Human Body Systems Interactions

No organ system works on its own to support your body. They all work together at one time or another to support your body’s functions.

1. List the levels of organization starting with the basic unit of life:

______________________
______________________
______________________
______________________
______________________

2. _______________________ is the ability of an organism to maintain a stable internal environment. _______________________ work together to maintain homeostasis.

3. Positive and Negative feedback:

1. _______________________ Feedback causes organisms to _________ be at normal conditions.
   i. Examples:
      1. Ethylene gas ripening fruit
      2. Platelet accumulation for blood clotting
      3. Contractions during childbirth

2. _______________________ Feedback keeps the organism at ______________ or returns it to homeostasis.
   i. Examples:
      1. Sweating to cool the body back to normal temperature
      2. Producing blood sugar when it is low
4. **Body Systems:**

1. **Circulatory** – responsible for _____________ materials throughout the entire body. It transports ____________, ____________, and _____________ to your billions of body cells. Works with ____________, ____________, and ____________.

2. **Digestive** – consists of organs that _____________ food into components that your body uses for ____________ and for ____________ and ____________ cells and tissues. Works with ____________, ____________, and ____________

3. **Respiratory** - to _____________ the blood with ____________ in order for the ____________ to deliver oxygen to all parts of the _____________. Works with ____________, ____________, and ____________

   **Respiration** – when you ____________, the ____________ contracts and air is forced into your ____________. ____________ then diffuses into the ____________ stream while ____________ diffuses back into the lungs. When the diaphragm relaxes, you ________ CO₂ out. Works with ____________, ____________, and ____________.

4. **Endocrine** – the system of _____________, each of which secretes a type of ____________ directly into the ____________ to ____________ the body. Works with ____________, ____________, and ____________

5. **Excretory** – The process of ____________ involves finding and removing ____________ materials produced by the body. Works with ____________, ____________, and ____________

6. **Nervous** - contains a network of specialized cells called ____________ that ____________ the actions of an animal and ____________ between different parts of its body. Works with ____________ systems.

7. **Muscular** – made up of ____________, ____________, and ____________ muscles. It permits ____________ of the body, maintains ____________, and ____________ (the heart muscle) throughout the body. Works with ____________, ____________, and ____________.
8. **Skeletal** – all of the _______________ in the body and the tissues such as ______________, ______________, and ______________ that connect them. The main job of the skeleton is to provide ______________ for our body. ______________ is made inside the bone. Works with ______________ and ______________.

9. **Integumentary** – ______________ the body from damage, comprising the ______________ and its appendages (including ______________, ______________, ______________, ______________, and ______________). The integumentary system has a variety of functions; ______________, ______________, and ______________ the deeper tissues, ______________ wastes, and regulate ______________. Works with ______________.

10. **Immune** – It is designed to ______________ against millions of bacteria, microbes, viruses, toxins and parasites that would love to invade your body. Works with ______________, ______________, ______________, and ______________.

11. **Lymphatic** – composed of lymph ______________, lymph ______________, and organs. The functions of this system include the ______________ of excess ______________ and its return to the blood stream, absorption of ______________ and assisting the ______________ system. Works with ______________, ______________, and ______________.

12. **Reproductive** – new individuals are produced by the fusion of haploid ______________ to form a diploid ______________. ______________ are male gametes, ______________ are female gametes.

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5. **What two systems work in getting the necessary nutrients to the cells around your body?**
   1. ______________ – breaking down food into its simplest form so that it can be absorbed into the body
   2. ______________ – transporting nutrients from digestion and oxygen throughout the body to maintain homeostasis.

6. **How does sweating help to maintain body temperature. What systems are involved? Use the word “FEEDBACK” in your answer.**
   1. When your body ______________ goes up, your body sweats to ______________ you off. When your body is cold, you ______________ to keep yourself ______________.
   2. This is a ______________ ______________ Feedback Mechanism designed to ______________ ______________ ______________.
7. Maintaining homeostasis in your body is made possible through coordination of all your body systems. **What two body systems** are mainly responsible for this coordination?
   1. __________________ System
   2. __________________ System

8. There are differences between the nervous and the endocrine system. They communicate to the body in different ways.

<table>
<thead>
<tr>
<th><strong>Nervous System</strong></th>
<th><strong>Endocrine system</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>system, specific structural arrangement between Neurons &amp; Target cells released &amp; diffuse through distance</td>
<td></td>
</tr>
<tr>
<td>__________________</td>
<td>system, No structural connection with one another/target cells released, carried in blood to distance.</td>
</tr>
<tr>
<td>Anatomic relationship between Nerve cell &amp; Target cells.</td>
<td>Specificity of target cell binding</td>
</tr>
<tr>
<td>Response is (m Sec)</td>
<td>__________________ lasting response</td>
</tr>
<tr>
<td>Coordinates rapid &amp; precise responses</td>
<td>__________________ Control activities of long duration e.g. Growth, Reproduction, Metabolism, Water &amp; Electrolyte regulation</td>
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</table>

9. What do the reproductive and excretory systems rely on the endocrine system for?
   Both rely on __________________ form the pituitary gland to __________________ their functions.

10. **What two systems are impacted when you are given a vaccination?**
    1. __________________ – transports the vaccine
    2. __________________ – builds antibodies to fight off infections.

11. **What two systems interact during sperm/egg production?**
    1. __________________ – the hypothalamus sends messages to the pituitary to make hormones.
    2. __________________ – receives the hormones and produces sperm and eggs.
12. Give two examples of body responses that are a result of direct interactions between the skeletal, muscular, and nervous systems.
   1. _______________________________________
   2. _______________________________________

13. Which body systems work together to remove excess water from the body?
   1. _________________________, _________________________, _________________________
   2. When you are dehydrated, the___________________ gland releases a _______________ into your _________________________ to tell your _________________________ to hold onto water.
   3. When you have too much water, the pituitary stops releasing the _______________, so that you can excrete the excess water (pee...)

14. What three systems work together to respond when you touch something that causes you pain, such as a hot stove?
   1. _________________________, _________________________, _________________________
   2. The _______________ goes from the touch _________________________ (______________) to the _______________ cord and then to your _______________ to get you away from the danger quick!

Try the following on your own. Have your teacher check them when you are done.

15. When your body is regulating how much calcium to release from your bones, what happens?
   1. The _________________________ system makes certain hormones.
   2. Blood in the _________________________ system carries the hormones to the _________________________ system where the bones are found.

16. When your body is absorbing nutrients, what’s happening?
   1. Food is broken down in the stomach mechanically by the _______________ system (churns food) and chemically by water, acid, and enzymes in the _________________________ system.
   2. Nutrients are then absorbed by blood in the _________________________ system.

17. What triggers ovulation (the release of an egg) in a female?
   1. Certain hormones produced in the _________________________ system control ovulation in a female’s _________________________ system.

18. What is going on in your body when a pathogen enters?
   1. Mucus in the lungs traps a virus in the _________________________ system.
   2. T-cells in the _________________________ system destroy virus infected cells.
   3. Nerves in the _________________________ system sense the need to cough.