
Body Condition Score

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Senior Veterinary Student Class of 2023





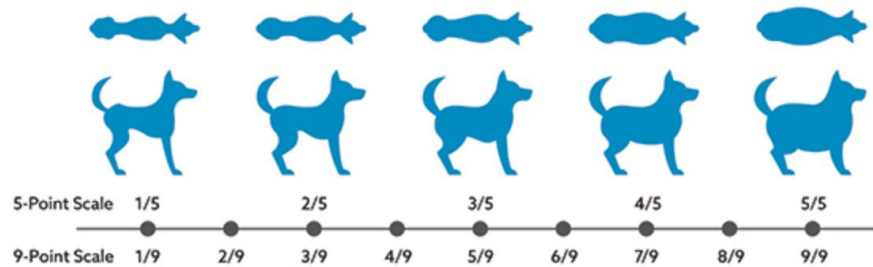
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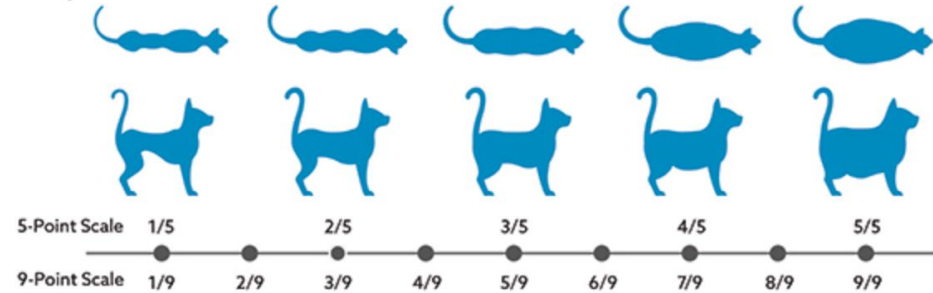
What is a Body Condition Score (BCS)

- A subjective measurement of body fat using a scale 1-9 or 1-5 in small animals
- MCS: Muscle Condition Score. Muscle is independent of BCS

Body Condition Score for Dogs



Body Condition Score for Cats



How to properly score

Ribs










Tuck

Above view



Nestlé PURINA

BODY CONDITION SYSTEM

TOO THIN	1	Ribs, lumbar vertebrae, pelvic bones and all bony prominences evident from a distance. No discernible body fat. Obvious loss of muscle mass.	
	2	Ribs, lumbar vertebrae and pelvic bones easily visible. No palpable fat. Some evidence of other bony prominence. Minimal loss of muscle mass.	
	3	Ribs easily palpated and may be visible with no palpable fat. Tops of lumbar vertebrae visible. Pelvic bones becoming prominent. Obvious waist and abdominal tuck.	
IDEAL	4	Ribs easily palpable, with minimal fat covering. Waist easily noted, viewed from above. Abdominal tuck evident.	
	5	Ribs palpable without excess fat covering. Waist observed behind ribs when viewed from above. Abdomen tucked up when viewed from side.	
TOO HEAVY	6	Ribs palpable with slight excess fat covering. Waist is discernible viewed from above but is not prominent. Abdominal tuck apparent.	
	7	Ribs palpable with difficulty; heavy fat cover. Noticeable fat deposits over lumbar area and base of tail. Waist absent or barely visible. Abdominal tuck may be present.	
	8	Ribs not palpable under very heavy fat cover, or palpable only with significant pressure. Heavy fat deposits over lumbar area and base of tail. Waist absent. No abdominal tuck. Obvious abdominal distention may be present.	
	9	Massive fat deposits over thorax, spine and base of tail. Waist and abdominal tuck absent. Fat deposits on neck and limbs. Obvious abdominal distention.	

The BODY CONDITION SYSTEM was developed at the Nestlé Purina Pet Care Center and has been validated as documented in the following publications:

Mowbray D, Borges JM, Moyers T, et al. Comparison of body fat estimates by dual-energy x-ray absorptiometry and deuterium oxide dilution in client owned dogs. *Compendium* 2001; 23 (9A): 70

Lafontes DP. Development and Validation of a Body Condition Score System for Dogs. *Canine Practice* July/August 1997; 22:10-15

Kealy et al. Effects of Diet Restriction on Life Span and Age-Related Changes in Dogs. *JAVMA* 2002; 220:1315-1320

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How to properly score, continued...

Pet Body Condition Score (BCS)



Lightly run your fingers over your knuckles as you make a fist. If you imagine those knuckles were your dog/cat's ribs, this would be too thin.



Put your palm up, fingers extended facing the ceiling. Run your fingers over the base of your fingers- this is too heavy.



Turn your hand over, palm down and feel over your knuckles. When your pet's ribs feel like this, it's just right- healthy lean BCS 5/9!

Why Score?



Daily Energy Requirement Calculations

Canine

Feline

Growth DER

Up to 4 months = 3 x RER

Growing kittens = 2.5 x RER

Over 4 months = 2 x RER

Maintenance DER

Normal neutered adult = 1.6 x RER

Normal neutered adult = 1.2 x RER

Intact adult = 1.8 x RER

Intact adult = 1.4 x RER

Obese prone = 1.4 x RER

Obese prone = 1.0 x RER

Weight loss = 1.0 x RER

Weight loss = 0.8 x RER

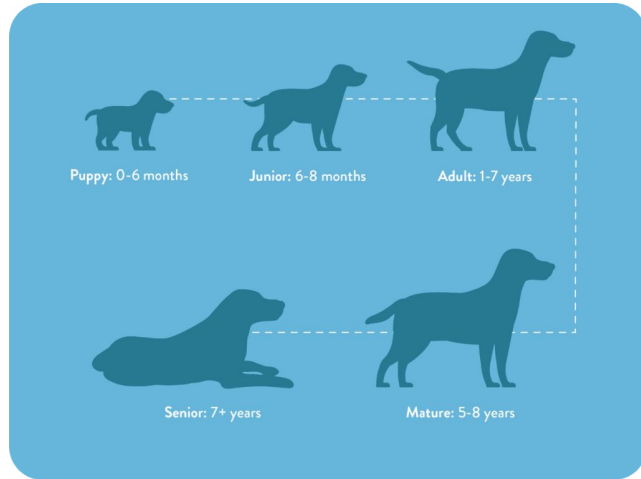
Work DER

Light work = 2 x RER

Heavy work = 4 - 8 x RER

Why Score

- As our animals grow through their life stages, their nutritional requirements change.
 - RER: Resting Energy Requirement
- Using BCS can assess their ideal weights





Nutrition

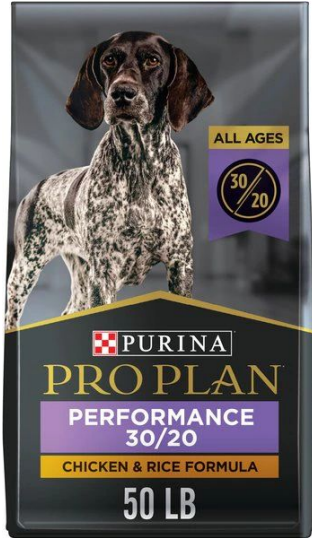
Using nutrition to for ideal weight



- On a 1-9 scale, every point above 5 is about 10% excessive weight
 - Example: $8/9 = 30\%$ overweight

Let's Fix this....

- First let's read the bag



- Often the back of the bag chart is an overestimate of the amount of food.
- What to look for? Amount of KCals per Cup

Calorie Content (fed)(ME):

4390 kcal/kg

484 kcal/cup



Let's Fix this with Math

Ideal Example:

- 3 year old, intact female labrador retriever, weighing 60 lbs with a BCS of 5/9 eating Purina Pro plan 30/20
- RER: $70 (\text{wt in kg})^{0.75}$
 - $60\text{lbs} / 2.2 = 27.2\text{kg}$
 - $70 (27.2 \text{ kg})^{0.75} = 833 \text{ kcals (maintenance)}$
 - $833 \text{ kcal} \times 1.8 (\text{intact}) = 1500 \text{ kcals}$
 - $1500 \text{ kcals} / 484 (\text{kcal in one cup of Purina Pro Plan}) = 3$
cups in one day



Let's Fix this with Math

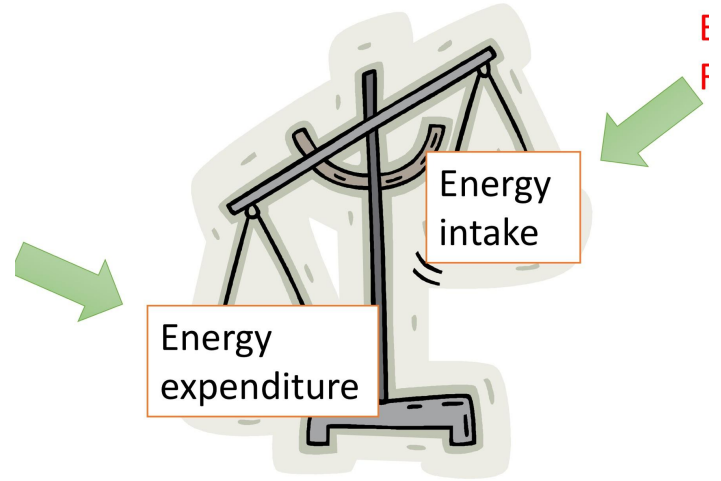
Correction Example:

- 3 year old, intact female labrador retriever, weighing 80 lbs with a BCS of 7/9 eating Purina Pro plan 30/20
 - $80 \text{ lbs} / 2.2 = 36 \text{ kg}$
 - $70 (36\text{kg})^{0.75} = 1036 \text{ kcals}$
 - $1036\text{kcal} \times 1.8 (\text{intact}) = 1864 \text{ kcals} / 484(\text{kcal per cup}) = 4 \text{ cups}$
 - BCS of 7/9 = 20% overweight
 - $1036 \text{ kcal} \times 20\% = 829 \text{ kcal}$
 - $829 \text{ kcal} \times 1 (\text{weight loss}) = 829 \text{ kcal}$
 - $829 \text{ kcal} / 484 (\text{kcal in one cup of Purina Pro Plan}) = \mathbf{1.7 \text{ cups in one day}}$



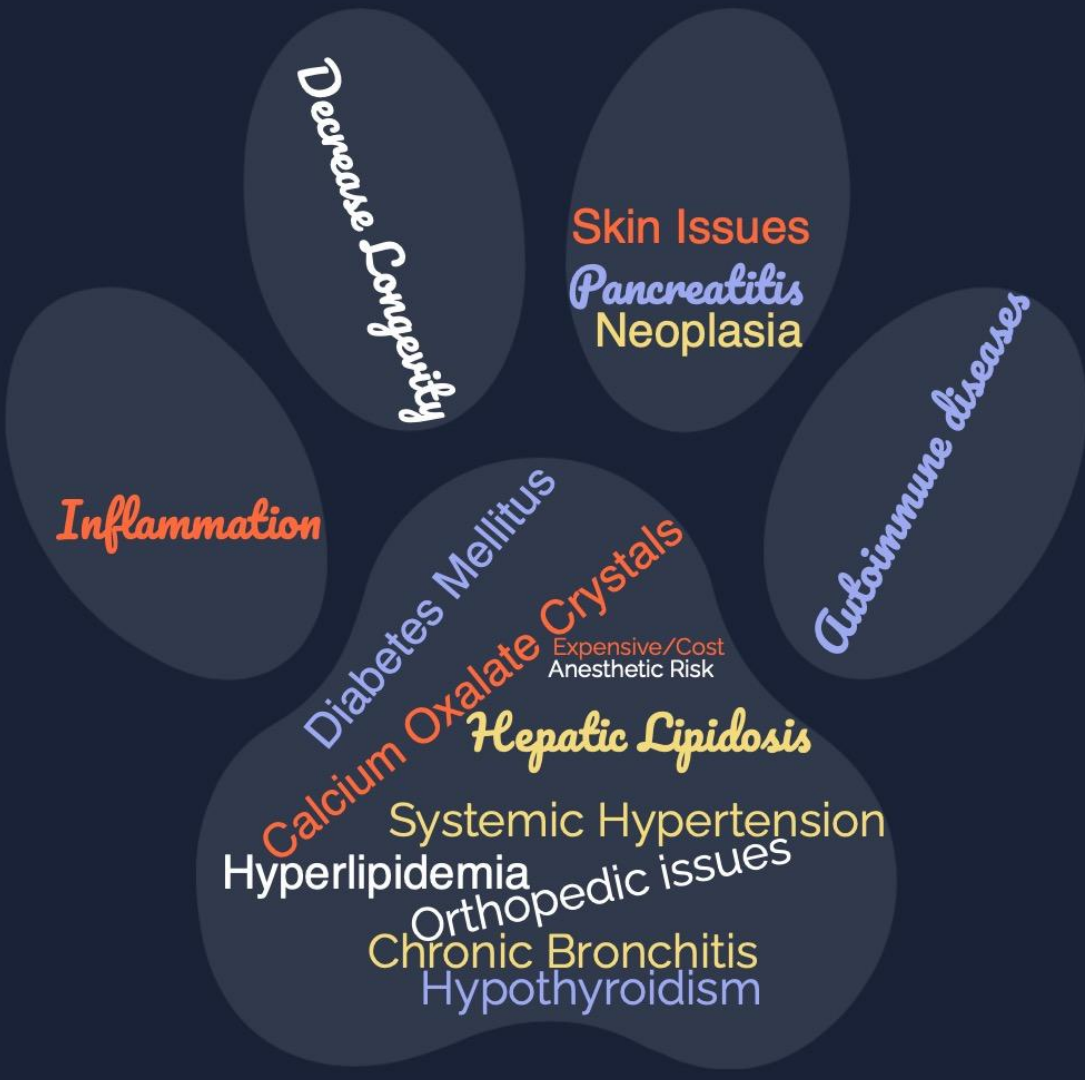
Tips

- Weight loss should be approximately 1-2% body weight per week
- Energy Restriction is the mainstay of obesity treatment
- High protein diets help lose weight more safely
- No free feedings
- “Cookie Jar”
- Frequent spread out meals



Common Complications of Obesity

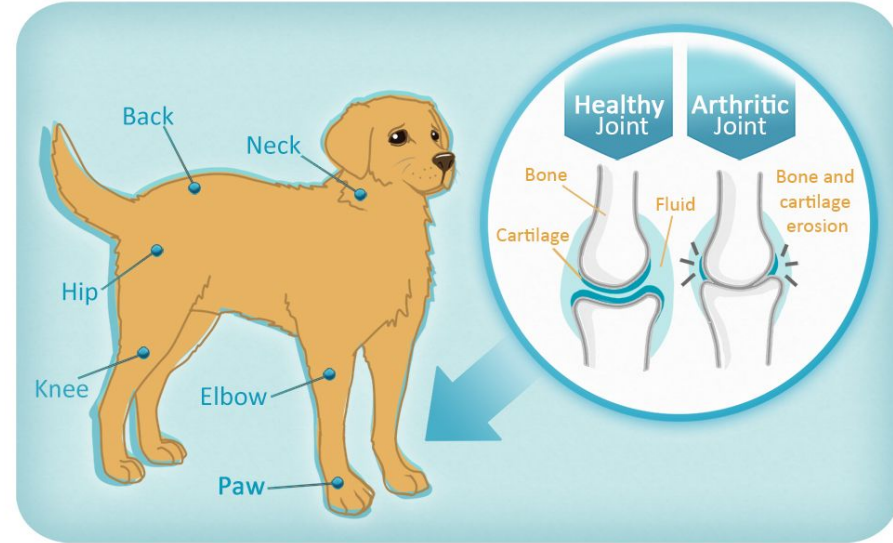




Common Complication of Obesity

Mobility

- Known predisposition to osteoarthritis:
 - Thin dogs-10% chance of 3 joints with osteoarthritis
 - Heavy or obese dogs- 70% chance of 3 joints with osteoarthritis
- Number one importance is lean body condition



Prevention/Management



- **Medical Management:** Once arthritis is present, pain medication should be given by your veterinarian (Multimodal)
- **Exercise Modulation**
 - Low impact activities: leash walks, swimming, hill work/walks
- **Nutrition/Joint Supplements:**
 - Can be started at any age, but usually around 6-7 years old
 - Rx vs Over the Counter
 - Omega 3s (Dose: $310\text{mg}/\text{kg}^{0.75}$)
 - Chondroprotectants: Glucosamine chondroitin and ASU (Avocado Soybean Unsaponifiables)
 - Hill's JD diet will need to be prescribed by your doctor

Physical Therapy/Exercises

Strength | Endurance | Range of Motion | Laser Therapy



Exercises Provided by Wags (Whole Animal Gym)

Some of these exercises may not be appropriate for those animals experiencing a current illness/disease/mobility trouble and should be evaluated prior



Sit to Stand

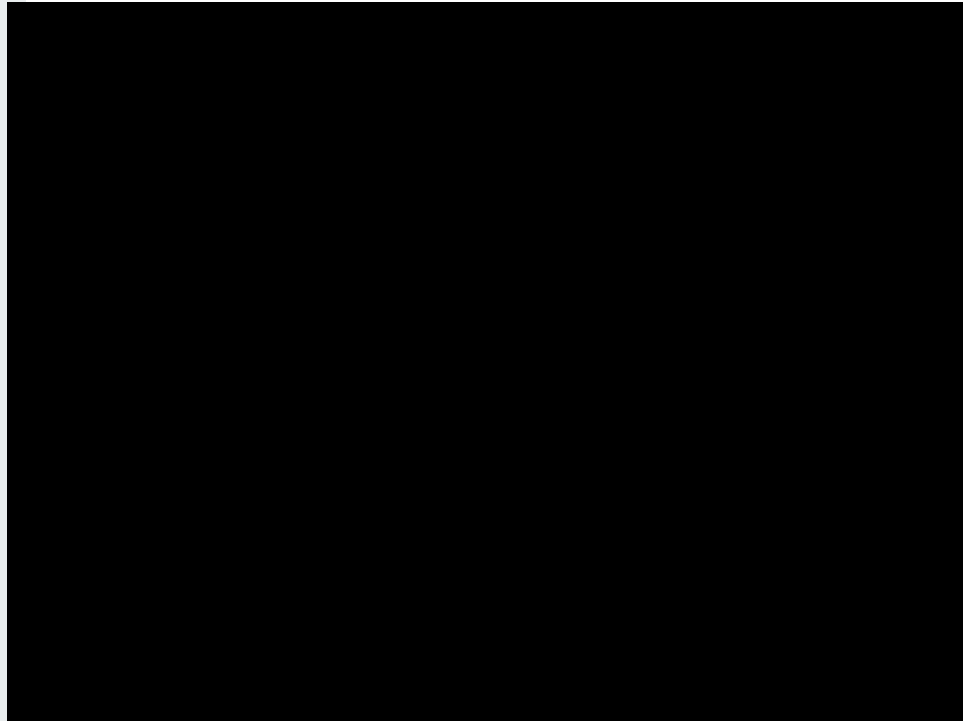
3-5 reps (making sure the stifles and toes are square and facing forward). This exercise acts as a squat to strengthen the muscles in the hind limbs.





Cookie Stretch

With the dog standing square, have them turn their head laterally to either their shoulder, rib or hip, and hold that position for 3-5 secs. Repeat 3 times on each side. If the dog is backing up, sitting, or spinning around, reduce how much they are turning their head. This exercise allows weight to be shifted on the opposite hind limb (Ex: When the dog turns to look to the right shoulder, weight will be shifted to the left hind limb). It is also great for stretching out the paraspinal muscles.





Step Stretch

Place thoracic limbs on an elevated surface and have the dog look up, causing the weight to shift to the pelvic limbs. Hold for 3-5 secs. Repeat for 3 reps. This allows for engagement of the pelvic limbs and core.

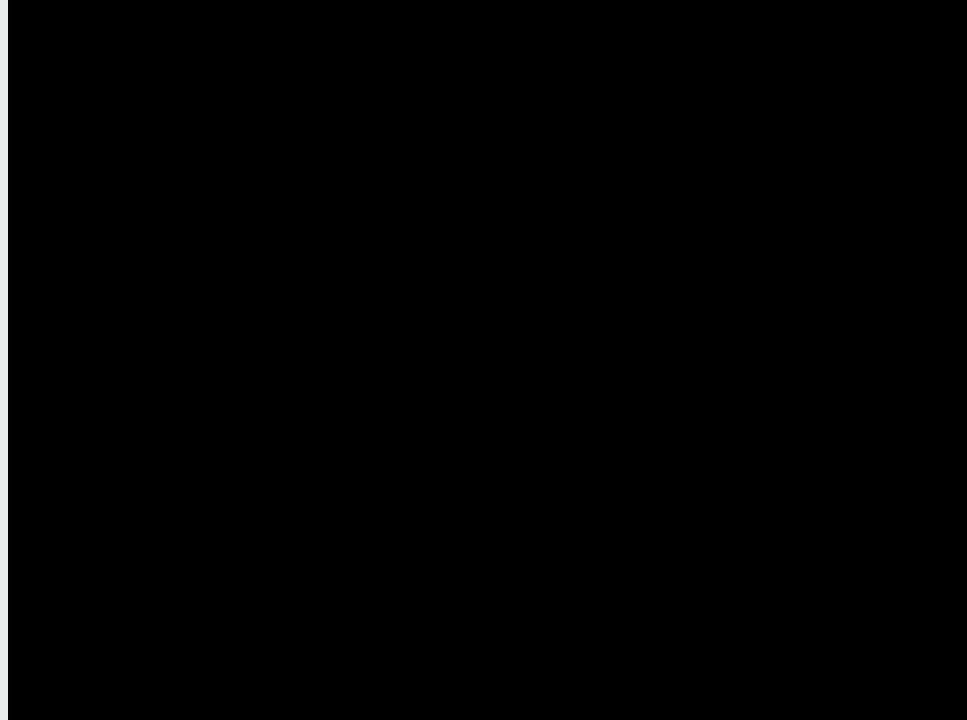
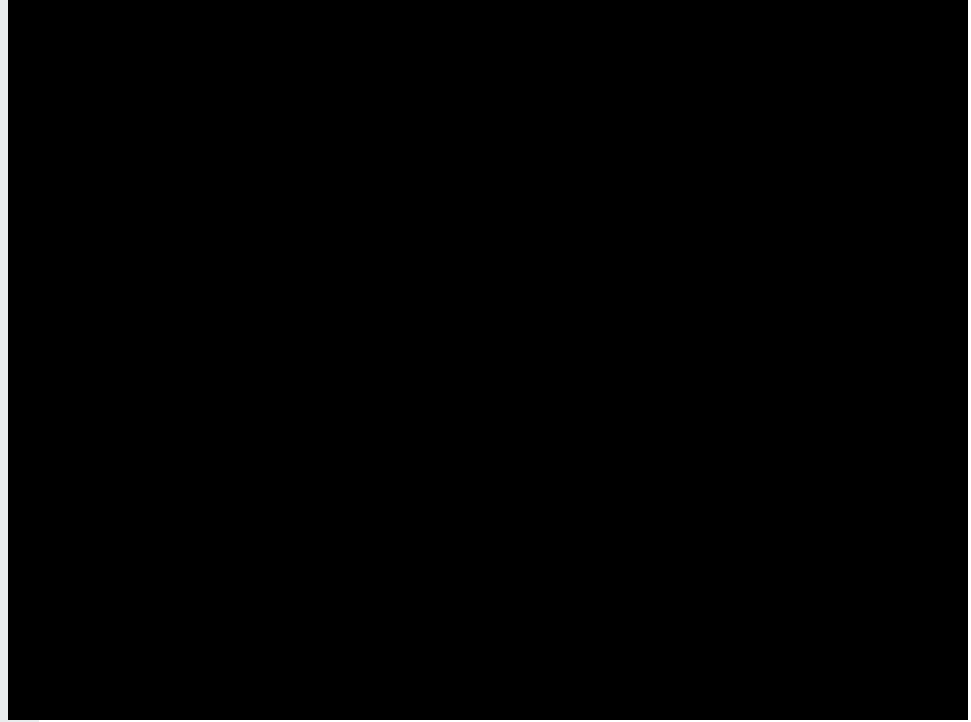




Figure 8

Place 2 objects 1-1.5 the dog's body length apart. Have the dog walk in a figure 8 motion through the objects, making tight turns around the objects. Repeat for 4-5 rotations.

This works on weight shifting as the dog takes the tight turn around the object, as well as working on spinal flexion while weaving.

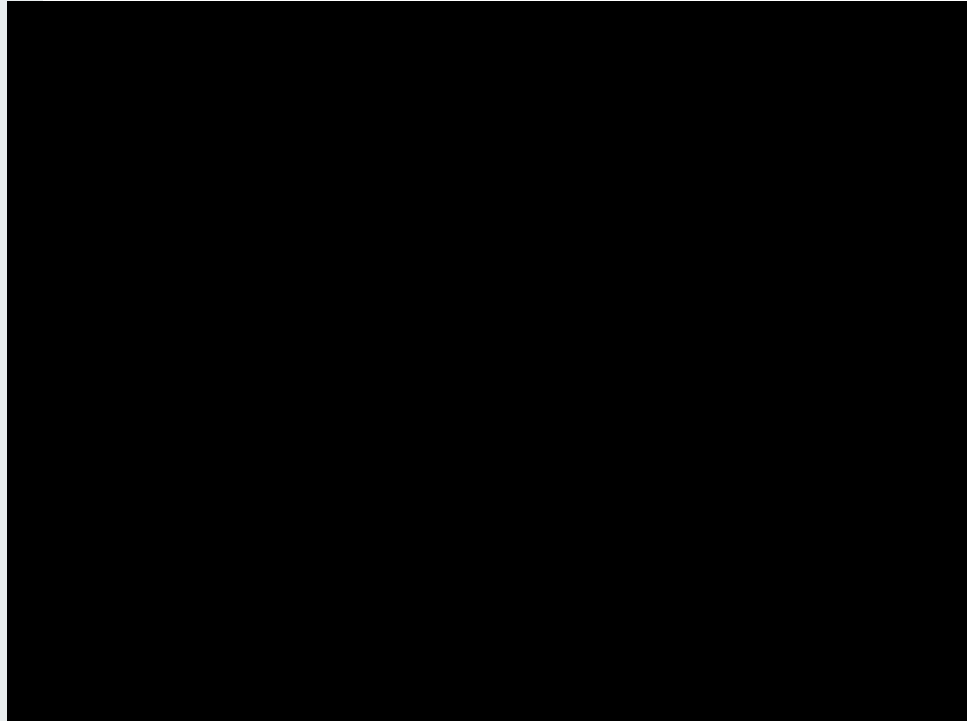




3 Leg Stand

Lift one limb and hold for 3-5 seconds. The dog shouldn't be placing any weight into the client's hand. Repeat 3 times on each limb.

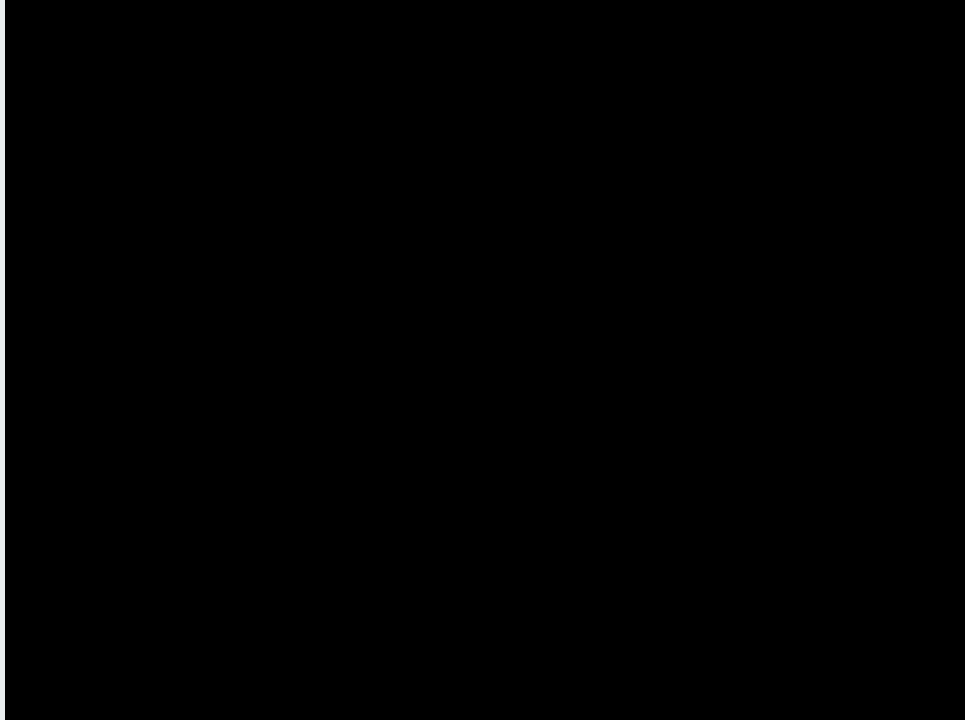
This exercise works on core and limb strengthening.





Give Paw

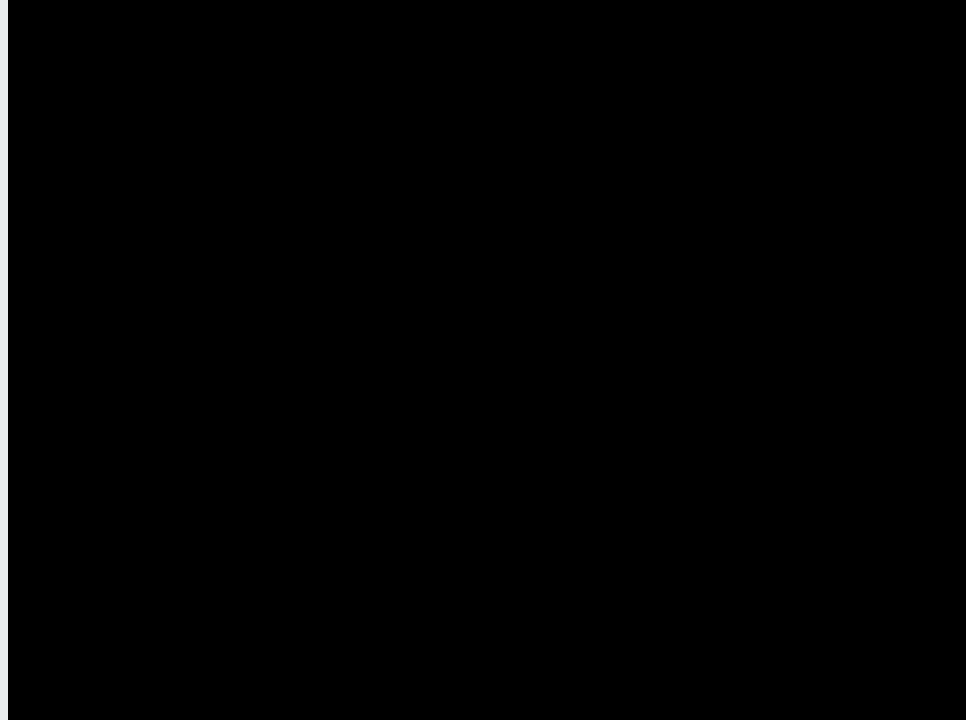
Give paw x 3 reps, thoracic paw.
This exercise works on flexing
the elbows and extending the
shoulders.





Puppy Push Ups

Have a dog Sit. Ask the dog to go into a "Down" and then push back up into a Sit. Repeat 3 times. This exercise works the thoracic and pelvic limbs. It also is good for working on flexing the elbows while pushing up from a down into a sit.



Questions

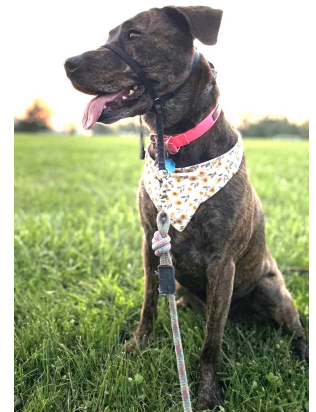


Acknowledgement/Resources

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- Vet School Notes:
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- Discussions with Dr. Mark Finkler DVM
- Wags (Whole Animal Gym) Philadelphia and Langhorne physical therapy
- Maple; excellent model and demonstration of exercises
- Various images from google search



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