

Introduction to Hydrotherapy in Veterinary Practice Mini Series

Session 1: Hydrotherapy: What is The Point?

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What is hydrotherapy?

Hydrotherapy, or water therapy, is the use of water to relieve discomfort and promote physical wellbeing. Options include the use of hot or warm water, cold water, steam and ice. The form of hydrotherapy covered in the online lecture and these study notes is swimming, walking, standing or floating in warm water. Canine hydrotherapy is well known and understood but hydrotherapy for felines can be equally successful as a treatment.



Hydrotherapy history

In history the first mention of hydrotherapy goes back as far as 2400BC in Proto-Indian culture. Around 500BC the Greeks were building public baths near to natural hot springs or volcanoes. Homer reported the use of hydrotherapy using warm water to promote the healing of wounds and to reduce fatigue and depression. Hippocrates recommended the use of hydrotherapy for the treatment of jaundice and rheumatism.

The Romans adopted some of the Greek practices and ideas they came into contact with as their empire expanded. They also used public baths, spas and hot springs for therapeutic effects. One of the first veterinary hospitals in London had a hydrotherapy pool.

Bathing for therapy may go back even further in time. Pictured right Japanese macaques enjoy the benefits of hot springs!



Development of canine hydrotherapy in the UK

Canine hydrotherapy is nothing new in the UK. The benefits of hydrotherapy for horses were recognised from the mid 19th century and it was a natural development for greyhound owners to start to use hydrotherapy for training or recovery from injury. Some hydrotherapy centres have been open for over 30 years but the industry and profession has changed a lot since the earliest pools opened. The original pools tended to be built by enthusiastic dog owners for their own use and then expanded to take in clients. About 18 years ago interest in canine hydrotherapy began to grow and this coincided with more people competing with their dogs plus internet development giving access to more information from other countries. Particularly in the USA there was the opportunity for canine hydrotherapy in outdoor pools in the warmer States. Interest in veterinary physiotherapy and rehabilitation was also growing at this time. The first International Symposium on Rehabilitation and Physical Therapy in Veterinary Medicine was held at Oregon State University in 1999. Vets and physiotherapists began to focus on equine and canine rehabilitation as a special interest and hydrotherapy became an important treatment option.

Pool and water treadmill manufacturers were the driving force behind size of pool and type of equipment provided – so small pools with ramp access and the use of hoists to get dogs into the pool predominated. Hydrotherapists were not taught to be in the pool and so poles and leads were used to hold the dogs in position. There were very few larger hydrotherapy pools because of the cost of building them and the need for bigger buildings and space to house them. There was also limited understanding of the benefits of 'hands on' hydrotherapy and the advantages of more natural behaviour and reduced stress for the dogs swimming in larger pools.

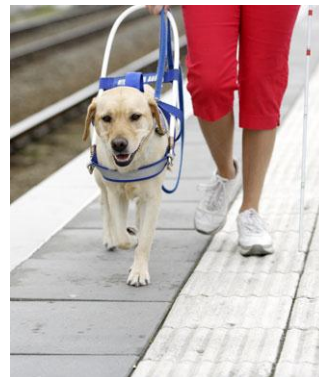
Around 2000 there was limited training available worldwide – very few people had enough experience or knowledge to provide hydrotherapy training and veterinary rehabilitation professionals saw little need or demand to share their knowledge. There was no official regulation and although the Canine Hydrotherapy Association had just started the organisation had more in common with trade organisations than professional health associations or bodies responsible for treatment standards for patients. Despite good intentions there was little thought of targeting animal welfare and care standards in canine hydrotherapy.

Hydrotherapy treatment goals – AIMS

- Pain reduction – the most important factor in achieving good results with rehabilitation/hydrotherapy.
- Improved mobility – for some patients this may simply mean ability to rise and go to the garden to toilet, for others it may mean achieving two x one hour walks a day.
- Improved range of motion.
- Return to full or optimal function – aiming to achieve the best possible outcome for the individual patient.
- Prevention of re-injury or further injury – the biggest reason for both is a history of previous injury or surgery.
- Prevention of secondary complications – for example loss of ROM, muscle contracture, attachment of scar tissue, loss of bone density, permanent disability.
- Improved quality of life – is the hydrotherapy treatment helping to achieve our aims and if not why not? What needs to change, or is it possible to change anything, to get a better outcome?

Benefits of hydrotherapy

- Increased speed of recovery – physiotherapy studies show that although the end result may be the same with, or without intervention, return to full function may be achieved much more quickly. This is vitally important for clients who are disabled and dependant on their assistance dog. This is also an important benefit for working dogs such as police or customs dogs where the loss of the dog can have operational and financial implications.



- Non-invasive approach – does not preclude the later use of medication or surgery if unsuccessful
- Decreased need for analgesia and anti-inflammatories? This may be important where medication options are limited – for example chronic osteoarthritis patients. If OA flare ups are less frequent or severe there is more scope for increasing medication when required.
- Comprehensive patient management – hydrotherapy affects the whole dog and not just the particular limb, injury or surgery that the dog is referred for. So there can be benefits in overall cardiovascular fitness, strength, mobility and pain levels.

And importantly . . .

Psychological implications for both animal and owner – if the dog feels more comfortable and is happier the owner cheers up too and if the owner is more cheerful the dog picks up on it. Lowered stress levels can aid healing!



Which patient groups can benefit most from hydrotherapy treatment?

- Orthopaedic – conservative management and post-operative
- Neurological – conservative and post-operative management
- Neurological requiring intensive rehabilitation
- Soft tissue injuries
- Degenerative and chronic conditions
- Geriatric patients
- Juvenile patients
- Obesity/lack of mobility
- Trauma patients – multiple problems/complicated

So how does hydrotherapy work?



- By utilising the properties of water
- By using different types of equipment
- By using the skills and abilities of the hydrotherapists

It is important to understand the properties of water and how these can be used in hydrotherapy treatment to benefit the patient.

The main properties or forces affecting a dog immersed in water are

- Buoyancy and gravity
- Viscosity/resistance
- Hydrostatic pressure
- Temperature

What affects the buoyancy of a dog in water?

The specific gravity (SG) of water is 1.0 kg/m³ (at 4 degrees celsius).
Changes in water temperature will raise or lower specific gravity.

Whether the dog/cat has a specific gravity that is more or less than 1.0 kg/m³ will determine how well they will float – if their specific is lower than 1.0 kg/m³ they will float more easily.

For example:-

Lean dog SG = 1.10 kg/m³

Obese dog SG = 0.93 kg/m³

Dogs body with air in lungs = 0.974 kg/m³ and 1.1 kg/m³ without air in the lungs

Fat lowers specific gravity

Dense bones increase specific gravity

Therefore a lean animal will sink in water faster than an obese animal – so hydrotherapists will always have an idea what to expect from looking at the dog's physique. The lean or well muscled dog will have to work harder to stay on the surface of the water because their specific gravity will be higher than water.



The above picture show Duchy, an American Bulldog, in a hydrotherapy pool. She has large heavy bones and is well muscled and carries little excess fat. Even though she has a float coat / life jacket on and is swimming quickly she is still quite low in the water and is raising her head to keep her mouth and nose clear of the water.

Buoyancy

This allows movement without load on joints – so dogs can exercise with less pain and discomfort and do more work than they are normally able to when weight bearing. They can therefore start to build up muscle bulk and strength to help support joints more successfully on land. For some patients swimming may be the only exercise that is possible as instability of joints or pain and inflammation make standing or walking too painful. In addition buoyancy helps to achieve movement for patients that are too weak to ambulate on land and the supportive environment can be the first stage towards returning to mobility or the reason geriatric dogs can maintain some mobility.

For those patients who are too weak or too badly injured to actually swim we can use the hydrotherapy pool or water treadmill as simple floatation tanks to allow hydrotherapists to achieve protected standing and static exercises such as weight sways safely. The water takes all (if floating) of the dog's weight so it can be easier to handle the patient or take less assistants than trying to achieve the same exercises on land. In addition in situations where full weight bearing is contraindicated, or the dog is difficult to control, the water can provide a safe protective environment. For example in the case of hyperextension injuries or early fracture rehabilitation where swimming would also be contraindicated we have the option of just standing in water – especially useful with young bouncy dogs!

The movement of water and destabilising effects of buoyancy provide controlled challenges to balance/proprioception and core strength.

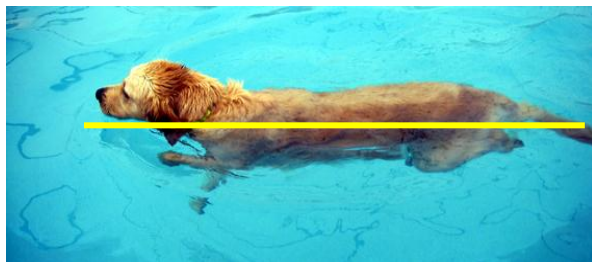
Water levels can be adjusted to increase/decrease buoyancy – this may be achieved with standing at different heights on a ramp or standing platforms or by adding or decreasing the amount of water in a water treadmill.

Floatation devices can be used to increase buoyancy or change 'trim' or the angle of the dog in the water – usually this is by using a floatation jacket but sometimes two jackets, or additional floatation must be added to achieve the required level in the water. In the case of amputees extra floatation is added to the side where the limb is missing.

WARNING

The use of floatation collars or moon collars, although common and featuring in photographs on many hydrotherapy centre websites, is in the opinion of the author and our veterinary physiotherapists at Greyfriars inadvisable. This is because, although the dog's head is being held clear of the water, the neck is extended in an unnatural position and this does not allow full range of movement in the shoulders. The dog cannot adjust its position and can find it uncomfortable – especially in the cervical, shoulder and paravertebral muscles. The hydrotherapist should always be in the water and 'hands on' to add extra floatation or lift if required. Hydrotherapists should not depend on added floatation round the neck as a method to keep the mouth and nose clear of the water. Additionally the airway can be affected by upwards pressure from the floatation collar and this could compromise the patient's breathing and oxygen levels at a time when they are under physical or emotional stress and put them at risk – especially risky with brachycephalic and older dogs.

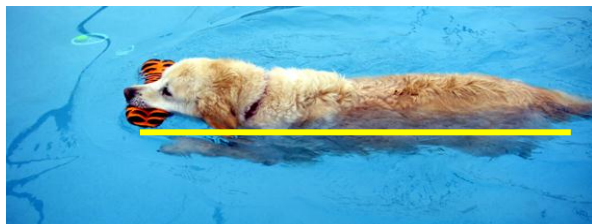
Buoyancy – the effects of additional floatation and obesity



1. Lean young dog – our 'control experiment'



2. Lean dog in a float coat



3. Obese dog

The lines indicate water level on the dog's bodies. You can see that the addition of a float coat in photo 2 and the excess fat carried by the dog in photo 3 have a similar effect on the position of the dog in the water. In photo 1 approximately 30% of the dog is above the water, in photos 2 and 3 it is nearer 60%.

Viscosity/resistance

Viscosity is a measure of how sticky a substance is and resistance refers to how hard it is to move through the substance. Water is stickier, or offers more resistance, than air and patients have to work hard to swim through or move against it. They are using more muscle strength and working their cardiovascular system harder when they are moving against the resistance of water. This resistance has a protective quality as it prevents fast, jerky movements and high impact. As an example, this is a particularly helpful property for dogs with hip dysplasia. We want to work them hard to build up muscle to support the coxofemoral joint but we do not want impact on the joint or movements into flexion or extension that are too fast or hard.

The viscosity or stickiness of water also give additional neurological feedback – there is much more ‘feel’ to moving a limb or your body through water compared with moving at the same speed in air.

The supportive effect of the water means that patients feel safer – if they go off balance the combination of buoyancy and the resistance of the water means that the body falls more slowly and there is more time to make the necessary corrections to prevent falling. So spinal injury or neurologically damaged dogs can be more confident and willing to move and have more time to make important movements or steps to control their balance.

Hydrostatic pressure

Hydrostatic pressure is the pressure exerted by a fluid at equilibrium at a given point within the fluid, due to the force of gravity. Therefore hydrostatic pressure increases in proportion to depth measured from the surface because of the increasing weight of fluid exerting a downward force from above.



Benefits of hydrostatic pressure include

Reduced oedema – pressure is higher lower down the limb when a dog is standing in water. So the pressure helps to aid venous and lymphatic return.

Pain relief/reduced hypersensitivity – studies have shown that this is an immediate effect of immersion in water and that it is also phasic (builds up over time) and increases with more exposure. Therefore repeated hydrotherapy sessions can help to reduce hypersensitivity or hyperalgesia. Patients can be more willing to move because they are experiencing less pain both during the hydrotherapy session and during the intervening periods.

Cautions for hydrostatic pressure

Cardiovascular or respiratory compromise – patients who are coping well on land can be badly affected by pressure on the body. The heart has to work harder to counteract hydrostatic pressure and may not be able to maintain sufficient output. It can also be difficult for some patients to fully inflate their lungs and they can become distressed quickly. Vulnerable patients must be monitored closely for signs of difficulty or cyanosis.

If there is any compromise to the blood supply to peripheral areas hydrostatic pressure can cause the circulation to reduce or cut off and there is the possibility of tissue damage due to lack of oxygen.

Temperature of water

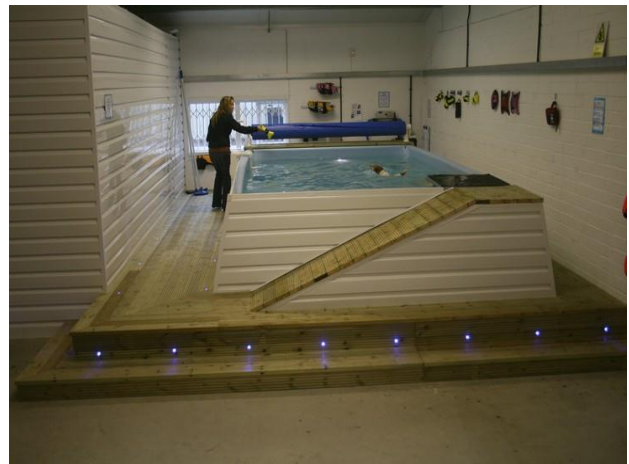
In canine hydrotherapy the recommended temperature for the water is 28-30 degrees celcius. In good hydrotherapy pools, where the hydrotherapists are in the water, the temperature is usually maintained at

29-30 degrees celcius as this is a comfortable working temperature and the older and more vulnerable dogs are kept warm. The benefits of warm water are relaxation of muscle spasm and reduction in pain. The result is often that the patient is more willing to move and will increase their active range of motion. The warmth helps to maintain or even increase blood supply to joints and peripheral areas

Hydrotherapy equipment options

- Small/raised pools
- Medium pools
- Large pools
- Use of hoists
- Jets
- Water treadmills
- Standing platforms/areas
- Hot tubs/spa

Right - raised pool (photo courtesy of K9 Surf). This is a demonstration pool but is positioned well with access to all sides. In a normal hydrotherapy setting there would be guard rails to protect dogs and hydrotherapists and ideally the ramp would be longer and shallower, positioned along the long side of the pool. This size of pool is the cheapest to install and need little space. If the pool is raised there is usually a ramp up to the pool and then a platform or ramp down. Frequently the ramps are too narrow to allow hydrotherapists be alongside their patients to support, control and assist. Low water volume means it is difficult to maintain good water quality.



Above – Large pool 10 x 5 metres and 1.2 metres deep. As the pool is 'in ground' access is just down a gentle slope. There is room to have multiple hydrotherapists assisting a patient or carrying the patient in on a stretcher to be gently floated off. The ramp and shallow platform on the left give ideal resting places for different sizes of dog. Not visible is a deeper resting platform in the right hand corner that is ideal for larger dogs or giant breeds. The pool is also equipped with swim jets.



Above - water treadmill. Many different models and sizes are available. The best examples have doors that open at both ends, total control over speed, time and depth. Plus for effective hydrotherapy treatment the treadmill should be big enough to allow one (or preferably two) hydrotherapists to be in the treadmill to assist and support the patient, plus be hands on to aid with gait and correct placing.

Hydrotherapy – pool v water treadmill

In pool – non-weight bearing exercise

In the water treadmill - exercise with control over amount of weight bearing

Both are forms of low impact exercise utilising both the buoyancy and resistance of water.

Range of motion – we have to consider what we want to achieve for the patient (or avoid) and how can we best achieve this?

Comparison of flexion/extension in hydrotherapy pool and treadmill

The general consensus of opinion is that better flexion of joints is achieved in the hydrotherapy pool and better extension of joints in the treadmill. However this is very patient and condition specific and different breeds and sizes of dog adopt different strategies to swim or walk in water.

In the water treadmill we can adjust the depth of the water to achieve the movement or movements we want. For instance if we want good flexion of the hip, hock and stifle the water can be set low so the dog lifts it's hindlimbs clear of the water. A good way to understand this is thinking about how we move through the sea – if we are in shallow water we tend to lift our limbs clear so we can move quickly. In deeper water we are unable to lift our limbs clear and adjust to leaning against the water and pushing forwards.

One of the strengths of the water treadmill as a treatment option is the ability to film what the dog is doing from all angles and sides. In the hydrotherapy pool it is difficult to assess degree of flexion or extension unless “hands on” and that can be very hydrotherapist specific and inaccurate. A better way is to film underwater and then review the footage at normal or slow motion.

Both hydrotherapy in a pool and water treadmill can improve muscle mass and strength but this depends on what we ask the patient to do and how hard they are working – we apply controlled challenges to gradually increase the work load.

Resistance is very different in pool and water treadmill. In the pool dogs tend to tuck up their limbs and reduce the surface area when bringing their limbs forward – reducing the degree of resistance and maintaining forward movement. They then extend the limb and spread their digits to get the maximum resistance against the water as they pull the limb backwards and propel the body forwards efficiently. In the water treadmill the dog is walking and weight bearing and this is much harder for the patient as the

limb is extended more than when swimming - so there is more pressure on the limb as it is brought forwards to take a step. Once the limb is weight bearing the action of the treadmill belt takes the limb backwards until the dog lifts the limb up to take another step. Therefore there has to be careful consideration of the stresses placed on the dog, the injury or surgery site and the stage of healing and tissues involved. For some patients treadmill is just too difficult or potentially harmful or could delay healing.

Both cardiovascular fitness and stamina can be improved using the pool and water treadmill. In the pool it is more difficult to measure exact effort and output but experienced hydrotherapists monitor closely and can judge how much work to do and the effects on the dog. In the water treadmill the accuracy of the measurements of active times, rest times and speed make monitoring progress relatively easy. As the dog gets stronger the speed usually needs to be subtly increased to maintain a natural and comfortable gait and this is a good indicator that the dog is strengthening.

Which conditions would normally or ideally be treated with the hydrotherapy pool or water treadmill?

Hydrotherapy Pool

- **Neurological deficits** – patients who have no limb movement response or who are too weak in the water treadmill
- **Non weight bearing forelimb** – these patients cannot be put in a water treadmill as the movement of the treadmill belt takes away the weight bearing limb and they will fall forward and down
- **Hyperextension injuries** – in the pool dogs tend to swim in a fairly flexed position with their limbs. As long as hyperextension can be prevented the hydrotherapy pool is a useful treatment option.
- **High tone** or going higher tone in water treadmill – always avoid any treatment that increases tone.
- Patients who are **very unfit or weak** i.e. OA affecting multiple joints and geriatric patients – the pool is a more gentle and effective treatment.

Water Treadmill

- **Cervical spinal patients** – the water treadmill is a more controlled environment than the pool and extension of the neck can be prevented.
- **General spinal patients** – hydrotherapy treatment is aimed at returning these dogs to normal function (walking) and the water treadmill is the most effective treatment option to retrain gait. Hydrotherapists can be 'hands on' and the patient is supported in a neutral spinal position.
- **Achilles tendon and hock injuries** – in a water treadmill as there is less flexion (because the patient extends to weight bear) and water levels can be raised to reduce weight bearing.
- **Stifle dislocation** – in the water treadmill the hydrotherapist can be 'hands on' and protect the stifle during the weight bearing phase of the stride, also preventing external or internal rotation, adduction or abduction.
- **Water phobia** – many dogs that are fearful of swimming and water are actually fearful of the feeling of floating and lack of control. These patients can be surprisingly co-operative and comfortable in a water treadmill. The addition of treats or toys can really help!
- **Lack of control** in pool environment – the dog is too difficult, strong or potentially aggressive.
- **Brachycephalic breeds** – These dogs tend to close their mouths in the water when swimming. This is potentially a problem as they need their mouths open for the dog to get enough oxygen intake. If they are stressed or have heart problems (think how many brachycephalic breeds do!) they can be at real risk. In the water treadmill the dog is standing and the head is clear above the water so they are happy to open their mouths to pant and breathe. However many brachycephalic dogs swim in pools very successfully and experienced hydrotherapists are good at protecting them.
- **'Floaty butt' syndrome** – some dogs, particularly large/obese older Labrador Retrievers, tend to swim butt up and head down! This can be a real problem and not easily overcome even with suitable floatation jackets and additional floatation. This is the reason some hydrotherapists resort to using floatation/comfy/moon collars. If the dog is strong enough and there is no contraindication they may be better in the water treadmill as the risk of inhaling water is removed and so is the tendency to try to carry the head high with the neck extended to try to keep the mouth clear of the water.

Hydrotherapy and the law

The Veterinary Surgeons Act 1966 – allows for the treatment of animals by unqualified persons. In this case 'unqualified persons' means not qualified as a veterinary surgeon.

The Veterinary Surgery (Exemptions) Order 1962 allows for the treatment of animals by a physiotherapist provided that the animal has first been seen by a veterinary surgeon who has made a diagnosis and decided physiotherapy would be appropriate under his/her direction. 'Physiotherapy' is interpreted as including all kinds of manipulative therapy. It is currently unclear if hydrotherapy legally falls into the same category as physiotherapy but all responsible hydrotherapists will always obtain veterinary permission for treatment to ensure they stay well within the law.

Good hydrotherapy

Carried out by trained/qualified and experienced hydrotherapists who seek advice from and work together with veterinary professionals.

Veterinary permission and medical history is always required before treatment – even for 'fitness' swims. Often what the client describes as a 'fitness' swim is not! Clients are often unaware of the significance of current or past injuries, medical conditions or the physical condition or age of their dog. Sometimes it is simple lack of understanding of the risks associated with swimming/hydrotherapy or sometimes, and more worryingly, the client is attempting to avoid consulting the vet about a new condition or injury in the mistaken belief that hydrotherapy will 'fix it'.

Hydrotherapists have to consider the whole picture for every patient/dog attending and this is why they are asking for veterinary permission/referral and information in what may at first appear to be very simple requests for hydrotherapy treatment. Good liaison with all vets and therapists involved in the dog's care is vital to ensure appropriate treatment.

If a vet has referred for treatment the hydrotherapist/centre should be providing regular updates on progress, or lack of, and sending the client back if there are any concerns. Similarly if the vet is seeing the patient for a follow up consultation or further treatment the results should be communicated to the hydrotherapy centre as this could affect decisions about treatment. Veterinary permission is not normally required if the patient is continuing treatment, an update of medical history/results will normally suffice.

Hydrotherapy organisations

There are two organisations within canine hydrotherapy – NARCH and the CHA

The National Association of Registered Canine Hydrotherapists



- NARCH maintains the list of Registered Canine Hydrotherapist in the UK
- The focus is on the training and qualifications of the individual hydrotherapist
- Look for post nominal letters RCH
- Rigorous training and registration requirements
- Valid Public Liability and Professional indemnity insurance is must be maintained
- Canine First Aid is required and certificates must be renewed every two years
- 20 hours per annum CPD/continuous education or training are required to maintain registration
- RCHs agree to abide by the ethics and standards contained in the NARCH Guide to Professional Conduct

The individual hydrotherapist's training record can be checked on the NARCH website -

www.narch.org.uk

You can also check the hydrotherapy centre facilities, services and areas of specialisation or expertise



- Every centre must have at least one operative holding a minimum Level 3 Certificate in Hydrotherapy for Small Animals on the Qualifications and Credit Framework plus a minimum Level 3 Aquatic Treadmill module where appropriate.
- Centres are inspected to ensure that they meet CHA standards.
- The operative will be required to complete a minimum of 20 hours continual professional development per annum.

The CHA website - www.canine-hydrotherapy.org

What do you know about the hydrotherapists in your area? DO CHECK as standards vary widely.

Look at their website, facilities available and best of all visit! Ask your clients what their experience has been like – would they recommend? As a minimum they should be listed with NARCH or the CHA. Check that all members of staff who are involved with hydrotherapy treatment are qualified or being closely supervised by a qualified person while they are training.

Look for hydrotherapy qualifications and post nominal letters

Certificate in Hydrotherapy for Small Animals – Cert HSA

Diploma in Hydrotherapy for Small Animals – Dip HSA

Registered Canine Hydrotherapist - RCH

Also look for other physiotherapy/rehabilitation qualifications e.g. ACPAT Cat A, CCRP (Certified Canine Rehabilitation Practitioner), CCRT (Certified Canine Rehabilitation Therapist)

If hydrotherapists hold a Diploma or Certificate they should have good knowledge of canine/feline musculoskeletal anatomy and physiology. They should also know about common injuries, tissue recovery rates and suitable hydrotherapy protocols. Plus understand what surgical repairs have taken place and the hydrotherapy protocols, cautions and contraindications for treatment and how to achieve the best outcome.

Hydrotherapists should also be trained in the use of different hydrotherapy techniques and equipment depending on the patient's needs? When a patient is referred the hydrotherapist should advise if their centre facilities are unsuitable for that particular patient – either because of the patient's size, behaviour or condition. For example if a centre only has the option of either hydrotherapy pool or water treadmill treatment and is therefore unable to offer the treatment required by the patient's condition they should communicate this information to the referring veterinary practice. Hydrotherapists should also understand when to ask for further advice or information and when to refer back.

Make sure the hydrotherapist who is looking after your patients will be the person at the centre who has

- completed training
- is qualified
- is registered with NARCH or the CHA

Would you accept less from a MRCVS or RVN?

NARCH will suspend anyone who does not comply with their rules and guidelines – particularly regarding veterinary permission and complying with the requirement to have an RCH either treating the patient or closely supervising a trainee

Also check the following

Is the hydrotherapist insured for public liability and professional indemnity – patients referred will be covered by the centre or hydrotherapists insurance but you should check otherwise you could be liable if you have recommended a centre and something goes wrong.

Are the hydrotherapists trained in Canine First Aid and are their certificates up to date?
Who at the centre has trained in Pool Water Management, ideally this should be more than one member of staff in larger centres. If you visit is the centre spotlessly clean and is the pool water clear and sparkling?

References

RCVS website – advice and guidance/code of professional conduct

Essential Facts of Physiotherapy in Dogs and Cats – Rehabilitation and Pain Management

Bockstahler, Levine and Millis

Canine Rehabilitation and Physical Therapy – 2004 Edition

Millis and Levine

A Guide to Canine and Feline Orthopaedic Surgery - 2001

Denny and Butterworth

Multimodal Management of Canine Osteoarthritis - 2010

Fox and Millis

K9 Surf - www.k9surf.com

National Association of Registered Canine Hydrotherapists – www.narch.org.uk

Canine Hydrotherapy Association - www.canine-hydrotherapy.org