

# BADMINTON Handbook

BRAHMS

- Badminton from A to Z
- Technique & Training
- Tips from the Pros

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**Bernd-Volker Brahms** (pictured here with Lin Dan, the most successful player in Badminton history) was born in 1969. He is a journalist and has been writing about badminton for various national and regional publications and TV stations since 1992. He is an expert on the international scene and regularly attends all the major tournaments like the Olympic Games, World and European Championships and the German Open.



## Badminton Handbook

For better readability, we have decided to use the masculine (neutral) form of address, but the information also refers to women.

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Bernd-Volker Brahms

# Badminton Handbook

## Training • Tactics • Competition



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*Fig. 1: Bird's eye view of the Spaniard Carlos Longo*



# 1 The Philosophy of the Game



*Fig. 2: In Asia, Badminton tournaments are attended by thousands of spectators, as seen here at the 2007 World Championships in Kuala Lumpur.*

Badminton is one of the fastest sports in the world, and a smash by a Chinese player has been measured at a tournament at 206 miles per hour, faster even than a golf ball. Just as badminton has grown in popularity around the world in the past 20 years, and has now been recognized as an Olympic Sport, the sport itself has also changed a great deal. Sports science and tactical and training innovations as well as industrial research in racket production have revolutionized the sport in recent years. This dynamic sport has long ceased to have anything in common with the birdie in the backyard or the genteel aristocratic sport of yesteryear. Nowadays, only pros who are completely dedicated to the sport can survive at world class level.

Better and better training methods and game analyses have led to extremely high level performances, which the lay observer hardly notices due to the speed of the movements involved. While until the mid-1980s, sweeping strokes and wrist movements were part of the standard repertoire, world-class badminton now features short backswings in order to considerably reduce the opponent's reaction time.

A good example of this is the serve, which nowadays is almost always performed as a backhand in both singles and doubles matches by elite players, with a short backswing. The understanding of the biomechanics of the basic forearm twist revolutionized the thinking about training methods, as it is not the wrist that is fundamental for most strokes, but the twist of the forearm.

Badminton places demands on the whole body, from speed to concentration and conditions to sensitivity, coordination and finesse. The game is very complex, but nevertheless, beginners can make rapid progress in their game after just a few training sessions, which is one reason why badminton is such a popular high school sport.

In simple terms, the aim of the game is to place the shuttle where the opponent can no longer reach it or can only return it with difficulty. The corners of the opponents' court are therefore tactically the most sensible points to aim for, as they are furthest away from the opponent. The following chapters present the different strokes, running techniques and tactical concepts available to the player. The book is especially aimed at beginners and club players who do not have a coach. The optimal execution of strokes exploiting the body's full potential is the basic requirement for playing top class badminton. It takes years of training to unlearn incorrect movement sequences,



and players have a fatal tendency to revert to old patterns under the pressure of competition, hence the need to learn to play badminton systematically and correctly right from the start. The stroke techniques described in the pages that follow are intended for right-handed players and should be adapted for left-handers. When I refer to doubles, I include men's doubles, women's doubles and mixed doubles.

*Fig. 3: World Champion Lu Lan from China in action*



*Fig. 4: Danish Youngster Victor Axelsen with his Adidas equipment.*

## 2 Equipment

One of the reasons for the big improvement in the standard of world-class badminton is the improvement in the standard of the equipment. These developments mainly concern the **racket**, the **stringing** and the **shuttlecocks**. But **clothing** and **shoes** have also adapted to the demands of a performance sport, not forgetting special **racket covers** and **sports bags** that have evolved to meet top players' requirements.

### 2.1 The Racket

While in the 1980s rackets weighed between 100g and 130g, good rackets now **weigh** around 85g. However, rackets can still be strung to a hardness of up to 14kg. The parts of the racket are **grip**, the **stringed area**, the **head** and the **shaft**. From the origins of the sport until the 1970s, rackets were entirely made of **wood**. Rackets were kept in frames when they weren't being used to stop them becoming warped.

Only with the professionalization of the sport did Asian companies start experimenting with **materials** other than wood. To start with, the shaft and frame were made of **light metal, steel, aluminum**, and later of **carbon-graphite** (manmade fiber made from carbonized bitumen). This helped firstly to reduce the weight, and secondly to increase the stability of the whole racket. Today, materials like fiberglass and synthetic fibers (**boron, graphite, Kevlar® and Magan Beryllium®**) are also used. The materials have a very high resilience and are significantly firmer than steel, but most importantly have **greater elasticity**. Rackets also no longer consist of separate parts, but the head and shaft of the more expensive rackets are of **one-piece construction**.

The above materials make the rackets lighter and more flexible. In particular the **elastic shaft** allows the player to hit the shuttle with more **whipping power**, allowing him to hit the shuttlecock harder and faster, but the flexibility of the racket head is more of an impediment as it **reduces stroke precision**. The rule of thumb is: the harder the frame, the more accurate the strokes.

Expensive rackets are characterized by **low torsion** (torsional rigidity of the shaft). This is measured by to what extent the racket head turns left or right **around the longitudinal axis of the shaft**. If the player hits the shuttle not with the center but with the **edge of the racket**, it can be returned equally as well by a racket with low torsion as a shuttle that is hit with the center of a cheaper racket.

Another property of the racket that influences the play quality is **balance**. There are **head and grip-heavy** as well as **balanced rackets** on the market. Basically, head-heavy rackets offer **greater acceleration** in the smash, while grip-heavy models are better suited to **defensive play**, as they allow for **greater accuracy**. Balanced models are a compromise between the above. You can **test** which category a racket falls into by balancing it on your **index finger** at the point where the shaft joins the head.

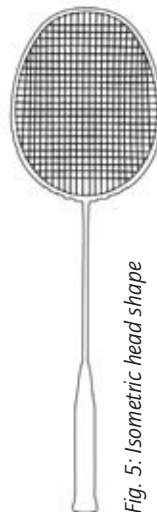


Fig. 5: Isometric head shape



Fig. 6: Rounded head shape

Even the **shape of the racket head** has been experimented with, as the rules only stipulate a **maximum size**, i.e. the whole racket frame should not be longer than 68 cm (26.8 inches) and wider than 23 cm (9 inches). As far as the stringing is concerned, the maximum is 28 cm (11 inches) x 22 cm (8.7 inches). The traditional racket head is **oval in shape** to promote good shuttle acceleration, instead of the **drop shaped** head of the early days of the sport. An **isometric head shape** is also common, in which the head is rounded at the top, thus increasing the optimal hitting area, the so-called **sweet spot**.

**Tip 1** Beginners should start off with a more **robust racket** that is often composed of several parts. A good such **beginners' racket** costs around **\$70-90**. Stable rackets are particularly recommended for novices if they like playing **doubles**. Their lack of technical and tactical understanding often leads to accidental racket clashes.

**Tip 2** In training and in particular in **competition**, a player should have at least **two rackets** with him. These rackets should be used **alternately** so that they are "broken in" and the player does not have to waste time getting used to them during a match.

**Tip 3** The **grip diameter** can be regulated with **grip tape**. Players with big hands usually have thick grips, which they create by winding two or three grip tapes on top of each other in order to obtain the desired diameter.

**Tip 4** New rackets have grips made of **synthetic material** or leather. Accomplished players who tend to have **sweaty palms** wind a non-slip grip tape made of **rubber or terry cloth** around the original tape. The terry cloth tape becomes worn out after a certain time and must be replaced.

**Tip 5** **Tournament players** should always have a **replacement grip tape** handy in case it needs to be replaced urgently.

## 2.2 Stringing

The **type and hardness of racket stringing** is an important factor in badminton that **affects shuttlecock flight** and can cause **acceleration, control** and **effort** to vary considerably. Strings are an average of **about 0.7-0.85 mm** thick and may be made of **synthetic material** or **gut**.

Elite players used to swear by natural gut strings made of **cow or sheep gut**, but they are now becoming less common as the quality of synthetic strings has improved more