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THE VALUE OF EXERCISES IN OBSTETRICS.¹

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Since the turn of the century, the belief has persisted that women who attain a high standard of physical fitness through exercise, would tend to have normal, easy labours with good uterine function. Based on this belief, extensive exercise programmes were evolved by Read, Vaughan, Randell and Heardman to facilitate labour. However, the benefits of these exercises have been extensively debated in medical literature. The majority of opinions have accepted that antenatal education is of no significance in shortening the period of labour or influencing the occurrence of complications, but is of psychological value only (Buxton, 1962). Although the value of exercises is not entirely that which has been attributed to them and some exercises can be refuted, it will be shown that they have a definite place in the management of the obstetric patient.

MISCONCEPTIONS

Kathleen Vaughan realized that posture possibly played some role in obstetrics. She developed the theory that supple joints were essential for an easy labour. She surmised that squatting opened out the pelvic joints in labour and thus increased the capacity and dimensions of the pelvis. She recommended pelvic rocking and changes of posture in labour to achieve these ends. Subsequent knowledge has failed to sub-

stantiate her views that these exercises can affect the dimensions of the pelvis.

The ligaments of the whole body are softened by hormones during pregnancy. The joints of the pelvis spread apart by a few millimetres and this change occurs mainly in the middle trimester of pregnancy (Young, 1940). The pelvis does not open out during labour. Pelvic rocking and changes of posture do not affect the size of the pelvis in labour. Indeed, bracing the thighs upon the abdomen to resemble the "squat" position is disadvantageous in that it requires much effort on the part of the patient and the nurses. It tightens the perineum and does not always permit pelvic fixation for good action of the abdominal muscles in bearing down efforts (Blankfield, 1965).

The pelvic floor is a deep muscle sheet attached within the bony ring of the pelvis. "Tailor" sitting thus cannot stretch muscles which are fixed by bony confines. It is also difficult to prove that it increases the elasticity of the tissue so that it can be stretched without tearing. Today obstetricians realize that a delivery achieved with an intact perineum is not always ideal. The muscles and tissues beneath the skin can disrupt unseen. Intact skin cover over the perineum after delivery of the baby therefore does not mean healthy underlying structures. The concept of saving the perineum from tearing is thus outmoded. There exists adequate proof that an

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episiotomy or tear is not undesirable. These occurrences save the pelvic floor undue damage and in the subsequent postpartum years, the incidence of gynaecological problems are reduced.

When the foetal head is on view, but fails to advance satisfactorily, both episiotomy and low forceps save the perineum from damage due to prolonged, devitalizing pressure by the head of the foetus. In addition, forceps may often be beneficial to the wellbeing of the baby by hastening labour.

Whilst pregnant, many women are recommended to get into the knee-chest position to ease their backache. Their bottoms are in the air and their heads are on the floor. This manoeuvre is of unproven value in the treatment of backache, but is excellent for precipitating an uncomfortable attack of heartburn. Like the patient with a diaphragmatic hernia, many pregnant women have reflux of gastric acid into the oesophagus which creates the burning pain or discomfort. This reflux is aggravated by bending over and relieved or prevented by maintaining erect postures and sleeping propped up on pillows. In the postpartum period it is dangerous to assume this knee-chest position until at least six days have elapsed since the birth. A case of fatal air embolus was recorded in a patient who adopted this position too early in the puerperium.

This position was believed to have prevented prolapse. Coupled with lying on the stomach, it was thought to prevent malposition and retroversion of the uterus. For these conditions, the aforementioned postures are of no therapeutic value. The uterus is an abdominal organ for almost two weeks after delivery. It imposes no strain or weight upon the pelvic floor and is not viewed as a mechanism causing prolapse. A retroverted uterus is no longer considered to be in a malposition. It is accepted as a normal variation. Prone lying has not been shown to have much effect on the final position of the uterus, and its ultimate site is inconsequential. It does however help relieve pain and pressure from a sore perineum.

Arm circling and clasping exercises have no effect on the milk supply or on the

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restoration of the shape and size of the breasts. Expression of milk is the routine therapy for the former problem: A good brassiere will disguise the latter.

The question now arises:— Has physiotherapy any place in the management of the obstetric patient? The answer is definitely in the affirmative. But a clear view must be obtained of the purpose and of the physiological and anatomical basis of the therapy.

THERAPEUTIC EXERCISES

Posture Correction

Good posture requires reasonable muscle tone and a balance of muscle action. Poor posture leads to malalignment of the spine and imposes strain upon the joints. Thus people with poor posture are more prone to develop low backache.

In pregnancy, the effects of hormones on ligaments, the mechanical effects of the weight of the gravid uterus together with stretched and sometimes weakened abdominal muscles, contribute to a change in posture. This postural change usually takes the form of an increase in dorsal kyphosis. This results in a round shouldered posture.

Conscious correction of faulty posture should be encouraged in the patient. The aesthetic end result should be pointed out to her to help her to monitor her posture continually. She should be shown how to squat down gracefully with knees bent and back straight to pick up things. In this manner she can keep her balance and also not precipitate heartburn by bending over too far. She should be taught how to lean forward from her hips instead of rounding her shoulders. Whilst washing dishes she should stand with her ankles crossed and abdominal muscles and pelvic floor tightened up. These remarks apply both to prenatal and postnatal patients.

Abdominal Muscles

Abdominal muscles are stretched by pregnancy and tend to be weakened and to cause postural defects. Exercises should be directed towards correcting this condition. Exercises for the rectus abdominis and the

oblique muscles should be commenced near the start of the second trimester. They should continue postpartum until the figure is restored. In the last few weeks of pregnancy it may be difficult to perform these exercises and they can be omitted temporarily.

Bilateral straight leg raising is not an exercise but only a test for weak abdominal muscles (Kendall and Kendall, 1949). The legs should be flexed with knees bent before being raised and they should be lifted and lowered one at a time if this form of exercise is used. This is not recommended in the early puerperium as it is too strenuous.

Backache

Whilst pelvic rocking is of no value in increasing pelvic capacity, it is of value in the treatment of backache (Heardman, 1951; Williams and Odoni, 1965). This action can be performed in the supine position or with the patient on all fours alternately humping and hollowing her back. It is difficult to perform this exercise standing or squatting whilst precariously gripping a support. The therapeutic action of this exercise is possibly due to the fact that the lower spine is manipulated through a full range of movements.

Pelvic Floor

The patient should be made aware of this muscular floor and be trained to contract and relax it consciously. This muscle sheet functions in its entirety when it is tightened. It is impossible to contract voluntarily separate portions of the muscle sheet which surround the different openings in it. It can be of minor assistance to the progress of delivery if the pelvic floor is relaxed. A woman who has been trained to bear down should have little difficulty in doing this.

In the immediate postpartum period, difficulty in micturition may be encountered. One of the causes of this problem is muscle spasm due to pain. Relaxation of the pelvic floor may assist in remedying this situation. The patient should be encouraged to sit on a warmed bedpan placed on a chair next to her bed, and be told to lean forward and completely relax.

Postpartum, pelvic floor contractions performed at regular intervals during the day, hasten the restoration of tone and possibly decreases the amount of prolapse if this be present.

General activity keeps the woman in a fit state and better able to keep abreast of her domestic duties. When confined to bed, leg movements may reduce the incidence of venous thrombosis. Stagnation of blood circulation and immobility appear to be causative factors in this complication.

CONCLUSIONS

Activity keeps a woman fit and prevents muscle wasting, so that she is better able to manage with her domestic routine; but housework is no substitute for exercise. It does not strengthen the muscles which are particularly punished by the pregnancy, that is, abdominal and pelvic floor muscles; nor does it treat backache. In normal, healthy pregnant females exertion is not dangerous. Exercise has no deleterious effect on blood pressure in this category of patient and cannot cause pathological high blood pressure conditions, e.g., pre-eclampsia.

Exercises are best begun early from the third or fourth month of gestation. This is important in patients with sedentary occupations and poor muscle tone. They can improve muscle tension, before the "bulge" is too large to permit effective performance of exercises. This is particularly important as regards the abdominal muscles.

Antenatal and postnatal exercises should be identical for the following reasons. Firstly, it is the same structures which are being treated. Secondly, after the baby has arrived, the mother is too busy to absorb and carry out new instructions relating to herself. If they are few and simple, the patient is more likely to remember them and to practise them. Complicated progressions of exercises are impractical and confuse the patient. In the immediate postpartum period however, graduated activity is desirable under the supervision of the physiotherapist. The patient should be told when it is safe to restart her previous set of exercises.

Exercises do not result in a shortened labour (Burnett, 1956). They have no measurable effect on labour or on any complications which may occur. They only minimize the structural burdens imposed on the body by pregnancy and parturition. They can reduce backache and improve posture and weakened abdominal and pelvic musculature.

SUMMARY

1. Exercise has no demonstrable effect on labour.
2. Squatting combined with pelvic rocking is an obsolete ritual. It has no influence on the size or mobility of the pelvis in labour.
3. Arm movements have no demonstrable effects on the breasts.
4. Posture does not appear to have an effect on prolapse and is unimportant in regard to uterine position.
5. Certain antenatal and postnatal exercises are desirable to minimize structural weaknesses imposed on the body by motherhood.
6. Abdominal muscle and pelvic floor exercises are important to restore muscles which might have been weakened.
7. Good posture and judicious pelvic tilting reduces low back strain.
8. Antenatal and postnatal exercises should be similar, simple and few. This makes

it easier for the patient to remember them and they are more likely to be practised.

9. Activity is not harmful to the normal, healthy patient.

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