Kidney function

A kidney bean has its name for good reason. They're the same shape as your kidneys. We (should) all have two of them and each are about the size of a fist. Their primary role is to filter the wastes of bodily chemical reactions and the removal of unneeded excess stuff from your blood. Other vital tasks include maintaining the correct balance of fluids and minerals. They're also instrumental in maintaining healthy blood pressure and play an important role in influencing red blood cell production. We can survive with just one but when they fail we die.

An underlying kidney disease will often have no symptoms. Kidney damage may not even be obvious until their function is so impaired that their performance has reduced by up to 80%. Luckily with a blood test it can be identified early. It is certainly advisable to have yours checked if you're considering a cycle of image and performance enhancing drugs. Anabolic steroids are known to increase blood pressure in many users. This elevation in blood pressure can be a contributing factor in kidney damage, particularly if their use is long term. Generally speaking anabolic steroids are not known to be especially harmful to the kidneys, though the kidneys are directly involved in removing them from the body. It is other ancillary drugs used in bodybuilding that may have more damaging properties.

The following describes the tests that are performed to assess their function. They are called U&Es when requested by medical types, which stands for Urea and Electrolytes.

Urea: A waste product as a result of proteins being broken down. This can be from the protein that's eaten, the protein in muscles damaged from intense training or both. It is very common to see raised urea levels in bodybuilders.

Creatinine: Another waste product from the muscles. A lot of creatinine is usually passed out in the urine. High levels detected in the blood indicate that the kidneys may not be functioning correctly. It is a more accurate test of healthy kidney function than urea.

Does supplementing with creatine raise creatinine levels? Creatinine is produced from creatine. However, only approximately 2% of creatine is converted to creatinine each day. This causes minimal impact on creatinine levels, so the answer is no, not really.

eGFR: This stands for estimated Glomerular Filtration Rate. As the kidneys are filters, the higher the eGFR the better. It is essentially a measurement of how efficiently they can perform this filtering function. Ideally it's between 90-120 mls per minute. Anything below 60 is a worry.

Electrolytes: There are two key ones. These are sodium and potassium. Both are crucial for maintaining healthy bodily functions. Levels that are too high or low can affect how your muscles and nerves work. This includes your heart. If potassium levels are too high your heartbeat can become irregular. Very high levels will actually cause it to stop. Levels may be artificially elevated in blood samples that are delayed in being processed by the lab or when blood cells rupture and leak their potassium into the sample. The lab will report in these instances, however.

AAS use promotes sodium retention which can result in that puffy look that some users have. Maybe that's why so many sport beards? Regardless, this increased fluid retention can place additional strain on both the kidneys and the heart.

AKI warning stage is a new addition to the range of tests performed when assessing kidney function. It is an algorithm for detecting acute kidney injury (AKI). An acute kidney injury is defined as a sudden reduction in kidney function and is based on creatinine levels increases over time.

According to NHS England, AKI often occurs without causing any symptoms or signs and its presence frequently goes unrecognised by patients and clinicians alike.

The greater the number of the AKI, the worse the kidney injury is deemed to be. The number ranges from 1, 2 or 3, with 3 being the worst. The warning system was designed as national patient safety data tells us that patients are dying or suffering severe harm due to delays in detection. The AKI warning is a safety system performed by labs to bring potential harm, which may otherwise have gone unnoticed, to the attention of clinicians.

Certain medications, such as diuretics, blood pressure tablets, non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen and types of antibiotics can affect the kidneys. Dehydration is also a contributing factor.

Prior to your blood test, be certain you're adequately hydrated and avoid any strenuous exercise beforehand. Otherwise the results will not give a true reflection of kidney function. I have previously taken blood from a chap who had just completed an intense workout. The results were shocking. A repeat test after a rest day revealed a full and complete improvement.

An early warning sign of kidney problems is a reduction in the amount of urine passed. Symptoms of an acute impaired kidney function include dehydration, nausea and vomiting, back ache, confusion, abdominal pain and swelling. This swelling is called oedema and is a build-up of fluid in the body. Usually if one presses the swollen area it will leave a dent in the area where the pressure was applied. These symptoms mustn't be ignored and medical attention is required.

And if you're pissing blood something is seriously wrong. That's an A&E job.

Always monitor your health.

Aaron Carnahan
Vitruvian Man
www.vitruvianman.org.uk