



Abdominals for Singing

Introduction

The power and efficiency of our breathing for singing is undoubtedly affected by our whole postural behaviour. The abdominal muscles are profoundly affected by how we align our feet, knees and pelvis, as well as our back and shoulder muscles. This postural work is described in a separate sheet 'Posture for Singing'. This sheet describes briefly what the chief abdominal muscles are doing in relation to singing.

Transversus abdominis (TA)



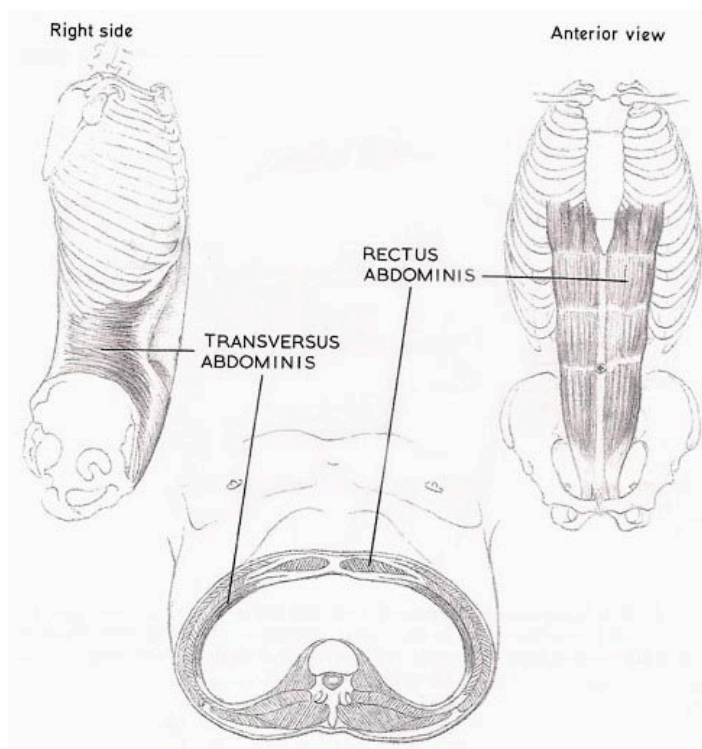
Deep inside the abdomen (the area below the rib cage and above the pelvis / hip girdle), there is a muscle band running horizontally front to back, called the **transversus abdominis (TA)**. It has been described as a 'natural corset' that contracts in anticipation of body motion to guard the spinal joints, ligaments, discs and nerves – it can draw in, giving us a flat stomach, and helping to make a flexible but stable region around our lumbar spine. Some of the fibres of this muscle interleave (technically, 'interdigitate') with the diaphragm, the dome-like muscle that runs horizontally underneath the lungs, above the 'guts'. The TA is involved in the forced

exhalation process of singing.

Rectus abdominis

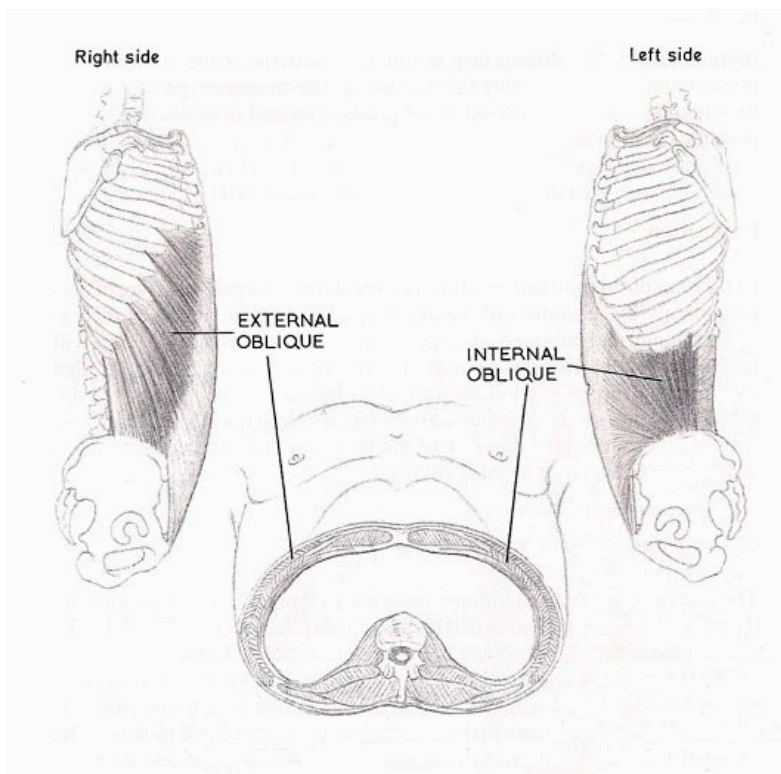
The **rectus abdominis (RA)** is a set of muscles running vertically, from the pubic bone up into the ribs. They are the 'six pack' referred to by body builders (although there can actually be 8-10 separate sections (ie 4 to 5 pairs, rather than just 3)).

The diagram shows the insertions of the TA and RA, how they are layered in the wall of the stomach, and the directions in which they are aligned. During phonation, the diaphragm pushes down while the TA pulls in.



The obliques

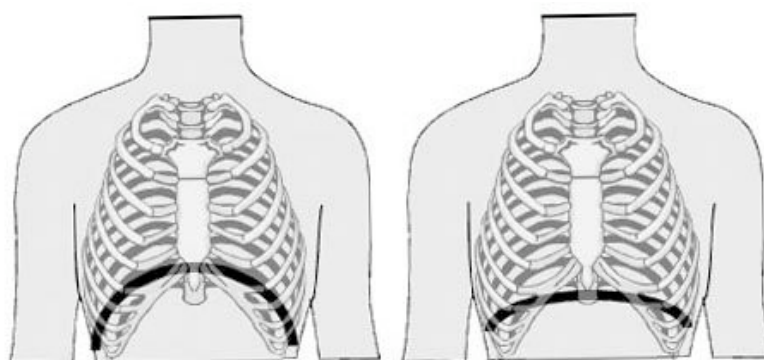
We have two sets of oblique muscles in the abdomen, the **internal obliques** and the **external obliques**. Posturally, they can contract to flex and twist the spine. Also, by compressing the abdomen, they can create higher pressures in the abdomen and thorax to help 'void' the body, e.g. in defecation, urination, vomiting, and childbirth. This same compression process is also a fundamental part of exhalation for singing; and their relaxation allows the belly to expand, in turn, enabling the diaphragm to descend when it contracts, drawing air inward for inhalation.



The diaphragm

The diaphragm does not push out or in, and the diaphragm does not push upwards!!

Avoid any singing teacher who tells you otherwise! When we breathe in, the **diaphragm** contracts *downwards* – the vacuum created in the lungs draws air in. When the diaphragm lets go, it springs upwards, and air leaves. For singing, *the diaphragm does not rise straight away* when we start exhaling or phonating. It stays down, while all the other abdominal muscles squeeze inwards and upwards. The singer's subjective perception is an internal pressure in the abdomen. The teacher and writer Janice Chapman describes the analogy of driving a car, applying the accelerator (squeezing the abdomen) at the same time as the brakes (contracting the diaphragm downwards). The bel canto teacher and writer Francesco Lamperti in the 19th century called this the *lutte vocale* (vocal struggle) – it is the only 'effort' we should be feeling in singing, ie effort in the abdomen, rather than the face, throat, neck or shoulders.



1) The diaphragm at rest. 2) The diaphragm contracting downwards for exhalation or for supported singing / phonation.