EXERCISE AND MENSTRUATION

by

Violet Cyriax, M. R. C. S. , L. R. C. P. , Dip. ,
Royal Central Gymnastic Institute (Stockholm)

In presenting this communication I wish to stress that very little has been written on this subject and that any views held are based on practical experiences without statistical backing. The reason is that, although menstruation can be explained and discussed from a physiological aspect, there are such individual variations in the various decades of reproductive life that it is very difficult to generalise.

Perhaps it would be sensible to recapitulate the salient features of menstruation - I apologise if I repeat that with which you are already familiar.

The onset of menstruation and secondary sexual characteristics affects girls differently. Some have symptoms with each period making them less inclined to do anything active, while others are unaffected. All, however, must learn to accept menstruation as a normal physiological process which should not interfere with normal activities.

The menstrual cycle consists of various phases. Starting with the onset of flow on the first day, the flow continues, say, for 4 days. During the days subsequent to the cessation of flow, proliferation of the endometrial cells occurs, activated by Oestrogenic hormones. This is the "Proliferative phase". On the 14th day prior to the onset of the next menstrual cycle the ovum is shed. In its place is found the Corpus Luteum containing the hormone Progesterone. Due to the activity of the Oestrogens, endometrial proliferation continues. Due to the action of Progesterone which acts on smooth muscle, water retention occurs throughout the body and especially in the pelvis. This is the "Secretory phase". Up to 7 lbs increase in weight has been recorded. At the same time there is a slight rise in body temperature with a corresponding increase in pulse rate. The kidneys are unable to function properly, water retention affects the colon causing constipation; it affects the return of body fluids causing oedema but more usually only a heavy feeling in the legs. When flow starts there is a marked increase in urinary output followed by bleeding. The bloodvessels in the endometrium which have been engorged and tortuous collapse and break. The secretory phase, lasting from the 14th-28th days, is constant; the proliferative phase is variable giving rise to variations in periodicity.

It can clearly be understood that the main effects of menstruation occur about 2 days premenstrually and on the 1st day of the period before flow is established. If then, we are to believe this theory, it must be realised that efficiency is at its lowest level BEFORE and not during menstrual flow. Once flow is fully established, all untoward symptoms disappear.

Menstruation starts at a varying age, to some extent dependent on climate and race. At first it is not stabilised, giving rise to irregular periodicity and symptoms. These can vary from an occasional scanty period with no untoward symptoms to constant bleeding necessitating bedrest and inactivity. Coupled with menstruation develop concurrently the secondary sexual characteristics which also affect girls differently.

Premenstrual discomfort is often associated with aching in the sacro-iliac region, apart from the heavy feeling in the legs, and constipation. All this can be eased by taking exercise, the more so if the exercise is regular. The low backache is probably caused by reflex action through the sacral nerves by the pelvic water retention and engorgement of the bloodvessels. The sacro-iliac ligaments are, however, affected by hormones. During the last weeks of pregnancy, due to the action of Progesterone, these ligaments soften and stretch, thereby enlarging the inner bony ring to facilitate the passage of the foetal head. This softening is automatically corrected post-natally in the majority. It can therefore be imagined that a similar but less marked action could occur premenstrually.

Menstrual pain or discomfort is usually present until flow is fully established. Acute spasms may occur prior to the flow being established which can be momentarily incapacitating. Active exercise accelerates the onset of flow. The only exception is swimming, where such a spasm may affect the girl sufficiently to cause her to stop swimming and sink.

During puberty girls often develop weak abdominal muscles so that too many strong abdominal exercises premenstrually should be avoided. Pure concentric abdominal work can also cause dysmenorrhoea (pain). It was interesting to find that amongst a class of 30 fifteen-year-old girls, prospective ballet dancers, at Sadler's Wells School, two were noticeably affected as regards pointwork. I was told that in the interest of these two girls, they would not be passed fit for the professional stage since it was unlikely they would stand up to the extremely hard work and high standard required.

During the school years, gymnastic and sport are a part of the school curriculum. During the last years, however, passing examinations becomes

of prime importance, so less and less stress is laid on the necessity for physical activity on account of homework. Since the children's bodies are still developing this lack will inevitably have a deleterious effect on posture as well as on general health. Many menstrual problems date from this time. Modern gymnastics consist more of movement and somersaults, forwards and backwards, thereby hypermobilising the lumbo-sacral joint, and with little training in static work and positioning necessary for later life and work. The number of acute lumbo-sacral and sacro-iliac strains in adolescents, even with reduction of the disc cartilage between L.5. and S.1. is increasing. I mention this because it can affect training, especially with more static forms such as weight-lifting, so far more extensively used abroad than in England. Normal individuals do not appear to have the same stamina for normal duties. Loss of nursing students because of back trouble annually is considerable.

When considering sport and women and girls in training the problems are intensified. There are those who luckily have negligible symptoms throughout life, are of an athletic somatotype and who can go from strength to strength probably reaching Olympic standards. There are others with some symptoms which they have tried very hard to overcome and usually succeed, though with some degree of apprehension. There are however the majority who, despite a healthy outlook, good physique and training fail to achieve the necessary standards because of menstrual upsets. Moreover around the age of 17 years, when ovulation commences, the periods usually alter with increase in pain and loss, not necessarily improved by pregnancy. Any individual problems have probably been dealt with by a Gynaecologist. With the existence of Oestrogen-withdrawal drugs, it is possible to stop a period which might be occurring on or about the vital days. This matter was fully discussed prior to the Olympics at Melbourne. It was decided not to interfere with the normally expected dates among the British competitors a) it was considered that no one could achieve Olympic standards with any menstrual symptoms, b) the dates might, due to climatic or emotional conditions occur at a different time. As yet, we have not enough experience as to whether there might not be far-reaching detrimental effects of this treatment.

As far as climate is concerned, alterations in dates were noticeable amongst members travelling by sea to Australia for the British Empire Games in 1938. Most of the girls' periods came a week or more early while passing through the tropics, reverting to the normal 28-day cycle in cooler climate. Travelling by air would obviate this, though alterations in temperature, excitement, etc. could still upset menstruation in otherwise normal individuals.

With most sports training continues after leaving school. By this time menstruation is established and puberty is completed. There is one exception - swimming. It appears that most of the brilliant swimmers are adolescents; their training may still be in the growing phase and should therefore be very carefully supervised. I took up a sport not taught in schools - namely rowing. It could be considered one of the toughest, whether training as a sculler or in an eight for shorter or longer distances. With experience of over 35 years, I found that almost without exception the leg-drive was affected premenstrually, while pain occasionally occurred during but more often after the event. As a rule this did not affect the crew psychologically though it was found that the boat did not always run as well at times. Often in regattas when several races were rowed, the affected individual recovered completely between races, due to the effect of excentric exercise on the pelvic condition. Nevertheless the finest sculler who won the $4\frac{1}{4}$ mile championship and whose times have remained unbeaten, invariably started a period the day of the race. Remembering the saying "Don't worry, it may never happen" from my personal experience and that of many others in the field of sport, "It always happened", but it has not prevented us from winning and breaking records.