On-court Training

If training on court is to be effective it must be closely related to the type of work that occurs in the game. Fortunately, the very nature of the game makes it possible to design realistic training routines. The rectangular shape of the court makes it possible to identify and isolate the work patterns of the player. This is particularly so in singles play for here, as the player must cover his complete court, clearly defined movement patterns emerge. A very basic pattern would be as follows: the player begins in the midcourt, travels to the rear-court or forecourt to play a stroke and returns to the midcourt. In the game many variations of this pattern flow into one another to make up the game, though the type of pattern depends on the situation and the tactics employed. Each pattern involves movement between the rear-court, midcourt and forecourt as the player travels round his court to perform his strokes.

In each movement pattern the player travels at varying speeds, makes abrupt halts and rapid changes of direction and performs a number of different strokes. This work requires a highly developed energy system in addition to strength and power, agility, flexibility, endurance and speed.
Consequently, much of the training on the court will involve the repetition of those movement patterns which actually occur in the game. In the context of training the movement pattern is known as the training sequence. In any training sequence a certain degree of skill is required. Inevitably there will be a close connection between fitness training and skills practice for each complements the other in the successful performance of a movement pattern. Indeed, this is the added advantage of training fitness on the court, for not only is it very realistic but it does also develop the repertoire of skills and tactical moves. The disadvantage, if any, is that it is possible to forget the point of the exercise. It should not be forgotten that the purpose of this book is to help to develop fitness. The development of skill, though a welcome addition, is incidental to the main aim, fitness. The close relationship of skill and fitness sometimes makes it difficult to plan a fitness routine. When an exercise is constructed to develop a certain aspect of fitness it is assumed that the player’s technique is proficient and will enable him to perform the training exercise according to the principles of training. Should his technique be inadequate, the exercise will soon break down and lose its value. There are then several options available. One can either devise a new training exercise which requires less skill, or return to the practice court and improve the technique, or perform the sequence and only mime the stroke (shadow badminton).

It is not easy to select appropriate patterns, for what counts as appropriate is dependent on the careful evaluation of a player’s fitness requirements and that involves a thorough knowledge both of the game and of how a player performs within the game. That, fortunately, is a problem that lies within the province of the coach and player, for it is a matter of individual specificity. Although we will offer some advice in Part Four, on how to plan a programme for an individual player, our immediate concern is to devise appropriate training routines.

TRAINING SEQUENCES

The correct use of a sequence is important if the player is to gain the maximum training effect. The following section will show you how to devise and use a training sequence.

Selecting a sequence

A training sequence may involve one or several patterns of movement, examples of which are shown overleaf.
The sequence can be performed with or without a shuttle. When performed without a shuttle the player works alone and the training takes the form of shadow badminton. When performed with a shuttle (see Figure 9.5) a feeder (F) will be required to hit the shuttle to the appropriate parts of the court. In some training sequences there will also be a counter (C).

**Performing the sequence**

In all the sequences the player doing the work will be known as P. The feeder must concentrate on good control and accurate placing of the shuttlecock. He has a responsible task for he controls the work rate in the sequence.
He can slow the rate down by hitting the shuttle on a high trajectory or speed it up by increasing the pace of the shuttle or hitting it on a low trajectory. Feeding can either take the form of continuous rallying as in some steady state work or else the feeder hits or throws single shuttles to selected parts of the court. The task of the counter is to keep the score of repetitions and to ensure that the sequence is correctly performed with regard to the work rate and the accuracy and control of the feeder.

The work load

Each training sequence will involve a number of set repetitions. This is the work load: the quantity of work the player sets out to perform. A player sets out to perform 10 repetitions of a sequence. As he becomes fitter he may increase his work load to 20 repetitions. The work load is determined by what is relevant to the training programme. It is indicated on the training sequence as follows:

![Sequence Repetitions](image)

The work rate

The work rate is the time allowed to perform a particular work load. The rate at which a player works is determined by the energy system he intends to develop. Work at a high rate of intensity will develop the anaerobic energy system whereas work at a slower rate (steady state work) will develop the oxygen system. An evaluation of the player's fitness level and the application of the principle of overload will determine the most suitable work rate for the player.

TRAINING SEQUENCE DESIGN

This is a difficult problem and requires careful thought and planning. It may also require some experimentation before a good training sequence is worked out. There are several stages in the process.

Select the training sequences

These involve the movement patterns and strokes to be used. Decide these after a careful consideration of the player's requirements, i.e. the work necessary to develop the energy system or fitness components.
**GETTING FIT**

**Decide on the method of working**

Is to work alone or with a feeder?

**The feeder**

Will the feeder play a continuous rally or will he hit individual shuttles and/or feed by hand? Where will the feeder be positioned? Remember the sequence must be realistic. How will the feeder hit or throw the shuttles? The trajectory must be appropriate for the work rate and realistic for the training.

**The work load and the work rate**

How many repetitions will be performed in each set? How much time will the player work for and at what intensity? How much time will be allowed between repetitions? The interrelation between work load, work rate and rest interval is of great importance if the maximum training effect is to be obtained. For the answers to these questions check with the appropriate Interval-Training Chart in Chapter 7.

**TRAINING THE OXYGEN SYSTEM**

There is some difficulty in devising on-court training routines for the oxygen system. A study of an interval-training chart will show that steady state work must be maintained for a period in excess of three minutes to develop the oxygen system. The problem arises that, owing to the nature of the game, work which may involve the oxygen system for the highly skilled fit player will most probably utilize the anaerobic system for the less skilled and less fit player. Thus the majority of players will be unable to sustain three minutes of continuous rallying routines on the court.

This problem was clearly illustrated when two international players performed routines designed to train the oxygen system. One completed three repetitions of 10 minutes each without fatigue while the other was unable to complete three repetitions of 3 minutes’ duration at the same work rate. For the latter player the work overloaded his system to the extent that he had to use the anaerobic system which could only operate for a limited period of time.

Though this problem exists it does not rule out on-court training for the oxygen system. It simply indicates that perhaps more beneficial routines could be performed in off-court training in the early stages. The problem is raised simply to re-emphasize the need for much thought and care in the design of a training sequence.

The capacity to complete the minimum period of three minutes as steady state
work is dependent on a reasonable level of skill and fitness, so the routines will take the
following form. There will be work with a feeder (continuous rallying) and work without a
feeder (shadow badminton). Each player or coach must assess the value of the form
selected in relation to the player's needs.

I SHADOW BADMINTON
Method: The player selects a training routine of 4 repetitions of 3 minutes with a 1:1
work/rest ratio (see the interval-training chart on page 56). He starts to perform num-
erous movement patterns, miming strokes, etc., at a work rate which will enable him to
complete 3 minutes.

2 CONTINUOUS RALLYING
Method: The player selects a train-ing routine of 4 repetitions of 3 minutes with a 1:1
work/rest ratio. The feeder hits drops and clears to the corners and the centre of the
court. The player returns all shots to the feeder who can alter his position during the rally
to the sides or the centre of the rearcourt or the forecourt. Advanced players can include
smashing during the rally. The feeder should keep about six shuttles close at hand to
continue feeding should the rally break down. Should this happen the player must keep
moving at the same rate until the feeder hits another shuttle into play.

3 COMBINATION TRAINING
Method: The player alternates between one repetition of shadow badminton and
one repetition of continuous rallying until the required number of repetitions in the
set have been completed.
TRAINING THE ANAEROBIC ENERGY SYSTEM

This is the most important form of on-court training. It is very rarely that a rally extends to 60 seconds in the modern game. In singles 90 per cent of all rallies last from 2 to 12 seconds. Therefore, a rally played at maximum speed would involve mainly the lactic acid and ATP-PC systems. Usually in a rally all the systems are operating and so, even though a long rally of 30 seconds may be predominantly anaerobic, there is some dependence on the oxygen system which provides a recovery period from anaerobic demands and allows time for some refuelling of the anaerobic system to take place. If long rallies did not involve some interchange between the aerobic and anaerobic systems, it is doubtful whether the average rest interval of 5-12 seconds between each rally would be sufficient for the players to recover.

In the following routines a good oxygen system is presupposed and the work will relate solely to the anaerobic energy systems. The routines involve interval training based on training times (see the chart on page 56). The method used will be the performance of training sequences. Though the training sequence is used mainly to develop fitness, the selection of any particular training sequence is determined by the technical/tactical requirements of the player. It is important to re-emphasize that the ability to perform some training sequences and work according to the principle of overload presupposes an appropriate level of skill. As skill is developed by continuous repetition of the same stroke, some of the training routines will involve continuous rallying of one or two strokes on a particular movement pattern.

Tactics can be developed by the repetition of specific situations extracted from the game. Tactical situations may involve a number of strokes within a movement pattern and usually conclude with a winning hit. This is important in training for the player can experience situations when he is forced to attempt to hit a winner under pressure. There is a psychological benefit in doing this for the player develops the confidence in his ability to move quickly and seize the opportunity to make a winning shot.

The following routines develop fitness by performing specific training sequences with a technical/tactical emphasis either using a feeder or working alone. The maximum time selected for work is 60 seconds and the shortest time is 10 seconds. Variations on these routines, either of training sequences or interval times can be devised by the player or coach. We hope that the reader will construct training routines for his needs in accordance with the principle of individual specificity.
THE LACTIC ACID SYSTEM
Examine the chart on page 56 showing interval-training based on training times.

First routine
Training time of 60 seconds. Three sets of 5 repetitions each set. Work/rest ratio of 1:3 and mild exercise in the rest interval. The routine can be written as below.

<table>
<thead>
<tr>
<th>Set</th>
<th>Training time</th>
<th>Repetitions</th>
<th>Work/rest</th>
<th>Rest-interval activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60 seconds</td>
<td>5</td>
<td>1:3</td>
<td>mild</td>
</tr>
<tr>
<td>2</td>
<td>60 seconds</td>
<td>5</td>
<td>1:3</td>
<td>mild</td>
</tr>
<tr>
<td>3</td>
<td>60 seconds</td>
<td>5</td>
<td>1:3</td>
<td>mild</td>
</tr>
</tbody>
</table>

Total time including work and rest is 60 minutes.

1 CONTINUOUS RALLYING (see Figure 9.7 on page 71)
Method: The feeder hits the shuttle anywhere in the court at a fast pace. The feeder can move to different positions for each repetition. The player returns the shuttle to the feeder.

2 SHADOW BADMINTON
Method: The player performs the training routines without a feeder.

3 ROTATION TRAINING
Method: Four players. The players perform the 60-second training time as for Method 1. The players rotate in order: counter, feeder, player, rester. In this way each player performs the work set and then rests for a 1:3 ratio doing mild exercise when he rests prior to acting as counter. It is important that the change of order occur without a break otherwise the time schedule is upset. If time is lost in the changeover it is most important that the players perform a full 60 seconds' work interval.

4 COMBINED TRAINING
Method: The player can combine repetitions of shadow badminton with continuous rallying.

THE ATP-PC SYSTEM
The routines in this section have a tactical basis and thus involve training sequences directly related to game situations. As this work tends to involve speed, agility and power as the player attempts to hit winners, there is a high probability that the continuous rally method could break down.
The best method for this practice is to use single feeding to the designated court areas. The feeder must learn to feed accurately and at the correct speed. He will need about twelve shuttles available and must be able to hit the shuttles and also to keep an accurate check on the time. It is difficult to use a stop watch when feeding at speed for a short period of time. Fortunately many stores now sell large battery-driven clocks with a second sweep hand, which are quite cheap and excellent for time-checking.

First routine
Training time of 20 seconds. Four sets of 10 repetitions each set. Work/ rest ratio of 1:3 and light exercise in the rest interval. In each set different training sequences will be used though each one will only take 20 seconds to complete according to the schedule set. A full training routine based on a training time of 20 seconds is shown below. The sequences may be altered as the coach and player require. The routine can be written out as follows:

<table>
<thead>
<tr>
<th>Set</th>
<th>Training time</th>
<th>Repetitions</th>
<th>Work/rest</th>
<th>Rest-interval activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20 seconds</td>
<td>10</td>
<td>1:3</td>
<td>light</td>
</tr>
<tr>
<td>2</td>
<td>20 seconds</td>
<td>10</td>
<td>1:3</td>
<td>light</td>
</tr>
<tr>
<td>3</td>
<td>20 seconds</td>
<td>10</td>
<td>1:3</td>
<td>light</td>
</tr>
<tr>
<td>4</td>
<td>20 seconds</td>
<td>10</td>
<td>1:3</td>
<td>light</td>
</tr>
</tbody>
</table>

The total time including work and rest is approximately 54 minutes. Additional time will be added for several minutes rest between each set. Here the player may take up to 3 minutes' rest.

Procedure

The feeder stands in the midcourt on either the forehand or backhand side with 12 shuttles ready. The training time of 20 seconds requires about 8-10 shuttles depending on the speed of the player. The sequence is continuous and involves a smash from the rearcourt and a kill from the net. With practice the feeder should learn to adjust the feeding to enable the player to perform realistically and complete the task without error.

I SINGLE FEEDING
Method: The player smashes straight or cross-court from the forehand or backhand sides and hits a winner from the net on the forehand or back-hand side. The feeder feeds single shuttles to the rearcourt and forecourt
to maintain the player working at speed. The feeder does not try to return the shuttle.

Set 2: The player moves from the midcourt to jump-lunge towards the net to hit a winner and then returns to begin the next sequence.
Set 3: Repeat Set 1
Set 4: Repeat Set 2

2 SHADOW BADMINTON

3 COMBINE SHADOW BADMINTON AND SINGLE FEEDING

4 GROUP WORK USING FEEDER AND SHADOW BADMINTON

*Method:* Four players to one court who rotate in order. See page 73. Ensure that each player gets the full 20 seconds work on court.

*Second routine*
Training time of 10 seconds. Five sets of 10 repetitions each set. Work/rest

| Rep. 2 | hit x-court | handfeed underarm from forehand midcourt |
| Rep. 3 | hit straight | handfeed underarm from forehand midcourt |
| Rep. 4 | hit x-court | handfeed underarm from forehand midcourt |
| Rep. 5 | hit straight | feed from backhand midcourt |
| Rep. 6 | hit x-court | feed from backhand midcourt |
| Rep. 7 | hit straight | feed from backhand midcourt |
| Rep. 8 | hit x-court | feed from backhand midcourt |
| Rep. 9 | hit straight or x-court | feed from backhand midcourt |
| Rep. 10 | hit straight or x-court | feed from forehand midcourt |
ratio of 1:3 and light exercise in the rest interval. In a training time of 10 seconds the player will hit about 5 or 6 shots only. It is important to maintain an accurate check on the time for the rest interval is only 30 seconds and soon runs out when shuttles have to be collected together.
2 Shadow badminton

3 Combine single feeding and shadow badminton

4 Group work on shadow badminton or single feeding

*Third routine*

The idea here is to combine different training times. The player could alternate sets of 10-second and 20-second training times. The order of sets could be as follows:

Set 1. 10 seconds x 10 repetitions
Set 2. 20 seconds x 10 repetitions
Set 3. 10 seconds x 10 repetitions
Set 4. 20 seconds x 10 repetitions
Set 5. 10 seconds x 10 repetitions

The training sequences could be selected from those described previously or else new ones could be constructed. The methods would involve either:

1 Single feeding, or
2 Shadow badminton, or
3 Combined feeding and shadow badminton, or
4 Group work on shadow badminton or single feeding