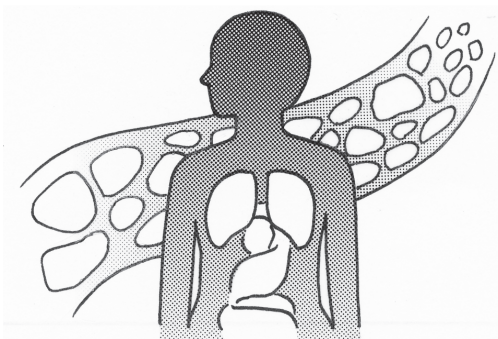


# Unit 1

## The Human Body (人間の体)

人間の身体は、細胞、組織、臓器など、様々な部分から成り立っていますが、それぞれの部分は、互に関連し合っています。今後の医療にとって、身体の構造や機能を全体として捉えることは、ますます重要な課題となるでしょう。



The human body is an immensely complex organism. No part of the body works in isolation: each part does its job, supported and aided by all the other organs. Maintaining good health requires more than just taking care of the singular components that make up the physical body. To understand how the human body works, we must examine it as a whole.

The human body is made up of billions of living cells. Each cell is a basic unit of life, very much like an individual organism. The cell absorbs food through its membrane, digesting this food with enzymes in order to produce energy before excreting wastes. Most cells repair and reproduce themselves using the DNA blueprint stored in their nucleus.

Living cells combine into tissues, such as muscle tissue and nerve tissue. Muscle tissue can contract, becoming shorter and thicker; nerve tissue transmits electrical signals. The different tissues combine to make specific organs such as the heart and lungs, which also combine into systems. Systems work together to serve the needs of the human body.

The cardiovascular system is composed of the heart, blood vessels, and the cells that make up the blood. The blood vessels function to transport blood around the body, circulating substances such as oxygen, carbon dioxide, nutrients, hormones, and waste products. The respiratory system supplies the blood with oxygen in order for the blood to deliver oxygen to all parts of the body. The primary function of this system is to exchange oxygen and carbon dioxide.

There is a great deal of interdependency in the human body: all parts work in

coordination and in mutual relationship to each other. The modern science of medicine should thus be based on a mechanistic notion of the structure of the human body. Total understanding of the body's structure and function is essential for a better understanding of how diseases progress in the body.

**Notes**    **component** 部分    **cell** 細胞    **membrane** [mémbrein] 膜    **digest** 消化する    **enzyme** [énzaim] 酵素    **excrete** 排出する    **blueprint** 青写真    **nucleus** [n(j)ú:kliəs] 核    **tissue** 組織    **cardiovascular** [kɑ:rdiouvæskjulər] 心(臓)血管の    **blood vessels** 血管    **oxygen** [aksidʒen] 酸素    **carbon dioxide** [ká:rbn daíáksaid] 二酸化炭素    **nutrient** [n(j)ú:triənt] 栄養分    **hormone** [hó:rmoun] ホルモン    **respiratory** [résperətɔ:ri/rispírətəri] 呼吸(性)の

### 【Reading Comprehension】

次の各文のうち、本文と一致するものには T、一致しないものには F を ( ) に書き入れなさい。

1. ( ) Each part of the human body works in isolation.
2. ( ) Each cell, which is like an individual organism, is a basic unit of life.
3. ( ) The heart and lungs are specific organs made by combining different tissues.
4. ( ) The primary function of the cardiovascular system is to exchange oxygen and carbon dioxide.
5. ( ) It is necessary to understand the overall structure and function of the human body in order to better understand how diseases progress.

## 【Vocabulary】

次の空欄に入れるのに適切な単語を、本文の中から見つけなさい。ただし、与えられた文字で始まる単語であること。

1. Differentiated structures within a ( c        ), such as mitochondria, perform specific functions.
2. Food is ( d        ) in the stomach.
3. Liquid waste is ( e        ) from the body through the kidneys.
4. Genetic information is stored in the ( n        ) of the cell.
5. People cannot live without ( o        ) and water.

## 【Topical Dialog】 3

次の対話文を聴き、(    )に入る語を書き取りなさい。

Student A: The (        ) (        ) of the human body really impresses me. Each cell is an individual living thing, yet it works together with other cells to make up all the body's (        ) (    ) (        ).

Student B: Amazing, isn't it? By the way, did you happen to hear about iPS cells?

Student A: iPS cells? What are those?

Student B: Well, they are what are known as induced pluripotent stem cells. iPS cells are (        ) (    ) germline transmission and were first produced in 2006 from mouse cells, and in 2007 from human cells.

Student A: How about that? Their discovery represents (    ) (        ) (        ) in medicine, I'll bet.

Student B: Exactly. iPS cells have (        ) (        ) (        ). They give us an (        ) (    ) with which we can examine the function of the body. This exciting new technology could even lead to the development of a (        ) (    ) (        ) various organs and tissues in the laboratory.

## 【Translation】

与えられた語句を参考にして、次の日本語を英語にしなさい。

1. 身体の状態を維持するためには食事に気をつける以上のことが要求される。

維持する **maintain**    ~することを必要とする **require ~ing**

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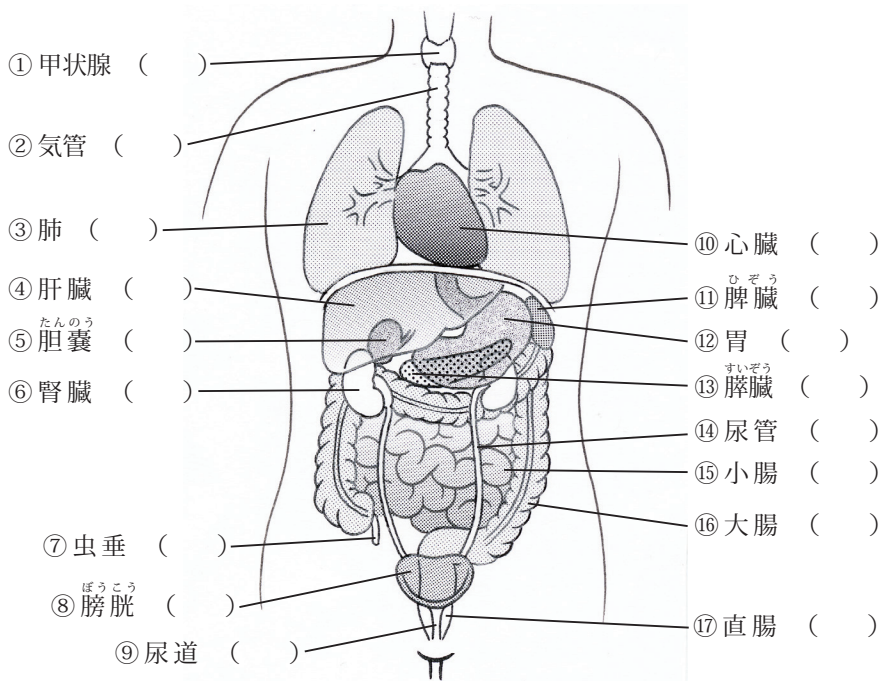
2. 脳の主な機能は情報処理である。

機能 **function**    処理する **process**

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## 【Information】

①から⑰にあてはまる名称を語群から選び、記号で答えなさい。



ア. urinary duct / イ. bladder / ウ. heart / エ. windpipe / オ. rectum /  
 カ. kidney / キ. stomach / ク. gallbladder / ケ. urethra / コ. thyroid /  
 サ. lung / シ. spleen / ス. small intestine / セ. liver / ソ. appendix /  
 タ. large intestine / チ. pancreas

【information】の問題の答えは巻末 (p.68) に掲載してあります。