Common Marmosets

Wisconsin National Primate Research Center
UNIVERSITY OF WISCONSIN–MADISON

The common marmoset family on display at the Primate Center is part of our center's colony of about 240 common marmosets. This New World primate species is native to the forests of Northeast Brazil and is one of many marmoset species known in South America.

Our marmoset families

The Wisconsin National Primate Research Center has the largest research colony of captive marmosets in the Midwest.

Although these marmosets were all born in captivity, they behave much as marmosets would in the wild. They are highly social and have a dominance hierarchy. Only the dominant female gives birth, and everyone in the family, including the dominant male, helps carry the infants.

The family's diet

During dry months, much of a wild marmoset's diet comes from feeding on gum, the sticky substance that tropical trees use to seal the damage done by marmosets gouging holes in the bark. Our captive marmosets gouge holes in branches and scent mark them as they would in the wild. As our Wisconsin cherry and other branches provide no gum, our marmosets are fed a nutritionally complete diet.

We feed our marmosets a special high-fiber chow that is nutritionally complete. They also get additional treats such as meal worms, wax worms, grapes, bananas, apples and sunflower seeds. Marmosets are given rewards during handling such as mini marshmallows or liquid nutritional supplements.

Marmosets on the Web

Selected Web sites on marmosets:

- http://pin.primate.wisc.edu/factsheets/entry/common_marmoset
- http://marmosetcare.com/

The lobby's marmoset family includes a dominant breeding pair and their offspring. Our adult males wear blue neck tags; our females wear red.

Depending on when you visit, you might see the dominant male or female, or their offspring, carrying infants on their backs.

Marmosets typically give birth to twins every five months. Infants usually start to move around on their own at three weeks of age, but they can be carried by others until they are about three to four months old. Marmosets mature at around 18 months and can live up to 14 years, sometimes longer.

Marmoset research

Research involving marmosets helps us understand fertility regulation, mating, parenting, bonding, aging and brain function.

Center research has included the following studies:

- Center animal care staff and scientists in the 1990s perfected a noninvasive assisted fertilization technique for use in labs, zoos and in conservation efforts for endangered primates. The nonsurgical method is called an embryo flush. The common marmoset was the smallest primate in which this technique had been successful. Thanks to this breakthrough technology, our center reached a milestone in 1996, when three surrogate marmoset mothers each bore a set of twins after being nonsurgically implanted with transferred embryos.

- Center researchers have studied hormone levels in wild female marmoset fecal specimens from a field site in Natal, Brazil. They analyzed the

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specimens at the Primate Center. By studying these hormones, scientists learned about marmoset biological clocks, reproductive success and mating strategies. Hormone levels and fluctuations can also inform researchers about social organization and behavior. This knowledge aids primate conservation and animal care.

A common marmoset dad carries his triplets at the Wisconsin National Primate Research Center.

- Common marmosets have been useful models for contraception research. Through the UW Asian Partnership Initiative and Contraceptive Development Program (CONRAD; a component of US AID), scientists from Wisconsin and Thailand in 2001 isolated a chemical called triptolide from an Asian plant. They administered the natural compound to male common marmosets to measure safe and effective levels. The contraceptive effects of triptolide have been known since the 1970s, yet this was the first controlled study in primates.

- Center studies of estrogen depletion in common marmosets, associated with either the surgical removal of ovaries or with natural social contraception, have shown that marmosets have a unique biological mechanism that prevents reduction in bone mineral density. This knowledge can help us learn more about osteoporosis in humans and perhaps lead to better treatments and preventions.

- Primate Center marmoset researchers are studying the complex mechanisms of social suppression of adrenocortical function, behavioral determinants of reproductive suppression, and neuroendocrine mechanisms of reproductive suppression. Such influences are particularly pronounced in cooperative breeding species, in which a single dominant female breeds in each social group and other groupmates provide "alloparental care" for her offspring, meaning everyone chips in and carries and cares for her infants.

- Scientists for first time in 2004 imaged the brains of awake nonhuman primates in response to emotionally arousing stimuli. Using functional Magnetic Resonance Imaging (fMRI), Primate Center scientists revealed the link between external sexual odors and the internal sexual arousal system. Their work opened up a whole new field of neural imaging research possibilities. Since this study, center scientists have used imaging to learn more about how hormone levels adjust and change, driving brain signals among males, females and offspring that can affect the success of mating, pregnancy, infant care and social cooperation.

- Center researchers in 2006 used marmoset families to scientifically prove that primate fathers-to-be pack on the pounds when their spouses are pregnant. The phenomenon has been called Couvade Syndrome, or sympathetic pregnancy, in humans. Hormonal signaling may drive expectant fathers to prepare for the energetic cost of fatherhood by gaining weight during their mate's pregnancy.

- Today, our scientists are also studying marmosets to learn new stem cell research and gene editing techniques. These techniques can help improve our understanding of Parkinson's disease, ALS and other degenerative brain diseases, which could lead to better treatments for these diseases.

Nonhuman primate conservation

Our scientists have collaborated with others worldwide to study the common marmoset, buffy-headed marmoset, muriqui monkey, cotton-top tamarin, cebus monkey, patas monkey, blue monkey, colobus monkey and other wild primates. Developing new ways to protect wild primates and promote their breeding both in captivity and in the wild is critical as habitats and populations continue to shrink for many monkeys and apes. Researchers also study infectious diseases and how they might harm wild primate populations and humans alike.

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