

The Five Domains Model

Physical/Functional Domains

Survival-Related Factors				Situation-Related Factors			
1: Nutrition		2: Environment		3: Health		4: Behaviour	
Restrictions on:	Opportunities to:	Unavoidable/imposed conditions	Available conditions:	Presence of:	Little or no:	Exercise of 'agency' impeded by:	'Agency' exercised via:
Water intake Food intake Food quality Food variety Voluntary overeating Force-feeding	Drink enough water Eat enough food Eat a balanced diet Eat a variety of foods Eating correct quantities	Thermal extremes Unsuitable substrate Close confinement Atmospheric pollutants: CO ₂ , ammonia, dust, smoke Unpleasant/strong odours Light: inappropriate intensity Loud/otherwise unpleasant noise Environmental monotony: ambient, physical, lighting Unpredictable events	Thermally tolerable Suitable substrate Space for freer movement Fresh air Pleasant/tolerable odours Light intensity tolerable Noise exposure acceptable Normal environmental variability Predictability	Disease: acute, chronic Injury: acute, chronic; husbandry mutilations Functional impairment: due to limb amputation; or lung, heart, vascular, kidney, neural or other problems Poisons Obesity/leanness Poor physical fitness: muscle de-conditioning	Disease Injury Functional impairment Poisoning Body condition appropriate Good fitness level	Invariant, barren environment (ambient, physical, biotic) Inescapable sensory impositions Choices markedly restricted Constraints on environment-focused activity Constraints on animal-to-animal interactive activity Limits on threat avoidance, escape or defensive activity Limitations on sleep/rest	Varied, novel, engaging environmental challenges Congenial sensory inputs Available engaging choices Free movement Exploration Foraging/hunting Bonding/reaffirming bonds Rearing young Playing Sexual activity Using refuges, retreat, or defensive attack Sleep/rest sufficient

Affective Experience Domain

5: Mental State							
Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive
Thirst	Wetting/quenching pleasures of drinking	<i>Forms of discomfort:</i> Thermal: chilling, overheating	<i>Forms of comfort:</i> Thermal	Breathlessness	Comfort of good health and high functional capacity	Anger, frustration	Calmness
Hunger (general)	Pleasures of different tastes/smells	Physical: joint pain, skin irritation	Physical	Pain: many types		Boredom, helplessness	Engaged, in control
Hunger (salt)	Pleasure of salt taste	Physical: stiffness, muscle tension		Debility, weakness		Loneliness, isolation	Affectionate sociability
Malnutrition malaise	Masticatory pleasures	Respiratory: e.g. breathlessness	Respiratory	Sickness, malaise		Depression	Maternally rewarded
	Postprandial satiety	Olfactory	Olfactory	Nausea		Sexual frustration	Excitation/playfulness
Bloated, over full	Gastrointestinal comfort	Auditory: impairment, pain	Auditory	Dizziness			Sexual gratification
Gastrointestinal pain		Visual: glare/darkness eye strain	Visual	Physical exhaustion	Vitality of fitness	Anxiety, fearfulness, panic, anger	Secure/protected/confident
		Malaise from unnatural constancy	Variety-related comfort			Neophobia	Likes novelty
						Exhaustion	Energised/refreshed

Welfare Status

The Five Domains model highlighting mainly *survival-related* and mainly *situation-related* factors and their associated *physical/functional domains*, and examples of aligned *negative or positive affects* assigned to the *mental domain*. **The overall affective experience in the mental domain equates to the welfare status of the animals.** Note that an animal exercises 'agency' (domain 4: behaviour) when it engages in *voluntarily, self-generated and goal-directed behaviours* that may be accompanied by positive affective experiences which animals find rewarding.

[Mellor, D.J. and Beausoleil, N.J. (2015). Extending the 'Five Domains' model for animal welfare assessment to incorporate positive welfare states. *Animal Welfare* 24: 241-253]