

Identifying an Issue

Collecting Data

Visualizing Data

Analyzing Shapes

All About Tennis Racket

Sources: Tennis Express ( <http://www.tennisexpress.com/info/choosing-a-tennis-racquet.htm> )

How to read a color bar?

Green indicates more control      Pink indicates more power

Head Size

85 sq. in.      118 sq. in.

It typically range from around 90 to 119 square inches, though super oversize frames (119-137 sq. in.) are a growing segment of the market. Smaller head sizes generally feature smaller sweet spots, more control and added feel. Larger head sizes provide more forgiveness and power.

String Pattern

Dense Pattern      Open Pattern

18 x 20      16 x 19 ( or less )  
· More control      · More power  
· Added durability      · More spin  
· Less trampoline effect      · Slightly less durability



Tension

65 lbs      45 lbs

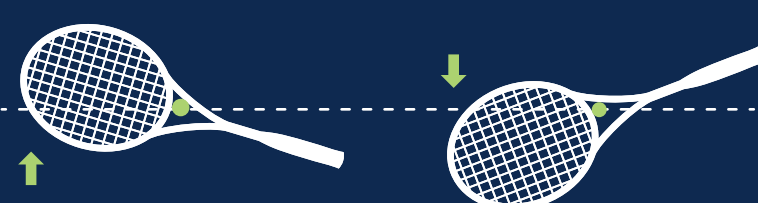
Lower tensions provide more power, tighter tensions provide more control. A beginning player needs a soft, forgiving string-bed that lower tensions provide due to the frequency of off-center hits.



Balance

Head Light      Head Heavy

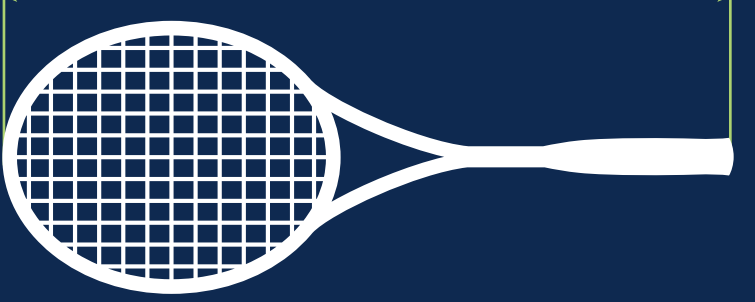
Adds maneuverability in heavier frames. Best for players who rally from the base line.



Length

27 in.      28 in.

Standard adult racket length is 27 inches, though many manufacturers offer extended sizing. While added length can increase reach and pop on contact, it can also change the comfort and feel of a racket. Make sure to demo before you buy.



Grip Size

4 1/8"      4 3/8"      4 5/8"

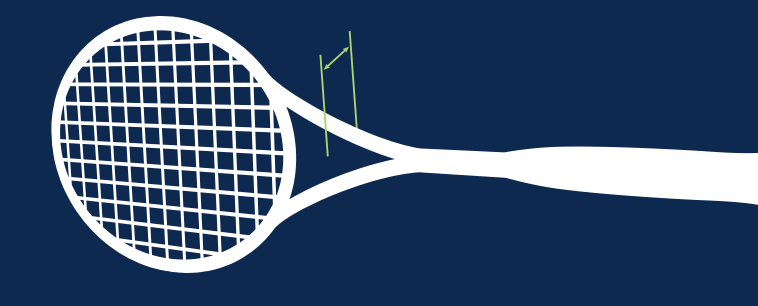
Find your ideal size by measuring the distance between your palm's middle crease to the tip of your ring finger. Typical adult grip sizes run from 4 1/8 inches to 4 5/8 inches with 4 3/8 inches being the most popular.



Beam Width

22 mm      28 mm

The wider the beam, the more power the frame produces. The thinner the beam, the more control.



Flex

45 Flexible      Firm 75

Flex is the resistance to bending or deforming upon impact with the ball. It is the measure of a racket's stiffness from 0-100, though most rackets fall between 75 and 45.

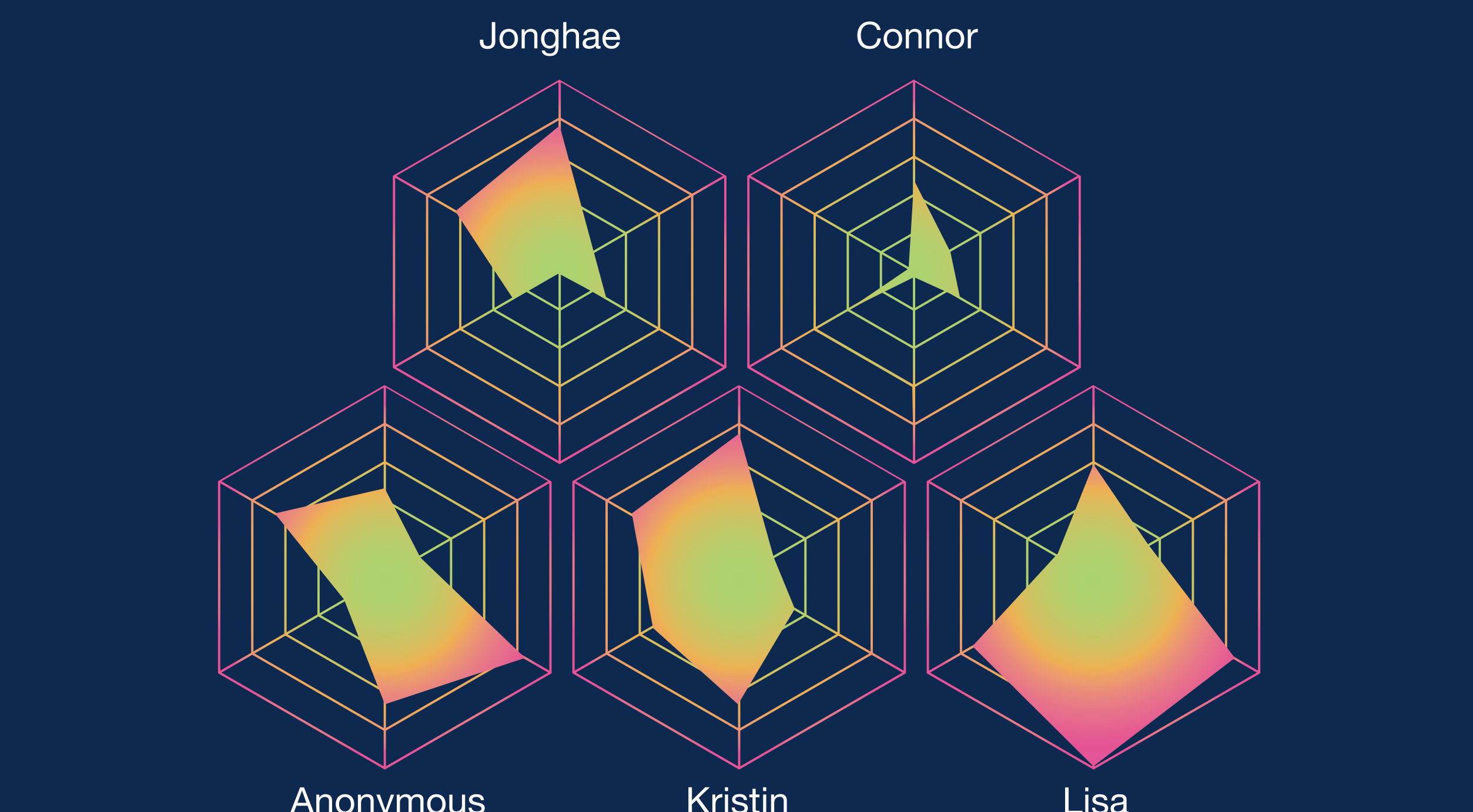
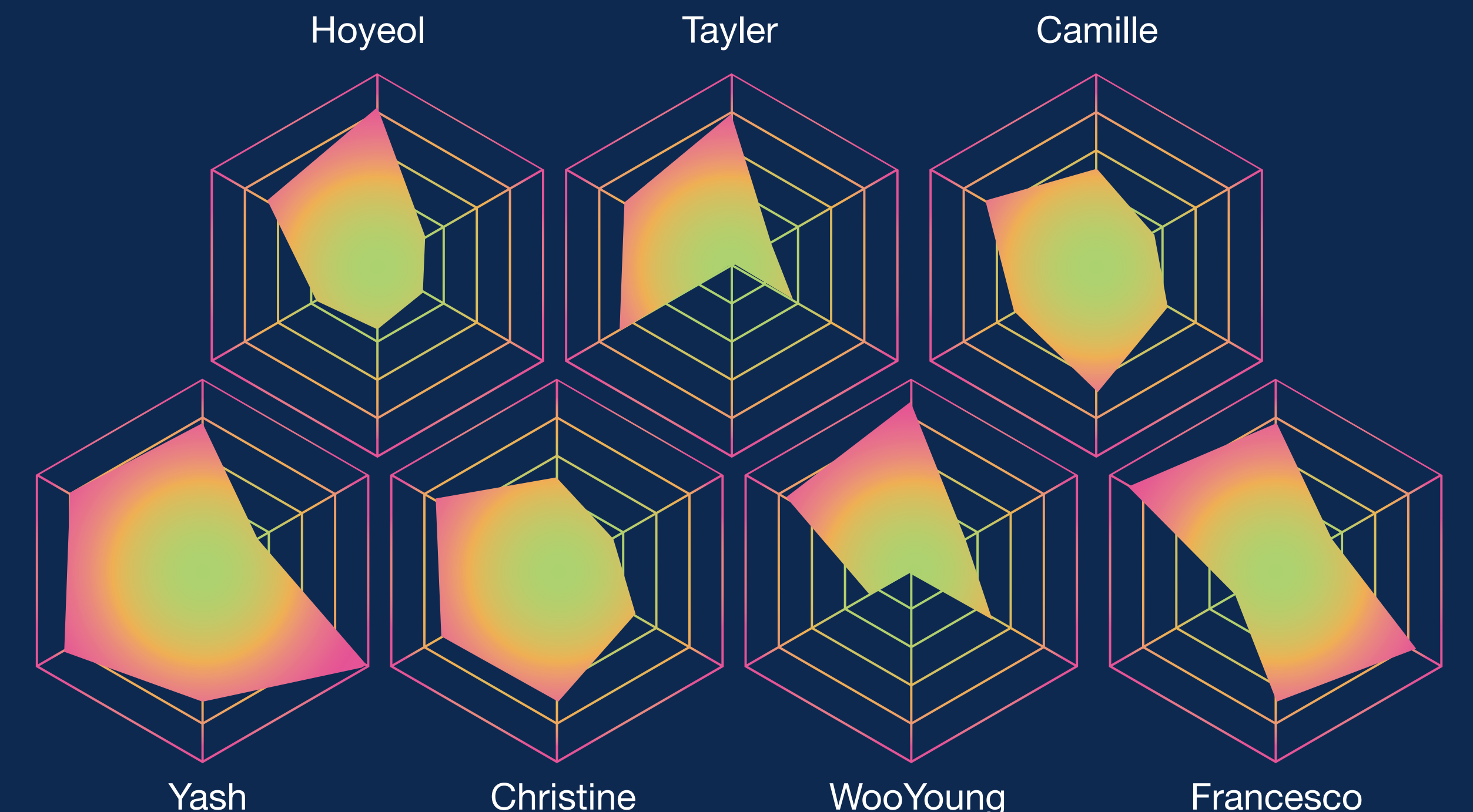
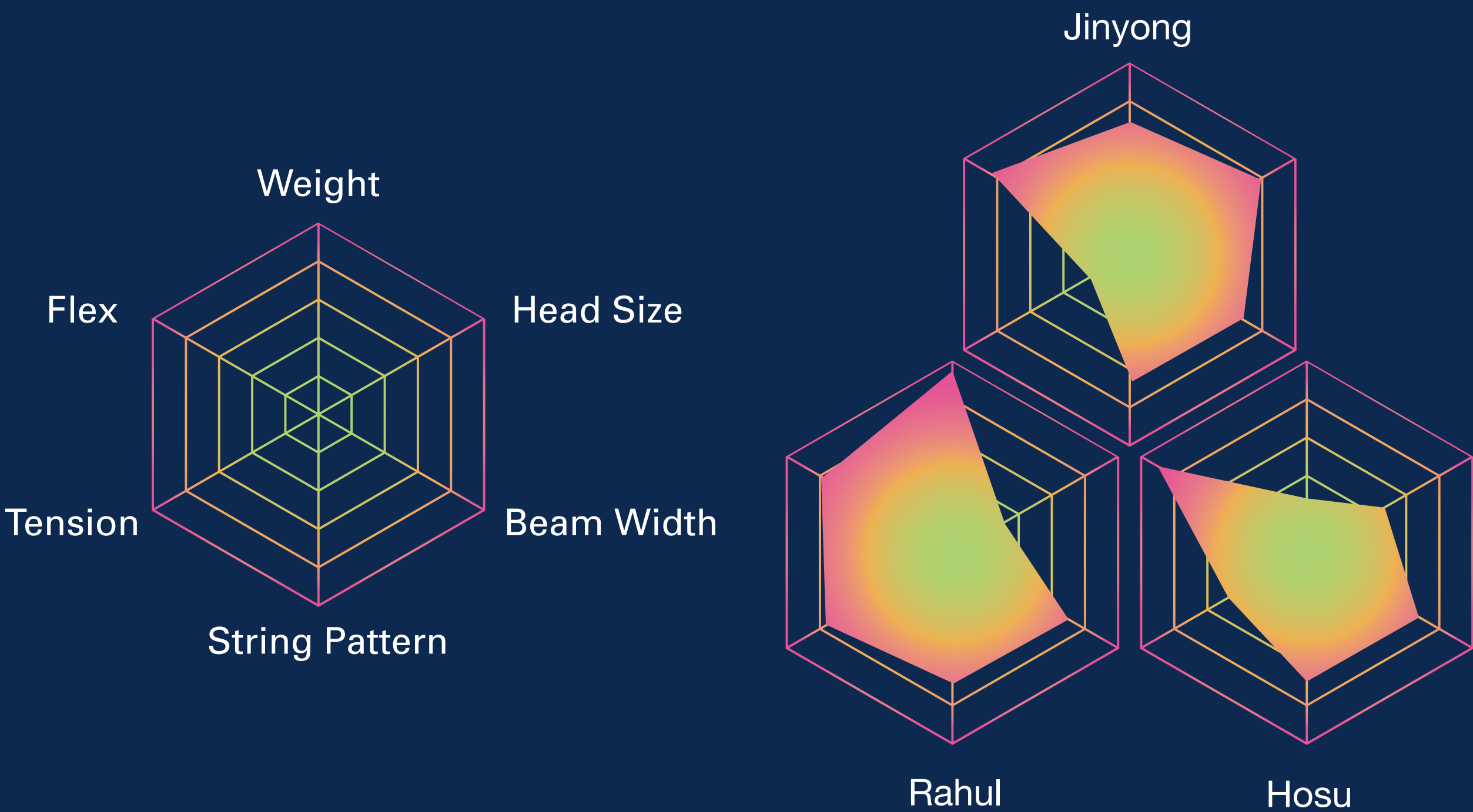
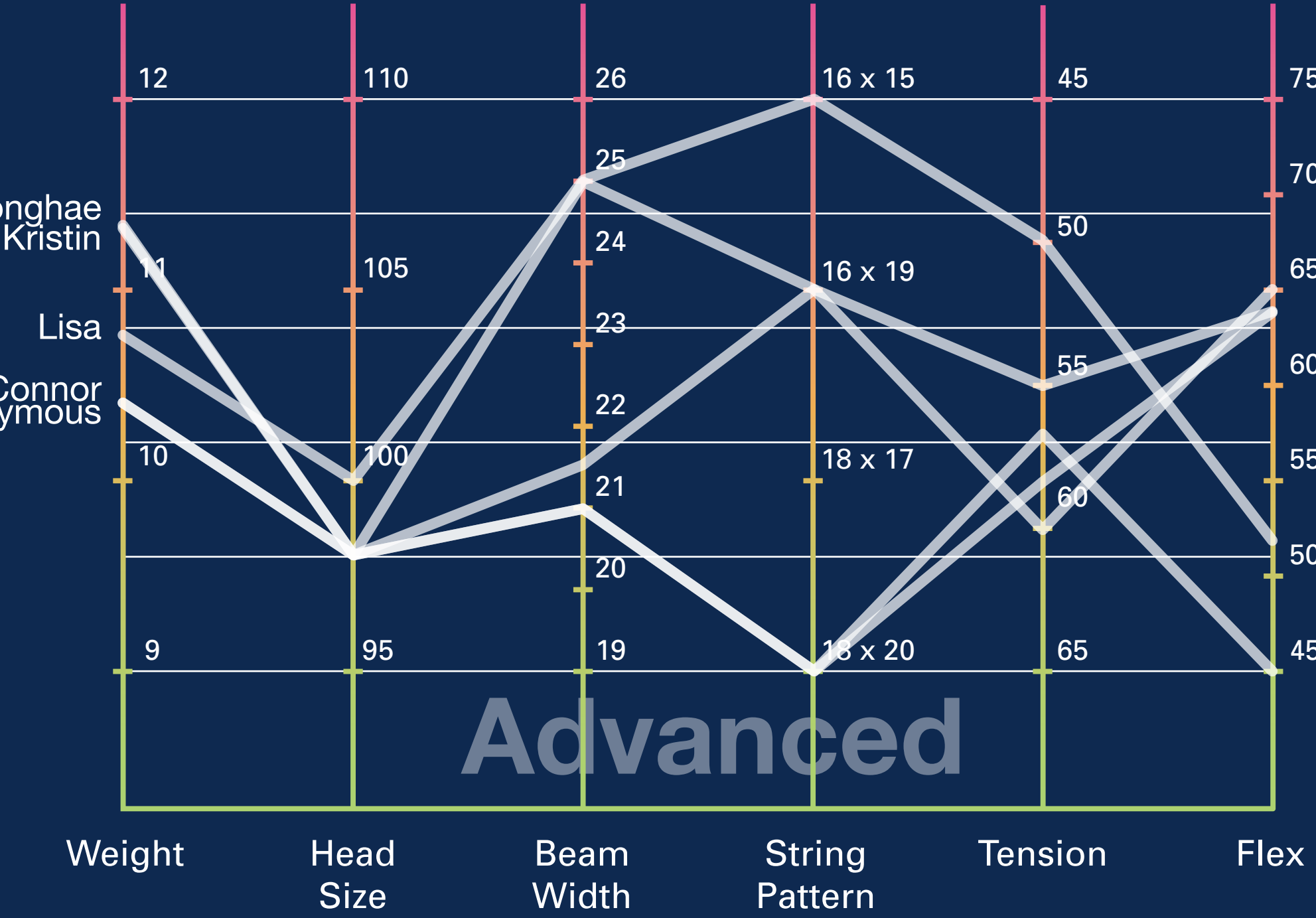
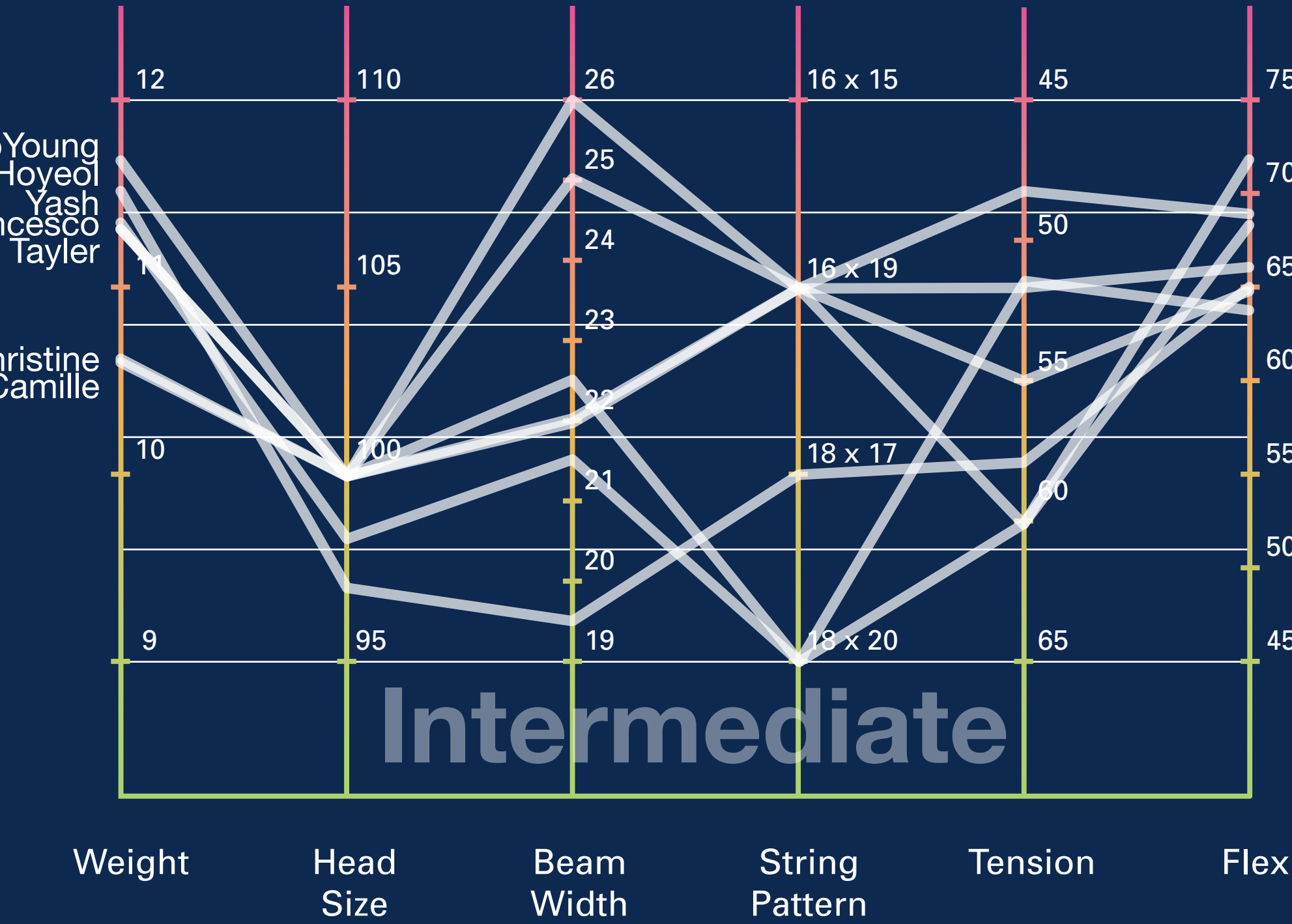
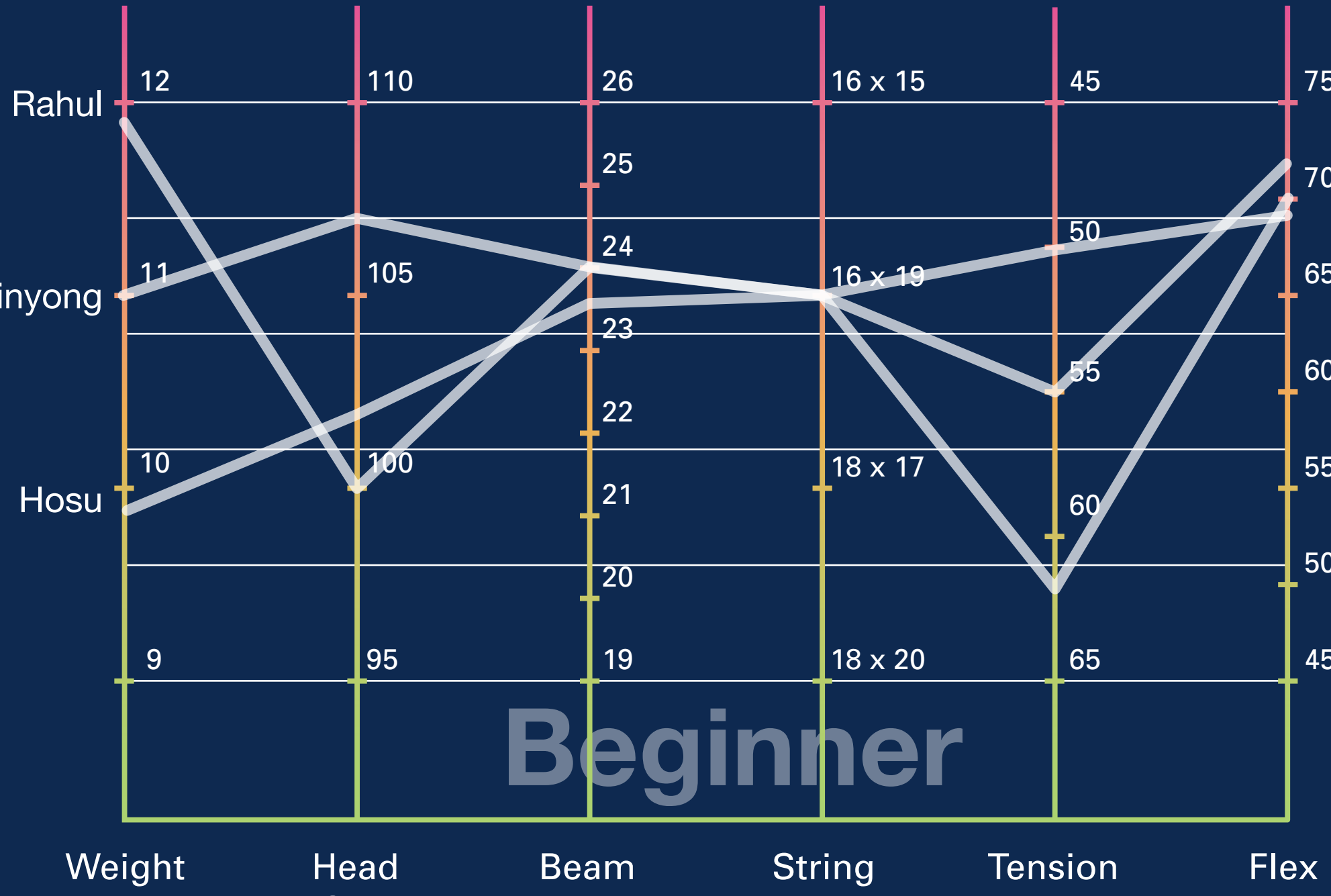
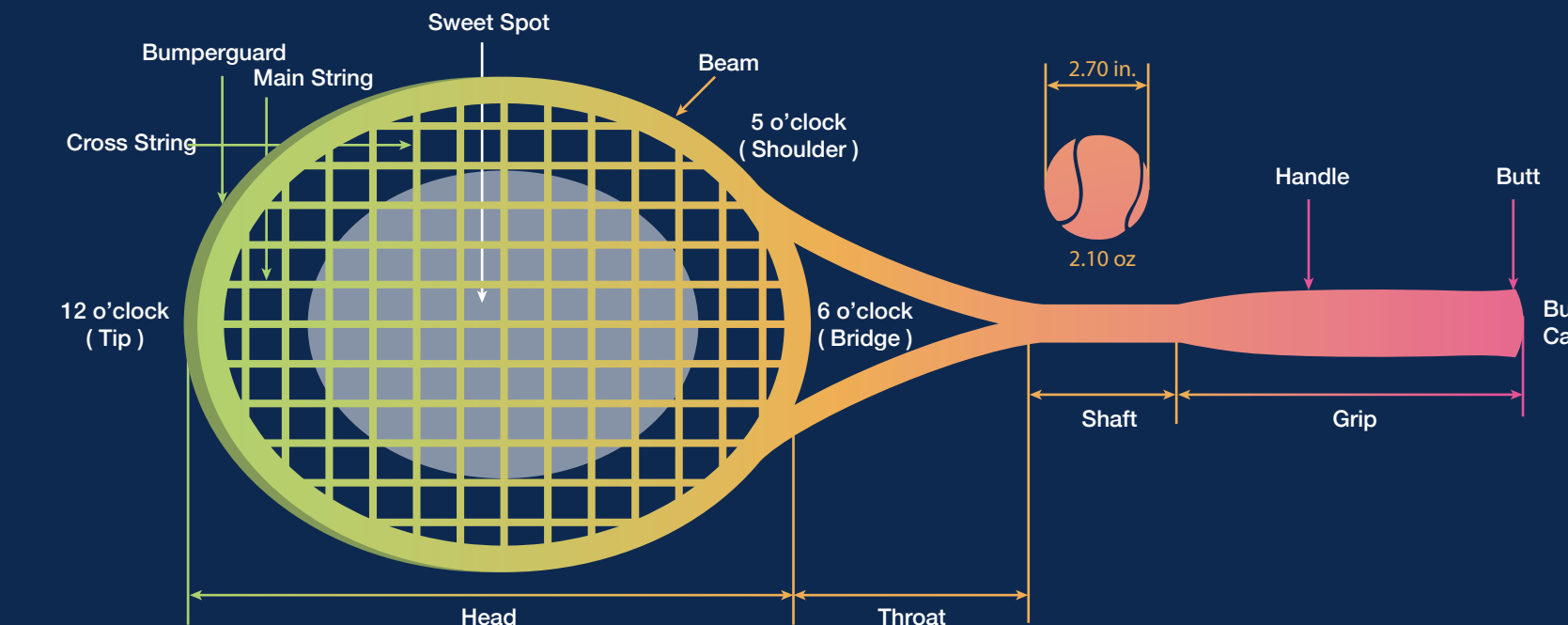


Weight

11 oz and up      10 - 11 oz      9 - 10 oz

Who needs a control frame?      Who needs a tweener frame?      Who needs a power frame?

- Players with fast, long, loopy swings  
· Players with considerable pace looking for added control  
· Physically imposing players  
· Advanced players
- Intermediate to advanced players looking to combine control and power  
· Junior players making the switch to an adult racket  
· Players looking to create more spin
- Players with short, compact swings  
· Players seeking easy power on serves and added depth on groundstrokes  
· Players needing a forgiving frame  
· Players with physical limitations



Control vs Power

Purpose of comparison

I visualized the information collected from the tennis rackets in a chart of hexagon shapes. I compared those shapes to understand what they mean and how they can be used.

How to get a survey?

The survey was conduct with members of tennis club at the University of Houston. 15 student members participated in this project and all survey answers were collected through the online Google forms.

Why hexagon?

There are many factors influencing to the character of tennis racket, but I chose 6 most influencing properties among them. Racket's weight, head size, beam width, string pattern, tension, and flex.

Quick Analysis

The shapes in the beginner group are relatively moderate than other groups. Some similar shapes are found in the intermediate group while extremely sharp shapes appear in the advanced group. I believe the reason that advanced player's shapes are sharper is they understand well about a racket and they choose a racket in a way of maximizing their preference between control and power.

Conclusion

I found a possibility of this hexagon shape analyzing. I would like to develop this analyzing tool further so that it helps beginner player to understand properties of tennis racket. Also, I hope that I can propose this analyzing tool to the racket manufacturer in future.