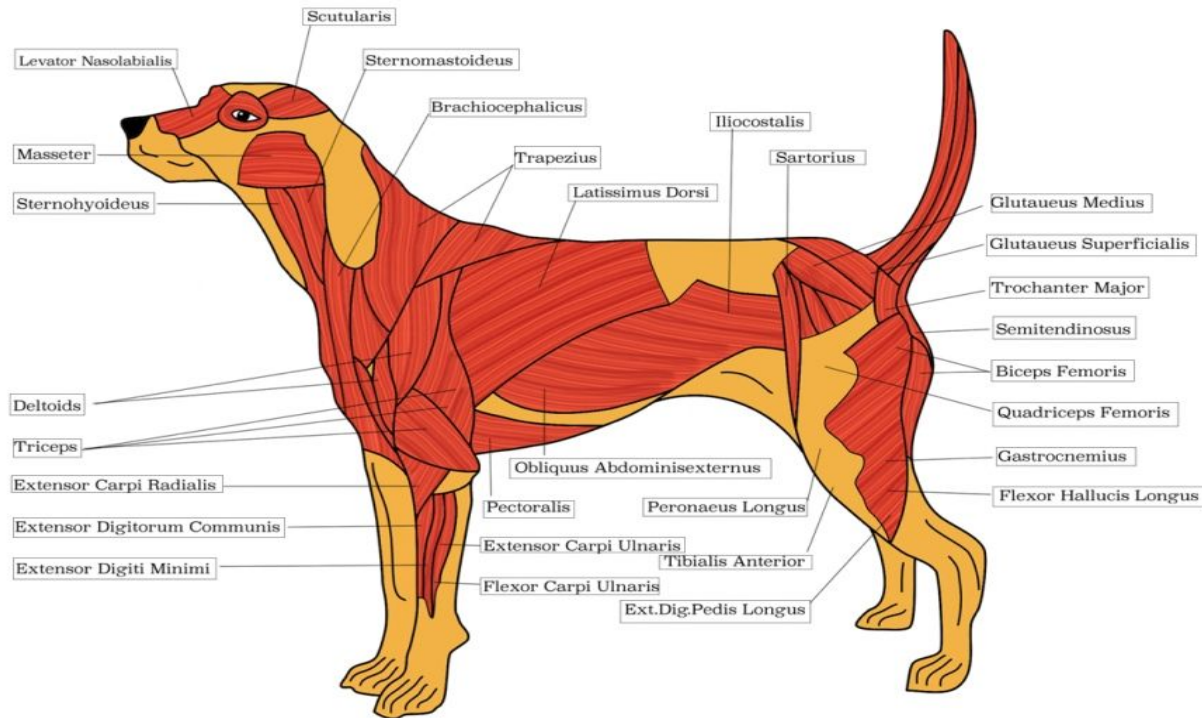




Muscles

How they work, conditioning, building and cooldown.

CANINE MUSCULAR ANATOMY




- Levator Nasolabialis** - dilates nostrils and raises upper lip
- Scutularis** - fixes and pulls the ears rostrally
- Brachiocephalicus** - draws limb forward, draws neck and head to side
- Trapezius** - elevates the limb and draws it forward
- Latissimus Dorsi** - flexes shoulder joint, draws trunk forward
- Gluteus** - extends hip joint and assists medial rotation
- Tensor Fascia Latae** - flexes hip joint, abducts limb and extends stifle
- Semitendinosus** - extends hip and tarsal joints
- Biceps Femoris** - extends hip and stifle joints
- Obliques** - compresses abdomen during urination, defecation and parturition
- Pectoralis** - adducts and retracts the forelimb
- Extensors** - extends leg
- Triceps** - maintains the elbow in an extended position as the dog stands
- Deltoid** - flexion of the shoulder
- Masseter** - raises mandible when closing the mouth
- Sternohyoideus** - allows swallowing
- Sternomastoideus** - draws head and neck to one side

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Canine Muscle Structure

- Everything they do, they use muscles.
- *Standing *Obedience
- *Trotting *Rally
- *Running *Barn Hunt
- *Jumping *Fast Cat
- *Dreaming *Racing
- ^Dock Diving *Trick Dog
- ^Agility *CGC



How Muscles work

*Locomotion is made of the combined actions of the legs balanced with the core efforts of the abdomen, thorax and neck. Each leg will go through a step cycle.

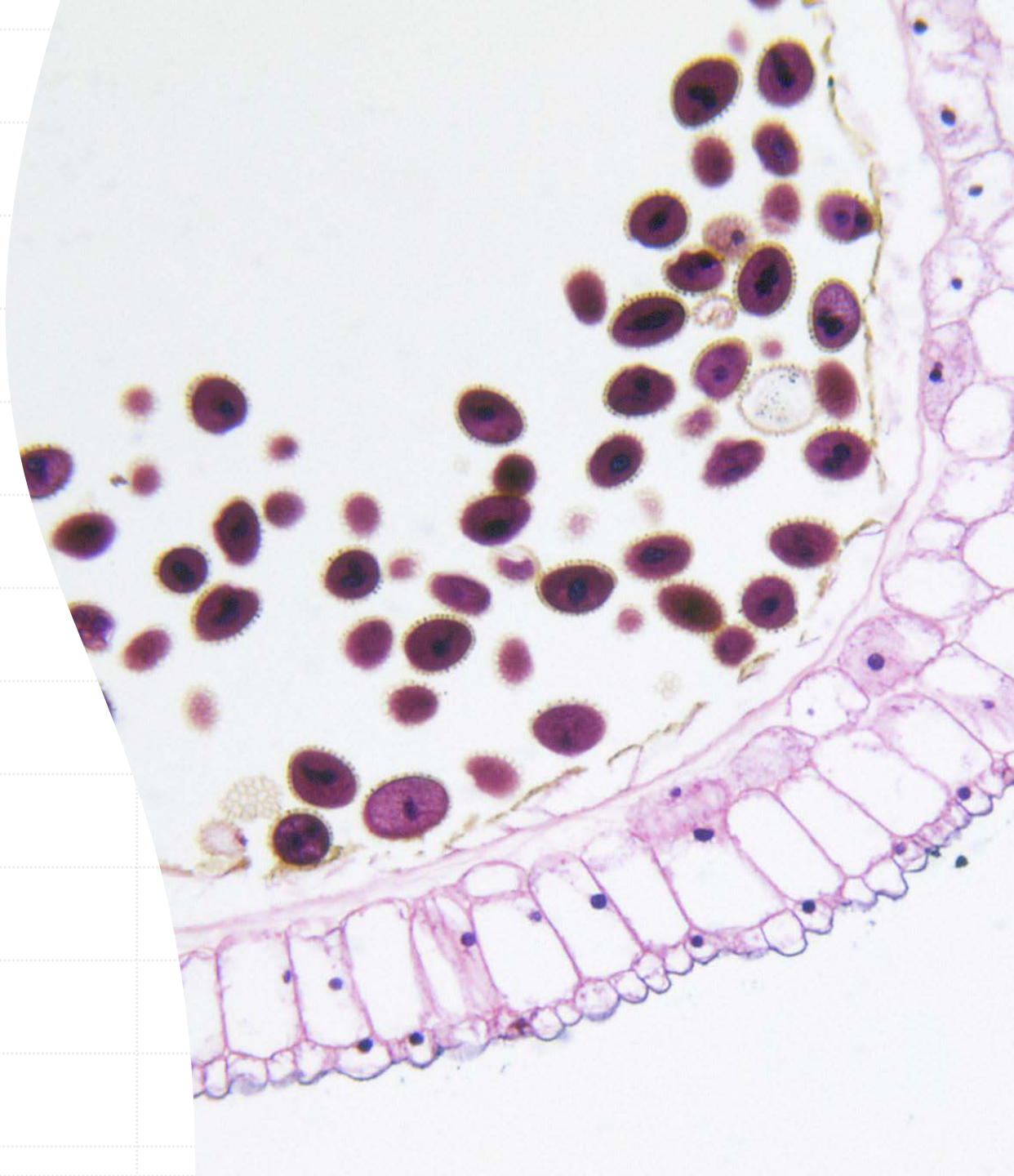
*When the muscle is being used it contracts and pulls the bone and when it is not it is considered relaxation and loosens.

*Contraction (shortens) or Relaxation all triggered by types of protein filaments actin or myosin that slide against each other

*Muscle slide over each other shortening to pull the bone while others are relaxing allowing other muscles to pull the other way all with messages sent from the brain down the spine to specific places to accomplish the movement required.

What happens when muscles are used?

- ***Cellular process of fusing muscle together to create new muscle protein strains called myofibrils.**
 1. During this process the body repairs or replaces muscle fibers tears that are created from movement
 2. Sends satellite cells from outside the muscle fiber to the damaged areas to replicate and mature cells help fuse the fiber

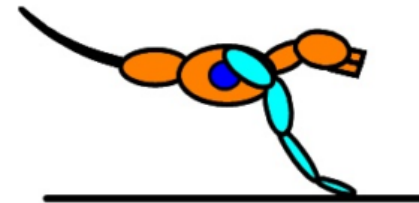
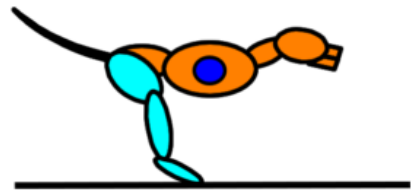
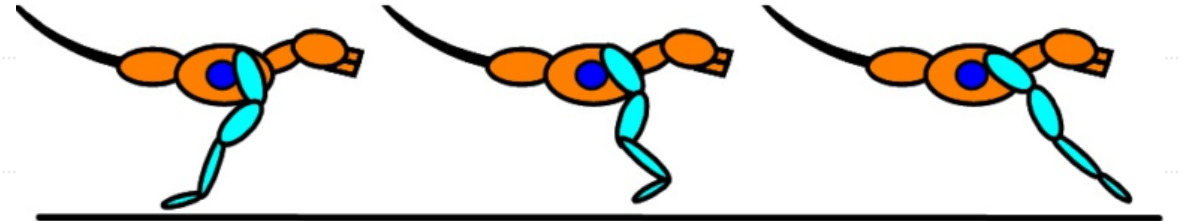
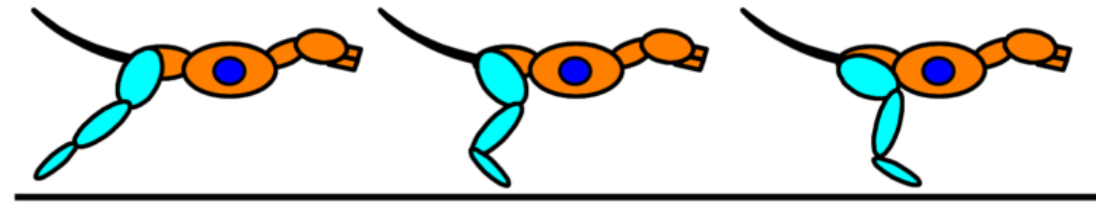
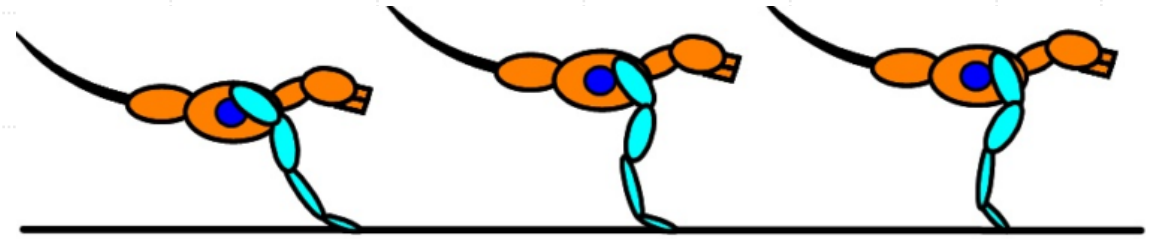
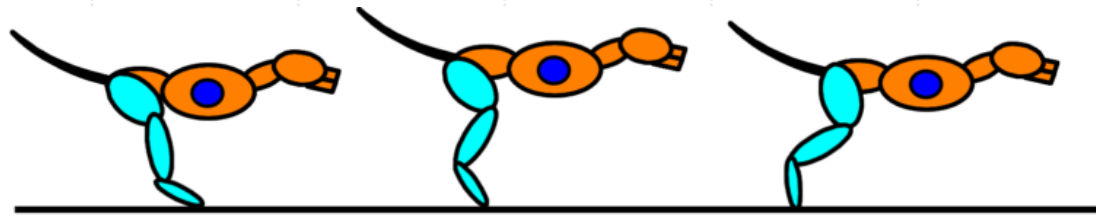


What happens to the body when they exercise?

Exercise diverts blood from your liver and digestive system to your skeletal muscles.

Hormones tell the body to convert fat into glucose, reduce the pain you feel and improve the mood.

Muscles generate lactic acid as a by-product of intensive exercise and, as this builds up, the pH of the blood around the muscles drops. This drop in pH eventually prevents the muscles contracting further.



Muscle Actions



Muscular Endurance

- Muscular endurance refers to the ability of a muscle to sustain repeated contractions against resistance for an extended period.
- To increase muscular endurance you must engage in the activities that work the muscles more than usual.

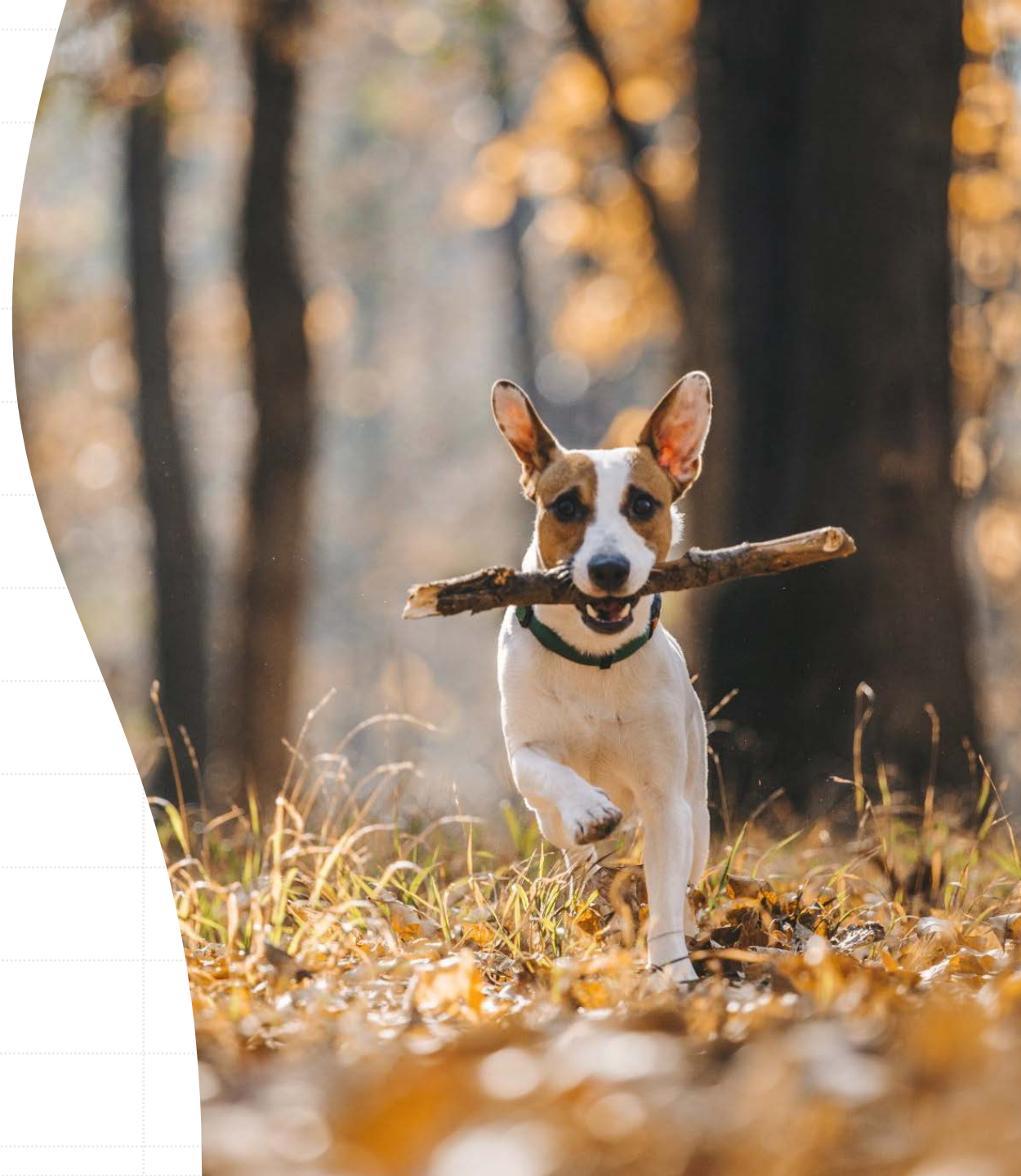
Now ask yourself

What do I need for this activity?

Speed- What type of speed training does the dog need to have for its activity?

Endurance- What type of endurance will the dog need for its activity (e.g. muscular and cardiovascular)?

Injury Reduction- **What type of injuries commonly occur in the dog's activity** and what type of conditioning is required to reduce those injuries?



Purposeful Stretching

What activity
are you going to
do?

What muscles
will they use?

How will the
activity affect
the entire body?

No matter what you are doing don't forget the basics

Confirmation

Obedience/Rally

Agility

Dock Diving/Swimming

Lure Coursing/Fast Cat/Racing

Barn Hunt

Fly Ball

Hiking

A basic stretch that is for anything

Play bow front

Stretch both back legs

Together

Individual

Nose to rear both sides

Look up and look down

Get a hug to flex topline

Spin left and right.

Let's think about the body

- What Muscles are they using
 - Standing
 - Moving
- What activity are you going to do?
- How to engage those muscles



I like to divide the body into sections when I am thinking about the stretch. 1. Head and Neck. 2. Neck into shoulders with front assembly. 3. Chest and Loin. 4 Croup and rear assembly.

Lure Coursing, Fast Cat, Straight, Oval & Box Racing



Think of all the muscles, ligaments, and tendons that are used in these events. Where do the injuries occur? What might we do to stretch these spots?

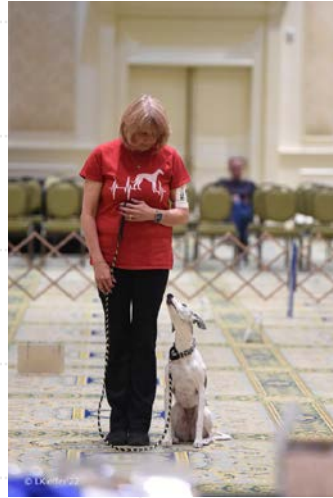
I always do my basic stretches and add front legs, pasterns and toes.



Hunting and Field Sports

- This activity would use the entire body. Not only rocking of the shoulders and flexing of the pasterns to toes. Flexing the topline and stretching the rear. Core stretching and strengthening would be a must!

Obedience and Rally



Both of these events are very one sided and hard on the neck and shoulder.

In addition to the basic stretch, I like to add a sit, down, sit stand stretch into my routine.

Agility



Agility uses most of their bodies with turning, jumping, weaving, and climbing. A stretch routine would be extremely important. Pasterns and Hocks would also be important along with toes.

Dock Diving and Swimming

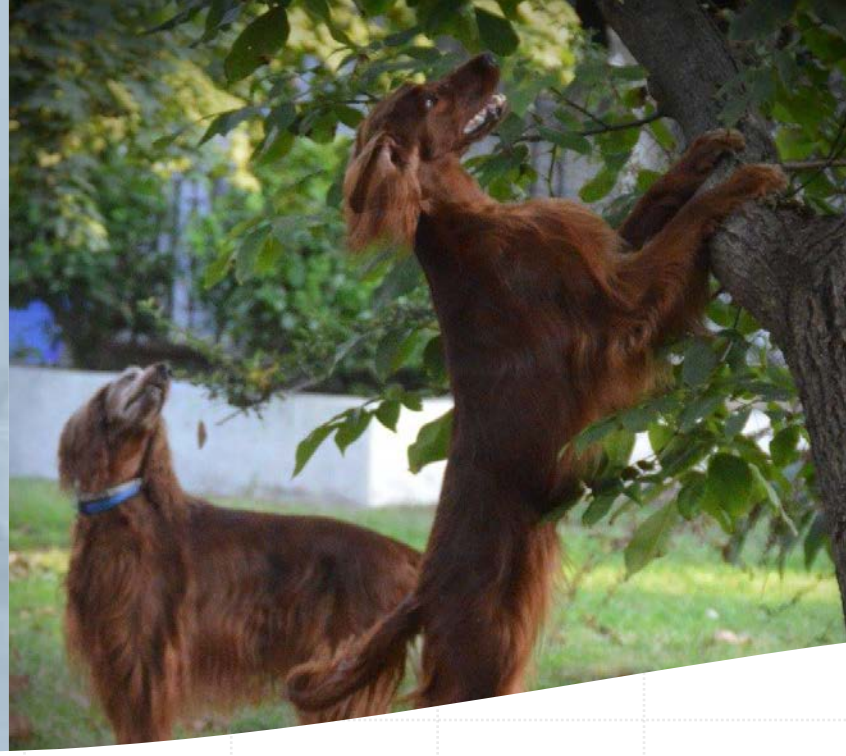


Kermit

Both of these sports would require both stamina and Strength and Conditioning.

A full body stretch would help with extending the body more and flexing the hocks and feet would also be beneficial

Swimming is a lot of cardio and power in the rear to propel them would also help.



Play time, hiking, and playing ball

- All of these activities are sometimes a bit more spontaneous but it does help with the building of muscle. This is where cool down is sometimes very helpful since stretching before the zoomies does not always work.



Conditioning

- Muscle growth tends to occur steadily after a initial period of strength gain because the body can easily activate the muscles
- Optimal movement results in optimal performance and a lengthy operational career
- I try and do 3x comfortably what I am asking them to compete.
- Repetitive action will create muscle and is part of keeping the muscle healthy. While educating their minds you must educate their muscles to do a job.
- I try to make the conditioning fun for the dog so that it is easier to get them to do it. Playing fetch in the yard to just playing with the hose all can be a part of your conditioning



Muscle Growth

As you work your conditioning and preparations for competing you must look at the overall of the dog.

Are you growing muscles?

Are the muscles balanced?

How is our overall weight

Am I getting more flexibility in one side vs the other?

It takes 2-3 weeks of conditioning to start to see muscle change

It takes 3-4 days for muscle to start to lessen and weaken for lack of use.

Gives you a good idea on how they are using their bodies.

Cool Down and Rest

- The best cool down and extremely important to go through your basic stretches after activity.
- It is so Important to rest and let the body repair the muscles ligaments and joints.
- Time to let the pH and Lactic Acid to find balance again

