Manchester Terrier HEALTH

# KIDNEYS

## RENAL FAILURE

## FREQUENTLY ASKED QUESTIONS

### What do my dogs kidneys do?

**The kidneys have many functions. They principally act to remove waste products from the blood stream, regulate the levels of certain essential minerals such as potassium and sodium, conserve water, and produce urine.**

### What is renal failure?

**Many people think that 'kidney failure' or 'renal failure' means that the kidneys have stopped working and are not making urine. This is not the case. By definition, chronic renal failure (CRF), or chronic kidney disease (CKD) is the inability of the kidneys to efficiently filter the blood of waste products, not the inability to produce urine. Ironically, most dogs in kidney failure produce large quantities of urine, but the body's toxic wastes are not being effectively eliminated.**

### When do most cases of CRF/ CKD occur?

**Since kidney tissue cannot regenerate if destroyed, the kidneys have a large amount of reserve capacity to perform their various functions. At least 2/3 of the kidneys must be dysfunctional before any clinical signs are seen.**

**In many cases, this means that the destruction has been occurring for months to years (chronic) before failure has become evident.**

**In dogs, CKD is associated with aging, and in simple terms can be considered to be the 'wearing out' of the kidney tissues. Sadly numerous Manchester Terriers are being diagnosed with CRF/ CKD well before 'old age' and as early as seven months.**

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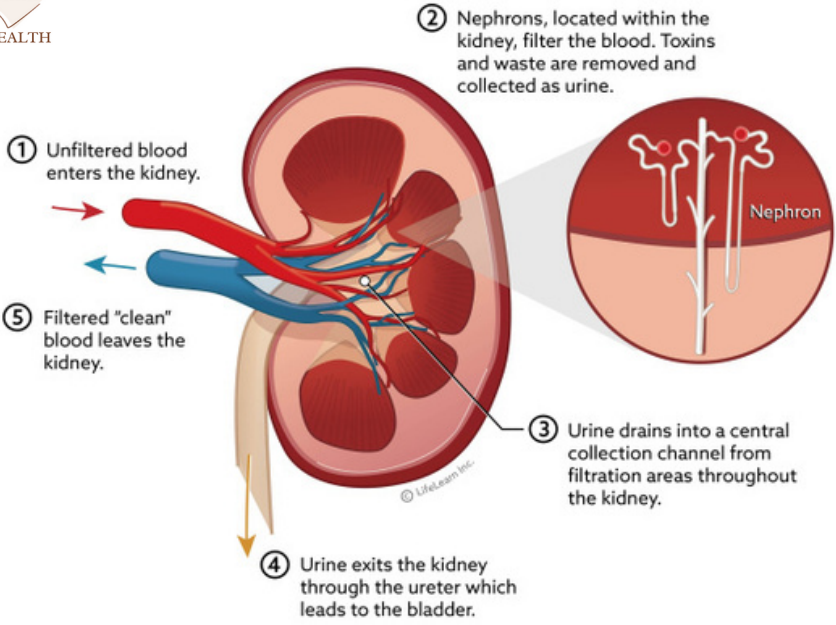
# Kidney anatomy and function




A healthy kidney & the blood filtration process

**The kidney has a very rich blood supply. This enters via the renal artery and passes through a complex network of arteries, capillaries and veins before leaving through the renal vein. During its passage through this system, the blood is cleansed of the toxic by-products of protein metabolism.**

**Filtration takes place in minute tufts of blood vessels. Each tuft is called a glomerulus and together with its associated tubules and blood vessels forms the nephron. Normally large molecules such as blood proteins and the red and white blood cells, all essential for health, remain in the blood while small molecules not required for body function (e.g. urea, creatinine) are excreted into the urine. Some small molecules which have passed through the filters are reabsorbed into the blood as they are necessary for a healthy chemical balance in the body (e.g. glucose, salt etc.).**

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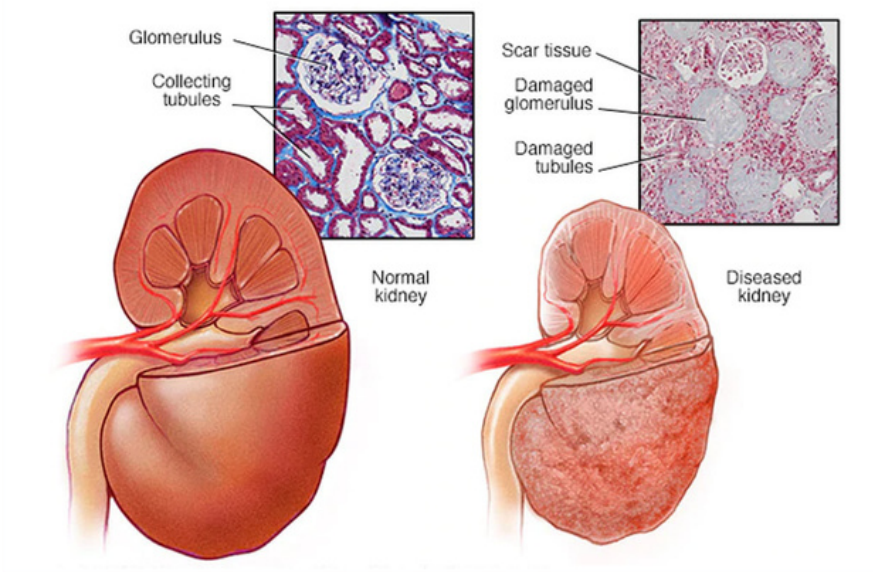
**There are a number of different disease processes which can damage the glomeruli thereby causing CRF/ CKD. Glomerulonephritis (the inflammation of kidney tissue) and glomerulosclerosis (scarring or hardening of the blood vessels in the kidney) are broad terms for many forms of this damage.**

**Sometimes CRF is caused by a defect in the filtration mechanism itself allowing large protein molecules such as albumin to remain in the blood. This is typical of protein losing nephropathy.**

**At this time we are unsure which process is causing CRF in the Manchester Terrier.**




## Is CRF hereditary in the Manchester Terrier?

**We are seeing many young puppies to approximately 7 year old Manchester Terriers dying of CRF so there is no connection to the CRF associated with old age. We are also able to trace CRF deaths through pedigrees and it is clear CKD is being passed from generation to generation. So sadly, yes CRF/ CKD in the Manchester Terrier is hereditary. We need a DNA test so ethical breeding practices and informed breeding decisions can be made.**

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## Who is Running the Renal Research?

**The Manchester Terrier Health Committee are working with a genetics lab in Germany, who have offered to try and help find a genetic test (they will benefit by making this a commercial test as with other genetic diseases). We have also worked with the University of Liverpool and are looking at funding options for a different type of study with them. The University of Liverpool currently hold tissue samples from 3 clinically diagnosed renal failure Manchester Terriers awaiting electron microscopy in order to identify which disease process is damaging the kidneys.**

## Which dogs do you need samples from, and when is the best time to do it?- THE WHOLE LITTER PROGRAMME

**The 'whole litter' programme requires bloods from all puppies, sire and dam. It has been decided to collect the blood as pups, as to track down all siblings. At a later date this would be much more difficult.**

**Bloods from affected adult dogs are also needed.**

## What is needed at the point of blood taking?

**We need 1ml of blood in an EDTA tube. It needs to be from each pup in the litter and from the mum and dad. If there is an affected pup then all blood from the litter and sire and dam will be sent to the lab in Germany to look for the responsible gene(s).**

## Is there any help available for the cost of taking the bloods?

**Many vets will do this at a reduced cost, or free of charge if you explain to them that it is for Breed Health Research, and a letter written by the Health Committee is available if required. If you are charged for this service, you can apply to the Renal Fund, held by the BMTC, via the Health Committee. All expenses for taking the samples and postage will be met by the Fund.**

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## What do you do with the samples?

**They are sent to Sinead Bennet MRCVS and stored in a freezer at minus 20 until such time as they are needed.**

**Of course nobody wishes that any Manchester Terrier is diagnosed with renal failure, but having a renal failure diagnosis from a Manchchester in a 'whole litter' blood collection will hopefully give us the answers we are looking for. This will enable research for the DNA test the breed so desperately needs. Each sad diagnosis from stored blood in the 'whole litter' scheme could do something very positive for the breed in the long run.**

## Is there anything else we can do?

**Do a SDMA blood test. Regular (yearly) SDMA testing for breeding stock would give you a picture of the dog's renal health at that point in time.**

**The hardest part is that in an ideal world we need post mortems of affected dogs, which would be paid for by the renal fund.**

## What is SDMA?

**SDMA stands for symmetric dimethylarginine. SDMA is an amino acid produced in the body when protein is broken down and then excreted through the kidneys. It is measured to detect kidney disease.**

## Why do an SDMA test?

**As it is an earlier indicator of renal failure.**

**Historically, estimation of renal function has depended on blood urea nitrogen (BUN) and serum creatinine. Creatinine is a crude estimate of renal function as it doesn't elevate until significant (approximately 75%) loss of function occurs. Such a high level of loss gives a very poor prognosis. SDMA can identify function loss as early as 25% meaning treatment can be administered early.**

**If you require any assistance please contact the Kennel Club Breed Health Co-ordinator Estella Saxton: MTHealthcomm@hotmail.com**