



Animal Welfare Science and Bioethics Centre



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and Bioethical Analysis:
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<http://animalwelfare.massey.ac.nz>

Updating Animal Welfare Thinking: Moving beyond the 'Five Freedoms' towards 'A Life Worth Living'

Professor David J Mellor

BSc(Hons), PhD, HonAssocRCVS, ONZM

D.J.Mellor@massey.ac.nz

Key Published Sources

- Fraser, D. and Duncan. I.J.H. (1998). ‘Pleasures’, ‘pains’ and animal welfare: Toward a natural history of affect. *Animal Welfare* 7, 383–396.
- Yeates, J.W. and Main, D.C.J. (2008). Assessment of positive welfare: A review. *The Veterinary Journal* 175, 293–300.
- Mellor, D.J. (2015a). Enhancing animal welfare by creating opportunities for ‘positive affective engagement’. *New Zealand Veterinary Journal* 63, 3-8.
- Mellor, D.J. (2015b). Positive welfare states and promoting environment-focused and animal-to-animal interactive behaviours. *New Zealand Veterinary Journal* 63, 9-16.
- Mellor, D.J. (2015c). Positive animal welfare states and reference standards for welfare assessment. *New Zealand Veterinary Journal* 63, 17-23.
- 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.
- Mellor, D.J. (2016). Updating animal welfare thinking: Moving beyond the ‘Five Freedoms’ towards ‘A Life Worth Living’. *Animals* 6, 21; doi:10.3390/ani6030021.

Areas considered

- The animal welfare *'Journey'*
- Animal Welfare – an general overview (~ OIE)
- *Science-based* animal care began with *problem-solving*
- *'Three Orientations'* towards animal welfare
- The *'Five Freedoms'* – strengths and weaknesses
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- Current understanding of animal welfare: key features
- Conclusions

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Steps to improve animal welfare can be seen as a journey:

- Different participants have reached *different stages*:
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 - **Economic constraints, the extent of political engagement**
 - **Historical & current views on the place of animals in society**
 - **What animal welfare is understood to mean**

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The journey will never end – our learning will continue

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- The *TREATMENT* animals receive is called *animal care, animal husbandry or humane management*.
- **Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter/killing.**

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Science-based animal care began with *problem solving*

- 80-100 years ago we really did not *understand*:
 - How to keep animals *alive* by meeting their *basic survival needs*
 - Nor how to keep them *healthily productive*
- Husbandry was mostly *traditional, opinion-based, subjective*
- Huge *nutritional, environmental* and *health* problems existed

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- **Decades of *problem-focused* research made *huge contributions***
- **Generally there were *three linked aims*:**
 - *Identify the problem*
 - *Understand the underlying body functions*
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- **Survival and healthy productivity were the aims, NOT improved animal welfare – welfare was not considered then**
- **BUT these advances did improve welfare *incidentally***

Science-based animal care began with problem solving

Examples of science-based *animal care solutions*

- *Nutrition:*
 - *Lifecycle changes in nutrient requirements were defined*
 - *Deficiencies and excesses can now be detected*
 - *Much improved nutritional management is the result*

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 - *Ways of improving the ‘genetic fit’ were developed*
- *Health:*
 - *At least 70 vaccines were developed for animals*
 - *Importance of hygiene was recognised – use of antiseptics*
 - *Anaesthetics, analgesics, antibiotics, anthelmintics developed*
 - *Surgical techniques were vastly improved.*

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'Three Orientations' towards animal welfare

Biological functioning – *the way the body works:*

- **Animal Welfare Science as a discipline began ~30 years ago**
- **It adopted the *problem-solving ethos* of the time**
- **It adopted the *biological functioning approach* of the time**
- **The *measurable indices* of welfare state were *function focused***
- **There are *dozens* of such indices that are *well validated* and *useful***

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- There are *dozens* of such indices that are *well validated* and *useful*
- The *primary focus* was on identifying negative *internal states* and *external circumstances*
- *'Good welfare'* meant that (farm) animals were:
Stress free, healthy, reproducing well and productive
- **BUT** animals' *'experiences'* were *not included* or were *avoided*
- Then considered *unscientific* to study *feelings, emotions* or *affects*

'Three Orientations' towards animal welfare

Affective state – *feelings/emotions/subjective experiences:*

- **Animals' mental states** became an increasingly legitimate focus
- **Animals' preferences, aversions and priorities** were studied
- **Animals' motivation** to behave in particular ways were studied
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- The *measurable indices* of welfare state were mainly *behavioural*
- ***Welfare was related mainly to animals' mental states during their interactions with people, other animals and the environment***
- ***'Good welfare' meant:***
 - *Initially, that negative experiences were minimal*
 - *Later, that positive experiences were also included*

'Three Orientations' towards animal welfare

Natural living – *ancestral or wild environments:*

- *Developed in parallel with the other two orientations*
- *A benchmark for the (un)acceptability of intensive management*
- *'Good welfare' meant that animals were kept in conditions that resembled their ancestral, wild or natural state*

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Competing 'schools of thought'

- *David Fraser & colleagues* identified these orientations in 1998
- Previously each was *implicit* – *not explicitly defined*
- AWS thinking now accepts that *biological function* and *affective state* are two *interacting elements* of the *body* operating as an *integrated whole entity*
- *Natural living*, cautiously employed, is still a *useful benchmark*

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The ‘*Five Freedoms*’ – strengths and weaknesses

Freedoms	Provisions
1. Freedom <i>from</i> thirst, hunger and malnutrition	By providing ready access to fresh water and a diet to maintain full health and vigour
2. Freedom <i>from</i> discomfort and exposure	By providing an appropriate environment including shelter and a comfortable resting area
3. Freedom <i>from</i> pain, injury and disease	By prevention or rapid diagnosis and treatment
4. Freedom <i>from</i> fear and distress	By ensuring conditions and treatment which avoid mental suffering
5. Freedom <i>to</i> express normal behaviour	By providing sufficient space, proper facilities and the company of the animal’s own kind

The '*Five Freedoms*' – strengths and weaknesses

Strengths:

- *A paradigm for considering animal welfare and its management*
- *Widely adopted since 1993/94 because it:*
 - *Scoped the wider dimensions of animal welfare – subjective experiences, health status and behaviour*

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- **ALSO RECALL** the *problem-solving ethos* – being free of problems

The '*Five Freedoms*' – strengths and weaknesses

Weaknesses:

- **Initially:** '*freedom from*' was to mean '*as free as possible from*'
- **Subsequently:** there has been a drift towards FF as *absolute, complete or fundamental freedoms* and even *rights*

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- Our current knowledge shows that such statements are *conceptually and biologically inaccurate and misleading*:
 - As *ideal or aspirational states* they are *impossible* to achieve
 - **THUS** as *principles* they are *unsound* and *illogical*
 - **AND** they do *not* provide a *convincing basis* for animal welfare assessment and management

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 - **AND** they do *not* provide a *convincing basis* for animal welfare assessment and management
- **ALSO**, expressed as '*freedom from*' they cannot be used to grade *AW compromise*
- The meaning of '*degrees of impaired freedom*' is *obscure* and lacks utility

The '*Five Freedoms*' – strengths and weaknesses

- **THUS**, the Freedoms are *problematic*
- **BUT**, the PROVISIONS are still *practically useful*

Domain/category	Provisions
1. Nutrition	Provide ready access to fresh water and a diet to maintain full health and vigour
2. Environment	Provide an appropriate environment including shelter and a comfortable resting area
3. Health	Prevent or rapidly diagnose and treat injury and disease
4. Behaviour	Provide sufficient space, proper facilities and the company of the animal's own kind
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The '*Five Domains Model*' for animal welfare assessment

Update on how animal welfare is currently understood

- It is a *state within the animal* – it is *not* animal care
- It relates to subjective experiences [*feelings, emotions or affects*]
- Brain structure/function must be sophisticated enough to support *sentience* and states of *consciousness*

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 - Inputs that reflect the animal's *internal functional state*
 - Inputs from the *animal's environment* that contribute to the its *perception of its external circumstances*

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Examples of *negative experiences* now include [> FF list]:

- Internally focussed: **Breathlessness, thirst, hunger, pain, nausea, dizziness, debility, weakness and sickness**
- Externally focussed: **Anxiety, fear, panic, frustration, anger, helplessness, loneliness, boredom and depression**

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- Systematic, structured and comprehensive assessment of animal welfare
- Its first focus was on the sources, types and grading of AW compromise

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- *Sources:*
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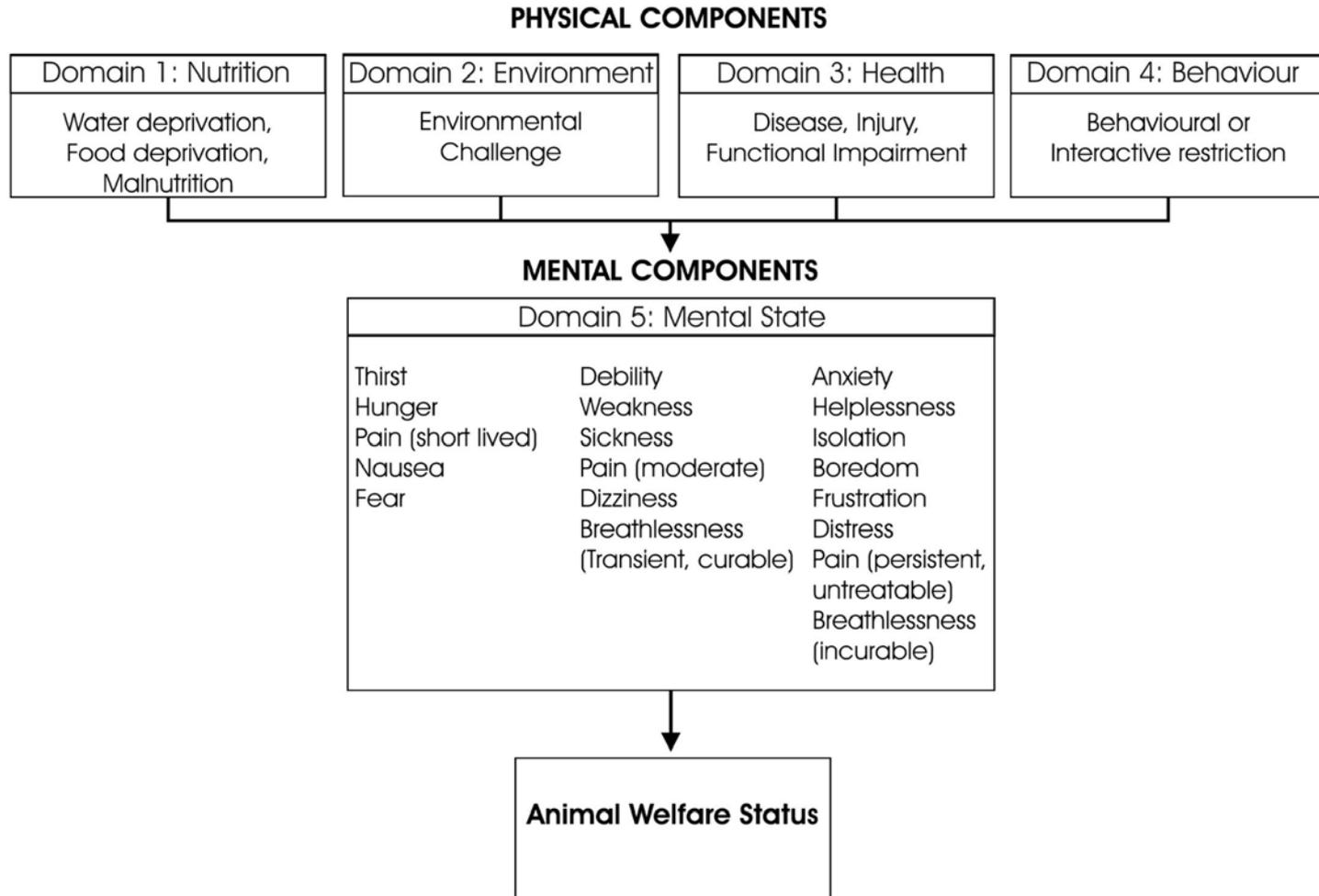
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- **Types:**
 - ***Internal focus:*** Impeded breathing/breathlessness; dehydration/thirst; nutrient shortage/hunger; injury/pain; GI infection/nausea; other infections/sickness, weakness
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 - *External focus:* Isolation/*loneliness, depression*; threat/*anxiety, fear, panic*; barren conditions/*boredom, helplessness, frustration, anger*
- **Grading:**
 - A 5-tier *compromise* scale from A (*none; very low*) to E (*very severe*)
Based on validated *physical/functional and behavioural indices*

The *'Five Domains Model'* for animal welfare assessment – 2009



The '*Five Domains Model*' for animal welfare assessment

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- Domain 5. Mental State: positive experiences that contribute to welfare enhancement:
 - Domain 1. Nutrition: Drinking pleasures; pleasant smells, tastes & textures from a variety of foods; satiety

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 - *Domain 3. Health: Comfort of good health & high functional capacity; vitality of physical fitness*

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 - *Domain 3. Health: Comfort of good health & high functional capacity; vitality of physical fitness*
 - *Domain 4. Behaviour: goal-directed exploration & foraging/hunting; affectionately bonded; maternally rewarded; excitedly playful; sexually gratified; calmness, in control; exercising choice*

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Key features:

Grading enhancement:

- The grading of AW enhancement employs a 4-tier scale
- The scale [0, +, ++, +++] focuses on apparently rewarding behaviours
- Specifically, the animals' use of opportunities to engage in such behaviours

The 2015 Five Domains Model

A poster is freely available

The Five Domains Model

Physical/Functional Domains

Survival-Related Factors				Situation-Related Factors			
1: Nutrition		2: Environment		3: Health		4: Behaviour	
<i>Restrictions on:</i>	<i>Opportunities to:</i>	<i>Unavoidable/imposed conditions</i>	<i>Available conditions:</i>	<i>Presence of:</i>	<i>Little or no:</i>	<i>Exercise of 'agency' impeded by:</i>	<i>'Agency' exercised via:</i>
Water intake Food intake Food quality Food variety	Drink enough water Eat enough food Eat a balanced diet Eat a variety of foods	Thermal extremes Unsuitable substrate Close confinement Atmospheric pollutants: CO ₂ , ammonia, dust, smoke Unpleasant/strong odours Light: inappropriate intensity Loud/otherwise unpleasant noise	Thermally tolerable Suitable substrate Space for freer movement Fresh air Pleasant/tolerable odours Light intensity tolerable Noise exposure acceptable	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							
<i>Negative</i>	<i>Positive</i>	<i>Negative</i>	<i>Positive</i>	<i>Negative</i>	<i>Positive</i>	<i>Negative</i>	<i>Positive</i>
Thirst	Wetling/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*' for animal welfare assessment

Key features:

Grading enhancement:

- The *grading* of AW *enhancement* employs a 4-tier scale
- The scale [0, +, ++, +++] focuses on apparently *rewarding behaviours*
- Specifically, the animals' use of *opportunities to engage in such behaviours*

Quality of Life:

- Refers to the *balance* between *negative* and *positive experiences*
- THUS, the Model can facilitates *Quality of Life evaluations*

Areas considered

- The animal welfare *'Journey'*
- Animal Welfare – an general overview (~ OIE)
- *Science-based* animal care began with *problem-solving*
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Lives ‘*Not Worth Living*’, ‘*Worth Avoiding*’, ‘*Worth Living*’ and ‘*Good Lives*’

Quality of Life – *the balance between negative and positive affects:*

- *Notional Quality of Life Scale*
- Green & Mellor (2011) plus FAWC (2009) and Yeates (2011)

Category	Description
A good life	<i>Balance is strongly positive: full compliance with best practice recommendations well above minimum standards</i>
A life worth living	<i>Balance is positive, but less so: full compliance with minimum standards that <u>include significant enrichments</u></i>
Point of balance	<i>Neutral positive-negative affective balance</i>
A life worth avoiding	<i>Balance is negative: can be remedied rapidly by veterinary treatment or change in husbandry practice</i>
A life not worth living	<i>Balance is strongly negative: cannot be remedied rapidly so that euthanasia is the only humane alternative</i>

Lives '*Not Worth Living*', '*Worth Avoiding*', '*Worth Living*' and '*Good Lives*'

Making QoL assessment is difficult:

Nevertheless, this scale acknowledges that:

- Animal care should be directed at more than mere survival
- Rather, it should aim at animals thriving
- Animals can and, given the opportunity, do have positive experiences
- An overall positive balance is possible and should be mandatory
- Minimum code standards should therefore be reviewed and should aim to include validated enrichments

Lives '*Not Worth Living*', '*Worth Avoiding*', '*Worth Living*' and '*Good Lives*'

Questions that may assist this process [FAWC 2009; Green & Mellor 2011]:

- **Overall: What opportunities are provided for the animals' comfort, pleasure, interest and confidence?**

Lives '*Not Worth Living*', '*Worth Avoiding*', '*Worth Living*' and '*Good Lives*'

Questions that may assist this process [FAWC 2009; Green & Mellor 2011]:

- **Overall:** What opportunities are provided for the animals' comfort, pleasure, interest and confidence?
- **More specifically:**
 - What provisions have been made to ensure that eating the food provided will be an enjoyable experience?
 - How will expressions of normal behaviour be encouraged and harmless wants met?

Lives '*Not Worth Living*', '*Worth Avoiding*', '*Worth Living*' and '*Good Lives*'

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- ***Overall:*** What opportunities are provided for the animals' comfort, pleasure, interest and confidence?
- ***More specifically:***
 - What provisions have been made to ensure that eating the food provided will be an enjoyable experience?
 - How will expressions of normal behaviour be encouraged and harmless wants met?
 - What environmental choices will be available that will encourage exploratory and food acquisition activities which are rewarding?
 - What provisions have been made to enable social species to engage in bonding and bond affirming activities, and, as appropriate, other affiliative interactions such as maternal, paternal or group care of young, play behaviour and sexual activity?

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Law changes from ‘Anticruelty’ to ‘Animal Protection’ to ‘Animal Welfare’

First – Anticruelty Acts:

- Aim to prevent & punish the worst treatment of animal by people
 - What IS done TO animals – *ABUSE*
 - What is NOT done FOR animals – *NEGLECT*
 - *Focus: the WORST FORMS of human behaviour towards animals*

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Second – Animal Protection Acts:

- Extend the coverage from cruelty to also include ill treatment
 - They retain anticruelty provisions
 - They add provisions to protect against ill treatment as well
 - Ill treatment is less severe than cruelty, but is still unacceptable
 - *Focus: a much wider range of BAD human behaviour towards animals*

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Third – Animal Welfare Acts:

- Retain the previous largely REACTIVE provisions
- AND focus heavily on ‘a duty of care’ which is PROACTIVE
- Potentially cover the FULL RANGE of behaviours – BAD-to-GOOD

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Animal welfare change management by *‘Incremental Improvement’*

Key positive features of incremental improvement:

- **Practically realistic**
- **Step-wise progression – ultimately to the *gold standard***
- **Reachable targets**
- **Each small improvement is warmly acknowledged**
- **Leads to continuing participation, ownership, buy-in**
- **Generates openness to other initiatives**
- **Encourages recruitment of others**

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Minimising the negatives:

- **‘Lip-service’ commitments may hide inaction**
 - **Minimum standards are outlined in welfare codes**
 - **It is unprofessional for vets and other specialists**
 - **Also, it is *personally unethical***

Animal welfare change management by *'Incremental Improvement'*

The absolute gold standard approach:

- Commonly adopted by extreme animal advocates
- Unequivocal commitment to how things 'ought' to be
- The best possible standards are defined

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Key negative features:

- **Idealistically impractical**
- **Proposed standards are far above current levels**
- **Unreachable immediately**
- **No concessions to practical, financial or other hindrances**
- **This generates resentment and alienates animal carers**
- **Leads to rejection of the proposed standard**
- **Animal welfare is not advanced**

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BUT incremental improvement TOWARDS a gold standard WORKS

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- **Current understanding of animal welfare: key features**
- **Conclusions**

Current understanding of animal welfare: Key features

For full details

see Section 10

D.J. Mellor (2016). *Animals* 6, 21; doi:10.3390/ani6030021

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Current understanding of animal welfare: Key features

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- *Animal welfare:*
 - *Is a subjective state that is experienced by the animal*
 - *Subjective states of welfare significance are negative or positive*
 - *To experience them the animal must be conscious*

Current understanding of animal welfare:

Key features

For full details
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- ***Animal welfare:***
 - Is a *subjective state* that is *experienced* by the animal
 - Subjective states of *welfare significance* are *negative or positive*
 - To *experience* them the animal *must be conscious*
- ***Generation of subjective experiences:***
 - **There are *two main types:***
 - (1) Those due to *internal disturbances or imbalances* within the body
Negative-to-neutral range:
e.g. **breathlessness, thirst, hunger, pain, nausea, weakness, sickness**
 - (2) Those related to the *animal's perception* of its *external circumstances*
Negative-to-neutral: e.g. **anxiety, fear, boredom, loneliness, frustration**
Neutral-to-positive: e.g. **comfort, pleasure, interest, confidence, control**

Current understanding of animal welfare:

Key features

- *Key animal care strategies:*
 - *Implement the Five Provisions in order to:*
 - *Minimise internally generated negative experiences*
 - *Minimise externally generated negative experiences AND/OR*
Replace them with positive experiences
 - *Monitor the welfare state using well-validated functional and behavioural indicators*

Current understanding of animal welfare:

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- ***Key animal care strategies:***
 - *Implement the Five Provisions in order to:*
 - *Minimise internally generated negative experiences*
 - *Minimise externally generated negative experiences AND/OR*
Replace them with positive experiences
 - *Monitor the welfare state using well-validated functional and behavioural indicators*
- ***Properly train animal care staff to ensure that they possess:***
 - ***Good welfare-related knowledge, skills and attitudes towards animals***
 - ***Behave empathetically and, as appropriate, bond with the animals***
 - ***The ability to recognise when welfare problems arise***
 - ***The ability to implement remedies when required, if necessary with advice.***

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Conclusions

- There is a clear need to *update the characterisation of animal welfare* to accommodate recent developments in understanding
- *Animal care needs to aim higher than mere survival via negative-to-neutral nutritional, environmental and health management*
- *Acceptable animal welfare management* should focus on **BOTH** the minimisation to negative experiences and the provision of opportunities to have positive experiences
- *Minimum code standards* should include greater provision for *validated enrichments – this is beginning to happen*
- My purpose here has been to *stimulate discussion and action*

A reminder of the areas considered

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