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# Lung Cancer & the role of the physiotherapist

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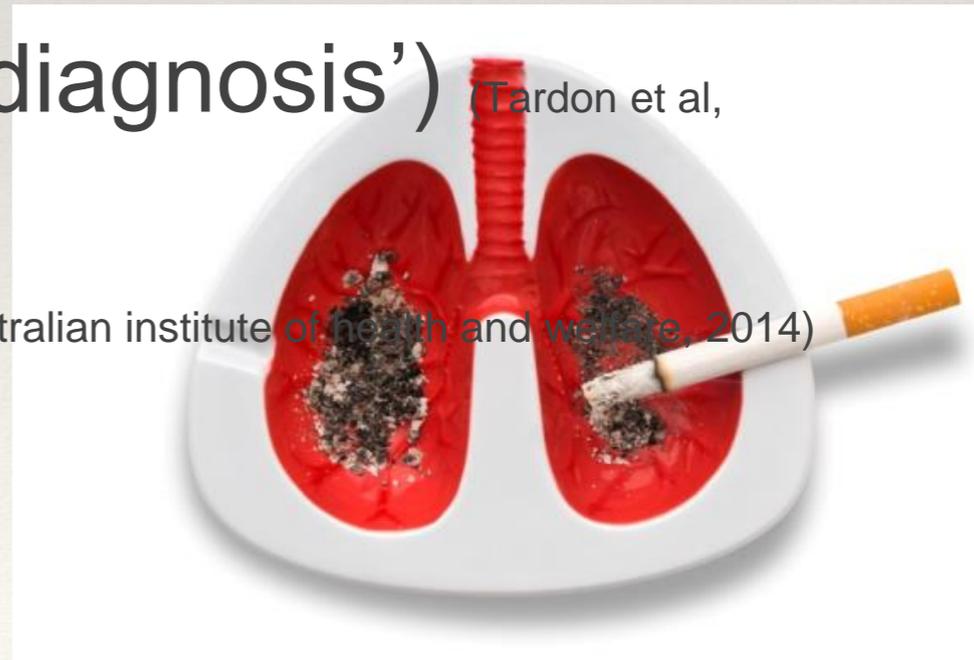
# Introduction

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- ❖ significant morbidity & mortality
- ❖ aim of today: Burden associated with lung cancer
- ❖ management of lung cancer focusing on the physiotherapy interventions
- ❖ clinical practice
- ❖ future research

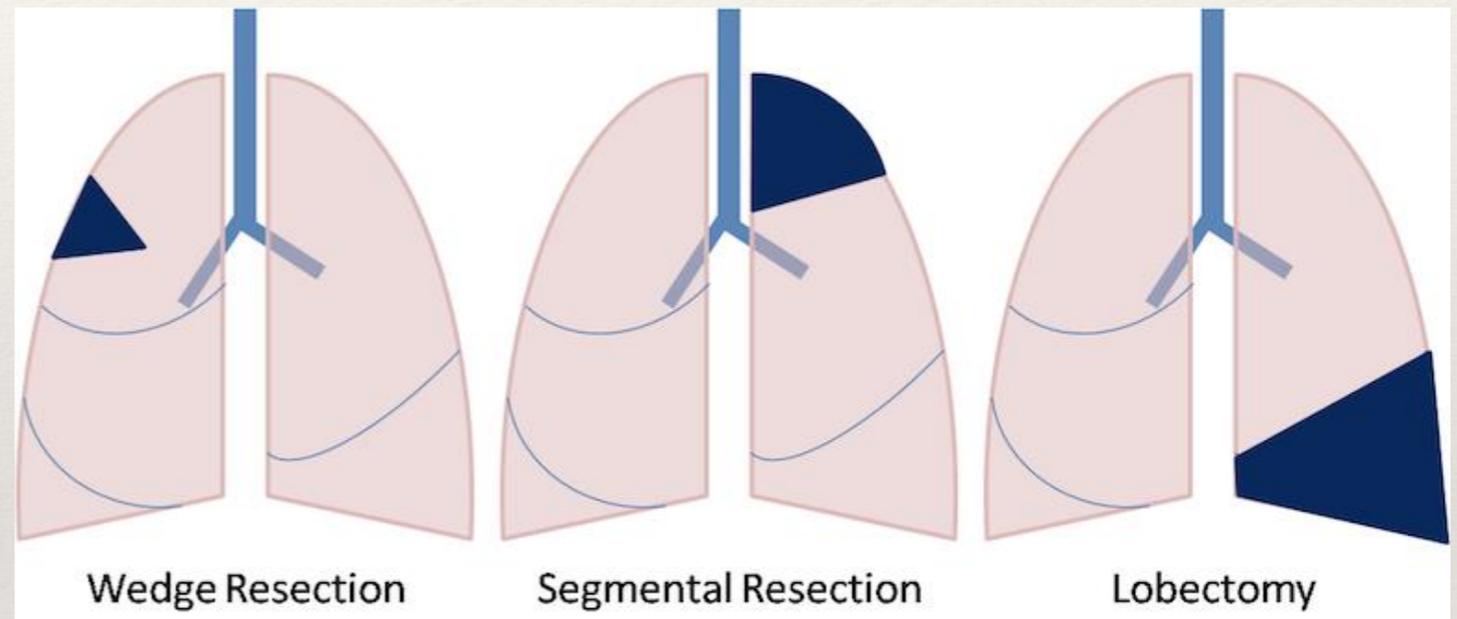
# What is Lung Cancer

- ❖ abnormal cells not destroyed by normal metabolic process- proliferate and metastasise out of control (WHO, 2015)
- ❖ most common cancer diagnosis in males, 4th in females (Ferlay et al, 2013)
- ❖ smoking (Dela Cruz et al, 2011)
- ❖ NSCLC most common (85% of new diagnosis') (Tardon et al, 2005)
- ❖ most people diagnosed >60 years (Australian institute of health and welfare, 2014)



# Medical Management of Lung Cancer

- ❖ survival rate over 5 years is 14% (Ferlay et al, 2013)
- ❖ surgical resection
- ❖ chemotherapy
- ❖ radiotherapy
- ❖ targeted agents
- ❖ adverse physiological impairments arise from multiple causative factors including the disease, the treatment, multiple morbidities and pre existing harmful lifestyle behaviours (Granger, 2016)



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# Burden of Lung Cancer

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- ❖ lung cancer has a higher disease burden, physical hardship & greater symptom distress than any other cancer type (Degner et al, 1995; Cooley, 2000)
- ❖ symptoms: dyspnoea, fatigue, cough, pain & insomnia (Cheville et al, 2011)
- ❖ avoidance of physical activity due to symptoms promotes inactivity & functional decline (Granger et al, 2014)

# Burden of Lung Cancer- Cachexia

- ❖ ongoing loss of skeletal muscle mass that is not fully reversed by nutritional support and leads to progressive functional impairment (Muscaritoli et al, 2006)
- ❖ implications: reduced ability to tolerate surgery, poor response to chemo, radiotherapy, impaired resilience to Rx, worse HRQOL & increased mortality (Muscaritoli et al, 2006)
- ❖ given the NB of peripheral muscle strength to overall physical function, this is an important feature for physio's to mx (Granger et al, 2016)



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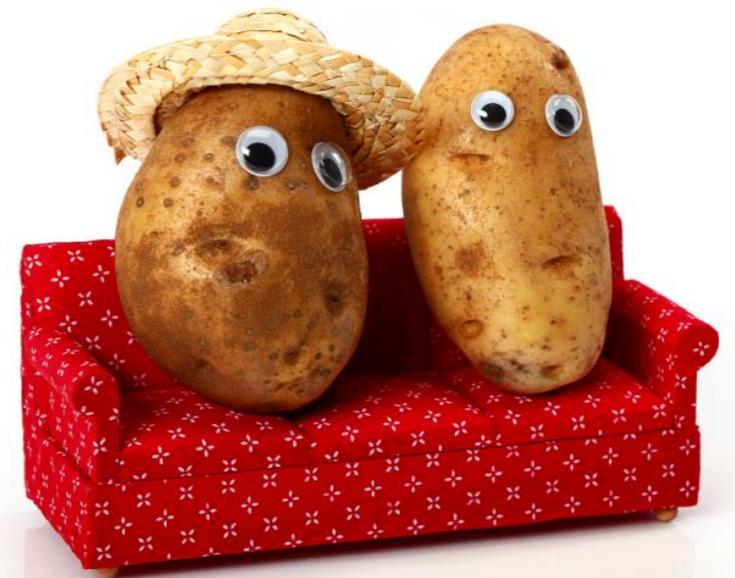
# Burden of Lung Cancer- Functional Capacity

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- ❖ following diagnosis, functional decline is common (Pan et al, 2012)
- ❖ at diagnosis functional capacity is reduced compared to healthy age matched peers (Granger et al, 2014)
- ❖ functional capacity pre-operatively is a predictor of post-operative outcome (Granger et al, 2013)
- ❖ every 50m improvement in the 6MWT, survival improves by 13% (Kasymjanova et al, 2009; Jones et al, 2012)

# Burden of Lung Cancer- Inactivity

- ❖ physical inactivity is common and preventable
- ❖ 6/12 post diagnosis physical activity remains low with only 31% of survivors meeting the recommendations  
(Granger et al, 2014)
- ❖ survivors have a long term reduction in physical activity & HRQOL and experience fatigue 5 years following surgery (Huang et al, 2015; Rauma et al, 2015).



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# Physiotherapy Management of Lung Cancer

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- ❖ management varies depending on stage and timing of treatment
- ❖ cornerstone of physio treatment should be prescription & delivery of exercise intervention as its targets prevention, mortality & morbidity
- ❖ American Cancer Society recommends 150min moderate intensity aerobic exercise & 2 sessions resistance exercise/week (WHO, 2010)
- ❖ majority of research in pre or post-operative stage with small no. of studies in advanced disease

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# Physio Management - prehabilitation

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- ❖ exercise delivered prior to surgery/medical Rx
- ❖ not yet routine clinical practice. It is not recommended to delay surgery in operable patients but rather use the time waiting for surgery to deliver prehab as able
- ❖ generally considered safe, but ? feasibility as time to surgery is very short

# Physio Management- post operatively

- ❖ treats PPC, prevent musculoskeletal sequelae & facilitates early discharge home (Reeve et al, 2010)
- ❖ principles include early mobilisation, supported coughing, shoulder & thoracic ex post ICD removal (Reeve et al, 2010)
- ❖ no added benefit with IS, IPPB, oscillating PEP, PEP (Reeve et al, 2010; Rodriguez-Larrad et al, 2014)
- ❖ physio focus on Ax of high risk patients (age >75, BMI>30Kg/m<sup>2</sup>, current smoker, COPD, FEV1<70% & low pre-op ex levels)

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# Physio Management-Exercise following Surgery

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- ❖ aims to address loss of functional capacity, muscle strength & HRQOL
- ❖ cochrane review: significant improvement in functional capacity (Cavalheri et al, 2015)
- ❖ single group studies (Granger et al, 2011; Crandall et al, 2014;Rodriguez-Larrad et al, 2014) high intensity aerobic ex & resistance training 5-7/52 post surgery- improved peak oxygen uptake
- ❖ exercise showed improvement in functional capacity but not HRQOL (Granger et al, 2011)
- ❖ exercise associated with reduced cancer symptoms, anxiety & depression (Granger et al, 2011, Chen et al, 2015)

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# Physio Management-Exercise following Surgery

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- ❖ 8-12/52
- ❖ out patient setting
- ❖ individually tailored and consider co-morbidities e.g. Hb, neutrophils, platelets, fever, lymphoedema, bone metastasis
- ❖ growing evidence suggests an improvement in physical & physiological outcomes, but not yet routine practice
- ❖ further randomised trials recommended

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# Physio Management-Exercise in advanced disease

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- ❖ aims to prevent deterioration in physical status and psychological status and max. independence
- ❖ significant improvement in functional capacity, physical function, muscle strength, symptoms & HRQOL (Henke et al, 2014)
- ❖ adherence rates vary greatly- setting



# Physiotherapy in palliative care

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- ❖ management of breathlessness, relaxation techniques & activity pacing (Hately et al, 2003)
- ❖ often hospitalised with significant functional decline-functional independence and patient wishes

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# The future

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- ❖ cancer changing from incurable to curable
- ❖ unfortunately lung cancer less favourable
- ❖ 2005 paper exercise improved survival in breast cancer
- ❖ does exercise improve survival in lung cancer still unknown

Trust  
Breathe