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Reproductive life in women is more protracted, dynamic and having cyclical changes than in man. Studies on reproductive system in this country and abroad have been exhaustive as lot of emphasis was laid in this area by various governmental and the academic authorities as the family planning programme was given priority. Most of the work was pertaining to contraceptive devices, either mechanical, chemical or immunological, as a tool in fertility control. The purpose of family planning is not only to check the birth rate or to control the population but it has to look after the well-being of both mother and foetus also. Thus studies in pregnancy constitutes a major portion in fertility control.

Pregnancy challenges the entire body in all the parameters of physiologic spectrum, so a great variety of changes in patient's appearance, body chemistry and physiologic functioning takes place. Pregnancy is one of the beautiful example of state of respiratory adaptation, and this is reasonably ascribed to be due to hormones of pregnancy which not only influence the body chemistry, but also to the some extent, it alters the mechanical aspects of the pulmonary system. The pregnancy is associated with significant anatomic and functional changes in respiration, influenced by mechanical, endocrine and metabolic factors, which
include progressive enlargement of uterus, upward displacement of diaphragm, capillary engorgement, increased hormonal level etc. Increasing requirements of mother and foetus for oxygen during pregnancy would be most efficiently served by smooth transport and exchange of gases through the respiratory system. Particularly in developing country like India, the metabolic needs of pregnant and lactating women should be explored extensively, as psychological, environmental and sociological factors may influence the metabolic processes of the individual.

The influence of nutrition on the course and outcome of pregnancy, is long recognized; studies of the same has recently received considerable emphasis. Plenty of data from number of sources along with careful and critical reappraisal of older studies, have resulted in a heightened awareness of the importance of nutrition and, moreover, have cast doubt on certain "traditional" concepts regarding the proper conduct of this aspect of antepartum care. Precise delineation of nutritional influences on pregnancy in the human is probably impossible of the multitude complex and imponderable factors determining reproductive outcome. Nevertheless, the fundamental premise that nutritional status during pregnancy represents an important determinant of pregnancy outcome is generally acknowledged.
Pregnancy imposes additional needs for energy related to added maternal tissues and increased metabolism as well as to the growth of the feto-placental unit. The energy cost of the pregnancy can be calculated with a reasonable degree of confidence from total body oxygen consumption by mother and the foetus.

The generally accepted figure for total energy cost attributable to pregnancy only is 75,000 kcal. Caloric expenditure related to gestation rises sharply at approximately the juncture of the first and second trimesters and is maintained at a relatively constant rate throughout the remainder of the prenatal period. The recommendation of an additional 300 kcal. per day for the pregnant woman is based on dividing the total caloric cost by 250, a value slightly less than the mean duration of gestation to account for the fact that caloric expenditure does not reach its maximum until some weeks after conception. Since the recommended dietary allowance for energy in the mature nonpregnant "reference" woman is 2000 or 2100 kcal. (depending on age), an addition of 300 kcal. represents an increment of approximately 15 percent (Pitkin, 1977).

Maternal measurement, most faithfully mirrors the fetal situation. Maternal measurements have to be judged, not by how closely they approach the fetal values, but by the degree of correlation they show with the state of the newborn, however difficult it may be to put a figure on the latter. Lack of
caloric intake may result in restriction of other nutrients. For example, optimal protein utilization requires a certain energy intake in order to prevent amino acid metabolism to meet energy needs (Oldham and Sheft, 1951). Additionally, caloric restriction induces fat catabolism which in turn results in ketonemia and the pregnant woman seems to be particularly susceptible to acidosis with starvation (Kim and Felig, 1972). Evidence from the several sources suggested that ketosis is poorly tolerated by the foetus. Certainly in diabetic ketoadidosis represents a potentially lethal condition from the fetal point of view, apparently through reduction of uterine blood flow. In addition, it has been reported that acetonuria during pregnancy in nondiabetic women, presumably a reflection of starvation, is associated with significant lowering of the intelligence quotient of the offspring (Churchill and Berendes, 1969). Moreover, observations on certain "natural experiments" in human malnutrition such as wartime famines indicate the acute severe nutritional deprivation among pregnant women is associated with significant lowering of birth weight as well as birth length, head circumference, and placental weight. Using a mathematical model constructed from data related to the famine in western Holland in 1944 and 1945, Stein and Susser (1975) have recently suggested that the placenta functions differently depending on natural nutritional status; normally it behaves as a fetal organ and transmits nutrients to the foetus freely but
when maternal energy intake falls below 1500 kcal. per day it appears to utilize nutrients for its own metabolism at the expense of the foetus. Finally, several studies involving calorie or protein-calorie supplementation to women of known or presumed deficient nutritional status have documented a significant increase in birth weight with such supplements (Lechtig et al., 1975). For all these reasons, marked calorie restriction during pregnancy is ill-advised.

The magnitude of additional calorie requirement of pregnancy is uncertain since rather different values result from different methods, or criteria of estimation, as recently reviewed (Hyttten and Leitch, 1971). An understanding of calorie requirements unique to pregnancy is essential in order to assure a successful outcome for both mother and the foetus. However, the additional daily caloric requirement needs modification in the pregnant woman, is especially important in different socio-economic circumstances. Recently recommended dietary allowances for women during pregnancy are discussed in the light of actual intakes both in developing and industrialized countries. The differences between total energy intake in the industrialized countries around 2900 kcal. and in the developing countries 1600 kcal. (Whitehead, 1979). It is however, important to establish the pattern of basal metabolic rate (BMR) and oxygen consumption during pregnancy for maintenance of nutritional status. There is no easy means of comparing the metabolism of pregnant
and nonpregnant woman, not merely because of differences of body size, but because of varying body composition in pregnancy. But recently the analysis of maternal anthropometric changes during pregnancy and lactation by Adair and Pollitt (1982) in 225 rural Taiwanese women demonstrate that, despite relatively low caloric intakes and maternal fat reserves characteristic of malnutrition, mothers show no long term or severe energy deficits. Preintervention caloric intake was estimated to be about 1200 kcal per day. Pregnancy weight gain (mean 7.63 kg) was accompanied by increases in subcutaneous fat at the triceps and subscapular sites early in pregnancy, but skinfold thicknesses declined in last trimester when fetal energy demands are greatest. These observations are in keeping with those reported by Prentice et al. (1981) for Gambia. There, women whose energy intakes were below generally accepted recommendations for pregnancy and lactation maintained body weight and adequate milk production throughout long lactation periods. Thus it is perhaps time to modify our views of what constitutes a nutritional standard of pregnant women at different socioeconomic population of mothers based on estimates of energy intake and reproductive success.

In the pregnant woman at term, respiratory distress is rarely sufficient to interfere with ordinary physical activity, although she has such seeming handicaps to breathing as an elevated diaphragm with restricted excursion of greatly enlarged abdomen, and heavy breasts. On the other hand, the patient
whose abdomen is distended from other causes often suffers much respiratory difficulty.

The diagnosis of precise nature and aetiology of pulmonary dysfunction is not possible to a great extent even with the extensive diagnostic procedures which include the examination of respiratory secretion, bronchoscopy, radiographic techniques etc., but pulmonary function tests and metabolic studies hold a major portion in this list of diagnostic tools. The dynamic pulmonary function tests are useful both for diagnosis as well as for prognosis and may detect airway disease before clinical features develop.

Pregnancy is a physiological condition with increased stress and adaptations. During this period of stress and catabolism we expect increased output of work in all systems; will it be — one may rightfully think of alteration in pulmonary function and metabolic rate during pregnancy. It is fact that from this 20th century the scientists and clinicians have paid their attention to assess the pulmonary function during reproductive life of women, but still much more discrepancies and inconsistencies in data prevail. Even though large number of pregnant women have been studied from the point of view one or two respiratory parameters, systematic studies of the integrated pattern of pulmonary functions during pregnancy are totally lacking and are long over due. Thus an integrated study of respiration during pregnancy would be rewarding.