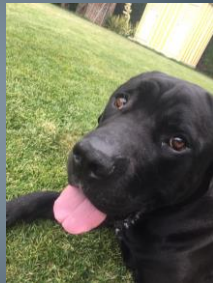


Clinical case of dog with short bowel syndrome

Natalia Russo,
DSV, ECVN Resident

Oscar

- Arrived on October 2018
- 4 years
- Cane Corso breed.
- Male
- Body Weight 36 Kg
- Ideal Weight 45kg
- Fecal Score 6/7



BCS e MCS

BCS: 3.5/9

MCS: mild muscle mass



Surgery

Oscar underwent three surgeries, because him compulsive eating of non-food substances.

He is suffering of pica.

The surgeons have resected around 70% of gut.
But no one knows what part it is.



Symptoms

- Hunger
- Diarrhea (Fecal Score 6/7)
- Weight loss (weight pre surgery 45kg)

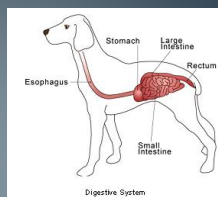
Nutritional history

- Intestinal pet food, dry and wet



Nutritional therapy

1. To improve gut differentiation
2. To increase weight
3. To improve fecal score



- **Digestibility:** this is a malassimilative condition, highly digestible foods are recommended (Small Animal Clinical Nutrition, 2010)
- **Fat:** many patients are underweight at the time of evaluation. High-fat, energy-dense foods are recommended. Fat exerts profound effects on enterocyte growth, villous morphology, mucosal enzyme activity and segmental absorptive functions (Lentze, 1989). Fat also slows gastric emptying of digesta, which may better match the nutrient load to the compromised digestive capabilities of the shortened small bowel (Small Animal Clinical Nutrition, 2010)
- **Medium-chain triglycerides (MCT):** has been reported to improve nutritional status in human patients with short bowel syndrome (Bochenek et al, 1970)
- **Glutamine and Honey:** have beneficial effects on intestinal adaptation processes following massive resection (Eyarefe et al, 2012)

Nutritional therapy - Energy intake

$$\text{MER} = 110 \times \text{BW}^{0,75} = \text{Kcal/die}$$



$$\text{MER} = 110 \times 45^{0,75} = 1911$$

FEDIAF, 2019

Nutritional therapy

FOOD	GRAMS
Intestinal dry food	50
Recovery wet food	395
Meat (Beef)	200
Heart (Beef)	100
Rice	50
Apple	125
Animal fat	20
Cocconut oil	20
Olive oil	20
DHA supplement	1.3
Glutamine supplement	0.32
Grana cheese	30
Honey	40
Vitamin-mineral supplement	6

Nutritional Therapy - Nutritional Values

FACTORS	% DM
Protein	30
Fat	25
Total Fiber	1.1
Calcium	0.66
Phosphorus	0.60

I follow-up

30 days start new diet

Oscar has weight loss It is gone from 36 kg to 34 kg.



INCREASE CALORIES

ACTIVE	K
Inactive dogs	95
Active/kennel dogs	130
Active young adult dogs	140
Older active dogs	105



$$\text{MER} = 130 \times 45^{0.75} = 2258$$

Nutritional therapy

FOOD	GRAMS
Intestinal dry food	100
Recovery wet food	395
Meat (Beef)	300
Heart (Beef)	100
Rice	50
Apple	125
Animal fat	20
Cocconut oil	20
Olive oil	20
DHA supplement	1.3
Glutamine supplement	0.32
Grana cheese	30
Honey	50
Vitamin- mineral supplement	6

Nutritional Therapy - Nutritional Values

FACTORS	% DM
Protein	30
Fat	25
Total Fiber	1.1
Calcium	0.66
Phosphorus	0.60

II follow-up

120 days start new diet

Oscar initially gained weight in the first month, It is gone from 34 kg to 36 kg.

Now it's stable at 36 kg



CHANGE DIET

Nutritional therapy

FOOD	GRAMS
Hydrolyzate dry food	100
Egg	53
Meat (Beef)	280
Heart (Beef)	250
Rice	170
Apple	65
Butter	10
Cocconut oil	20
Olive oil	20
Grana cheese	30
Honey	50
Vitamin- mineral supplement	6
Vitamin- mineral supplement	4

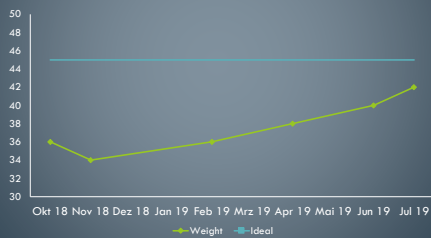
Nutritional Therapy - Nutritional Values

FACTORS	% DM
Protein	29
Fat	18
Total Fiber	1.6
Calcium	0.69
Phosphorus	0.60

III follow-up

8 months start new diet.

WEIGHT CURVE



III follow-up

8 months start new diet.

FECAL SCORE

SCORE	FOOTPRINT SAMPLE	CHARACTERISTICS
1		Very hard and dry. No mucus. No odor. Defecation is painful. (Constipation)
2		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
3		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
4		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
5		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
6		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
7		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
8		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
9		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)
10		Small, dark, hard fecal pellets. No mucus. No odor. Defecation is painful. (Constipation)



III follow-up

8 months start new diet.

GUT DIFFERENTIATION



1 year after the new diet will
undergo a new endoscopy

III follow-up

8 months start new diet

ANALYSIS



Vitamin B12= 142 pg/ml (range 234-812 pg/ml)

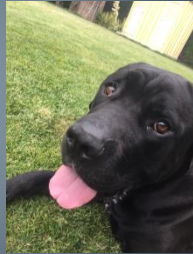


ORAL COBALAMIN SUPPLEMENTED (25 µg/kg)

Torresen et al, 2016
Sales et al, 2019

Oscar





REFERENCES

1. Eyarefe OD, Emikpe BO, Akinloye SO, Alonge TO, Fayemi OE. Effects of honey, glutamine and their combination on canine small bowel epithelial cell proliferation following massive resection. *Niger J Physiol Sci.* 2012 Dec 18;27(2):189-93.
2. Aboh Iku Kisanji, John Bayo Adeyanju, Abdullahi Teleh Elsa and Mamman Legbo Sinfada. Management of Short Bowel Syndrome in Nigerian Dogs. *World Vet J*, 8(2): 34-47, June 25, 2018.
3. Deborah J. Davenport, Chris L. Ludlow and Rebecca L. Remillard. *Introduction to Small Intestinal Diseases 5th edition, 2010. Short Bowel Syndrome. Chapter 59.*
4. Toresson L, Steiner JM, Suchodolski JS, Spillmann T. Oral Cobalamin Supplementation in Dogs with Chronic Enteropathies and Hypocobalaminemia. *J Vet Intern Med.* 2016 Jan-Feb;30(1):101-7
5. Salas A, Sánchez N, Jeusette I, Fernandez N, Vilaseca U, Torre C. Comparison of Oral and Parenteral Cobalamin Supplementation in Cats with Subnormal Cobalaminemia. Oral Presentation, 22nd Congress of the ESVCN 2019.