

# Hypokalemia & Hyperkalemia Cheat Sheet

Normal potassium level in the blood= 3.5-5 mEq/L

Hypokalemia= <3.5 mEq/L

Hyperkalemia= >5 mEq/L

## Potassium

Potassium is regulated mainly by the hormone **aldosterone** which is secreted by the kidneys.

When potassium is high, aldosterone causes **more** potassium to be excreted in the urine. And when potassium is low, aldosterone secretion is decreased, therefore **less** potassium is signaled to be excreted in the urine.

As you can likely extrapolate from this information, urine is the main way that potassium is excreted from the body. There is also a small amount that is excreted in stool and sweat.

The main function that you should focus on when studying potassium, is its role in **excitable cells** such as neurons and muscle fibers (smooth, cardiac, and skeletal).

Potassium is an essential element in **action potentials** (or impulses) in these excitable cells. Therefore, potassium plays a key role in nerve conduction and muscle contractility.

Potassium also plays a role in maintaining intracellular fluid volume, pH balance, and protein synthesis.

Hypokalemia	Hyperkalemia
Lab value= <3.5 mEq/L	Lab value= >5 mEq/L
Causes: <ul style="list-style-type: none"> <li>- Potassium depleting diuretics</li> <li>- Hyperaldosteronism</li> <li>- Vomiting &amp; diarrhea</li> <li>- Kidney disorders</li> <li>- Alkalosis</li> </ul>	Causes: <ul style="list-style-type: none"> <li>- Potassium sparing diuretics</li> <li>- Addison's Disease/hypoaldosteronism</li> <li>- Kidney failure</li> <li>- Tissue damage, burns</li> <li>- Acidosis</li> </ul>
Signs/symptoms: <ul style="list-style-type: none"> <li>- Hyporeflexia, generalized weakness (severe=flaccid paralysis)</li> <li>- Decreased respiratory effort</li> <li>- Decreased intestinal peristalsis</li> <li>- Dysrhythmias</li> <li>- AMS- irritability/anxious</li> </ul>	Signs/symptoms: <ul style="list-style-type: none"> <li>- Muscle twitching&gt;&gt;weakness&gt;&gt;flaccid paralysis</li> <li>- Increased intestinal peristalsis</li> <li>- Dysrhythmias</li> <li>- Paresthesia</li> </ul>
Treatment: <ul style="list-style-type: none"> <li>- Oral or IV potassium supplementation (depending on severity)</li> <li>- Potassium sparing diuretic (if a diuretic is needed)</li> </ul>	Treatment: <ul style="list-style-type: none"> <li>- Kayexalate</li> <li>- IV insulin + glucose</li> <li>- Potassium depleting diuretic (if kidneys are functioning)</li> </ul>

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|  | <ul style="list-style-type: none"><li>- Dialysis (if severe and kidneys are not working)</li><li>- Calcium gluconate</li></ul> |
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## Nursing Considerations

The cardiac manifestations of both hypokalemia and hyperkalemia can be fatal. It is important to **monitor cardiac function closely** by ensuring telemetry has been initiated. If a patient is receiving IV potassium, then also be mindful of the potential cardiac alterations that could occur.

**IV potassium should never be given IV push.** IV potassium will always be an **infusion** that is diluted and given over a period of time. Administering IVP potassium could cause cardiac arrest and death.

IV potassium infusions are preferably administered into a central line. Potassium is a severe tissue irritant, so if it is being infused into a peripheral line, the IV insertion site should be assessed frequently. Patients may complain of burning at the IV insertion site during the infusion if being infused into a peripheral line.

Before administering IV potassium ensure the patient has **adequate urine output**. Do not infuse IV potassium if the patient is not urinating. This could cause severe hyperkalemia.

If a patient is given an oral potassium supplement, then be sure to educate them on the potential development of GI upset. To prevent GI upset from occurring, teach the patient to take their oral potassium **during or after a meal**.