

1958 Eleanor Clarke Slagle Lecture

Every One Counts

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Introduction

As the activation of every reflex is necessary in the proper sequence toward coordinated effortless muscular control, so the activation and learned control of basic reflexes in developmental order are necessary for the highest level of emotional maturity. Intellectual maturity, independent thinking, can never be achieved by stuffing the mind with rote learning or facts without progressing onward to individual comprehension and application to original contributions based on the work of others.

If emotional and intellectual maturity are developing dynamically, then professional maturity can be attached happily and wisely for the warmest interaction of all, to secure the best treatment for the patient. And if we are truly maturing, then the needs of others will be our guide in the considerate give and take of professional life.

And as we come to the full realization of the need for stress for growth, so we must realize that the attitude toward stress will make it a challenge toward increased development or a block to our progress. Unlike the school situation where a grade remains static on the record, in living one has a chance to try again. Having achieved, that record counts as does the strength gained from trying.

The course was charted for us a long time ago. Each individual is a product of his heritage, his experiences. We benefit by the drive and vision of those who have gone before, and we in turn have a responsibility to add our particular share whatever it may be. And as Eleanor Clarke Slagle had the vision and selfless devotion in the initiation and development of our professional organization, we must build on that foundation to pass on an improved heritage to those to come.

In turn may I discuss briefly the physical, emotional, intellectual and professional aspects in relation to selected principles of muscle reaction.

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Physical Development

Activation of muscles proceeds from reflex or involuntary stimulation to voluntary control. In the loss of voluntary control of muscles from many causes it may be possible to reactivate muscles if the cause is physiological discontinuity and not anatomical destruction. But it is necessary to stimulate the first reflex pattern. Therefore, the sequence is important and the total pattern within the sequence. If balanced development does not occur early the problem of treatment will always be more difficult because there will be parts of many reflexes acting in an imbalanced pattern.

For efficiency of a part, interaction with an antagonist is necessary for (primary) shortening and (secondary) lengthening before cocontraction of both at the same time is possible. If one of a pair of muscles does not function in reciprocal innervation, eventually the normal one will be seriously affected. Gravity or stress is essential for the stimulation of the heavier work muscles and for bone growth. Cocontraction or static support positions are essential before heavy work movement is effective. As in cocontraction for support—whether on elbows, all fours or standing—the distal segment is stable, so too the heaviest work a muscle does in movement in its biological purpose is with the distal segment stable. One of the most difficult muscle problems is the lengthening reaction of heavy work one-joint muscles such as the soleus, vasti and anconeus. Slow knee bends with heels flat will get both lengthening and shortening reaction of the vasti and soleus. This is different work from the lighter guiding (lengthening) reaction of the longer muscle passing more joints. Lengthening reactions are important to flexibility as well.

As an example of this approach to muscle action, we might contrast the Delorme heavy resistance at ankle for knee extension versus squatting, which is the normal functional use of the muscle.

The quadriceps loom or kick wheel which embodies this same principle is excellent for the rectus femoris but not for the vasti which is our major problem usually.

In squatting the feet are on the floor or, in other words, the distal segment is stable and the muscles must pull the rest of the body into alignment, a heavier job than just moving the distal end of the extremity.

In life, the rectus femoris comes into play in walking which is a lighter work demand. Therefore in actuality, occupational therapy procedure involving squatting is more effective than kicking if it is the vasti which needs strengthening.

In learning patterns or movement to reproduce at will, the individual must do his own learning. As therapists we must give sufficient stimulus but prevent ourselves from helping too much. Passive action is not the answer. Light work patterns of skill require cortical or voluntary attention. The shoulder rotator cuff muscles of a patient with subluxation of the humerus may be activated by heavy work grip of the hand but not by light work.

Postural cocontraction for erect position can be gained by dental dam rubber resistance to top of head or over each shoulder following appropriate stimulation. Therefore, rather than asking for voluntary correction of posture or traction, resistance is used to cause postural cocontraction without conscious thought. During passive activity such as TV viewing, no

attention need be paid because there are more reflex feedbacks below the level of consciousness for heavy work. Stimulus from the muscle spindles found in heavy work muscles pass only as high as the cerebellum for integration. Also repetitive, rhythmical patterns will release top level control after patterns have once been learned. Therefore rhythmical music is the most effective tool; not the metronome with its interrupted tone which requires a more cortical response.

The last two examples would give some indication that fatigue is involved not in the muscle but the cortical control of the pattern. These same points might well serve to illustrate developmental reactions in emotional, intellectual and professional growth.

Emotional Development

As the give and take of shortening and lengthening reactions of muscles is necessary for the health of both, so the giving and receiving of love and of stress is necessary for healthy emotional reactions, and these must be in the sequence of normal development. The baby receives care, love and protection. From this early selfish taking he should progress to wise receiving and giving. That which an individual desires and that which is most ego satisfying to the giver may create or prolong dependence. There will be many, many steps in human relations with definite sequences and experiences necessary for full maturity. Accepting one's parents as interesting individuals on their own merit is one of the higher steps.

The facing of stress is essential to full emotional maturity. Sympathetic nervous system arousal needs repetition so that it can be assessed as non-critical, and therefore may result in a controlled learning experience rather than an uncontrolled emotional reaction. Some withdraw from hurt, others become aggressive. The former is more serious since the damage is to self while the exterior signs do not bring forth the social disapproval attendant to aggression. Aggression, or any pressure of ideas, begets resistance, so care should be used in pushing ideas. Attitude on the part of the recipient toward stress will determine whether it be a healthy challenge to growth or a stimulus for withdrawal in an unhealthy pattern. Comprehension of the fact that insecurity breeds resistance will allow for more intelligent handling of such problems. Holding firm under stress is important also for the individual to learn.

Muscles need light and heavy work patterns in movement and holding to keep in the best equilibrium. Making a point of having friends of all ages is one of the surest ways to prevent atrophy or contractures of the spirit.

Careful selection of most important things will prevent the hyperkinesia of too great superficial stimulation. Heavy work stimuli lead to relaxation and renewal of the body. The physical and emotional are interdependent. It is important that there be a balance of gross physical activity when the mind creates tensions. Likewise the joys of simple as well as the more complex, pleasures should be kept and fostered.

Dependence on outward approval may be too strong. There is a need for developing one's own goals and these may be higher than those set by others. Insecurity requires constant repetition of approval. A secure person realizes that if a decision is thoughtful and right insofar as one knows, one must try to face without bitterness the criticisms which will inevitably

come. There is adaptation of the sensory receptors only if the situation is too static or repetitive, however there is some slight adaptation of the sensory receptors to the criticism; nevertheless the criticism should be listened to carefully and the soundness of it judged in the light of what one knows. The interference of emotional reflex reaction will not allow sound judgment, as reflex emotion and intellect are at variance.

Intellectual or Educational

Thinking too must have the reciprocal innervation of give and take to be of the greatest value. Light and heavy work will give an appropriate balance.

Rote learning or easy receiving is supposed to be at its peak up to fourteen years of age. Are we continuing it beyond this age unnecessarily? One knows how hard it is to set students free to think. It is easier in the beginning of professional life, but if set patterns have been established, insecurity and emotional reactions will delay the establishment of new habit patterns. The new student can more easily relate principles to the basic sciences since he does not have old techniques to uproot.

In professional life, are we properly stimulating our therapists in give and take at small unit meetings as part of our association activities? Individual study assignments to key free-for-all discussions would stimulate greater effort than the more standard passive reception of lectures, worthwhile though they be. Efforts on this line have been more notable on the national than the state level.

Although study and reading with a specific goal is difficult initially, repeated exposure provides its own self-ignition because of the interest created, and if done in relation to a patient's problems, solutions are easier. Answers to the theoretical questions which might take months to secure can be found far more quickly if they relate to a specific patient's problem. Not as much cortical driving is necessary since many of the clues are there at hand and certainly the motivation. Comprehension gained this way is more rounded and better remembered since it need not be translated learning.

In the majority of occupational therapy schools, the scientific preparation in physical disabilities is less than in physical therapy schools when functional activities would seem to require as great a knowledge of structure and function if not more.

Professional

As supervisors are we preventing growth by too much supervision? Are we allowing others to help set their own goals? Dependence does not develop strength in staff, students or patients. By setting sights, we risk setting lower goals than they might set for themselves. The safety and security of well-defined boundaries such as specific assignments, authority over ideas as well as work, prevents individual development. Once exposed to the headiness of individual projects rather than merely satisfying someone else, the exposure usually takes.

All occupational therapists should add to our store of knowledge and general growth, not suffer technique and equipment contractures. We have a tendency to be dependent when

there is need to exercise our muscles of initiative. Each must contribute at his own level so that the whole may be more complete, since each with different background and interest will see different facets of the same problem. The richness of research material and its application to treatment techniques has been slow to seep to the therapy level. Our responsibility is to read widely and observe, to think and bring to the doctor's attention those things which might affect the patient. Therapy will be only as good as the therapist.

The establishment of an advanced study treatment center should be contemplated, not in conjunction with any school of therapy but of and for the Association and its members. This would provide for dynamic interaction of minds under medical guidance. Some of the points to be considered in relation to such a center would be:

1. Inclusion of small groups of occupational therapists and allied professional groups. In the physical disabilities area, the physical and occupational therapist would be the basic interacting unit.
2. A nucleus of top therapists each with special abilities that all might learn from one another.
3. Therapists selected should have five or more years' experience.
4. Theory and its application and practice must be integrated with enough time for studying, thinking and thoughtful application.
5. Individual courses for special weaknesses (such as written and oral communication) could be secured in other facilities.
6. This might be a central bureau for the proper consideration of new developments in the field, including testing of new treatment procedures and equipment ideas as well as evaluating existing procedures.
7. Preparation of abstracts and papers for professional publications should be a requirement. Support could come from grants from numerous foundations, and quarters are secondary to personnel and ideas.

Summary

It is important in development and growth that there be stimulation from without and from within so that autogenetic or self-igniting facilitation and inhibition be developed. There are many steps along the road but heavy work patterns of effort and stress must be faced and overcome before the finer, higher level patterns are possible. Both movement and holding are necessary. In the past we have performed reciprocal innervation patterns for movement only, without the cocontraction patterns against stress. We have been assisting weak muscles and giving them the lightest work when a heavier work pattern given first would make the skilled pattern possible or easier. To change to the thought of heavy work patterns will be difficult, but by knowing all of the sensory stimuli for the appropriate sensory receptors it is possible to aid the desired pattern through the nervous system. Thought is necessary in order to put patterns of muscle work through the proper sequential order of normal development. Any omission or transposition of order will prolong the process or make the results imperfect.

The most important points in all of our developmental patterns are sequential order, activation for primary and secondary action in movement, and the resistance to stress. These apply to emotional, intellectual and professional development as well as physical growth. With mastery of these points will come the auto-inhibition and facilitation so necessary for functioning alone as a human being within the total group. We will then add our share to the heritage which has been given to us by others and which will be carried on in the future by many more. May our journey as explorers in life be fruitful and satisfying, and increasingly stimulating mentally. Our physical age of maturity has definite limits but our mental and spiritual age need not.