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John Raynes

COMPLETE ANATOMY AND FIGURE DRAWING

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John Raynes



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Introduction

Many would-be artists find that the most demanding problem they encounter is that of drawing other people.

Many would-be artists find that the most demanding problem they encounter is that of drawing other people. Much of the problem resides in the acuteness of human recognition: everybody can see instantly if a drawing of a person is wrong. They may not be able to say exactly what makes it wrong and are even less likely to know how to put it right, but especially in the area of personal likeness, they will know if it is right or not.

Sorting out the subtle and infinitely varied forms of the human face and figure is not easy; it would be unfair and dishonest to pretend that it is. Just as with drawing any other objects, analytical observation, perhaps accompanied by careful measurements, will enable you better to see the familiar shapes with a more dispassionate, objective vision.

But how do you decide which of the myriad bumps and hollows, smooth curves and sharp angles are significant enough to be measured? It is easy to see that the shapes of features, such as eyes, nose, mouth and ears, are important but as well as seeing their shapes it is essential to place them accurately.

To do this you need to look at the spaces between the features, the forehead, cheekbones, temple and chin – all forms made of bone thinly covered by tissue, all therefore fixed by the shape of the skull and lower jaw. Elsewhere on the human figure the bones tend generally to be deeper beneath the surface; but there are a number of places where parts of the bones can be seen just below the skin. They may appear as ridges or nodules, dimples or grooves and these more or less constant salient points can be immensely helpful in identifying the positions of the main skeletal elements. As such, they are the first clues for which you need to search.

Luckily, most or all of these important points are identifiable, even in well-covered individuals. Whereas with very light musculature and little fat they may appear at the surface as projections, they are never covered by heavier muscles but instead can be recognized at the skin surface as depressions between the main muscle masses. Even in massively overweight individuals the signs remain, albeit a little more difficult to pinpoint.

Once the ability to see these vital signposts is acquired, the rest can be dropped into place. Muscles with their attendant tendons attach to the movable skeletal elements, pulling and twisting them into the myriad movements and positions of which the human body is capable.

How far you should go in learning the precise actions of each joint and the origin and insertion of every muscle in order to draw the human figure from life is a matter of personal choice. (The origin of the muscle – from which it 'arises' – refers to its fixed attachment and the insertion of the muscle to the more movable point. In fact in most cases both connections are capable of movement, but the terms

RIGHT: The nuances of the human body are both a delight and a challenge for the artist [see pages 122–123].

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remain). Certainly, acquiring some knowledge of the way that the spine moves and how the thorax (ribcage) and the pelvis attach to it is very useful. Likewise, being able to recognize the main muscle groups enables better understanding, helping you to decide which of the often-bewildering plethora of forms are the most significant. Drawing is not just a matter of recording every detail of what is seen – the best drawings are made by selecting, and thereby clarifying and intensifying, the thing seen.

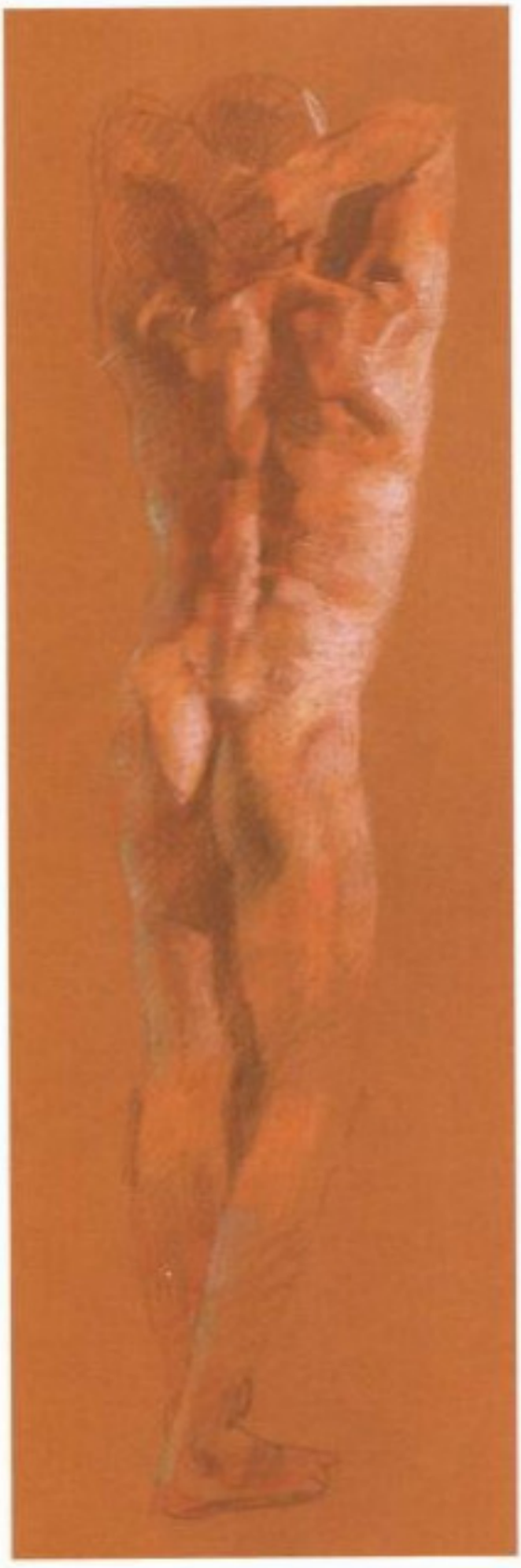
Although it is difficult to say with certainty how much knowledge of the internal structure is necessary to ensure good draughtsmanship of the human figure, you may find, once you have started to look at it, that it is difficult to stop. For example, there is not just one layer of muscles: in many places there are as many as three or more layers. Not only that, the topmost layer of muscles is often a thin sheet that takes its observed surface form from a more bulky muscle beneath it. In order to understand what is happening close to the surface you may need to know something about what is going on deeper down.

Muscles work by shortening and relaxing on demand; that is all they do but together with a variety of connections and working singly and in groups a large range of movements can be made. There are pulleys for the tendons, mechanisms to absorb shocks, self-lubricating hinges and amazing pieces of evolved design wherever you look around the human body.

It is true that all human bodies work in a similar way and they share characteristics that are specifically human; a human thigh bone (*femur*) is recognizably different from that of, say, an elephant or a cat, although elephants and cats both have *femurs*. The human pelvis has uniquely evolved to support our upright mode of locomotion, which is quite different from that of our close primate cousins. We all have comparatively more developed bottom muscles (*gluteus maximus*) than other primates; this is also associated with bipedal progress.

Within this quite specific set of human characteristics there is room for huge variation. Most of this variety is in the area of dimension. Every bone in the body shows variation in length and thickness between individuals, giving almost infinite combinations. Gender, race and parentage participate in the variations and so does lifestyle. Heavy work makes bigger muscles that in turn make the need for bones that are thicker and stronger. Age and state of health add their influences, as do nutrition and work-associated posture.

I have been asked why I still draw from life – why, after drawing hundreds, perhaps thousands, of figures, don't I know from memory what a human being looks like? The answer of course is that every human being is unique, and each and every one of them provides a further collection of shapes and postures that are waiting to be discovered. This book is about helping you to search out those differences and capture them on paper.



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The humerus

1 The Skeleton

The skeleton is the essential internal support framework for all mammals including human beings.

For the figure artist searching for the structure of the human form it is important to have an understanding of the skeleton, of how it holds together and especially the way that it moves and articulates. On its own the skeleton is a non-working structure – it's like the masts and spars of a ship – it needs the rigging to hold it together and to move it about.

So the drawings on these pages are from skeletons (or nowadays excellent plastic replicas) that have been joined together by various bolts, wing nuts and hinges to allow a simulation of the myriad movements that are possible in life. Without muscles they cannot stand up and can only be held in an upright posture by hanging from an external support stand. The following general description assumes the figure to be standing on both legs with the arms hanging down and palms turned out so that the terms upper and lower apply to their corresponding positions in the accompanying drawings.

Of course, the figure is not always in the standing posture but even so the terms upper, lower, front and back or their Latin equivalents still generally apply as if it were still upright. To avoid confusion in later, more detailed descriptions we may need here to embrace a few of the Latin names used by most anatomical textbooks. However, unless I feel that there is room for misunderstanding I shall, wherever possible, try to keep to normal usage English words, but wherever I feel that greater precision is required or maybe just to keep reminding you of the technical words, I will use the Latin. All medical terms will appear in italics.

The following are the main descriptive special terms in general use:

Upper and lower = superior and inferior
Front, side and back = anterior, lateral and posterior
Near and far = proximal and distal



The seven bones of the wrist (*carpus*)

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Also, bones may be classified as long, short, flat or irregular. Long bones have a relatively narrow shaft (tubular) and two extremities (ends) that are enlarged for good connection of muscles and to suit the needs of the joint. Short bones tend to be small and clustered in groups with little movement between them – the bones of the wrist (*carpus*) and ankle (*tarsus*) are typical. Flat bones are either for protection, as those of the *cranium*, or to provide broad surfaces for muscle attachment, as the shoulder blade (*scapula*). All the rest, such as the vertebrae and the jawbone and bones of the face are called irregular.

Other special terms apply to various bumps and grooves on the surface of bones – many are self-explanatory and any that are not will be described when they occur.



The skull



The shoulder blade (scapula)



A typical vertebrae

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Female, back view

In many ways the human skeleton is similar to that of animal quadrupeds, many bones having the same names, but the adaptation of humans to upright gait has made necessary certain significant changes to some structures.

Probably the most important change is in the area of the pelvis that, while providing attachments for the lower (or rear) limbs, has also now to become the primary support for the upright backbone or *vertebral column*. This is a series of linked bones (*vertebrae*) that in life are held in position by complicated groups of muscles and tendons to form a column that, even at rest, incorporates several characteristic curves, but which is also capable of great flexibility, in some individuals astonishingly so.

Although the main body of the backbone is hidden from view in life, each *vertebra* has several protruding pieces of bone called *processes*: the central backwards-projecting one of these extends to just below the skin, making the line of the backbone always clearly discernible. Other *vertebral processes* provide articulation and attachment points for muscles.

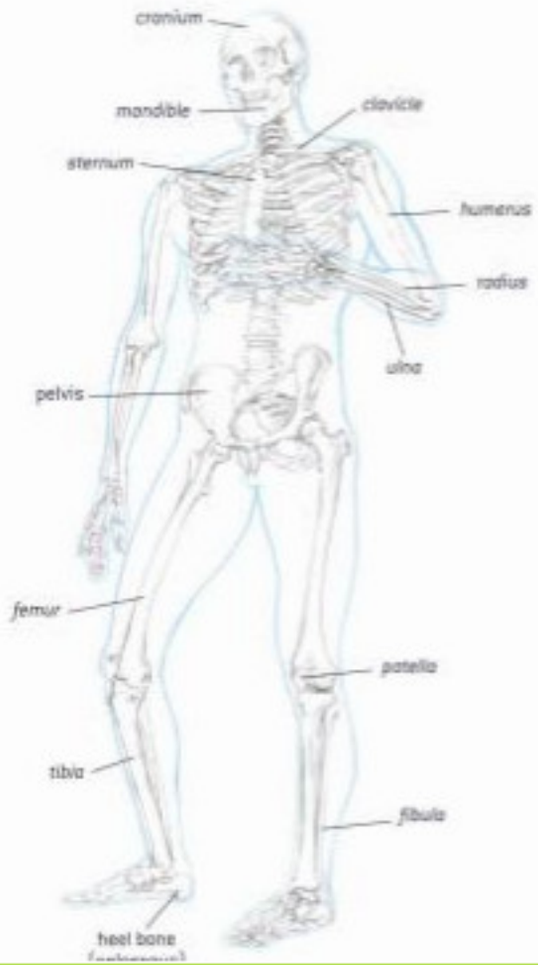
Securely locked to the base of the spine and virtually on the surface from the rear view is the *sacrum*, which is itself part of the pelvis or hipbone. Much of the rest of the pelvis is deeply buried but the front and side edges are usually easily seen at the surface.

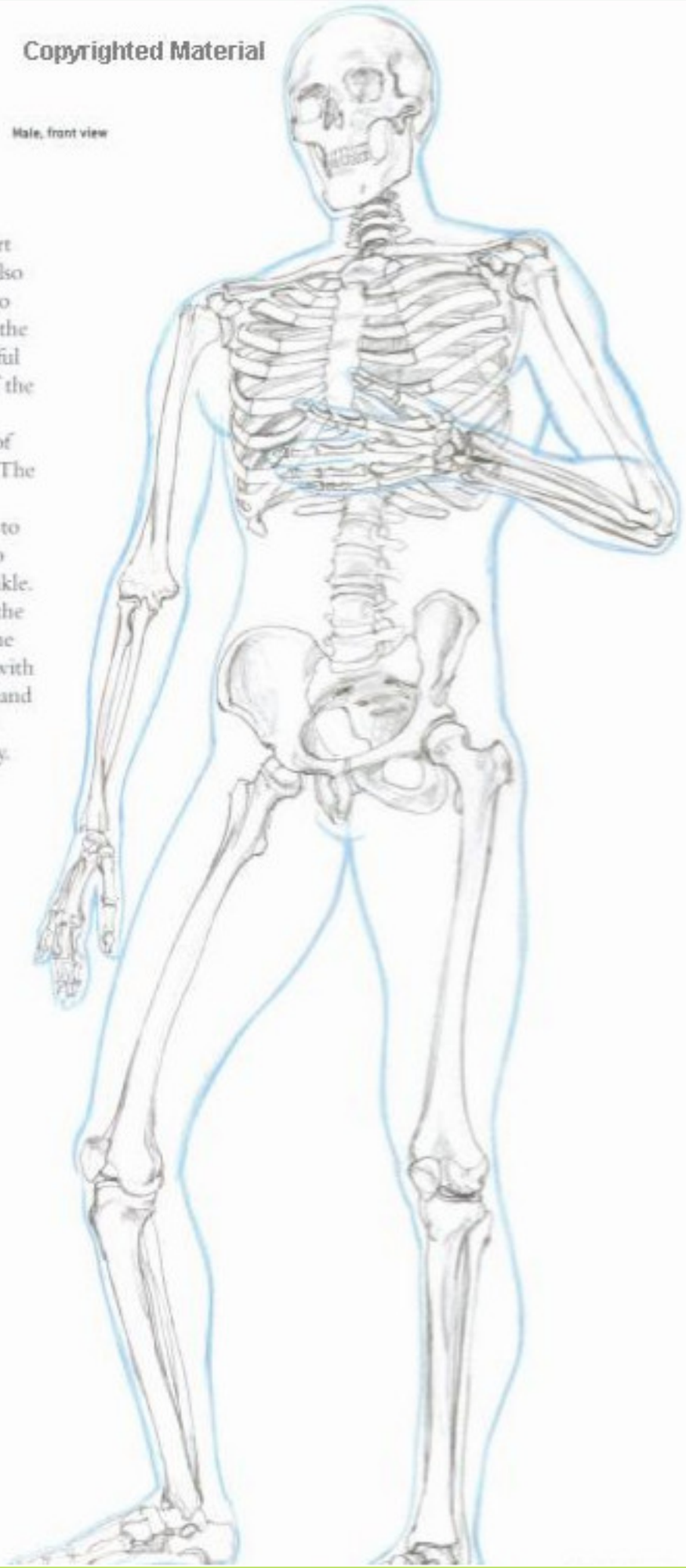


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Male, front view

For the bipedal human the legs must support the whole weight of the rest of the body and also provide the normal means of locomotion. To do this they have evolved very mobile joints with the pelvis, which are secured and moved by powerful musculature. The longest and strongest bone of the skeleton is the thighbone or *femur*, the lower extremity of which joins with the main bone of the lower leg, the *tibia*, to form the knee joint. The much smaller second bone of the lower leg is called the *fibula* and it combines with the tibia to articulate with one of the bones of the *tarsus* to form another strong and mobile joint at the ankle. Finally, contact with the ground is made with the *calcaneus*, the *metatarsal* bones of the foot and the *phalanges* of the toes. All these joints, together with their ligaments, connective tissue and cartilage and the assistance of powerful muscles combine to provide amazing shock absorption and mobility.





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Renowned author and award-winning artist John Raynes provides the ultimate reference and inspiration for all artists depicting the human form.

From technical anatomical details of the bones and muscles to capturing balance, movement and expression, and using light, shade and colour creatively – everything you need to represent the human figure accurately is included here.

Including stunning work on both the male and female figure, this comprehensive guide examines a range of poses and provides an insight into drawing real people, from the underweight to the heavily pregnant.

The striking paintings – including many step-by-step drawings – are rendered in beautiful detail and are accompanied by practical and accessible instructions.

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