A comparison of two commonly fed diets used for hand-reared harbour seals (Phoca vitulina)

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Background

• Hundreds of orphaned and injured harbour seal pups (Phoca vitulina) are brought to wildlife rescue centres every summer.
• Typical hand-rearing diets include artificial milk-replacers and diets based on macerated fish.
• Weight gains for these animals are low and mortality rates can be high.

Objectives

To evaluate the effect of an artificial milk-replacer diet and a fish formula diet on weight gains and mortality of hand-reared harbour seal pups.

Methods

• In 2007 (n=145) and 2008 (n=101) pups were randomly assigned to either a milk-replacer or a fish diet.
• Pups were fed assigned diet 4 times per day in 2007 and 5 times per day in 2008 until weaning.
• Pups were fed 70-110 ml/kg/day (~8% of their body weight) in 2007 and 80-140 ml/kg/day (~11%) in 2008.
• Daily weight gain and mortality were compared.

Results and Discussion

Milk-replacer
– 1.0 kg Zoologic® 30/55 Milk Matrix
– 0.8 L salmon oil
– 2.5 L H2O
– 4 Mazuri Maz® Vita-Zu tablets
7.6 cal/g (DM basis)

Fish formula
– 1.5 kg herring
– 0.8 L salmon oil
– 2.0 L H2O
– 4 Mazuri Maz® Vita-Zu tablets
7.4 cal/g (DM basis)

• In 2007, pups fed milk-replacer gained more than those fed fish formula (p<0.01, Mann-Whitney U Test. Fig. 1).
• In 2008, with higher daily intake levels, weight gain was improved for both diets but remained higher for seals on milk-replacer (p<0.01. Fig. 1).
• In 2007, survival to weaning was twice as high with milk-replacer diet compared to fish formula diet (p<0.05, χ² analysis. Fig. 2).
• In 2008, with greater intakes, fewer seals died on either treatment (Fig. 3).

• The greater weight gains and survival on milk-replacer may be attributed to the digestibility and slightly higher caloric value of this diet (7.6 cal/g DM) compared to the fish formula diet (7.4 cal/g DM).
• Improved survival and weight gains in 2008 were likely due to the increase in feeding level and frequency.

Conclusion

• Pups fed the milk-replacer gained more weight and had better survival rates than those fed fish formula.
• Survival and weight gain were better with higher feeding level and frequency.
• More work is needed to achieve higher survival and more natural weight gains.