

## Acupuncture & Dry Needling: The Thoracic Region



*Leigh McCutcheon*

*B.App.Sc. (Physio) Grad.Cert. (Orth.Manip.Ther)  
Post.Grad.Dip.(Acupuncture) Master Musculoskeletal (Hons)*

## Pneumothorax:

- When needling around the thoracic region patients should be warned of the rare possibility of a pneumothorax.
- Care should be taken when needling GB 21 (upper trapezius) and any other points over the thoracic region which could inadvertently create a pneumothorax.
- Where possible angle the needle away from the underlying lungs and/or needle over bone or cartilaginous tissue.
- Practitioners must have attended adequate training programmes to needle in the thoracic region.

## Incidence Acupuncture Related Pneumothorax:

- 1 in 69 9994 (Umlauf, 1988)
- 66,000 consults: no pneumothorax (White, 2004; White, 2006; Macpherson, 2001)
- 1 in 381 950 (Melchart, 2004)
- 1 in 1.27 million (White, 2006; Linde, 2006; Weidenhammer, 2007)

## Bilateral Pneumothorax:

- Iatrogenic pneumothorax can occur with an accompanying tension pneumothorax (Lee, 2005; Su, 2007)
- Multiple iatrogenic pneumothoraxies from needling apical and paraspinal regions resulted in death (Iwadate, 2003)

## Incidence Pneumothorax:

- Primary spontaneous pneumothorax:  
Male - 7.4 - 18 per 100 000  
Female - 1.2 - 6 per 100 000 (Chauff, 2006)
- Secondary pneumothorax:  
Male - 6.3 per 100 000  
Female - 2.0 per 100 000 (Chauff, 2006)
- COPD 26 per 100 000 & 3.5 fold in mortality (Bascom, 2006)

## Incidence Pneumothorax:

- Primary spontaneous pneumothorax 20-30 year old population (peak early 20's)
- Secondary spontaneous pneumothorax 60-65 years (Bascom, 2006)
- Extra care when needling COPD, cystic fibrosis patients, lung Ca, sarcoidosis, Marfan's Syndrome, corticosteroid therapy or smokers (Peuker, 2004; Su, 2007; Rosted, 2005)

## Signs & Symptoms:

- The symptoms and signs of a pneumothorax may include dyspnoea (SOB) on exertion, tachypnoea ( $\uparrow$ RR), chest pain, dry cough, diaphoresis and decreased breath sounds on auscultation. These symptoms may not occur until several hours after the treatment and patients need to be cautioned of this especially if they are going to be exposed to marked alterations in altitude such as flying or scuba diving.
- If a pneumothorax is suspected then the patient must be sent urgently for an x-ray and medical management.

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## Lung Fields:

- Superiorly: extends 2-3 cm above clavicular line (hence GB21 being most frequent point documented with pneumothorax – thus sufficient minimum training is required to needle this point)
- Anterior-laterally: lung rib 6 mid-clavicular to rib 8 mid axillary line
- Posteriorly: lung extends to rib 10

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## Anterior View:

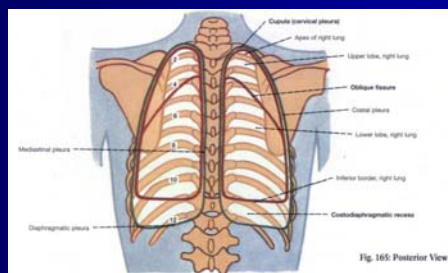


Fig. 165: Posterior View

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## Posterior View:

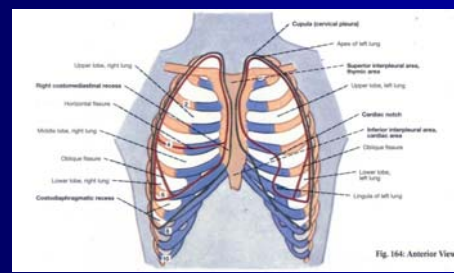


Fig. 164: Anterior View

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## Lateral View:

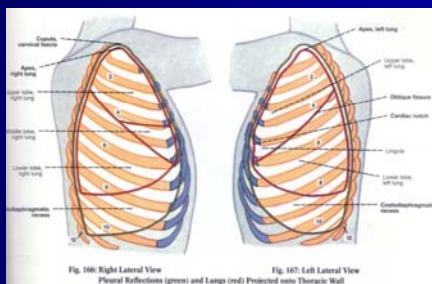


Fig. 166: Right Lateral View  
Fig. 167: Left Lateral View  
Pleural Reflections (green) and Lungs (red) Projected onto Thoracic Wall

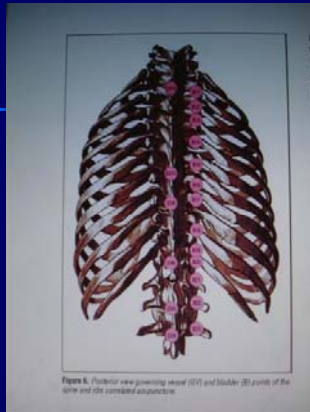
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## Pleura:

- 2 ribs below i.e. rib 8 mid-clavicular line down to rib 10-12 laterally (mid-axillary line)
- Posteriorly: lung extends to rib 10, and pleura down to rib 12 (at lateral border of erector spinae)

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(Peuker, 1999)

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## Interspinal Space:

- Care should be taken when needling the governing vessel or interspinous space (e.g. Interspinales or interspinous ligament) as reports in literature of perineural cysts
- Distance from skin to the dura is 25mm to 45mm

(Peuker, 1999)

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## Guidelines:

- Safety Guidelines for physiotherapists when using needling techniques in and around the thorax: Australian Society of Acupuncture Physiotherapists (ASAP) available at [www.combinedhealth.com.au](http://www.combinedhealth.com.au)
- The National Infection Control Guidelines should be considered and can be accessed at <http://www.health.gov.au/internet/main/public/hing.nsf/content/icg-guidelines-index.htm>

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## Guidelines continued:

- Individual states and territories around Australia will have varying guidelines on skin penetration and infection control and physiotherapists are urged to view the relevant information from their local governing bodies.
- Physiotherapists are also advised to refer to any relevant legislation set by individual state physiotherapy registration boards.

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## GB 21 (Upper Traps) Technique:

- Patient positioned in prone
- Consider arm position
- When holding the upper trapezius fibres ensure that the apex of the lung is caudad to you thumb and fingers. **Do not** let go of this position whilst manipulating the needle.

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## GB 21 Technique continued:

- When holding the upper traps do not roll the skin on the anterior aspect more cephalad than the skin on the posterior aspect as this will adversely affect the lie of the needle if it is left insitu
- Needle only in a cephalad direction

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## GB 21 Technique continued:

- Whilst holding the upper trapezius in a pincer grip, do not needle too deeply or a needle stick injury may occur to both yourself and the patient by needling through the muscle bulk into your non-needling hand

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## GB 21 Technique continued:

- Allow a few millimetres to remain visible between the shaft of the needle and the hilt as the trapezius is prone to 'grabbing' the needle if the patient is to move
- Instruct the patient not to alter their hand position during needling if the needle is to be left insitu

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## GB 21 Lie of the needle:

- The needle, if left insitu, should always maintain an angle in which the sharp end points in a cephalad direction. This minimises the risk of a pneumothorax should the needle be grabbed by the muscle and drawn further into the tissue

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## GB 21 Lie of the needle:



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## GB 21 Arm positioning:

- It is favourable to position the patient with their arms down by their side or with their arms hanging over the side of the bed
- Always instruct the patient that they are not to move their arm position from a higher flexed shoulder position down towards a more neutral or less flexed shoulder position as this could reposition the needle to point in a caudad direction.

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## GB 21 Arm positioning:



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## GB 21 Arm positioning:



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## Upper Trapezius twitch response:

- Trigger points are often located cephalad and slightly lateral to the safe hand holding position.
- Locate the trigger point before attempting to hold the muscle if a twitch response during needling is desired.
- Follow the same procedure as outlined above as the needle is inserted. A pecking technique may be used to facilitate a twitch response.

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## Do you really feel better now?



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**Questions?**

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