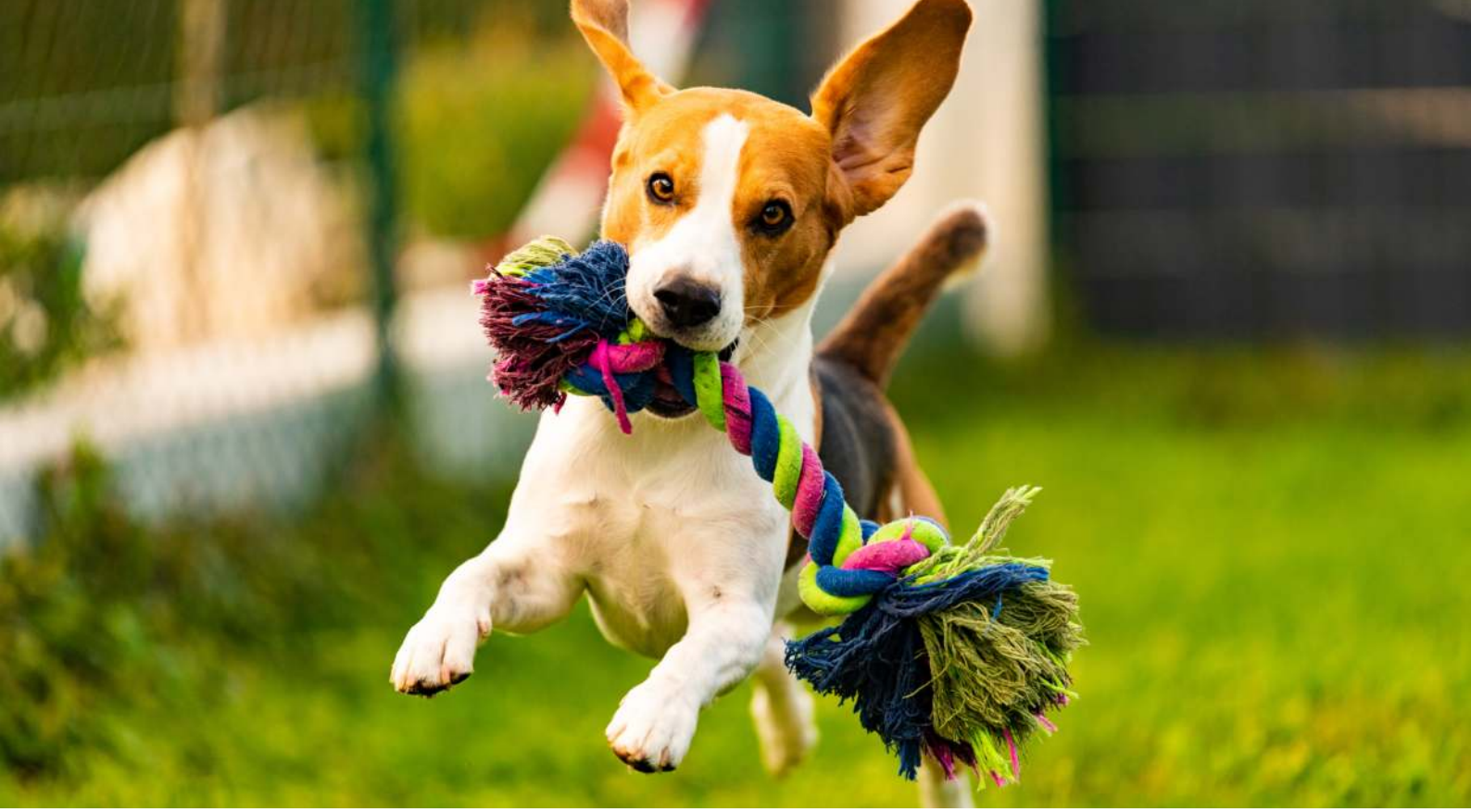

# Empowering Your Dog's Recovery

## with Exercise Science

AQUACANINE
HYDRO & VETERINARY PHYSIO

Kirsty Hamilton
Aqua-canine.co.uk

# Motion is Lotion, Rest is Rust

Dogs can benefit from an intentional exercise programme when they are recovering from an injury or surgery, preparing for surgery, or preparing for competition. Even dogs that spend their days at home with us can benefit from an intentional exercise programme to keep them healthy, happy and strong!

**“All exercise is physical activity and movement, but not all movement or physical activity is exercise.”**

LESLIE EIDE

Movement for the sake of movement is essential for a healthy life, but alone it is not enough for dogs that are recovering from an injury, or preparing for a competitive career. Similarly, physical activity is fantastic, but without a structure and goal – without turning it into exercise – its value is limited.

To turn movement and physical activity into exercise, we must be intentional about it. There needs to be a goal, a planned structure, repetitions and frequencies for our pets to derive the real benefits of exercise.

When we successfully transition from movement to exercise, we can look forward to numerous physical changes and adaptations in our dog's bodies. This includes their muscle development, fitness levels, muscle recruitment patterns, coordination and more.
All of this will help them to move healthily and effectively, ultimately preventing injury or further injury.

© Copyright. All Rights Reserved. Aqua Canine 

## How can we truly be effective?

If you want exercises with your dog to be effective, you need to do the following:

- Take basic movements and turn them into a physical activity, and then into exercise.
- Set clear goals for yourself and your dog.
- Include all 5 areas of fitness in an exercise programme.
- Balance stress with rest, and be specific with the exercises used.
- Consider the losses of inactivity following an injury, and how we can rebuild those losses.
- Most importantly, we need to prepare our dogs for their best life.



© Copyright. All Rights Reserved. Aqua Canine 

# The five areas of physical fitness

For a body to function at its best, whether recovering from an injury or preparing for competition, we need to make sure that all areas of physical fitness are in balance. There are 5 areas of physical fitness that we can improve through exercise.

1. **Cardiovascular endurance**
   The ability of the heart and lungs to provide fuel to the body during exercise.
2. **Muscular strength**
   The amount of force a muscle can produce.
3. **Muscular endurance**
   The ability of a muscle to perform continuous exercise without fatigue.
4. **Flexibility**
   Normal extensibility of all soft tissues that allows full range of motion of a joint.
5. **Body composition**
   The amount of fat mass compared to lean muscle mass, bone and organs.

When we can incorporate all five of these areas into an exercise programme, we can achieve optimal well-being, function and health in our pets. Good exercise programmes will focus on developing a balance between these areas through intentionally structured exercises.

© Copyright. All Rights Reserved. Aqua Canine 

## Promoting adaptation through exercise

For exercise to make a difference in your dog's body, we need to help their muscles and other body parts get used to specific activities. There are three main stages of general adaptation: stress, adaptation, and exhaustion. These stages explain how the body reacts to different stresses, like exercise.

**Stress phase:** When your dog exercises, their heart rate goes up, and stress hormones like cortisol and adrenaline are released. Different body parts respond to exercise stress in different ways, and each exercise puts specific stresses on the body.

**Adaptation phase:** As your dog's body starts to adapt to the exercises, you'll notice some positive changes. This includes better coordination, stronger muscles, improved endurance in the respiratory system, and other important improvements specific to your goals.

**Exhaustion phase:** We want to avoid exhaustion. This is when the body can't handle the stresses of exercise anymore, and instead of positive changes, things might start going backwards. At this point, your dog is more likely to get hurt. To prevent exhaustion, it's crucial to include regular rest days in your dog's routine.



© Copyright. All Rights Reserved. Aqua Canine 

## Get the desired results: Be specific

> **“Specific exercises will elicit a specific adaptation, to promote a specific training effect.”**
>
> LESLIE EIDE

The physical improvements we see in our pets depend on the types of exercises we choose. The more precise we are with our exercise selection, the better we can reach our goals.

We need to aim for three kinds of specificity:

- **Mechanical specificity:** This involves the forces and movements applied to the body. For example, adding more weight can boost strength, and increasing repetitions can enhance endurance.
- **Neuromuscular specificity:** Focuses on using specific muscle patterns to make movements more efficient. To work on this, we must carefully pick exercises and control the speed of contractions.
- **Metabolic specificity:** Refers to the metabolic pathways used during exercise, whether aerobic (longer, sustained activities) or anaerobic (short bursts of high energy). Both pathways improve with training, so it's essential to be clear about whether we are aiming for endurance or quick bursts of energy.

To create a specific therapeutic exercise programme, we should concentrate on the specific goals we have for our pets. Whether it's preparing them for regular family hikes or helping them navigate a flight of stairs, clarifying our goals will allow us to choose the best possible exercises to help our dogs live their best lives.

© Copyright. All Rights Reserved. Aqua Canine 

## How Much is Needed: The Overload Rule

The overload principle insists that we challenge the body with more intense exercise than it's accustomed to, prompting physiological changes and adaptation. Moreover, as the body adapts, we must continue to increase the intensity to keep encouraging improvement.

This doesn't mean adding more and more exercises. Instead, it involves tweaking various factors during each session to gradually increase the overall difficulty, getting us closer to our goals.

To achieve this, we carefully adjust repetitions, sets, frequency, tempo, equipment, and resistance, progressively intensifying the exercises for our dogs.

**We need to focus on four key areas when applying overload:**

1. **Cardiovascular endurance**
   Gradually increase the time spent exercising, as well as the effort over time.
2. **Muscular endurance**
   Increase sets and/or duration of each set and overall volume of work.
3. **Muscular strength**
   Add resistance or change the load by raising the fore or hind limbs onto a higher platform, or by lifting a limb.
4. **Flexibility**
   We want to increase the active range of motion of soft tissues through movement.

© Copyright. All Rights Reserved. 

## Use it or Lose it: The Principle of Reversibility

The principle of reversibility reminds us that when we stop or significantly reduce training, the positive changes our dog's body underwent will fade away. The most common reason for this setback in our patients is enforced crate rest after an injury or surgery.

When there's complete inactivity, muscles quickly shrink, and endurance decreases within two weeks. Flexibility takes an even faster hit. Cardiovascular endurance also diminishes over time and can be challenging to regain, especially for dogs who were in training before the resting period.

To combat this reversal, we should focus on cardiovascular endurance, flexibility, and muscular endurance without overwhelming our patients, along with safe muscle-strengthening exercises from the beginning of crate rest.

For dogs under crate rest, concentrate on what can be done within the imposed restrictions. The right exercises not only help to prevent or slow down reversal effects but they also promote healing and reduce compensation.

**For a post-operative or post-injury therapeutic exercise programme tailor-made to your dog, please get in touch with me.**



© Copyright. All Rights Reserved. Aqua Canine 

## Beyond the Everyday: Sports-specific retraining

**“Life Happens. Management fails. Go beyond the everyday to prepare your pets for life”**

LESLIE EIDE

The final touch in a therapeutic exercise programme often involves sports-specific retraining. Unfortunately, we typically associate this concept only with athletes, overlooking its importance for every dog. It's crucial to approach every dog's life with the same intentional preparation.

Think about your typical non-athlete dog. Small dogs regularly jump onto and off unstable surfaces, like a couch or bed, sometimes on slippery floors. When the doorbell rings, all dogs shift from sleep to sprint, navigating obstacles in their path. On a walk, a squirrel dashes by, and in seconds, all dogs are at full speed on uneven terrain.

Regardless of our pets' athletic prowess, readying their bodies for life is vital to minimise the risk of future injuries. When preparing our pets for life, we should consider balance, reactive exercises, speed, agility, quickness, and resistance training.

### Balance applies to three areas:

**Static Balance:** Maintaining stability in place without external forces.

**Dynamic Balance:** Sustaining stability through planned motion when external forces are at play.

**Postural stability:** Anticipating, preparing, and restoring stability across the entire kinetic chain.

© Copyright. All Rights Reserved. Aqua Canine 

**Reactive exercises** involve loading, transitioning, and unloading phases. An example is when dogs jump off beds or couches and swiftly transition into another movement, like running. Plyometrics, or stretch-shortening cycle exercises, are great examples.

**Speed, agility and quickness** are crucial for a dog's skilful movement at higher speeds with precision. This is especially important for dogs with a hunting instinct or those who love chasing or running for the doorbell.

**Resistance training** allows us to apply the overload principle creatively. While using resistance in dogs requires some ingenuity, weight-bearing exercises and variations, elevated limbs, Theraband, and hydrotherapy are effective tools for resistance training.



© Copyright. All Rights Reserved. Aqua Canine 

## Keep it simple, apply the principles

An effective therapeutic exercise programme doesn't need to be complicated or fancy. It is easy for us to overthink the exercises we perform with our dogs - they offer an incredible scope for imagination and play!

However, the best way to ensure that we are consistent in any kind of training programme is by setting ourselves up for success. Instead of adding various complex exercises into a programme, choose 3 exercises that are simple, easy to perform and provide you with some scope for progression and imagination.

Here are a few examples of foundational exercises that can be progressed and expanded on creatively, but which lay a simple and achievable foundation:

- positional cues, including stand, sit and down.
- targetting with the nose, front and hind paws
- standing on a platform or a strange surface

These exercises are very simple but can be progressed to provide increasing mental and physical challenges to our pets by applying the principles we have discussed.

**If you would like help developing an effective exercise programme for prevention or rehabilitation from an injury, I would love to help you develop it.**

**Book an appointment**

© Copyright. All Rights Reserved. Aqua Canine 



# Kirsty Hamilton

## AQUA CANINE

Committed to providing the highest standard of care, respect, and dignity for every patient. We work closely with your primary and specialist veterinary teams to ensure a seamless, professional approach to your dog's treatment and ongoing wellbeing.

**Book an appointment**

Facebook: Aqua Canine

**07359 774226**
**Aquacanine13@gmail.com**
**Aqua-canine.co.uk**

© Copyright. All Rights Reserved. Aqua Canine