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The First Step Towards Understanding

You cannot change your heredity, and thus limitations will always exist –but if you actually understand the interrelationships of cause and effect, then you certainly can go a long way in the direction of regulating the course of events; to a degree far beyond that generally yet recognized by medical science. But in order to do so, you must not repeat the errors of most medical doctors – who fail to recognize the value of exercise; instead of permitting an awareness of one such obvious blind-spot in current medical belief to mislead you into a rejection of medical science as a whole, you must attempt to use this field of knowledge in a practical manner – thus giving yourself the benefit of knowledge gained by literally millions of workers over a period of thousands of years, people who may by and large still be ignorant of the value of exercise, but people who can add to your own knowledge in many useful ways. Many doctors – perhaps most doctors –may be biased on the subject of exercise; but that is no excuse for bias on your part, particularly when such bias leads – as it frequently does in the field of body building – to an attempt to deny well-established facts on the subject of physiology.

Nor is it necessary to obtain a medical degree in order to understand and make practical use of the involved factors; but you must at least be aware of these factors, and know how to apply the involved principles. Starting with this chapter, and continuing through the next few chapters, I will attempt – in as simple a manner as possible – to outline the points of knowledge required for producing good results from exercise.

To begin with, it should be clearly understood that a certain degree of muscular size-strength will be produced "automatically" – that is, with nothing in the way of formal exercise, simply as a normal part of human growth. The average person growing up in today's society does little or nothing in the way of exercise that contributes towards normal growth – or if so, then purely in an instinctive way, in the form of the usual physical play of children; in effect, most people would be much as they are with or without formal exercise – the small amount of exercise they may have been exposed to had no significant effect upon their growth.

But it does not follow that such people cannot gain from exercise – they certainly can; all I am trying to make clear is that the activities that most people look upon as "exercise" are really of very little importance.

Thus "average muscular size-strength" is really "normal muscular size-strength" – the normal result of simply being alive, not being sick, not being particularly underweight or overweight, and being within a certain age group. Apart from accident or illness, the body will maintain such average size-strength with almost nothing in the way of exercise; and if size-strength is lost (reduced) because of illness, then the body will usually return to normal levels within a very short period of time after a recovery from the illness –and will regain the normal levels of size-strength with little or nothing in the way of exercise.

But is has been obvious for centuries that exercise is capable of producing levels of size-strength that are far beyond normal levels; "why this happens" is really of no importance, so long as we are aware that it does happen " and if we know how to make it happen.

Somewhere within the overall system, there is obviously some sort of a regulatory and sensory mechanism that serves the purpose of regulating muscular growth; up to a point – up to the point of normal adult muscular size-strength – this regulation is apparently automatic in healthy individuals. And having reached that point, there is an equally automatic "cut-off"; once having produced the required size-strength for normal living, the sensory part of the mechanism informs the growth-stimulating part of the mechanism that the goal has been reached and growth ceases.

Again, while there are any number of theories about exactly "why" this happens, or "how" it happens, it is necessary only to understand that it does happen. However, a common sense examination of a few simple cause-effect relationships will make the situation clear for all practical purposes.

It seems that a normal level of size-strength calls for the ability to rather easily perform routine activities – and a certain percentile of reserve ability, an obvious hedge against emergency need.

Then – so long as activity remains fairly normal – the size-strength will remain relatively unchanged, and the percentile of reserve ability will also remain unchanged.

But if the level (or intensity) of activity is increased above normal –thus placing demands upon the existing reserves – then the sensory part of the regulatory mechanism takes note of what is happening and triggers the system as a whole into another growth cycle; apparently; the body attempts to maintain a certain reserve of ability at all times – and will increase overall ability rather than permit the continuation of activity that continually requires the utilization of reserve ability.

In effect, suppose that you were able to curl 100 pounds as a routine matter – and did so as part of your normal activity; once having gained the ability (the size-strength) required to curl 100 pounds fairly easily – and a reserve of ability that would make it possible for you to curl perhaps 150 pounds "if you really had to" – then growth would cease. Having accepted that level of ability as "normal", for you as an individual, the body would maintain it – so long as you continued routine activity at that level.

But if you then started routinely curling 125 pounds, you would be working inside your reserve of ability – and another growth cycle would be triggered; apparently in an effort to keep "reserve ability" above the level of "normally-used ability."

Such "growth-stimulation" CAUSES growth – if growth is possible; but it does not produce growth – it merely points out that growth is desirable, that existing levels of ability are not adequate for the requirements of normal activity.

If actual growth is to be produced in response to this growth-stimulation, then other factors are involved; the system as a whole must be able to provide the chemical requirements for growth – and under normal circumstances it will provide the requirements, and growth will occur, again to a point where the sensory mechanism triggers another cut-off signal, which will occur when an apparently adequate reserve has been reestablished.

But if the system cannot provide the requirements for growth, then no amount of growth-stimulation will result in actual growth.

That much, at least, has been clear to almost everybody for about fifty years; but there is still a great deal of confusion on the subjects of "just what stimulates growth" and "what is needed to provide the requirements for growth".

But with or without a clear understanding, we have at least established the first two important points. . .

1. Above-normal levels of activity trigger growth stimulation.

2. Having been stimulated, growth will occur if the requirements are provided.

We will return to the above points later, in more detail – but first I want to establish a number of other related points.

A certain amount (or percentile) of fatty tissue is equally as normal as average levels of muscular size-strength – since it serves a number of useful functions, providing fuel reserves, insulation, padding, and other requirements; but unlike muscular tissue, fatty tissue is not increased by higher than normal levels of activity – on the contrary, if compensation in the form of larger intake of food is not provided, increased activity will result in decrease in the amount of fatty tissue, since the body will then be forced to use at least part of the fatty tissue as a source of fuel to provide the energy required for the extra activity.

Secondly, while the muscular fibers are not increased in number by growth – only the size of the fibers changes – the number of fat cells can be increased; and once formed, new fat cells can only be removed by surgery – while an increase in activity without a compensating increase in the intake of food will reduce the size of individual fat cells, it will not reduce the number of cells.

The disposition of fat – the actual location of fat on the body – is not uniform; but it is not deposited in a random fashion – on the contrary, the locations of fatty deposits (and the reasons for such location) are matters of no small concern, especially for bodybuilders.

Living organisms produce heat in proportion to their mass – and radiate heat in proportion to their surface area; and (all other considerations aside) the ratio between mass and surface area primarily determine the environmental requirements for particular types of warm-blooded animals. A whale could not survive on land – because its mass would generate more heat than its surface area could dissipate by radiation; at least in a warm or temperate climate, although it might do well in the Arctic.

The mass of an African elephant is such that it actually exceeds the maximum-possible size for a warm-blooded animal living on land – and, unlike the whale, it cannot get rid of excess heat by living in cold water; but in the case of the elephant, compensation has been provided in the form of its enormous ears – which are nothing more or less than radiators, which serve to greatly increase the surface area available for cooling purposes. Additionally, elephants carry a large reserve of water in their stomachs –and on hot days they use this water to aid the cooling process; by reaching down their throats with their trunks, withdrawing water by suction, and then spraying it behind their ears – where it provides additional cooling by evaporation.

Fat deposits on the surface of humans primarily serve the purpose of providing reserves of fuel – but they unavoidably serve as insulation as well, keeping the body warm on cold days and causing an uncomfortable (and sometimes dangerous) rise in heat on hot days; if the total fat deposits were evenly distributed over the entire surface of the body the result would be an enormous increase in the effectiveness of the insulation – and in races of people that developed in cold areas, there is a tendency for such overall distribution of fat deposits.

In some other races of people, races that developed in warm areas, even more obvious evidence of a tendency in the opposite direction can be seen; some of the African tribes are capable of becoming grossly fat in the region of the buttocks while remaining quite muscular in appearance in other sections. The fat is stored in one area in order to provide better overall cooling – instead of serving as a thinner layer of insulation over the entire surface of the body, it is concentrated in one fairly small area.

To at least some degree, this tendency to store a disproportionate percentile of surface fat in the midsection is common in most races of people; and there is absolutely nothing you can do about it, short of getting rid of all visible signs of fat.

It should be clearly understood that ANY fat in the midsection means SOME fat everywhere; and you cannot remove or reduce fat in the midsection by doing exercises for that part of the body – the removal of visible signs of fat can be brought about in only one way (apart from surgery), by reducing the amount of food and-or by increasing the amount of overall exercise until a negative calorie balance is produced, until you are consuming less calories in the form of food than you are expending as energy.

You CAN build the muscles of the midsection by performing a reasonable amount of intense exercise for the directly involved muscles, but no amount of exercise for these same muscles will help to reduce fat in that area of the body so long as a positive calorie balance exists – a much better approach to the problem is to reduce the food intake as much as possible while performing a reasonable amount of exercise for all of the muscles of the body.

It should also be noted that an increase in the amount of activity does NOT have any significant effect upon the body's requirement for protein; protein requirements are primarily determined by existing body weight. And if you are under the common but badly mistaken impression that "extra protein can't hurt you," then guess again; you can get as fat as a pig on a diet of almost pure protein – and quickly, too.

So now we have established the next two important points . . .

3. Fat deposits are an overall situation, with naturally heavier concentrations in some parts of the body.

4. The addition of fat is a result of a positive calorie balance; reduction of fat is produced by a negative calorie balance.

Since bodybuilders are usually interested in increasing their body weight – without increasing, or while actually reducing, the total amount of body fat – it should be obvious that the only possible way to do so is by increasing the mass of the major muscular structures, while keeping the calorie balance as close to a point of perfect balance as they can; but in practice, most bodybuilders attempt to increase their muscular mass by so-called "bulking up", by adding overall weight and size even at the expense of adding fatty tissue – this usually being done by eating as much as possible while reducing the amount of exercise, and by concentrating on heavy exercise for the largest muscular structures.

Two of the three steps in a normally-practiced "bulking-up" routine are reasonably correct – but the third is always a mistake; reducing the "amount" of exercise is almost always a move in the proper direction, because almost all bodybuilders perform far too much exercise – and performing heavier exercises is also desirable, because it is the "intensity" of exercise that determines growth stimulation – but increasing the amount of food is a mistake, because the extra calories will merely be stored in the form of additional fatty tissue.

A simple test that clearly indicates the correctness of a particular diet is the "pinch test" – pinch up a layer of skin and the fat directly beneath it and compare it to the thickness at an earlier date; if the thickness is increasing, you are getting fatter, and vice versa.

Determine your calorie requirements and daily requirements of vital food elements and establish a reasonably normal diet in keeping with your goals; if you are trying to gain muscular weight, then increase the amount of protein slightly – something on the order of twenty per cent over normal –but be sure to reduce some other portion of the diet by an equal number of calories. Then concentrate on getting strong; as muscular strength increases, muscular size will increase at least in proportion – nothing else is even possible.