

Nautilus Bulletin #1

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The Significance of Muscular "Pumping"

During the performance of any type of muscular work, the involved muscles demand increased circulation – for two primary reasons, in order to provide the additional fuel requirements, and for removal of the larger than normal amount of waste products being produced; in all cases, this increased circulation will result in temporary enlargement of the working muscles –and in any sort of work that can be maintained for a prolonged period of time, a point of balance is quickly reached where the increased circulation can meet the requirements of the muscles without leading to a condition of extreme "pumping".

But when several repetitions of a near maximum intensity of effort are performed consecutively, such movements will quickly produce a condition of extreme muscular congestion – and eventually the muscles will fail, simply because the circulatory system is unable to meet the momentary requirements. A pumped upper arm may temporarily measure a full half-inch more than it normally does – an increase in size that is far out of proportion to the increase in circumference, an increase in bulk on the order of about twenty percent (20%).

When pumped to that degree, an arm will feel stiff and very heavy – which is not surprising, since its actual weight has been greatly, if temporarily increased; flexibility will be temporarily reduced and the arm will hang in a slightly bent attitude when relaxed. In most cases, the degree of apparent muscularity will be reduced – the muscles will look much larger, and will be much larger, but will appear round and smooth, less defined than they normally do. However, in some cases – particularly in an individual with an extreme degree of muscularity – a pumped muscle may actually appear more defined than it normally does.

In most forms of normal work and exercise, the effects of pumping usually occur without being noticed – for example, very few people are aware that their lower legs are usually at least a half-inch larger at night than they are early in the morning; as a direct result of pumping, the calves markedly increase their size during the course of the day. Nor is this a result of poor circulation – it is a result of normal circulation; the calf muscles are working, and require increased circulation – during the night, when they are not working, the circulation requirements of the calves are greatly reduced, and the size of the calves is reduced accordingly.

Insofar as pumping is concerned, weight-training exercises are in no way different from any other form of exercise – the number of repetitions performed and the relative intensity of effort are the only involved factors; but in most forms of exercise, movements are discontinued long before any great degree of pumping is produced. For this reason, many new trainees feel that weight-training exercises are "somehow different" from other forms of exercise – simply because, for the first time within the limits of their experience they notice the effects of pumping. Their limbs feel "tight" and heavy – and many such new trainees are immediately convinced that they are already becoming "muscle bound", as a result of their first workout. But rather than being something to avoid, muscular pumping is a very clear indication that worthwhile efforts are being expended; if no noticeable degree of pumping is produced by an exercise, then it will do very little in the way of building muscular size or strength. However, although a very noticeable degree of pumping is an unavoidable result of any really productive exercise, it does not follow that even an extreme degree of pumping indicates correctness of performance of an exercise. It is easily possible to produce a really extreme degree of pumping – from exercises that will do little or nothing in the way of building either size or strength.

The Arthur Jones Collection

Fairly light movements performed in sets of very high repetitions –especially if such movements are restricted to partial-range movements –will produce the maximum possible degree of muscular pumping; but will do little or nothing in the way of building size or strength.

Two or three sets of about ten repetitions of a heavy movement will produce almost – if not quite – the same degree of pumping; while also inducing maximum growth stimulation.

Assuming an upper arm measurement of 16 inches prior to a workout, a man would probably pump his arm to a measurement of 16 1/2 inches during the course of a proper workout; but two hours later – measured properly and accurately – his arm would be somewhat smaller than it was before the workout, probably about 15 7/8 inches. Measured "cold" (without being pumped) twenty-four hours later, his arm would be back to its normal measurement of 16 inches – or slightly larger, if growth resulted from the workout.

Accurate measurements of various body parts will clearly prove that measurements vary rather widely during the course of an average day – even when you are not training; for example, your upper arms are slightly larger than normal when you first get out of bed in the morning – and slightly smaller for an hour or more after you have eaten a heavy meal. Temperature will also affect your measurements – your arms are usually a bit smaller on cold days, and larger on hot days.

Thus – for any sort of accuracy – measurements should always be taken under precisely the same conditions; but in practice, that is very difficult to do. For that reason, pumped measurements have a very real significance –because the conditions will always be, or should always be, exactly the same at the end of each workout.

Secondly, as long as your training program remains unchanged, your pumped measurements will clearly indicate future growth in advance; if your upper arm normally pumps only one-half inch during a workout, and then shows an increase of three-quarters of an inch as a result of the same type of workout, this is a clear indication that your arm will grow during the following forty-eight hours.

The ability to pump a muscle to a particular size precedes the growth of a muscle to the normal size that would usually be required for the pumped measurement indicated.

Among the ranks of bodybuilders, a great number of outright myths and superstitions on this subject are currently being accepted as a proven fact; for example, many bodybuilders sincerely believe that they can maintain a permanent state of "semi-pump" as a result of their workouts – which, of course, is a literal impossibility.

To at least some degree, such a patently false belief is probably due to outright fraud in some commercial advertisements; various products are offered that will supposedly "promote circulation" and "maintain a pumped condition." And, quite obviously, the two conditions are mutually exclusive – with normal circulation, no degree of pump will be evident – and when any degree of pumping is evident, it is simply an indication that the circulatory system is momentarily unable to meet the requirements of working muscles, or muscles that have been working until a short time earlier.