

```
In [1]: import numpy as np
import pandas as pd
import seaborn as sns
sns.set(style="whitegrid")
import matplotlib.pyplot as plt
from collections import Counter
%matplotlib inline
```

```
In [2]: import warnings
warnings.filterwarnings('ignore')
```

```
In [3]: fifa19=pd.read_csv(r"C:\Users\Sonu\OneDrive\Desktop\FIFA.csv")
```

```
In [4]: fifa19.head()
```

Out[4]:

	Unnamed: 0	ID	Name	Age	Photo	Nationality
0	0	158023	L. Messi	31	https://cdn.sofifa.org/players/4/19/158023.png	Argentina
1	1	20801	Cristiano Ronaldo	33	https://cdn.sofifa.org/players/4/19/20801.png	Portugal
2	2	190871	Neymar Jr	26	https://cdn.sofifa.org/players/4/19/190871.png	Brazil
3	3	193080	De Gea	27	https://cdn.sofifa.org/players/4/19/193080.png	Spain
4	4	192985	K. De Bruyne	27	https://cdn.sofifa.org/players/4/19/192985.png	Belgium

5 rows × 89 columns



```
In [5]: fifa19.info()
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 18207 entries, 0 to 18206
Data columns (total 89 columns):
 #   Column           Non-Null Count Dtype
 ---  -----
 0   Unnamed: 0        18207 non-null  int64
 1   ID               18207 non-null  int64
 2   Name              18207 non-null  object
 3   Age               18207 non-null  int64
 4   Photo              18207 non-null  object
 5   Nationality       18207 non-null  object
 6   Flag               18207 non-null  object
 7   Overall            18207 non-null  int64
 8   Potential           18207 non-null  int64
 9   Club               17966 non-null  object
 10  Club Logo          18207 non-null  object
 11  Value              18207 non-null  object
 12  Wage               18207 non-null  object
 13  Special             18207 non-null  int64
 14  Preferred Foot     18159 non-null  object
 15  International Reputation 18159 non-null  float64
 16  Weak Foot          18159 non-null  float64
 17  Skill Moves         18159 non-null  float64
 18  Work Rate            18159 non-null  object
 19  Body Type            18159 non-null  object
 20  Real Face            18159 non-null  object
 21  Position              18147 non-null  object
 22  Jersey Number        18147 non-null  float64
 23  Joined              16654 non-null  object
 24  Loaned From          1264 non-null  object
 25  Contract Valid Until 17918 non-null  object
 26  Height              18159 non-null  object
 27  Weight              18159 non-null  object
 28  LS                  16122 non-null  object
 29  ST                  16122 non-null  object
 30  RS                  16122 non-null  object
 31  LW                  16122 non-null  object
 32  LF                  16122 non-null  object
 33  CF                  16122 non-null  object
 34  RF                  16122 non-null  object
 35  RW                  16122 non-null  object
 36  LAM                 16122 non-null  object
 37  CAM                 16122 non-null  object
 38  RAM                 16122 non-null  object
 39  LM                  16122 non-null  object
 40  LCM                 16122 non-null  object
 41  CM                  16122 non-null  object
 42  RCM                 16122 non-null  object
 43  RM                  16122 non-null  object
 44  LWB                 16122 non-null  object
 45  LDM                 16122 non-null  object
 46  CDM                 16122 non-null  object
 47  RDM                 16122 non-null  object
 48  RWB                 16122 non-null  object
 49  LB                  16122 non-null  object
 50  LCB                 16122 non-null  object

```

```

51 CB           16122 non-null object
52 RCB          16122 non-null object
53 RB           16122 non-null object
54 Crossing     18159 non-null float64
55 Finishing    18159 non-null float64
56 HeadingAccuracy 18159 non-null float64
57 ShortPassing 18159 non-null float64
58 Volleys      18159 non-null float64
59 Dribbling    18159 non-null float64
60 Curve         18159 non-null float64
61 FKAccuracy   18159 non-null float64
62 LongPassing   18159 non-null float64
63 BallControl   18159 non-null float64
64 Acceleration 18159 non-null float64
65 SprintSpeed   18159 non-null float64
66 Agility        18159 non-null float64
67 Reactions      18159 non-null float64
68 Balance         18159 non-null float64
69 ShotPower      18159 non-null float64
70 Jumping         18159 non-null float64
71 Stamina         18159 non-null float64
72 Strength        18159 non-null float64
73 LongShots       18159 non-null float64
74 Aggression      18159 non-null float64
75 Interceptions  18159 non-null float64
76 Positioning     18159 non-null float64
77 Vision          18159 non-null float64
78 Penalties        18159 non-null float64
79 Composure        18159 non-null float64
80 Marking          18159 non-null float64
81 StandingTackle  18159 non-null float64
82 SlidingTackle   18159 non-null float64
83 GKDiving         18159 non-null float64
84 GKHandling       18159 non-null float64
85 GKKicking         18159 non-null float64
86 GKPositioning    18159 non-null float64
87 GKReflexes       18159 non-null float64
88 Release Clause   16643 non-null object
dtypes: float64(38), int64(6), object(45)
memory usage: 12.4+ MB

```

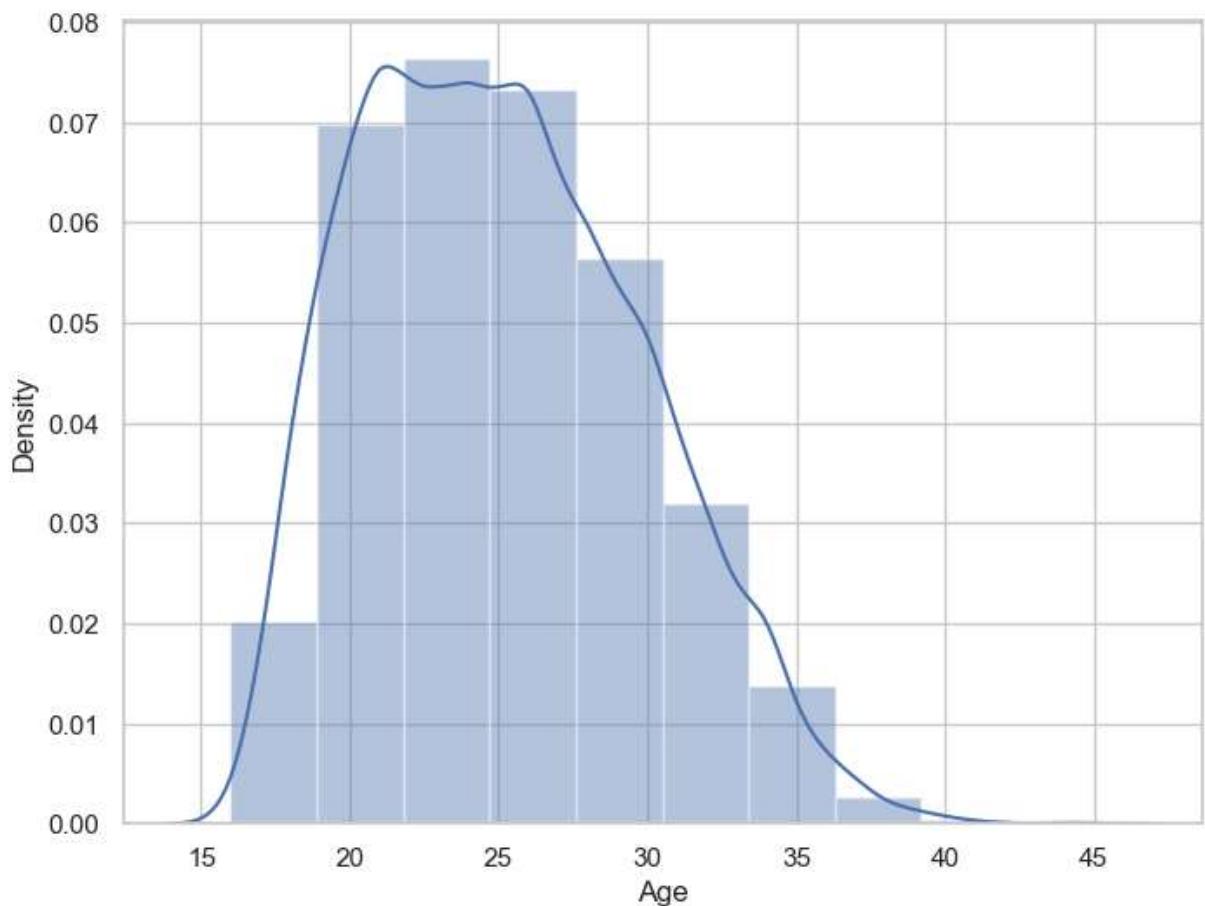
In [6]: `fifa19['Body Type'].value_counts()`

```

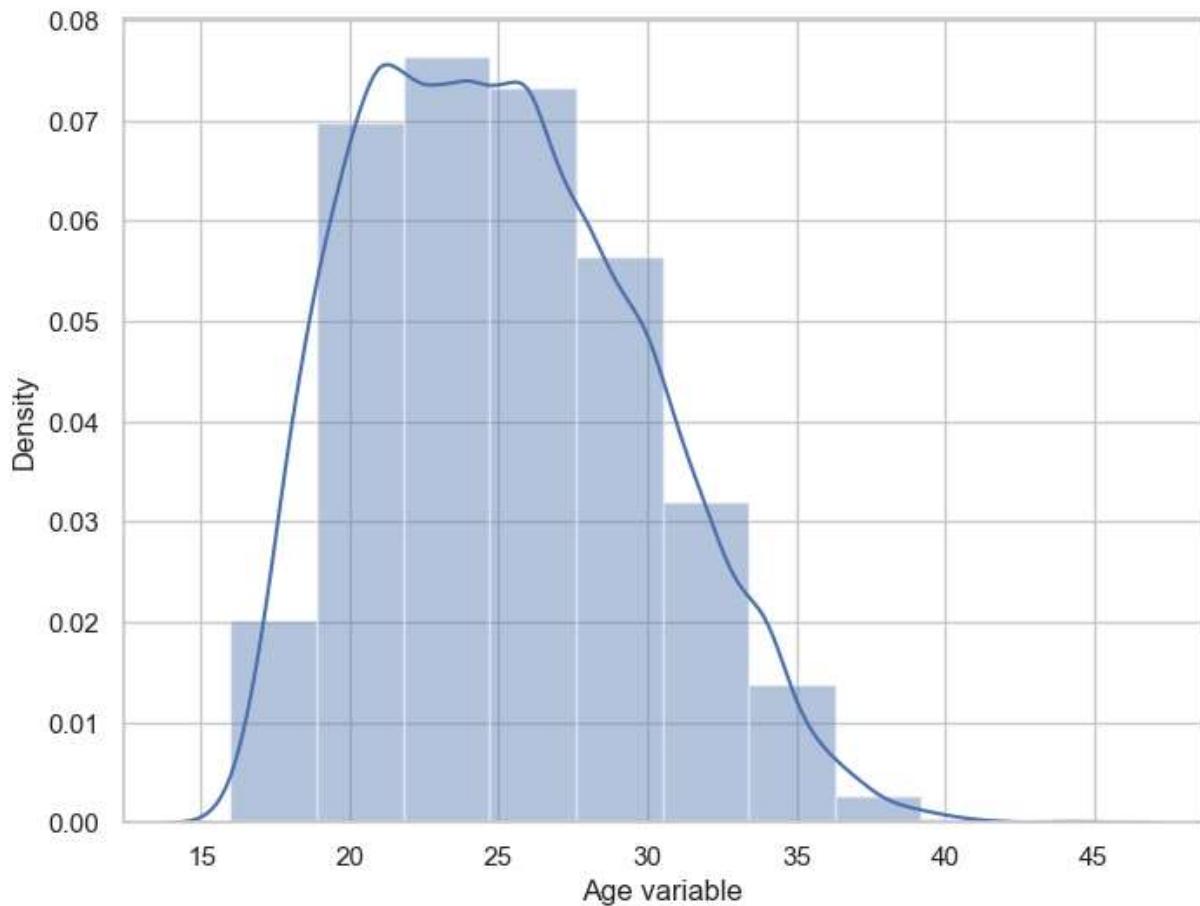
Out[6]: Body Type
Normal            10595
Lean              6417
Stocky             1140
Messi               1
C. Ronaldo          1
Neymar              1
Courtois             1
PLAYER_BODY_TYPE_25  1
Shaqiri              1
Akinfenwa            1
Name: count, dtype: int64

```

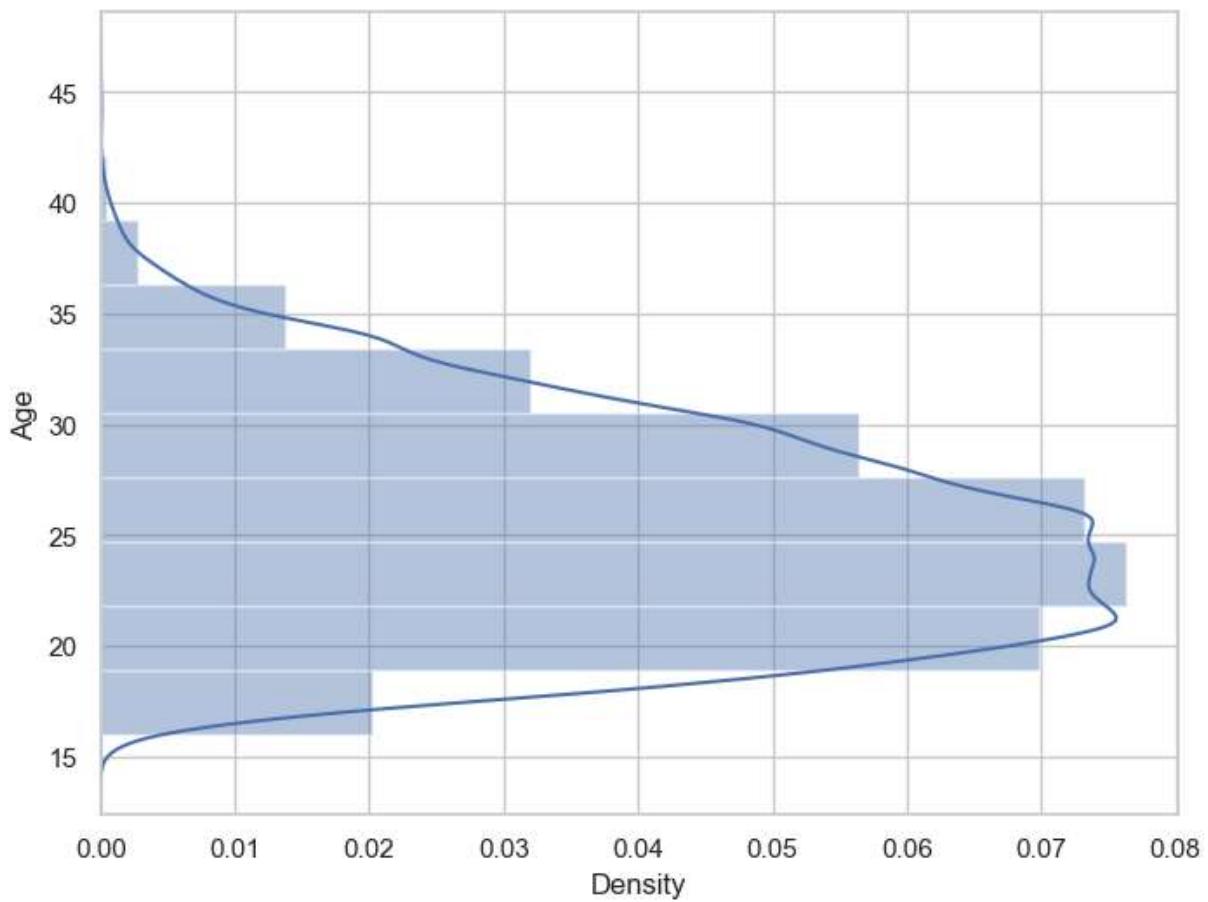
```
In [7]: f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
ax=sns.distplot(x,bins=10)
plt.show()
```



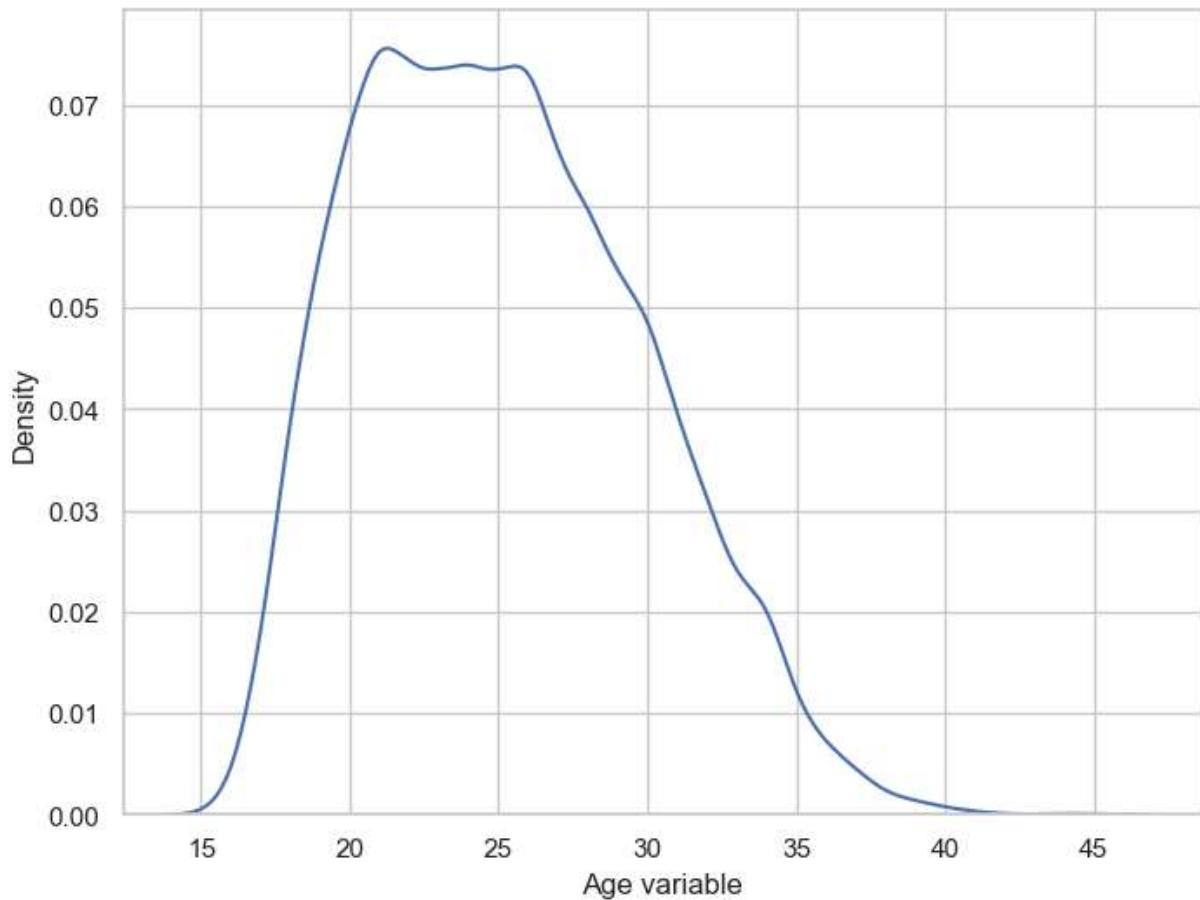
```
In [8]: f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
x=pd.Series(x,name="Age variable")
ax=sns.distplot(x,bins=10)
plt.show()
```



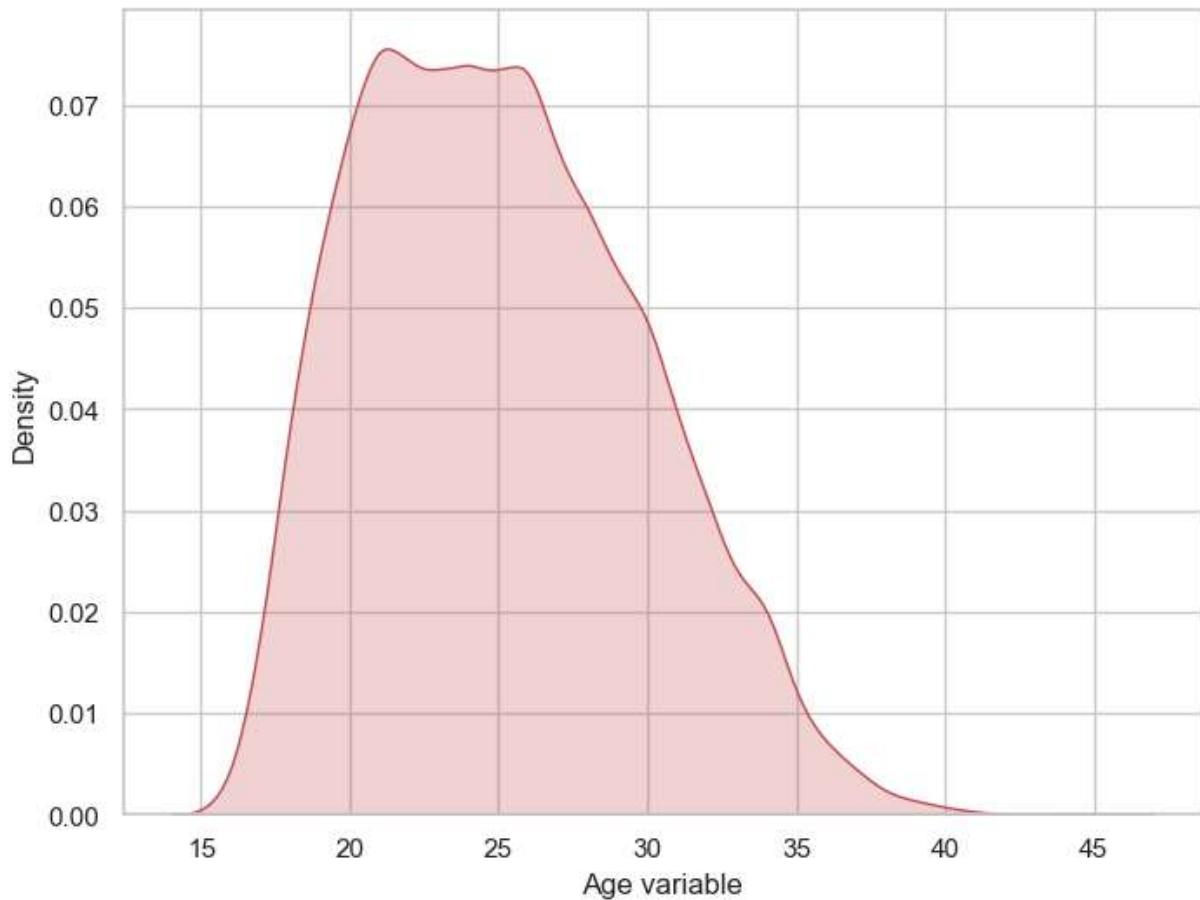
```
In [9]: f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
ax=sns.distplot(x,bins=10,vertical=True)
plt.show()
```



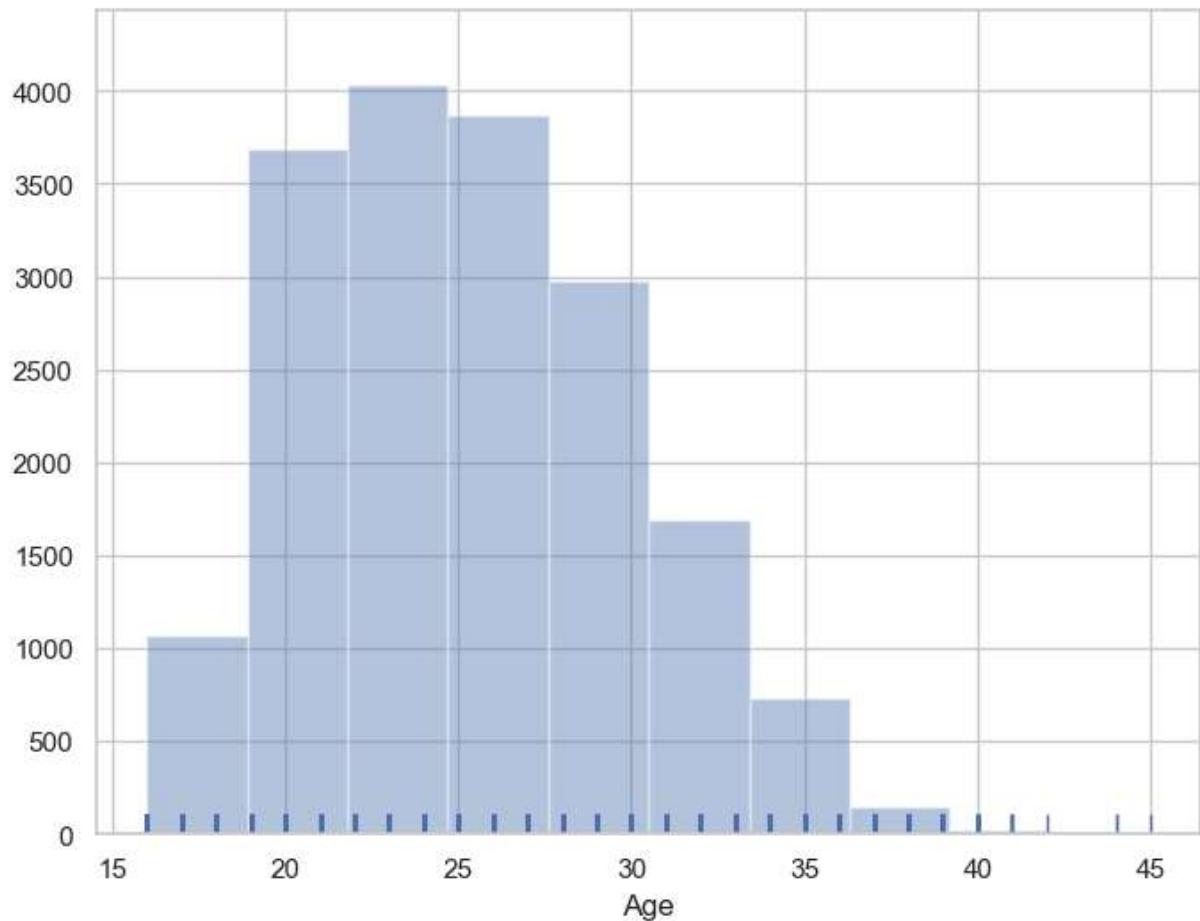
```
In [10]: f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
x=pd.Series(x,name="Age variable")
ax=sns.kdeplot(x)
plt.show()
```



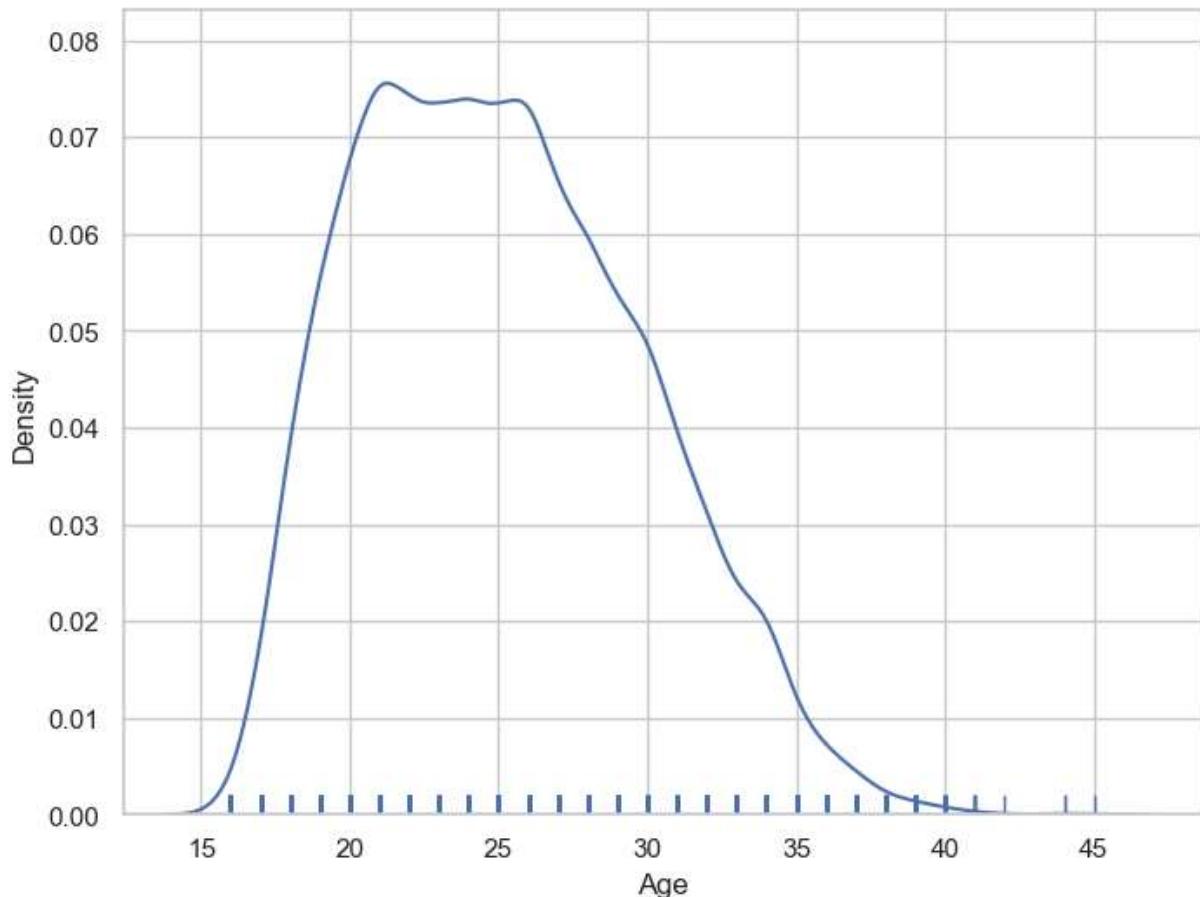
```
In [11]: f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
x=pd.Series(x,name="Age variable")
ax=sns.kdeplot(x,shade=True,color='r')
plt.show()
```



```
In [12]: f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
ax=sns.distplot(x,kde=False,rug=True,bins=10)
plt.show()
```



```
In [13]: f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
ax=sns.distplot(x,hist=False,rug=True,bins=10)
plt.show()
```



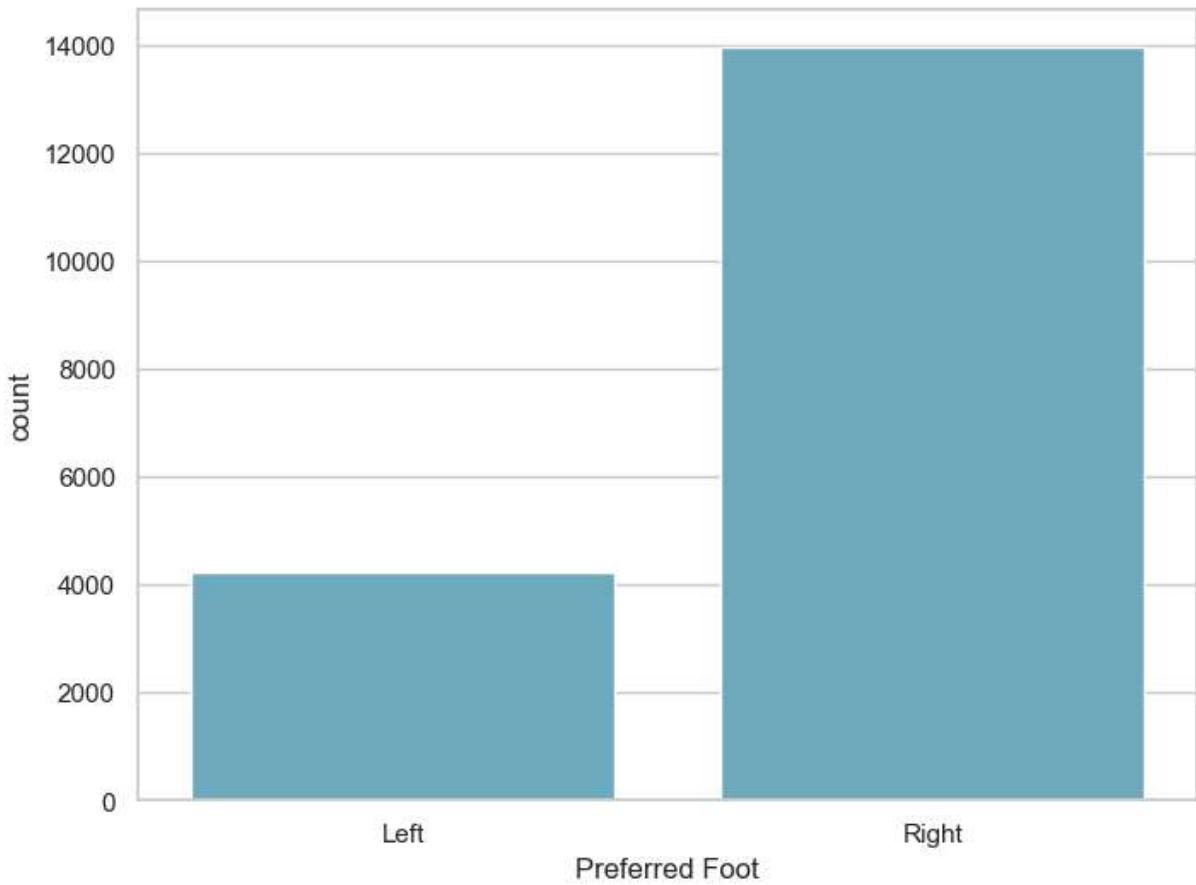
```
In [14]: fifa19['Preferred Foot'].nunique()
```

```
Out[14]: 2
```

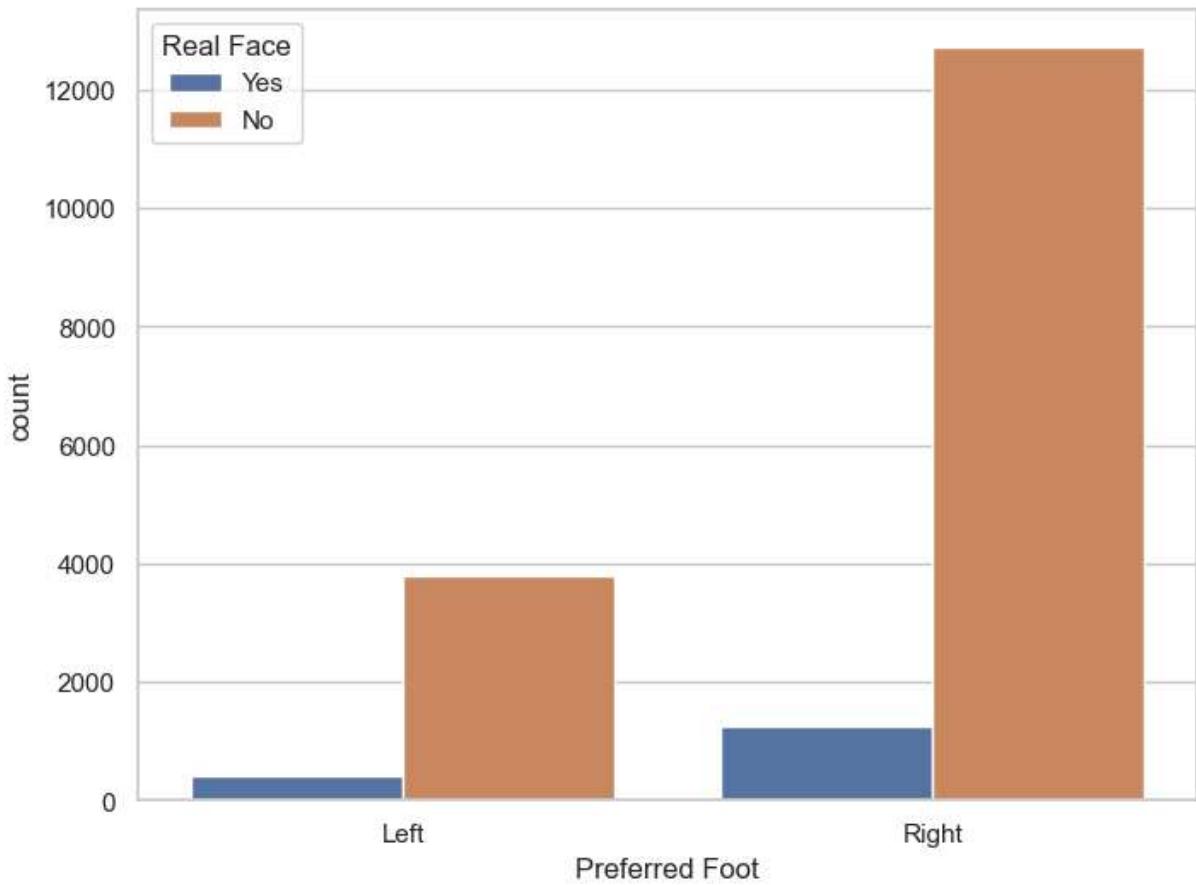
```
In [15]: fifa19['Preferred Foot'].value_counts()
```

```
Out[15]: Preferred Foot
Right      13948
Left       4211
Name: count, dtype: int64
```

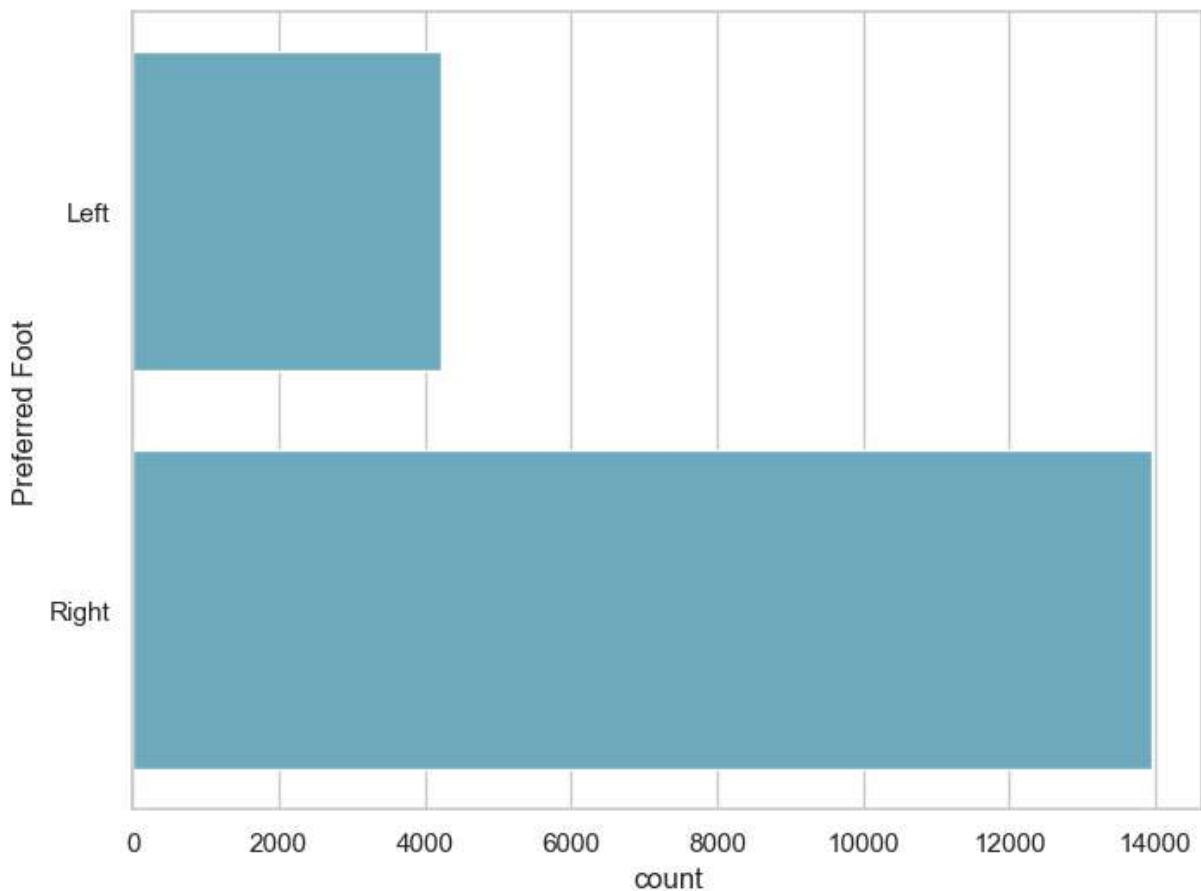
```
In [16]: f,ax=plt.subplots(figsize=(8,6))
sns.countplot(x="Preferred Foot",data=fifa19,color="c")
plt.show()
```



```
In [17]: f,ax=plt.subplots(figsize=(8,6))
sns.countplot(x="Preferred Foot",hue="Real Face",data=fifa19)
plt.show()
```

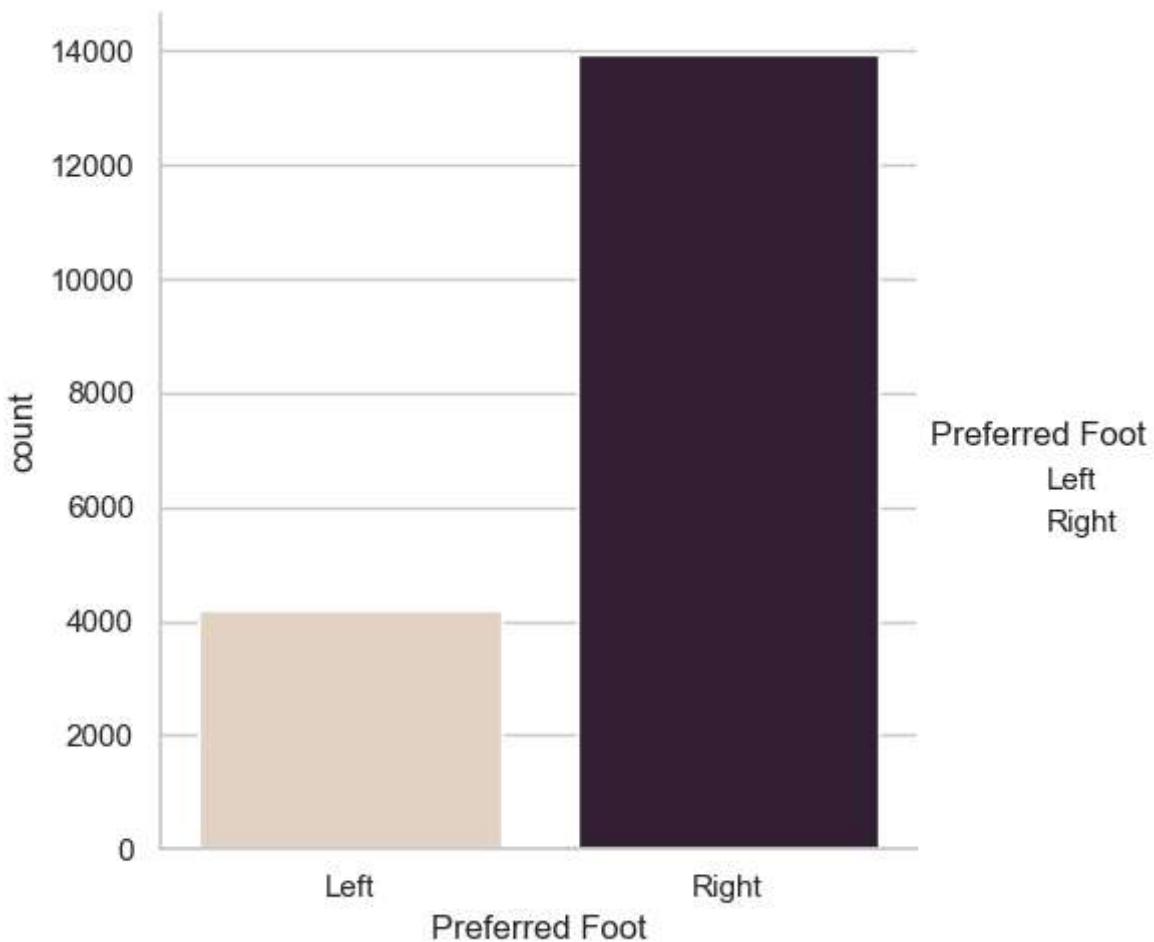


```
In [18]: f,ax=plt.subplots(figsize=(8,6))
sns.countplot(y="Preferred Foot",data=fifa19,color="c")
plt.show()
```



```
In [19]: g=sns.catplot(x="Preferred Foot",kind="count",palette="ch:.25",data=fifa19)
```

```
In [20]: g  
plt.show()
```



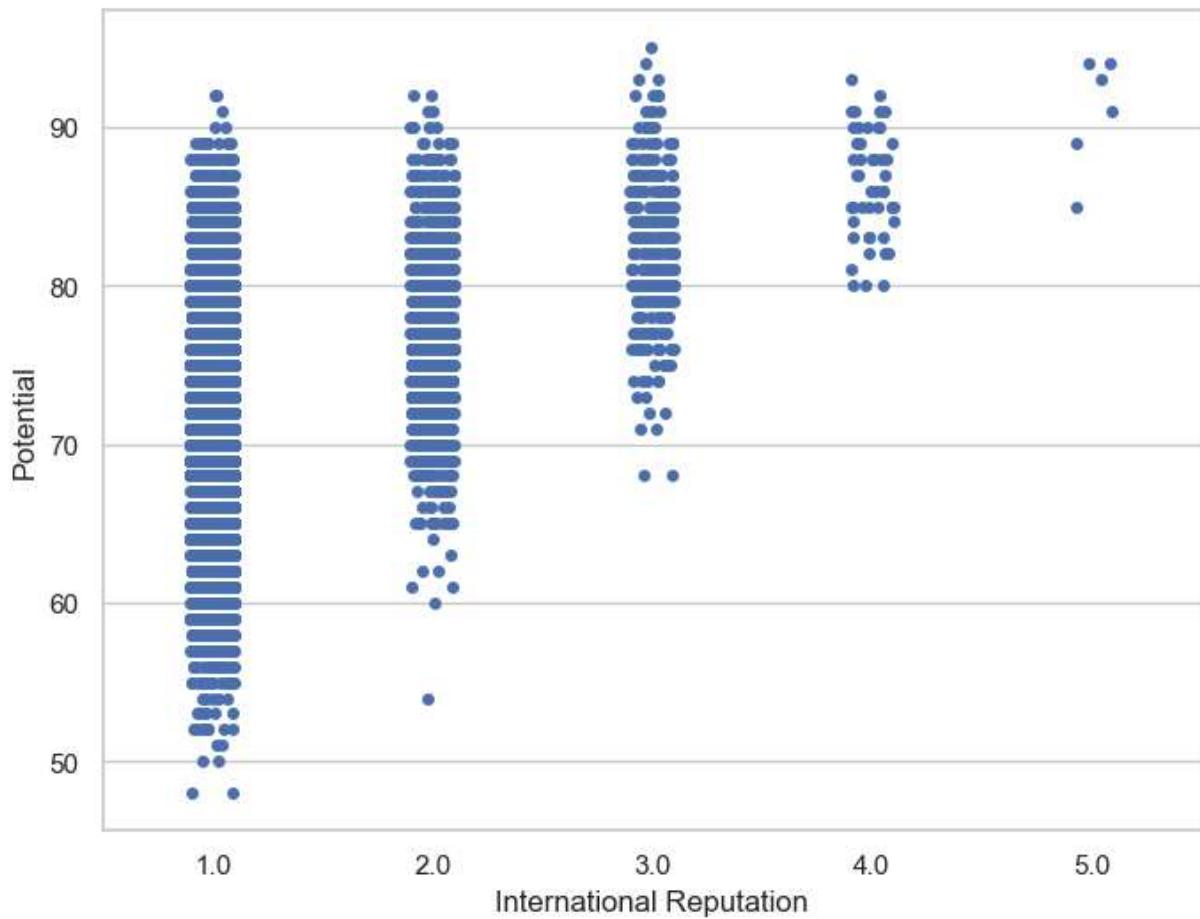
```
In [21]: fifa19['International Reputation'].nunique()
```

```
Out[21]: 5
```

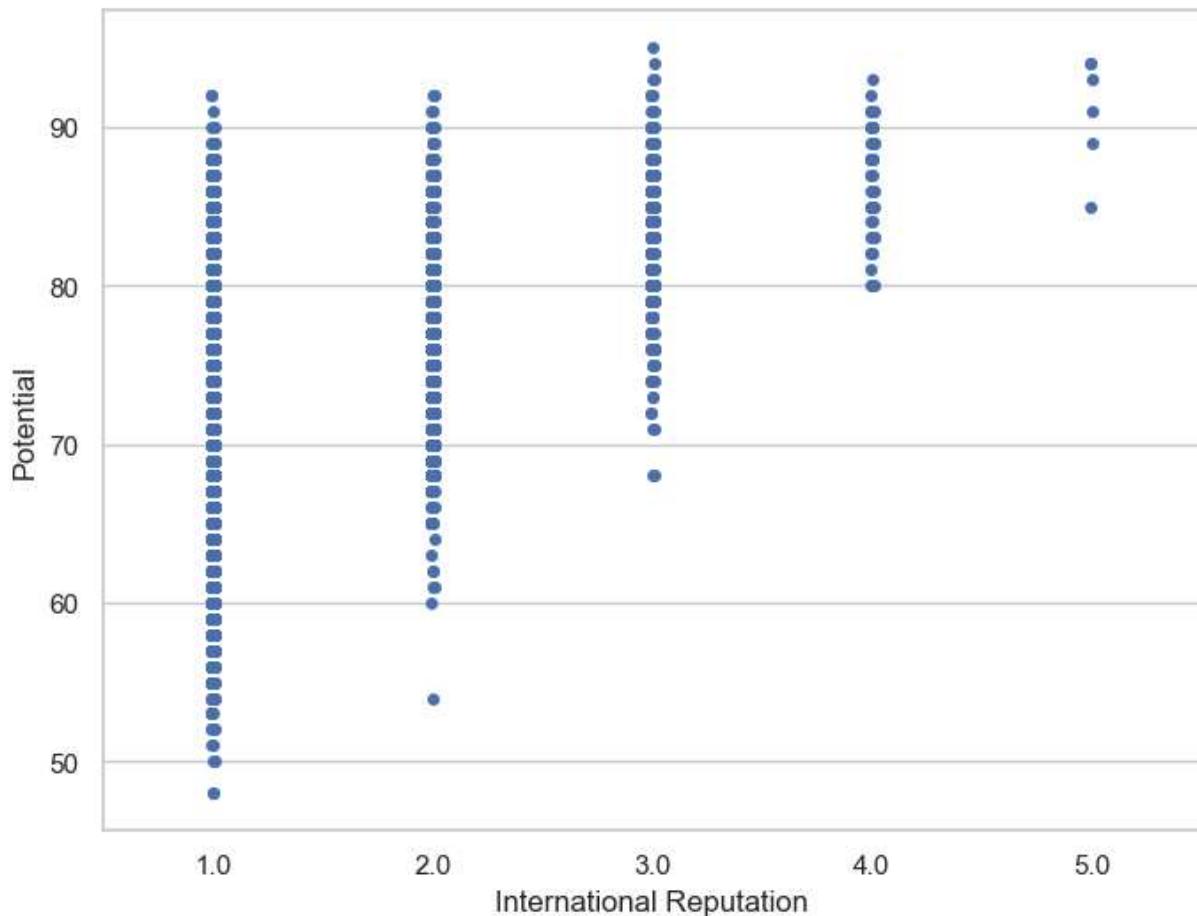
```
In [22]: fifa19['International Reputation'].value_counts()
```

```
Out[22]: International Reputation
1.0    16532
2.0    1261
3.0     309
4.0      51
5.0       6
Name: count, dtype: int64
```

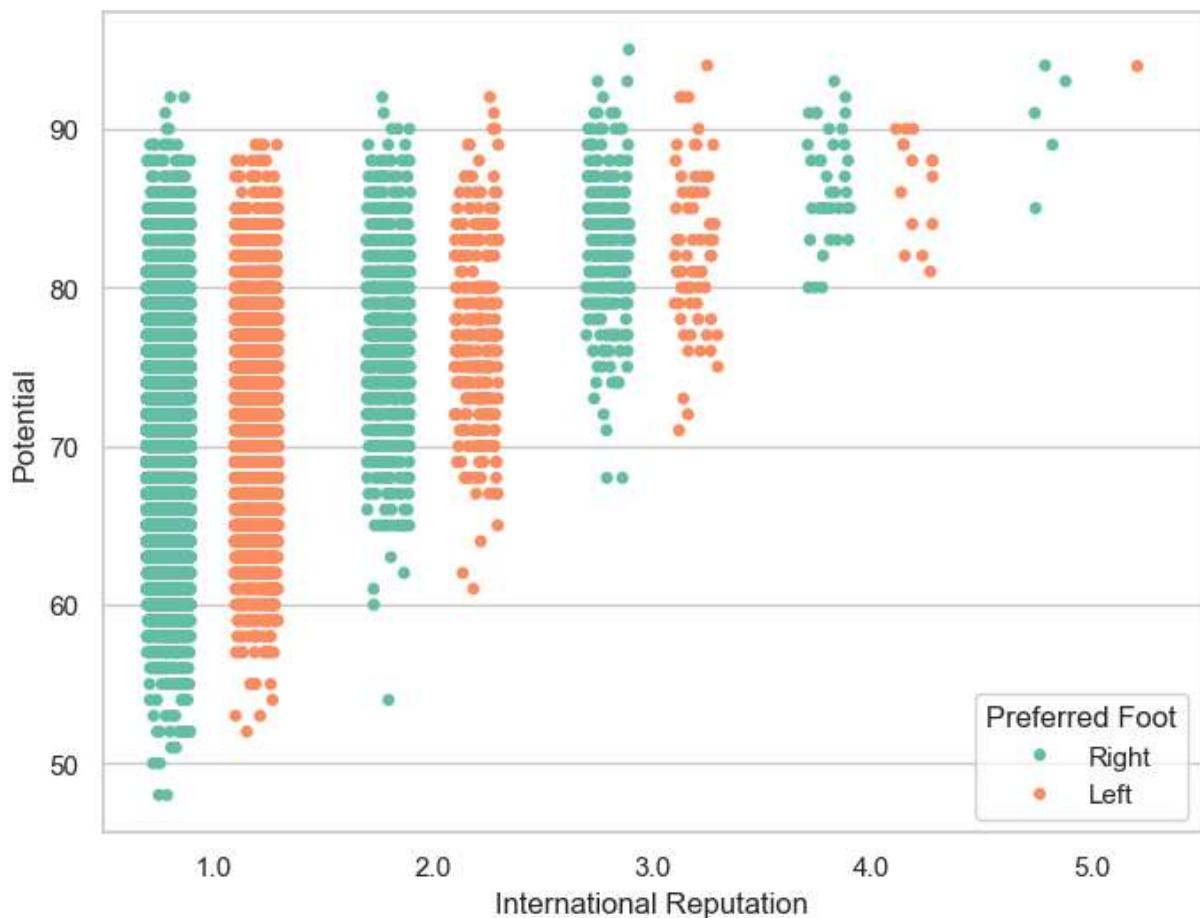
```
In [23]: f,ax=plt.subplots(figsize=(8,6))
sns.stripplot(x="International Reputation",y="Potential",data=fifa19)
plt.show()
```



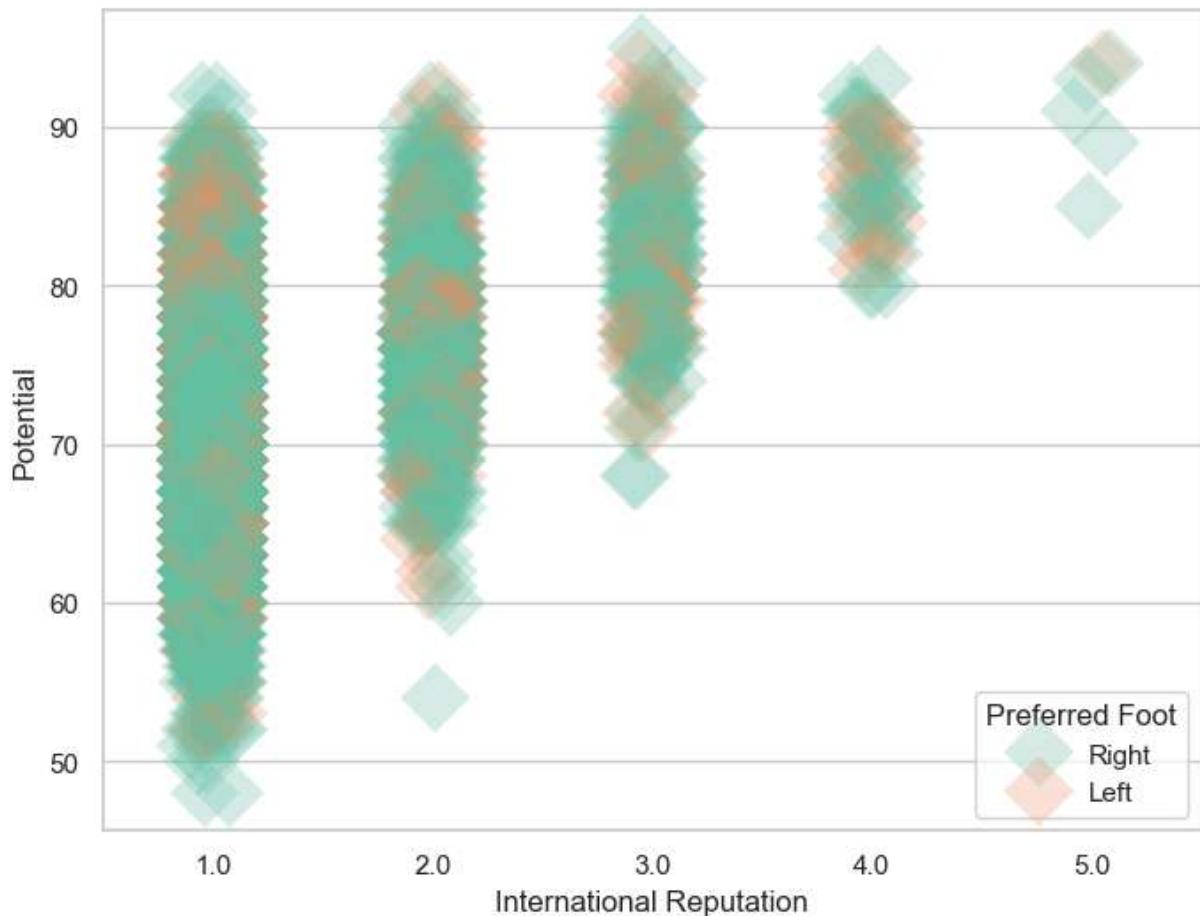
```
In [24]: f,ax=plt.subplots(figsize=(8,6))
sns.stripplot(x="International Reputation",y="Potential",data=fifa19,jitter=0.01)
plt.show()
```



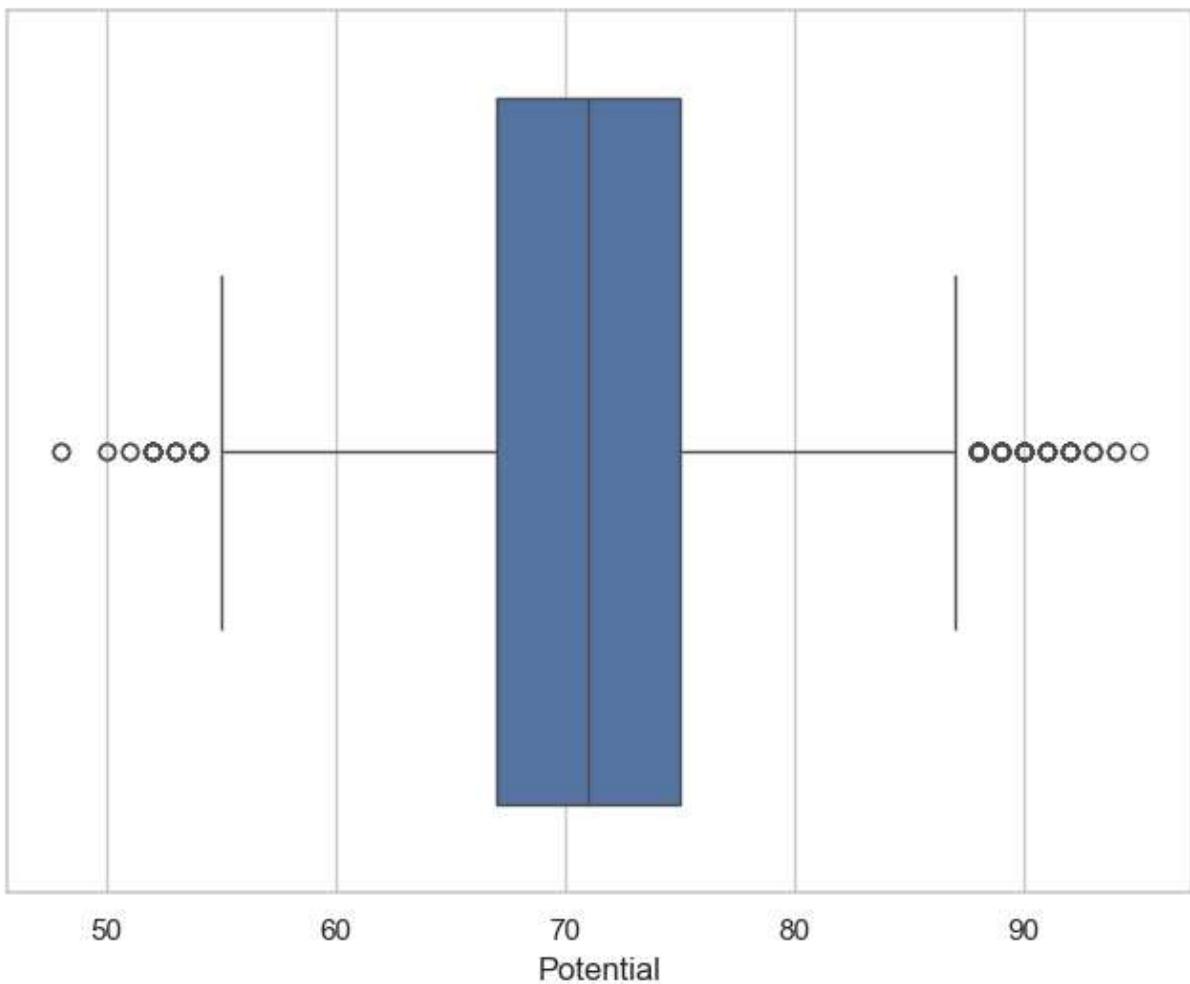
```
In [25]: f,ax=plt.subplots(figsize=(8,6))
sns.stripplot(x="International Reputation",y="Potential",hue="Preferred Foot",data=
plt.show()
```



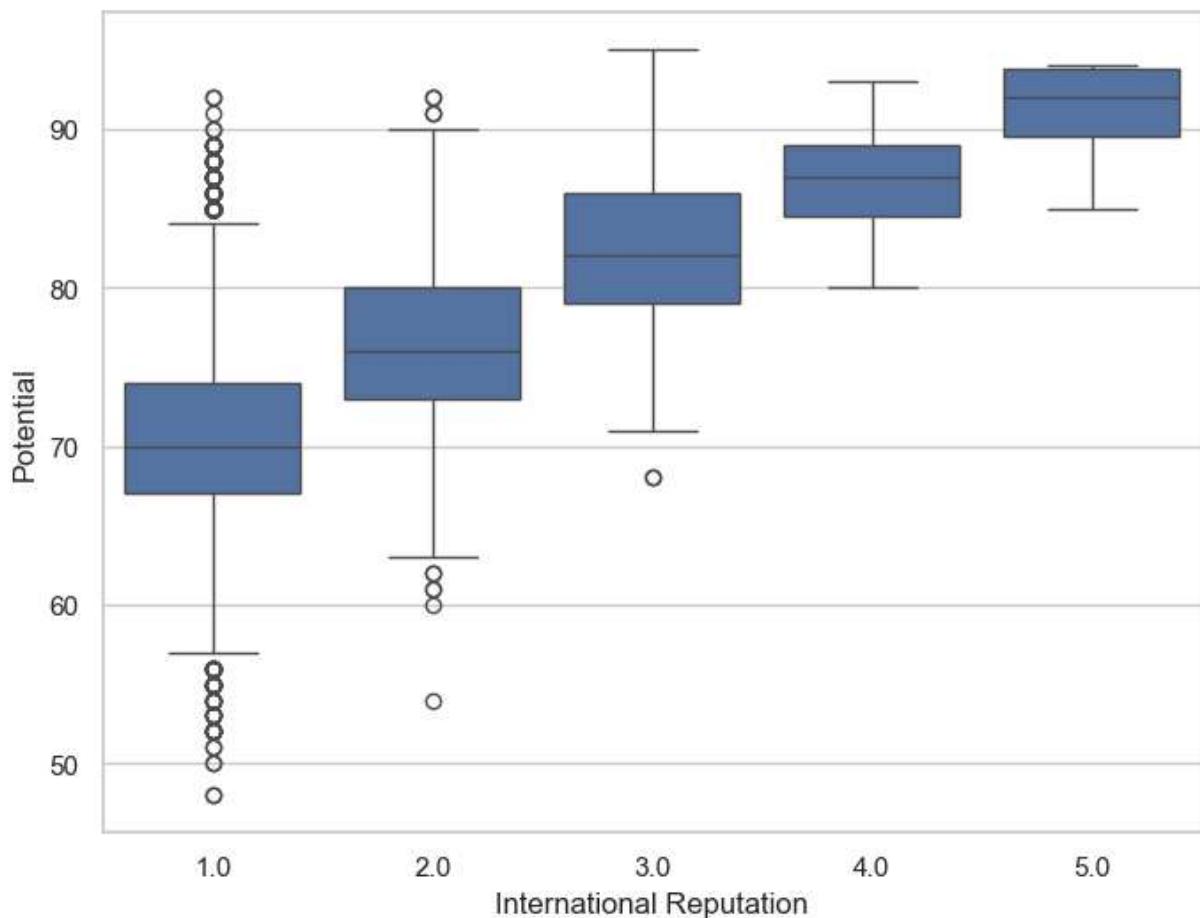
```
In [26]: f,ax=plt.subplots(figsize=(8,6))
sns.stripplot(x="International Reputation",y="Potential",hue="Preferred Foot",data=
plt.show()
```



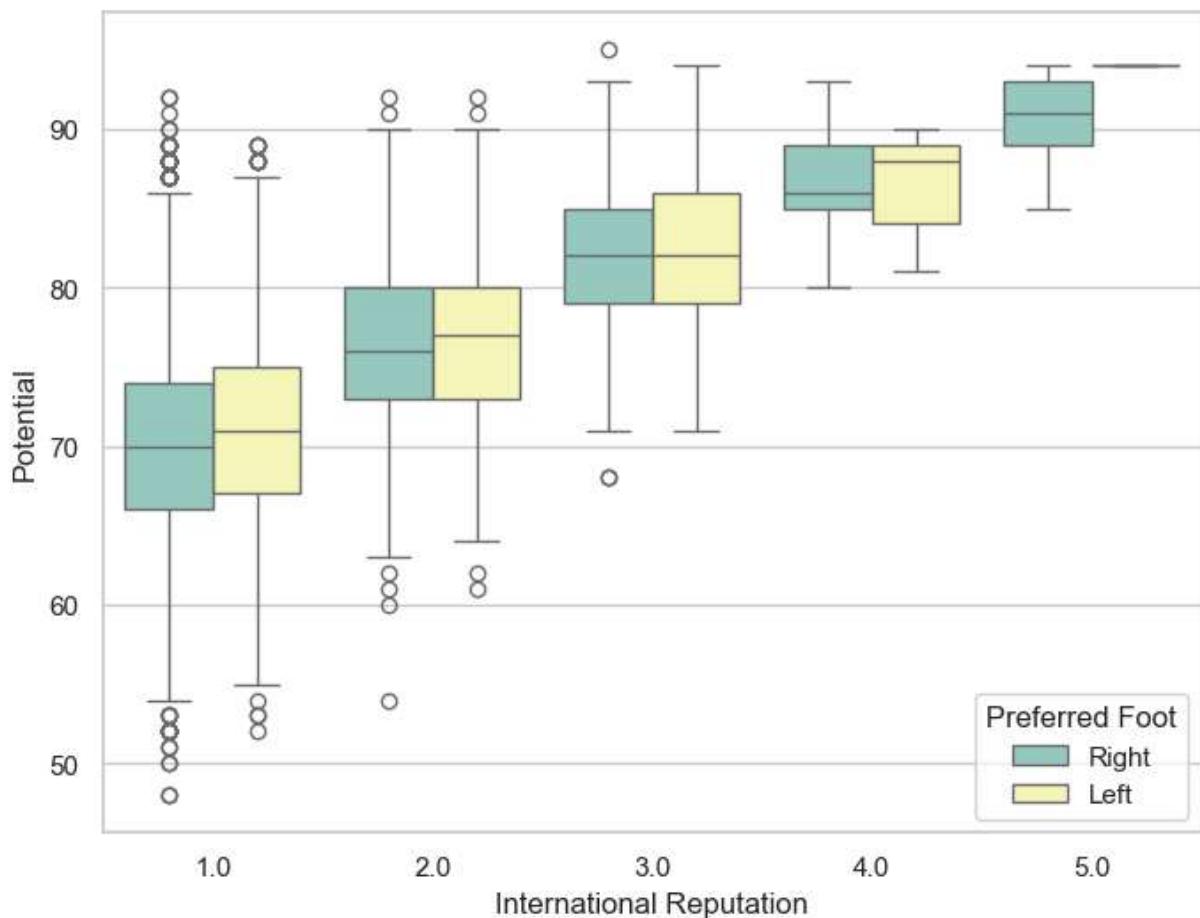
```
In [27]: f,ax=plt.subplots(figsize=(8,6))
sns.boxplot(x=fifa19["Potential"])
plt.show()
```



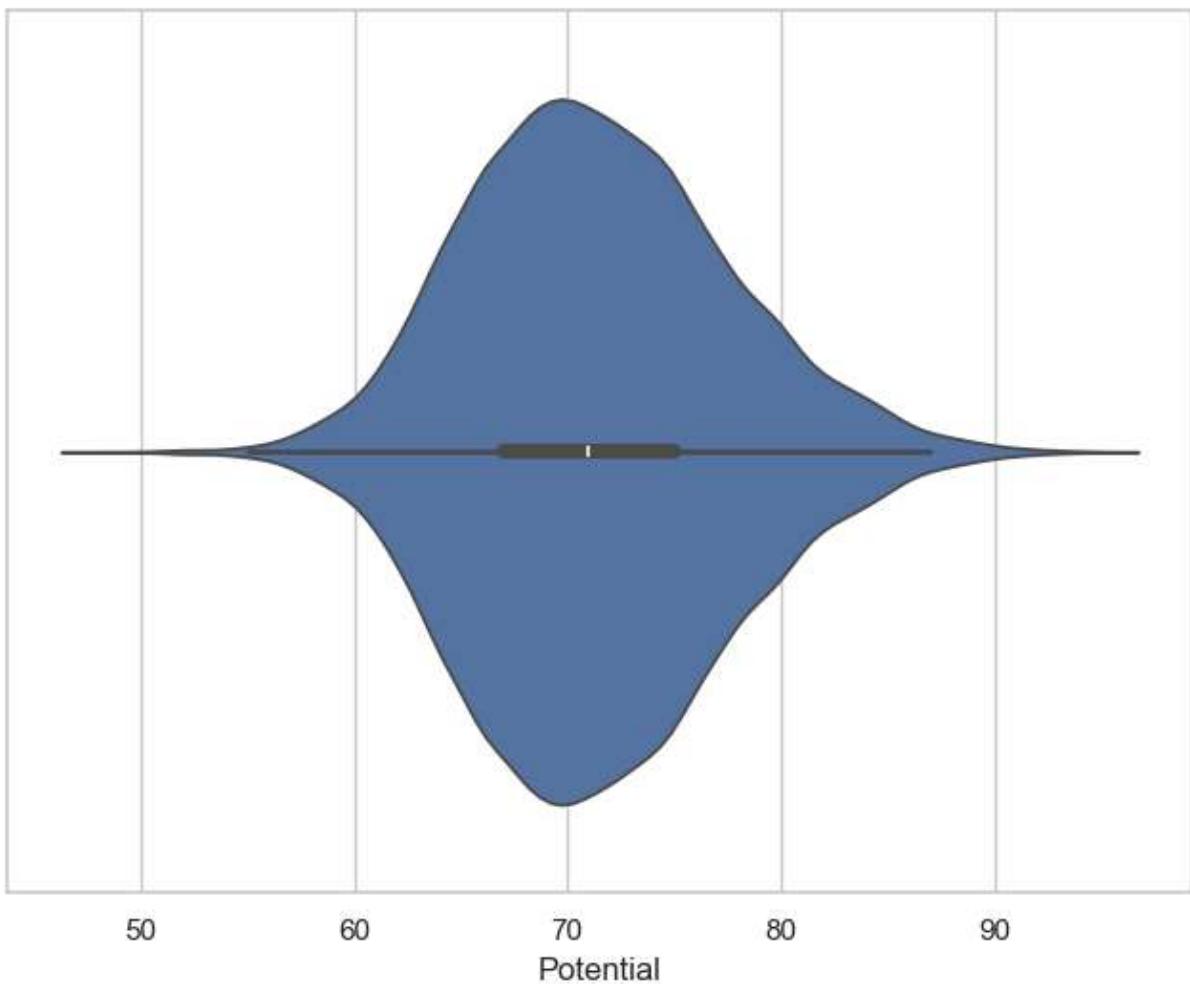
```
In [28]: f,ax=plt.subplots(figsize=(8,6))
sns.boxplot(x="International Reputation",y="Potential",data=fifa19)
plt.show()
```



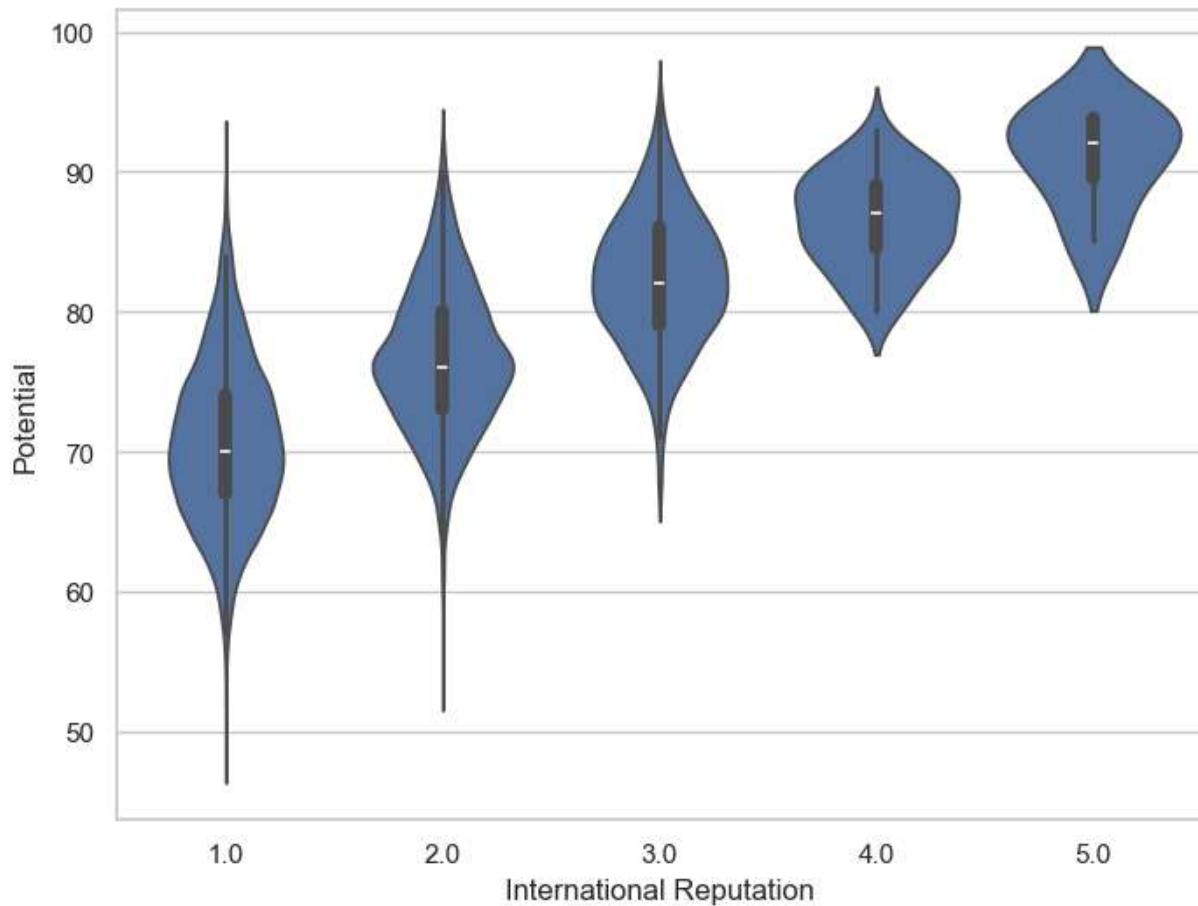
```
In [29]: f,ax=plt.subplots(figsize=(8,6))
sns.boxplot(x="International Reputation",y="Potential",hue="Preferred Foot",data=f)
plt.show()
```



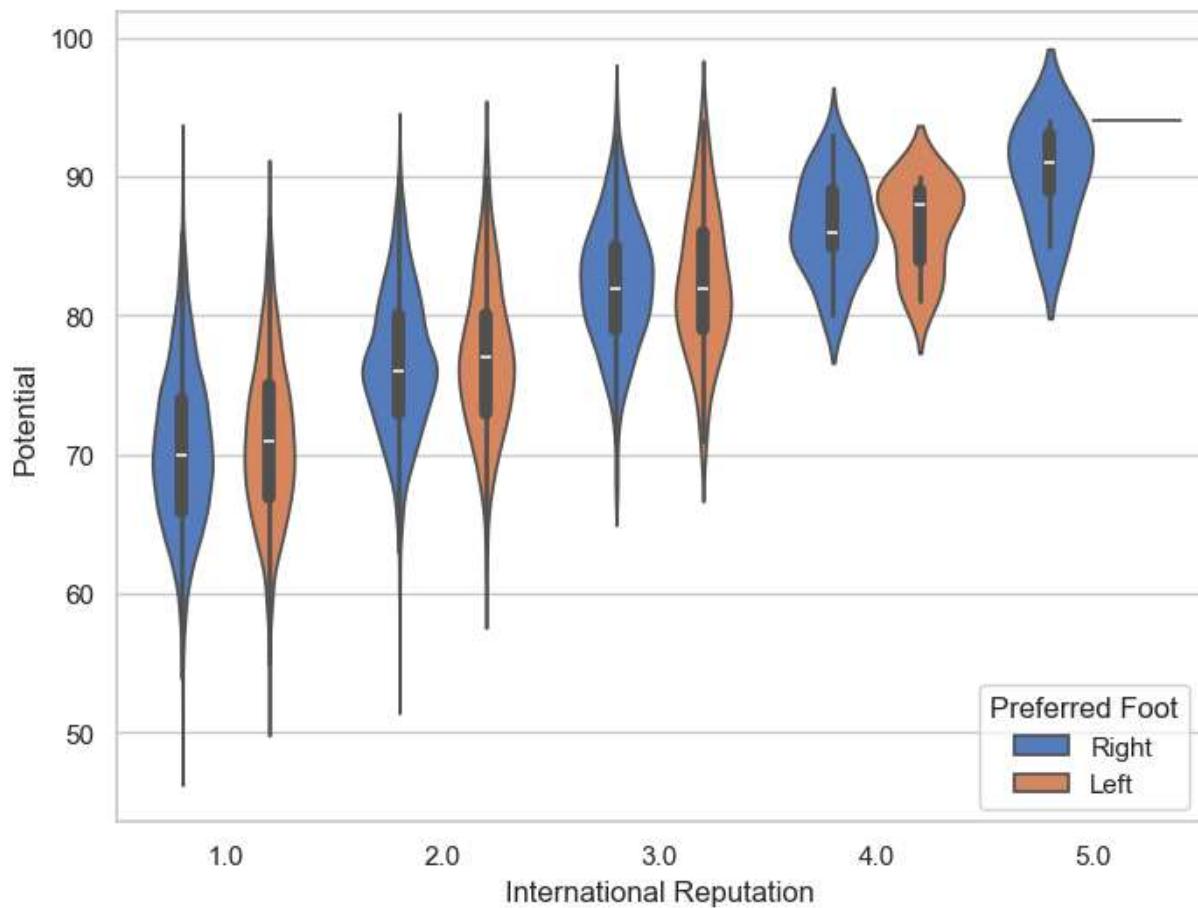
```
In [30]: f,ax=plt.subplots(figsize=(8,6))
sns.violinplot(x=fifa19["Potential"])
plt.show()
```



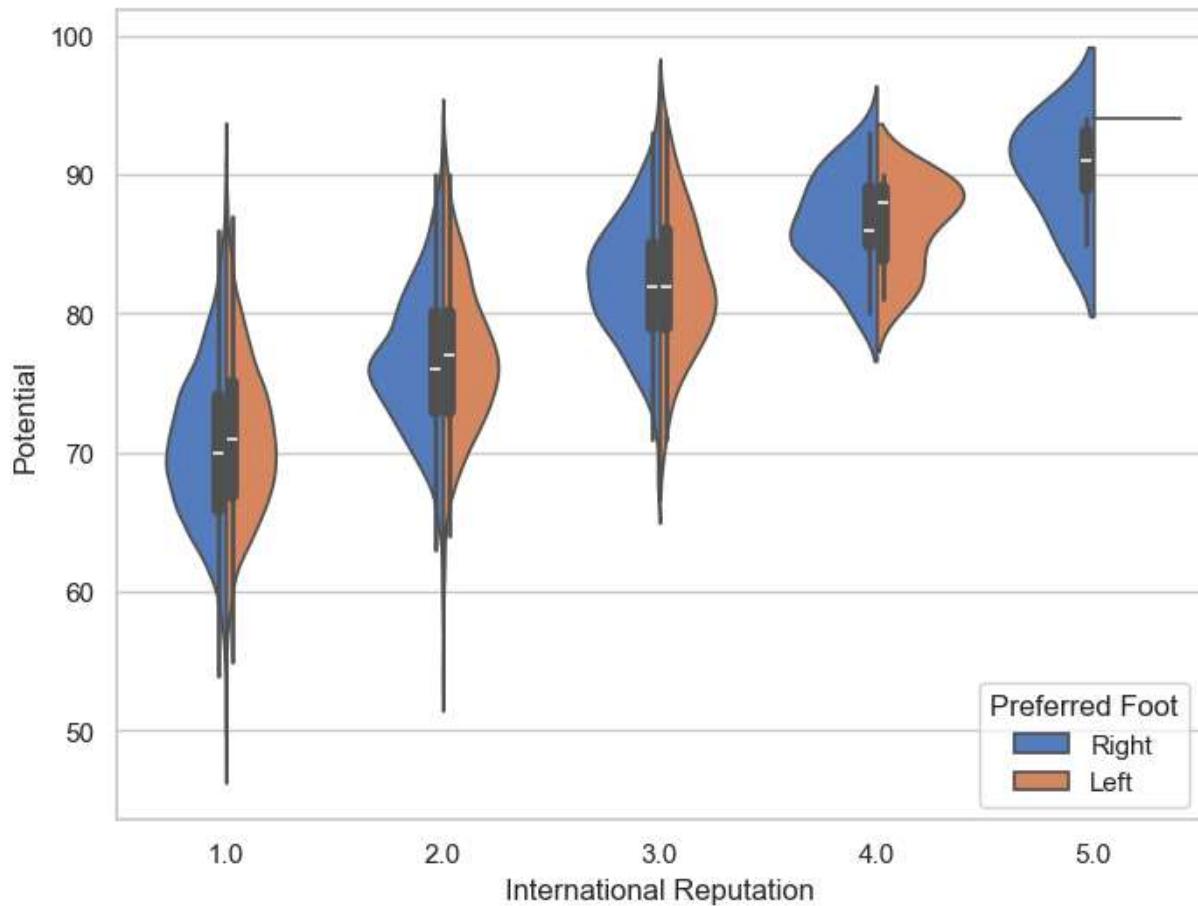
```
In [31]: f,ax=plt.subplots(figsize=(8,6))
sns.violinplot(x="International Reputation",y="Potential",data=fifa19)
plt.show()
```



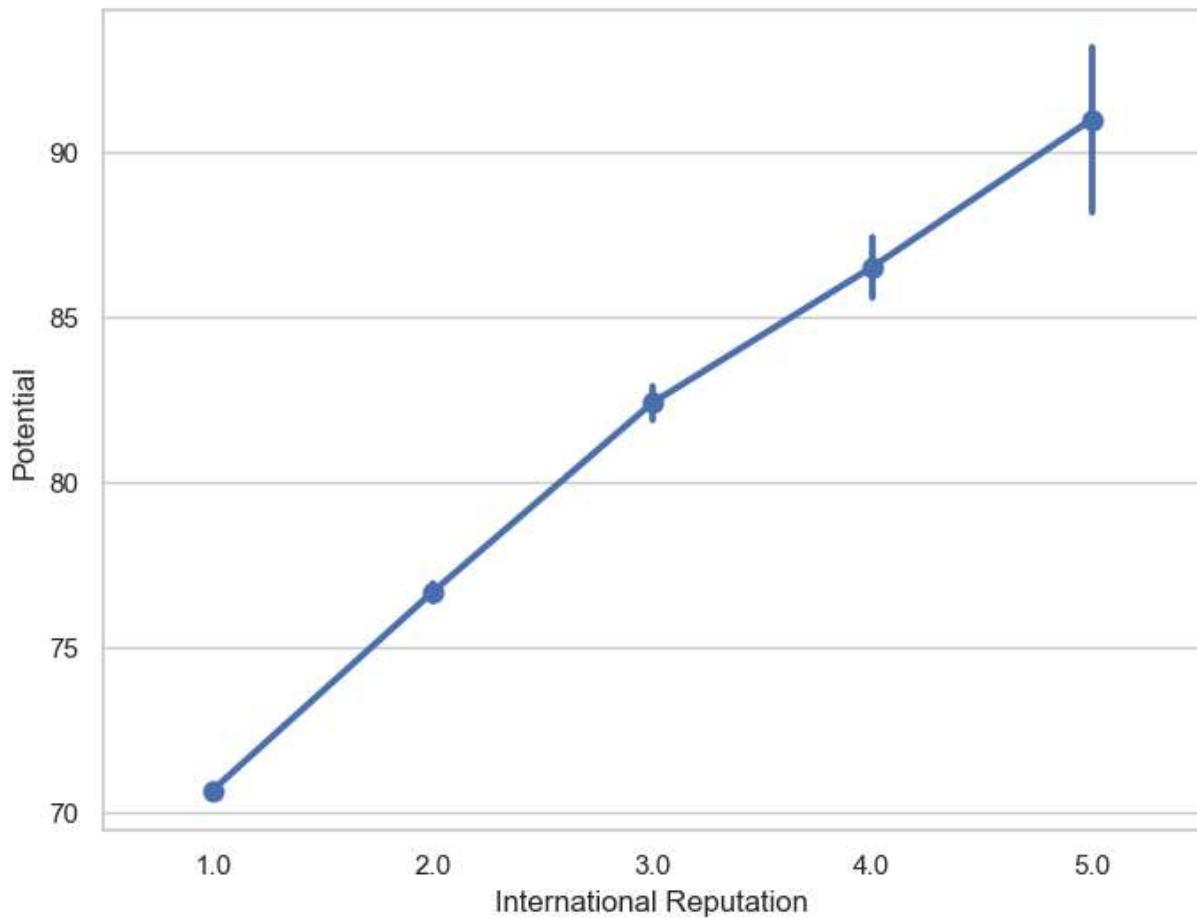
```
In [32]: f,ax=plt.subplots(figsize=(8,6))
sns.violinplot(x="International Reputation",y="Potential",hue="Preferred Foot",data
plt.show()
```



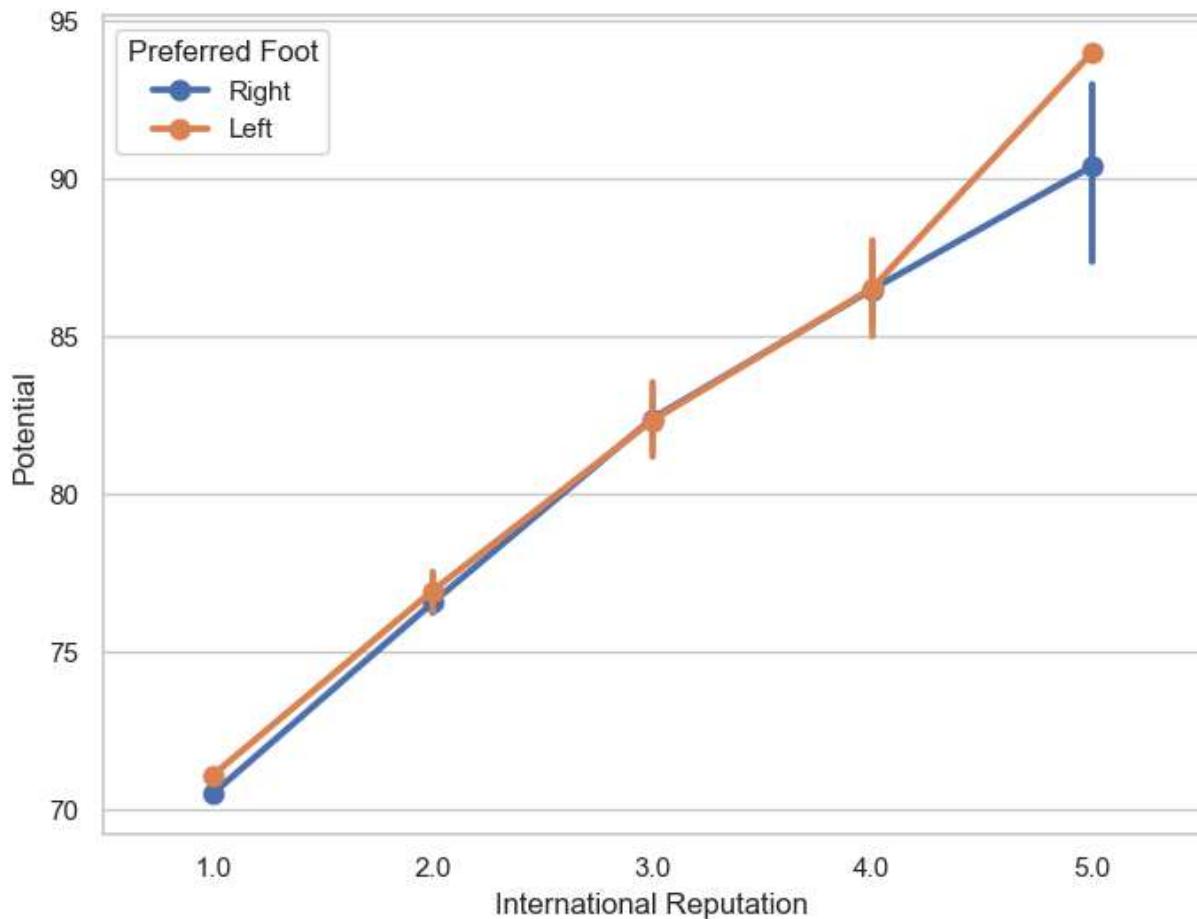
```
In [33]: f,ax=plt.subplots(figsize=(8,6))
sns.violinplot(x="International Reputation",y="Potential",hue="Preferred Foot",data
plt.show()
```



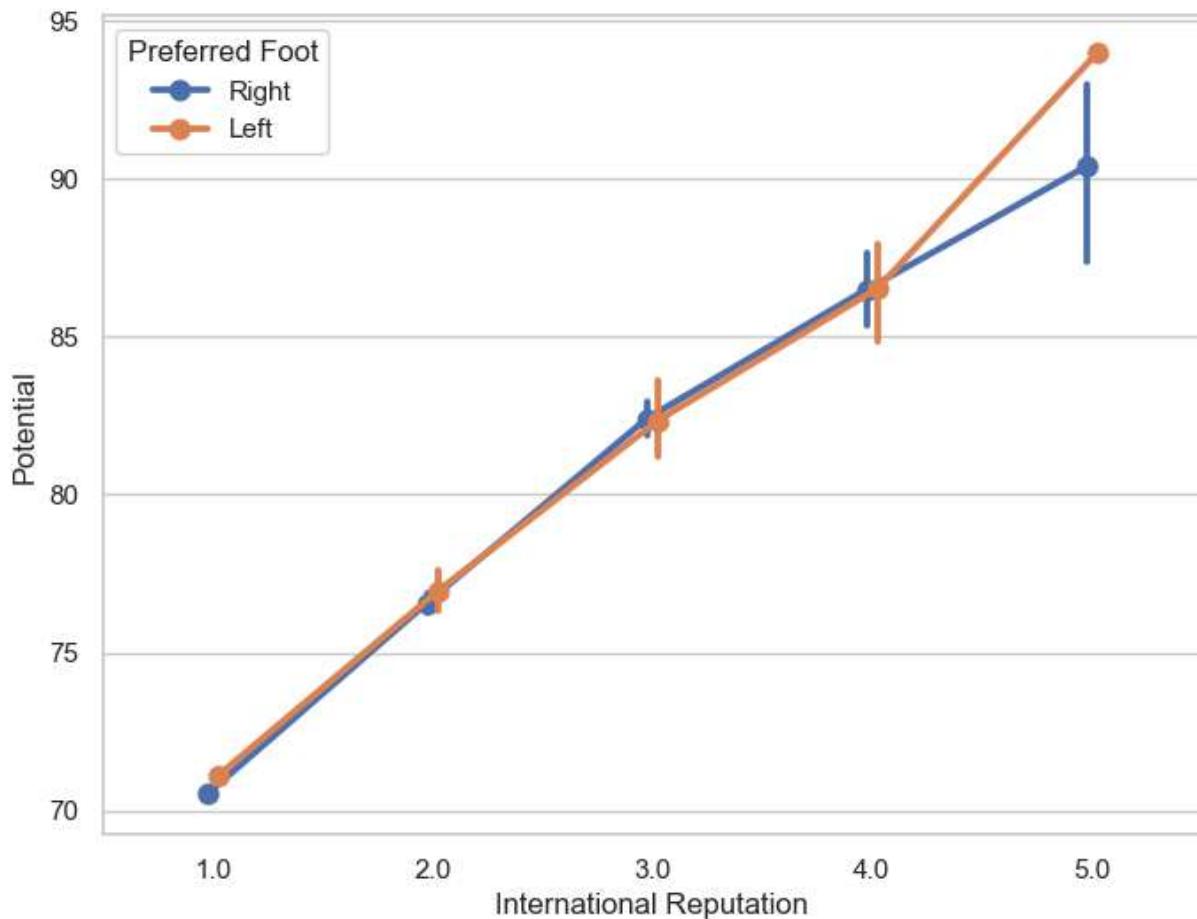
```
In [34]: f,ax=plt.subplots(figsize=(8,6))
sns.pointplot(x="International Reputation",y="Potential",data=fifa19)
plt.show()
```



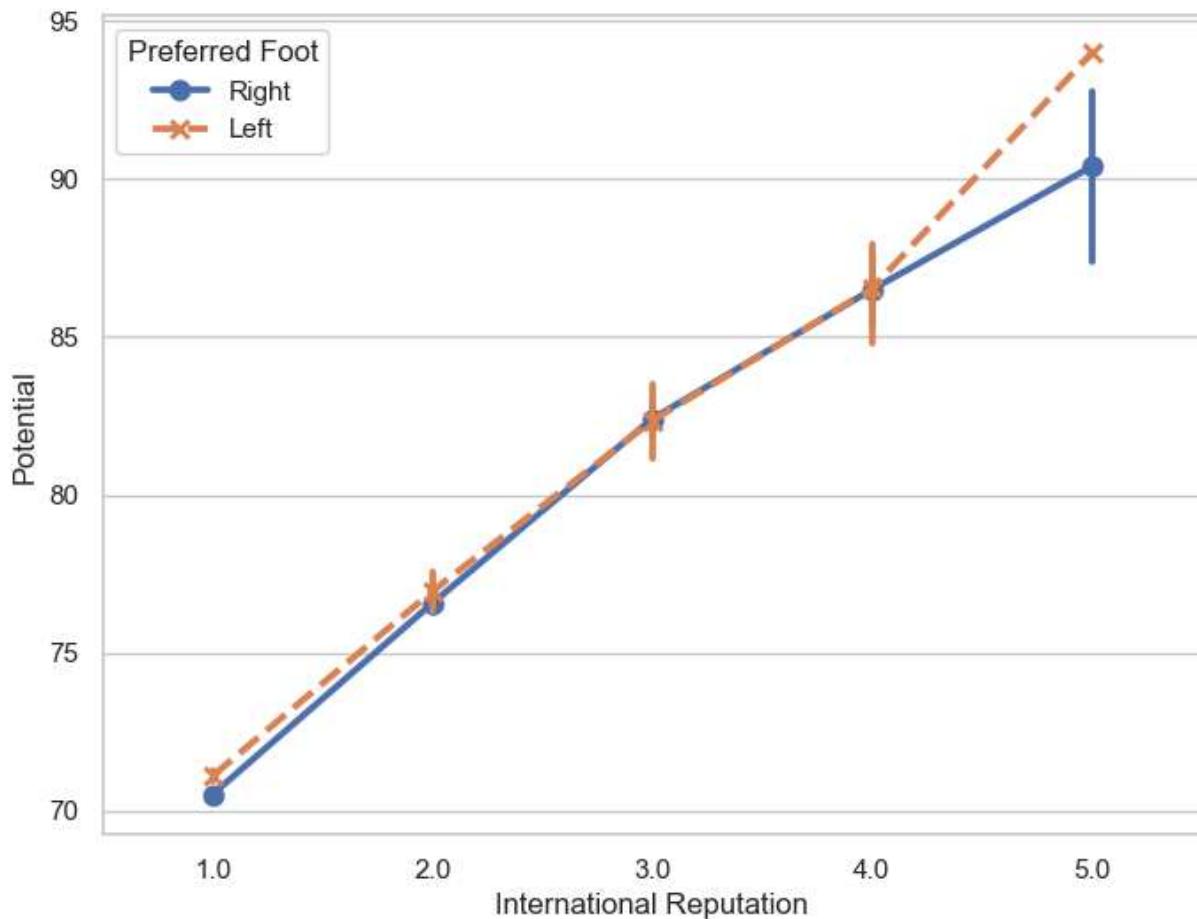
```
In [35]: f,ax=plt.subplots(figsize=(8,6))
sns.pointplot(x="International Reputation",y="Potential",hue="Preferred Foot",data=
plt.show()
```



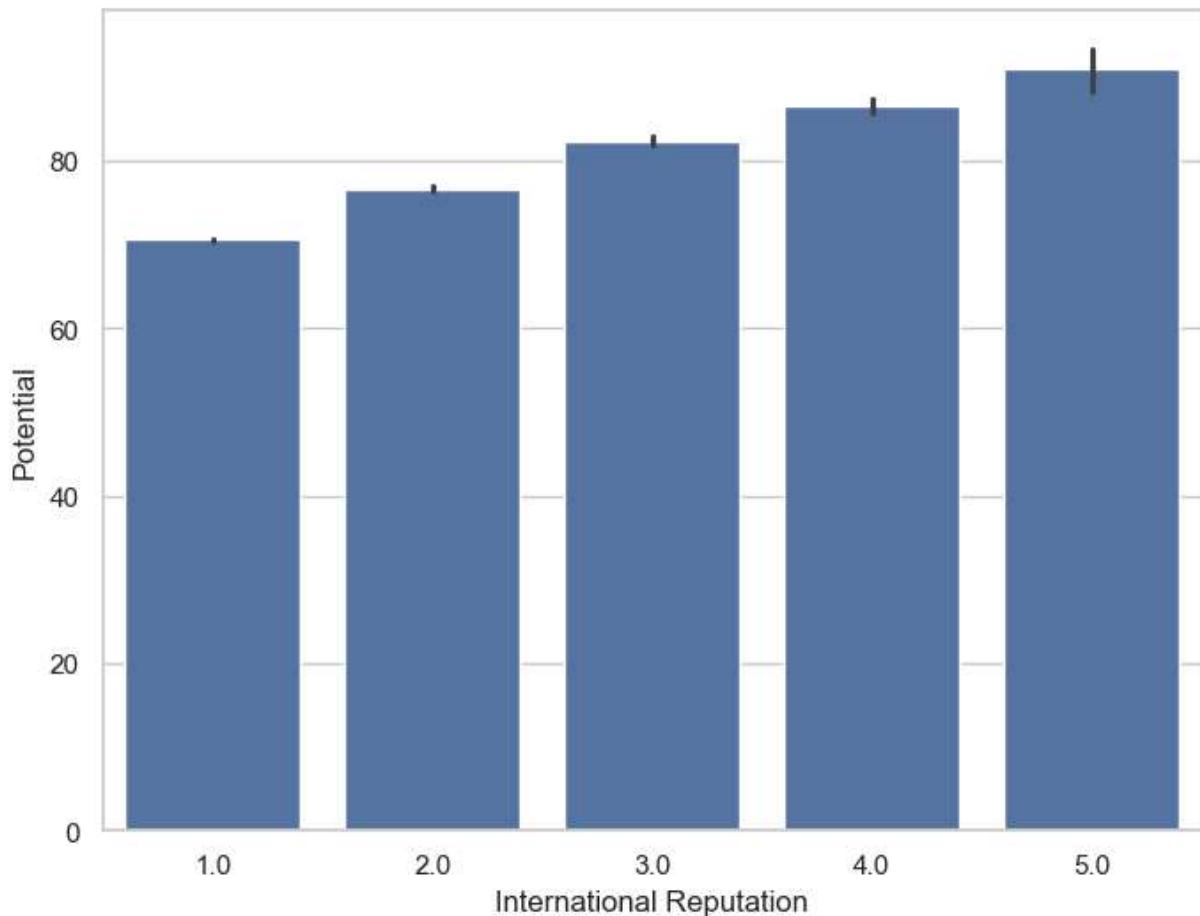
```
In [36]: f,ax=plt.subplots(figsize=(8,6))
sns.pointplot(x="International Reputation",y="Potential",hue="Preferred Foot",data=
plt.show()
```



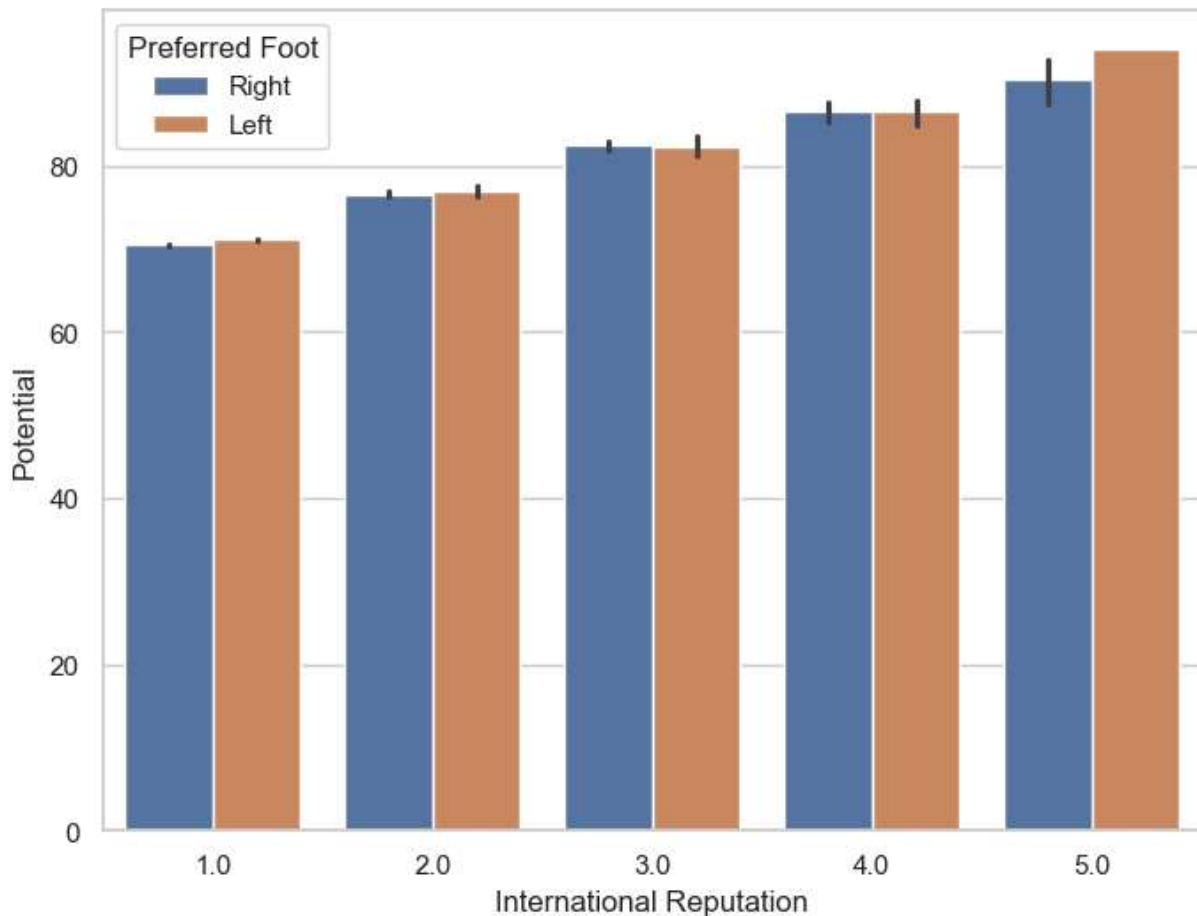
```
In [37]: f,ax=plt.subplots(figsize=(8,6))
sns.pointplot(x="International Reputation",y="Potential",hue="Preferred Foot",data=
plt.show()
```



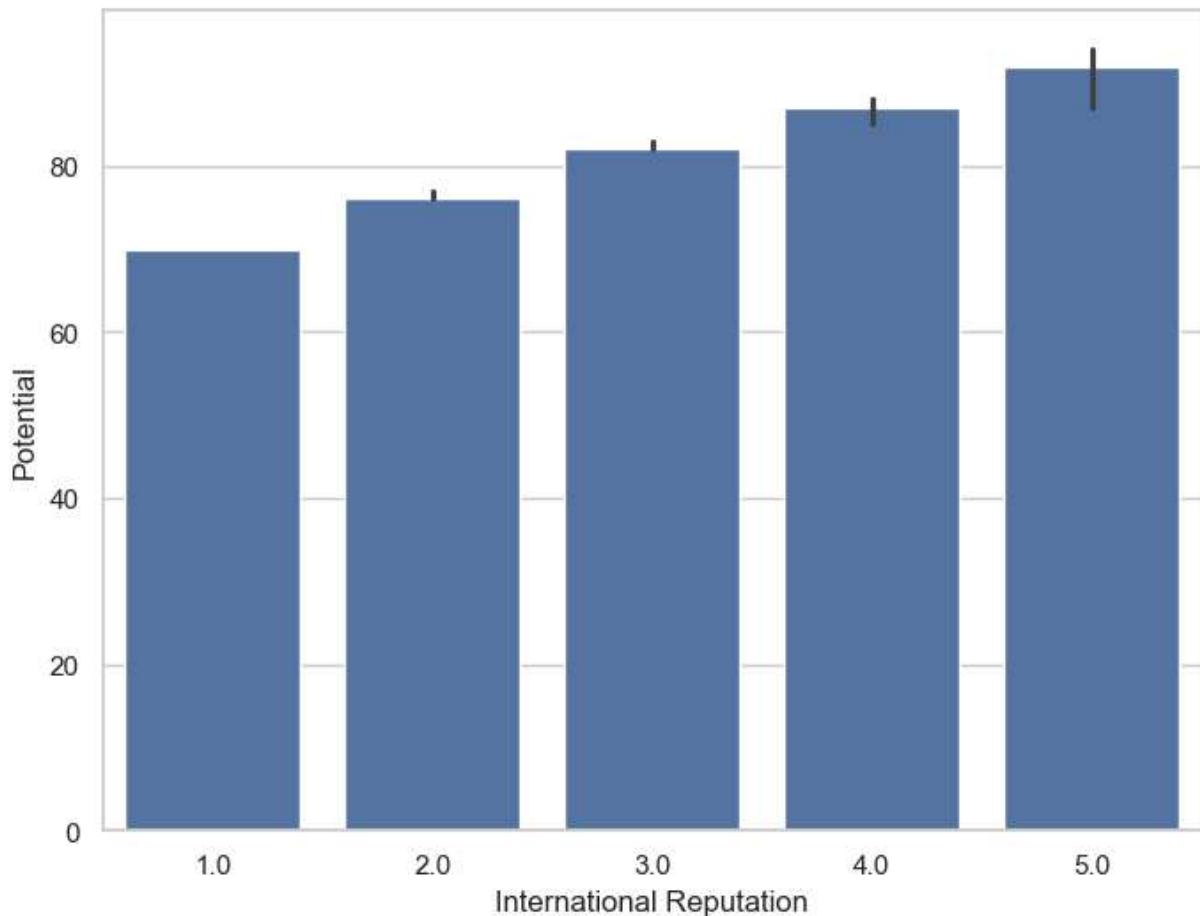
```
In [38]: f,ax=plt.subplots(figsize=(8,6))
sns.barplot(x="International Reputation",y="Potential",data=fifa19)
plt.show()
```



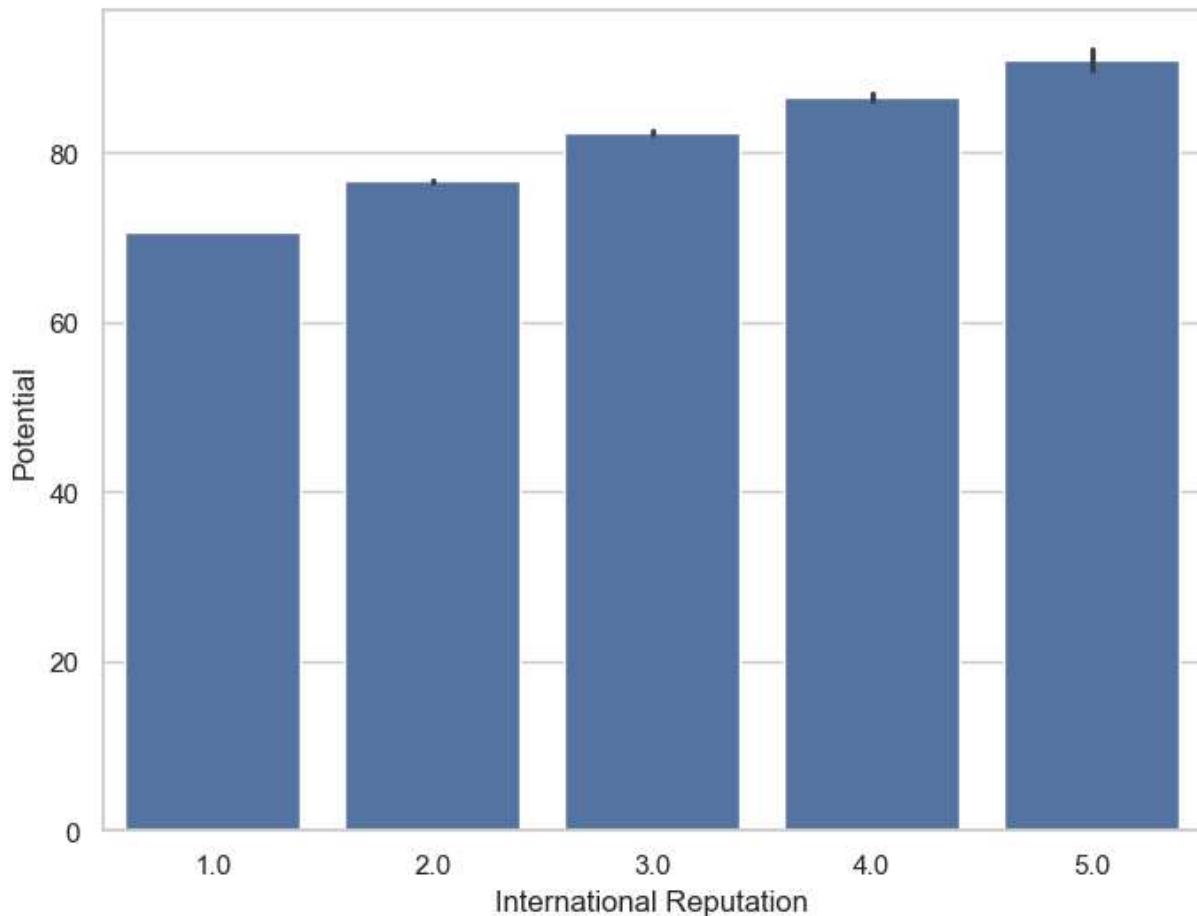
```
In [39]: f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", hue="Preferred Foot", data=players)
plt.show()
```



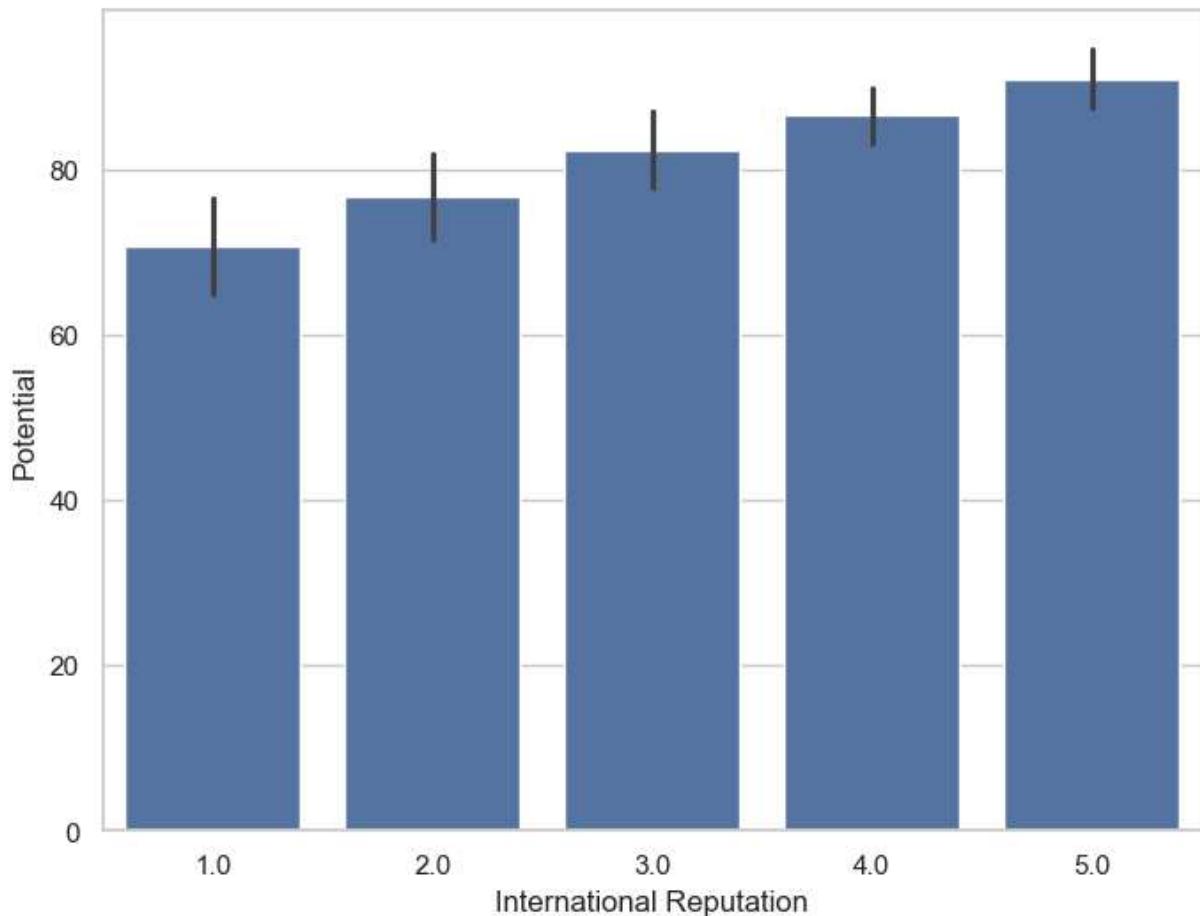
```
In [40]: from numpy import median
f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa19, estimator=median)
plt.show()
```



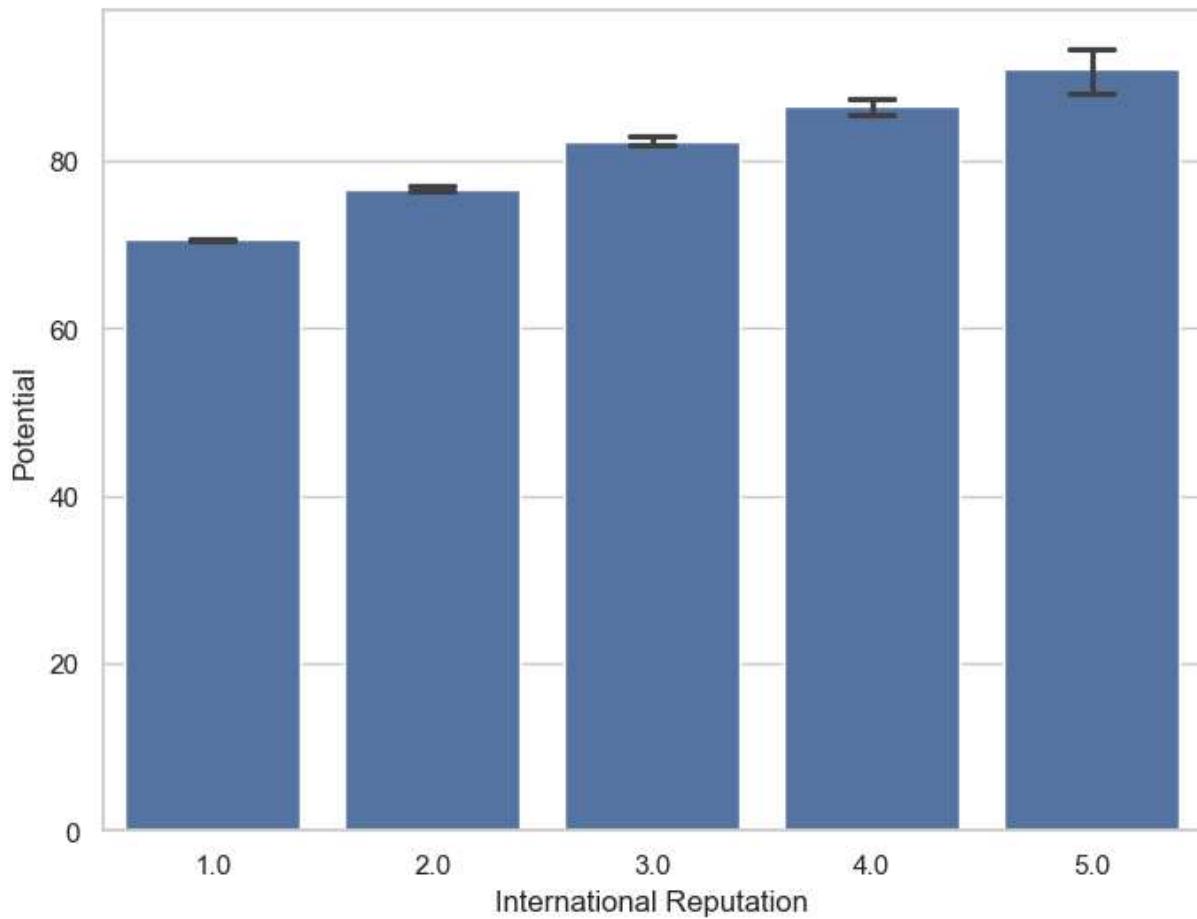
```
In [41]: f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa19, ci=68)
plt.show()
```



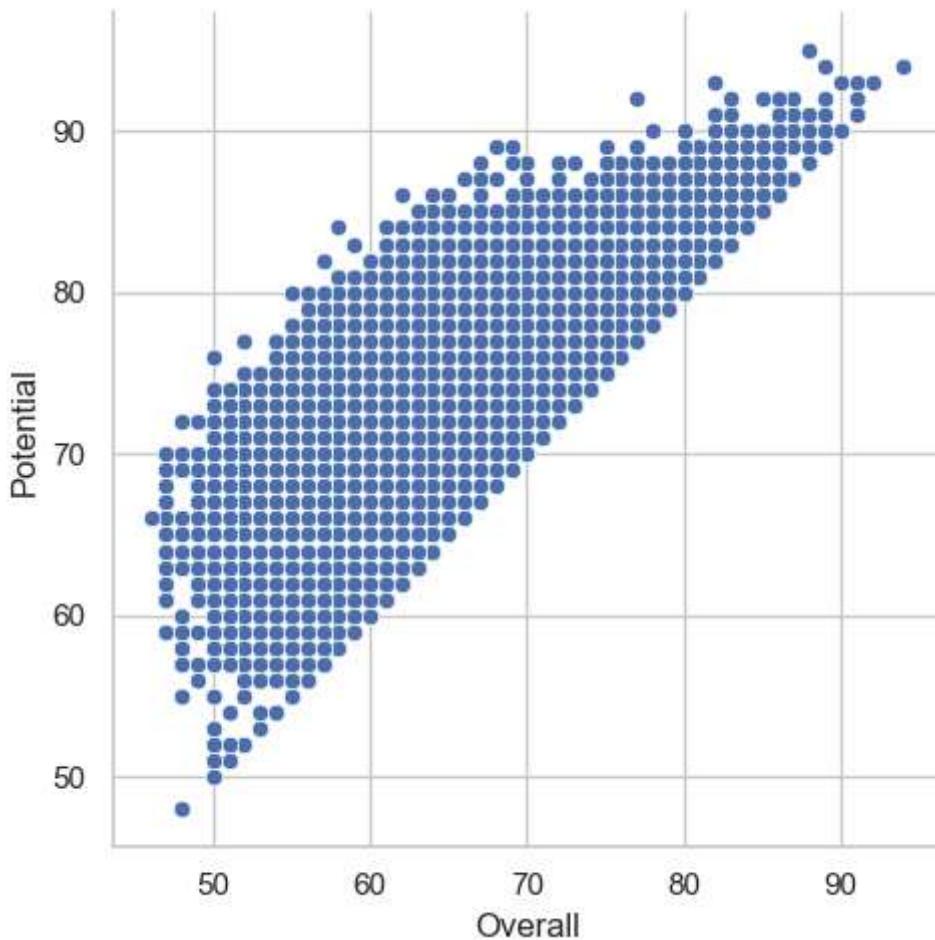
```
In [42]: f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa19, ci="sd")
plt.show()
```



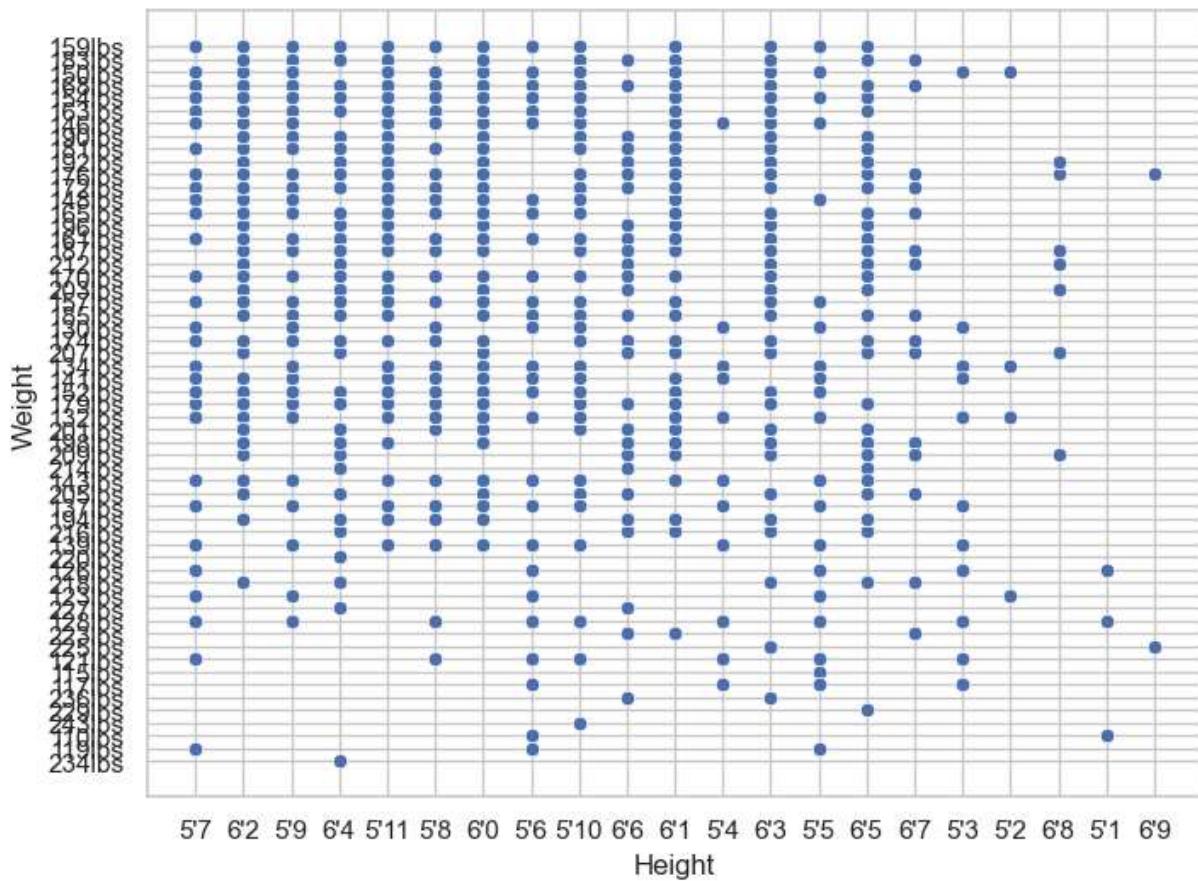
```
In [43]: f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa19, capsize=0.2)
plt.show()
```



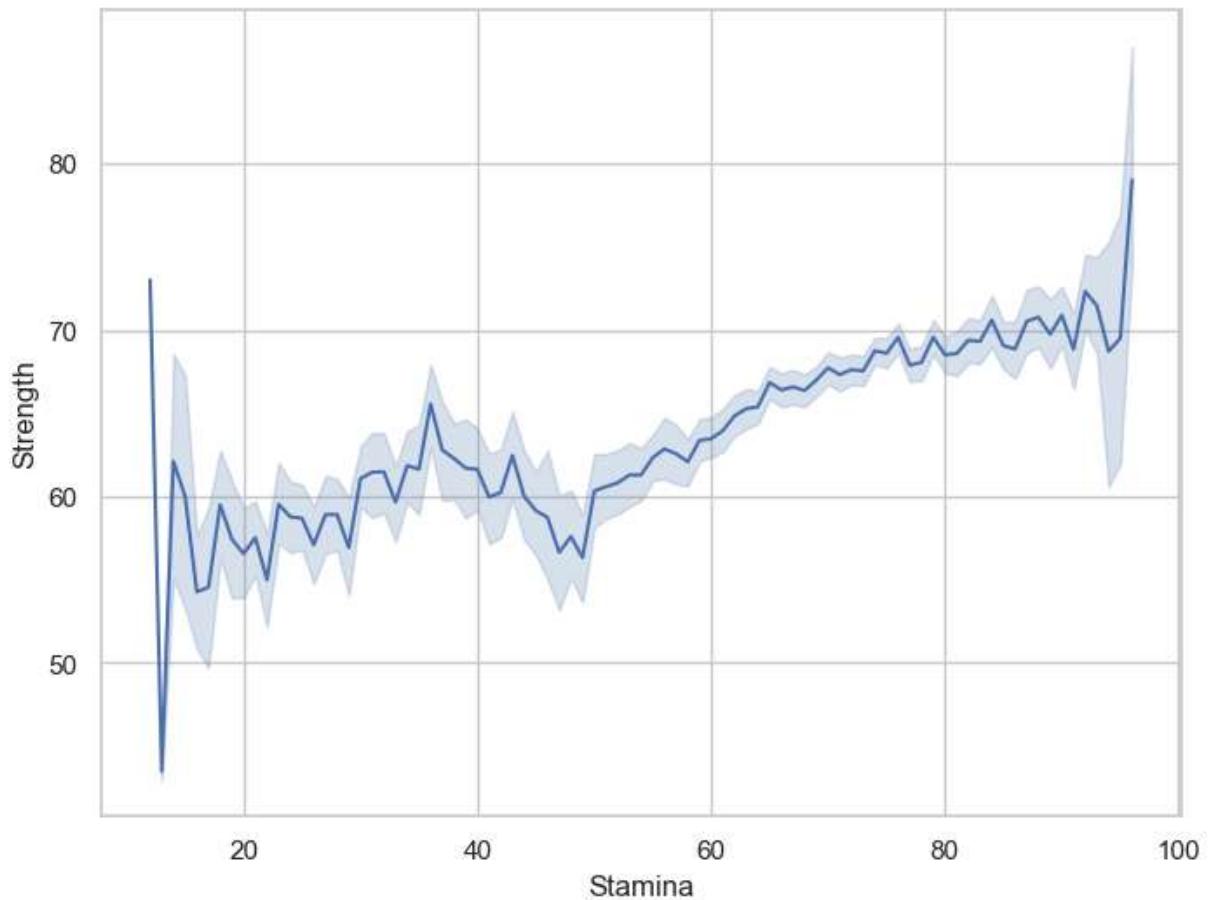
```
In [44]: g=sns.relplot(x="Overall",y="Potential",data=fifa19)
g
plt.show()
```



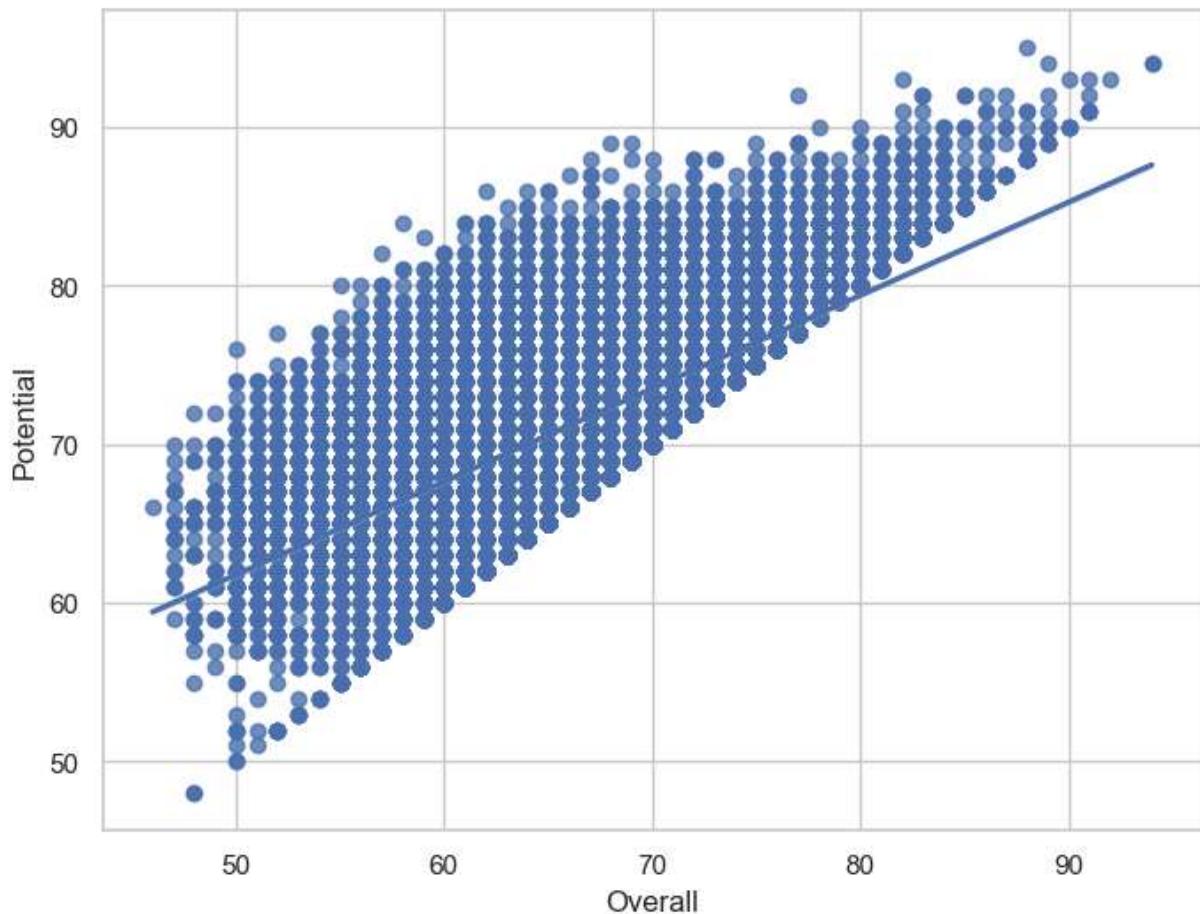
```
In [45]: f, ax = plt.subplots(figsize=(8, 6))
sns.scatterplot(x="Height", y="Weight", data=fifa19)
plt.show()
```



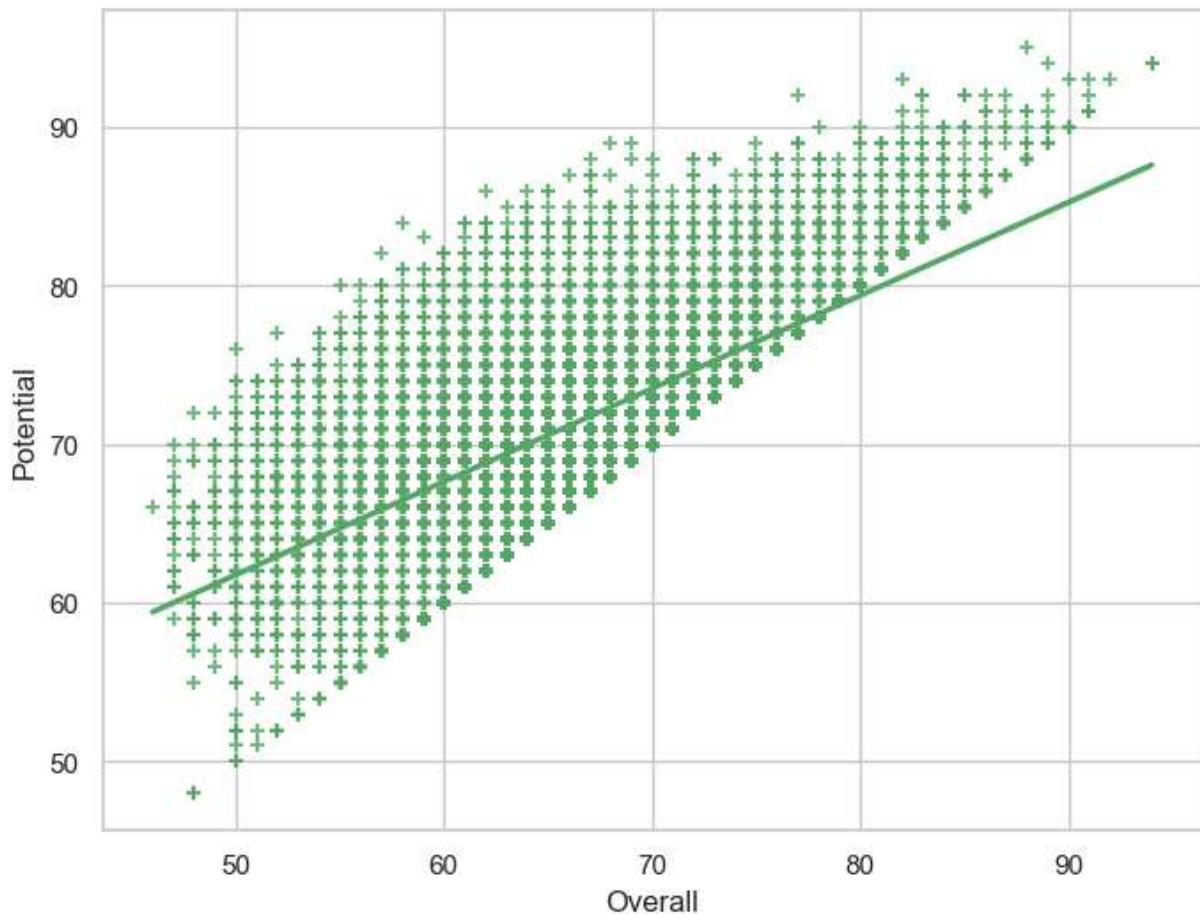
```
In [46]: f,ax=plt.subplots(figsize=(8,6))
ax=sns.lineplot(x="Stamina",y="Strength",data=fifa19)
plt.show()
```



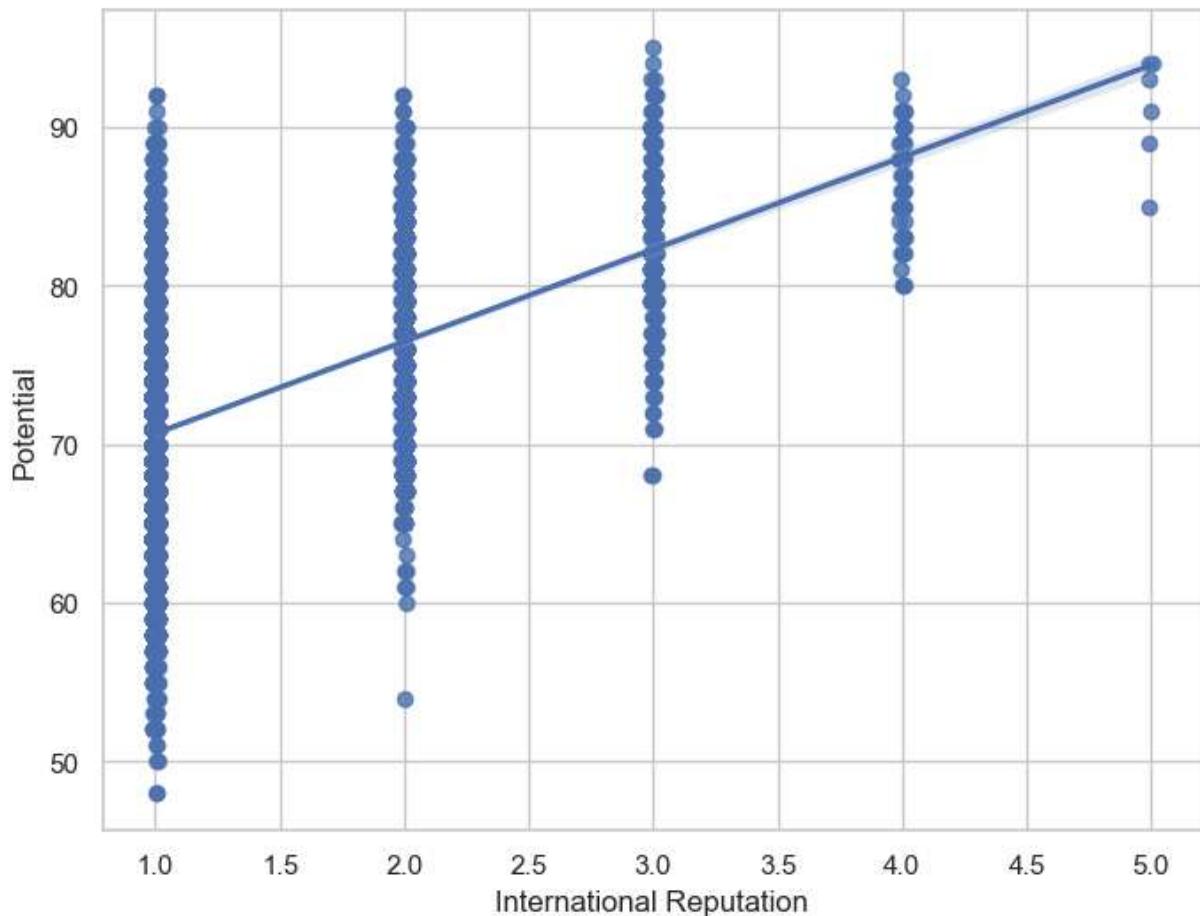
```
In [47]: f,ax=plt.subplots(figsize=(8,6))
ax=sns.regplot(x="Overall",y="Potential",data=fifa19)
plt.show()
```



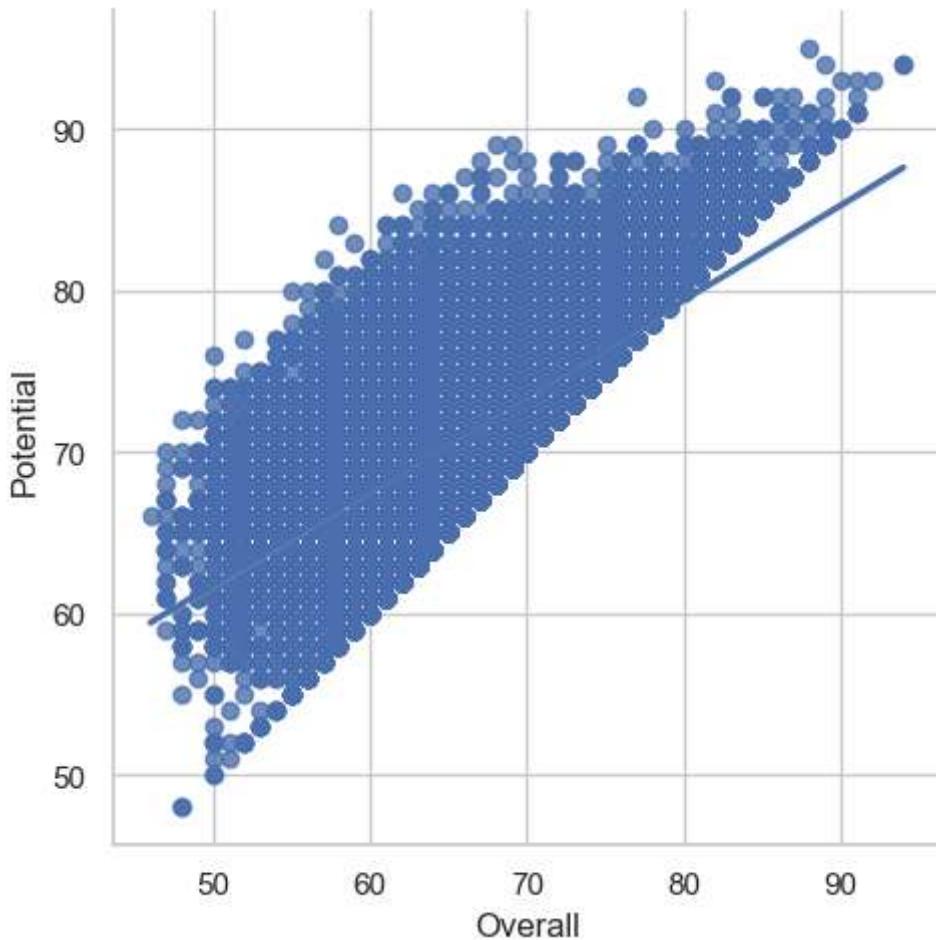
```
In [48]: f, ax = plt.subplots(figsize=(8, 6))
ax = sns.regplot(x="Overall", y="Potential", data=fifa19, color="g", marker="+")
plt.show()
```



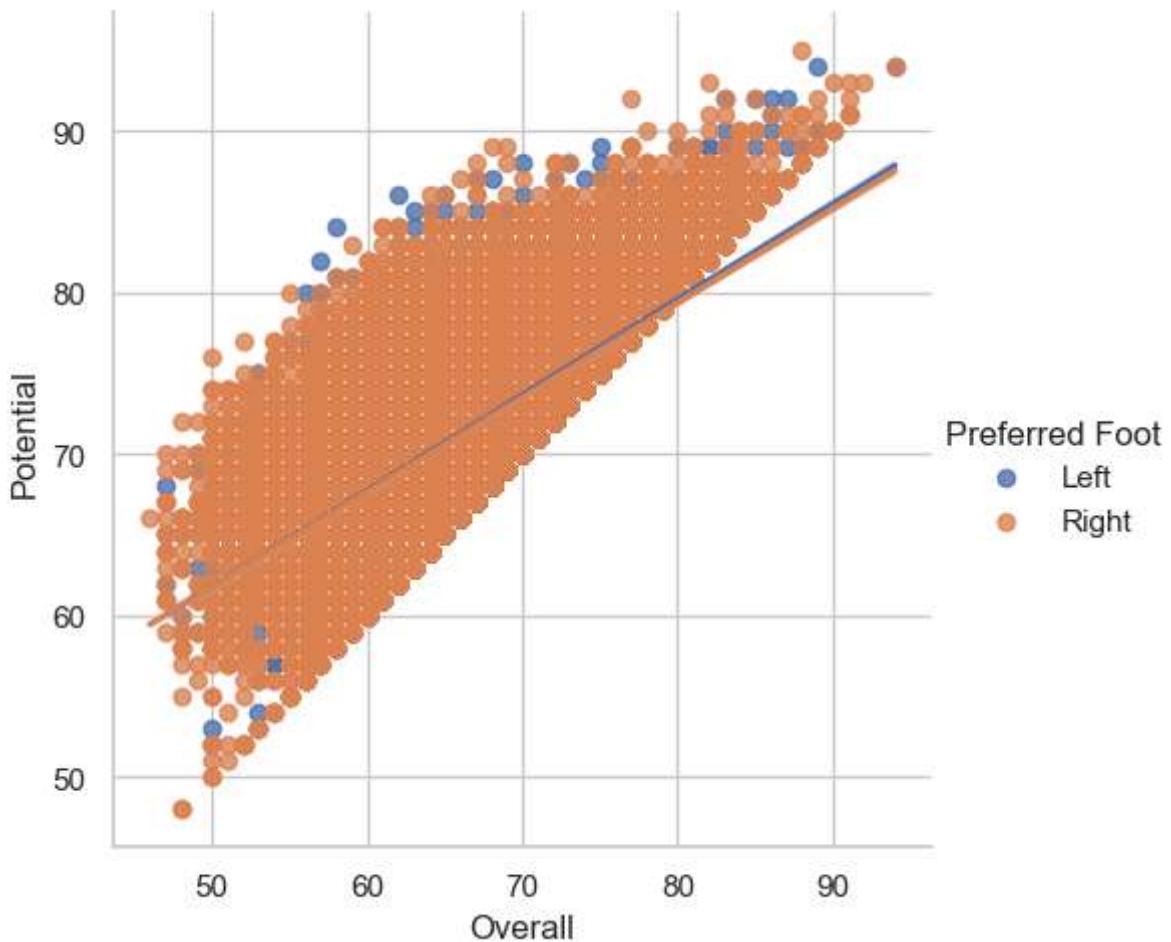
```
In [49]: f, ax = plt.subplots(figsize=(8, 6))
sns.regplot(x="International Reputation", y="Potential", data=fifa19, x_jitter=.01)
plt.show()
```



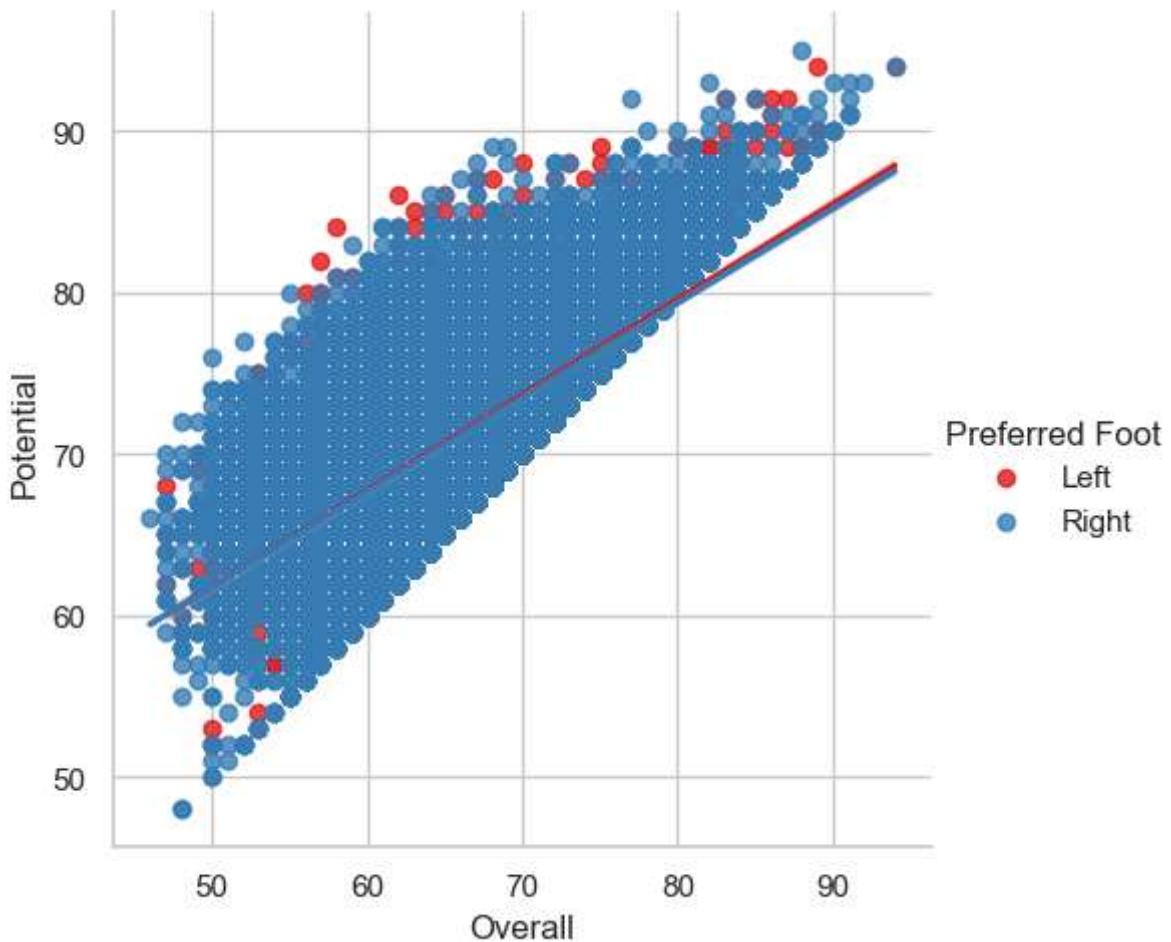
```
In [50]: g=sns.lmplot(x="Overall",y="Potential",data=fifa19)
g
plt.show()
```



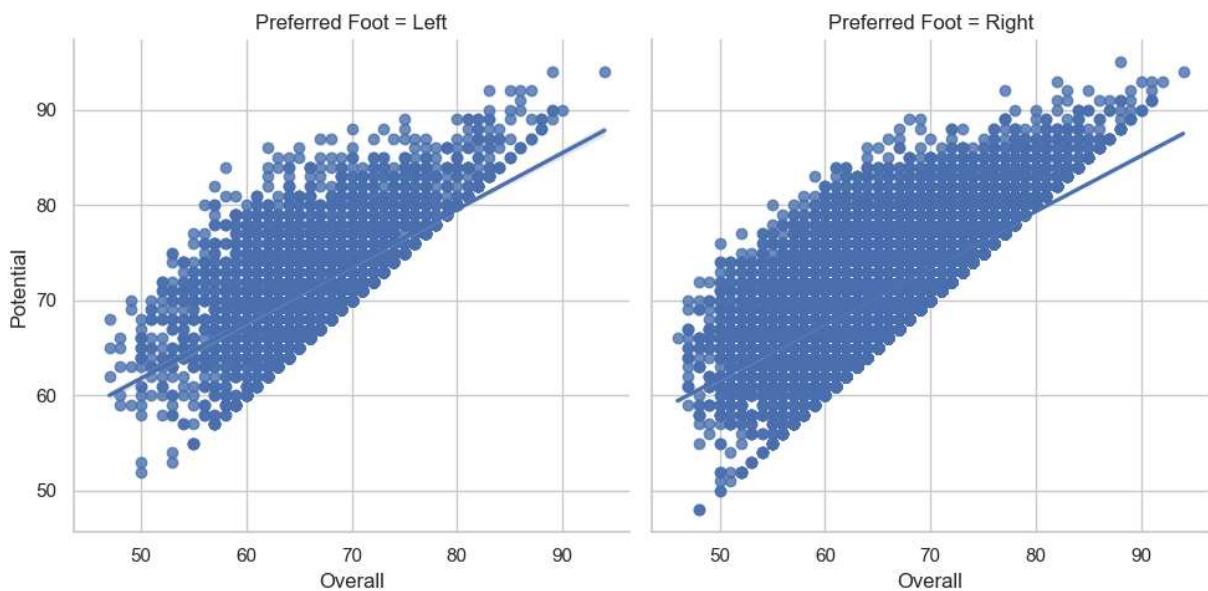
```
In [51]: g=sns.lmplot(x="Overall",y="Potential",hue="Preferred Foot",data=fifa19)  
plt.show()
```



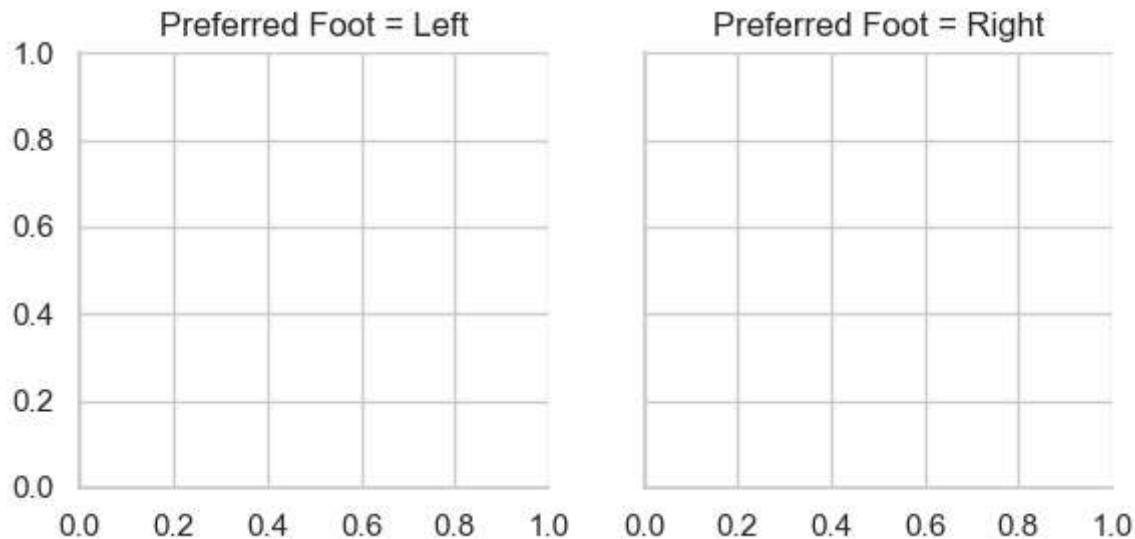
```
In [52]: g = sns.lmplot(x="Overall", y="Potential", hue="Preferred Foot", data=fifa19, palette="Set1")
plt.show()
```



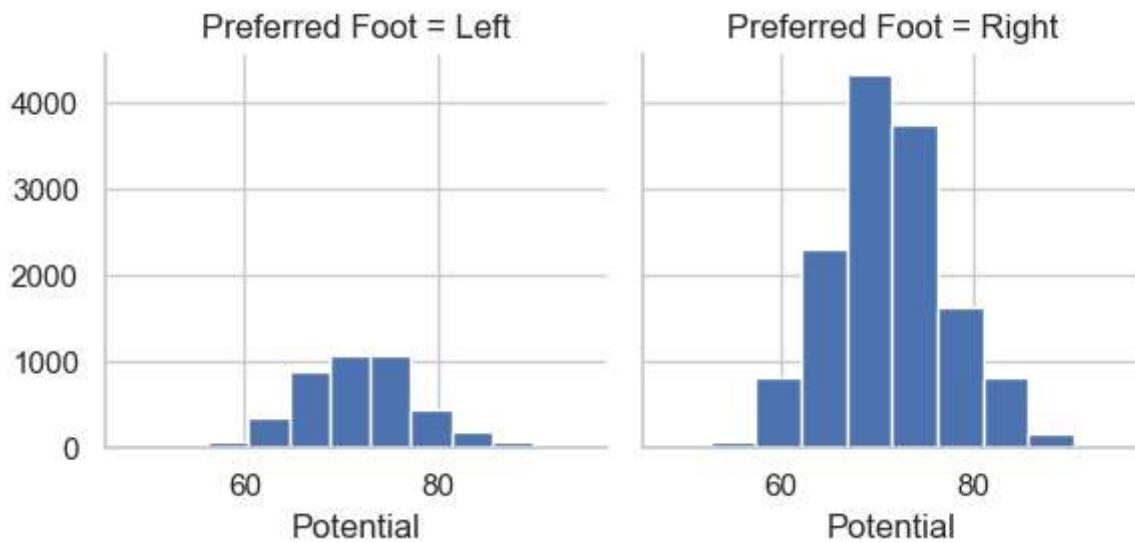
```
In [53]: g = sns.lmplot(x="Overall", y="Potential", col="Preferred Foot", data=fifa19)
plt.show()
```



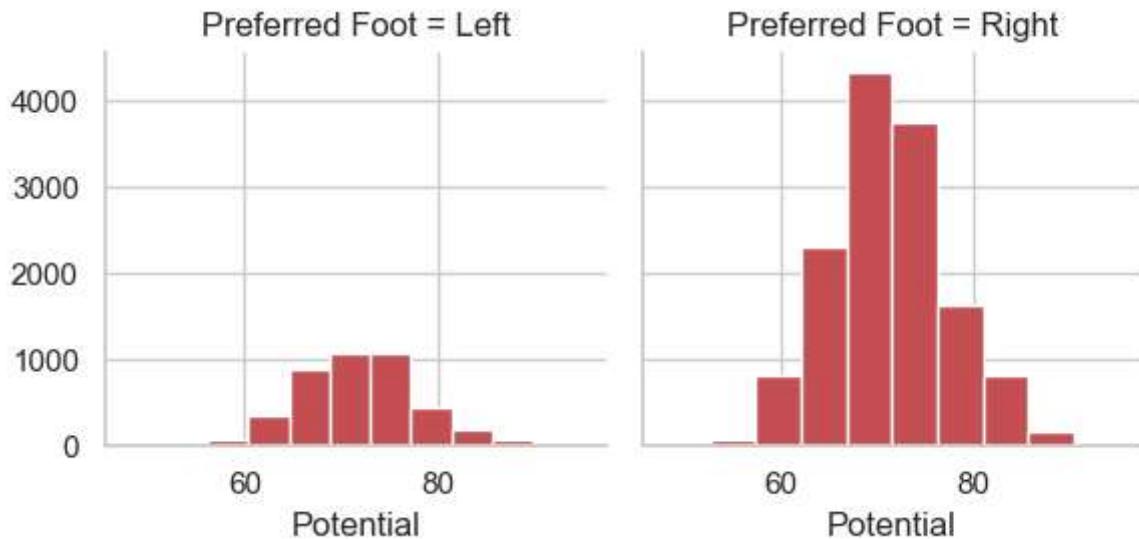
```
In [54]: g=sns.FacetGrid(fifa19,col="Preferred Foot")
plt.show()
```



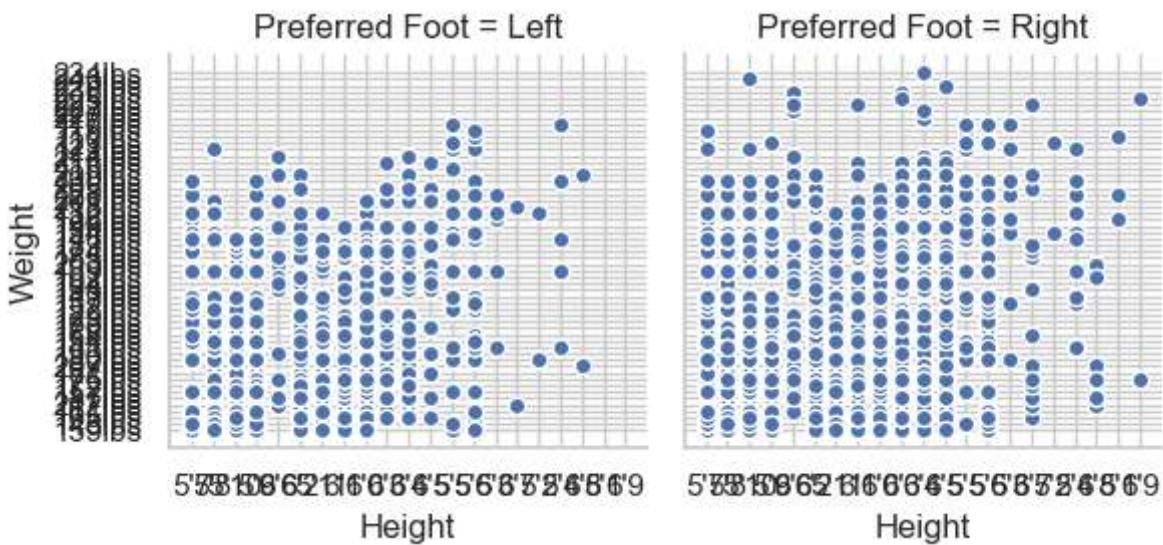
```
In [55]: g=sns.FacetGrid(fifa19,col="Preferred Foot")
f=g.map(plt.hist,"Potential")
plt.show()
```



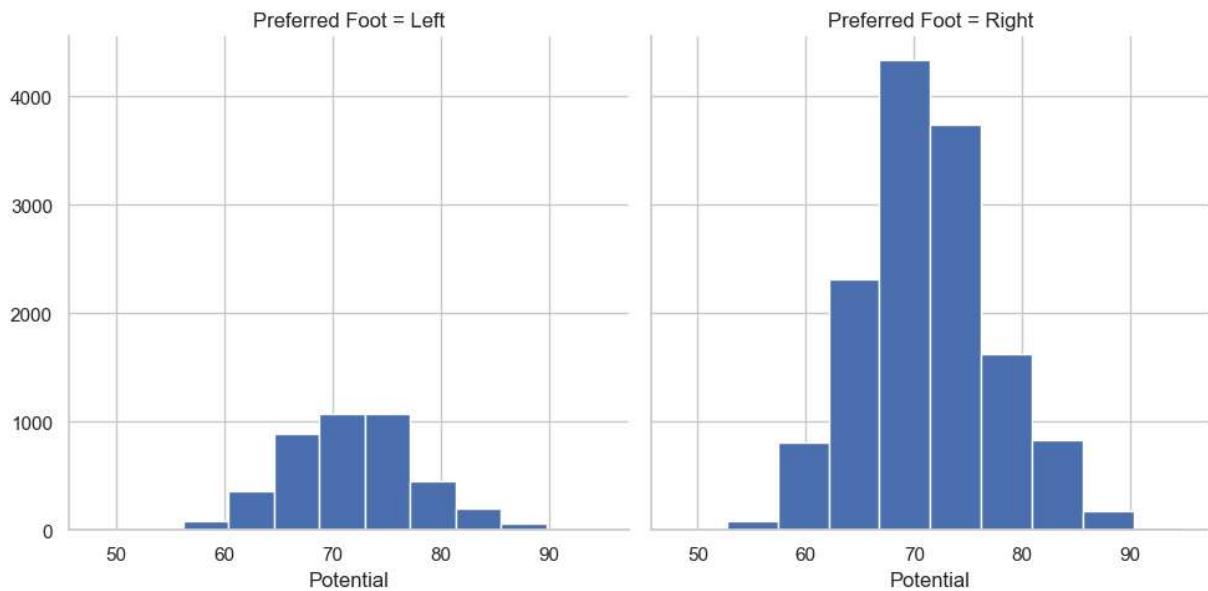
```
In [56]: g = sns.FacetGrid(fifa19, col="Preferred Foot")
g = g.map(plt.hist, "Potential", bins=10, color="r")
plt.show()
```



```
In [57]: g = sns.FacetGrid(fifa19, col="Preferred Foot")
g = (g.map(plt.scatter, "Height", "Weight", edgecolor="w").add_legend())
plt.show()
```

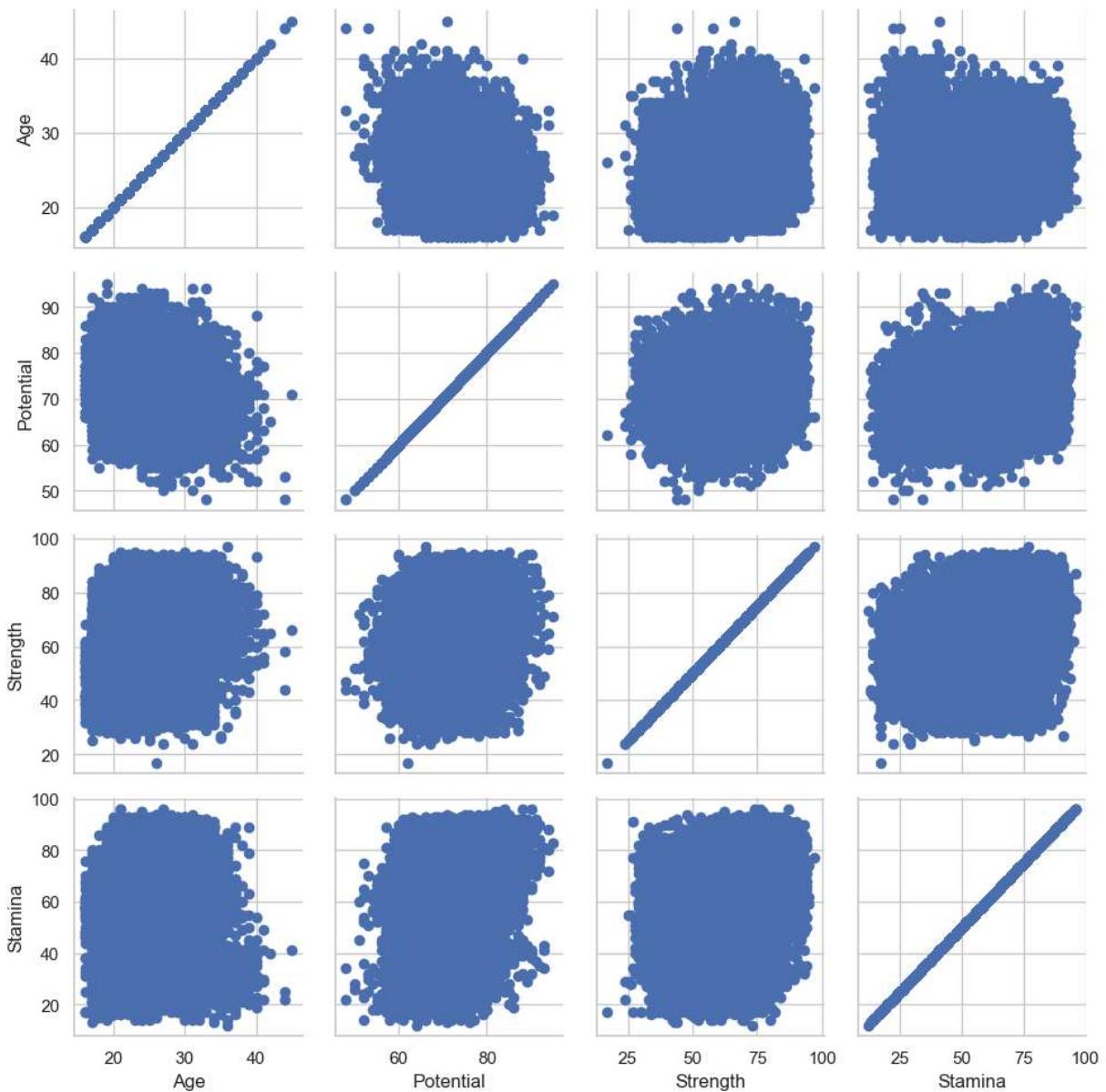


```
In [58]: g = sns.FacetGrid(fifa19, col="Preferred Foot", height=5, aspect=1)
g = g.map(plt.hist, "Potential")
plt.show()
```

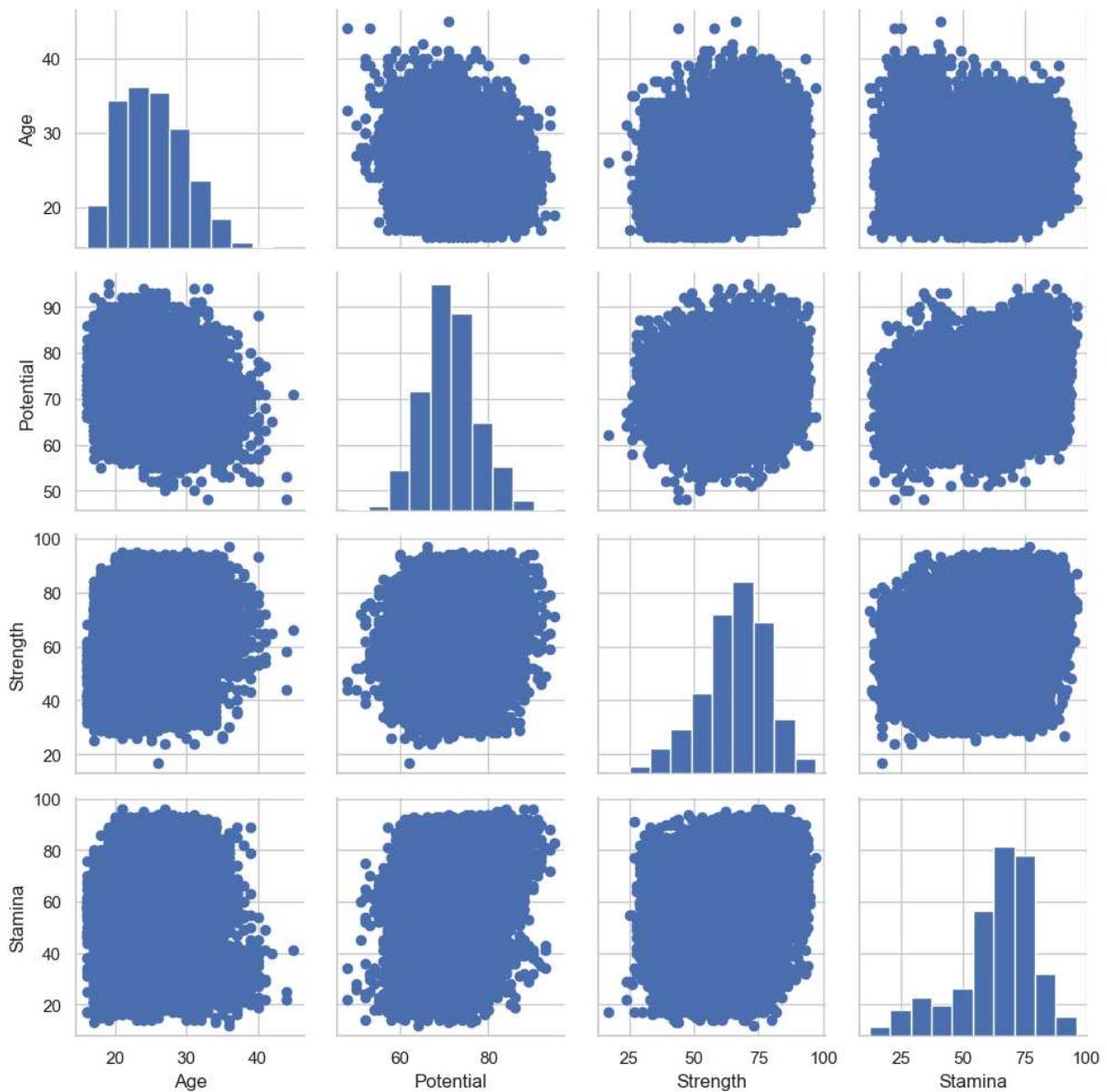


```
In [59]: fifa19_new=fifa19[['Age','Potential','Strength','Stamina','Preferred Foot']]
```

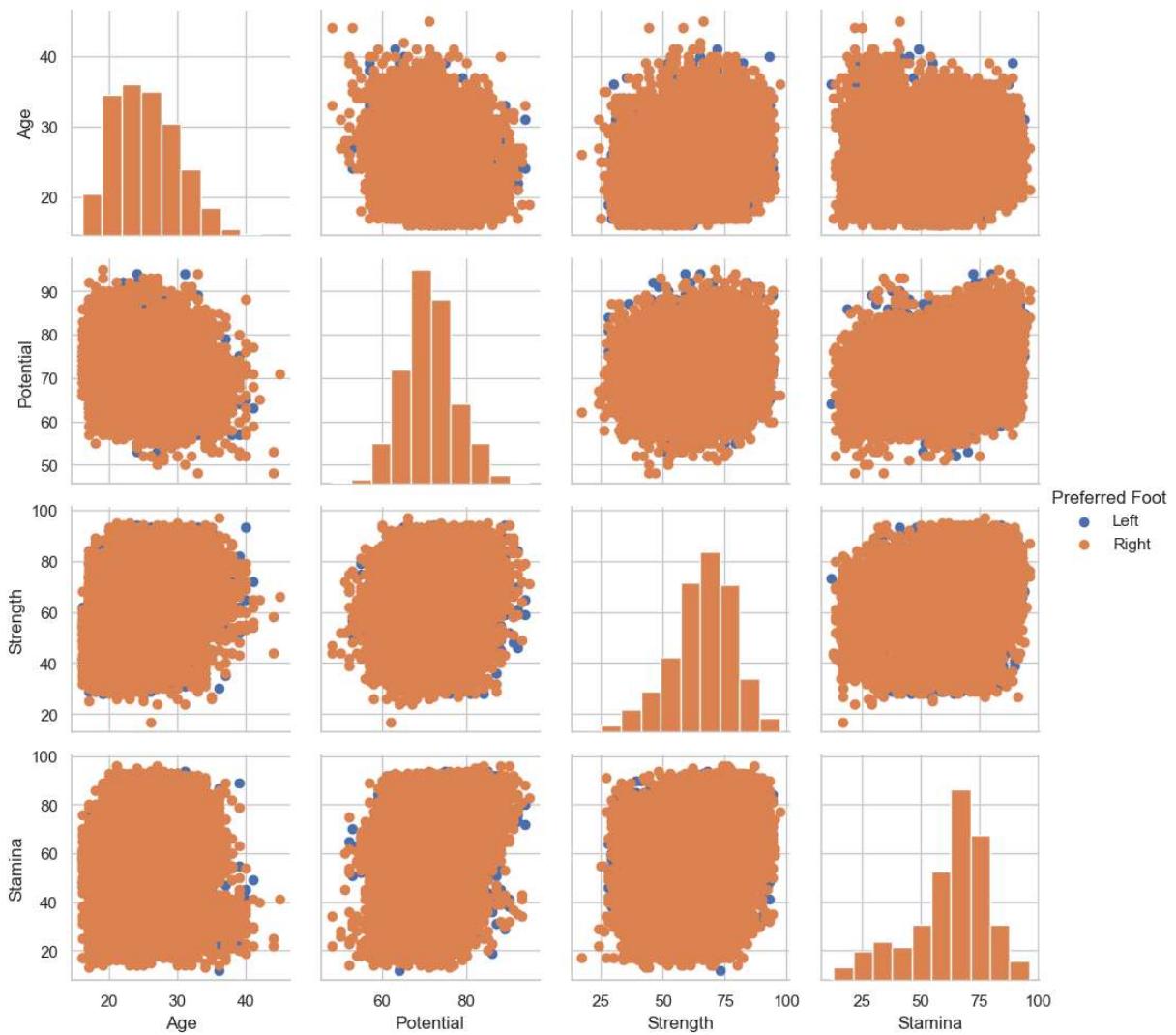
```
In [60]: g=sns.PairGrid(fifa19_new)
g=g.map(plt.scatter)
plt.show()
```



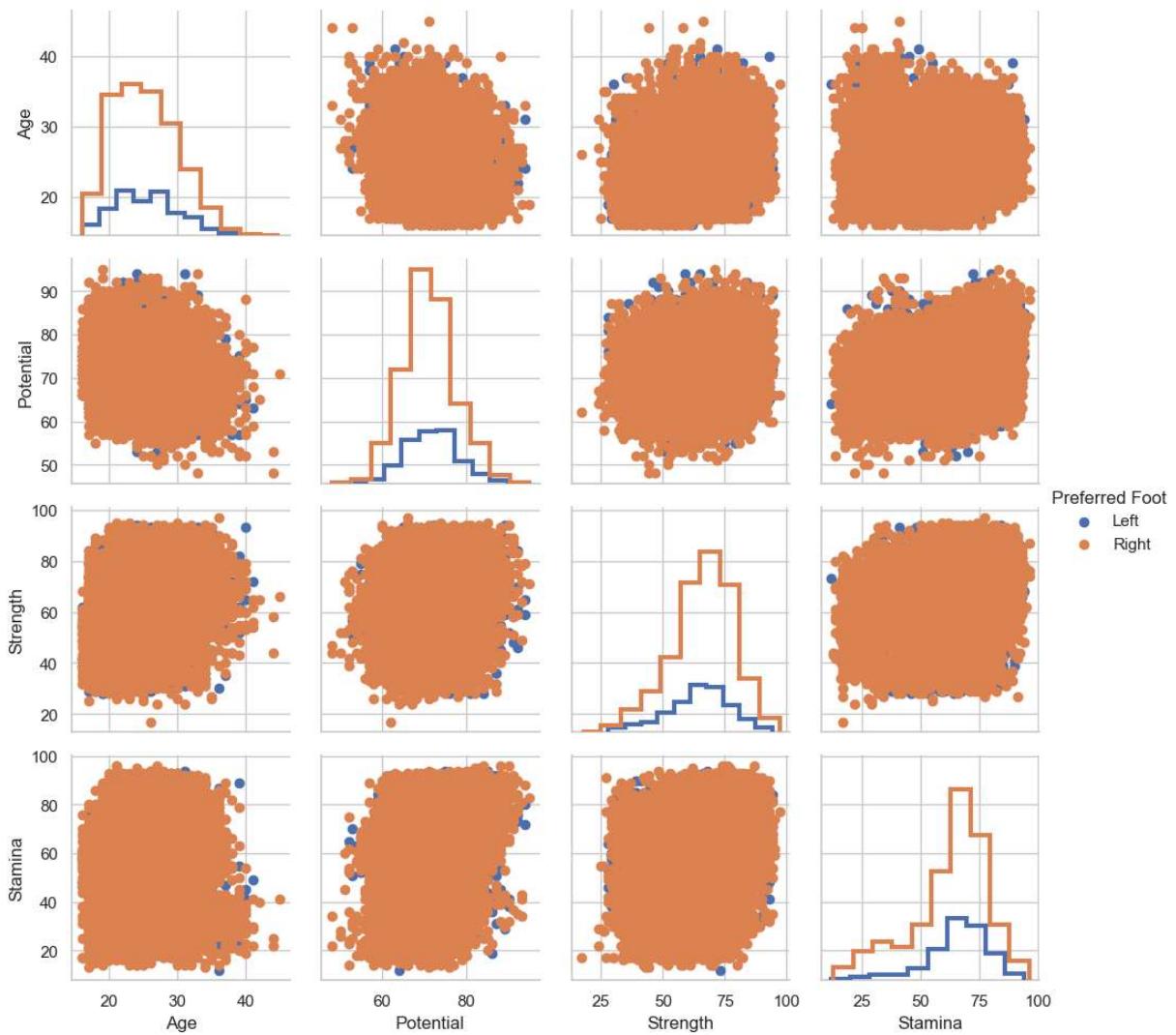
```
In [61]: g=sns.PairGrid(fifa19_new)
g=g.map_diag(plt.hist)
g=g.map_offdiag(plt.scatter)
plt.show()
```



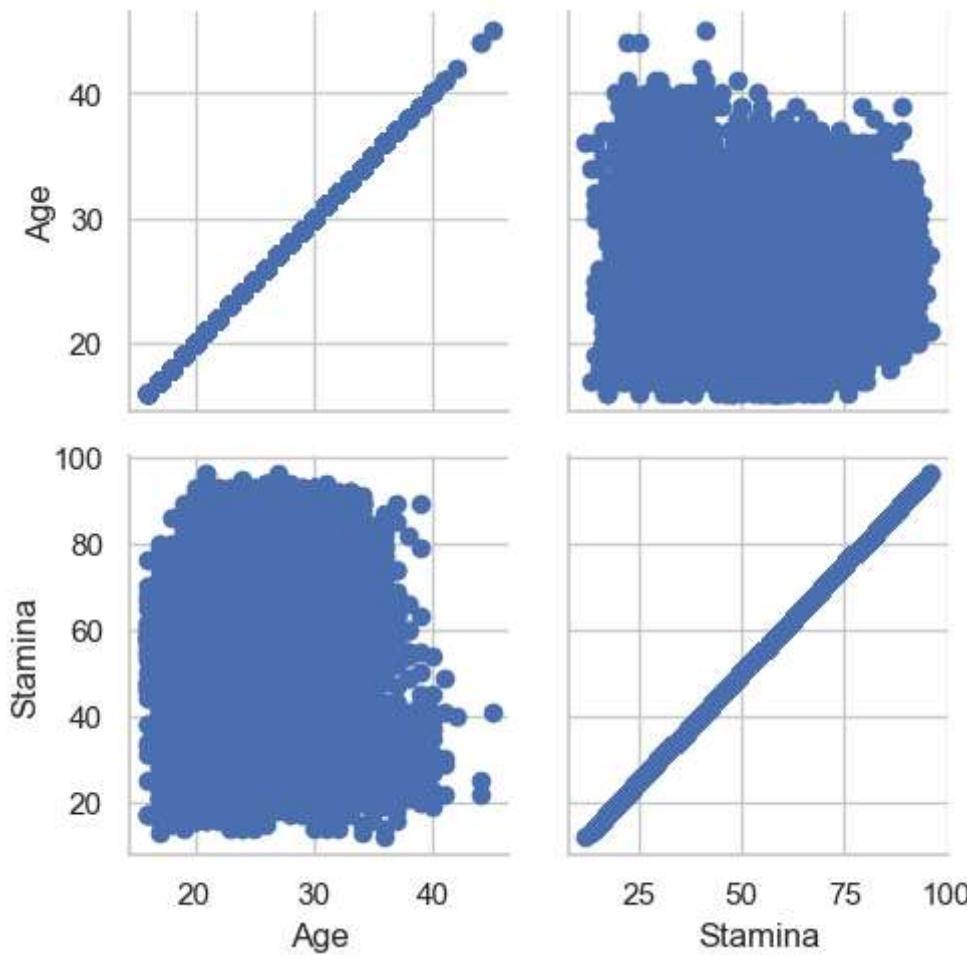
```
In [62]: g = sns.PairGrid(fifa19_new, hue="Preferred Foot")
g = g.map_diag(plt.hist)
g = g.map_offdiag(plt.scatter)
g = g.add_legend()
plt.show()
```



```
In [63]: g = sns.PairGrid(fifa19_new, hue="Preferred Foot")
g = g.map_diag(plt.hist, histtype="step", linewidth=3)
g = g.map_offdiag(plt.scatter)
g = g.add_legend()
plt.show()
```

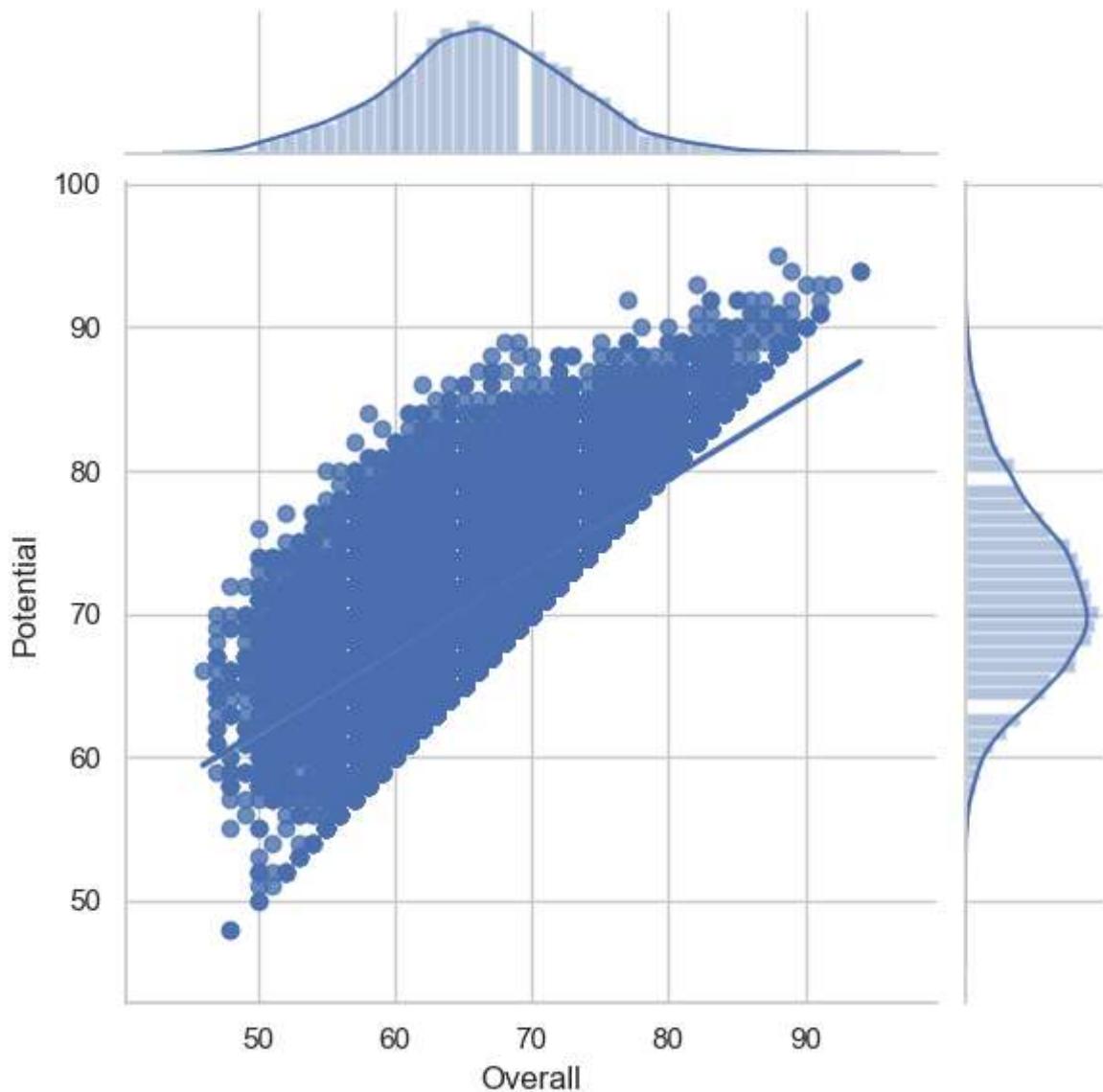


```
In [64]: g = sns.PairGrid(fifa19_new, vars=[ 'Age' , 'Stamina' ])
g = g.map(plt.scatter)
plt.show()
```



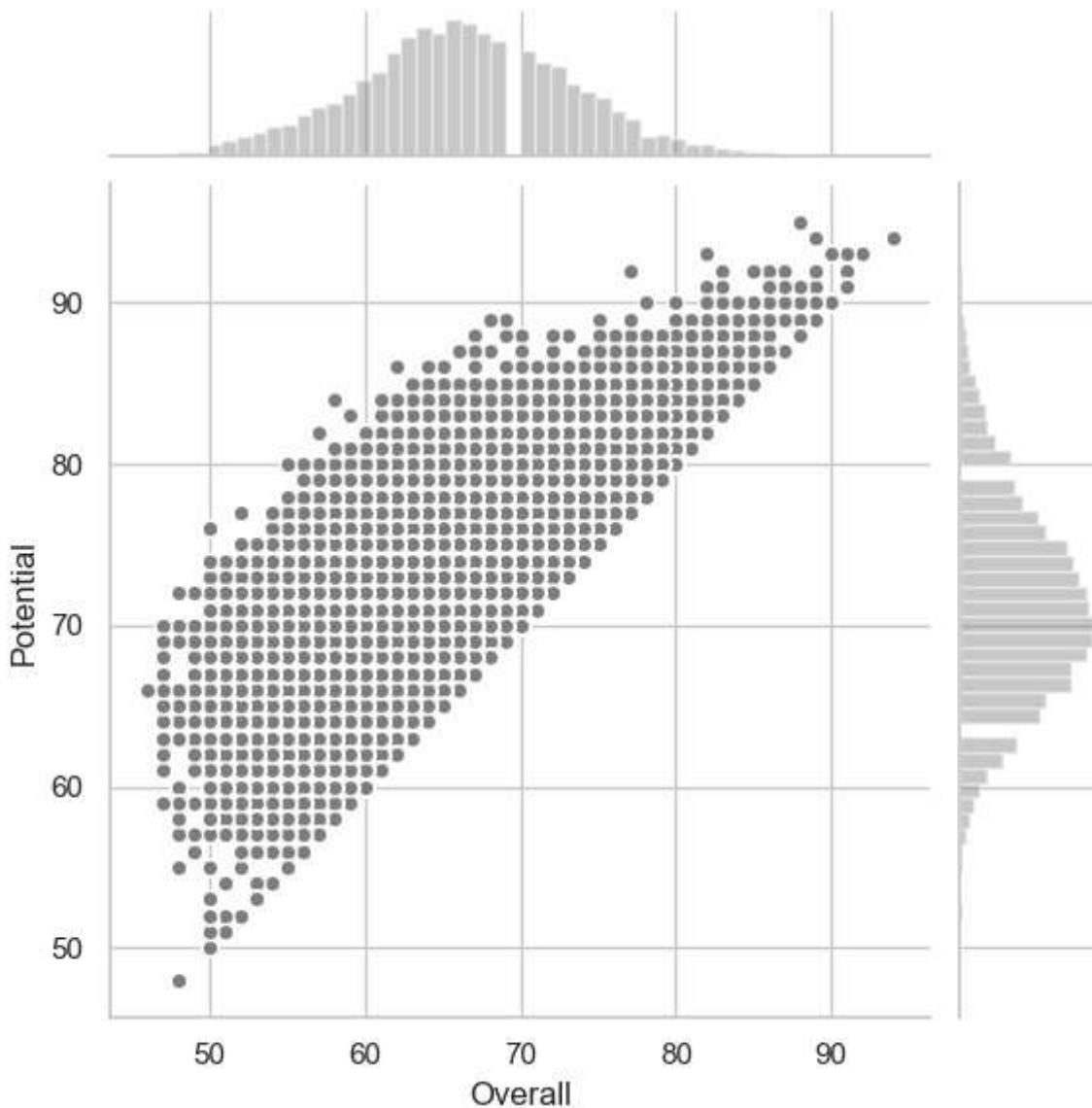
```
In [ ]: g = sns.PairGrid(fifa19_new)
g = g.map_upper(plt.scatter)
g = g.map_lower(sns.kdeplot, cmap="Blues_d")
g = g.map_diag(sns.kdeplot, lw=3, legend=False)
plt.show()
```

```
In [66]: g=sns.JointGrid(x="Overall",y="Potential",data=fifa19)
g=g.plot(sns.regplot,sns.distplot)
plt.show()
```

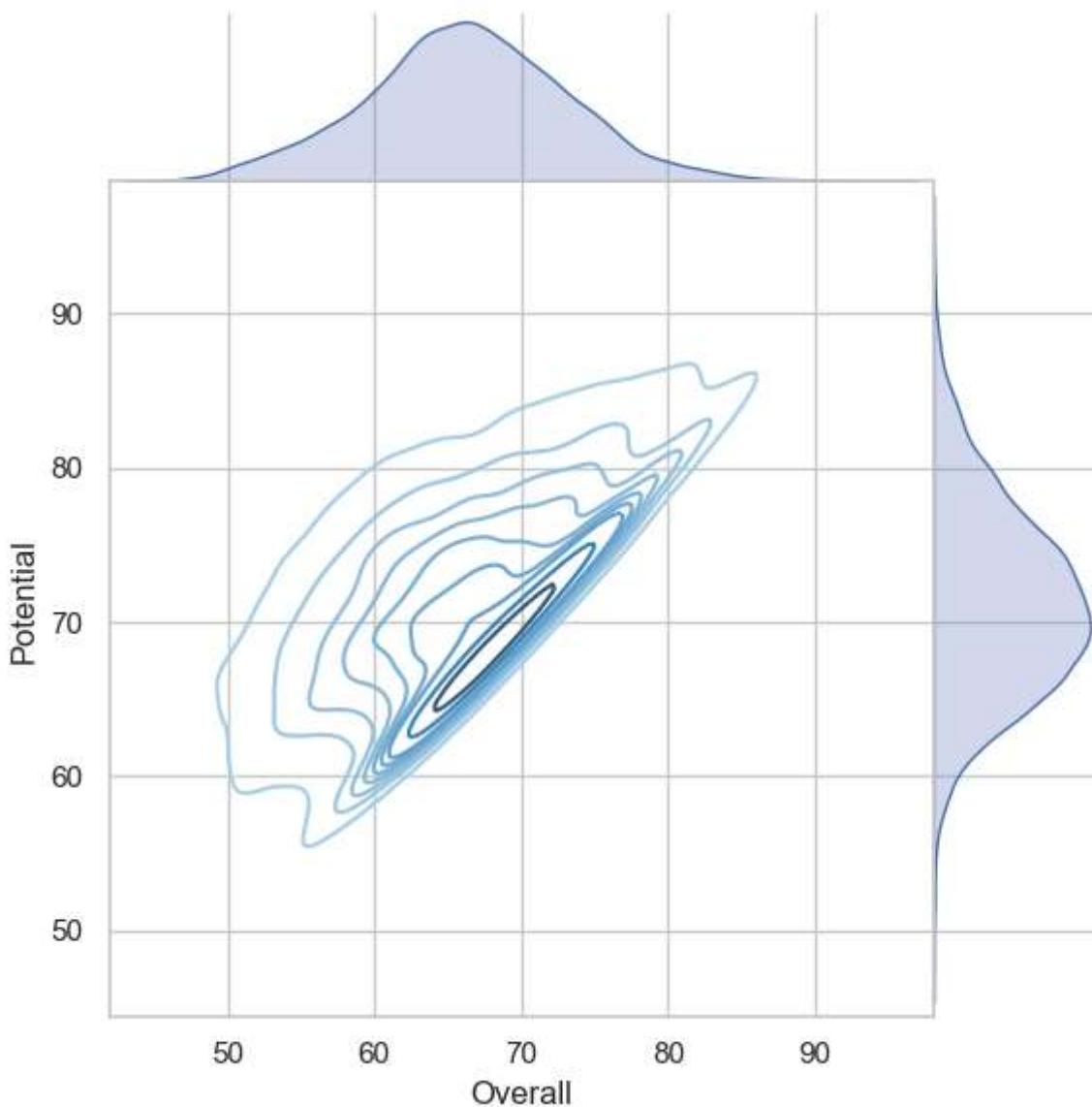


```
In [67]: import matplotlib.pyplot as plt
```

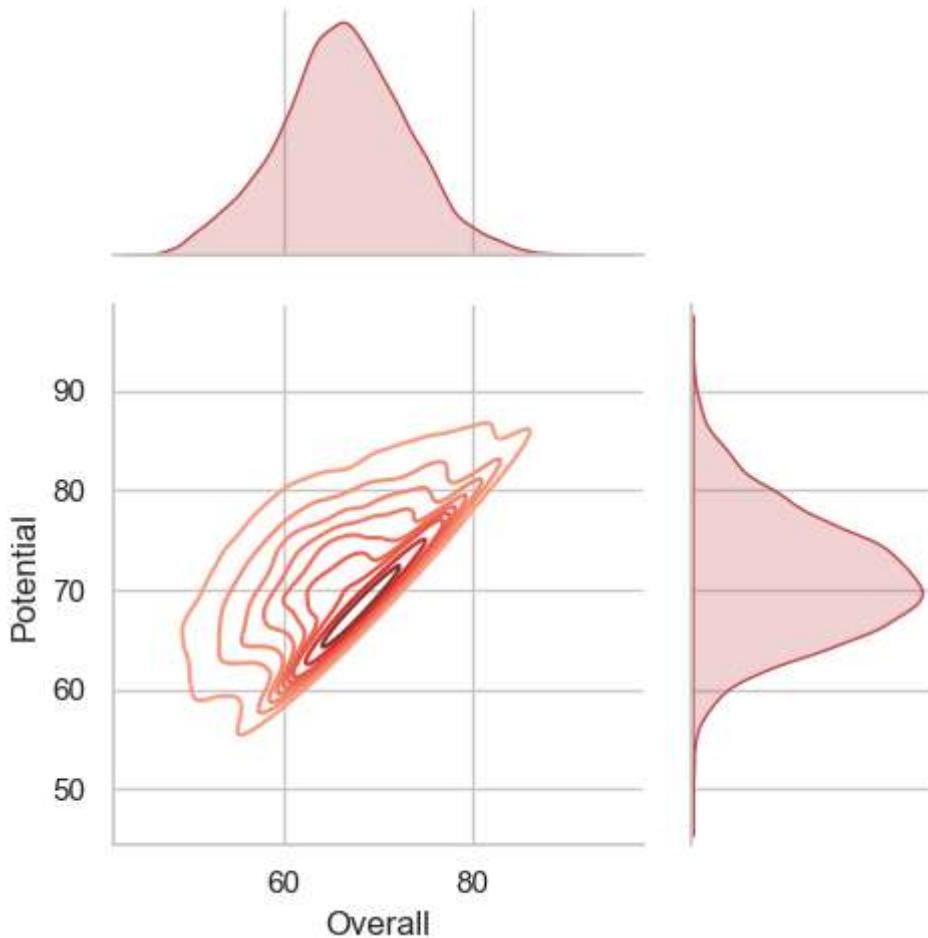
```
In [68]: g = sns.JointGrid(x="Overall", y="Potential", data=fifa19)
g = g.plot_joint(plt.scatter, color=".5", edgecolor="white")
g = g.plot_marginals(sns.distplot, kde=False, color=".5")
plt.show()
```



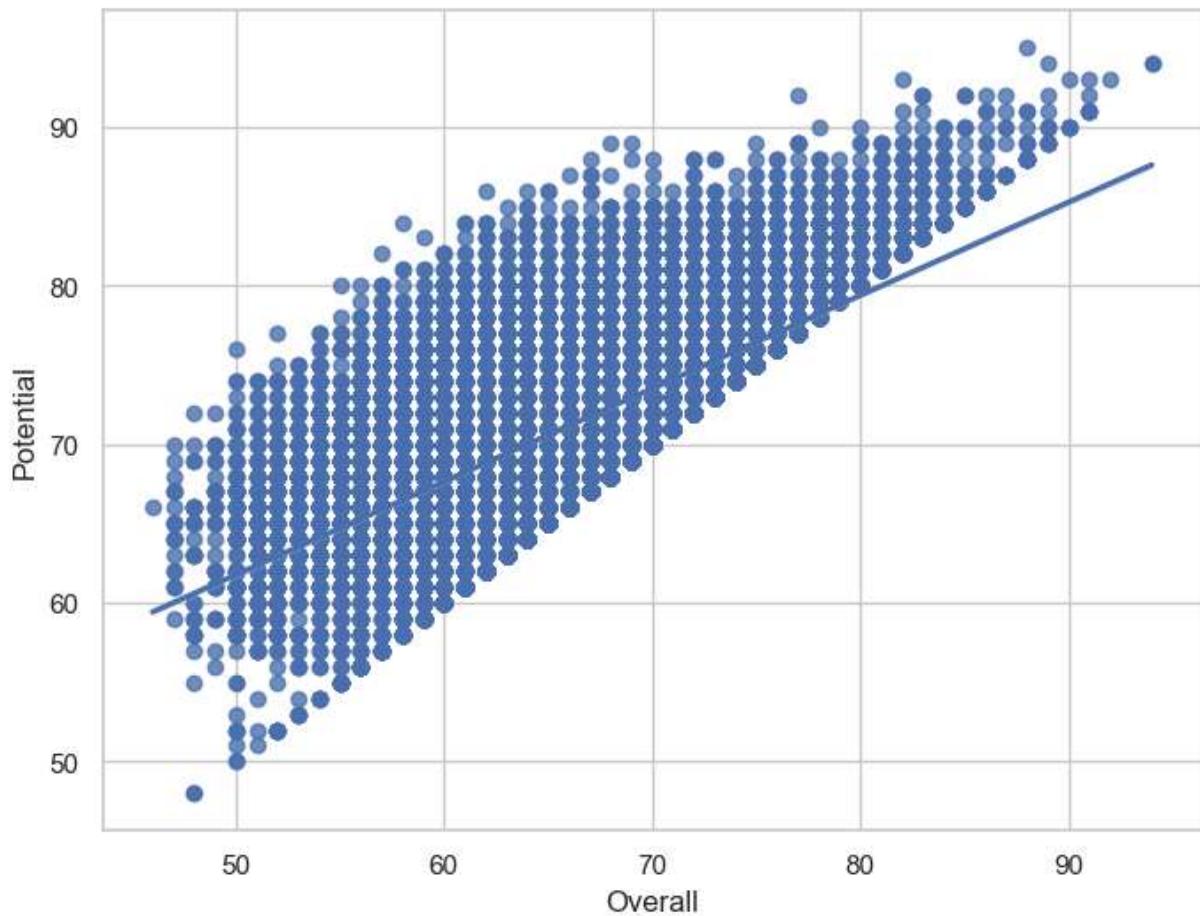
```
In [69]: g = sns.JointGrid(x="Overall", y="Potential", data=fifa19, space=0)
g = g.plot_joint(sns.kdeplot, cmap="Blues_d")
g = g.plot_marginals(sns.kdeplot, shade=True)
plt.show()
```



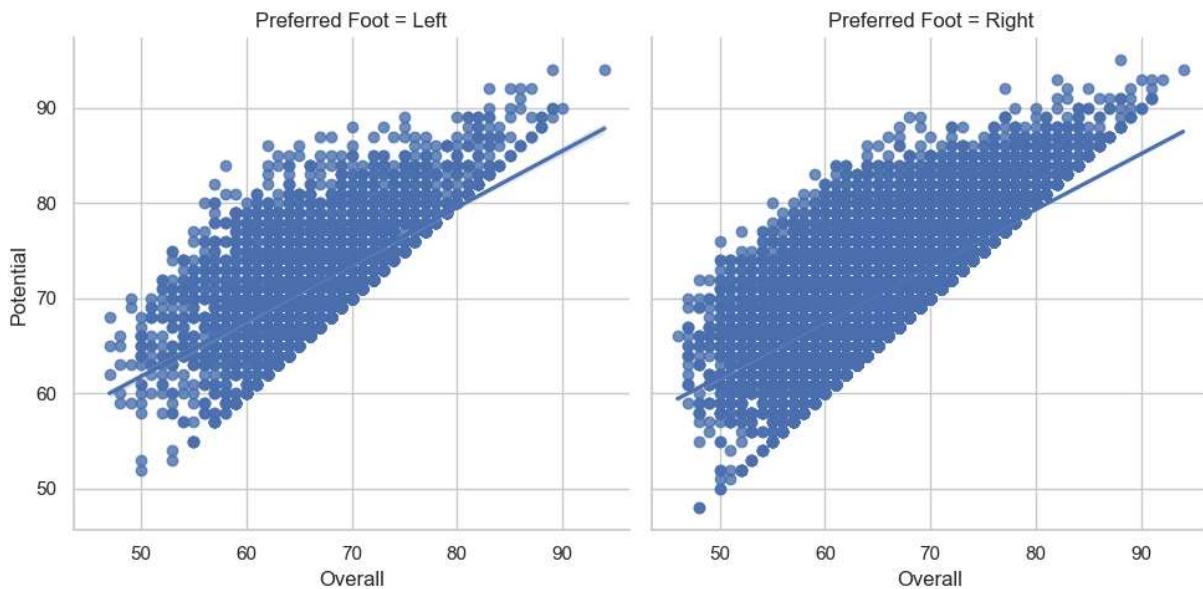
```
In [70]: g = sns.JointGrid(x="Overall", y="Potential", data=fifa19, height=5, ratio=2)
g = g.plot_joint(sns.kdeplot, cmap="Reds_d")
g = g.plot_marginals(sns.kdeplot, color="r", shade=True)
plt.show()
```



```
In [71]: f, ax = plt.subplots(figsize=(8, 6))
ax = sns.regplot(x="Overall", y="Potential", data=fifa19)
plt.show()
```

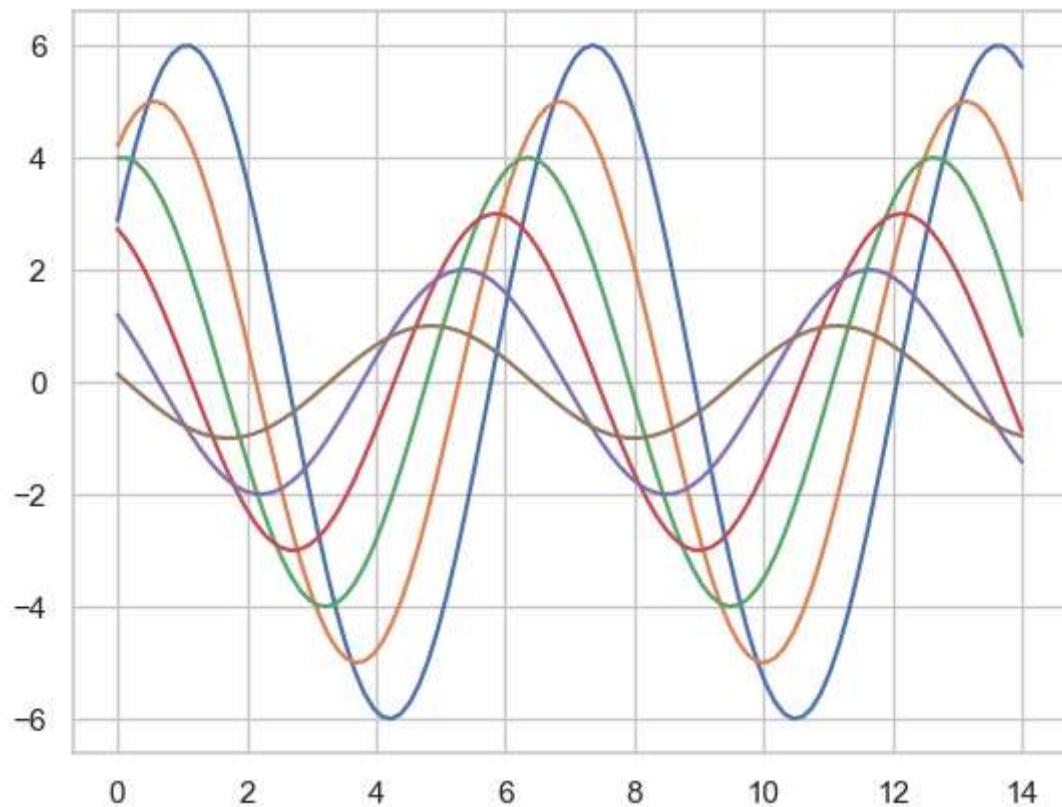


```
In [72]: sns.lmplot(x="Overall", y="Potential", col="Preferred Foot", data=fifa19, col_wrap=2)
plt.show()
```

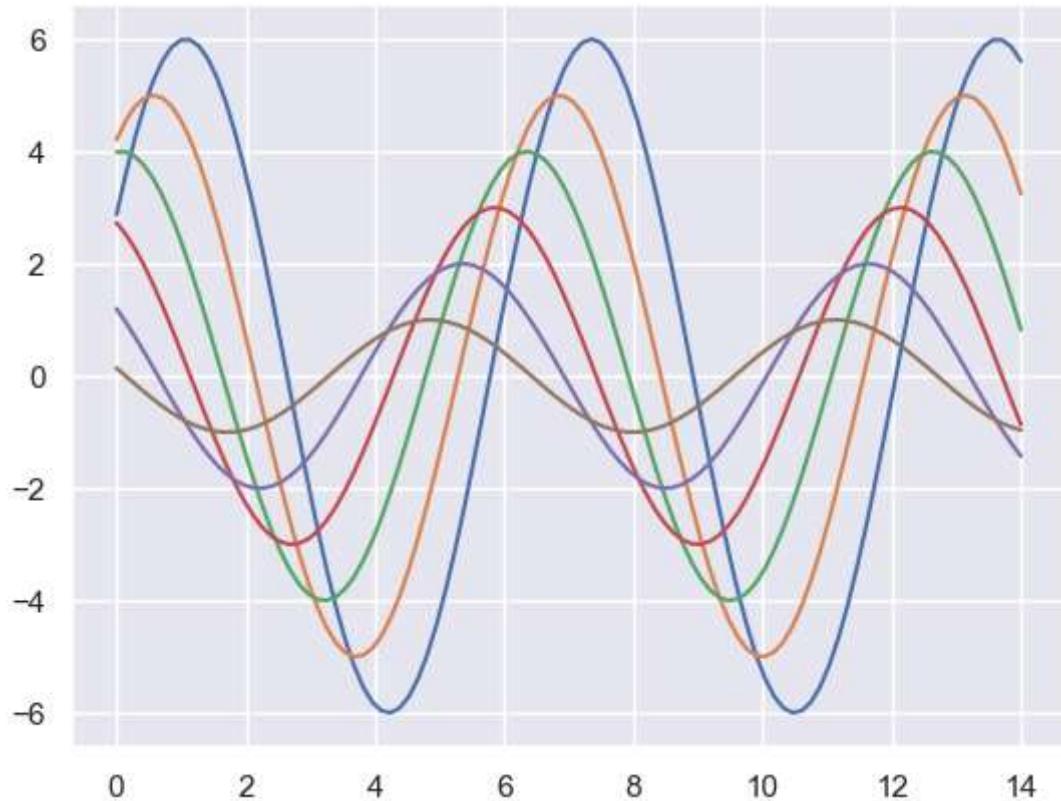


```
In [73]: def sinplot(flip=1):
    x=np.linspace(0,14,100)
    for i in range(1,7):
        plt.plot(x,np.sin(x+i*.5)*(7-i)*flip)
```

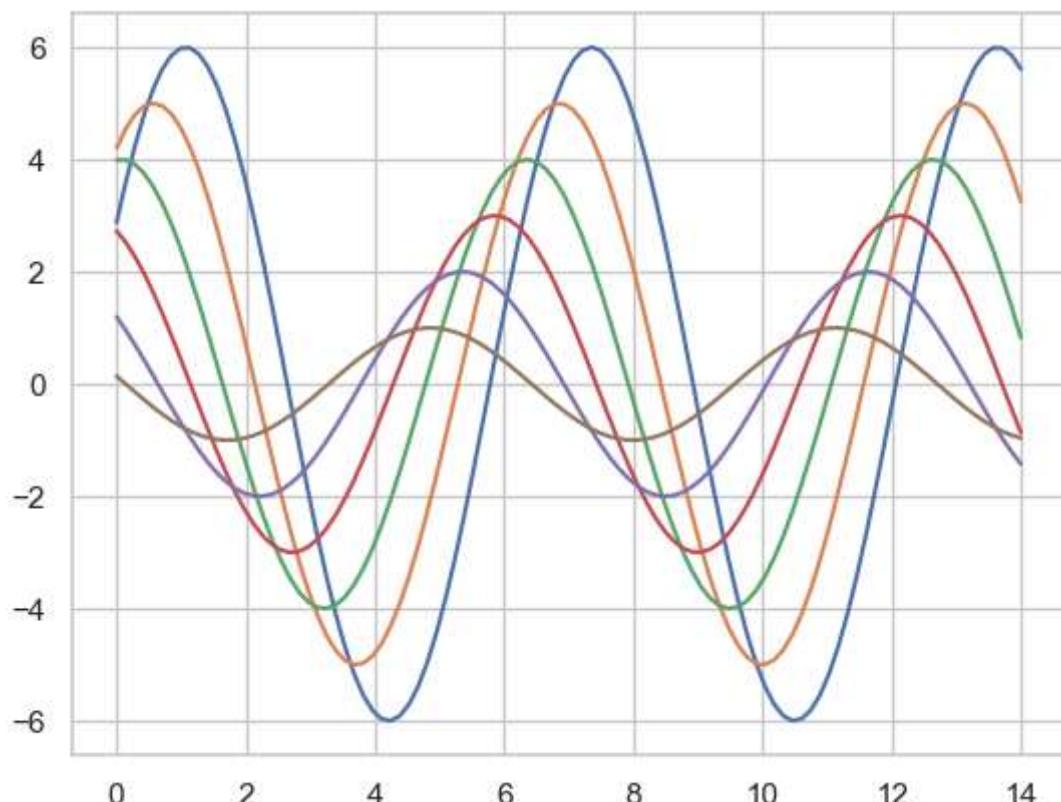
```
In [74]: sinplot()  
plt.show()
```



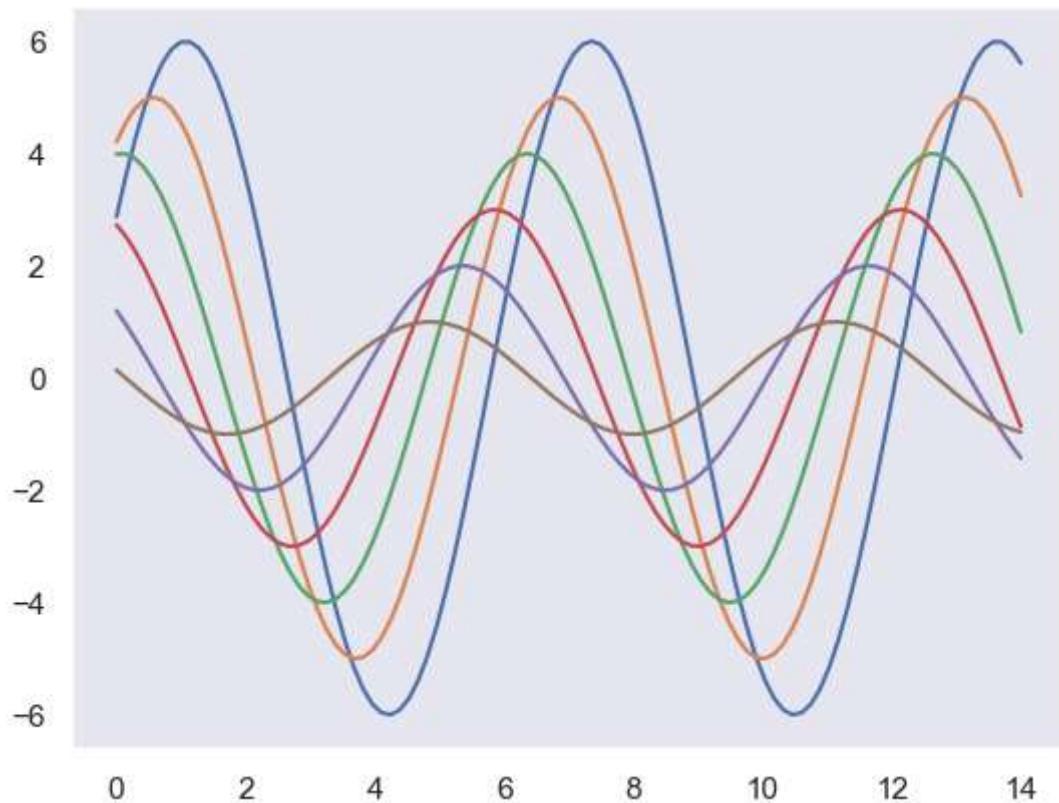
```
In [75]: sns.set()  
sinplot()  
plt.show()
```



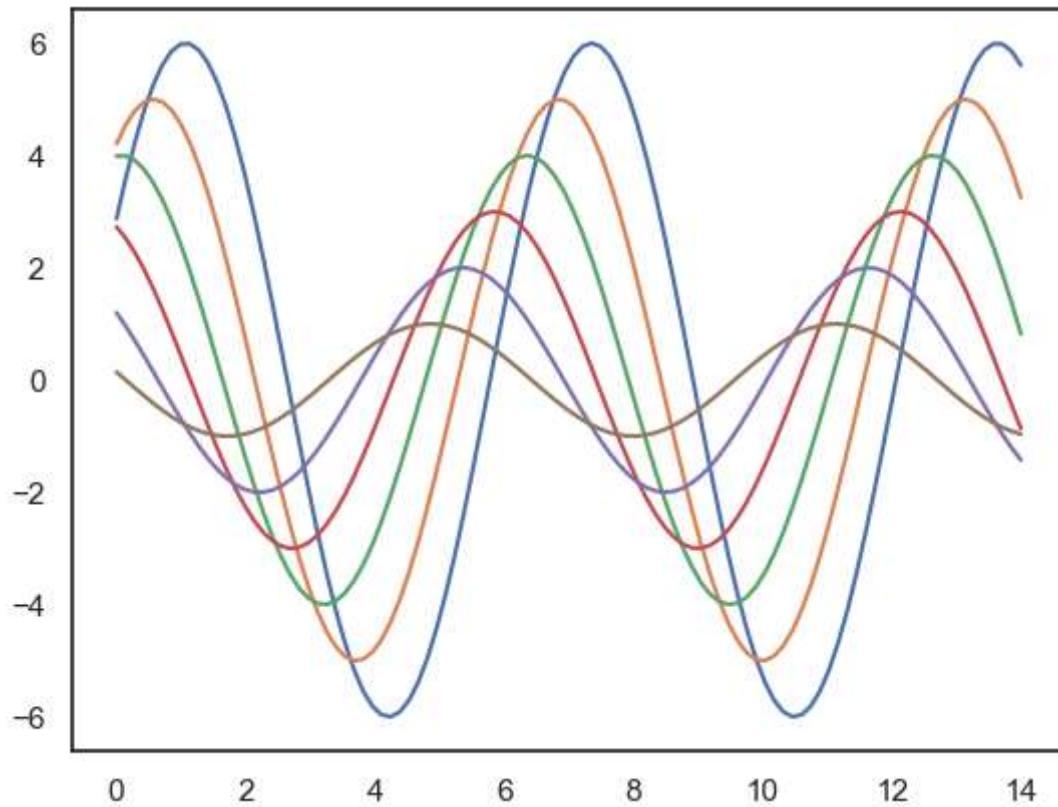
```
In [76]: sns.set_style("whitegrid")
sinplot()
plt.show()
```



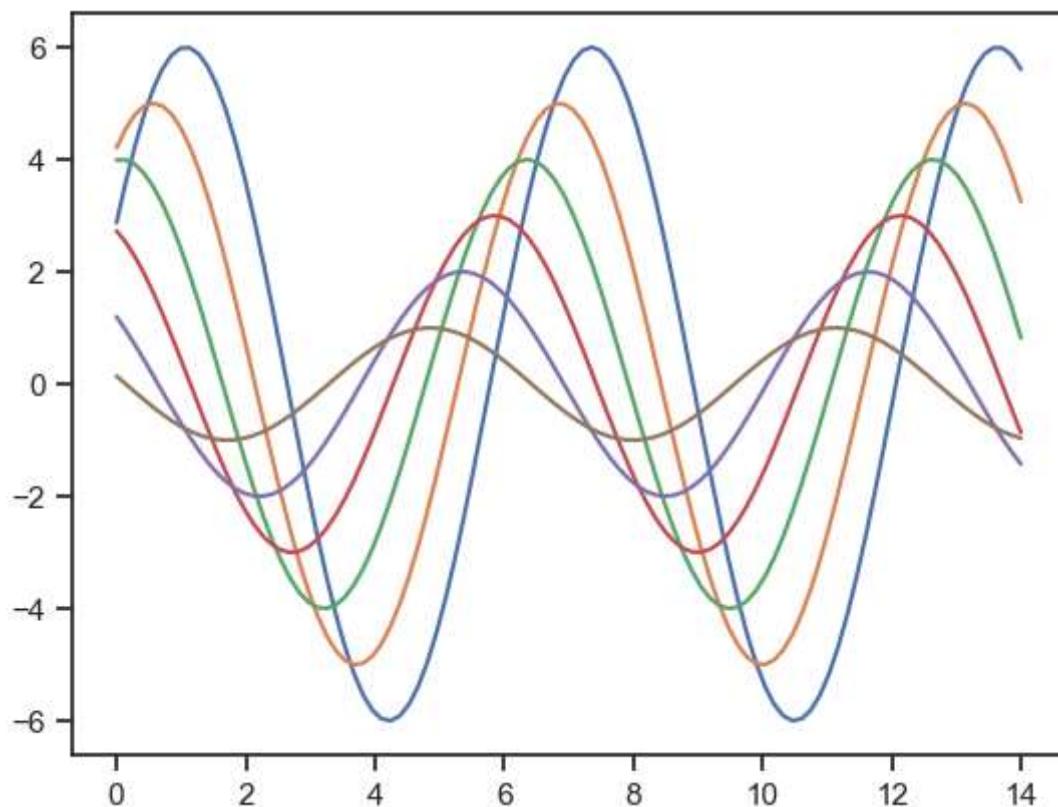
```
In [77]: sns.set_style("dark")
sinplot()
plt.show()
```



```
In [78]: sns.set_style("white")
sinplot()
plt.show()
```



```
In [79]: sns.set_style("ticks")
sinplot()
plt.show()
```



In []: