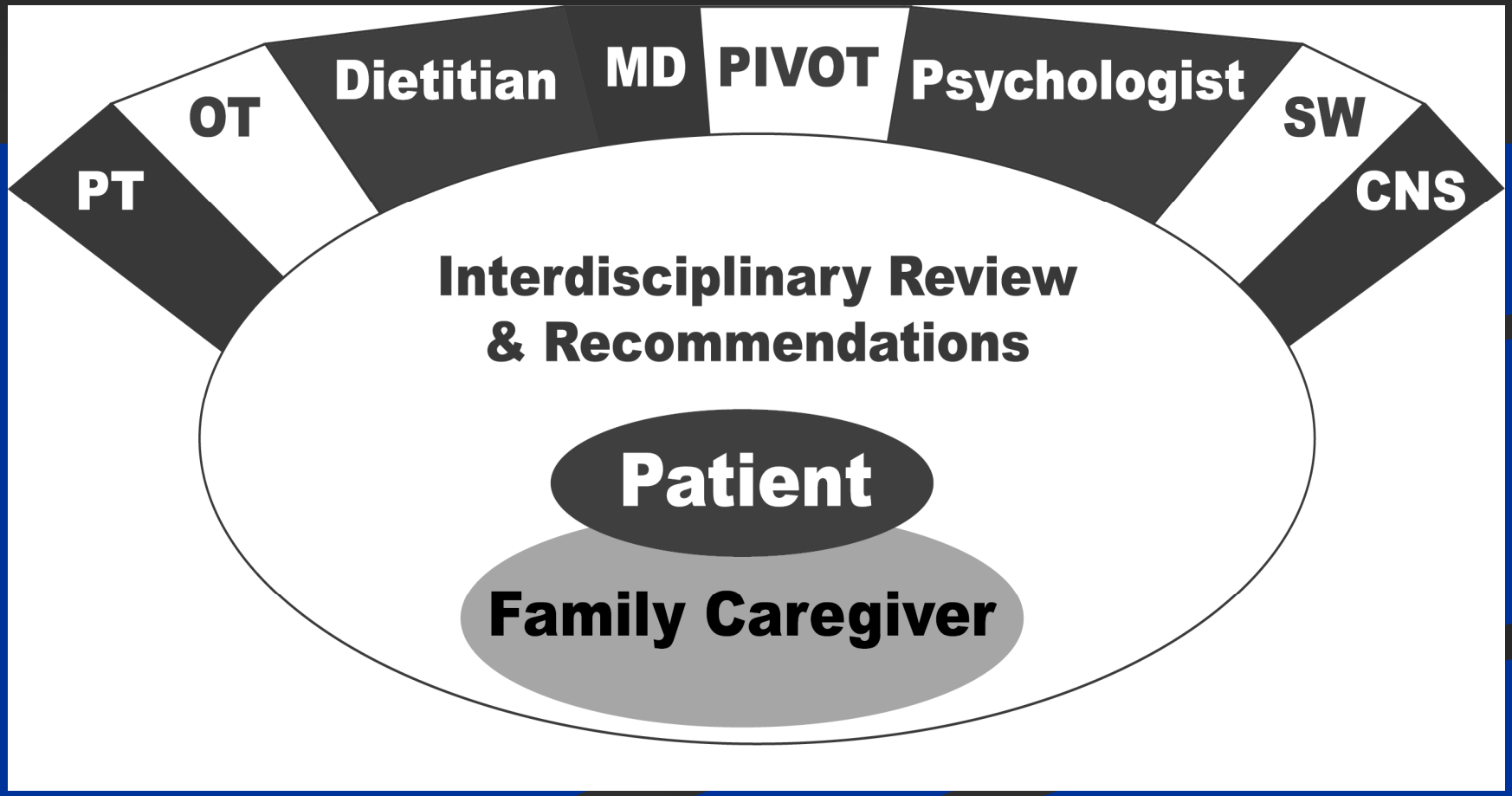
STUDY	FEATURES	PARTICIPANTS	DIAGNOSES	INTERVENTION	OUTCOME MEASURES	COMMENTS
Porock et al, 2000 (Australia)[46]	Unsupervised home-based physical activity program in home hospice care patients	9 patients: 3 male, 6 female; mean age ± SD: 59.87 ± 9.77 yr	Pancreas (n = 2) Melanoma (n = 1) Bowel (n = 4) Breast (n = 1) Oral (n = 1) Metastases (n = 7) Active RT (n = 1) Active chemotherapy (n = 2)	Individualized "Duke Energizing Exercise Plan" with range of physical activities throughout the day; frequency and duration set according to Winningham's half rule of thumb for 28 d	1. Fatigue via MFI 2. Anxiety and depression via HADS 3. Symptom distress via McCorkle and Young's SDS 4. QOL via Graham and Longman's QOL scale	Single group pre-post intervention study; no staging information available; incomplete data for HADS, adherence, and withdrawals
Crevenna et al, 2003 (Austria)[22]	Supervised aerobic exercise program during palliative thalidomide therapy	1 man, age 55	Advanced hepatocellular cancer with lung and brain metastases	Bicycle ergometer cycling with workload systematic increase to maintain training HR at 60% of maximum workload of first symptom-limited test; 60 min per session, 2 sessions per week, for 6 wk	1. Symptom-limited ergometric bicycle exercise test: peak work capacity, endurance capacity, and HR 2. Six-minute walk 3. Grimsby's self-reported physical performance questionnaire 4. QOL via SF-36 5. Self-reported benefit in physical performance, mental state, satisfaction, and QOL	Case report; partially reported baseline performance status; no adverse events reported; 100% compliance with training sessions; participant commented on "being persistently and positively motivated by the physicians"
Crevenna et al, 2003 (Austria)[23]	Supervised aerobic exercise program during palliative chemotherapy (gemcitabine, epirubicin, paclitaxel) and palliative radiotherapy	1 woman, age 48	Advanced breast cancer with lung, liver, and bone metastases	Bicycle ergometer cycling with workload increased to maintain training HR at 60% of maximum workload of first symptom-limited exercise test; 60 min per session, 3 sessions per week, for 52 wk	1. Symptom-limited ergometric bicycle exercise test: VO_2max, peak work capacity, and HR 2. Lung function via respiratory quotient 3. QOL via SF-36 4. Self-reported benefit in physical performance, mental state, fatigue, sleep, satisfaction, and QOL	Case report; baseline performance status not reported; no adverse events reported; participant attributed benefit to persistent and positive motivation by the physicians

Paradigms of Cancer Rehabilitation

Dietz (1981):

- Preventive interventions
- Restorative interventions
- Supportive interventions
- Palliative interventions

Interdisciplinary Care Planning & Review

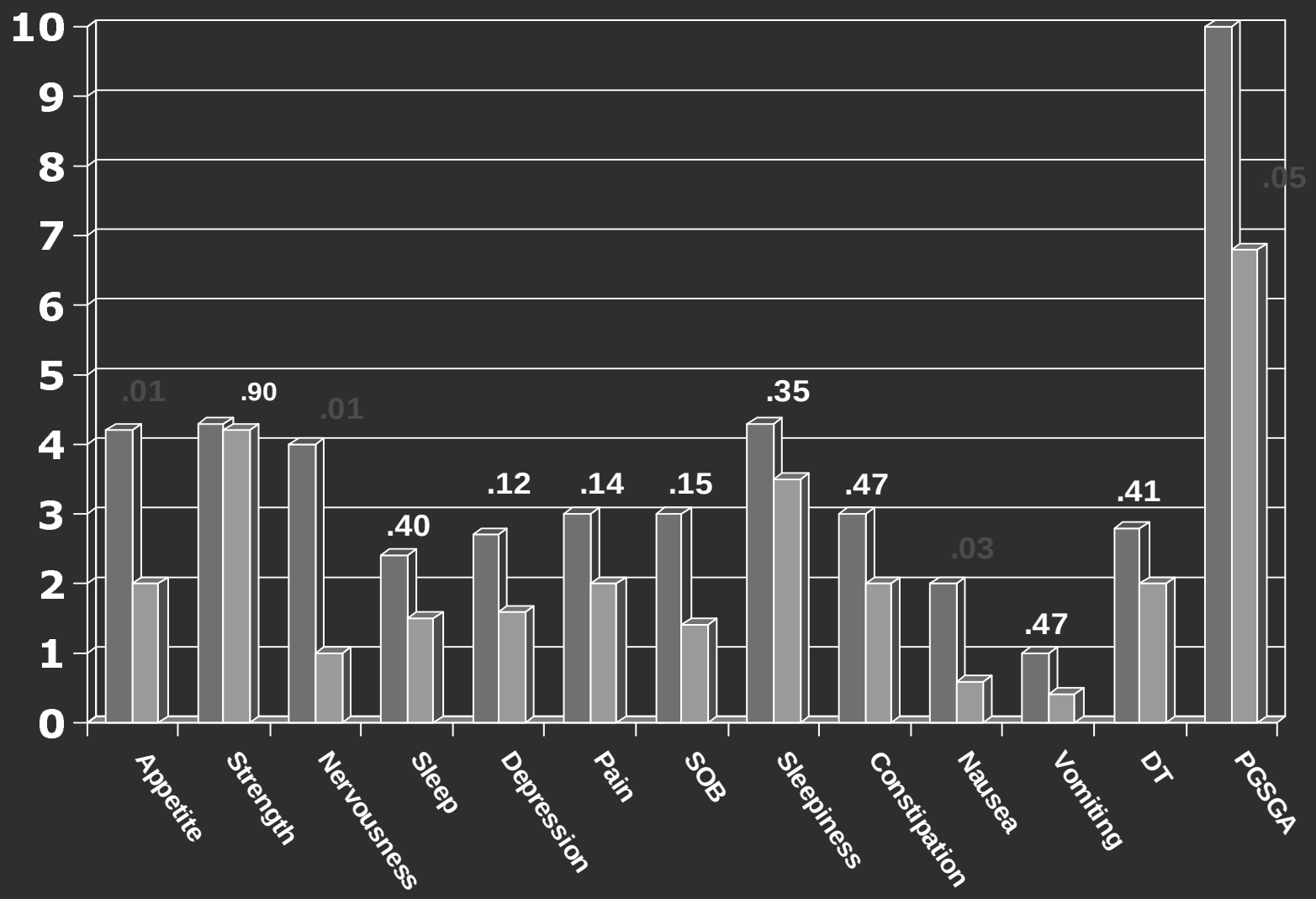


CNR Interdisciplinary Team
MUHC-RVH

CNR- Gastro-Esophageal Patients
n=49

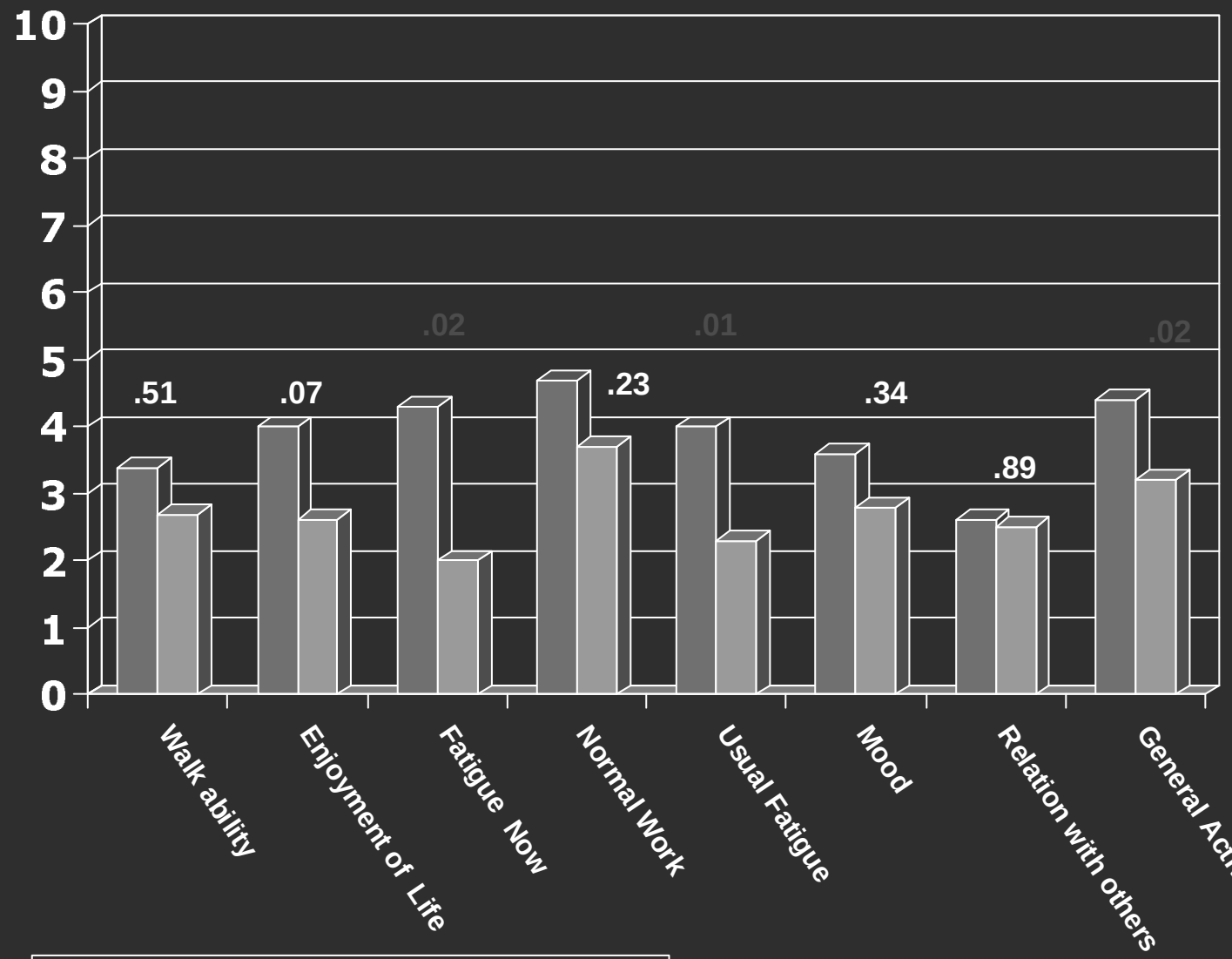
- Sex: Male – 40
  Female – 09
- Age: 22-80 years (median=54 years)
- Diagnosis: Gastric Ca – 27
  Esophageal Ca – 22
- Weight: 138 Lbs (median)

Means of ESAS, Distress Thermometer (DT) and PGSGA (n=18)



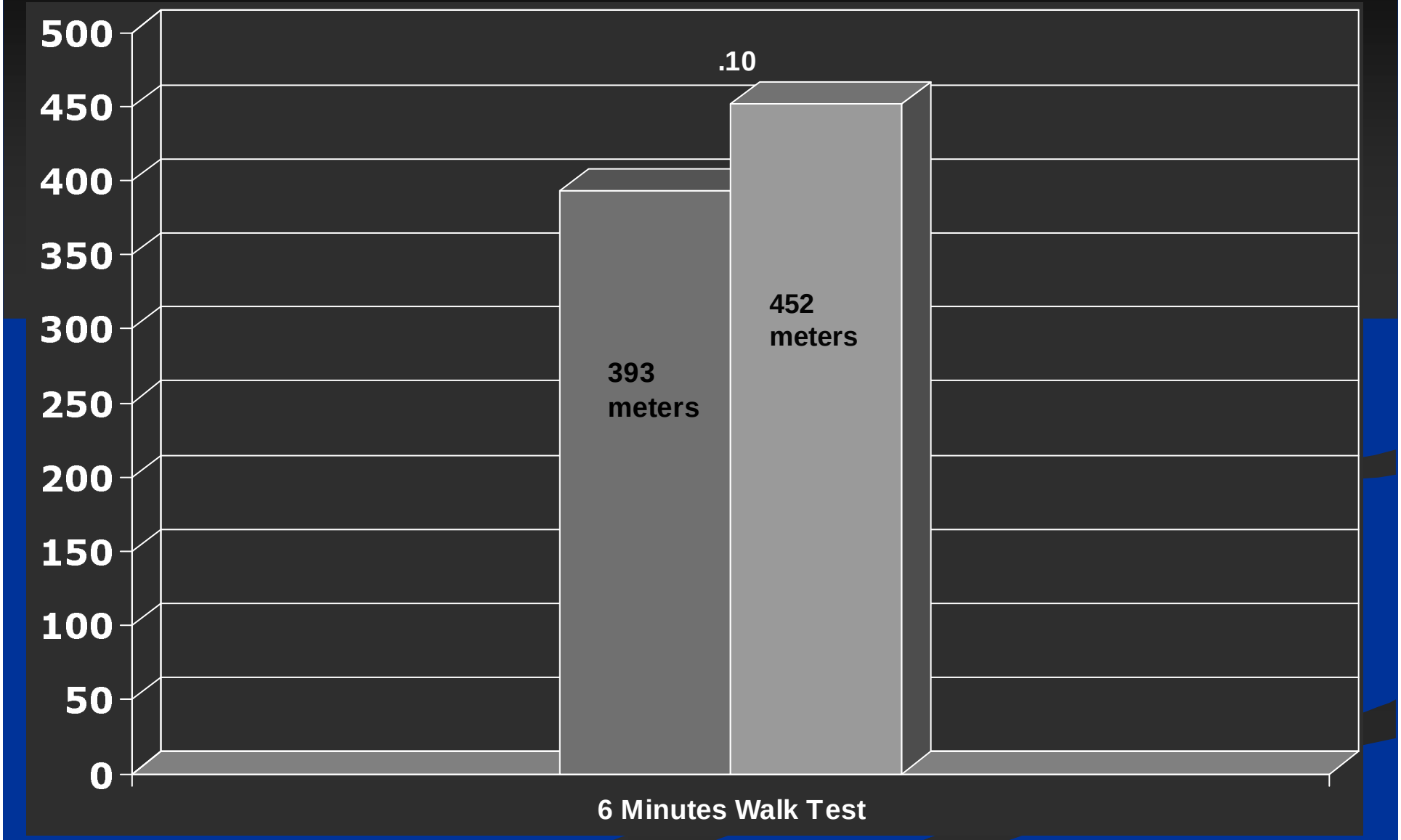
Paired sample T-test

Brief Fatigue Inventory (n=18)



Paired sample T-test

6 Minutes Walk Test (n=18)



Paired sample T-test

Conclusion

- The Cancer Rehabilitation Program helps patient with Gastro-esophageal cancer by improving their nutritional state as shown

  ESAS - Appetite, Nausea, Nervousness

  PGSGA- Food intake, Activities and Function of the patients

- Significant improvement in Fatigue was demonstrated

January 2006 – September 2008

541 Total patient referrals

270 Evaluated → Male: 152 Female: 118 Age range: 18-89 years

DIAGNOSTIC	NUMBER OF PATIENTS
Hematological	60
Gastro/Esophageal	41
Hepato-biliary (Pancreas, GB, Liver)	42
Breast	36
Lung	24
Colorectal	19
Gynecological	12
Head and Neck	10
Other	26

Means of ESAS symptoms

ESAS symptoms	Baseline	After 8 weeks	Significance (Paired sample T-test)
Sleep	4.19	3.17	0.09
Quality of Life	4.72	3.23	0.05
Pain	4.21	2.93	0.10
Strength	5.33	4.11	0.02
Appetite	4.11	2.52	0.00
Nausea	1.85	.93	0.02

Means of ESAS symptoms

ESAS symptoms	Baseline	After 8 weeks	Significance (Paired sample T-test)
Vomiting	0.51	0.21	0.07
Constipation	2.57	2.00	0.18
Sleepiness	4.56	3.28	0.01
SOB	3.23	2.00	0.02
Depression	3.70	2.00	0.00
Nervousness	3.93	2.64	0.00

Means of : Distress thermometer and Total PG-SGA

	Baseline	After 8 weeks	Significance (Paired sample T-test)
Distress Thermometer	4.0	2.8	0.00
Box 2 (PG-SGA) **Food Intake**	0.8	0.4	0.01
Box 3 (PG-SGA) **Problems in Eating**	4.2	2.2	0.01
Box 4 (PG-SGA) **Activities and Function**	1.3	1.0	0.08
Total PG-SGA	10	6.4	0.00

Six minute walk (6MW) and Inflammatory Markers

	Baseline	After 8 weeks	Significance (Paired sample T-test)
6MW (n = 65)	439	470	.001
CRP (n = 60)	11	9	0.55
Albumin (n = 60)	36	33	0.06
WBC (n = 60)	28	5.5	0.31
Hemoglobin (n = 60)	122	108	0.13
PS (n = 50)	1.3	1.1	0.08

References

- Riccardi, D, Allen, K. Nutritional Management of Patients With Esophageal and Esophagogastric Junction Cancer. Cancer Control 1999; 6:64.
- Takagi, K, Yamamori, H, Morishima, Y, Toyoda, Y. Preoperative immunosuppression: its relationship with high morbidity and mortality in patients receiving thoracic esophagectomy. Nutrition 2001; 17:13.
- Takagi, K, Yamamori, H, Toyoda, Y, Nakajima, N. Modulating effects of the feeding route on stress response and endotoxin translocation in severely stressed patients receiving thoracic esophagectomy. Nutrition 2000; 16:35.
- Bozzetti, F, Cozzaglio, L, Gavazzi, C, Bidoli, P. Nutritional support in patients with cancer of the esophagus: impact on nutritional status, patient compliance to therapy, and survival. Tumori 1998; 84:681.
- Sikora, SS, Ribeiro, U, Kane JM, 3rd, Landreneau, RJ. Role of nutrition support during induction chemoradiation therapy in esophageal cancer. JPEN J Parenter Enteral Nutr 1998; 22:18.
- Heslin, MJ, Latkany, L, Leung, D, Brooks, AD. A prospective, randomized trial of early enteral feeding after resection of upper gastrointestinal malignancy. Ann Surg 1997; 226:567.
- Reynolds, JV, Kanwar, S, Welsh, FK, Windsor, AC. 1997 Harry M. Vars Research Award. Does the route of feeding modify gut barrier function and clinical outcome in patients after major upper gastrointestinal surgery?. JPEN J Parenter Enteral Nutr 1997; 21:196.
- 53.Coia, LR, Myerson, RJ, Teppe, JE. Late effects of radiation therapy on the gastrointestinal tract. Int J Radiat Oncol Biol Phys 1995; 31:1213. Int J Radiat Oncol Biol Phys 1995 Mar 30;31(5):1213-36.

Benefits of Physical Activity for Cancer Survivors

- A breast cancer specific meta-analysis found exercise to be associated with statistically significant improvements in quality of life, physical functioning, and Fatigue.

- A growing number of large observational studies demonstrate that participation in moderate intensity recreational physical activity after diagnosis is associated with improved survival in women who develop breast cancer

Rationale for Physical Activity

Two large observational studies have demonstrated that Participation in 3 h per week of moderate intensity recreational physical activity after diagnosis is associated with a 39–59% reduction in the risk of colon cancer death and a 50–63% reduction in the risk of total deaths in men and women who are physically active after a colon cancer diagnosis, compared with inactive men and women

Meyerhardt JA, Heseltine D, Niedzwiecki D, et al. Impact of physical activity on cancer recurrence and survival in patients with stage III colon cancer: findings from CALGB 89803. J Clin Oncol 2006;24:3535–41.

Meyerhardt JA, Giovannucci EL, Holmes MD, et al. Physical activity and survival after colorectal cancer diagnosis. J Clin Oncol 2006;24:3527–34.