

Boxing Marmots — Functions of Play

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Two golden marmots reared up on their hind feet next to a burrow and boxed each other's heads with their forepaws. Suddenly, one of the marmots fell over and tumbled down the slope. The other marmot bounced after it, its tail wagging. The former "aggressor" became the "victim" as the dusty marmot got up and chased it's brother back up the slope towards the burrow where they continued to play for the next 10 minutes.

Summer is the play season at Dhee Sar. Marmots, yaks, ibex and choughs take turns chasing each other around. It looks like a lot of fun — but is it useful? Does play have a function? In this essay I will discuss some of the hypothesised functions of non-human play behavior.

The first, and probably only thing, that most students of animal behavior will agree on about behavior is that it looks like fun! It is exceedingly difficult to actually define play behavior. Why? Well, most behaviors are defined in part by their functions, but unlike many behaviors which have apparent immediate functions (e.g., foraging, mating, fighting,) the functions of play are assumed to be accrued on a much larger time scale. So we are left defining play according to its motor patters. Characteristics include: mixing of different motor patters, reversal of "roles", relaxed postures and often a signal which seems to say "what follows may look strange or threatening, but it's play!" In the marmot's

case, the tail wagging and reversal of roles suggested that the marmots were playing and not fighting.

Given something that looks like play, what might its function be? One hypothesised function of play is that it burns off extra energy. At first this may seem foolish: we spend much of our time thinking about how difficult it is for non-humans to acquire resources! However, proponents of this relatively immediate hypothesis note that starved animals tend not to play. Opponents might argue that you would predict adults to play more than growing young animals who need all the energy they can acquire. In fact, play tends to be most common in young mammals, so let us set aside the surplus energy hypothesis and search for another explanation.

A second hypothesised function of play is it helps get animals in shape. Play is seen as exercise. Proponents of this idea note that playing animals tend to repeat a few motor patterns, and pause between repetitions. Exactly what a trainer would tell you to do if you were getting in shape.

The repetition of motor patterns suggests another possible function of play: practice for future use. Juvenile play often appears to incorporate activities, that while out of their proper context, will be useful in later life. For instance prey species, like

marmots, may chase each other — practice for evading predators. Predatory species, like foxes, may pounce on each other and bite each other's necks — practice for future hunting. Species where adults may later compete for important resources, may play/fight when young.

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These sorts of observations suggest that play as motor training and/or practice may be tenable functions of play in young animals. Yet, in some species, older individuals play. Why? Do they too need practice?

Another hypothesised function of play is that it helps establish social bonds and/or rankings. Here, the idea is that playing animals are not immediately establishing dominance relations, but when the time comes to potentially compete for a resource, interactants already know about the relative

strength of opponents. The key point is that benefits are not immediate, but are delayed. If there was an immediate function, it would be called something else (e.g., dominance behavior).

Nailing down a function of play behavior in a given situation is difficult. Often, functions of behaviors are studied by preventing an animal from performing the behavior and looking at the outcome. This can be relatively straight forward on a short time-scale, but on a much larger time-scale proves difficult. Why? Depriving young animals of play behaviors would also lead to the simultaneous deprivation of many other behaviors and/or experiences. Given a variety of missing experiences, it is difficult to assign an effect solely to play deprivation. Besides, deprivation experiments raise some ethical questions.

For these reasons, we're often left with several functional explanations of play behavior. To some extent this is right. Perhaps it is a bit naive to assume that a behavior has a single function. Play reminds us to look for more long-term and multi-functional ramifications of all behaviors. ■

Editors note: The author, a 1992-93 Fullbright Fellow to Pakistan, has been playing with marmots since 1989 in Khunjerab National Park.