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Building muscle
A translation of training adaptation

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Abstract
Training is preparation for what is expected to come through utilization of the plastic and resistive features of nature, known as adaptation. As such, training in humans may have a number of desired goals. These are typically related to sports performance or education. Whatever the goal, a plan needs to be made for reaching it. One needs to identify or select which activities and environments constitute the event or events to which adaptation is sought. Adaptations occurs by imposing something similar to said environment and practicing the selected activities in preparation for the events that can ultimately lead to goal fulfillment.
One quite common goal of physical training is to achieve a more lean and muscular physique, be it for reasons of performance or esthetics. A leaner and more muscular physique can have many advantages for health and quality of life. If we are to prepare the body's physical capabilities and properties, they should be utilized in the preparation. By proper design and execution of a program for physical preparation, we set out on the path to achieve the goal.
A factor that is often highlighted as an important key to building muscle in the human body is the steroid hormone testosterone. According to the hormone hypothesis, increases in muscle mass are achieved through transient elevations in anabolic hormones, such as testosterone and IGF1, induced by physical training. To achieve hypertrophy of the muscles through physical training, one must ensure sure that the muscles get the correct signal, the growth signal, as a result of the training.
The work presented in this thesis is, in part, an examination of the hormone hypothesis, with both empirical and theoretical elements. The empirical foundations are results of an experiment in which a group of young men were subjected to a program of physical training, designed for all intents and purposes in accordance with contemporary knowledge, to result in muscular hypertrophy in the subjects. The goal was achieved, with an average 4.6% increase in lean body mass in the subjects after the training program. However, there was no evidence that anabolic hormones were elevated at any time during the measurement period.
The major part of this thesis details a model for explaining the collected observations. It is not intended to merely provide a guide for achieving a leaner more muscular physique but rather is aimed at formulating the problem of inducing the desired adaptations and difficulties involved in approaching the problem. For reasons discussed in this thesis, I do not claim that this is the full and final word on the matter. However, it goes some way toward explaining why, and perhaps how, desired goals should be formulated so that the muscles may understand them.

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