Restricted feeding practices and alternative feeding systems to avoid hunger

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Background

- Long-term *ad libitum* access to high-quality food:
  - Results in high (energy) intakes that have negative effects:
    - Become over-fat with negative health consequences
    - Heart/respiratory problems
    - Leg problems
    - Fertility problems
    - Tumours and lesions

Background

- This has been observed in a large variety of animal species:
  - Farm animals (especially reproducing)
    - Dry cows and ewes
    - Dry sows and gilts
    - Broilers breeders
  - Zoo animals and pets (e.g. cats and dogs)
  - Humans (and rodents as model animals)

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This system avoids problems and does not lead to complaints of hunger in ruminants

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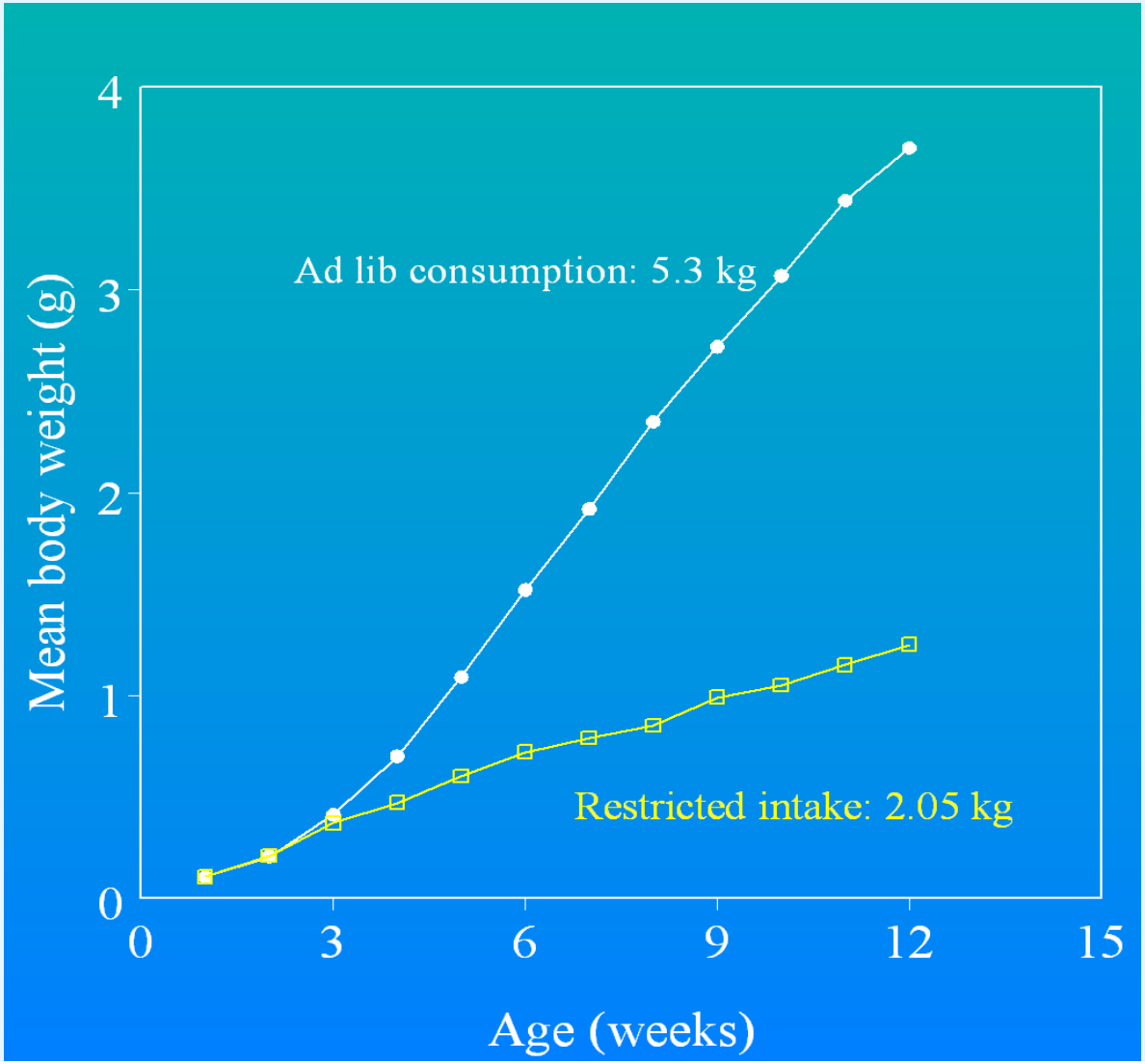

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Considerable restrictions are also routinely applied to dry sows

Quantitative restriction and hunger

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- Three types of indicators:
  - Related to animal (pen) behaviour
  - Physiological indices
  - As measured by specific behavioural tests

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- Specific (e.g. oral) types of behaviour
  - Including stereotypic behaviour
  - (some argue that oral behaviours are substitutable)

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BUT: treatment also affects body weight

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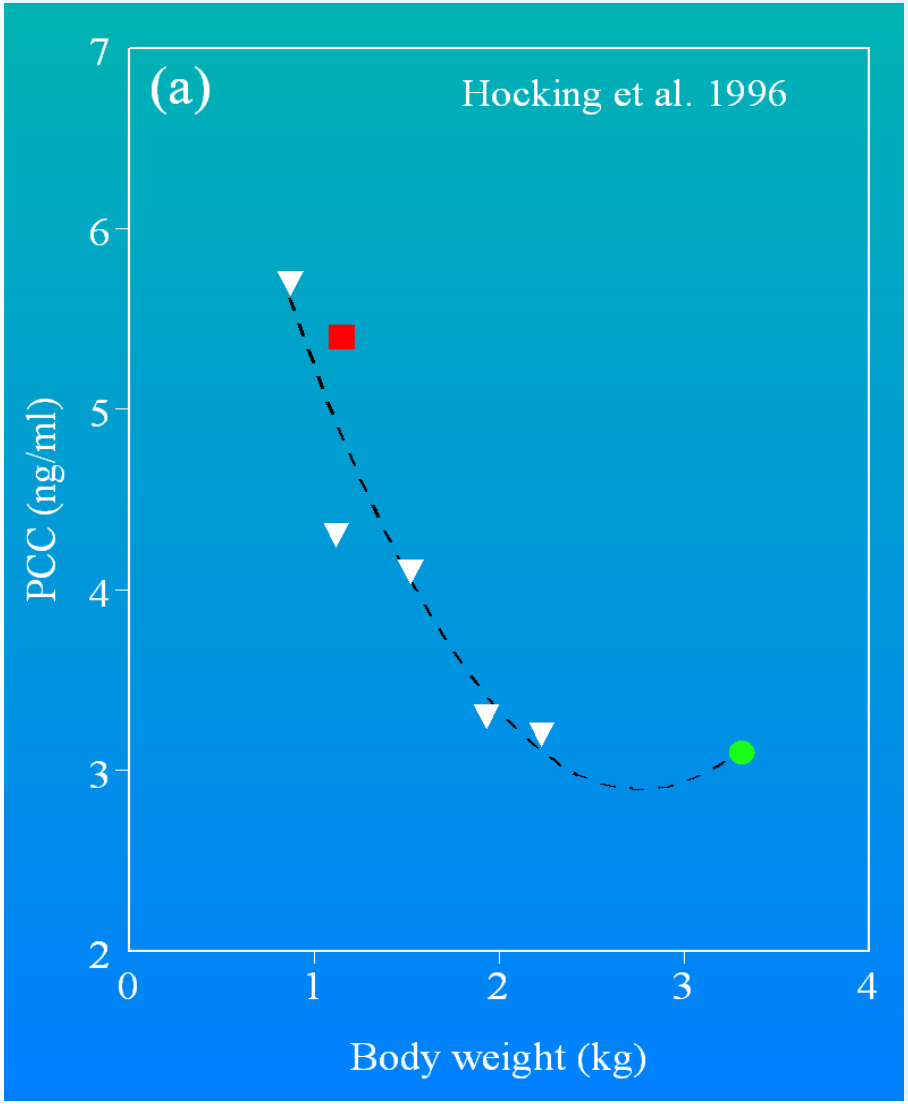

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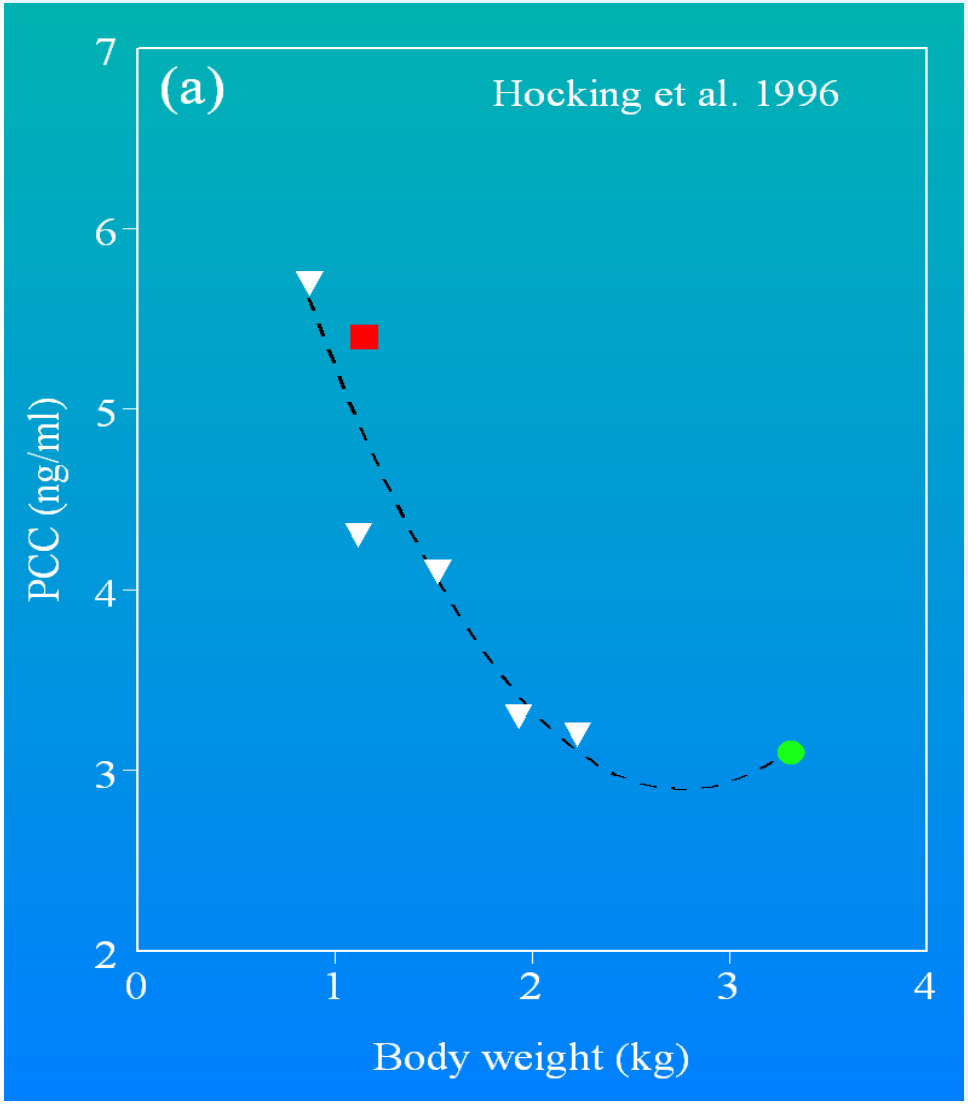
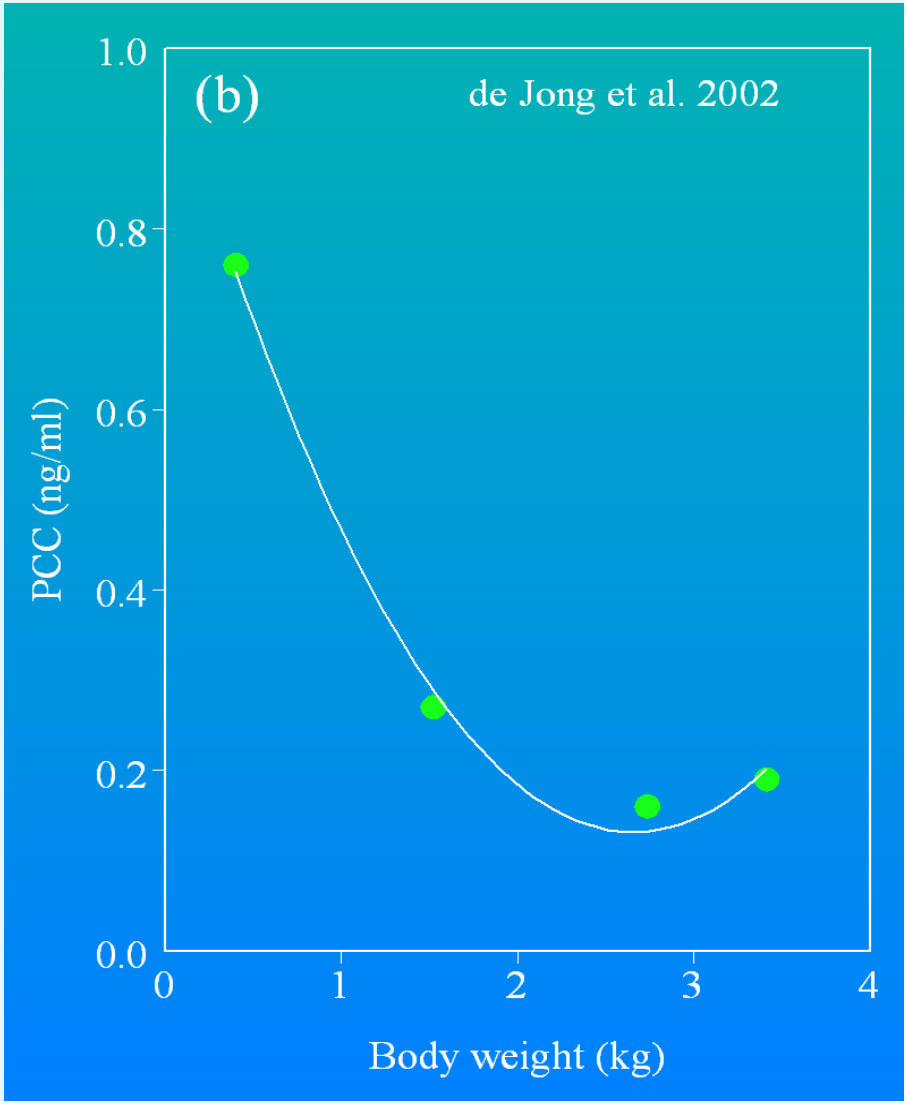
Body weight alone has a similar effect when PCC is measured at various ages in *ad libitum* fed birds

Physiological indicators of hunger





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    - Again serious methodological problems
    - ‘Too hungry to learn’ (Buckley et al., *Animal Welfare*, in press)

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- Those are really needed to decide whether or not animals experience less hunger under ’qualitative’ than under ‘quantitative’ feed restriction

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- That is disputed by others because, e.g.
  - Total activity is similar under quantitative and qualitative restriction and higher than in *ad libitum* fed birds
    - (but is that a good measure?)
  - Total oral behaviour is similar under quantitative and qualitative restriction and higher than in *ad libitum* fed birds
    - (but is spot pecking a good alternative to foraging?)

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- What are animal optimising? Some suggestions:
  - Optimisation is minimisation of discomfort (Prof. Forbes, Leeds)
  - Optimisation may be maximisation of benefit/cost ratio

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- Better feeding systems need to be developed
- This is possible only:
  - After we have established what animals are apparently trying to achieve when they control intake
  - When we have convincing methods of characterising the levels of hunger associated with different feeding systems

Thank you for your attention