Obesity Risk Factors

Excess calorie consumption	Causes	Management
Human factors		

Overfeeding primary diets	• Lack of pet owners' awareness of
	  ◦ Calorie density of food
	  ◦ Pet's caloric needs
	  ◦ How to feed pet (ad libitum vs meal feeding)
		• Calculate MER using ideal weight
		  ◦ Compare with current intake
		• Weigh food using a gram scale to improve precision and accuracy vs measuring cups[75-77]
		• Caution when following commercial product feeding recommendation labels
		  ◦ May overestimate energy requirements, causing overfeeding
		• Use kibble as treats
		• Switch to diet with reduced energy density
		• Use short handouts for feeding recommendations to help inform all members of the household

Eating the other pets' food	• If one pet eats faster than the other or can "bully" the other pet, one pet is eating the calories of two	• Feed pets separately • Use automated feeders or feeders that identify pets via collar tag or microchip ◦ Ensure they provide a measured amount • Use food-dispensing and/or foraging toys to control intake and provide enrichment and activity

Too many treats (>10% of diet)	• Dilute the nutrition of the primary food	• Use multiple terms to capture all items being fed (e.g., treats, snacks, desserts, toppers, table foods, food scraps, human food, meal leftovers, foods for medication administration)
		  ◦ Use communication strategies to elicit a more complete response
		• Supplements (e.g., fish oil, chewable tablets, soft chews) also contain calories
		• Keep total treat intake ≤10% of daily caloric intake
		  ◦ Avoids disrupting nutrient balance of primary diet
		• Use kibble as treats by separating out a portion of the daily primary diet quantity
		• Measure treats into a daily treat jar
		• Mix high- and low-calorie treat items for training
		• Educate owners that carrots, green beans, and other human foods have calories, too
		• Consider unintentional sources (e.g., waiting by a child's highchair, licking dinner dishes, food dropped during human food preparation process)

Animal factors		

Spay/neuter changes in metabolism	• Energy requirements decrease and feeding amounts change[44–46]
	• Because surgery usually occurs at a young age, it is challenging to feed to support sufficient growth while avoiding excess
		• Frequent BCS monitoring
		• Consult growth charts[78]
		  ◦ Not available for cats or giant-breed dogs
		• If predicting ≥70 lb as adult, use diet formulated for large-breed growth
		  ◦ Keep large-breed puppies at ideal BCS to reduce risk of orthopedic disease[79,80]
		• Switch to adult formulation when pet achieves ≥80% skeletal maturity
		  ◦ May stay on "all life stages" diets
		  ◦ Switching too early may affect nutrients necessary to support development
		• Consider "birthday visit" to evaluate pet when transitioning between growth and maintenance life stages

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Obesity Risk Factors, Continued

		Causes	Management
Decreased energy expenditure	**Human factors**		

	Overestimate pet's activity level	• Owners believe their pets are more active than they actually are[42]
		• Insufficient exercise leads to unintentional weight gain[81]
			• Ask about specific types of activity and amount to get full picture
			• Educate owners that exercise plays a minimal role in weight loss compared with diet
			• Up to 30–60 min walking/trotting 3×/wk can result in muscle and adipose tissue changes, suggesting improved glucose metabolism[83]
			• Increasing exercise may
			  ◦ Increase energy expenditure[84]
			  ◦ Maintain lean body mass[85]
			  ◦ Strengthen human-animal bond[86]
			• Fitness trackers may motivate owners to exercise their dogs[43]
			• Consider feather toys, laser pointers, cat trees, exercise wheels for cats

	Animal factors		

	Age-related issues	• Obesity prevalence increases through middle age[47,48]
		• Energy requirements may decrease with age, but this is not consistent[50-52]
		  ◦ Influenced by breed and respective life expectancy[53]
		• Lean body mass decreases with age in dogs[35]
		• Fat, protein, and energy digestibility decreases with age in cats[54,55]
		  ◦ Cats will compensate by increasing total caloric intake[56]
			• Always assess BCS and MCS
			  ◦ Adjust feeding plan as needed as soon as changes occur
			• Encourage routine exercise and activity
			• Remember that cats may actually need an increased calorie intake later in life

Genetic predisposition	**Genetics**	• Certain breeds (e.g., Labrador retrievers, beagles, Norwegian forest cats, Persians) are predisposed[47,48,82]	• Inform owners of breeds with known predisposition, even if currently ideal BCS • Consider breed-specific diets for likely controlled energy density with at-risk breeds

BCS, body condition score; MER, maintenance energy requirement; MCS, muscle condition score.

The *2021 AAHA Nutrition and Weight Management Guidelines for Dogs and Cats* are available at aaha.org/nutrition.

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