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|  | **" Twelve fancy mice. . . twelve fancy mice. . . see how they run. . . see how they run . . . they all ran after the yummy cheese. . .in order to make Gab and Jay pleased. . . or else they would have gotten a big squeeze. . . twelve fancy mice."**  **Fancy mice** are small, domesticated rodents whose classification falls under the genus *Mus* and the family Muridae. The average female mouse weighs approximately 33 grams, whereas the average male weighs close to 37 grams. A mature mouse is about three and a half to four inches long, and has a tail about as long as his body. Even though they have noticeably large eyes, mice are nearsighted animals who compensate for this disability with their strong sense of smell and keen hearing. The life span of a mouse ranges from less than one to about seven years, with sexual maturity occurring anywhere between thirteen days to one year. Gestation period is about sixteen to fifty-three days, and the litter size ranges from one to eighteen baby mice. Breeding may occur in any season, with a few exceptions in certain families. Mice are among the most common of mammals due to their rapid reproduction rate. They eat a wide variety of foods like: seeds, vegetables, meat, proteins. These foods often have the same effect as they would on a human. Because of their vast numbers, mice make up the most important prey group of any of the mammals.  **Experimental laboratory mice** have played an integral part in our medical and technological advancements over the years. For example, mice have been used to test antibiotics, new miracle drugs linked to finding the cure for cancer, and other various diseases. Often they are subjected to lengthy experiments in order to validate the nutritional needs of humans. The reason mice are ideal for this testing situation is that they need very much of the same nutrients that we do. They have been tested within diets consisting of the three major food groups: carbohydrates, fats, and proteins.  **Carbohydrates** fall into three basic categories: simple carbohydrates, complex carbohydrates, and fiber. They provide the body with its main source of energy, help to control the breakdown of proteins, and help protect against toxins. Carbohydrates are essential in the diet because they provide the brain with energy in the form of glucose. Still, too many carbohydrates may lead to excess fat storage and therefore obesity.  **Fats** are another essential part of the diet, but like carbohydrates, too much can be detrimental to one's health. They provide the body with twice the amount of energy of carbohydrates, and include vitamins A, D, E, and K. They offer internal padding around sensitive organs, as well as providing insulation to the body. There are three basic types of fats: saturated, monounsaturated, and polyunsaturated. Saturated fats are found primarily in animal products, and some vegetable sources. Monounsaturated fats are found mostly in vegetable oils, and polyunsaturated fats are the only fats the body requires. They are found in the oils of seeds and some nuts. With an excessive intake of dietary fats the body is unable to store the fat as energy, so it begins to store it as fat resulting in weight gain.  **Proteins** are the primary ingredients of every cell in the body. The reason your body needs protein is to make up for the nine out of the twenty-two amino acids that it is unable to produce on its own. Proteins are needed to make hair, skin, muscles, organs, blood cells, nerve, bone and brain tissue, enzymes, hormones, antibodies, chemical messengers, as well as many other components of the body. Like the other two food groups lack of or excess amounts of protein result in malnutrition. Too much, leads to fat increase, and too little results in fatigue, anemia, and possibly a weakened immune system.  It has been proven through different studies that what you eat has a direct influence on your hormonal responses. For example, Dr. Barry Sears, in his book *The Zone*, gives a good analogy between choosing the correct energy source. He relates it to an ATM card, saying that if you choose the correct ATM code then you will receive an unlimited source of energy, which is your body fat. On the other hand, if you punch in the wrong code then you will be using a fuel that is in limited supply, which would be carbohydrates. He goes on to say that the majority of hormonal responses are carried out by the endocrine system. This system performs at its optimum when fed the appropriate amounts of each macronutrient. If this balance of macronutrients is disturbed, it will affect the endocrine system, and in turn will directly affect the brain and its chemical messages.  So, the big question is: Does the food you eat really have a significant effect on your cognitive processing and behavioral patterns? According to Katherine Milton, an anthropologist at the University of California at Berkeley, " the behaviors and physiology that define us are the consequences of dietary-driven evolution. . . and everything comes back to diet." Milton has spent the last twenty years on the island of Barro Colorado in Panama, studying howler and spider monkeys. Her extensive research has resulted in an increased knowledge of the effects of diet in relation to the productivity of the brain. After many years of observation and analyzation of the monkeys, their habitat, diet, and physiology she made some astounding discoveries. Even though the two monkeys shared the same environment and were approximately the same size, they had dramatic differences. The spider monkeys, whose diet consisted ninety percent from fruits, had more energy, were brighter, and had larger brains. Milton also found that their digestive tracts were much smaller allowing for quicker removal of wastes. By eating high energy, hard to find fruits, the monkeys were forced to memorize more locations of plants, the time of year and day the fruit would ripen, thus forcing their brains to expand over time. In contrast, their counterpart, the howler monkey, fed themselves on protein rich leaves leading to a lack of energy that was needed to fuel the brain. Because of the excess in protein and lack of carbohydrates the howler monkeys were dull and unobservant. Milton was able to eat bananas and peanut butter sandwiches in front of the howler's making loud slurping noises, and the howler's were seemingly oblivious to her action's. The spider monkeys, however, had a much different reaction. They would attack Milton to get her food, and she quickly learned that eating could become a hazardous situation because of their attentiveness.  In conclusion, the focal point of our experiment was based on the idea that diet has a direct impact on the function's of the brain. |

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