

# **Management of Cancer Symptoms:**

A course for Physiotherapists and Occupational Therapists

**Express by Holiday Inn, North Acton, London**

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## **Caroline Belchamber Msc CPD (Health); Bsc Hons; MCSP; SRP**

Since becoming a registered, chartered physiotherapist in 1993, Caroline has gained experience working in a wide variety of settings. In 1996 Caroline specialised in respiratory at Poole Hospital NHS Trust and was an integral part of the adult cystic fibrosis team.

Since September 2000 Caroline has specialised her respiratory expertise further in the field of oncology and palliative care. During this time Caroline has successfully run a breathlessness clinic for primary and secondary lung cancer patients using the non-pharmacological approach. This expertise has been recognised and she has presented talks at Bournemouth University, Poole Hospital NHS Trust, Dorset County Hospital NHS Trust, Association of Chartered Society of Physiotherapists in Oncology and Palliative Care (ACPOPC) spring conference and Lewis-Manning House.

The Dorset Cancer Network recognised Caroline as a breathlessness physiotherapist specialist, which led to her involvement in the National Institute of Clinical Excellence (NICE) guidelines for lung cancer. Furthermore Caroline's work has included covering a specialist palliative day care centre, which has been the focus of her interest in rehabilitation within the palliative care setting, leading to her MSc research undertaken on this topic and presented at the Chartered Society of Physiotherapy (CSP) congress in October 2003.

Caroline's research was published in the September 2004 issue of the International Journal of Therapy and Rehabilitation. Currently Caroline is developing a physiotherapy service for oncology patients at Poole Hospital NHS Trust as well as presenting study days for therapists in Oncology and Palliative care for RehabPlus.

# Making sense of cancer

## Aims

To examine the causes, spread and classification of cancer

To examine how cancer cells differ from normal cells

To have knowledge of the causes of cancer and metastatic spread

To understand the treatment options, provide accurate information for the patient and family and answer any questions

## Objectives

To be able to define cancer and the factors that cause cells to become cancerous

To be able to outline the incidence of cancer and how this relates to reducing the risks of cancer

To be able to explain the importance of cancer staging

To be able to identify the common metastatic sites of primary tumours

## Introduction

### Statistics

Incidence of cancer in the UK

Definition of cancer

Description of cancer cells

Causes of cancer: Environmental/Genetic

Classification of cancers

Cancer staging

Conclusion

## Statistics

1 in 3 people will develop cancer (DOH 2000)

Cancer can occur at any age

The risk of cancer increases 5 fold in people over 40 years of age

Over half the deaths from cancer will be in people over 65 years (Souhami and Tobias 1995)

More than 70% new cases of cancer occurring in people over 60 years (Cartmell and Reid 1995)

Incidence of cancer in the UK

Up to 80% of cancers are potentially preventable (Austoker 1994)

Lung cancer has the highest incidence of any type of cancer (Austoker 1994)

Breast cancer is the highest cause of mortality among women (Neal and Hoskin 1994)

Trends in overall cancer mortality during the past 30 years show little overall improvement (Kromar 2000)

## Definition of cancer

Cancer is a Latin term meaning crab, a word that aptly describes the appearance of a malignant tumour, which is irregular in outline and uncontained

## **Description of cancer cells**

Cancer cells (anaplastic) cells

Can develop in any tissue of the body

Are normal cells that have been transformed

Undergo a change in structure and orientation

Characterised by loss of differentiation and a reversion to a more primitive form

Common characteristic is their uncontrolled division (mitosis)

A mass of disorganised cells is known as a tumour (Souhami and Tobias 1995)

Causes of cancer

The cause of many cancers remains unknown

Environmental factors:

Chemical

Occupational

Social

Biological

## **Chemical**

Tobacco tars

Saccharine

Natural food chemicals

Benzene – cancer of the blood

Cigarette smoke – lung cancer

Vinyl chloride – Liver cancer

## **Occupational**

Asbestos – Mesothelioma

## **Social**

Smoking

Alcohol

Diet

Sexual habits (Doll and Petro 1986)

General lifestyle

## **Biological**

Physical factors: Radiation/mechanical trauma

Certain viral infections (one of the papilloma viruses causes many cases of cervical cancers)

A common element of these factors is that they cause mutations in DNA

## **Genetic Factors**

### **Hereditary predisposition**

Inherited genes usually affect tissue ability to;  
metabolise toxins

Control mitosis and growth

Perform repairs after injury

Identify and destroy abnormal tissue cells

As a result, body cells become more sensitive to environmental factors that would usually have little effect on normal tissues (Dudjak 1992)

## **Genetic Factors**

### **Oncogene activation (Hodgson and Maher 1993)**

Genes that are directly involved in cell growth differentiation and mitosis can be divided into two classes;

Oncogenes (proto-oncogenes) – those with a positive effect on growth and proliferation by turning on a cell's growth  
Antioncogenes – those, which might have negative effects on, or control, cellular growth. These are tumour-suppressing genes and, when they are inactivated, tumour cell activity accelerates

## **Genetic predisposition**

Known uncommon inherited cancer syndromes;

Polyposis coli

Familial retinoblastoma

Multiple endocrine neoplasia

## **Genetic predisposition**

Known clusters of common cancer syndromes;

Breast

Bowel

Ovary

## **Classification of cancers**

Cancer is a collection of diseases with certain common features

All cancers begin in an individual cell

All body cell types vary therefore all cancer cell vary

There are more than 200 different types of cancer

The type of cancer is important because different cancers require a particular kind of treatment

Cancers are generally classified according to the type of tissue from which they arise

Neoplasms are described as carcinomas (cancers of epithelial cells)

Sarcomas (cancers of connective tissue or bone muscle)

Leukaemia (cancers of white blood cells)

Table 1: Classification of cancer	
Tissue of origin	Neoplasm
Epithelium	Carcinoma
Skin and mucous membrane	
Glands	Squamous cell carcinoma
	Basal cell carcinoma
Pigmented cells	Adenocarcinoma
	Malignant melanoma
Connective tissue	
Fibrous	Sarcoma
Adipose	
Cartilage	Fibrosarcoma
Bone	Liposarcoma
Muscle: smooth/striated	Chondrosarcoma
Nerve fibres and sheath	Osteosarcoma
Ganglion cells	Leiomyosarcoma
Glia cells	Rhabdomyosarcoma
Meninges	Neurogenic sarcoma
	Neuroblastoma
Endothelium	Glioblastoma
Blood vessels	Malignant meningioma
Lymph vessels	
Bone marrow	Haemangioendothelioma
	Lymphangioendothelioma
Lymphoid tissue	Multiple myeloma
	Ewing's sarcoma
	Leukaemia
	Lymphosarcoma

|Table 2: Tumour type and common patterns of spread

|Site of primary tumour

|Breast adenocarcinoma

|Common metastatic site

|Bone, brain, adrenal, lung

|

|Site of primary tumour

|Colon carcinoma

|Common metastatic site

|Liver

|

|Site of primary tumour

|Small cell lung carcinoma

|Common metastatic site

|Brain, liver, bone

Some cancers are named after the person who first identified or described them

Ewing's sarcoma of the bone

Hodgkin's disease

## **How cancer spreads**

Metastasis

Lymphatic system

Circulation blood

Tumours and metastatic change

Treatment of metastatic disease

Organs commonly invaded

Metastatic pathway

Seed and soil theory

Organ preference theory

## **Cancer staging**

Two methods of staging:

Clinical findings and investigations

Histological findings

## **Aims of staging:**

The size of the primary cancer

Whether it invades any surrounding local tissue

Whether it has spread to nearby lymph nodes

Whether it has spread to other parts of the body

## **TNM system**

### Purpose of universal staging system:

- Give appropriately planned treatment to individual
- Be able to give the best estimate of prognosis
- Compare similar cases in assessing and designing trials of treatment
- Assist our understanding of cancer biology
- Assist evaluation of end result

Table 3:	The TNM cancer staging system
T	Is the extent of the primary tumour
N	Is the condition of the regional lymph nodes
M	Is the presence or absence of distant metastasis
	Each letter can then be assigned a number indicating the degree of involvement
	Example of TNM staging notation for breast cancer
T1	Tumour is less than 2 cm in diameter
T2	Tumour is 2-5 cm in diameter
T3	Tumour > 5 cm
T4	Tumour of any size with direct extension to chest wall or skin
N0	No palpable node involvement
N1	Mobile ipsilateral nodes
N2	Fixed ipsilateral nodes
N3	Supraclavicular or infraclavicular nodes or oedema of arms
M0	No distant metastases
M1	Distant metastases

### Histological findings

This is another method of staging cancers. Pathology reports from biopsies use the following terms:

- Well differentiated
- Moderately differentiated
- Poorly differentiated
- Undifferentiated

### Conclusion

Cancer cells differ from normal cells

Cancer is a gene-based disorder

Cancer is caused by abnormalities in the genetic mechanisms that control cellular growth and proliferation

Oncogenes have been identified

The disease process has many stages

Environment

Lifestyle

Cancer staging



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# **Rehabilitative care approach in a specialist palliative day care centre: a study of patient's perspectives**

## **Introduction**

Aims and objectives of the research

Background

Research framework

Rehabilitative care approach

Implications of research findings

## **Aim of the research**

To explore the cancer patient's perception of a rehabilitative care approach at a specialist palliative day care centre

## **Objectives**

1. To explore the impact of the rehabilitative care approach from patient's perspectives
2. To consider how rehabilitation may be improved

## **Research questions**

1. What are the patient's perceptions of their symptoms?
2. How do patients perceive the rehabilitation they received?
3. What attitudes or beliefs do patients have about the rehabilitation they have received?

## **Rehabilitative care approach**

Re-development of optimal function

Control and choice over treatment in-put

Guidance from healthcare professionals

Multi-disciplinary team

Treatments

## **Method**

## Qualitative research

Phenomenology

Phenomenological orientated psychological research

What is the phenomenon that is experienced and lived?

How does it show itself?

## Research Tools

1. Semi-structured interviews
  6. Agenda
  7. Open questions
2. Medical records
  8. Characteristics of the population

## Ethical issues

Local Ethics Committee

Study information

Consent forms

Pseudonyms and Id code

Confidentiality

## Data Analysis

Taped

Transcribed

Clusters of themes

Validity

Exhaustive description of the phenomenon

## Results

Not all symptoms experienced by individuals with cancer reside totally in the pathology or are directly attributed to the disability itself

Key themes: pain, dyspnoea, fatigue

Physical, emotional and spiritual elements

QOL

## Participants' perception of the rehabilitative care approach

Key themes

Positivity

Environment

Beliefs

Normality and control

## **Environment**

The rehabilitative care approach was perceived by the participant's as an environment in which they could learn to develop personally within their illness where the factors, which limited their effective functioning and behaviour were corrected, modified or adapted and in doing so facilitated and maximised their independence.

## **Discussion**

### **QOL**

Normalisation process

Functional ability

Isolation

Outcome measures

### **Normalisation**

Initiated individual's rehabilitation

Promoted through environmental factors

Aided by diversional therapy

Foundation of rehabilitation programme

Key factor in judging the services quality

### **Functional ability**

Improved through rehabilitative care approach

Interlinking of therapies and environmental factors

Reduction in fatigue levels

Functional ability is not a reliable way of assessing fatigue

Holistic assessment tool required

### **Isolation**

“The loss of the old body must be mourned before the new state can be accepted and appreciated. Reactions to this altered body image will be affected significantly by the attitude, real or imagined of other people.”

Bauer (1989)

### **The effect of the rehabilitative care approach on Isolation**

Health care professional's sensitivity

Participants felt valued, accepted and respected as a person

Acknowledgement of the participant's disability and needs

Trust  
Ownership within the rehabilitation programme

## **Outcome measures**

Medical profession's perception of rehabilitation  
Rehabilitation outcome measures  
Theoretical underpinning  
Patient perspective  
QOL

## **Conclusion**

1. Specialist palliative day care centres are a suitable setting to address the rehabilitative needs of the cancer patient
2. Health care professionals will need to acquire many more skills to remain clinically competent within this specialist field

## **Recommendations**

1. Local guidelines to ensure nutritional care of cancer patients is being effectively managed
2. Access to a dietician for assessment, advice and support
3. Formal nutritional management within the specialist palliative day care centre with goal setting
4. Local guidelines on the use of TENS in cancer patients
5. Universal holistic assessment tool for cancer patients
6. Universal indicators that can be used as outcome measures in the rehabilitative care of cancer patients
7. Further research into the effects of aromatherapy, diversional therapy, TENS and lymphoedema management in cancer patients
8. Health care professionals' education in the concept of rehabilitation in cancer care and to become rehabilitative in practice

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Table 1: Interview agenda

	Interview questions	Prompt:
1.	What were your expectations of the specialist palliative day care centre before you arrived?	Explain your thoughts about coming to the specialist palliative day care centre.
2.	How would you describe your expectations now?	Explain to me what you now expect to gain from coming to the specialist palliative day care centre.
3.	How would you describe the care you have received at the specialist palliative day care centre?	Describe your feelings on how you have been cared for at the specialist palliative day care centre
4.	How would you describe the communication between the health care professionals at the specialist palliative day care centre and the other health care professionals you are involved with?	How would you describe the way the health care professionals have handled your cancer journey?
5.	How would you describe your quality of life before receiving the care at the specialist palliative day care centre?	How would you describe your life before attending the specialist palliative day care centre?
6.	How would you describe your quality of life since receiving the care at the specialist palliative day care centre?	How would you describe your life since attending the specialist palliative day care centre?
7.	Describe what you feel has benefited you by attending the specialist palliative day care centre?	How beneficial have you found the care offered to you at the specialist palliative day care centre?
8.	Describe what improvements you would make to the care you have received at the specialist palliative day care centre.	What if anything would you change about the care you have received at the specialist palliative day care centre?
9.	What is the most difficult part of your illness to cope with?	Describe which area of your illness is the most difficult for you to manage.
10.	Has any of the care offered at the specialist palliative day care centre helped you to manage this area of your illness more successfully?	

Table 2: Participant characteristics

Demographics	Age range:	45 to 82 years
	Median range:	66.1 years
Comorbidities	Patients referred fitting the inclusion/exclusion criteria	n=22
	Patients referred who died before the end of the study	n=7
	Patients referred who deteriorated before the end of the	n=2
	the	n=5
	Patients referred who declined to take part	
Sex	Males	n=3
	Females	n=5
General characteristics	Lived at home	n=8
	Bungalow	n=2
	Flat	n=1

	House	n=4
	Residential home	n=0
	Widowed	n=5
	Married (2 were second marriages)	n=3
	Lived alone	n=5
	Lived with wife and 3 daughters	n=1
	Lived with husband and son from previous marriage	n=1
	Lived with husband	n=1
	Regular contact with family and friends	n=6
	Found support from local church	n=2
	Occasional contact from friends and family by phone	n=1
	Working	n=0
	Retired	n=6
	Hoping to return to work	n=1
	Housewife	n=1
Current mobility status	Independently mobile no aids	n=6
	Independently mobile with a stick	n=1
	Independently mobile with a rollator	n=1
Haemoglobin	Hb range:	10.4g/dl to 13.9g/dl
Diagnosis primary	Breast cancer	n=3
	Unknown primary	n=1
	Cancer of the oesophagus	n=1
	Renal cell carcinoma	n=1
	Cancer of the colon	n=1
	Prostate cancer	n=1
Secondary	Bone	n=2
	Liver	n=3
	Lung	n=4
	Lymph nodes	n=2
	None	n=1

**Table 3: Inclusion/exclusion criteria**

Inclusion criteria	Exclusion criteria
The patient must be capable of articulating his/her conscious experiences (Creswell 1998)	Patients who would require further palliative chemotherapy or palliative radiotherapy.
The patient must be experiencing one or more of the following symptoms; pain, dyspnoea, fatigue, or nausea	Patients with underlying pathologies such as cardio-vascular disease
The patient must have a diagnosis of cancer and have completed either their palliative chemotherapy, palliative radiotherapy or in some cases both at least four weeks prior to commencing the research.	Patients with a history of cardio-vascular accidents
Haemoglobin must not be below 10g/dl	Patients with a history of myocardial infarctions
GP must agree to carrying out a blood test prior to being accepted onto the study	Patients with a haemoglobin level below 10g/dl



The patient must be fit enough to participate in the rehabilitative care approach over a two month period.	Patients who aren't fit enough to participate in the rehabilitative care approach over a two month period.
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Table 4: Clusters of common themes

Numbers	Common themes
1	Participant's negativeness
a.	Negative feelings and attitudes arose from isolation producing a sense of abandonment
b.	The sense of abandonment increased anxiety and stress levels ultimately leading to loss of control
2	Participant's positiveness
a.	Positive feelings and attitudes were nurtured through contact with peers and health care professionals producing a sense of unity
b.	The sense of unity was increased through group activities, communication, enquiry and the ability to express feelings producing a sense of wholeness
3	Participant's individuality
a.	The health care professionals acknowledge the participant's individuality through attentive listening and responding to him or her as a valued individual
b.	The participant perceived the health care professionals treated him or her as a valued individual.
4	Environment's atmosphere
a.	Participant's perceived the atmosphere as comforting, secure, stimulating and remedial providing a sense of well-being
b.	The sense of well-being increased motivation, compliance and a positive change in how the participant perceived their symptoms
5	Physiological symptoms
a.	Pain was associated with cramp, lymphoedema, paraesthesia and disturbed sleeping patterns
b.	Aromatherapy and compression stockings were perceived to help reduce these symptoms with a resultant improvement in mobility
c.	Dyspnoea was perceived as difficult to cope with and distressing
d.	Participants perceived that the breathlessness clinic enabled them to control and deal with this symptom more effectively while the diversional therapy helped to take their mind off the dyspnoea
e.	Participants perceived fatigue as tiring and totally draining causing weakness, heaviness with loss of appetite, weight, stamina, motivation and control, leading to difficulties in carrying out activities of daily living
f.	Participants perceived that group exercises were an incentive and helped to increase strength while diversional therapy provided an opportunity to accomplish something which increased self-esteem and the ability to succeed in other areas of their rehabilitation
6	Therapeutic interventions
a.	Therapeutic interventions had a direct effect on the participant's perception of their physiological and psychological well-being
b.	Participants perceived an overall positive effect on their bodily health with an increase in strength, reduction in pain, fatigue and dyspnoea
7	Rehabilitative care
a.	Participants perceived this as subtle treatments that could be accessed when required with an overall accumulative supportive effect
b.	Treatments opened up opportunities, challenges and the ability to accomplish tasks and therefore provided the participant with a sense of control

**Table 5: Formulated meanings of significant statements – Rehabilitation**

Number	Formulated meanings
	General
1	Rehabilitation was perceived as being beneficial as there was always a health care professional available to address the problem
2	The caring atmosphere with the ability to talk and laugh was found to be stimulating
3	The individuals felt 'very special' with the attention they received
4	Rehabilitation was seen as 'good sensible practical advice' sought through inquiry and discussion
5	Rehabilitation was perceived as being accumulative and addressing the 'whole' person with support from different health care professionals
6	Psychologically individuals felt the health care professionals were understanding providing support through a change of attitude such as 'positive thinking', and 'making choices'
7	Physiologically through life style changes individuals felt they were able to accomplish more
8	The importance of being together as a group of individuals was an overriding factor in the rehabilitation of the person
9	Rehabilitation was perceived as being concentrated into one day without any time constraint
	Diversional therapy
1	Individuals found it interesting and were inspired by other peoples' efforts
2	It was seen to provide opportunities of being creative, challenging you to achieve and learn something new
3	Accomplishing the challenge provided the individual with a sense of worth and ability to succeed in other areas of their rehabilitation
	Group exercises
1	Individuals found this a social event which they enjoyed as it was in a group
2	The group setting acted as an incentive for all participating
3	The exercises were found to be beneficial increasing mobility, and strength
4	The exercises helped to replace a sense of physical loss from the individual's past
5	Doing the exercises in sitting meant that whatever the individual's physical disability they were able to join in.
	Breathlessness clinic
1	The individual felt they were more capable of controlling and dealing with their breathlessness
2	The individual felt well enough informed to carry out the controlled breathing
	Aromatherapy
1	Aromatherapy was perceived as being relaxing both physically and psychologically
2	Aromatherapy was soothing and helped with pain and cramp
3	An aromatherapy ointment was brilliant in resolving dry, split skin
	Lymphoedema clinic
1	Compression stockings reduced oedema, pain and increased mobility
2	The support of the compression stockings was thought to have resolved the paraesthesia and reduced the frequency of the cramps
3	Having all the health care professionals within the same building was thought to be beneficial in speeding up the control of the symptom
	Education
1	A need for information was met through the provision of a booklet
2	Being able to refer to the booklet for information was considered an enormous help
3	Having information written down about the prescribed medication enabled the individual to recognise and understand what the tablets were for which was thought to be beneficial
	Spiritual
1	It was felt that having a strong faith was helpful in coping with the cancer
2	Support was given through prayer as well as attending the church, providing spiritual support along with the physiological and psychological support
	Health care professionals

1	Communication was described as excellent with more time to talk and
	listen without any distractions
2	Collaboration was noted linking the specialist palliative day care centre
	with the local hospital and the individual's doctor
3	Health care professionals were described as professional, with networking
	being accurate and timely
4	All health care professionals were found to be helpful, referring
	individuals appropriately

Table 6: Formulated meanings of significant statements – Quality of life

Number	Formulated meanings
	Pre-quality of life
1	Quality of life was poor due to a low mood and negative attitude
2	Negative thoughts led to low self esteem and a sense of abandonment
3	Quality of life was reduced due to physiological and psychological disabilities
	Post-quality of life
1	Mobility increased with an improvement in health and reduction in pain
2	Reduction in negative emotions increased ability to do more, alleviating fatigue
3	Quality of life improved rapidly along with general condition thus positively affecting the individual's whole life
4	Attending the specialist palliative day care centre added to the individual's quality of life enabling them to achieve more
5	Being in control of the situation provided the individual with a sense of normality
6	Quality of life improved through positive attitudes of 'happiness,' 'fitness' and 'lack of worry'

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# Management of the breathless patient

Introduction

Definition

Statistics

Pharmacological intervention

Viscous cycle

Quality of life

Aim of the non-pharmacological approach to breathlessness

Techniques and strategies

Conclusion

## Definition of breathlessness

“An uncomfortable awareness of breathing or the need to breathe.”

Gift (1990)

## Statistics

10. 75% of patients with carcinoma of the lung, bronchus and trachea suffer from breathlessness (Muers et al 1993)

11. 70% of patients who are in the last 6 weeks of life suffer with breathlessness (Reuban and Mor 1986)

12. 30% of all other palliative care patients complain of this symptom (Twycross 1986)

## Pharmacological interventions

Benzodiazepines

Opiates

Oxygen

## Oxygen therapy criteria

Chronic hypoxia with cor-pulmonale

Mental impairment e.g. short term memory loss

Severe exercise limitations

## Aim of the non-pharmacological approach to breathlessness

To enable the patient to have control over their 'breathlessness' rather than the 'breathlessness' having control over them

To improve quality of life

To reduce or postpone pharmacological intervention

## **Clinic features**

Patient and carer education

Exploring the psychosocial needs of the patient

Relaxation techniques

Breathing exercise and retraining

Lifestyle changes

Exercise programme

Appropriate referral to other health care professionals

Access to benefits advisor

Reflective diary

## **Psychosocial**

Help patients to express feelings about their breathlessness and why they get breathless

Answer their questions frankly but with sensitivity

Offer reassurance and hope for their fears with regard to breathlessness

Relaxation

Understanding and recognising stress triggers and stress levels

Recognising the need for periods of relaxation

Understanding that relaxation should be integral to the patient's lifestyle

## **Effects of relaxation**

Improves sleep patterns

Helps in pain relief

Reduces fatigue levels

Reduces anxiety levels

Increases self esteem and confidence

Provides a sense of control

Reduces nausea and vomiting

## **Relaxation techniques**

Relaxation of head, neck and shoulder girdle

Passive muscular relaxation

Distraction techniques

Visualisation



## **Breathing exercises and re-training**

Controlled breathing

Active cycle of breathing technique (ACBT)

Positioning

Pursed-lip breathing

Ventilatory muscle training

Posture correction

## **Lifestyle changes**

Advice on activities of daily living

Pacing

Planning and organising

Prioritising

Invest in relaxation

Time out

Acknowledging needs

Adapt thinking

Reflection

## **Systemic exercise**

Physical reconditioning

Exercise training provides an understanding that breathlessness is not in itself harmful

Reduction in exercise related lactic acidosis

## **Exercise techniques**

Assessing the patients exercise tolerance via a walking test pre- and post the non-pharmacological intervention

Progressive walking programme

Progressive stair climbing exercise

## **Exercise limitations**

Impaired pulmonary mechanics

Heightened sense of dyspnoea

Motivation and commitment of patient

Assumption that lung cancer patients can't reach a training threshold because of poor ventilatory capacity

Long-term commitment required as de-training occurs faster than retraining

## **Outcome of the non-pharmacological approach**

Achieving the patient's training threshold

Improving the patient's quality of life

Enabling the patient to be confident in controlling their breathlessness

Providing a researched intervention that achieves its goals

Providing the professionals with a way of managing a distressing symptom with positive results

## **Conclusion**

The non-pharmacological approach is;

A form of advanced integrative care, which goes beyond "ordinary care."

A systematic and often personally oriented approach

A comprehensive treatment for patients with primary and secondary lung cancer

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# **Transcutaneous Electrical Nerve stimulation (TENS)**

For use in oncology and palliative care

## **Aim of TENS in Oncology and Palliative care**

To provide an alternative to pharmacological pain and nausea management

To activate normal physiological mechanisms of pain management by means of the pain gate mechanism and/or endogenous opioids

To reduce nausea using the Neiguan anti-emetic acupuncture point known as p6 (McMillan and Dundee 1991)

## **Objectives**

To improve acute and chronic cancer pain

To improve the cancer patient's control of the vomiting centre

To improve the cancer patients quality of life

## **Contraindications**

Cancer patients who do not comprehend the oncology physiotherapist's instructions or who are unable to co-operate

Cancer patients who have a pacemaker

Cancer patients who have an allergic response to the electrodes

Cancer patients who have dermatological conditions e.g. dermatitis or eczema

Cancer patients with current or recent bleeding/haemorrhage or with a significantly compromised circulation e.g. ischemic tissue, thrombosis and associated conditions

Electrodes should not be placed over the eyes

Never apply electrodes over the anterior aspect of the neck or carotid sinus

## **Precautions**

If there is abnormal skin sensation, the electrodes should be positioned in a site other than this area to ensure effective stimulation

Cancer patients who have epilepsy should be treated at the discretion of the oncology physiotherapist in consultation with the appropriate medical practitioner

Electrodes should not be applied directly over areas recently treated by radiotherapy

Guidelines

8. Obtain informed consent from the cancer patient
9. Outline the options and relative benefits of TENS
10. Follow normal clinical practice
11. Avoid any region where rapidly dividing tissue is occurring. Apply electrodes elsewhere to obtain desired effect
12. Acceptable to use TENS in palliative care setting as quality of life paramount
13. Acceptable to use TENS if tumour is not being actively treated

## **Stimulation parameters**

### **Opioid system activation**

Stimulates AO fibres  
Low frequency (2-5 Hz)

### **Pain gate activation**

Stimulates AB fibres  
High frequency (90-130 Hz)

## **TENS for Pain management**

Assess type of pain;  
Nerve root  
Musculoskeletal  
Bone pain

Target stimulus at appropriate level by placing the electrodes;  
either side of lesion  
over nerve roots  
over peripheral nerve  
at motor point  
at trigger/acupuncture points  
dermatome, myotome, sclerotome

## **TENS for nausea management**

Electrode placement;  
Black electrode over acupuncture point circulation 6  
Red electrode six inches higher

### **Settings;**

Pulse width: 200 microseconds  
Modality: burst  
Frequency: 100Hz

### **Stimulation;**

5 minutes to one hour  
Repeat as necessary  
Leave at least one hour between treatments

### **Evidence**

Literature research by Tim Watson 2003  
800 references obtained  
500 relevant papers

Concluded that while some electrotherapy modalities were contraindicated for use on oncology patients TENS was not contraindicated

### **Advice**

If cancer/tumour is being actively treated best to avoid electrotherapy directly related to site

If tumour is being monitored, but not “treated” as such, have to make clinical judgement

If in doubt best to avoid

(Tim Watson 2003)

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