

# STUDY GUIDE

# NUTRITION & REPRODUCTIVE PERFORMANCE

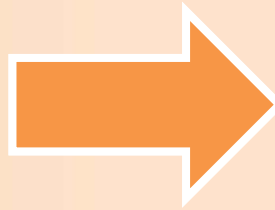
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Here is a helpful summary you can use to complete your AKC Breeder Education Quiz. When you pass your test, AKC will send you an exclusive Breeder Education Certificate.

## START OF PREGNANCY

Since less than 30% of fetal growth occurs during these first weeks of pregnancy, nutritional requirements should increase minimally - 10% maximum



## AT THE TIME OF WHELP

At the time of whelping, the bitch's weight should have increased 15 to 25 percent

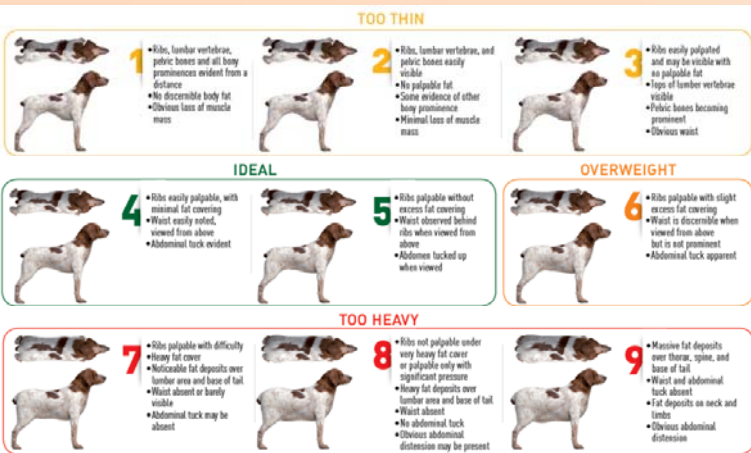
Only healthy dogs having a good Body Condition Score (BCS) should be used for breeding

## LOW BCS AFFECTS REPRODUCTION

- May not consume enough food to provide for her needs as well as the puppies
- Lack of nutrition can cause decreased birth weight
- Increased neonatal mortality
- Decreased reproduction/heat hormones

## HIGH BCS AFFECTS REPRODUCTION

- May not conceive or higher incidence of pseudo pregnancy
- Over feeding pregnant mothers causes very large fetus increasing the likelihood of c-section
- Predisposition to dystocia
  - Fat in the muscle increases risk of decreased contraction intensity
  - Fat in the muscle can lead to more caesarians



## DOES NUTRITION AFFECT LITTER SIZE?

Yes

- Low nutrition status has negative impact
- Over weight has negative impact

No

- Identified ideal nutrient or ratio of nutrients that is proven to increase litter size

Probably

- Retrospective study of litter size vs. diet

High bioavailable refers to a diet where nutrients (vitamins and minerals) make it to body tissue

Diets that are highly digestible are diets that are nutritionally efficient

## PROTEIN DEFICIENCY

- Tyrosine influences sexual behavior
- Placental size and dysfunction
- Decreased Altered EFA Metabolism
- Decreased pup weight, brain weight, fat metabolism

## ESSENTIAL FATTY ACID DEFICIENCY

- Decreased # per litter
- Decreased birth weight
- Delayed puberty in female puppies
- Omega 3 for brain development 3<sup>rd</sup> Trimester



**Importance of Vitamins & Minerals**

- Chelated Minerals
  - Affects litter size
- Vitamin A/ $\beta$ -carotene
  - Key to Corpus Luteum & Endometrium development
- Folic Acid
  - Deficiency increases incidence of cleft palates
  - Important in cell division

*The effects of a bitch's nutritional deficiencies can not only be seen in puppies she delivers now but also will affect those puppies' ability to reproduce*

*Amount and health of stool is key indicator on digestibility and nutrient absorption*

**GESTATION DIET RECOMMENDATIONS**

- Feed a highly digestible & nutrient dense diet for gestation
  - Increase calorie intake at week 5 (at week 6, energy needs dramatically increase with 10% each week for the remainder of the pregnancy)
- Feed intake 1.25-1.5X, starting at week 5
- Feed multiple meals in the 3rd trimester
- Weight gain total: 15-25% of original body weight
- Should weigh 5-10% above normal weight after whelping

**You cannot overcome diet deficiency by overfeeding your bitch:**

- Decreased digestibility when you increase food which decreases caloric intake
- Breeders need to be concerned by increased calories

**Diet in 1<sup>st</sup> and 2<sup>nd</sup> Trimester should be primarily concerned with:**

- Micronutrients bioavailability
- Digestibility
- Gut health; 60% of immunity is in the gut
- NOT increased calories

**At the time of whelping:**

- Most bitches refuse food 12 hours prior to whelping
- Encourage bitches to drink water or eat ice chips to prevent dehydration during pre-labor
- Since many bitches have to be encouraged to eat, bring food and water to bitch after birth to keep her energy up

**LACTATION DIET RECOMMENDATIONS**

- High digestibility energy and nutrient dense
  - Preferably the same as the gestation diet
- Ensure enough calories especially weeks 1-3
- Multiple meals/day
- Decrease dam's intake after 4th week since milk composition (caloric content) changes
- Always provide fresh water and ensure bitch is properly hydrated to ensure adequate milk supply

*Nursing female requires more calories than an active working dog*

**Practical guidelines:**

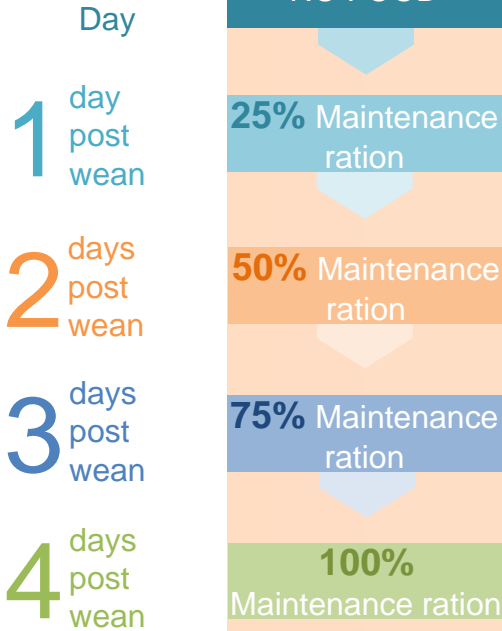
Breeders often increase high-digestible food intake by 25 percent per puppy above what is usually required to maintain regular body weight

- Divide the amount of food by 25% and then multiply the number of puppies to calculate the total added food amount
  - Example: bitch typically eats 2 cups and has 6 puppies:
  - $2 \times .25 = .5$
  - $.5 \times 6 = 3$
  - Add 3 cups of food to current 2 cups = 5 cups of food for lactating bitch



## WEANING – NUTRITIONIST POV

### Weaning



Feed puppies based on the adult dogs that they will become

Puppies achieve full immunity between weeks 22-24 weeks

2 sets of nutrients have been shown to increase antibodies to help boost immunity gap (between maternal and full immunity):

1. Vitamins C and E /Lutein and Taurin
2. Bovine Colostrum

### NUTRITION & HIP DYSPLASIA?

- Genetic condition but often attributed to diet
- Conditioning and supplementation can make worse (not actual diet)
  - Overweight/High BCS
  - Too much calcium for puppies
  - Free choice feeding for large breeds
- Be sure to feed food for the appropriate size of your puppies
  - Proper balance of energy and calcium phosphorus

### CAUSES OF DIARRHEA IN YOUNG PUPPIES:

- ↑ incidence in round, hook, and whip worms and Coccidia and Giardia
  - Breeders should create parasite control protocol
- Weaning is a major stress in puppies and may cause diarrhea
- Vaccination can cause diarrhea
- High incidence in first few weeks of life due to low motility in the digestive tract
  - Disinfection is key
- Sometimes nutrition can play a major part

### LOW MILK SUPPLY CAUSES:

- Hereditary; low milk levels in line of dams
- Poor nutrition
  - Low carb, causing low energy
- Hormone issues
- Hydration
- C-section; pain causes blood vessels to restrict
  - Solution: provide pain meds post delivery

