Introduction: Arwāḥ (Pneuma) is one of the basic constituent of human body. Different meanings, definitions, theories and concept are present in Unani system of medicine regarding Rūḥ. Inspite of this a Unani scholar is unable to explain it on the basis of current knowledge. So, in this paper the key mechanism of Rūḥ and Rūḥ-e-Ḥaywānī is given on the basis of Asbāb-e-Māddiya (Material Causes), Asbāb-e-Fā'ila (Formal Causes), Asbāb-e-Sūrīyya (Skilled Causes), Asbāb-e-Tamāmīyya (Final Causes). So, in this article these four causes in relation to Rūḥ and Rūḥ-e-Ḥaywānī are elaborated on the basis of evidence based knowledge present with respect to time.

Conclusion: All the functions done by cardiovascular system (Qawwat Ḥaywānīyya) are due to specific oxygen demand in blood which perfuse those organs, tissues and cells, which consist the A’dā-e-Ḥaywānīyya. Oxygen which dissolved in blood and performs its function of oxidation to initiate ATP formation is Rūḥ. Blood (Plasma and RBC) is just a carrier not a component of Rūḥ. So, Rūḥ is same throughout the body.

Future Prospects: The chapter of Rūḥ and Rūḥ-e-Ḥaywānī must be taught in this way, so that the concept gets clear to students in a scientific manner. Likewise Rūḥ-e-Nafsānīyya and Rūḥ-e-Ṭabīḇīyya must be considered in this manner.

Keywords: Unani, Rūḥ, Rūḥ-e-Ḥaywānī, Asbāb-e-Rūḥ Ḥaywānī.

Rūḥ and Rūḥ Ḥaywānī are defined in Unani literature as: Unani physicians had described Rūḥ and Rūḥ-e-Ḥaywānī in different ways; they also differ to a great explaining its source. Some considered it as materialistic while others as immaterial. According to some physicians the source of Rūḥ is external air (Ḥawā-e-Muhīṭ), but some considered Rūḥ is not the atmospheric air as such; instead, it is produced in the heart by atmospheric air and light part of ‘Akhlāṭ’. And when this Rūḥ reaches in heart, gets its temperament and becomes Rūḥ-e-Ḥaywānī.
blood. Rūḥ Ḥaywānī forms in Qalb (Heart), and reach to rest of body by blood vessels. Rūḥ Ḥaywānī is responsible for Quwwat-e-Ḥaywāniyya, and its nourishment and genesis. [3] **Abu Sahal Mashihi** (1010 AD): “Rūḥ is inhaled inside through the respiration and in heart it undergoes some changes and gets converted into Rūḥ-e-Ḥaywānī.” [9] **Avicena** (980-1037 AD) assumes Rūḥ is a physical entity, but committed an error in differentiating between Naseem (Oxygen) and Rūḥ. He says – “The air is element (‘Unṣur) for our body and Arwāḥ. In addition, it is a sort of help which constantly reaches to soul and sustain it. Rūḥ is produced by vaporous form of humour in the same way as organs are formed by kaseef (dense) part of humours. For Formation of Rūḥ, air & Ṭaṭṭīf Akhlāṭ (Fine Humours) are essential. Blood has such temperament so that Jawhar-e-Rūḥ which is coming from air can be mixed with it. [7] **Ibne Rushd** listed Rūḥ under A’dā-e-Basiṭa. According to him it is tool and an essential component for Quwāt Mudābbara Badan (Ṭabī‘īyyat) for a body. He assumes that in absence of Rūḥ death occurs. [5] **Allama Burhanuddin Nafis** (1409-1449 AD): in his book, Mujaz al-Qanoon writes: “Since Rūḥ is powered by food and it is weakened when food is stopped. It proves that Rūḥ is produced by humours. If respiratory air had been responsible for the production of Rūḥ as Galen and Maseehi had stated. Suspension of food would not have weakened the body.” [9] **Qarshi** states that Arwāḥ are the carrier of Quwā (power). [4] **Hakim Ali Gilani** (1558-1606 AD) Writer of Jami‘ul sharahain, also accept that production of the Rūḥ begins in lungs. Rūḥ is a gaseous substance, obtained from the inspired air; it helps in all the metabolic activities of the body; it burns the Akhlāṭ-Laṭīfa (Fine Humours) to produce all kinds of Quwā (powers) and Ḥarārat Gharīziyyah (Innate Heat). [10] It is the source of vitality for all the organs of the body”. Substance of Rūḥ is Jawhar Rūḥ (Extract of pneuma) and Khilt Laṭīf (Fine Humours) 8. Jawhar Rūḥ (Extract of pneuma) is found in the atmospheric air & Akhlāṭ Laṭīfa (Fine Humours) is a part of Khilt (Blood), which diffuse and produce energy. When the air is inhaled through inspiration, this essence of air is separated in the lungs. It gets separated from the air by the selective power (Quwāt al-Mumayizah) and is absorbed into blood and becomes a part of body. When this essence comes into contact with blood, Jawhar Rūḥ comes into existence. So the oxygen outside the body is not called as Rūḥ but simple constituents of atmospheric air. However, when it enters inside the body and virtually becomes its part by getting absorbed into body, it becomes Rūḥ that reaches to the heart which pumps it to all the organs and tissues. [6]

Understanding of Above Described Definitions of Rūḥ: Thus the Rūḥ may be defined as: Rūḥ is a gaseous substance, it is a materialistic pillar, obtained from the inspired air. It helps in all the metabolic activities of the body. It also burns the Akhlāṭ-Laṭīfa (Fine Humours) to produce all kinds of Quwā (powers) and Ḥarārat Newer Qanoon writes: “Since Rūḥ is powered by food and it is weakened when food is stopped. It proves that Rūḥ is produced by humours. If respiratory air had been responsible for the production of Rūḥ as Galen and Maseehi had stated. Suspension of food would not have weakened the body.” [9] **Qarshi** states that Arwāḥ are the carrier of Quwā (power). [4] **Hakim Ali Gilani** (1558-1606 AD) Writer of Jami‘ul sharahain, also accept that production of the Rūḥ begins in lungs. Rūḥ is a gaseous substance, obtained from the inspired air; it helps in all the metabolic activities of the body; it burns the Akhlāṭ-Laṭīfa (Fine Humours) to produce all kinds of Quwā (powers) and Ḥarārat Gharīziyyah (Innate Heat). [10] It is the source of vitality for all the organs of the body”. Substance of Rūḥ is Jawhar Rūḥ (Extract of pneuma) and Khilt Laṭīf (Fine Humours) 8. Jawhar Rūḥ (Extract of pneuma) is found in the atmospheric air & Akhlāṭ Laṭīfa (Fine Humours) is a part of Khilt (Blood), which diffuse and produce energy. When the air is inhaled through inspiration, this essence of air is separated in the lungs. It gets separated from the air by the selective power (Quwāt al-Mumayizah) and is absorbed into blood and becomes a part of body. When this essence comes into contact with blood, Jawhar Rūḥ comes into existence. So the oxygen outside the body is not called as Rūḥ but simple constituents of atmospheric air. However, when it enters inside the body and virtually becomes its part by getting absorbed into body, it becomes Rūḥ that reaches to the heart which pumps it to all the organs and tissues. [6]

Understanding of Ancient classification of Rūḥ: Rūḥ is present in whole body with respect of different kind of Power, or A’dā-e-Ra‘īsa. Rūḥ circulates in the whole body and is essential for performance of different physiological functions by different organs. When it assisting heart and provide material for stimulation of Vital power with whole body named as Rūḥ-e-Ḥaywāniyyah (Vital breadth) when it is found in liver it is named as Rūḥ-e-Ṭabī‘īyyah (Natural Breath) and in case of nervous functions it is known as Rūḥ-e-Nafṣānī (Mental breath). [1, 2, 3, 4, 6, 7].

Discussion:
When Oxygen becomes Rūḥ: Oxygen outside the body is not called as Rūḥ, but it is a simple constituents of Hawā-e-Muheet (atmospheric air), or may be found in other combined form. When it enters inside the body in the form of Hawā-e-Mustanshaq (inspired air) and virtually becomes its part by getting absorbed into alveoli of the lungs and combined with haemoglobin and blood plasma, it becomes Rūḥ. This Rūḥ reaches first to the heart which pumps it to all the organs, tissues and finally reach at cellular level. Rūḥ (oxygen) is same throughout the body, it varies or differs in its concentration and biochemical oxygen demand required and utilised by the different tissues of the body.

Mechanism of Existence of Rūḥ Ḥaywānī: In this part, Rūḥ-e-Ḥaywānī is justified with the help of theory of genesis of matter i.e., Asbāb-e-Arba’a (Four essential causes) and newer knowledge of medical science.
Asbāb Rūḥ Haywāṇīya: Aristotle (384-322 BC): The great scientist and philosopher gave the causes by which anything exist, in this way we just have to find out the exact causes for the matter for its genesis. So, the causes of Rūḥ-e-Haywāṇī are described under the shelter of these four Asbāb (causes). [4]


2. Asbāb-e-Fā’ila (Formal Cause): It is the pattern in conventionality with which the materials are set up: Essential factors: Biochemical & Biophysical Processes; Diffusion (Biophysical process), Partial Pressure (Biophysical process), Solubility (Biophysical process). Non Essential Factors: Qualitative and Quantitative aspect of air, diet, state of body; healthy or diseased and so on.

3. Asbāb-e-Ṣūriyya (Skilled Cause): Qawwā (Powers) Force is the responsible for the production of the thing as a skilled cause: these are Tabiyat, Quwwat Nafsāniyya, Ṭabī‘yya, Ḥaywāṇiya, and Hār Raṭāb Mizāj (Temperament) also comes under this cause.

4. Asbāb-e-Tamāmiyya (Final cause): It is the end purpose for which a thing exists: Afāl (Functions): Tadeel, Tarveeh: By Respiration, By Circulation of Rūḥ to rest of the body, Tanqiya: Excretion of gaseous waste in the form of CO₂, Initiation of oxidation for energy (Tauleed-e-Ḥarārat-e-Ghariziyya). Now these causes are described below in detail;

Asbāb-e-Maddi (Material Causes) - Oxygen: Jawhar-e-Rūḥ: It is free and inhaled abundantly from Hawai-e-Muḥīṭ. All body processes need it for their function, without its essence, life will not exist. A human body can live: without food for forty 40 days, without water for five 5 days, But cannot live without air beyond 5 or 6 minutes. Oxygen helps to liberate biochemical energy from food by acting as the electron acceptor for the reaction that produces energy in the form of ATP. The living cell is the site of biochemical activity called metabolism, (chemical and physical change): which is responsible for build-up of new tissue, replacement of old tissue, conversion of food to energy, and disposal of waste materials, and reproduction. The human body is about two-thirds oxygen. By mass, human cells consist of 65-90% water (H₂O); water has oxygen in its molecule. These facts are stated here to show that how important oxygen is. [13]

How does any matter (Madda) effect? Matter effects by its kamiyat (Quantity), kaifiyat (Quality) or both. So, O₂ acts with its kamiyat and can be divided on the basis of this and named as tabiya and nafsaniya and hawaniya.

Biochemical Demand of Oxygen: At rest, the average human body of 63 kg consumes 250 ml of O₂ each minute. The major single-organ oxygen consumers are the liver, brain, and heart consuming 20.4%, 18.4%, and 11.6%, respectively, skeletal muscles consume about 20%, kidneys use up about 7.2%, and the skin uses 4.8%. The rest of the body consumes the remaining 17.6% of the oxygen. Oxygen use can also be measured per 100 gm of an organ to indicate concentrations of use; heart usage is highest, followed by the kidneys, then the brain, and then the liver. [16, 17]

When Rūḥ (the amount of oxygen combined with haemoglobin) Termed As Rūḥ Haywāṇī: The amount of oxygen utilised by cardiovascular system is Rūḥ Haywāṇīyya. Two parameters to know the Rūḥ Haywāṇī: (i) the kamiyat (quantity) of oxygen according to Internal Respiration: Oxygen, when diffuse in alveoli is Rūḥ, but the amount of oxygen which is utilised by heart, lungs & Blood vessels at cellular level by internal respiration is Rūḥ Haywāṇī. (ii) Kamiyat as Specific pO₂ & concentration gradient: At which level O₂ perfuse Tissues that forms heart, lungs & blood vessels (A’dā-e-Haywāṇiya).

Table 01: Showing Kamiyat (Quantity) of Rūḥ (oxygen) in different organs: [18]

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>Organs</th>
<th>ml/mint</th>
<th>ml/mint/100 gram</th>
<th>Percentage (%) of Total Blood Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brain</td>
<td>700</td>
<td>50</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Heart</td>
<td>200</td>
<td>70</td>
<td>04</td>
</tr>
<tr>
<td>3</td>
<td>Kidneys</td>
<td>1100</td>
<td>360</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>Liver</td>
<td>1350</td>
<td>95</td>
<td>27</td>
</tr>
<tr>
<td>5</td>
<td>Muscle (inactive)</td>
<td>750</td>
<td>04</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Bone</td>
<td>250</td>
<td>03</td>
<td>05</td>
</tr>
<tr>
<td>7</td>
<td>Skin</td>
<td>300</td>
<td>03</td>
<td>06</td>
</tr>
</tbody>
</table>

Asbāb-e-Māddiyā- Plasma and RBCs: Carrier of Rūḥ and Rūḥ Haywāṇī: 1000 ml of blood can dissolve 200 cc of oxygen gas, which is much more than water can dissolve. Oxygen is carried in the Blood in two forms: Dissolved in Plasma and RBC water (about 2% of the total), reversibly bound to Hemoglobin (about 98% of the total). Oxygen is carried in the RBCs in two forms: In RBC water (about 70% of RBC volume is
water) in accordance with Henry’s law, reversibly bound to the hemoglobin contained within the RBCs. Normal range of these material must be remain for the normal functions, so these values are as: **Plasma:** volume 55% of total blood. **RBC:** Hematocrit value: Fractional volume of blood occupied by RBCs, (~40% for females and ~45% for males). Normal RBC: Male: 4.7 to 6.1 million cells per micro liter, Female: 4.2 to 5.4 million cells/ml. **Hemoglobin:** It has an O$_2$ binding capacity of 1.34 ml of O$_2$ per gram. It can bind up to four oxygen molecules. Normal values of Hb: Newborns: 17 to 22 gm/dl, Children: 11 to 13 gm/dl, Adult males: 14 to 18 gm/dl, Adult, women: 12 to 16 gm/dl, Men after middle age: 12.4 to 14.9 gm/dl, Women after middle age: 11.7 to 13.8 gm/dl. [16, 17] These values also justify the concept of temperament in Tibb, everything is required according to its demand and this normal range specifies normal temperament of Madda-e-Rūḥ (Materialistic cause).

**Asbāb-e-Faila (Formal Causes):** Biochemical And Biophysical Process: Diffusion, Thickness of membrane, Partial pressure, Solubility.

**Diffusion:** Diffusion results from a concentration gradient which is expressed for gases as the difference in partial pressures. It occurs from higher to lower concentration. Graham’s law of diffusion (1833) states that the rate of diffusion of a gas is inversely proportional to the square root of its molecular weight ($D \sim MW^{-0.5}$). **Dalton’s Law of Partial Pressures** states that the partial pressure of a gas in a mixture is calculated by multiplying the fraction occupied by the gas times the total pressure of the mixture. **Henry’s law** states that the amount of oxygen dissolved in plasma is directly proportional to $pO_2$: At a $pO_2$ of 100 mm Hg, 100 ml of plasma contains 0.3 ml O$_2$ (or 0.3 Vol %). Partial pressure gradient between inspired air and the alveolus with alveolar air having a $pO_2$ of 104 and a $pCO_2$ of 40 which helps in diffusion of these gases from external environment to internal environment of human body. **Fick’s Law of Diffusion** states that the amount of gas transferred per unit time ($\Delta N/\Delta t$) across a membrane of thickness $\Delta x$ is proportional to the area (A) available for exchange and the partial pressure difference ($\Delta P$) of the gas across the membrane. $\Delta N/\Delta t = KA\Delta P/\Delta x$. [16, 17]

**Thickness of membrane wall:** Alveoli of lungs have simple squamous epithelium, which has minimum thickness in all types.

**Solubility:** It governs much gas can in a solution. At physiological $pO_2$, only a small amount of oxygen is dissolved in plasma since oxygen has such a low solubility.

![Figure 01: shows diffusion of Rūḥ and Rūḥ-e-Ḥaywānī](image-url)

**Masalik-e-Rūḥ and Rūḥ-e-Ḥaywānī:**

**A’ḍa-e-Ḥaywānīyya:** Heart, Lungs & Blood Vessels: Aristotle considered the heart to be organ responsible for creating blood. Plato considered the heart as the source of circulating blood. Hippocrates noted blood circulating cyclically from the body through the heart to the lungs. Erasistratus noted the heart as a pump, causing dilatation of blood vessels, and noted that arteries and veins both radiate from the heart. Ibne Nafis (Qarshi): First described pulmonary circulation. William Harvey completely describes the systemic circulation and the mechanical force of the heart. This category comprises of anatomy of cardiovascular system. Here short anatomical headings are being summarised:
Qalb (Heart): Organ of Rūḥ Circulation: Comprises of Contractile unit, Pacemaker, Conductive system. Cardiac Muscles: Striated & involuntary, Fatigue, summation & tetanus are not possible, Supplied by autonomic nerves (sympathetic & parasympathetic). Pacemaker Structure that generates impulses for heart beat. S.A node forms pacemaker of heart, Situated in posterior wall of right atrium near the opening of superior vena cava.

Lungs: Organs of respiration. Some important facts about it: Together, the lungs contain approximately 1500 miles (2,400 km) of airways and 300 to 500 million alveoli, having a total surface area of about 75 m² in adults, roughly the same area as a tennis court. Furthermore, if all of the capillaries that surround the alveoli were unwound and laid end to end, they would extend for about 620 miles. The lung capacity normally ranges between 4,000 and 6,000 cm³ (4 to 6 L), depends on the person’s age, height, weight, sex. 

Blood Vessels: Arteries: Carry oxygenated blood from the heart to various limbs, except pulmonary artery. No valves are present in it, Blood flows under pressure (100 mm of hg). Veins: Except for pulmonary veins all other carry deoxygenated blood from various limbs to the heart. Valves stops blood from flowing in reverse direction. Blood flows under low pressure (2 mm of hg). Capillaries: Consist of a network of microscopic vessels joining arteries with veins. These have extremely thin walls, Permit exchange of nutrients, gases, wastes in the blood with the cells. [16, 17]

Asbāb-e-Ṣūriyya (Skilled Causes):
Asbāb-e-Ṣūriyya: As Ṭabī‘iyat: Ṭabī‘iyat is supreme power of the body, all the powers work for this by the integration among each and every power of the body.
Asbāb-e-Ṣūriyya As Quwā Nafsāniyya: As Regulation of respiration: It is achieved by Respiratory center which has Medulla of the brainstem, and Pons. Medulla has two sub centres named DRG (dorsal respiratory group) and the VRG (ventral respiratory group). DRG sends stimuli to the muscles of inspiration: the diaphragm, external intercostals, and other (Act in both quiet and forced respiration.). VRG sends stimuli to the muscles of expiration: the internal intercostals and abdominal muscles (Act only in forced expiration). These muscles are skeletal and the motor control of respiration, whether quiet or forced, is a voluntary function. Pons sends stimuli to the medulla to regulate the rate and depth. Pneumotaxic center increases the rate by shortening inspirations. Apneustic center increases the depth and reduces the rate by prolonging inspirations.

Inputs to these centers come from several locations: Peripheral Chemoreceptors - Located in the aortic sinus and carotid sinus, respond to increased carbon dioxide and decreased Ph. Central Chemoreceptors - Located in the medulla. Their primary stimuli are decreased pH and increased carbon dioxide. Muscle contraction - Exercise is a direct stimulus to the respiratory center from active muscles and joint receptors. This causes increased respiration before blood chemistry actually changes enough to demand it. Higher brain centers control as; from the voluntary motor center, for voluntary control over respiration, from the hypothalamus for control in response to emotional stimuli and body temperature. Vagal Afferents; The only autonomic part of respiration, these send stimuli from stretch receptors in the lungs and from irritant receptors. The irritant receptors act to produce coughing, hiccupps, etc. [13, 16, 17, 11, 12]

Asbāb-e-Ṣūriyya: As Quwā Tabī‘iyat: Qualitative and quantitative aspect of carriers of Rūḥ: Plasma, Hb, RBC is under the liver which is a vital organ of Quwāt-e-Tabī‘iyat. So, this power regulates the manufacturing, and normalcy of these required materials. [11, 12]

Asbāb-e-Ṣūriyya: As Quwā Haywāniyya: This faculty produces Rūḥ Haywāniyya that is present in A’dā-e-Haywāniyya which are dependent to do their functions. It circulates Rūḥ as Rūḥ Haywāniyya to the different tissues of the body by the pumping action of the heart. [11, 12]

Asbāb-e-Tamāmiyya (Final Causes)/Afa‘l (Functions):
Heart: Circulation of Rūḥ: Rūḥ Haywānī along with Blood circulates all over the body by blood vessels with the pumping action of heart.

The Human Respiration Process: External Respiration: Exchange of gases between lungs and blood. This uptake of oxygen is Rūḥ. Internal Respiration: Exchange between blood and cells. This differentiates the Rūḥ into its types according to kamiyat (quantity) utilised by the different tissue and results in Rūḥ Haywāniyya, Rūḥ-e-Nafsāniyya and Rūḥ-e-Tabī‘iyat. Cellular respiration: Use of O₂ by cell to produce ATP. After being carried in blood to a body tissue in need of oxygen, O₂ is handed-off to an enzyme Mono-oxygenase that also has an active site with an atom of iron. The enzyme uses oxygen to catalyze many oxidation reactions in the body (metabolism). [16, 17, 18]
Breathing: A Vital Function: Breathing may be considered the most important of all the functions of the human body, and all the other functions depend on it. Use the full capacity of lungs by expanding both the chest and lower abdomen. Improper methods and attitudes of walking, standing and sitting, have robbed modern life, as a partner to purified water. [13]

To inhale good quality of oxygen we may use: Air purifiers are devices that filter the air and catch unwanted contaminants. These devices sieve the air for dust, pollen, mold spores, smoke particles, and dust mite feces. Natural Air Filters Plants shield against indoor air pollution. National Aeronautics and Space Administration (NASA) scientists measured the filtering capacity of specific plants by putting them into sealed chambers with toxic chemicals, then checking at 12-hour intervals to see how much of each chemical remained. The best performers: the Areca Palm, Lady Palm, Bamboo Plant. Oxygen bars is a trend that started in the late 1990s in Japan, and quickly spread to rest of world. Oxygen is produced from the ambient air by an industrial (non-medical) oxygen concentrator. Inhaled through a nasal cannula (Nose Hose) for a period of 5 to 10 minutes or even longer. Canned oxygen is relatively new product, for inhalation. It contains only around 95% concentrated oxygen. The products are marketed as a healthy addition to the modern life, as a partner to purified water and natural food supplements. [13]

Conclusion: This article has its conclusion in the tabular form which shows comparison between classical Unani literature and present knowledge available.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rūḥ is formed by:</strong> Jawhare Rūḥ and Akhlāṭe-Latīfa. Dam (blood) is a Hamil-e-Rūḥ (carrier of Rūḥ). Its Lateef &amp; Bukhari part takes formation of Rūḥ.</td>
<td>Oxygen which dissolved in blood and performs its function of oxidation to initiate ATP formation is Rūḥ. Blood (Plasma and RBC) is just a carrier not a component of Rūḥ.</td>
</tr>
<tr>
<td><strong>Rūḥ Ḥaywānī is a type of Rūḥ, which is found in Qalb (Uzu-e-Rais of Quwā</strong></td>
<td><strong>Rūḥ (oxygen) is same throughout the body, it varies or differs in its kamiyat as</strong></td>
</tr>
</tbody>
</table>
Concentration and biochemical oxygen demand required and utilised by the different tissues of the body. Rūḥ Haywāniyya, Nafsāniyya or Tabi'yya can be distinguished on two parameters: one is location and other is kamiyat (quantity) of oxygen which further can be divided as:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Internal respiration</td>
</tr>
<tr>
<td>2</td>
<td>Oxygen demand of organs/tissues/cells</td>
</tr>
</tbody>
</table>

As Quwwat Ḥaywānīyya is superior on rest type of Quwā, So Rūḥ Ḥaywānīyya is superior on rest types of Rūḥ. (Abu Sahal Maseehi).

Yes, it must be kept on top, because without the process of respiration and circulation of Rūḥ Ḥaywānī, life cannot be imagined.

Rūḥ Ḥaywānīyya is that matter of human body which initiates every function of the body. Rūḥ Ḥaywānīyya enables Quwwat Ḥaywānīyya to do its Afa'l (functions) by its Uzu-e-Rais Qalb.

Oxygen is dissolved in blood is just like it dissolved in water. It cannot be seen. Blood has such temperament, so that Jawhar-e-Rūḥ can be mixed with it.

Rūḥ Ḥaywānī has following mechanism to exist on present scales.

**Asbāb-e-Māddiya:**

**Asbāb-e-Failiy:**
- Essential and Non Essential Biochemical & Biophysical Processes.
- Diffusion, pH, Partial Pressure, Thickness of membranes, Solubility.

**Asbāb-e-Ṣūriyya:**

**Asbāb-e-Tamāmiyya (Final cause):**

**Future Prospects:** The chapter of Rūḥ and Rūḥ-e-Haywānī must be taught in this way, so that the concept gets clear to students in a scientific manner. Likewise Rūḥ-e-Nafsāniyya and Rūḥ-e-Tabi'yya must be considered in this manner with respect to their asbab (causes).

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