

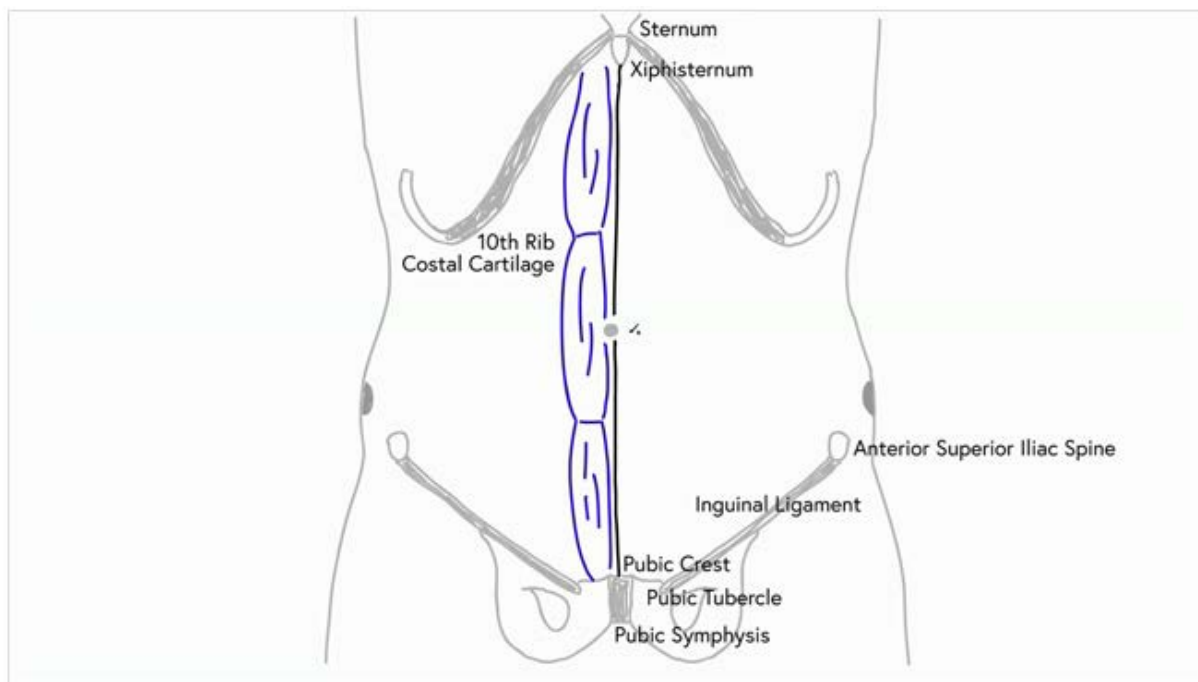
# Exploring anatomy: the human abdomen

## An advanced look at the muscles of the anterior abdominal wall

Welcome to this video for exploring anatomy, the human abdomen. This video is going to outline the muscles of the anterior abdominal wall.

So on the screen at the moment, we can see the sternum and the xiphisternum. Here's the costal cartilage coming off the 10th rib. Here, we can see in the midline, the pubic symphysis, the two pubic bones, the pubic crest and the pubic tubercle, the inguinal ligament. And here's the anterior superior iliac spine.

If we draw in the midline from the xiphisternum, all the way through the umbilicus to the pubic symphysis, we have the linea alba. And then either side of the linea alba, we can draw one of the two strapped muscles, which is rectus abdominis. This muscle is passing from the pubic symphysis and the pubic tubercle superiorly, towards the costal cartilage and the xiphisternum. So here we can see rectus abdominis



This muscle is a strapped muscle that runs along the anterior abdominal wall. It's got a couple of tendinous intersections here which splits the muscle into these three muscle bellies. And it gives its characteristic six-pack appearance when we combine it with rectus abdominis on this leftside side. So here's rectus abdominis.

I won't draw on this lefthand side. Because on this side, we'll draw in some important neurovascular structures.

So now, let's move to the lateral aspect and draw on the various flat muscles that form the more lateral aspects of the anterior abdominal wall. And remember that all three of these give rise to an

aponeurosis that goes to surround rectus abdominis in various ways as the rectus sheath. And as these muscles approach rectus abdominis, they become aponeurotic and they form that rectus sheath. And there's another video which details the rectus sheath.

So let's start with the deepest of these three muscles, which is transverse abdominis. Transverse abdominis is coming from the posterior aspect, from the thoracolumbar fascia. And its fibres run transversely around the anterior abdominal wall and come from the thoracolumbar fascia, the iliac crest, and also the lateral third of the inguinal ligament.

The majority of its fibres, like I said, run transversely across the anterior abdominal wall. But the fibres that are coming from the lateral third of the inguinal ligament actually run downwards. They sweep downwards and attach to the pubic crest.

And as also you can see later on, these fibres help to form what's known as the inguinal canal. The inguinal canal is a passageway that allows the spermatic cord or the round ligament of the uterus to leave the abdomen and pass towards the perineum. So here we can see, in purple, we've got transverse abdominis.

The next muscle layer, that is superficial to transverse abdominis is going to be internal oblique. And internal oblique's fibres run forwards and upwards. Again, they come from the thoracolumbar fascia. They come from the iliac crest. And they come from the lateral half or lateral 2/3 of the inguinal ligament. And these fibres, as you can see, are running upwards and forwards.

Also though, these fibres that come from the inguinal ligament actually run downwards and take a similar path as that of transverse abdominis. And we can see here, these fibres are running towards the pubic tubercle and the pubic crest. And these two muscles, internal oblique and transverse abdominis, as they approach the pubic crest or the pubic tubercle, combine. They merge to form the conjoint tendon. And we can look at this in more detail when we look at the video on inguinal canal.

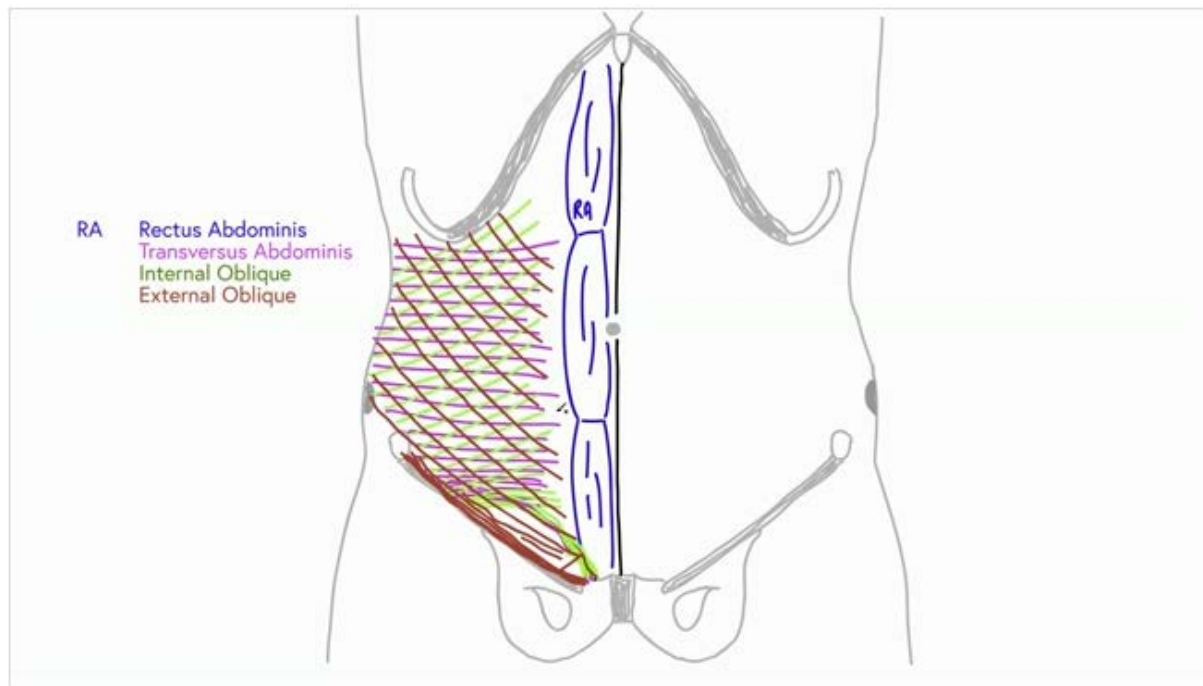
But here we can see the fibres of internal oblique are running upwards and forwards. So in green, we have internal oblique.

The most superficial muscle that we can then draw on next is going to be external oblique. And external oblique's fibres run perpendicular to internal oblique. And they run downwards and forwards. They're coming from the external surface of the 5th to 12th ribs. And on here, we can draw the fibres of external oblique. We can see these fibres running downwards and forwards.

As the fibres come from the iliac crest, they actually run from the anterior superior iliac spine and run towards the pubic tubercle. And this free margin of external oblique actually forms the inguinal ligament. So it's coming from external surface of ribs 5 to 12. And then it's running down and coming from the iliac crest and then anterior superior iliac spine. It's running down towards the pubic tubercle and the pubic crest, where it forms a thickened free edge. And this is the inguinal ligament.

There's a slight defect in the aponeurosis of external oblique. And this defect is known as the superficial inguinal ring. But again, we'll detail that in more detail when we look at the inguinal canal. Here we can see the superficial inguinal ring.

So here we can see the three muscle layers that will all give rise to an aponeurosis that surrounds the rectus abdominis and forms the rectus sheath.



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