PART FOUR

The Training Programme

12

Planning a Programme

The ultimate concern of this book has been with preparation for competi-tion. The purpose of any training is to make it possible to achieve the desired goal of success in competition. A good training programme will make the body more efficient and thus must develop fitness to the level necessary to meet the work demands of the game. There is much need for further study in this area. In the meantime, until further research is undertaken, we have attempted to examine the information on fitness-training that is available and apply it to the game.

The principle of individual specificity would indicate that careful consideration must be given to the actual selection of training work particularly with regard to on-court training. In this area the routines involve the selection of training sequences designed to develop fitness in particular situations which arise from the technical/tactical requirements of the player. Ideally strength-training and aerobic endurance-training should be developed over a number of years rather than months because the body continues to adapt even after a long period of training.

No detailed programme can be provided because availability of time, facilities, attitude and level of fitness will vary from individual to individual. However, it is possible to provide a structure of a year-round programme and suggest how the different components can be balanced to contribute to the improvement of performance. In addition, some examples have been provided of the type of training programme that might be followed by different levels of player. Before looking at different training schedules there are two main areas to consider. Firstly, some general considerations in planning a programme and secondly, the specific design of a programme.

GENERAL CONSIDERATIONS

Medical Advice

1 CHECK-UP

Before embarking on any demanding training programme it is advisable to have a medical check-up. This is particularly important for the older

athlete who has not trained for several years or who has not trained previously. It is very important for players of any age to do so where there is a history of illness with regard to the heart and lungs.

2 INJURY

One of the consequences of almost any sporting activity is the risk of injury. It is not appropriate to discuss details of injuries or treatment in this book but the principle of adequate rest is a sound general treatment. There is no point in attempting to push through the pain barrier in training if pain is the result of injury, because pain is the body's method of warning you to stop. The pain caused by lactic acid build-up in the muscles is a separate non-injury event and training will build up a tolerance for this over a period of time.
The most common forms of badminton injury are probably twists and sprains which cause immediate swelling. The swelling can be effectively reduced with rapid first-aid treatment. The recommended treatment is ice, compression and exercise. An ice-pack placed on the site of the injury (for not more than a 15-minute period) and a compression bandage and mild exercise will help. For more serious injury consult a doctor immediately. It is invaluable for a club or player to know which doctors in the area are knowledgeable about sports injuries and sympathetic towards injured sportsmen. The British Association of Sport and Medicine represents a number of doctors, physiotherapists and physical educationists who are concerned with sports injuries.

3 COLDS

There is medical evidence to suggest that it is not advisable to carry out physical activity while suffering from the effects of a bad cold or an influenza-type of infection caused by a virus. The old idea of sweating out such infections by hard physical activity is not recommended. The best advice is to rest until you are ready for activity and then commence with a session of light training.

Sex differences

There are differences in muscular-strength development and aerobic capacity after puberty which give men a greater fitness capacity in com-parison with women in most sports. However there are no reasons why women cannot participate in a rigorous programme of fitness-training modified to their needs.

Age differences

These days young athletes in many sports appear to start at an earlier age and adopt intensive training routines when very young. Examples of this can be seen in such sports as swimming, gymnastics and ice-skating. There would appear to be no physiological reasons why young players from 10-15 years could not take part in a moderate fitness-training programme.

However, there are other considerations when planning a programme. Fitness in badminton is directly related to skill in that any fitness is superfluous and becomes redundant unless the player's level of skill creates a game that contains a work load which requires a particular level of fitness. In brief, as a player becomes more skilful so the competition level becomes higher and the player must become fitter. Young players may well be advised to spend time in practice and play in order to improve the skills component. If they do this and participate in other activities in the school PE programme they should develop a good level of fitness. It is most unlikely that they will be able to compete at the higher levels until they are in their late teens and by that time the skills should be highly developed and time can be spent on fitness-training.

It is also important that young players enjoy the game. Too systematic and rigorous a training programme can destroy this enjoyment. It is noticeable that many successful teenage swimmers drop out because the work demands spoil their enjoyment and interest in the sport. In their case there is such a close connection between skill and fitness development that they become interdependent and the young swimmer has no choice but to train hard. Fortunately this is not the case with the badminton player.

In general, continued participation and interest in badminton is best served if enjoyment is considered a priority in the early years. For those young players who do enjoy training a programme can be devised which, if in accordance with the principles of training, should result in a beneficial training effect.

Warm-up

There is still some debate over the relative merits of warming up even though most scientific studies confirm the practical experience of athletes that warm-up is beneficial. Warm-up raises the muscle temperature, increases the effectivness of the muscular contraction and also gives a general boost to the cardiorespiratory condition of the body. The body is thus better prepared for activity and the risk of injury is lessened. Warm-up in badminton is often replaced by the knock-up. The problem with this is that in the early stages of knocking up the muscles are not adequately

warmed and a determined stretch to play back a shuttle just to keep it going can often cause injury. It is better to leave the related form of warm-up such as shadow badminton, stroke repetitions and knocking up until an unrelated form of warm-up has been completed. This could involve flexibility exercises and jogging, building up to short sprints and eventually longer sprints. This is particularly important in cold badminton halls where a longer warm-up may be necessary.

After competition it is equally important to warm down effectively. Far too many players finish their game and sit down without even taking the trouble to put on a track-suit. The body feels hot after play and very soon adjusts to the lack of activity. However, the temperature-controlling mechanism may continue and loss of body heat may cause an impaired performance later. A lot of heat is lost from the head and neck region and this is why track-suits with hoods are preferable, particularly for playing or training in cold places.

As many players will be playing again later it is advisable to speed up the recovery process by an active form of warm-down. This involves light activity such as flexibility exercises and jogging for a few minutes after the end of a game.

Time spent on training

It is inevitable that for various reasons some players will be able to train more than others. The question arises as to how much time should be spent in training. Training effect is related to intensity and time spent in training. Therefore, if the time available is limited the intensity should be high. Even with a minimal training load the principle of adaptability will necessitate a progressive overload irrespective of the time spent on training. How much time should be spent is dependent on the level of play to which the player aspires. For this some experimentation is necessary to find the correct training level to force adaptation for each fitness component.

General Nutrition

It is known that calorie intake in the form of food and drink and calorie output in the form of physical activity are interdependent in maintaining a desirable weight. An active badminton player, training hard might consume 5,000 calories per day without putting on excess weight. An inactive person with otherwise similar characteristics would soon become obese if he ate at this daily rate.

In general, a player requires the same balance and variety of foods as anyone else. Each day he should have adequate amounts of:

1 bread and cereals (preferably wholemeal bread)
2 meat or meat alternatives
3 milk and milk products
4 fruit and vegetables

Foods not included in these groups, such as butter, margarine and sugar, when used with these foods, or in cooking, supply additional nutrients. It is not generally accepted that any specific food or vitamin products can in themselves improve playing performance. Any supposed benefits are more likely to be of a psychological nature. There is evidence from research to indicate a need for a wholesome breakfast. Almost without exception, studies have shown that breakfast makes a difference to sporting performance. There is also experimental evidence to show that sportsmen need at least three good meals each day for optimum performance. More frequent spacing out of meals might be desirable in certain circumstances. The young player who is still growing will very often take a snack some time during the afternoon and another later in the evening.

ADDITIONAL CONSIDERATIONS

In hot conditions there should be a periodic replacement of water lost in sweating. It is best to limit intake of water during an actual training session to a quarter-pint. In very hot conditions there will be a need to replenish salt daily and in this respect, except in extreme cases, salting of foods at mealtimes should be adequate.

Recent research suggests that for long-term activities such as badminton an emphasis on carbohydrates produces a readily available source of energy. In comparison a high-protein diet serves no useful purpose, the quantities available in a normal diet being quite adequate. In activities of a strenuous nature there is an increased utilization of available carbo-hydrates. The body adjusts itself to the needs and utilizes the content of the food naturally. Protein is not a chief source of muscular energy.

Pre-match meal

A gap of 3-4 hours is recommended between the last meal and competition. Although this will vary with individuals, it is considered that this time-lag is necessary to allow complete digestion. The emotional effects of pre-competition are far less acute when the last meal is taken well in advance.

Except for prolonged events of several hours, efficiency is improved little by the pre-match meal. It must be remembered that, in tournament play, several rounds could be held sufficiently close to each other to prevent an adequate meal from being digested. The remedy for this is to take a small, palatable, high-carbohydrate meal between rounds. Some of the proprietary high-carbohydrate drinks are specially constituted for this purpose.

As there are many misconceptions about food some useful information is provided in Appendix II.

DESIGNING THE PROGRAMME

The aim of the programme

You should consider all aspects before planning a suitable programme. The first task is to decide the aim of the whole programme. The aim is usually to defeat a particular player, make the team, or to win a particular tourna-ment. The measure of improvement in performance is the success in achieving that aim. Factors such as skill, fitness and knowledge of the opponent should be considered. Particular forms of training and different skill practices make up the programme. So to start with, select your aim and decide what sort of work is necessary to achieve it.

Duration of the programme

The target may be anything from 6 months to 1 year ahead. The programme must encompass the complete period. For this reason it is unwise to be too rigid. Players are not machines and the programme requires constant evaluation and modification. Allow for a flexible frame-work for the programme.

Progression

There are both logical and psychological considerations in planning any programme. The coach will be wise to reflect on these before commencing. Certain skills presuppose the possession of others. For example one would not expect a player to assume a forward base in singles and take the shuttle early if he did not possess the speed or the strokes to do so. Nor would one expect the player to smash from the rearcourt and then cut off the return at the net without speed deriving from strength and power. It would be unwise to expect standards of excellence at the end of a long match unless the player was fit enough to maintain the pace. The develop-ment of fitness is a gradual affair and involves the correct balance between quantity and quality.

It is inevitable that some psychological considerations arise in the

development of a player's game. To ask too much from the player in the early stages, to get him to attempt work for which he is not capable and to expose him to failure, and hence frustration at his lack of ability, can result in a loss of confidence in himself and his coach. Unrealistic expecta-tions of a tactical/technical kind leading to failure can cause a reluctance to work at the game and seriously affect the fitness-training programme. This sort of reaction is often encountered in teaching: if the work is too easy boredom arises, and if it is too difficult frustration occurs. Develop-ment is gradual, and the player will benefit and his confidence will grow if he sees and feels an improvement in skill and fitness.

For these reasons the work may be divided into phases which lead towards the aim of the programme. A typical example is shown below.

Pre-season

Phase 1 August

Aerobic training with the emphasis on cardiovascular and respiratory endurance components.

Assessment of individual strengths and weaknesses of the fitness components.

Basic strengthening activities.

Improvement of flexibility.

Introduction of new hitting techniques or methods of moving on the court.

Learning and practice.

Phase 2 September

Continue aerobic training.

Correction of poor performance in fitness components assessed in Phase 1.

Strength-training circuits.

Basic skill-training.

Competition Season

Phase 1 October

Maintenance of aerobic fitness by training this energy system at least once per week.

Training for both energy systems by circuit-training and other activities (see Chapter 8).

Continue strength-training circuits.

More emphasis on skill-training.

Increase on-court and related training practices, e.g. stroke practices and sequence work on the court. The new skills can be placed into pressure situations incorporated into games play and conditioned games.

Retest on fitness-component levels.

Phase 2 November/March
Greater emphasis on training the anaerobic energy systems, i.e. shorter, intensive, interval-type work.
High pressure on-court work and related training practices. Great emphasis on skill-training sequences.
Further strength-training activities.

Throughout the whole period maintain regular checks on the programme. Fitness can be measured regularly by the methods already explained. The player's weight and diet require constant observation and due concern should be paid to the general feeling of well-being of the player. This is important and the player is the best judge of this condition. If he feels stronger, quicker and more alert, then it is usually a good indication that the programme is well balanced. A player who feels jaded, tired and discouraged or is generally unhappy with the way he feels demonstrates quite clearly that the programme is not adequate for his individual needs. Each player is a unique individual and it is well to remember this when constructing a programme.

End of Season

April/Judy
Maintenance of aerobic fitness levels by alternative activities such as swimming and other sports.
Skill-training in specific weaknesses in preparation for next season. Medical check-up, dental treatment and inoculations.
Active relaxation during the closed season.
This is an ideal time with the availability of salads and fresh fruit to establish correct body weight.

RECORDING PROGRESS

Training Diary
It will be obvious that planning a training programme is a complex business. It is necessary to keep a record of the work completed. One way of doing this is to keep a training diary in which the overall programme can be written and progress recorded for instant reference when periodically assessing the programme.

Summary Chart of Seasonal Training Programme

	Pre-season		*Competition season*		*End of season*
	Phase 1	Phase 2	Phase 1	Phase 2	
	August	September	October	November-March	April-July
Aerobic/cardiovascular and respiratory endurance	*	*	*		*
Aerobic and Anaerobic/ local muscular endurance			*		
Anaerobic/speed				*	
Basic strengthening	*				
Strength/power circuit		*	*	*	
Further strength activities				*	
Evaluation of fitness components	*		*		
Agility		*	*	*	
Flexibility	*	*	*	*	
Correct body weight					*
Skill training	*	*	*	*	*
Medical/dental attention					*
On-court training			*	*	
Active relaxation					*

It also shows whether the player has achieved his training objectives. Details of fitness-component scores, competition results and general bodily feelings can be recorded in addition to the training programme. A diary of this sort is extremely useful, for, if maintained over a number of years, the information recorded makes the adjustment to training loads for individual programmes an easier task.

Levels of progress

In any training programme an unfit person will have much greater success early on in his training than later when he gets fitter. This is because increase of fitness and length of training is not linearly related but approxi-mates to the curve in Figure 12.1.

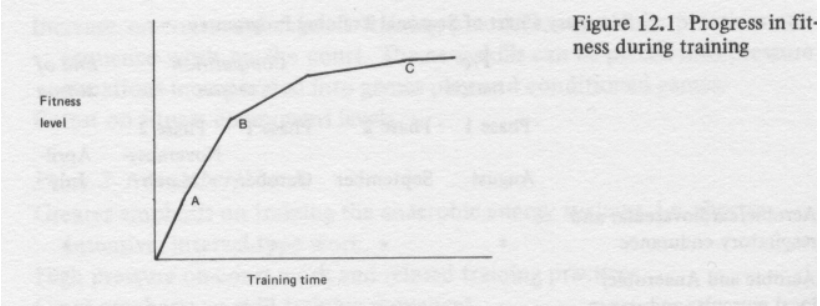

Figure 12.1 Progress in fitness during training

It can be seen that a person starting with a low level of fitness as point A on the curve will show a good increase in fitness in the early part of his training. After a further training time when he reaches point B on the curve, fitness levels will increase much more slowly. A highly fit person at point C needs to train both hard and long for any increase in fitness. However, at that level, with all other things being equal, marginal levels of fitness may be all that are required to win the major tournament, so the investment is often worth it.