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# MUSCLE UP

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The example of nature is successfully used for technical solutions through the efforts of the upcoming science called bionics.

Bionic prostheses work by reading the electric potential generated by the tension of the remaining muscle tissues of the arm with special myosensors [1]. Although the advanced prototype can even surpass the functionality of a lost tissue, it's still based on servomotors. Servos are cheap and easy to work with however they are not able to imitate motions of human body clearly. Therefore, the idea of synthesizing artificial muscles is one of the most perspective branch of prosthetics.

Such a technology would find itself not only in medicine. Artificial muscle fibers are required for many appliances, ranging from soft robots and miniature actuators to comfort-adjusting clothing.

Existing muscles include high-strength polymer fibers used for fishing line, thermally activated shape-memory alloys, hydraulically amplified self-healing electrostatic (HASEL) actuators, stimuli-responsive gels and even origami-inspired fluid-driven prototypes [2]. Several researches have already been done on magnetostrictive and electrostrictive muscles.

Despite the fact that cost, scalability and performance issues prevent developed designs from interacting with human tissue, progress doesn't stand still. The appearing of muscle-driven prostheses is only the question of time.

## References

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