



Animal models in physiological studies: Challenges and prospects

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The animal model is widely used in physiology and pharmacology research. Although the use of animals in research can be an advantage for other animals, it is more useful for the advancement and improvement of human life. Even in many investigations, animal studies is considered as an introduction to clinical trials. But first of all, the use of animals as research tools requires to make a mutual relationship between humans and animals, so, ignoring safety and health and neglecting the ethical considerations of working with animals can have problematic consequences. From the past until now, these models have been divided into different groups, including experimental models, breeding and transgenic, etc., but undoubtedly any research at the beginning should have a proper reason for the use of the model animal, and the ethical and legal concerns of working with animals should be considered (such as a place for keeping and free access to water and food and many physical and environmental factors ..), which may affect the physiological and behavioral responses of the animal. The first models may have simulated part of the diseases, but over time most of the key features of the diseases were replicated in the models to make them appear to be very creative and useful. However, due to limitations such as mismatching of animal and human, these models have been revised many times and with recent advances, computer simulations, and 3D printing of biocompatible materials with the help of bio 3D printer as a new technology have replaced animal models and through eliminating the previous restrictions can be used to design and build cellular constructions and living

components. **Keywords:** Animal model, Ethical considerations, 3D Printer

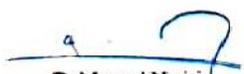
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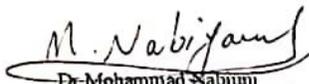
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