

Development of animal behavior evaluation method by image analysis

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Spontaneous movement of the mouse is an important parameter that reflects the health and mental state of the mouse. In the present study, we tried to develop a new method that can measure the spontaneous movement of mice for 24 hours in a normal breeding environment using a simple and versatile video camera. Mice were housed in a standard cage in a 12 hour: 12 hour light / dark environment. The infrared lamp was used during the dark period. Mice were continuously photographed from above using a video camera. The position of the gravity center of the mouse in each frame of the captured video was calculated, and the amount of movement of the gravity center per second was expressed as the amount of exercise. We first confirmed that the momentum of mouse in the dark period was larger than that in the light period as is reported. When caffeine, a central nervous stimulant, was administered to mice, spontaneous motor activity increased until 3 hours after the administration, and then it returned to normal. When chlorpromazine, a sedative was administered to mice, the spontaneous movement of the mice almost disappeared, and the effect continued until 8 hours after the administration. In the present study, we succeeded in establishing a method that can analyze the spontaneous movement of mouse using a versatile video camera in a state close to a normal breeding environment. This system can analyze the spontaneous movement after drug administration.