Why are enriched mice nice?

Environmental enrichment -- adding complexity and naturalistic stimuli to otherwise barren 'boring' enclosures -- has many welfare benefits. One of them seems to be that across a whole range of farm and lab species, enriched animals are more playful and less aggressive with each other than are animals housed without enrichment, as well as calmer, more interested in courting and mating, and better mothers to their infants.

For example, female mice housed in environmentally enriched cages are less aggressive to each other than are mice living in the typical barren ‘shoeboxes’ used in research labs. What’s going on? They potentially have more to fight over, so ... why does enrichment make mice nice?

To tackle this puzzle, I am interested in two hypotheses that focus on some of the other ways in which enrichment changes animals. Enriched animals typically spend less time performing abnormal stereotypic behaviour, and also seem emotionally better off: they are less anxious and show fewer signs of depression. So, enrichment might perhaps have its social benefits by making mice more psychologically normal, happier, or both. I want to find out if stereotypic animals are socially abnormal (because they are so repetitive and routine-prone, a bit like humans with autism), and therefore attract more aggression; and alternatively, whether anxious/depressed mice are more aggressive because they tend to be interpret neutral behaviours in their cage-mates as threatening. (Humans with anxiety or depression tend to interpret neutral facial expressions as hostile, for example).

In later experiments I also want to find out how enrichment affects their courtship (including the amazingly bird-like ultrasonic songs of males!), mating and maternal care. There are already a few studies suggesting the enriched male mice are more attractive to potential mates, and that enriched females are better mothers. How and why these effects occur will be the focus of my lab in the next few years. As well as being fascinating in itself, and hopefully useful for any system in which animals show poorer mating and parental care than we would like to see, the findings should help improve the welfare of the 30 million mice used in research each year.

My ideal student has an average comfortably over 80%, an interest in human mental health research as well as animal welfare, and an enthusiasm for running well-controlled experiments with large sample sizes that are likely to be publishable. Please contact me if you are interested: Georgia Mason – gmason@uoguelph.ca