



Racquet String Technology: Tennis, Squash & Badminton

A comprehensive guide to understanding the different types of strings used across racquet sports, their unique properties, and how they affect performance.

Natural Gut Strings: The Premium Choice

Composition & Manufacturing

Natural gut strings are made from cow intestines (serosa), specifically the outer lining. The manufacturing process involves cleaning, splitting, and twisting these fibres into strings, then treating them with chemicals for durability. This labour-intensive process contributes to their premium price point.

Performance Characteristics

Renowned for exceptional playability, natural gut offers unparalleled tension maintenance, power, and feel. The natural fibres provide excellent elasticity, resulting in superior energy return and arm-friendly play. They absorb shock effectively, reducing the risk of tennis elbow and other repetitive strain injuries.

Sport-Specific Applications

Primarily used in tennis by professionals and serious amateurs. Rarely used in squash or badminton due to cost and durability concerns. In tennis, natural gut is often used in hybrid setups, with gut in the mains (vertical strings) and a more durable string in the crosses (horizontal strings).

Synthetic Gut & Nylon Strings: The Versatile Option

Synthetic gut strings represent the most widely used string category across all racquet sports, offering a balance of performance, durability, and affordability.

Construction & Materials

Despite the name, synthetic gut contains no actual gut material. These strings are primarily made from nylon (polyamide) with various additives. They typically feature a solid core wrapped with outer filaments for improved durability and playability.

Manufacturing variations include:

- Single-wrapped: One layer of filaments around the core
- Double-wrapped: Two layers for enhanced durability
- Multi-filament: Hundreds of microfibers bundled together to mimic natural gut's playability

Sport-Specific Applications

Tennis: Ideal for recreational and club-level players. Provides good power and comfort at an accessible price point. Durability varies based on construction quality.

Squash: The most common string type for squash racquets. The thinner gauge (typically 17-18) suits the quick, reactive nature of squash. Offers good feedback and control for precise shots.

Badminton: Used primarily by recreational players. Professional badminton players typically prefer higher-performance strings specifically designed for the sport's unique demands.



Polyester (Poly) Strings: The Control-Oriented Option

Development & Composition

Polyester strings emerged in the 1990s and revolutionised professional tennis. Made from monofilament polyester, these strings are extruded as a single, solid strand. Modern manufacturing techniques have introduced variations like co-polyesters (blended with other materials) and textured surfaces for enhanced spin generation.

Unlike natural gut or synthetic strings, polyester strings are much stiffer and less elastic, dramatically changing how the racquet performs.

Performance Characteristics

The defining characteristics of polyester strings include:

- Superior control and precision due to limited string movement
- Exceptional spin potential, especially with textured or shaped variants
- Significantly reduced power compared to other string types
- Poor tension maintenance (strings become "dead" relatively quickly)
- Limited shock absorption, potentially increasing injury risk

Sport-Specific Applications

Tennis: Dominant string choice among professionals and advanced players with modern, aggressive playing styles. Often used in hybrid setups to mitigate comfort issues.

Squash: Limited use due to the sport's emphasis on touch and feel. When used, typically in hybrid setups for players seeking extra durability.

Badminton: Rarely used due to the sport's requirements for high tension and responsiveness.

Multi-Filament Strings: The Comfort-Oriented Option

Multi-filament strings represent the premium end of synthetic strings, designed specifically to replicate the feel and performance of natural gut while offering improved durability and lower cost.

Construction Technology

These strings consist of hundreds or even thousands of ultra-thin microfibers bundled together and bound with resins. The manufacturing process is complex:

1. Individual microfibers (typically nylon, but sometimes polyurethane or other materials) are extruded
2. These microfibers are bundled together in specific patterns
3. Binding resins or coatings are applied to unify the structure
4. Additional wraps or coatings may be added for durability or playability

The quality and performance vary significantly based on the number of filaments, materials used, and manufacturing techniques.

Sport-Specific Applications

Tennis: Favoured by players with arm issues or those seeking a more comfortable, power-oriented string. Popular among older players, those with tennis elbow, and players with classic, eastern grip playing styles.

Squash: Well-suited to the sport's demands, offering good touch and feel with adequate durability. Higher-end squash players often choose premium multi-filaments for their responsive nature.

Badminton: High-quality multi-filaments are popular in badminton, particularly those designed specifically for the sport. They provide the responsiveness and feel needed for precise drop shots and net play while offering reasonable durability.



Badminton-Specific Strings: Engineered for Speed

Badminton places unique demands on strings due to the lightweight shuttlecock and extremely high string tensions used (typically 24-35 lbs compared to 45-65 lbs in tennis).

Repulsion Power Strings

These strings focus on maximizing the trampoline effect for power generation:

- Typically made from specially formulated nylon or proprietary materials
- Designed to maintain elasticity even at extremely high tensions
- Often feature a solid core with outer wraps for durability
- Popular among offensive players who prioritize smash power
- Examples include Yonex BG66 Ultimax and Li-Ning No.1

Control-Oriented Strings

These strings emphasize feel and precision for technical players:

- Usually thinner gauge (0.65-0.68mm) for enhanced feel
- Often feature multi-filament construction for better touch
- Designed to provide precise feedback during delicate net play
- Sacrifice some durability for improved performance
- Examples include Yonex Aerosonic and Victor VS-850

Durability-Focused Strings

Designed for recreational players and those who break strings frequently:

- Thicker gauge (0.70mm+) for improved longevity
- Often incorporate materials like Vectran or Zyex for durability
- Sacrifice some performance for extended string life
- Suitable for players who hit with less precision
- Examples include Yonex BG65 and Ashaway Micropower

Squash-Specific Strings: Balancing Touch and Durability

Squash strings occupy a middle ground between tennis and badminton strings, requiring durability for the heavy ball impact while maintaining sensitivity for touch shots.

Key Characteristics

Squash strings are distinguished by several important features:

- Typically thinner gauge than tennis strings (17-18 gauge common)
- Strung at medium tensions (25-30 lbs) compared to other racquet sports
- Must withstand frequent wall impacts and ball compression
- Need to provide feedback for precise front-wall shots
- Often incorporate technologies to reduce string movement

The enclosed court environment means squash strings face less UV exposure and weather-related degradation than tennis strings, but must withstand more frequent wall contact.

Popular Squash String Types

Synthetic Gut: The most common choice for recreational and club players. Offers a good balance of durability, power, and feel at an affordable price point. Examples include Tecnifibre 305 and Ashaway SuperNick XL.

Premium Multi-Filament: Favoured by advanced players seeking enhanced feel and power. These strings provide excellent touch for delicate drop shots and boasts. Examples include Tecnifibre 305+ and Eye Rackets X.Tech.

Textured Strings: Some squash-specific strings feature textured surfaces to enhance grip on the ball for improved control and spin. These are particularly useful for players who use heavy cut and slice shots. Examples include Tecnifibre 305 Squash Green and Karakal Hot Zone.



Choosing the Right String: Key Considerations

1

Playing Style Assessment

Your playing style should be the primary factor in string selection:

- **Power players** benefit from softer, more elastic strings like natural gut or multi-filaments
- **Control-oriented players** may prefer stiffer strings like polyester (tennis) or control-oriented badminton strings
- **All-court players** often find hybrid setups provide the best balance

2

Physical Considerations

Your physical condition affects string choice:

- Players with **arm issues** should avoid stiff polyester strings
- **Younger players** may benefit from softer strings while developing technique
- **String tension** should be adjusted based on strength and skill level

3

Practical Factors

Consider these practical aspects:

- **Budget:** Natural gut costs 5-10x more than basic synthetic
- **Durability needs:** How often can you realistically restring?
- **Climate conditions:** Humidity affects some strings more than others
- **Racquet specifications:** Frame stiffness interacts with string choice

4

Experimentation

Finding your perfect string requires testing:

- Try **hybrid setups** to balance performance characteristics
- Experiment with **different tensions** before changing string types
- Consider **seasonal changes** to your string setup
- Consult with a **professional stringer** for personalized advice

Remember that string performance is highly subjective. What works brilliantly for one player may feel terrible to another. The best approach is methodical experimentation until you find your personal preference.