Animal Welfare Science and Bioethics Centre

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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
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Key Published Sources

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
- The ‘Five Domains Model’ for animal welfare assessment
- Law changes from ‘Anticruelty’ to ‘Animal Protection’ to ‘Animal Welfare’
- Animal welfare change management by ‘Incremental Improvement’
- Current understanding of animal welfare: key features
- Conclusions
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The animal welfare ‘Journey’

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

• Different participant have reached *different stages*:
  – Some are close to the beginning
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  – Some have travelled a long distance
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  – Individual operators within specific groups
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  – Socio-cultural imperatives, religious precepts, ethical issues
  – 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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• An animal is in a good state of welfare IF IT IS well nourished, comfortable, healthy, safe and able to express innate behaviour; and IF IT IS NOT suffering from unpleasant states such as pain, fear, and distress.

• 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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- The animal welfare ‘Journey’
- Animal Welfare – an general overview (~ OIE)
- *Science-based animal care is based on problem solving*
- ‘Three Orientations’ towards animal welfare
- The ‘Five Freedoms’ – strengths and weaknesses
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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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- Huge nutritional, environmental and health problems existed
- Decades of problem-focused research made huge contributions
- Generally there were three linked aims:
  - Identify the problem
  - Understand the underlying body functions
  - Manipulate those body functions to solve the problem
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Generally there were three linked aims:
- Identify the problem
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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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Examples of science-based animal care solutions

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• **Physical environment:**
  – *Animal-environment (in)compatibilities* are better understood
  – Ways of improving the ‘*genetic fit*’ were developed
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• **Physical environment:**
  – *Animal-environment (in)compatibilities* are better understood
  – 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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• The *measurable indices* of welfare state were *function focused*
• 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 studies
• The measurable indices of welfare state were mainly behavioural
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- 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

<table>
<thead>
<tr>
<th>Freedoms</th>
<th>Provisions</th>
</tr>
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<tbody>
<tr>
<td>1. Freedom <em>from</em> thirst, hunger and malnutrition</td>
<td>By providing ready access to fresh water and a diet to maintain full health and vigour</td>
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<td>3. Freedom <em>from</em> pain, injury and disease</td>
<td>By prevention or rapid diagnosis and treatment</td>
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<td>4. Freedom <em>from</em> fear and distress</td>
<td>By ensuring conditions and treatment which avoid mental suffering</td>
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<td>5. Freedom <em>to</em> express normal behaviour</td>
<td>By providing sufficient space, proper facilities and the company of the animal’s own kind</td>
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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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- A paradigm for considering animal welfare and its management
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  - Specified areas of welfare concern in terms of:
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    - negative experiences [thirst, hunger, fear, distress, discomfort, pain] and
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  - Identified five targets for welfare improvement – the Freedoms
  - Detailed practical ways to meet these targets – the Provisions
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• NOTE ALSO, the Five Freedoms drew attention to the need to understand, identify and minimise negative welfare states – the major focus of the last two decades of animal welfare research
• 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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  – 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*

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- Lives ‘*Not Worth Living*’, ‘*Worth Avoiding*’, ‘*Worth Living*’ and ‘*Good Lives*’
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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]
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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
The ‘Five Domains Model’ for animal welfare assessment

Key features of the Model:

• It is NOT a definition of animal welfare. It is a facilitatory device.
• 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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- 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

PHYSICAL COMPONENTS

Domain 1: Nutrition
- Water deprivation, Food deprivation, Malnutrition

Domain 2: Environment
- Environmental Challenge

Domain 3: Health
- Disease, Injury, Functional Impairment

Domain 4: Behaviour
- Behavioural or Interactive restriction

MENTAL COMPONENTS

Domain 5: Mental State
- Thirst
- Hunger
- Pain (short lived)
- Nausea
- Fear
- Debility
- Weakness
- Sickness
- Pain (moderate)
- Dizziness
- Breathlessness (Transient, curable)
- Anxiety
- Helplessness
- Isolation
- Boredom
- Frustration
- Distress
- Pain (persistent, untreatable)
- Breathlessness (incurable)

Animal Welfare Status
The ‘Five Domains Model’ for animal welfare assessment

Key features:

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The ‘Five Domains Model’ for animal welfare assessment

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• This involves the same *systematic, structured* and *comprehensive* approach
• *AW enhancement* relates to animals experiencing various forms of:
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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; excitingly playful; sexually gratified; calmness, in control; exercising choice
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*

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*The 2015 Five Domains Model*

*A poster is freely available*
# The Five Domains Model

## Physical/Functional Domains

<table>
<thead>
<tr>
<th>Survival-Related Factors</th>
<th>Situation-Related Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1: Nutrition</strong></td>
<td></td>
</tr>
<tr>
<td>Restrictions on</td>
<td>Opportunities to:</td>
</tr>
<tr>
<td>Water intake</td>
<td>Drink enough water</td>
</tr>
<tr>
<td>Food intake</td>
<td>Eat enough food</td>
</tr>
<tr>
<td>Food quality</td>
<td>Eat a balanced diet</td>
</tr>
<tr>
<td>Food variety</td>
<td>Eat a variety of foods</td>
</tr>
<tr>
<td>Voluntary overeating</td>
<td></td>
</tr>
<tr>
<td>Force feeding</td>
<td></td>
</tr>
<tr>
<td><strong>2: Environment</strong></td>
<td>Unavoidable/imposed</td>
</tr>
<tr>
<td>Thermal extremes</td>
<td></td>
</tr>
<tr>
<td>Unsuitable substrate</td>
<td></td>
</tr>
<tr>
<td>Close confinement</td>
<td></td>
</tr>
<tr>
<td>Space for free movement</td>
<td></td>
</tr>
<tr>
<td>Fresh air</td>
<td></td>
</tr>
<tr>
<td>Unpleasant/stong odours</td>
<td></td>
</tr>
<tr>
<td>Light inappropriate intensity</td>
<td></td>
</tr>
<tr>
<td>Loud/otherwise unpleasant noise</td>
<td></td>
</tr>
<tr>
<td>Environmental monotony, ambient, physical, lighting</td>
<td></td>
</tr>
<tr>
<td>Unpredictable events</td>
<td></td>
</tr>
<tr>
<td><strong>3: Health</strong></td>
<td>Available conditions:</td>
</tr>
<tr>
<td>Presence of:</td>
<td></td>
</tr>
<tr>
<td>Disease, acute, chronic injury, acute, chronic, husbandry, multifactorial</td>
<td></td>
</tr>
<tr>
<td>Functional impairment</td>
<td></td>
</tr>
<tr>
<td>due to limb amputation; or bias, heart, vascular, kidney, neural or other problems</td>
<td></td>
</tr>
<tr>
<td>Poisoning</td>
<td></td>
</tr>
<tr>
<td>Obesity/stressfulness</td>
<td></td>
</tr>
<tr>
<td>Poor physical fitness</td>
<td></td>
</tr>
<tr>
<td>Muscle degeneration</td>
<td></td>
</tr>
<tr>
<td>Predictability</td>
<td></td>
</tr>
<tr>
<td><strong>4: Behaviour</strong></td>
<td>Little or no:</td>
</tr>
<tr>
<td>Exercise of ‘agency’ imposed by</td>
<td></td>
</tr>
<tr>
<td>Invariant, barren environment</td>
<td></td>
</tr>
<tr>
<td>(ambient, physical, bulbs)</td>
<td></td>
</tr>
<tr>
<td>Inescapable sensory impositions</td>
<td></td>
</tr>
<tr>
<td>Chances markedly restricted</td>
<td></td>
</tr>
<tr>
<td>Free movement</td>
<td></td>
</tr>
<tr>
<td>Constraints on animal to animal interactive activity</td>
<td></td>
</tr>
<tr>
<td>Exploring</td>
<td></td>
</tr>
<tr>
<td>Constraints on animal to animal interactive activity</td>
<td></td>
</tr>
<tr>
<td>Hunting/baiting/bonds</td>
<td></td>
</tr>
<tr>
<td>Rearing young</td>
<td></td>
</tr>
<tr>
<td>Playing</td>
<td></td>
</tr>
<tr>
<td>Sexual activity</td>
<td></td>
</tr>
<tr>
<td>Limits on threat avoidance, escape or defensive activity</td>
<td></td>
</tr>
<tr>
<td>Sleepless/sufficient</td>
<td></td>
</tr>
</tbody>
</table>

## Affective Experience Domain

<table>
<thead>
<tr>
<th>5: Mental State</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Negative</strong></td>
</tr>
<tr>
<td>Thirst</td>
</tr>
<tr>
<td>Hunger (general)</td>
</tr>
<tr>
<td>Hunger (satiated)</td>
</tr>
<tr>
<td>Malnutrition</td>
</tr>
<tr>
<td>Malnutrition</td>
</tr>
<tr>
<td>Weighted/overfed</td>
</tr>
<tr>
<td>Gastronomic pain</td>
</tr>
<tr>
<td>Forms of discomfort</td>
</tr>
<tr>
<td>Thermal, chilling, overheating</td>
</tr>
<tr>
<td>Physical joint pain, skin irritation</td>
</tr>
<tr>
<td>Physical stiffness, muscle tension</td>
</tr>
<tr>
<td>Respiratory, e.g., breathlessness</td>
</tr>
<tr>
<td>Auditory, visual sensation</td>
</tr>
</tbody>
</table>
| Auditory impairment, pain, visual 
  glare/darkness, eye strain | Auditory, visual |
| Malaise from unnatural constancy | Malaise from unnatural constancy |
| **Negative**    | **Positive** |
| Breathsness      | Comfort of good health and high functional capacity |
| Pain, many types | Pain, many types |
| Disability, weakness | Disability, weakness |
| Sickness, malaise| Sickness, malaise |
| Nausea            | Nausea |
| Dizziness         | Dizziness |
| Physical exhaustion | Physical exhaustion |
| Vitality of fitness | Vitality of fitness |
| **Negative**    | **Positive** |
| Anger, frustration | Calmness |
| Boredom, helplessness | Engaged, in control |
| Loneliness, isolation | Attunement, sociability |
| Depression        | Maternally rewarded |
| Sexual frustration | Exhilaration/euphoria |
| Sexual attraction  | Sexual gratification |
| Anxiety, fearfulness, pain, anger | Secure/protection/confident |
| Neophobia         | Likely to need |
| Exhaustion         | Energized/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 facilitate Quality of Life evaluations
Areas considered

- The animal welfare ‘Journey’
- Animal Welfare – an general overview (~ OIE)
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Quality of Life – *the balance between negative and positive affects:*

- *Notional Quality of Life Scale*

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

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*

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

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

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• **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?

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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*
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  - Focus: a much *wider range of BAD human behaviour* towards animals

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*
Areas considered

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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
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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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- No concessions to practical, financial or other hindrances
- This generates resentment and alienates animal carers
- Leads to rejection of the proposed standard
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BUT incremental improvement TOWARDS a gold standard WORKS
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Current understanding of animal welfare: Key features

For full details see Section 10

[This is an open access, free download journal]
Current understanding of animal welfare: Key features

For full details see Section 10

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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 see Section 10

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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: Key features

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  - 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.
Areas considered

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

Mellor, DJ