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### **Anatomical and constructive-spatial principles of human figure representation in drawing**

**Abstract.** The article is devoted to the investigation of two principles of studying the human figure in drawing: the anatomical and constructive-spatial (form-shaping) ones. These principles are analyzed from a historical and pedagogical perspective as the foundation for systematizing the drawing learning process in the training of future artists in traditional folk art crafts.

**Keywords:** drawing, anatomy, figure, construction, higher education, traditional art crafts.

The academic disciplines "Academic drawing" and "Drawing" serve as fundamental courses respectively for the program 54.03.02 "Decorative and applied arts and folk crafts" and for the program 54.05.02 "Painting". A considerable portion of the curriculum for these disciplines involves the study and depiction of the human figure.

Teaching drawing demands the use of conceptual and terminological tools that facilitate clear and accessible communication of material to students with varying levels of initial preparation and drawing experience. The instructional process must be structured and functionally coherent so that the resulting images conform to the standards set forth by relevant faculty departments [10, p. 150].

Depicting the human figure presents significant challenges even for seasoned artists. In the training of artists specializing in traditional folk art crafts, the goal is not to master every facet of rendering the human figure, as might be required in easel painting. Instead, students need to comprehend fundamental drawing principles, gain insights into proportions, construction and character of movement, acquire practical skills and apply acquired knowledge and skills effectively in their own creative endeavors [7, p. 8].

To make this task accessible to students with different levels of preparedness, we propose distinguishing and theoretically substantiating the following principles of human figure representation: anatomical and constructive-spatial.

At first glance, such division may seem oversimplified. The image of a person in art is inherently complex and simultaneously possesses a unity of all its plastic, psychological and spiritual facets integrated into a single entity. Therefore, intellectual and mechanical separation into constituent parts could appear unacceptable. However, in the educational process, this simplification will help clarify the entire complexity of studying the human figure in drawing and identify ways to achieve this goal. There is a need for a more detailed scientific description

of the principles governing the practical study of the human figure, which form the basis for systematizing the drawing-learning process in the training of future artists in traditional folk art crafts.

The very name of the principle – anatomical – expresses its analytical nature. The visible form undergoes analysis: it is divided into component parts, specific objects (bones, muscles, tendons, etc.) from which it is constructed; the physical matter constituting the object being depicted is studied [11, p. 301].

Figures 1<sup>18</sup> and 2<sup>19</sup> present anatomical studies by the Russian artist Pyotr Vasilyevich Basin. These are purely anatomical drawings whose aim is to examine the musculature of the head and torso – each muscle and each tendon is clearly shown separately, intentionally isolated without regard for their plastic cohesion or spatial arrangement on the volume, which is not the artist's concern here. One might say that these are not conventional drawings but diagrams illustrating not the image of the object but providing information about its composition, its analysis – in essence, they represent an anatomical chart.

For comparison, let us consider the engravings of Andreas Vesalius, a physician and anatomist widely acknowledged as the founder of scientific anatomy (Figs. 3<sup>20</sup> и 4<sup>21</sup>).

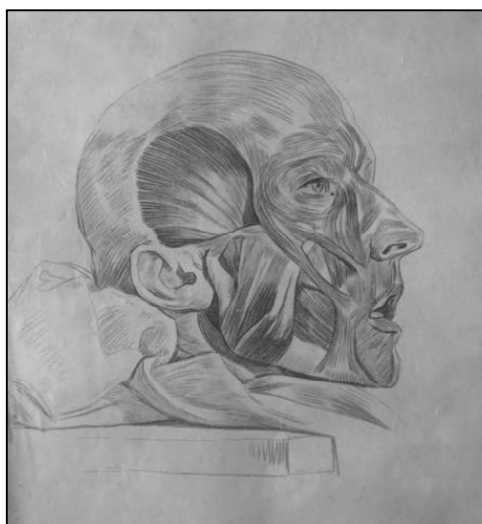


Fig. 1. Basin P.V. Drawing: muscles of the head (Facial-mimetic and masticatory)

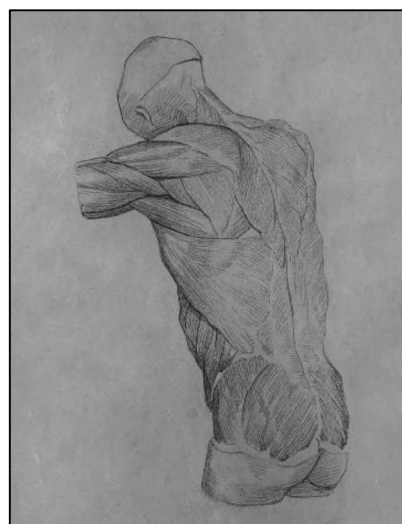


Fig. 2. Basin P.V. Drawing: superficial muscles of the back, shoulder belt and gluteal area

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<sup>18</sup> Fig. 1. Anatomical drawings of Russian artists / editors: M. N. Aleksin, A. M. Kuznetsov, I. M. Leizerov, B. N. Uskov; artists: V. A. Serov, P. V. Basin, A. A. Ivanov, et al. – Moscow: Iskusstvo, 1952. The publication is a folder measuring 48x35 cm, containing an introduction by the editors and 41 sheets of anatomical illustrations. Plate 5. URL: [https://vk.com/photo-74543100\\_457259986](https://vk.com/photo-74543100_457259986) (accessed: July 30, 2025).

<sup>19</sup> Fig. 2. Ibid. Plate 33. – URL: [https://vk.com/photo-74543100\\_457259992](https://vk.com/photo-74543100_457259992) (accessed: July 30, 2025).

<sup>20</sup> Fig. 3. Vesalius A. On the structure of the human body in seven books. – In 2 volumes. (Series "Classics of science") // translated from latin by V. N. Ternovsky ; afterword by I. P. Pavlov. – Moscow, Leningrad: publishing house of the USSR Academy of sciences, 1950-1954. – P. 507.

<sup>21</sup> Fig. 4. Ibid. – P. 573.

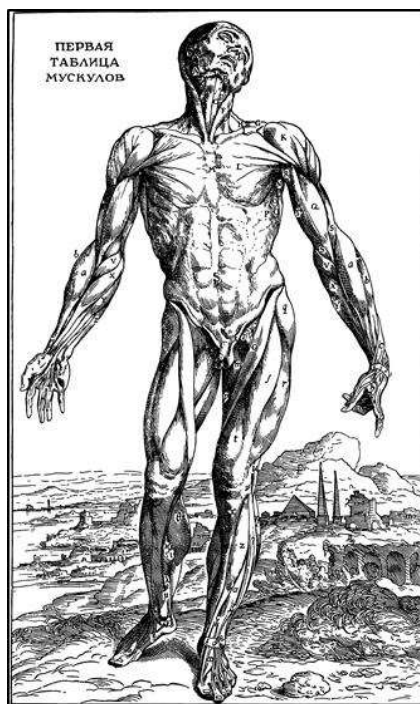


Fig. 3. Vesalius A. Anatomical table of the human figure in frontal view

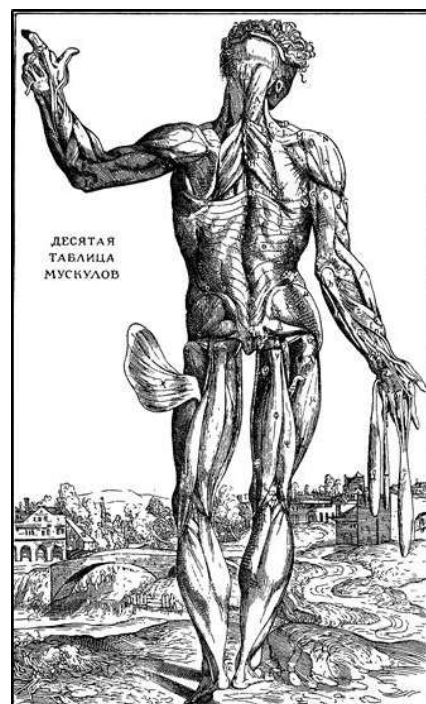


Fig. 4. Vesalius A. Anatomical table of the human figure in dorsal view

Andreas Vesalius was not an artist but a physician. However, when comparing the drawings of P.V. Basin and A. Vesalius – an artist and a medical scholar – one can see that their task was essentially the same: study and analysis. At this stage, there is no discussion of synthesis or form-shaping, i.e., the tasks of representational art [8, p. 7].

In contrast to the anatomical principle, the constructive-spatial principle is based on synthesis and generalization, with significant importance given to elements of form-shaping theory.

The theory of form-shaping in visual arts studies the process of creating form in works of painting, drawing, sculpture and other forms of visual art [2, p. 133]. Its development is closely linked to the evolution of visual art: even in the works of Plato and Aristotle, the principles of form-shaping were discussed, for instance, in the context of the distinction between form and content [2, p. 14].

Let's briefly examine some key concepts of form-shaping theory.

- Form – the morphological and volumetric-spatial structural organization of an object, representing the external or structural expression of some content.
- Form-shaping – the process of creating form in the work of an artist, architect or designer, in accordance with the general value orientations of culture and requirements for aesthetic expressiveness, functionality, construction and materials.
- Principles of form-shaping: rationality (the connection between form and function), tectonics (the correspondence of form to the construction), structurality (the subordination of elements), flexibility (dynamism) [4, p. 137].

In pedagogical and creative practice, terms related to the depiction of form are widely used, such as "construction", "constructiveness" and "character of

movement" [1, p. 8]. The constructive-spatial principle is used to develop these concepts in drawing.

Let's examine the concept of "construction" in drawing. It is closely related to the terms "geometry" and "geometric." Finding the construction of an object involves identifying and building its spatial form, the interconnectedness of all its elements into a unified whole and searching for the relationship between the image and the fundamental laws of constructing a whole. The basis of this construction is the geometric or constructive analysis of the object being depicted. [4, p. 5].

In contemporary form-shaping theory, there is the concept of "unique wholeness", which posits that the foundation of construction lies not in individual elements of the image, but in the relationships and methods of connection between them [2, p. 92].

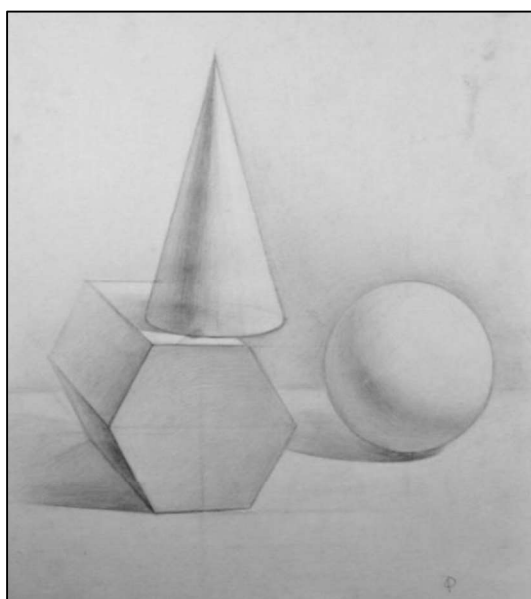


Fig. 5. Drawing of a still life composed of plaster geometric solids. Constructive and chiaroscuro solution

The constructive-spatial principle of form construction is applied from the very beginning of drawing instruction in such exercises as drawing plaster geometric solids (Fig. 5<sup>22</sup>). The simplest method of geometric construction studied in this exercise serves as the foundation for constructing even the most complex objects, including the human head and figure. This method has been utilized by artists from various epochs and artistic movements. Figures 6<sup>23</sup> и 7<sup>24</sup> present studies by Albrecht Dürer and Hans Holbein the Younger, in which they utilize a system of reference points, edges and facets to analyze the constructive-spatial nature of the head and figure.

When artists study form within the framework of the constructive-spatial principle, they consider the object of depiction as an integral structure of elements that are logically interconnected [5, p. 75].

The connecting element is the construction – a system of reference points, edges and facets that define the boundaries separating the object's form from the surrounding space. The geometric basis of the construction of simple objects is evident (Fig. 5) – for example, the basis for the form of a building is a cube and for the roof of a building, it is a three-sided prism. It is more challenging to discern such a geometric basis in living forms (Figs. 6, 7). The drawings by Albrecht Dürer and

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<sup>22</sup> Fig. 5, 12-14. Photos from the methodological fund of the department of drawing and painting of the Russian university of traditional art crafts.

<sup>23</sup> Fig. 6. Albrecht Dürer. Sketches of heads and figure of apostle Peter, pen drawing. Dresden, Public library – URL: <https://vostlit.info/Texts/Dokumenty/Germany/XVI/Duerer/12.GIF> (accessed: July 30, 2025).

<sup>24</sup> Fig. 7. Hans Holbein the Younger. Sketches of head and hands – URL: <https://kasheloff.ru/photos/golbiy-i-ego-bratya/19> (accessed: July 30, 2025).

Hans Holbein the Younger clearly demonstrate that complex forms also possess a hidden geometric foundation that expresses the structural and constructive essence of the object [4, p. 6].

However, studying the form of an object solely within the framework of the constructive-spatial principle is insufficient – it would mean studying a lifeless schematic representation. A living plastic form has not only a scheme; it also consists of "matter".

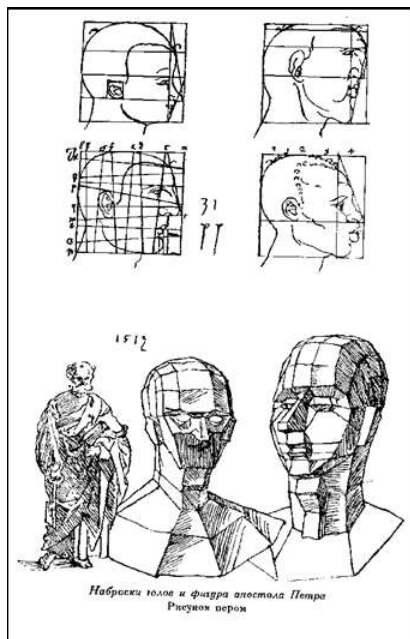


Fig. 6. Dürer A. Sketches of a human head from different views and figure of apostle Peter

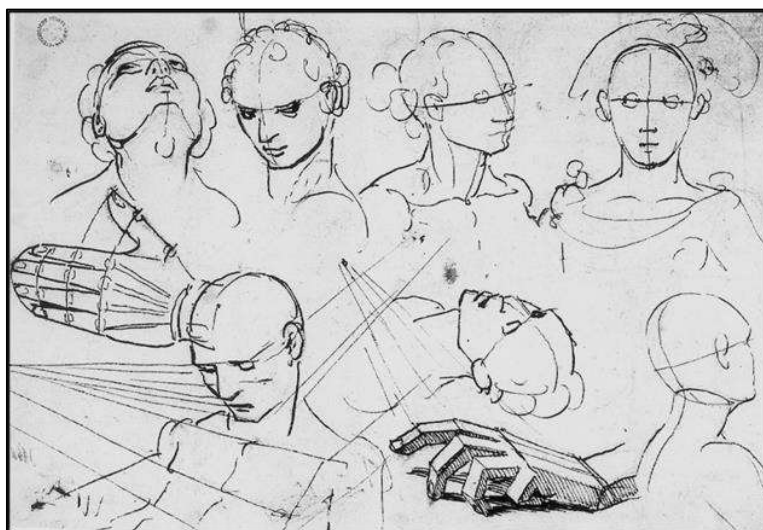


Fig. 7. H. Holbein the Younger. Sketches of a head and the hands from different views

The "matter" or "substance" of form is examined within the framework of the anatomical principle of studying the object of depiction and its representation in drawing.

While students in drawing classes master the constructive-spatial principle of studying form by completing assignments involving the drawing of plaster geometric solids and simple still lifes during their first year, they simultaneously study the anatomical structure of the human figure in the course "Plastic anatomy".

As they progress to more complex drawing assignments and begin studying the head and human figure, students gradually infuse the dry schematic representation with living content – depicting not an abstract "volume", but a living form composed of anatomical details [9, p. 71]. In this process, students combine the constructive-spatial principle of studying form with the anatomical one. The challenge arises when students, upon transitioning to working with living forms, often forget about the constructive-spatial principle, discarding it as already studied and no longer necessary and shift to passively copying anatomical details and surface features of the form.

Let's consider an example of how the constructive-spatial (form-shaping) principle (Fig. 8<sup>25</sup>) is applied in conjunction with the anatomical (naturalistic) one (Fig. 9<sup>26</sup>).

The scheme shown in figure 8 is precisely that – a scheme. It is not applied in its pure form directly in a drawing or is used only at the very beginning of training during the linear-constructive construction phase, and then it is eliminated in subsequent stages. This constructive scheme represents a conditionally limited space that needs to be filled with content, information about the object of depiction and about the plastic form. This primarily includes anatomical details, as well as data on texture, tone and the character of the form.

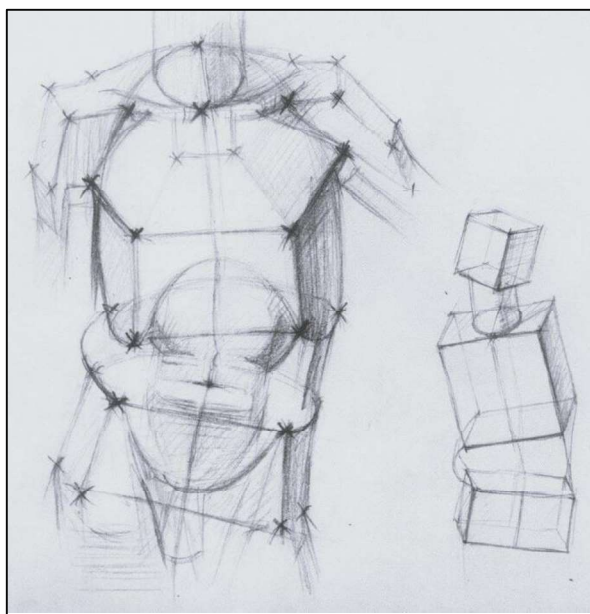


Fig. 8. V.A. Mogilevtsev. Constructive-spatial analysis of the torso

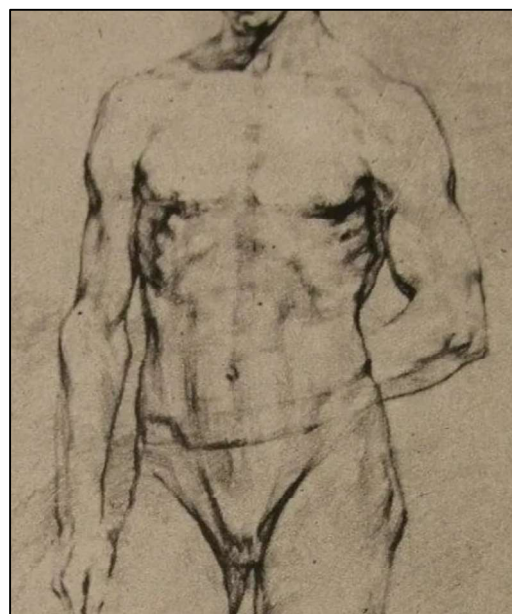


Fig. 9. Life drawing of the torso based on the combination of constructive-spatial and anatomical principles of study

The constructive-spatial scheme is characterized by its simplification, which becomes unacceptable at the final stage of completing the drawing. The less this scheme is discernible in the finished drawing, and the more concise drawing techniques are used to develop the form, the higher the artistic qualities of the drawing. На рисунке 10<sup>27</sup> показана начальная стадия построения больших объемов стоящей фигуры. For comparison, figure 11<sup>28</sup> shows a graphic work by

<sup>25</sup> Fig. 8. Mogilevtsev V.A. Fundamentals of drawing: a textbook / V.A. Mogilevtsev – Saint Petersburg: Artindex, 2007. – P. 50. – ISBN 5-903733-01-8.

<sup>26</sup> Fig. 9. Academic drawing: a textbook / Saint Petersburg state academic institute of painting, sculpture and architecture named after I.E. Repin of the Russian academy of arts; editorial board: O.A. Ereemeev, V.A. Korolev, N.N. Repin. – Moscow: Fine arts, 1995. – P. 49.

<sup>27</sup> Fig. 10. Human figure anatomy. A brief handbook for artists: a textbook / author-compiler: V.A. Mogilevtsev. – Saint Petersburg: Artindex, 2015. – P. 115.

<sup>28</sup> Fig. 11. J.-A.-D. Ingres. Adam and Eve. Sketch for the easel version of "The Golden age". 1862, Fogg Museum, Harvard university. – URL: [https://commons.wikimedia.org/wiki/File:Ingres\\_-\\_Estudio\\_para\\_L%27Age\\_d%27Or.jpg](https://commons.wikimedia.org/wiki/File:Ingres_-_Estudio_para_L%27Age_d%27Or.jpg) (accessed: July 30, 2025).

Jean-Auguste-Dominique Ingres – a highly concise and artistically complete piece that utilizes only the expressive means of line.

It is important to note that the drawing by J.-A.-D. Ingres contains the entire constructive-spatial structure of the human figure, but it is skillfully concealed from the viewer; the plastic character of the form is conveyed using minimal graphic means, which represents the pinnacle of mastery. If we compare this drawing with the anatomical studies by A. Vesalius (Figs. 3, 4), the difference in the objectives of these drawings becomes very clear: Vesalius's drawings aim to list and "memorize" anatomical details, while Ingres's drawing seeks to create a complete artistic image using minimal means. Similarly, when compared to Ingres's drawing, the essence of the constructive-spatial, schematic representation of the volumes of a standing figure (Fig. 10) becomes clearly evident. Ingres's drawing serves as an example of a highly artistic synthesis of the constructive-spatial and anatomical principles of representation.

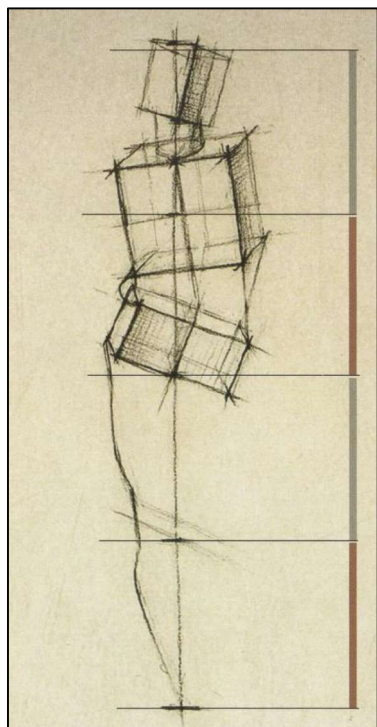


Fig. 10. V.A. Mogilevtsev. Volume scheme of a standing figure

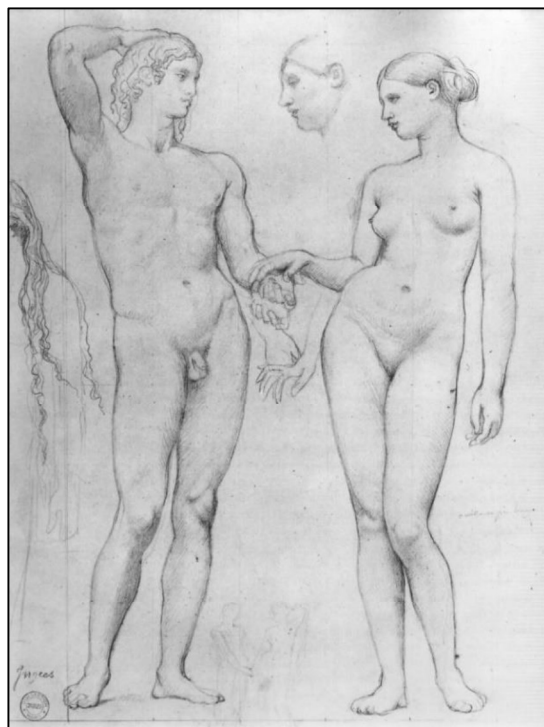


Fig. 11. J.-A.-D. Ingres. Adam and Eve

The curriculum of the academic discipline "Drawing" for the specialty 54.05.02 "Painting" includes a series of assignments focused on small-scale, linear solutions for drawing the human figure (Figs. 12-14).

The difficulty of this assignment lies precisely in the need to convey the character and movement of the figure using minimal expressive line work, while not neglecting the construction and maintaining accurate proportions and anatomical structure. Students often make mistakes – the apparent simplicity of a linear drawing creates the impression that neither the linear-constructive construction nor the study of anatomy, especially in their interrelation, is necessary.

The mistakes made by students stem from a lack of understanding of the inseparable connection between the spatially-constructive and anatomical principles of studying the human figure in drawing. Another negative factor in completing the assignment is the lack of visual experience and exposure to art. Consistent, diligent work from life, studying the legacy of great artists of world art, artists of lacquer miniature painting; understanding the essence of the principles of studying the human figure – spatially-constructive and anatomical – will help students overcome this challenging task [6, p. 153].

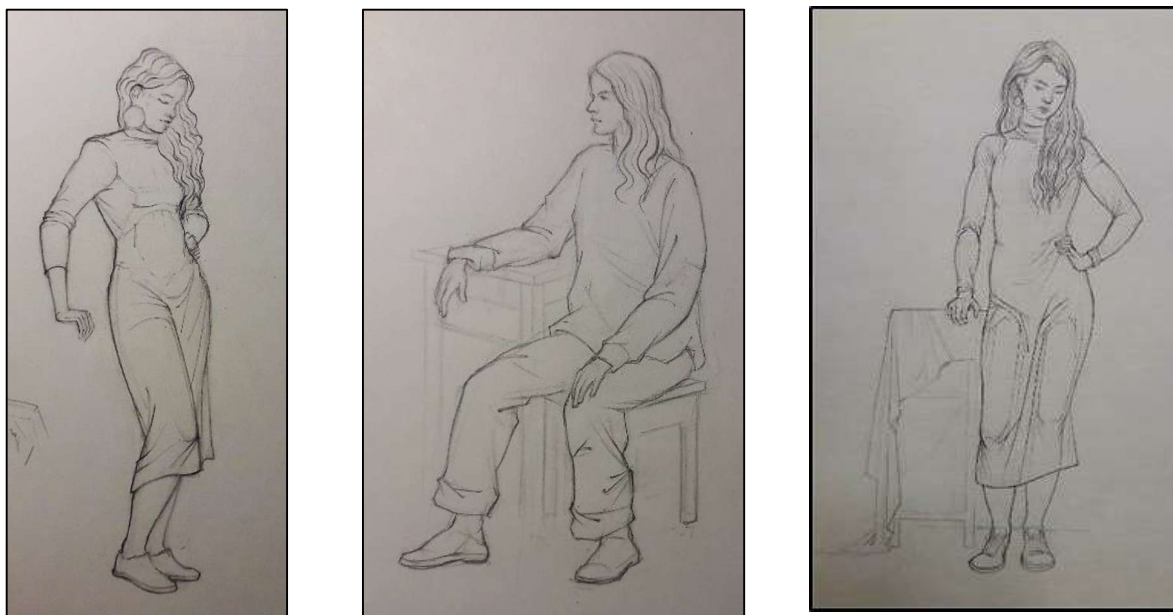


Fig. 12-14. Small-scale linear solutions for drawing the human figure

To optimize student work in this direction, the drawing curricula include assignments for studying the nude model. Particularly useful is the assignment "Drawing of a human figure in two views with anatomical analysis", during which students study the anatomy of the nude human figure and analyze the constructive features of the body's structure. In painting classes, studies of the nude figure are also completed [3, p. 135], where the task of combining the two principles of studying form gains additional significance.

The number of hours allocated to studying the nude model for future artists of lacquer miniature painting should be increased, primarily in drawing. The optimal solution is to complete assignments for studying the nude figure in full interrelation with the study of plastic anatomy [3, p. 136].

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