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Abstract

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“Will the age of gene therapy usher in the age of genetic enhancement?”

Gene therapy and pharmacological therapies that target gene expression have tremendous potential as novel therapeutic agents. In many cases these agents not only have applications in disease states, but also could have tremendous impact on the physiology of normal individuals. A number of strategies being developed for the treatment of disease have the possibility to eventually be used for genetic enhancement of human performance.

For example, genes can be easily transferred into the muscles of laboratory animals using modified viruses, known as adeno-associated virus (AAV). These viruses are now in use in early human clinical trials for genetic diseases. Some of the possible treatments for muscular disorders, which include types of muscular dystrophy, and muscle loss associated with either disuse or aging, could be used in healthy adults to build muscle strength and make muscle more resistant to damage.