

# [How is homeostasis maintained?](https://assignbuster.com/how-is-homeostasis-maintained/)

We all know that homeostasis maintenance is critical to the survival of the human body. The human body can survive major conditions from freezing cold to excessively hot as long as the body can maintain its homeostasis. We will review the different areas of the homeostasis and how it functions both together with other systems and along. We will discover how homeostasis is the maintenance of an active range of environmental qualities rather than keeping the body’s settings at a fixed point. We will review the endocrine system and its relation to homeostasis functioning and how humans survive in the outside world and what freedoms we have because of homeostasis. We will discuss the development of homeostasis in babies that are inside their mother. We will review discuss how we as humans survive in the outside world and how the homeostasis assist in our survival. It will become very clear that without good maintenance of the homeostasis we as human would not exist. You must understand your body and what will and will not affect it. Work with your doctor and do what he/he recommends for you to stay healthy.

One function of the automatic control system is that it maintains the body’s water temperature and keeps it at a steady level to ensure that all cells are functioning property. The change in the outside temperature or extreme exercise can affect the body’s blood temperature and reduce the oxygen, hydration and salt levels. Two indicators that the bodies homeostasis is working properly is when the body temperature exceeds it normal range the body will start sweating to try and keep cool. If the body experiences excessive cold from outside temperatures the body will shiver to try and warm the body. Two examples of this extreme, is hunting in Alaska during winter or running in the Arizona desert during the summer. The body has receptors that responds to critical changes in the bloods temperature and coordinates responses from the body’s internal immune system. All of the body’s self-regulating systems work together to coordinate using three principles roles: signal reception, centralized control and action. While all systems work together to balance the body some systems have an explicit role. It has been determined that the two most important systems for maintaining homeostasis is the nervous and endocrine system. While basic body functions like heart rate and breathing are controlled by the neural system, the nervous system can assist in breathing along with the urinary and digestive systems along with interfacing with the endocrine system. Hormones also help in keeping the body balanced by adjusting the fluids and electrolytes. The lymphatic system also plays a role in balancing the homeostasis by fighting off infections while the respiratory system maintains the oxygen and PH levels.

The endocrine system consists of endocrine glands and the hormones that they secrete. Much like the nervous system the endocrine system sends signals through the body, but not like the nervous systems which will see a direct response the endocrine system may not receive feedback for hours, days or even weeks. The endocrine tissue frees hormones that go into the bloodstream where they find tissue to provoke a response. Different from exocrine, salivary, sweat glands the endocrine glands have no ducts; they use intracellular vacuoles, or granules, to house their hormones. The hormones T3 (triiodothyronine) and T4 (thyroxine) are produced from the thyroid gland however the amount of hormones that are secreted is controlled by thyroid stimulating hormone (TSH), which is released from the pituitary gland. If the mother during pregnancy has a thyroid imbalance or hypoglycemia where the blood glucose or blood sugar level drops it could affect the pregnancy even causing death to the baby. The pituitary gland or better known as the master gland controls all other glands in the endocrine system. This gland secretes six hormones that touch most of the human body. These hormones are HCTH(Adrenocorticotrophic hormone) which excites the adrenal gland. A pituitary tumor can occur if the ACTH levels are elevated. The HGH (Human growth hormone) is accountable the growth of long bones, muscles and viscera. If the body has an abnormal amount of HGH in their system it can damage or destroy other organs. The TSH(Thyroid stimulating hormone) affects the structure of the thyroid and causes it to secrete thyroid hormone. If too much TSH is produces it can cause thyroid cancer. The FSH(Follicle stimulating hormone) stimulates female egg production or male sperm production. A high elevated of FSH, indicatesalow ovarian reserveand significantly lower pregnancy chances. The PRL(Prolactin) in females causes the corpus luteum the area around the mature follicle to produce two important hormones, the Oestrogen and Progesterone. Men with a low PRL are more likely to have sexual issues. And the LH(Luteinzing hormone) works in conjunction with FSH in females to cause ovulation and prepares the uterus for pregnancy, in males the testes to secrete testosterone. Poor LH levels can cause problems with the development of the ovaries.

By maintaining a good homeostasis we can enjoy the freedom of the outside world. For example if we chose to climb a mountain we know that when we start stressing our body and increasing the temperature of our blood that our body will adjust by activating our sweat glands to reduce the heat. This also works if we find ourselves in an extremely cold condition that reduces the temperature in our blood; the body will start to shiver to try and increasing the body temperature. Without the homeostasis working properly the body could not react quickly enough to support the body in harsh conditions. The reaction by the body to adapt rapidly to changing outside conditions is the key make this world survivable. We should also try and limit the conditions that we expose our bodies to. Understand the impact to your body before you make the decision to just from that plane or get into that boxing ring.

During the early stages of pregnancy the female body goes through many changes to better adjust for embryo of fetus. The body must change its homeostatic tools to ensure that the mother is producing the adequate levels of blood sugar and cardiac output to support the child she is carrying. The hormones such as progesterone and estrogen must continue to rise throughout the pregnancy. Weight gain is another change that the mother will encounter during pregnancy. While this is expected it is recommended amount of weight gain should be determined by the size of the mother before she became pregnant. Another noticeable body change a woman will see during pregnancy is the enlarging of a woman’s breast. The average is 1 to 2 cup sizes. A pregnant woman should increase her k/call by 300 a day and her protein intake to 70 or 75 g/day. A proper diet is also critical key to ensuring that and during a woman’s pregnancy. If someone expecting baby choses to smoke and drink they are asking their system to adjust and adapt. This is setting them up for issues during the pregnancy and possibly for the baby to have birth defects that could have been avoided. As a mother it is very important to understand what negative impact certain decision can pregnancy and discuss then with your doctor.

In reviewing what we have learned the proper balance of homeostasis is vital to humans surviving and enjoying the world in which we live. The complexity of the human body with all its organs, hormones, cells muscles, just to name a few make us wonder how the body can adapt and react to all the challenges that we put it through on a daily basis. We take for granted that if we chose to have a baby that it will be health with little impact to the mother long term. From what we noted above this process is very complex and many changes take place in a woman body during the pregnancy that can affect the child. The chemical and hormone changes that out body produces on a daily basis just naturally along with the ones that we generate makes you wonder how it can keep up. During a humans lifetime we abuse our bodies with crash diets abuse of our bodies by drinking, taking harmful drugs failing to get enough sleep and all that time we expect our bodies to adjust and recover. It has been suggested that the environment contributes to some of our health issues and I share that belief. We must not only work to keep our bodies healthy we must also try and help to keep the environment clean. If we can improve our environment I feel we can reduce the number of nature made sicknesses that force our homeostasis to adjust and react to overcome. This is very evident in our third world countries where the birth survival rates a much lower than the ones we enjoy.

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pg. 1