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 os
for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))
```

In [3]:
```
# ignore warnings
import warnings
warnings.filterwarnings('ignore')
```

In [4]:
```
fifa = pd.read_csv(r'C:\Users\lenovo\Desktop\NIT FILES\9th- Seaborn, Eda practic
```

In [5]:
```
fifa
```

Out[5]:

	ID	Name	Age	Photo	Nationa
0	158023	L. Messi	31	https://cdn.sofifa.org/players/4/19/158023.png	Argen
1	20801	Cristiano Ronaldo	33	https://cdn.sofifa.org/players/4/19/20801.png	Portu
2	190871	Neymar Jr	26	https://cdn.sofifa.org/players/4/19/190871.png	B
3	193080	De Gea	27	https://cdn.sofifa.org/players/4/19/193080.png	Sp
4	192985	K. De Bruyne	27	https://cdn.sofifa.org/players/4/19/192985.png	Belg
...	...	...	...	...	
18202	238813	J. Lundstram	19	https://cdn.sofifa.org/players/4/19/238813.png	Engl
18203	243165	N. Christoffersson	19	https://cdn.sofifa.org/players/4/19/243165.png	Swe
18204	241638	B. Worman	16	https://cdn.sofifa.org/players/4/19/241638.png	Engl
18205	246268	D. Walker-Rice	17	https://cdn.sofifa.org/players/4/19/246268.png	Engl
18206	246269	G. Nugent	16	https://cdn.sofifa.org/players/4/19/246269.png	Engl

18207 rows × 88 columns

In [6]:
```
fifa.head()
```

Out[6]:

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

5 rows × 88 columns

In [7]:
```
fifa.info()
```

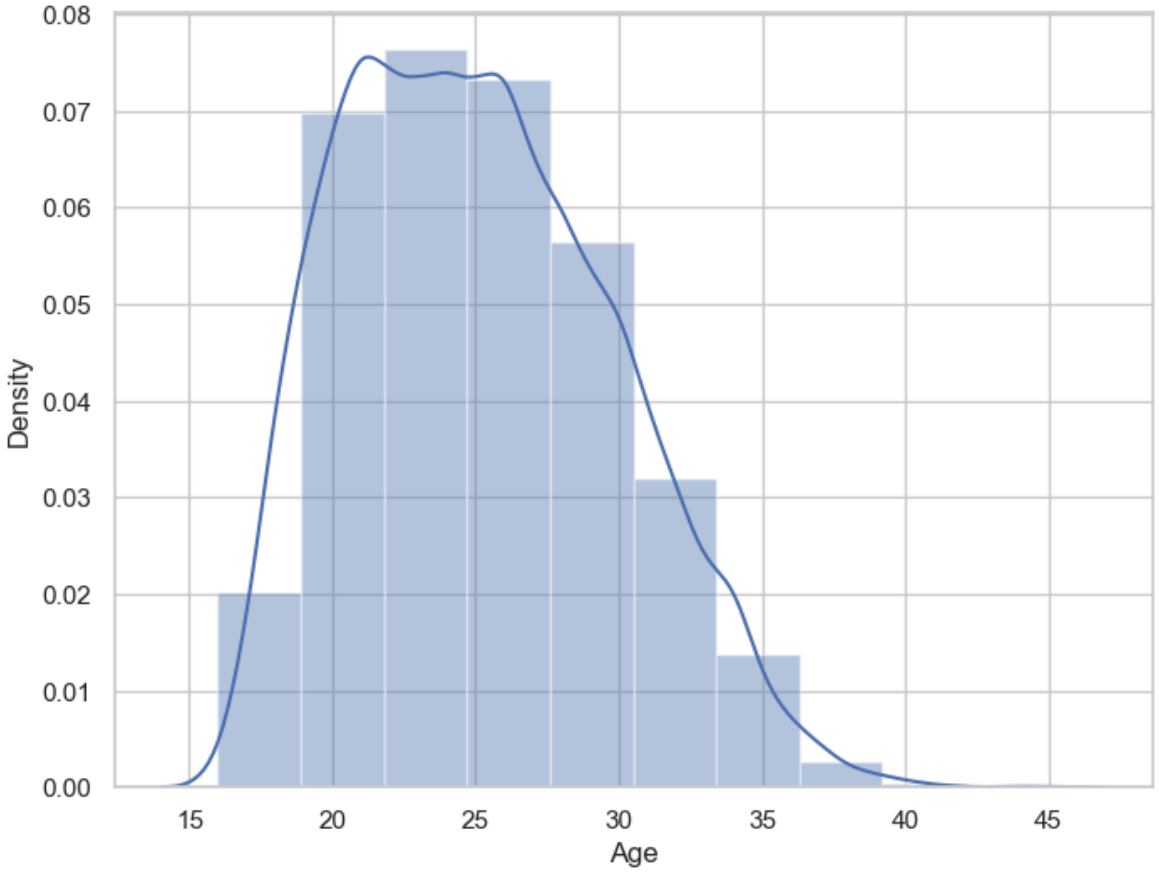
```
<class 'pandas.core.frame.DataFrame'>
Index: 18207 entries, 0 to 18206
Data columns (total 88 columns):
 #   Column                    Non-Null Count  Dtype  
---  ------                    --------------  -----  
 0   ID                        18207 non-null  int64  
 1   Name                      18207 non-null  object 
 2   Age                       18207 non-null  int64  
 3   Photo                     18207 non-null  object 
 4   Nationality               18207 non-null  object 
 5   Flag                      18207 non-null  object 
 6   Overall                   18207 non-null  int64  
 7   Potential                 18207 non-null  int64  
 8   Club                      17966 non-null  object 
 9   Club Logo                 18207 non-null  object 
 10  Value                     18207 non-null  object 
 11  Wage                      18207 non-null  object 
 12  Special                   18207 non-null  int64  
 13  Preferred Foot            18159 non-null  object 
 14  International Reputation  18159 non-null  float64
 15  Weak Foot                 18159 non-null  float64
 16  Skill Moves               18159 non-null  float64
 17  Work Rate                 18159 non-null  object 
 18  Body Type                 18159 non-null  object 
 19  Real Face                 18159 non-null  object 
 20  Position                  18147 non-null  object 
 21  Jersey Number             18147 non-null  float64
 22  Joined                    16654 non-null  object 
 23  Loaned From               1264 non-null   object 
 24  Contract Valid Until      17918 non-null  object 
 25  Height                    18159 non-null  object 
 26  Weight                    18159 non-null  object 
 27  LS                        16122 non-null  object 
 28  ST                        16122 non-null  object 
 29  RS                        16122 non-null  object 
 30  LW                        16122 non-null  object 
 31  LF                        16122 non-null  object 
 32  CF                        16122 non-null  object 
 33  RF                        16122 non-null  object 
 34  RW                        16122 non-null  object 
 35  LAM                       16122 non-null  object 
 36  CAM                       16122 non-null  object 
 37  RAM                       16122 non-null  object 
 38  LM                        16122 non-null  object 
 39  LCM                       16122 non-null  object 
 40  CM                        16122 non-null  object 
 41  RCM                       16122 non-null  object 
 42  RM                        16122 non-null  object 
 43  LWB                       16122 non-null  object 
 44  LDM                       16122 non-null  object 
 45  CDM                       16122 non-null  object 
 46  RDM                       16122 non-null  object 
 47  RWB                       16122 non-null  object 
 48  LB                        16122 non-null  object 
 49  LCB                       16122 non-null  object 
 50  CB                        16122 non-null  object 
 51  RCB                       16122 non-null  object 
 52  RB                        16122 non-null  object 
 53  Crossing                  18159 non-null  float64
 54  Finishing                 18159 non-null  float64
```

```
 55  HeadingAccuracy           18159 non-null  float64
 56  ShortPassing              18159 non-null  float64
 57  Volleys                   18159 non-null  float64
 58  Dribbling                 18159 non-null  float64
 59  Curve                     18159 non-null  float64
 60  FKAccuracy                18159 non-null  float64
 61  LongPassing               18159 non-null  float64
 62  BallControl               18159 non-null  float64
 63  Acceleration              18159 non-null  float64
 64  SprintSpeed               18159 non-null  float64
 65  Agility                   18159 non-null  float64
 66  Reactions                 18159 non-null  float64
 67  Balance                   18159 non-null  float64
 68  ShotPower                 18159 non-null  float64
 69  Jumping                   18159 non-null  float64
 70  Stamina                   18159 non-null  float64
 71  Strength                  18159 non-null  float64
 72  LongShots                 18159 non-null  float64
 73  Aggression                18159 non-null  float64
 74  Interceptions             18159 non-null  float64
 75  Positioning               18159 non-null  float64
 76  Vision                    18159 non-null  float64
 77  Penalties                 18159 non-null  float64
 78  Composure                 18159 non-null  float64
 79  Marking                   18159 non-null  float64
 80  StandingTackle            18159 non-null  float64
 81  SlidingTackle             18159 non-null  float64
 82  GKDiving                  18159 non-null  float64
 83  GKHandling                18159 non-null  float64
 84  GKKicking                 18159 non-null  float64
 85  GKPositioning             18159 non-null  float64
 86  GKReflexes                18159 non-null  float64
 87  Release Clause            16643 non-null  object
dtypes: float64(38), int64(5), object(45)
memory usage: 12.4+ MB
```

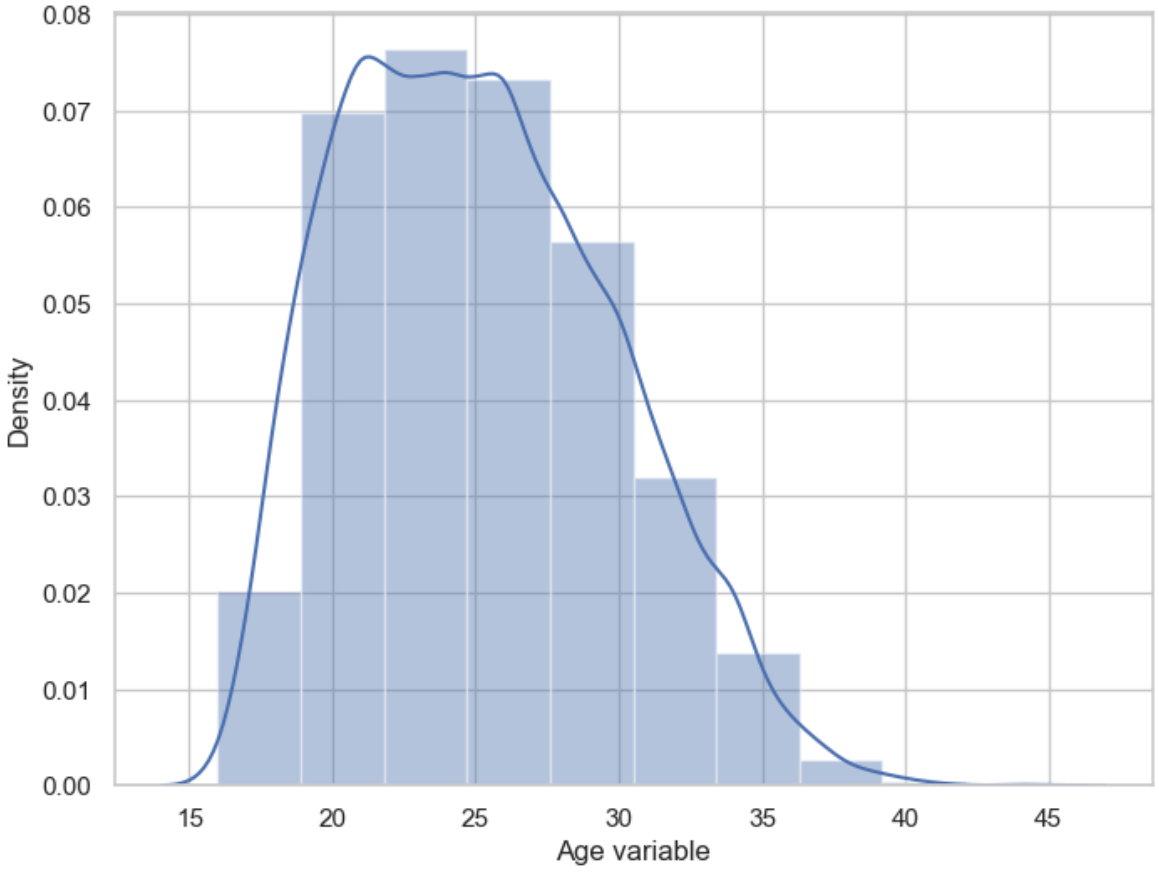
In [8]:
```
fifa['Body Type'].value_counts()
```

Out[8]:
```
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
```

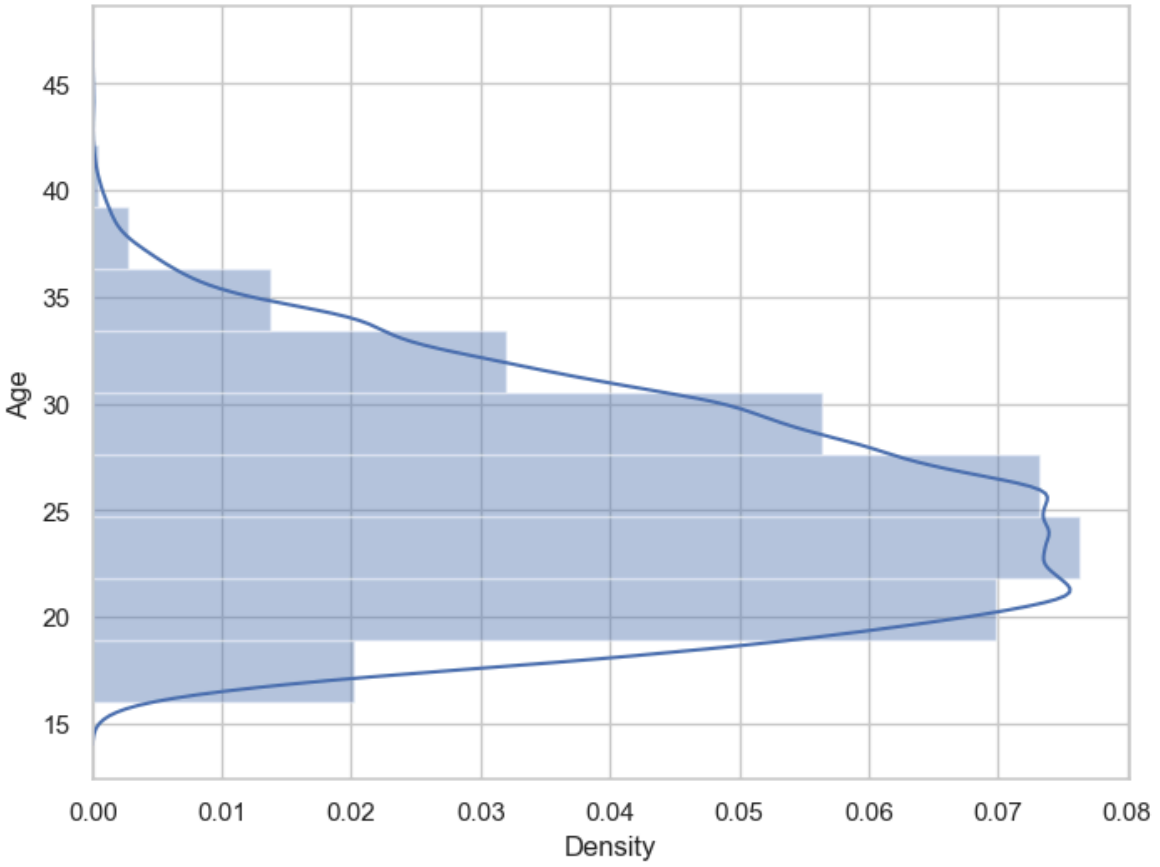
In [9]:
```
f, ax = plt.subplots(figsize=(8,6))
x = fifa['Age']
ax = sns.distplot(x, bins=10)
plt.show()
```



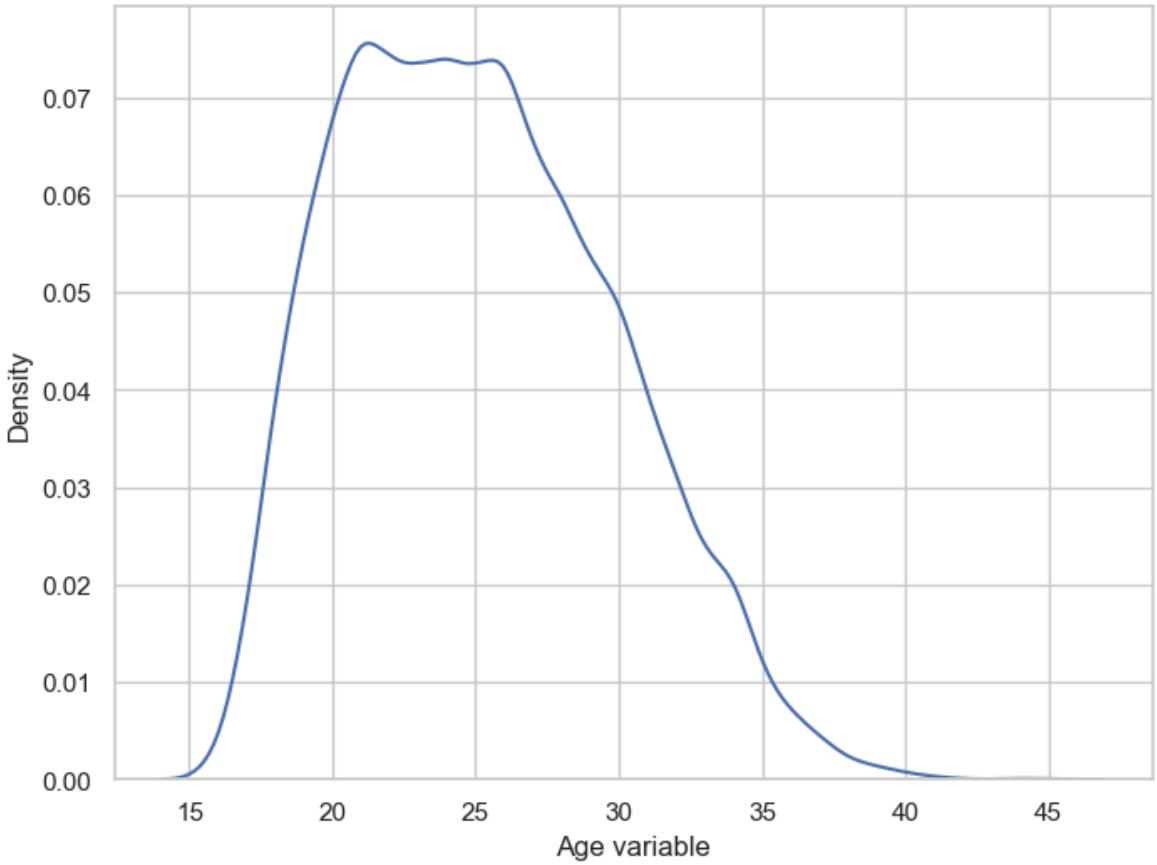
In [10]:
```
f, ax = plt.subplots(figsize=(8,6))
x = fifa['Age']
x = pd.Series(x, name="Age variable")
ax = sns.distplot(x, bins=10)
plt.show()
```



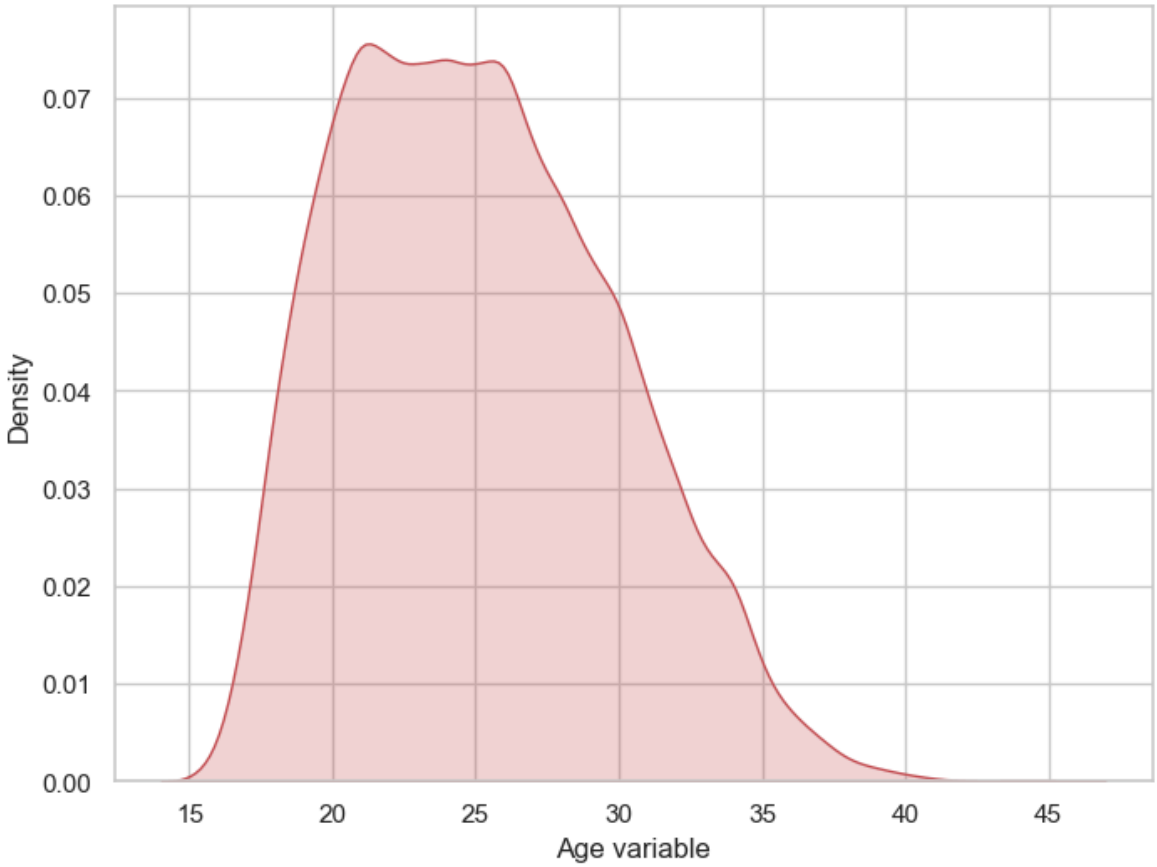
In [11]:
```
f, ax = plt.subplots(figsize=(8,6))
x = fifa['Age']
ax = sns.distplot(x, bins=10, vertical = True)
plt.show()
```



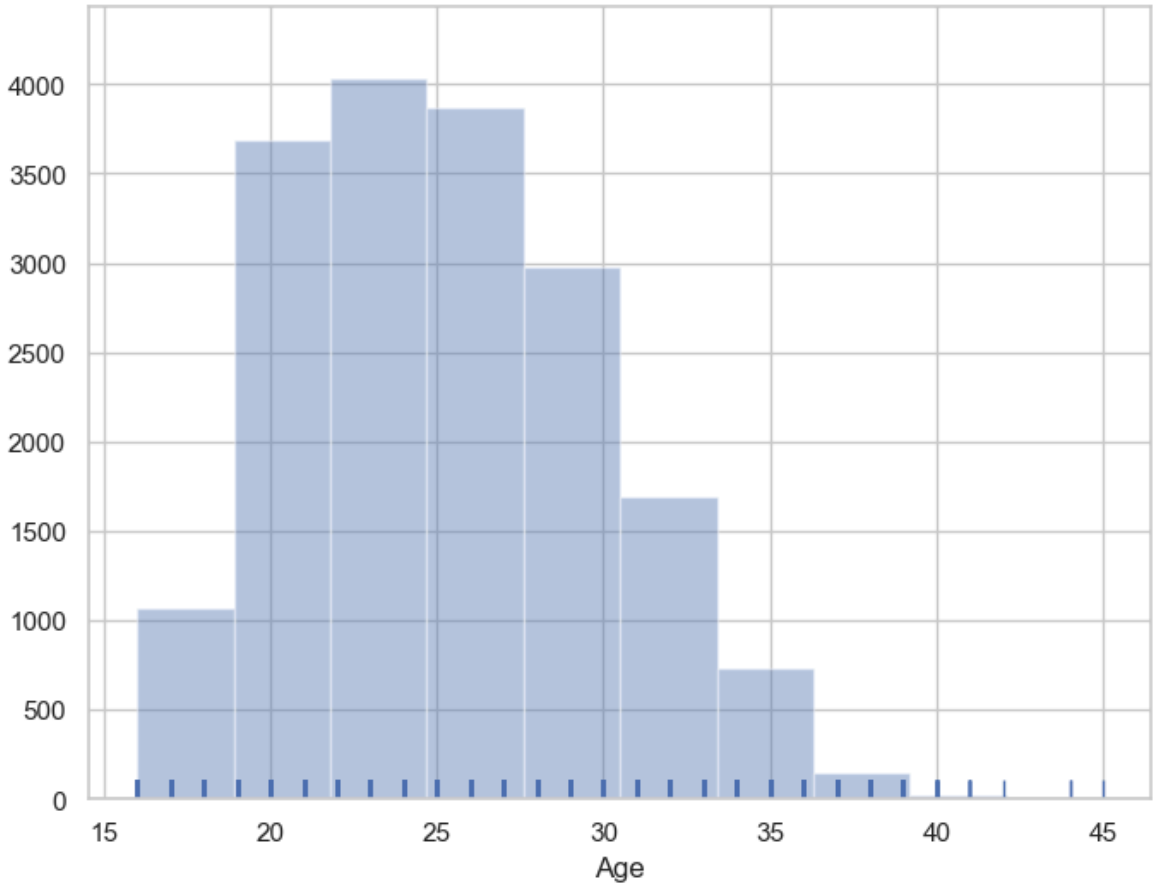
In [12]:
```
f, ax = plt.subplots(figsize=(8,6))
x = fifa['Age']
x = pd.Series(x, name="Age variable")
ax = sns.kdeplot(x)
plt.show()
```



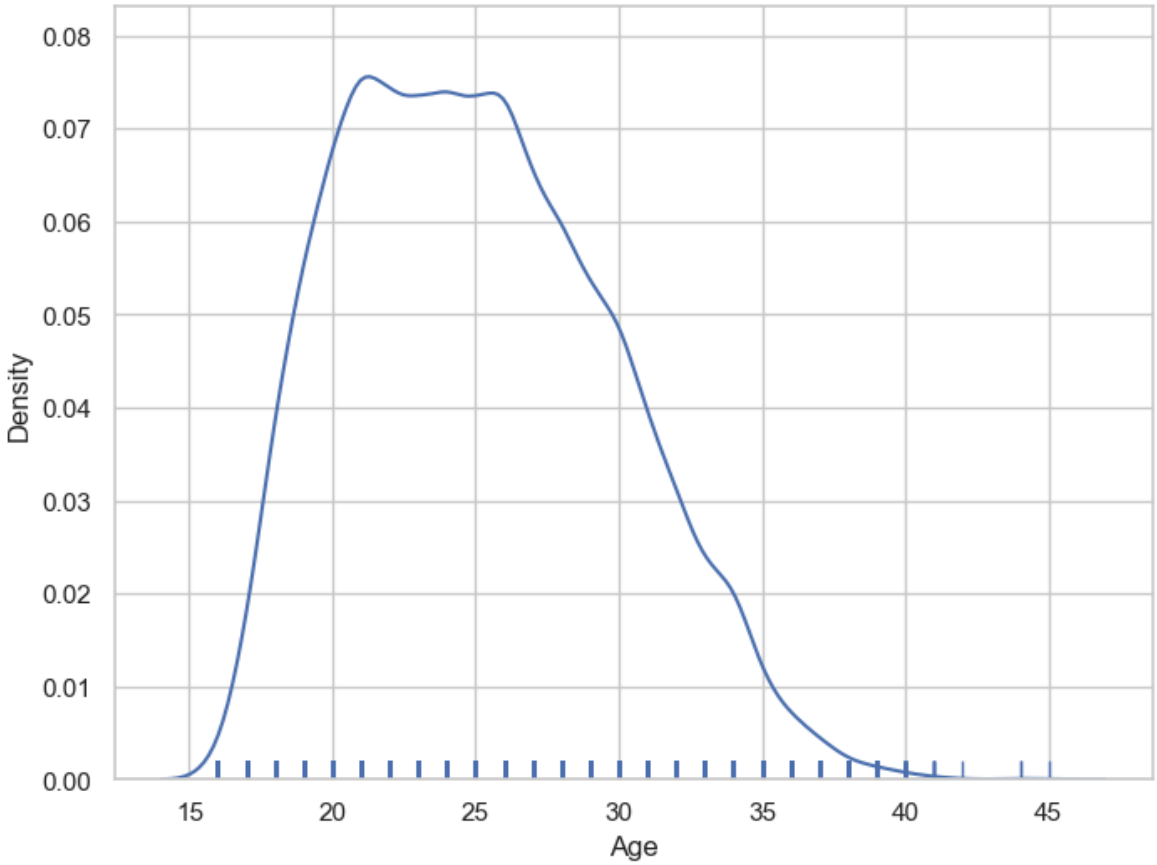
In [13]:
```
f, ax = plt.subplots(figsize=(8,6))
x = fifa['Age']
x = pd.Series(x, name="Age variable")
ax = sns.kdeplot(x, shade=True, color='r')
plt.show()
```



In [14]:
```
f, ax = plt.subplots(figsize=(8,6))
x = fifa['Age']
ax = sns.distplot(x, kde=False, rug=True, bins=10)
plt.show()
```



In [15]:
```
f, ax = plt.subplots(figsize=(8,6))
x = fifa['Age']
ax = sns.distplot(x, hist=False, rug=True, bins=10)
plt.show()
```



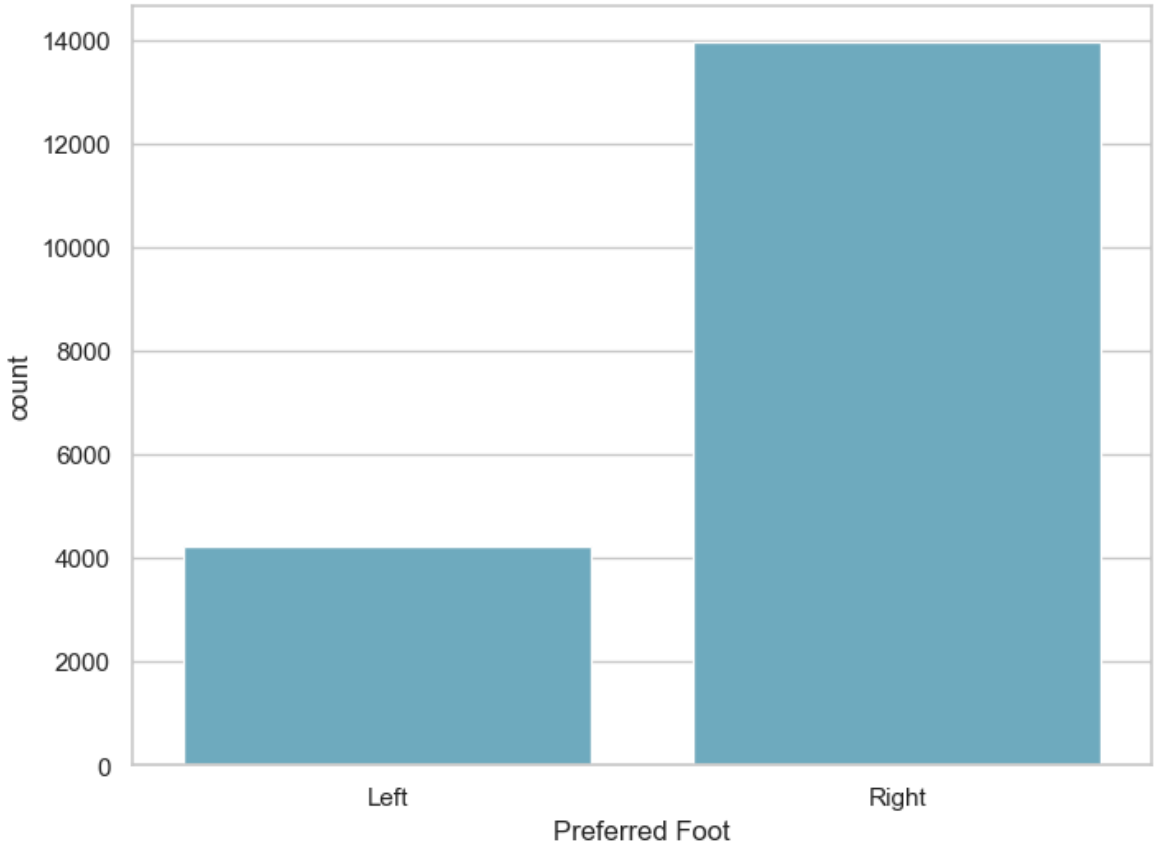
In [16]:
```
fifa['Preferred Foot'].nunique()
```

Out[16]:
```
2
```

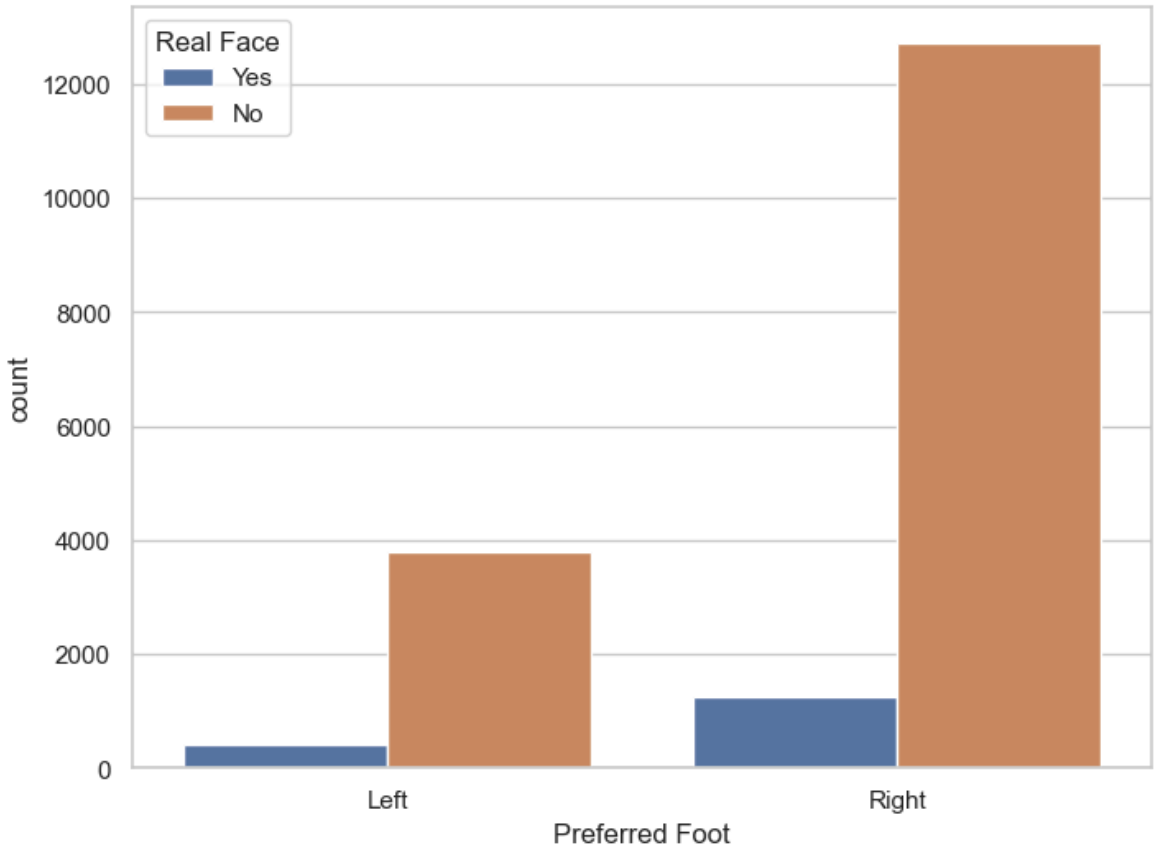
In [17]:
```
fifa['Preferred Foot'].value_counts()
```

Out[17]:
```
Preferred Foot
Right    13948
Left      4211
Name: count, dtype: int64
```

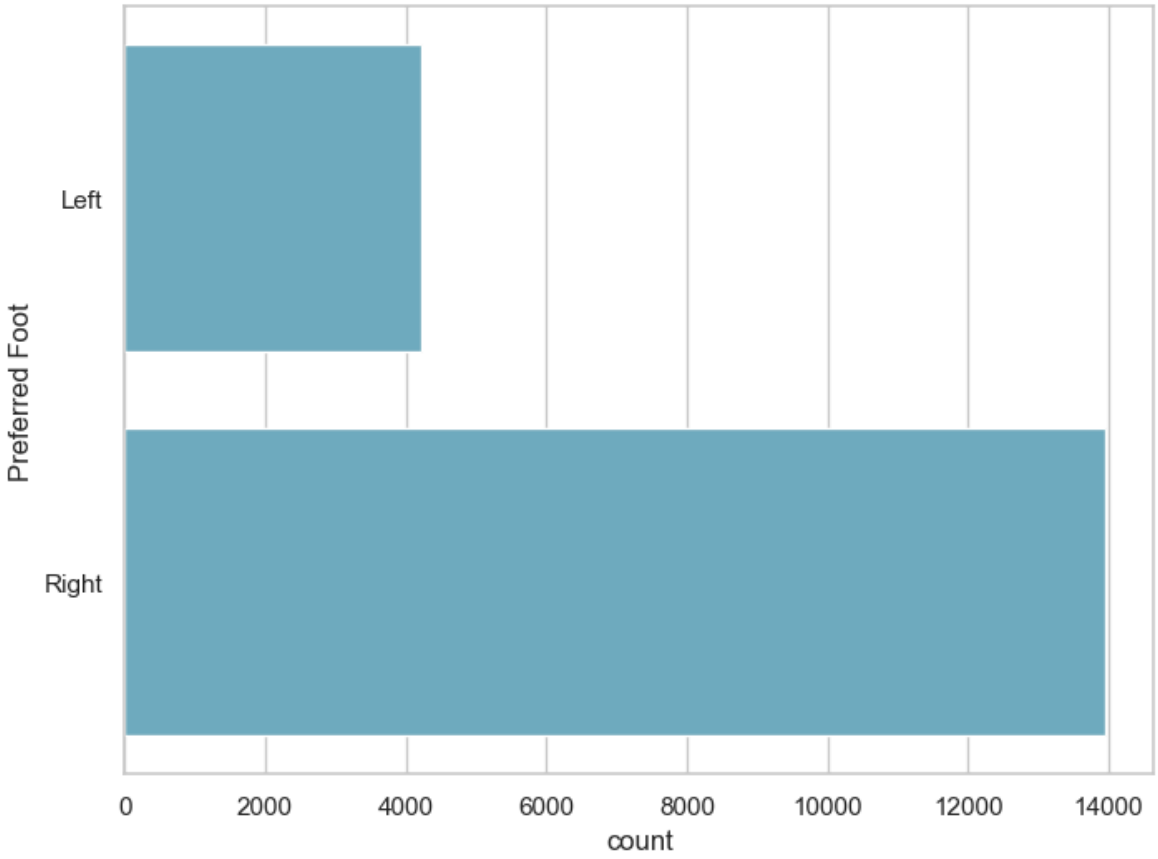
In [18]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.countplot(x="Preferred Foot", data=fifa, color="c")
plt.show()
```



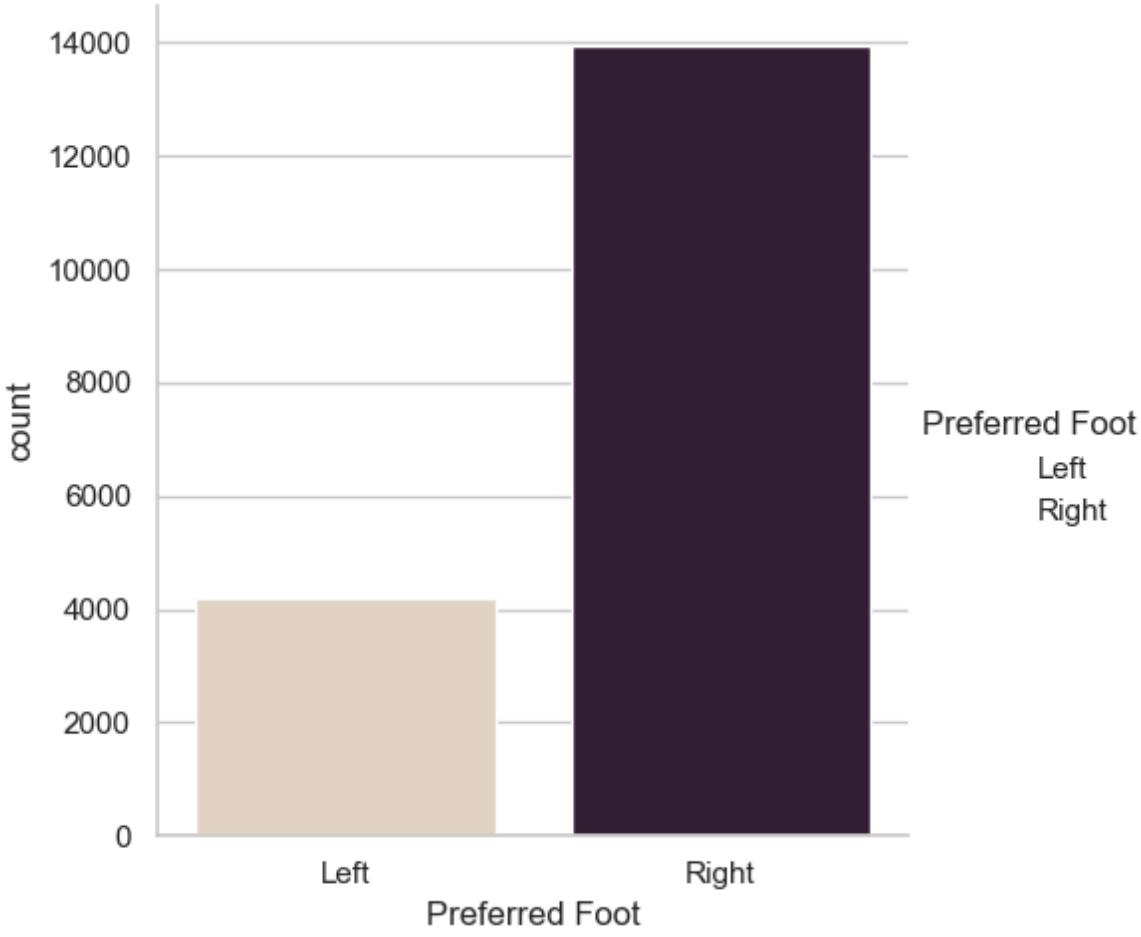
In [19]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.countplot(x="Preferred Foot", hue="Real Face", data=fifa)
plt.show()
```



In [20]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.countplot(y="Preferred Foot", data=fifa, color="c")
plt.show()
```



In [21]:
```
g = sns.catplot(x="Preferred Foot", kind="count", palette="ch:.25", data=fifa)
```



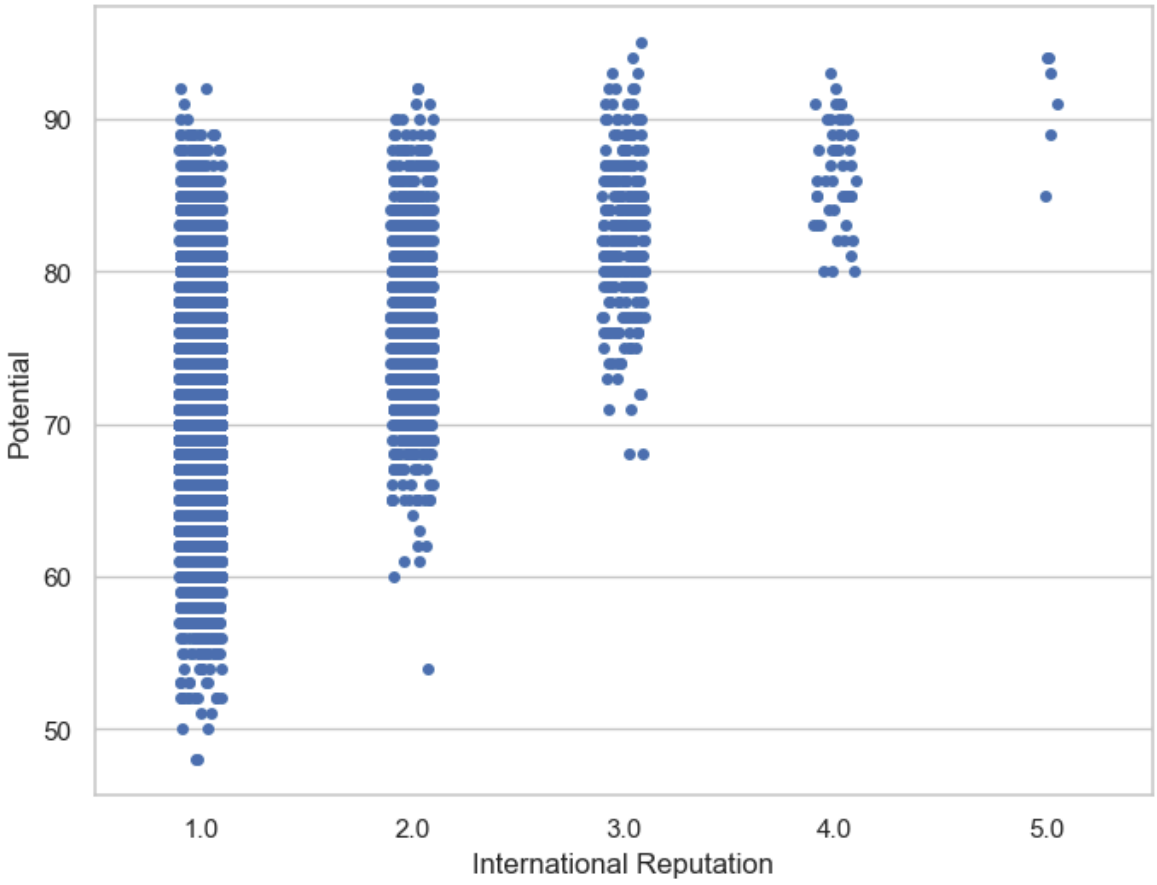
In [23]:
```
fifa['International Reputation'].nunique()
```

Out[23]:
```
5
```

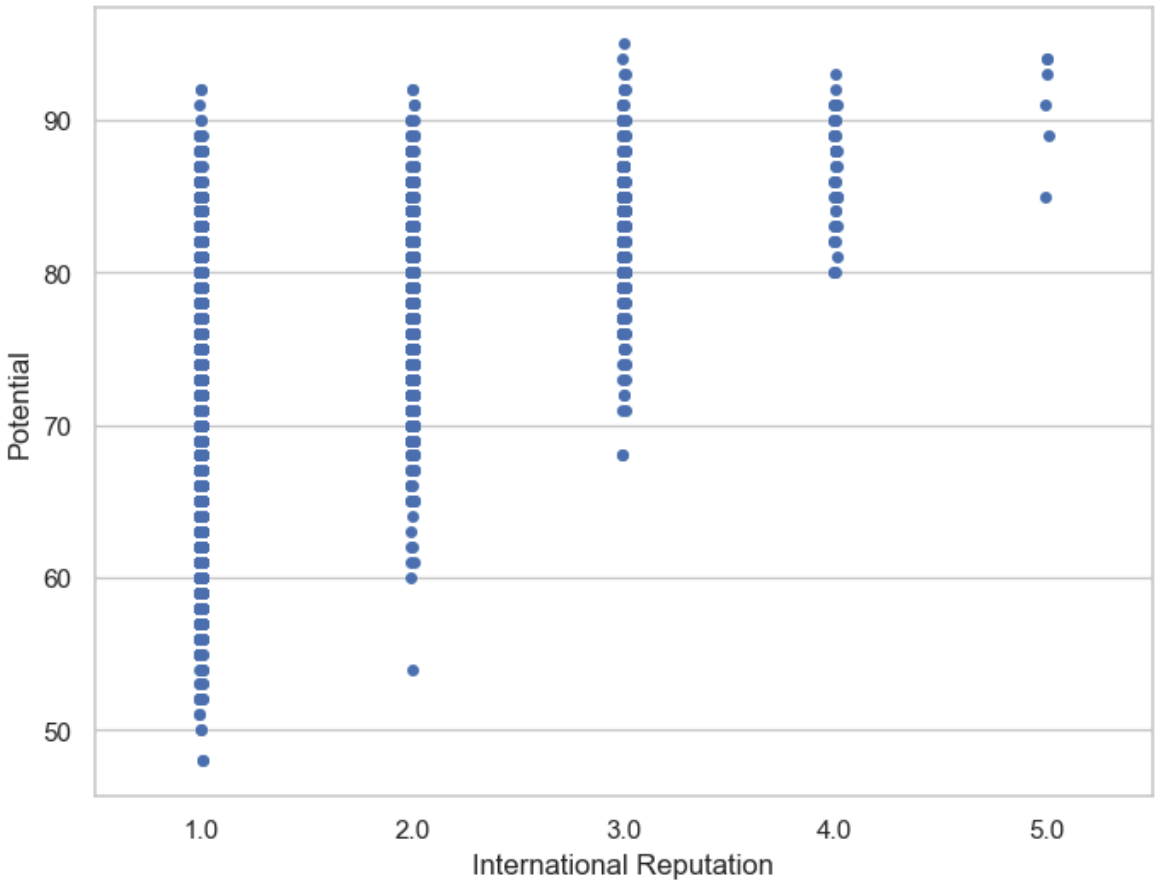
In [24]:
```
fifa['International Reputation'].value_counts()
```

Out[24]:
```
International Reputation
1.0    16532
2.0     1261
3.0      309
4.0       51
5.0        6
Name: count, dtype: int64
```

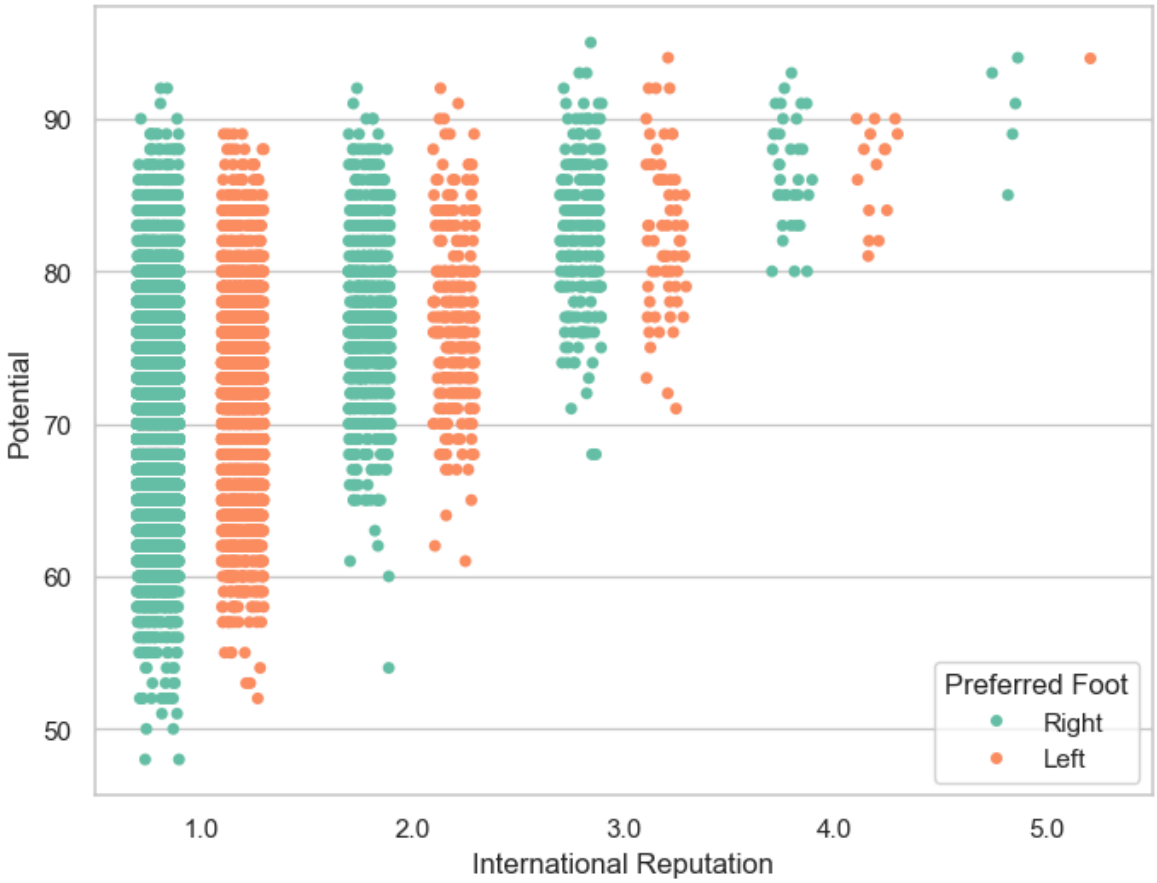
In [25]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.stripplot(x="International Reputation", y="Potential", data=fifa)
plt.show()
```



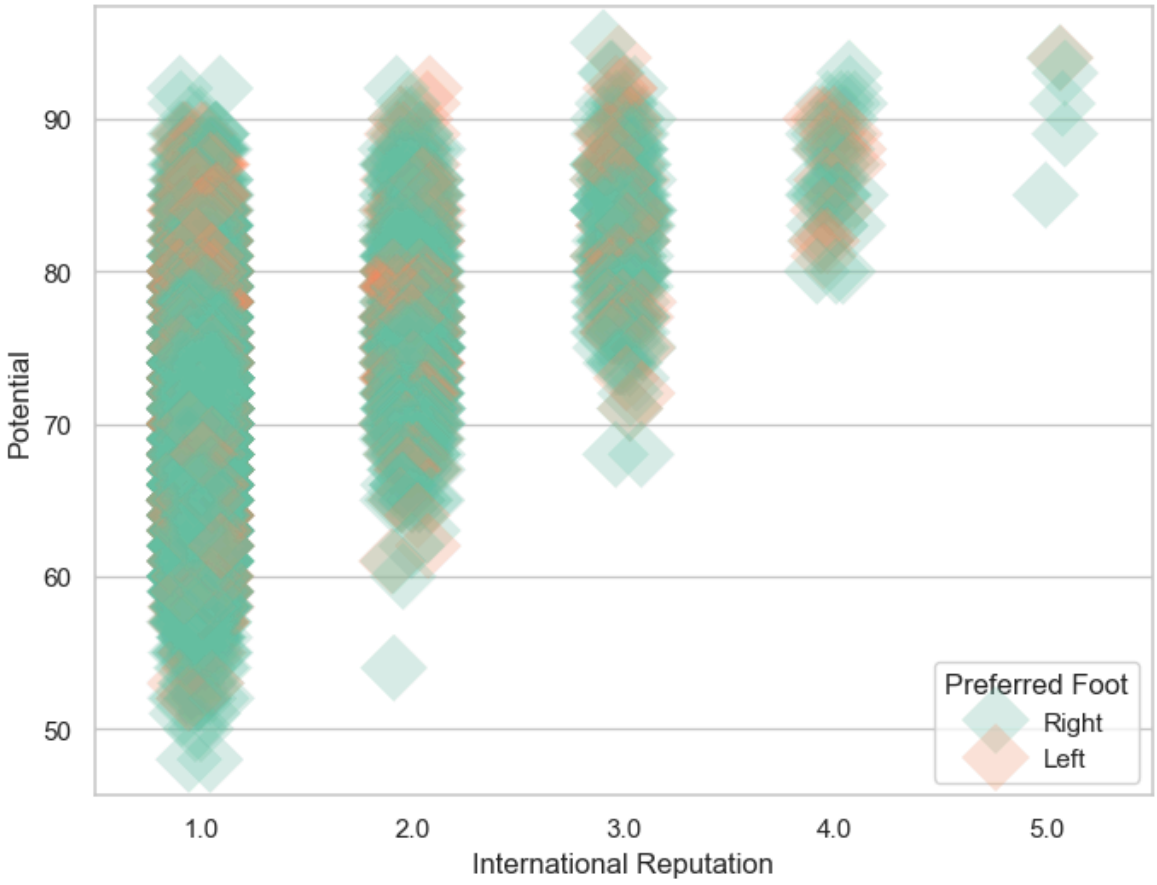
In [26]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.stripplot(x="International Reputation", y="Potential", data=fifa, jitter=0.0
plt.show()
```



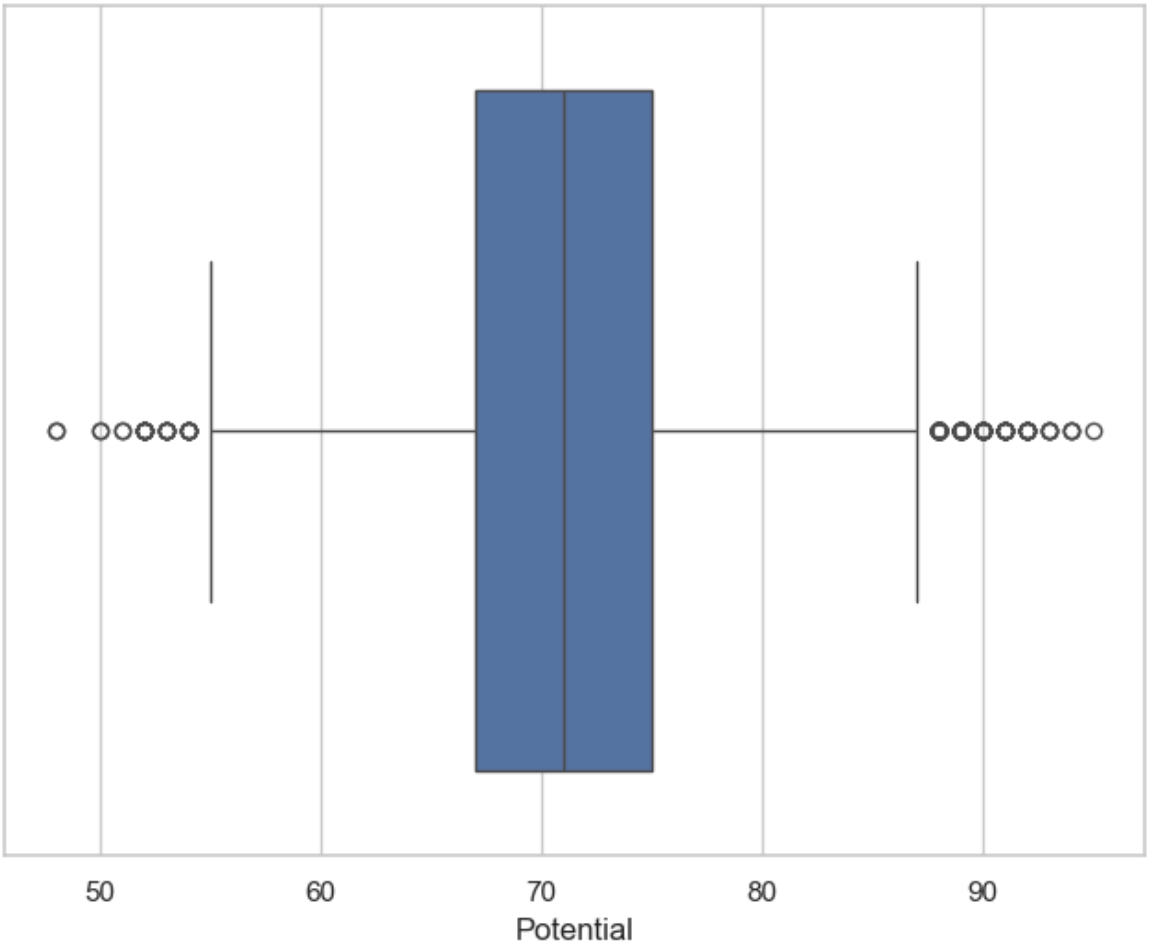
In [27]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.stripplot(x="International Reputation", y="Potential", hue="Preferred Foot",
                    data=fifa, jitter=0.2, palette="Set2", dodge=True)
plt.show()
```



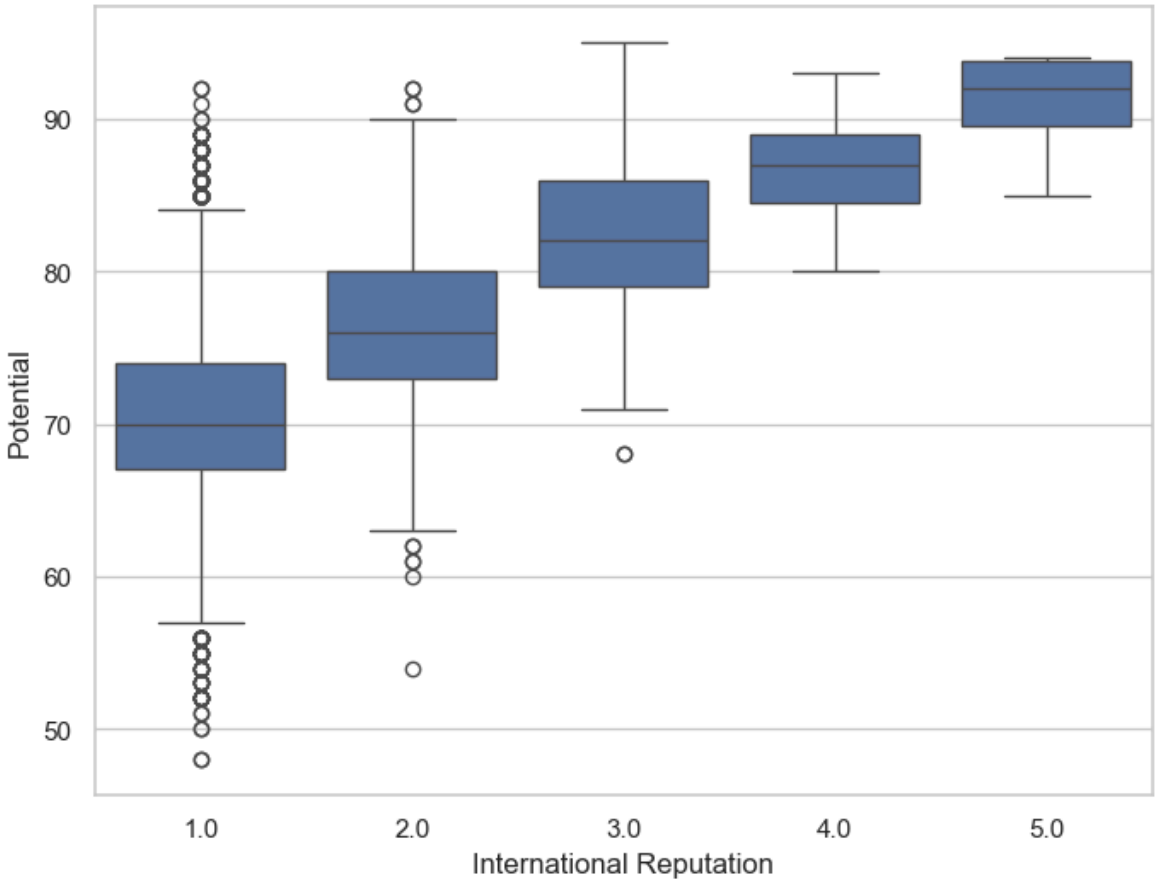
In [28]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.stripplot(x="International Reputation", y="Potential", hue="Preferred Foot",
                    data=fifa, palette="Set2", size=20, marker="D",
                    edgecolor="gray", alpha=.25)
plt.show()
```



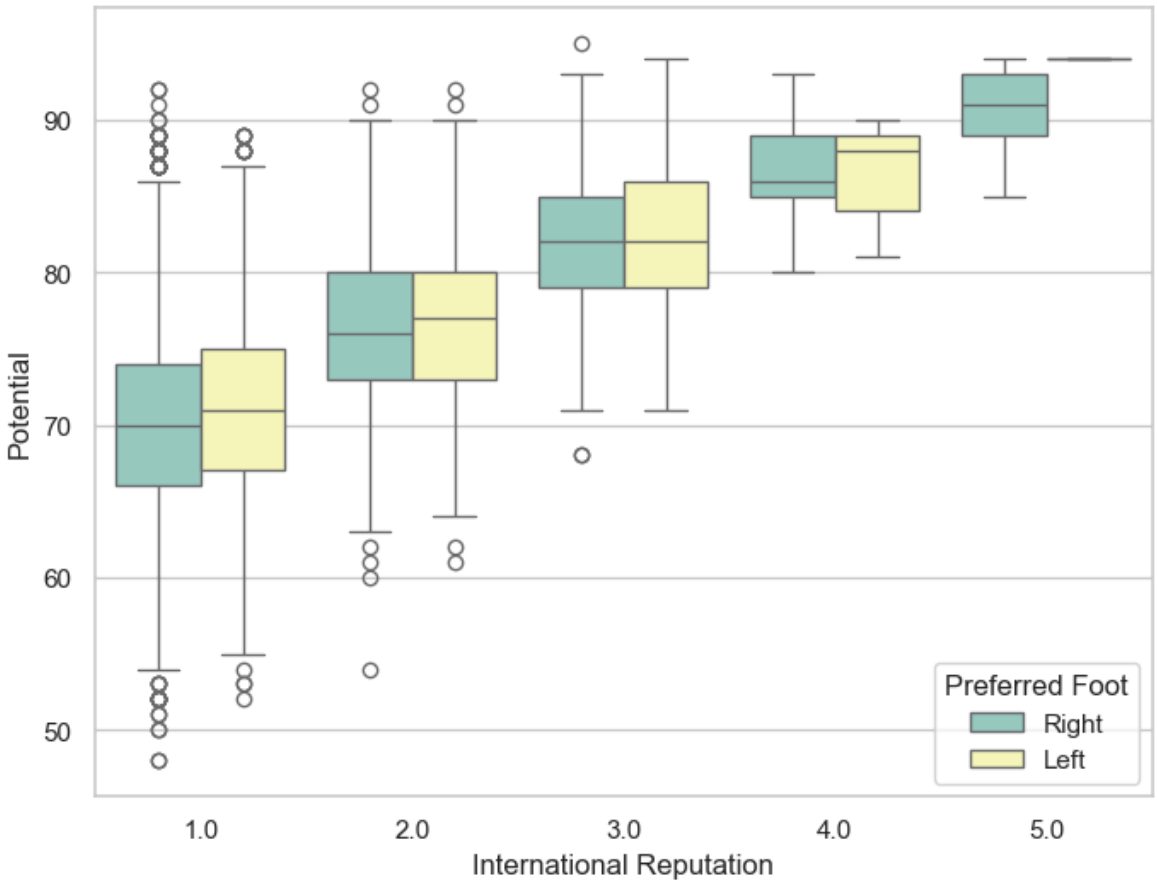
In [29]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.boxplot(x=fifa["Potential"])
plt.show()
```



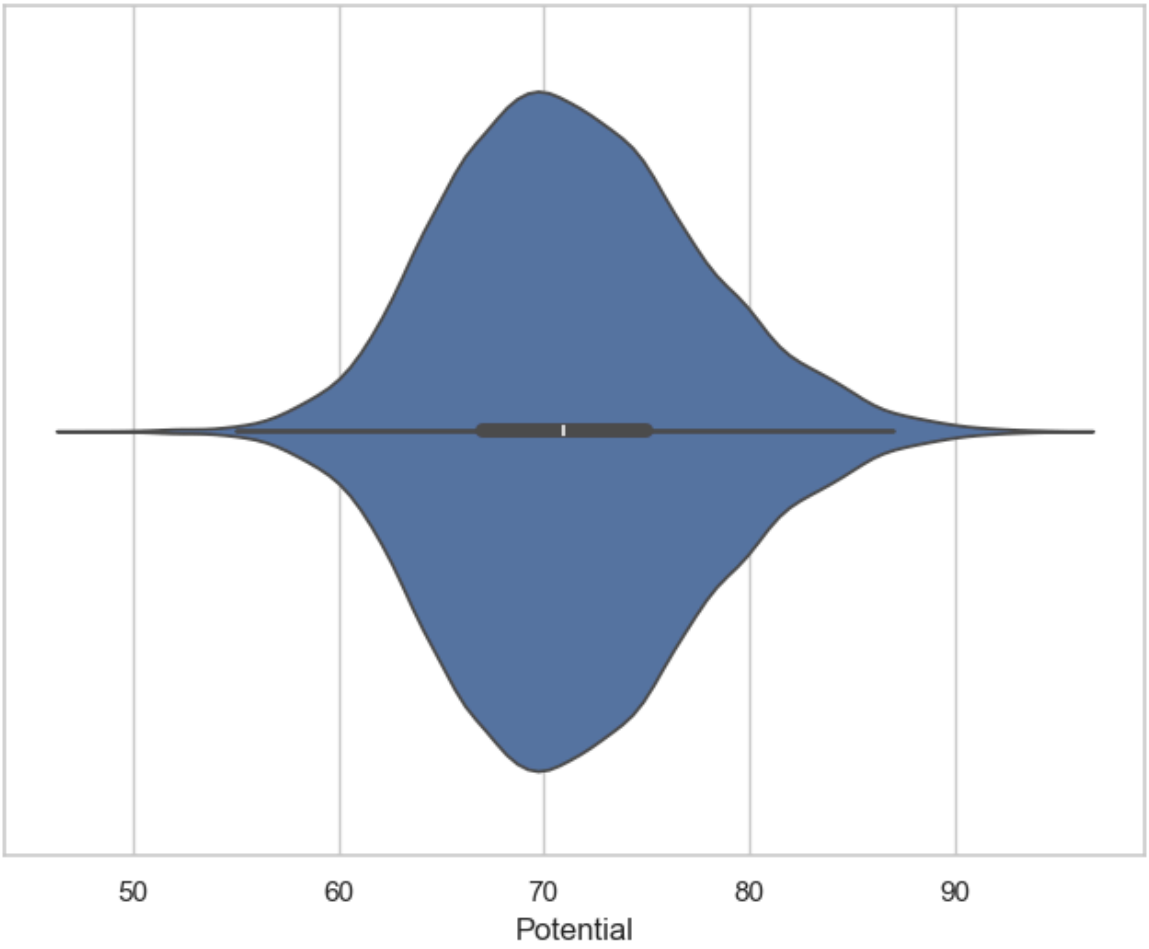
In [30]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.boxplot(x="International Reputation", y="Potential", data=fifa)
plt.show()
```



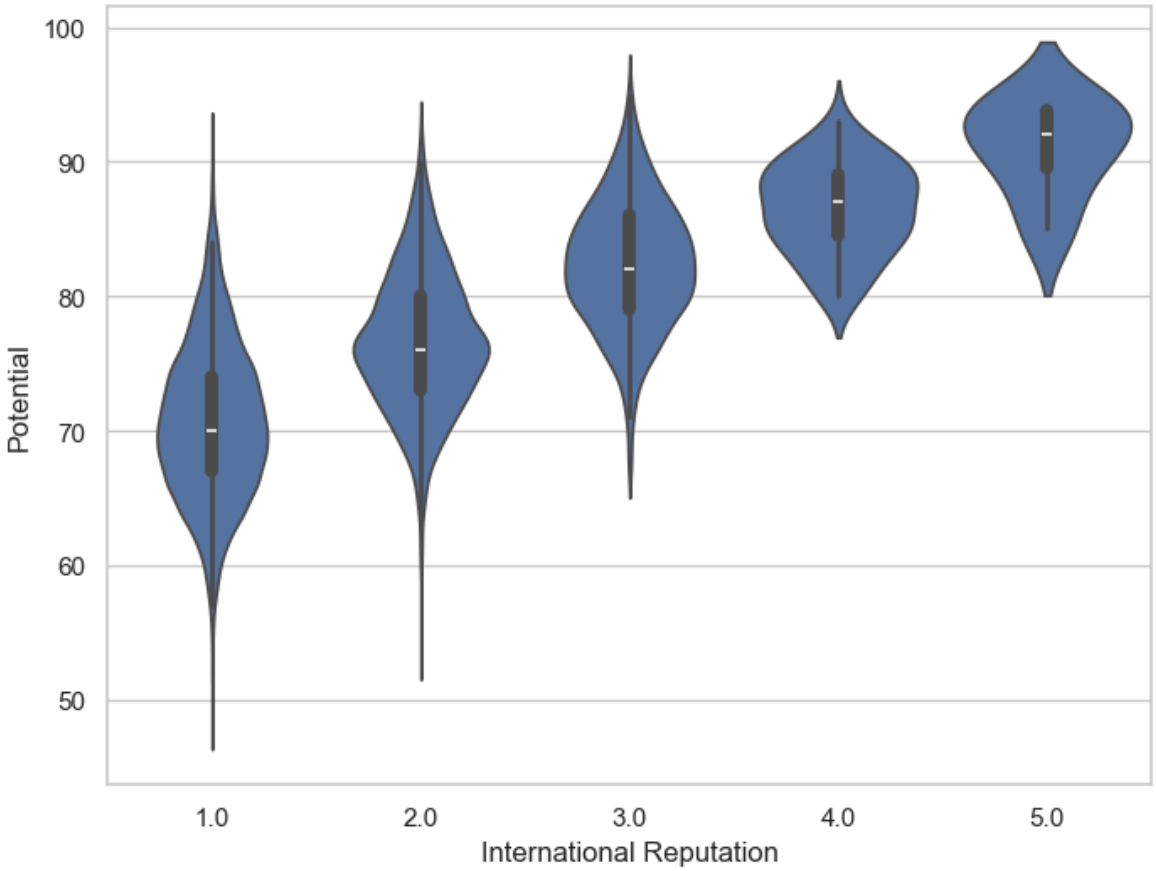
In [31]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.boxplot(x="International Reputation", y="Potential", hue="Preferred Foot", d
plt.show()
```



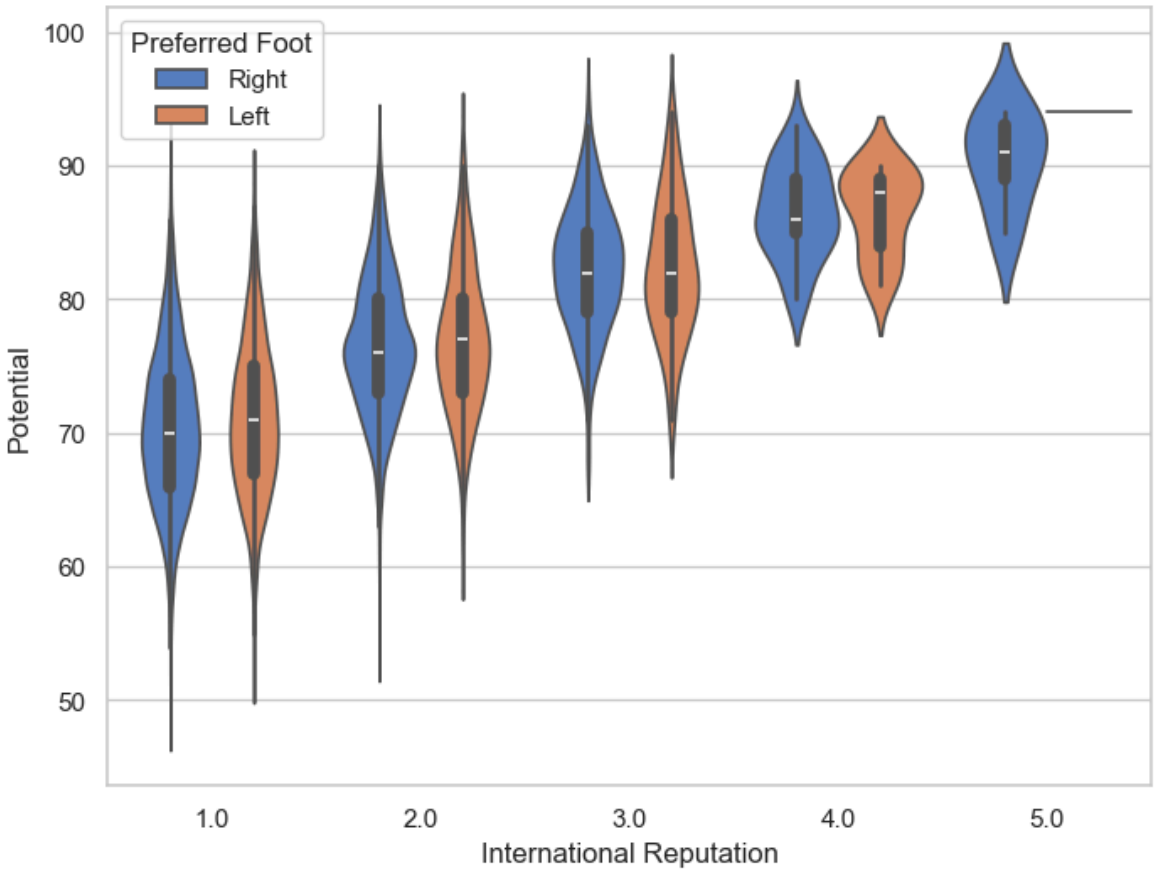
In [32]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.violinplot(x=fifa["Potential"])
plt.show()
```



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

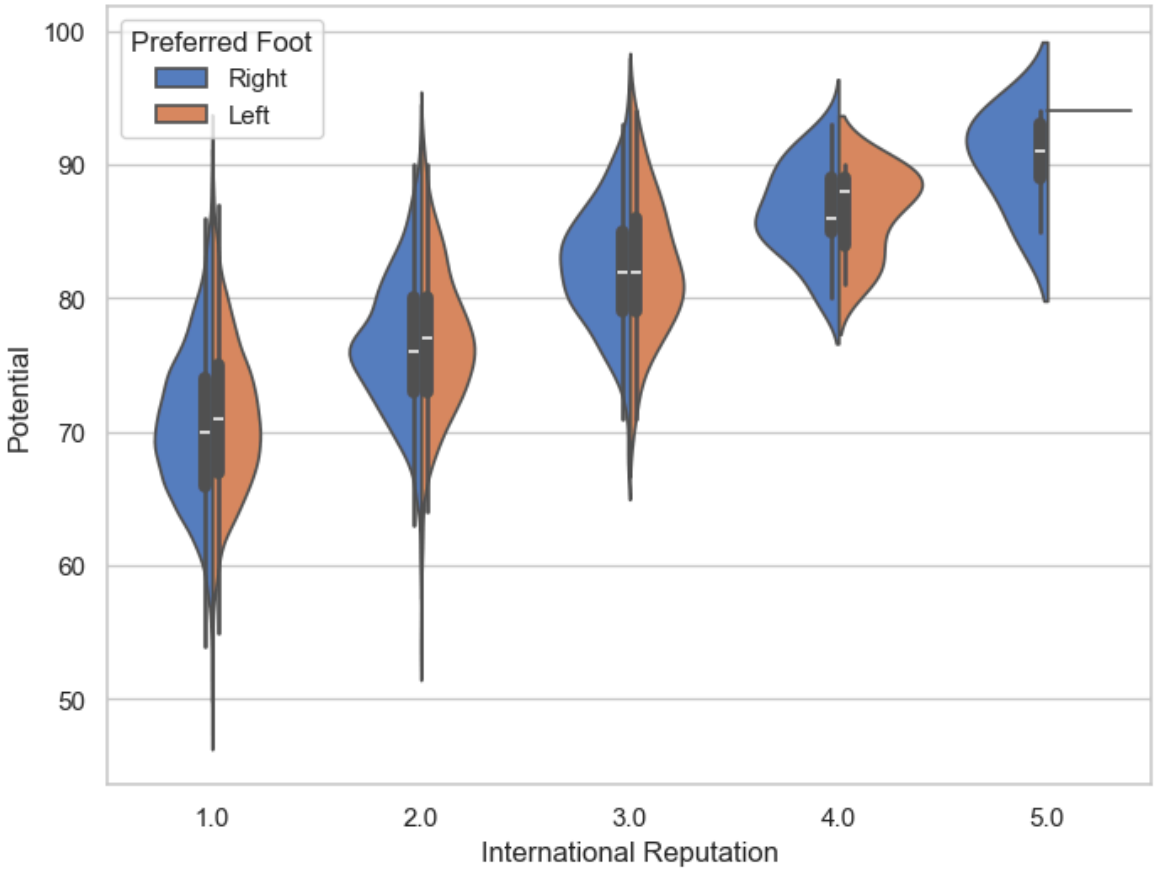


In [34]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.violinplot(x="International Reputation", y="Potential", hue="Preferred Foot"
plt.show()
```

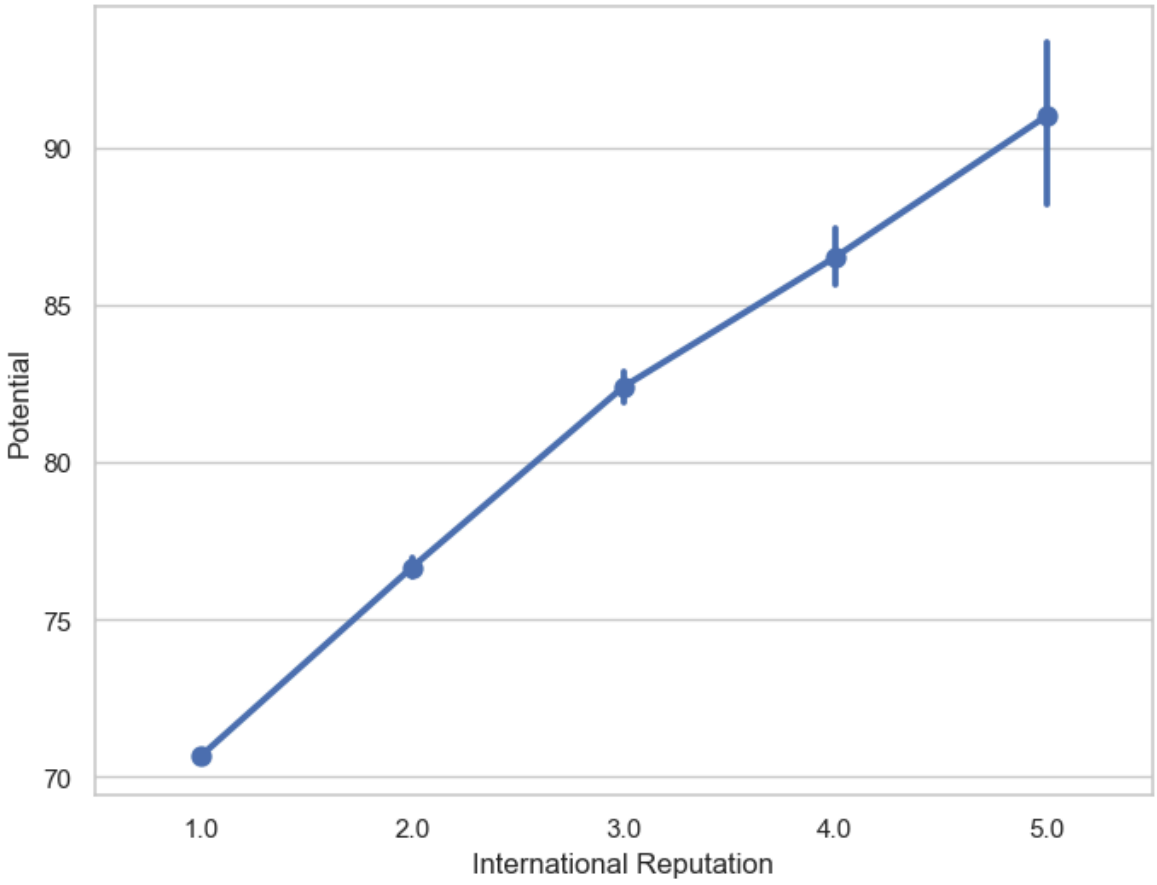


In [35]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.violinplot(x="International Reputation", y="Potential", hue="Preferred Foot"
```

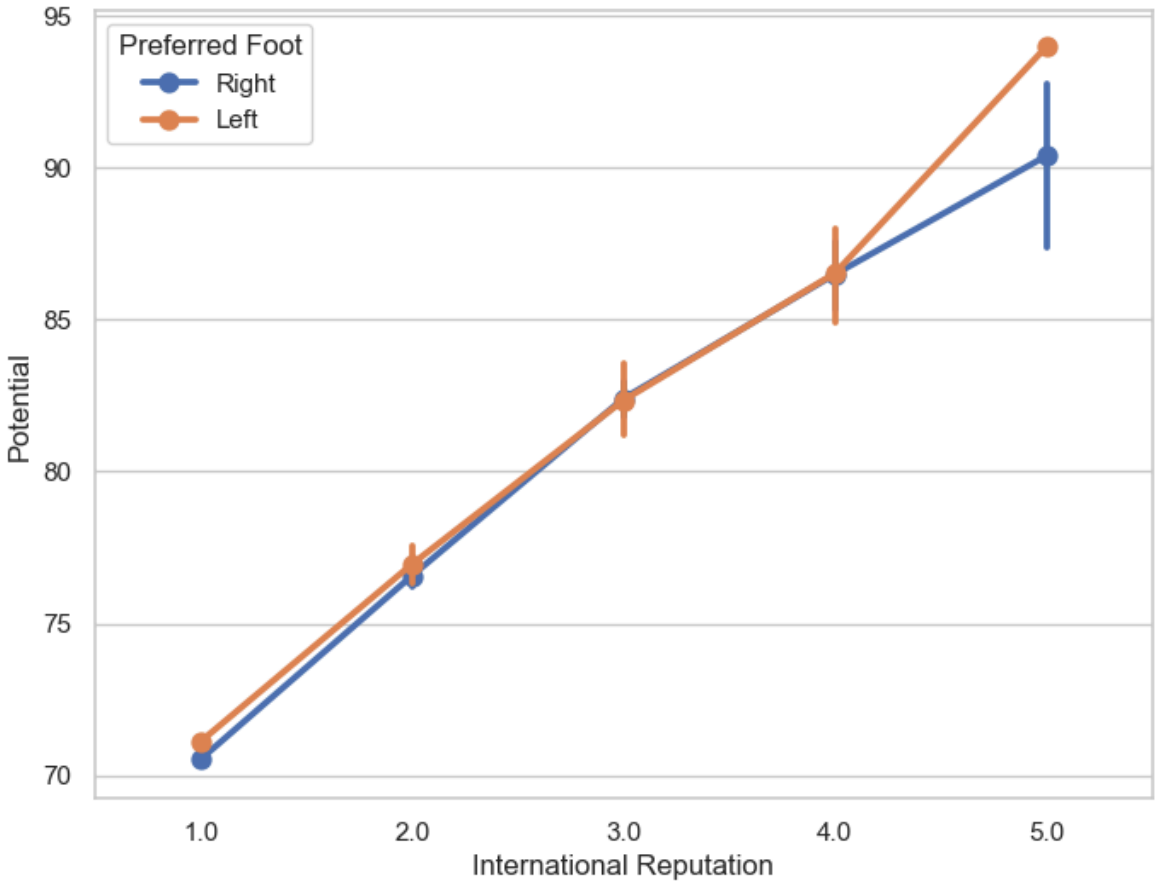
```
                data=fifa, palette="muted", split=True)
plt.show()
```



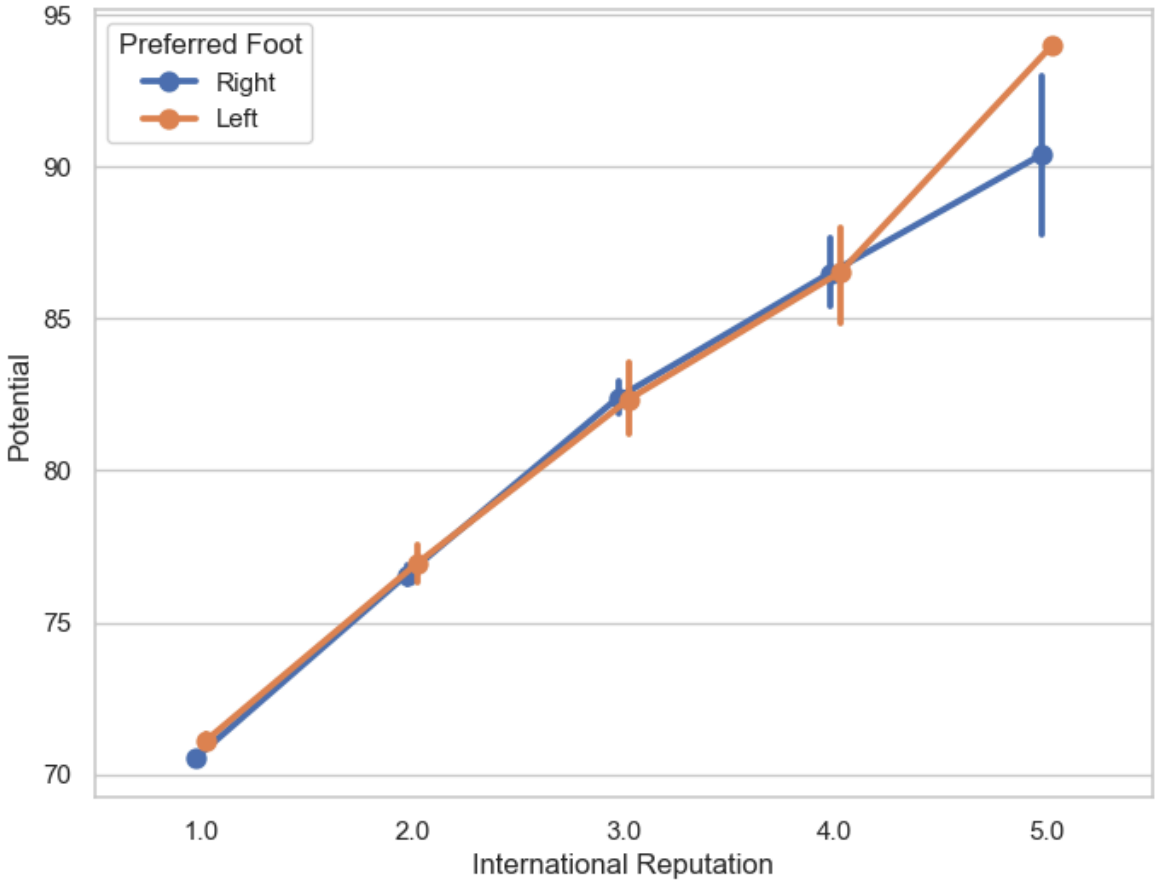
In [36]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.pointplot(x="International Reputation", y="Potential", data=fifa)
plt.show()
```



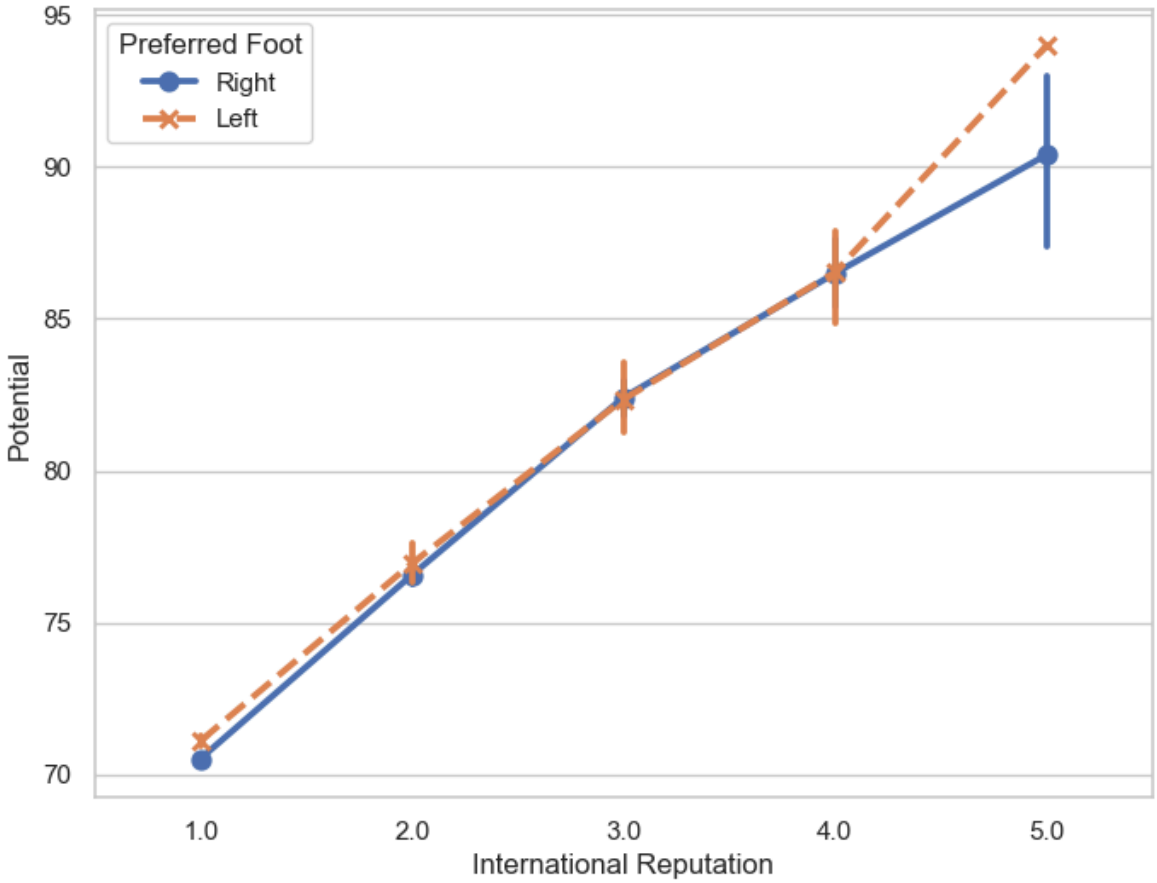
In [37]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.pointplot(x="International Reputation", y="Potential", hue="Preferred Foot",
plt.show()
```



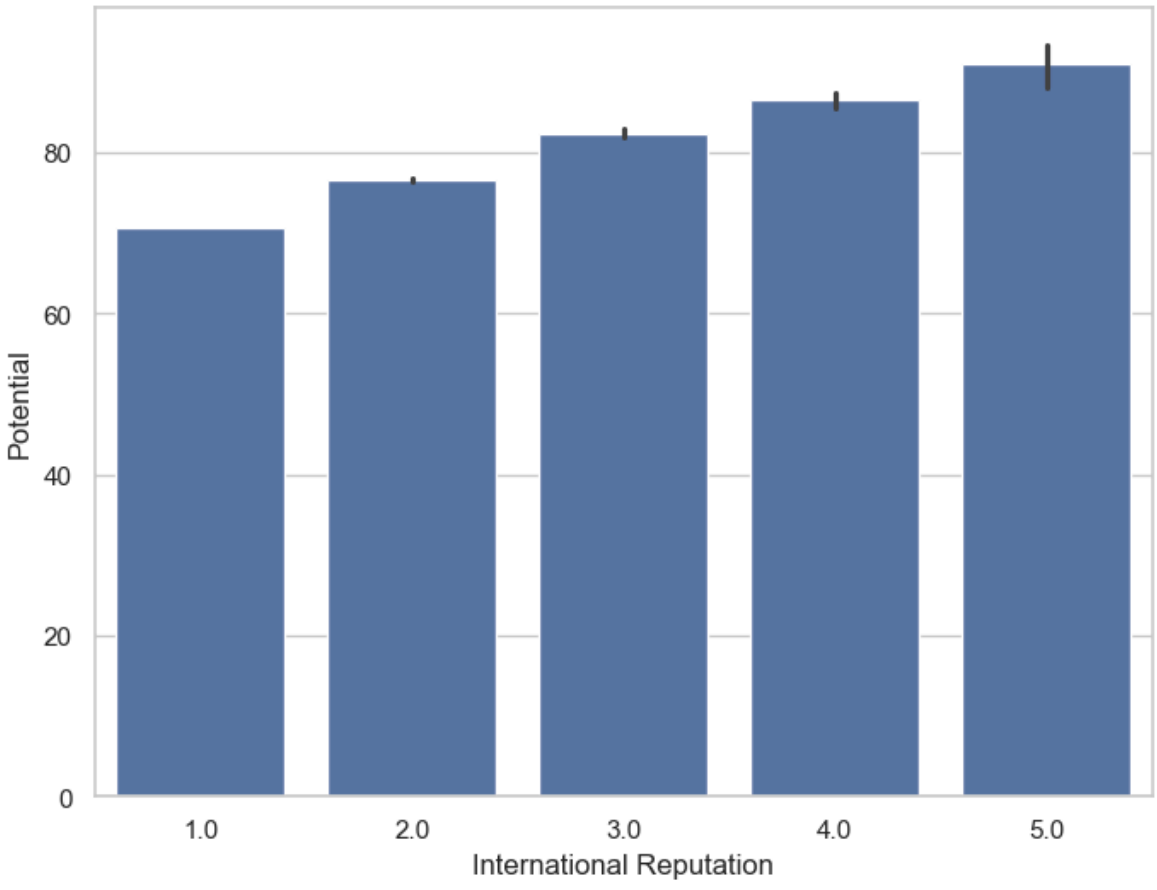
In [38]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.pointplot(x="International Reputation", y="Potential", hue="Preferred Foot",
plt.show()
```



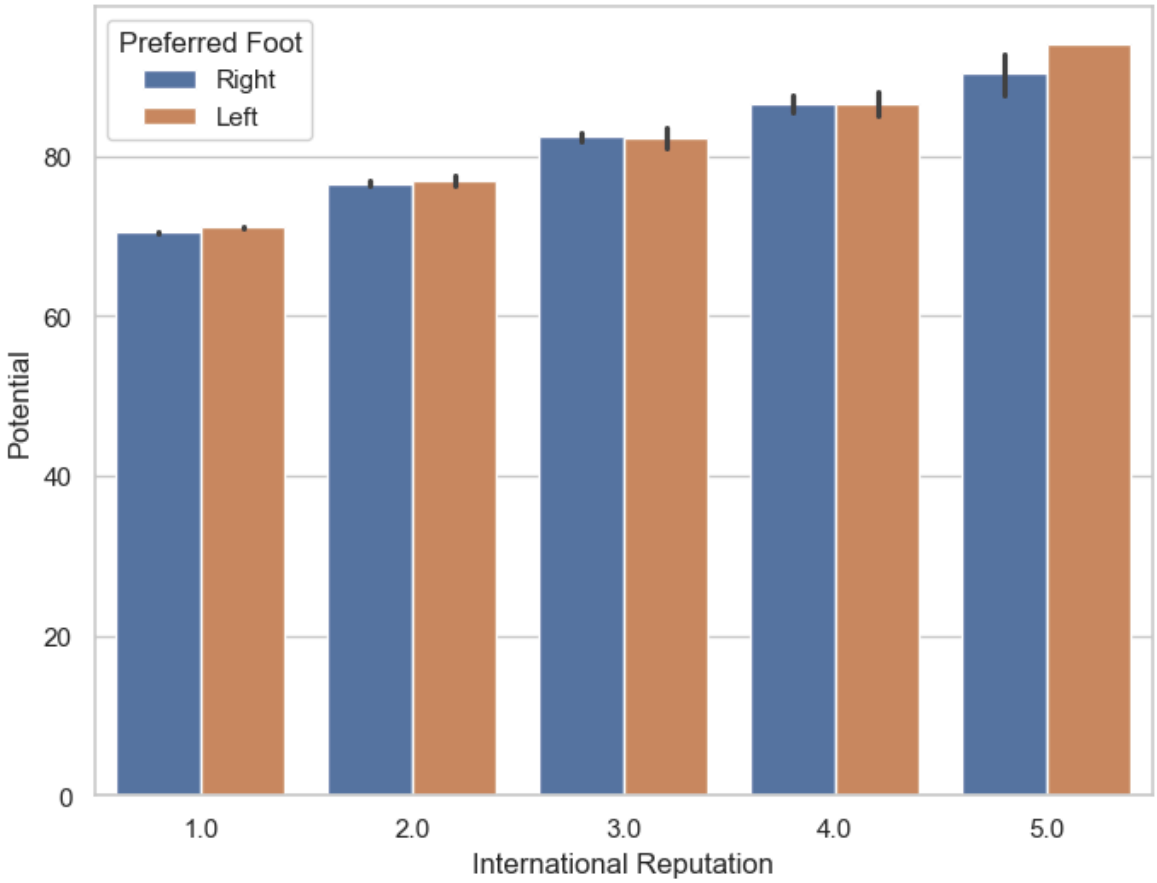
In [39]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.pointplot(x="International Reputation", y="Potential", hue="Preferred Foot",
              data=fifa, markers=["o", "x"], linestyles=["-", "--"])
plt.show()
```



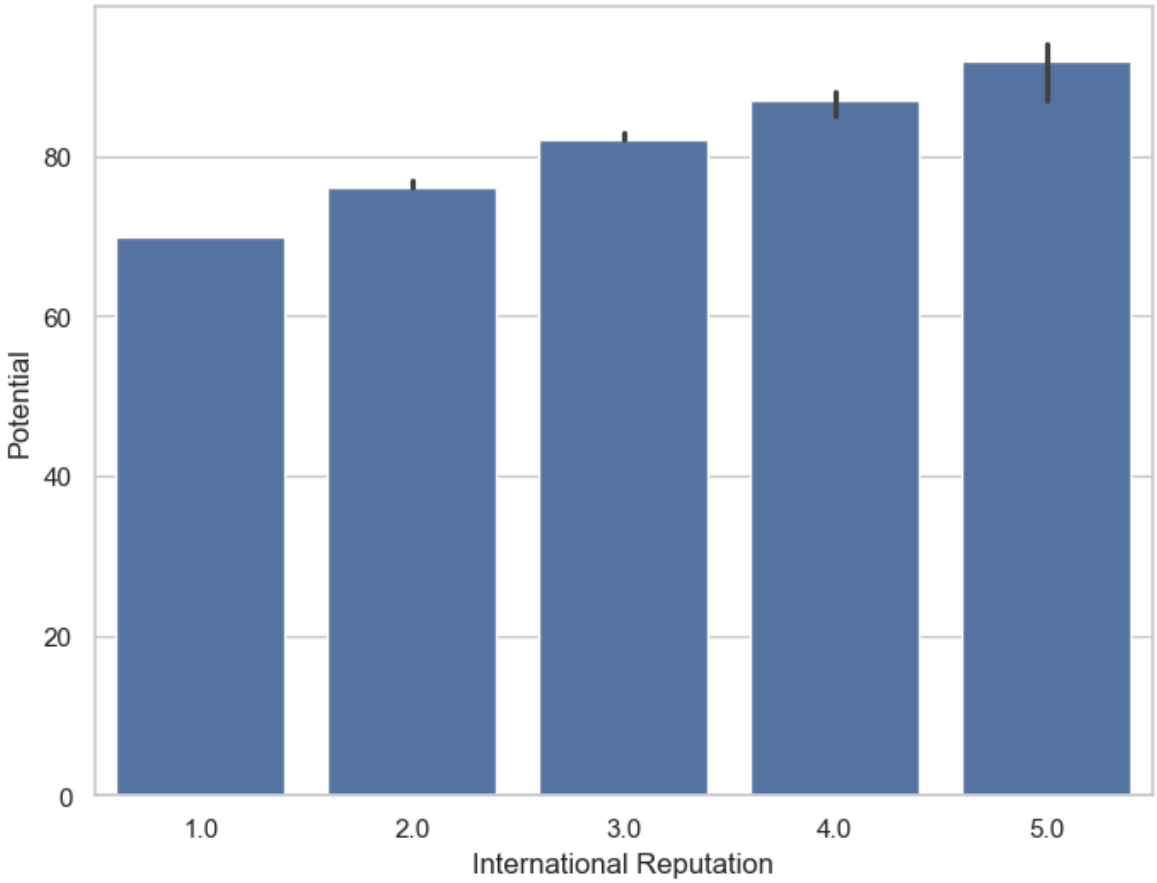
In [40]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa)
plt.show()
```



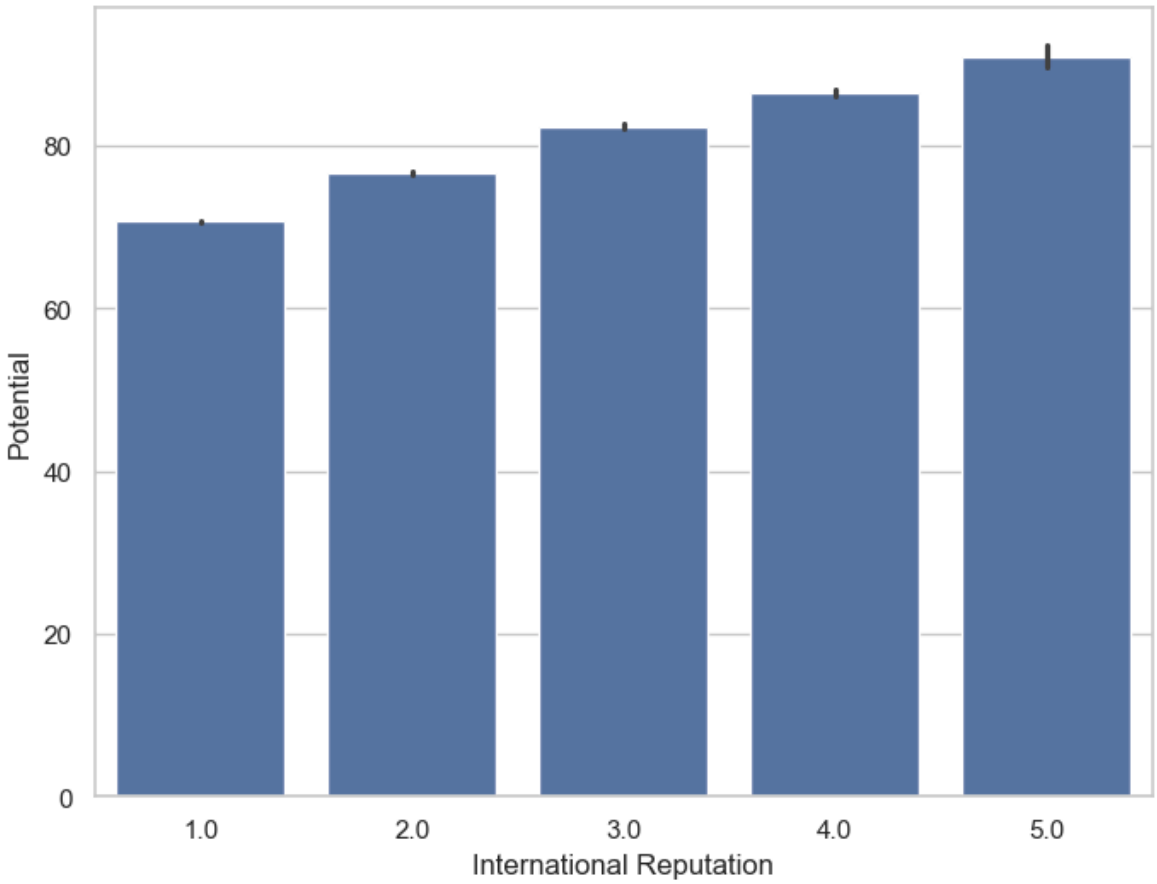
In [41]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", hue="Preferred Foot", d
plt.show()
```



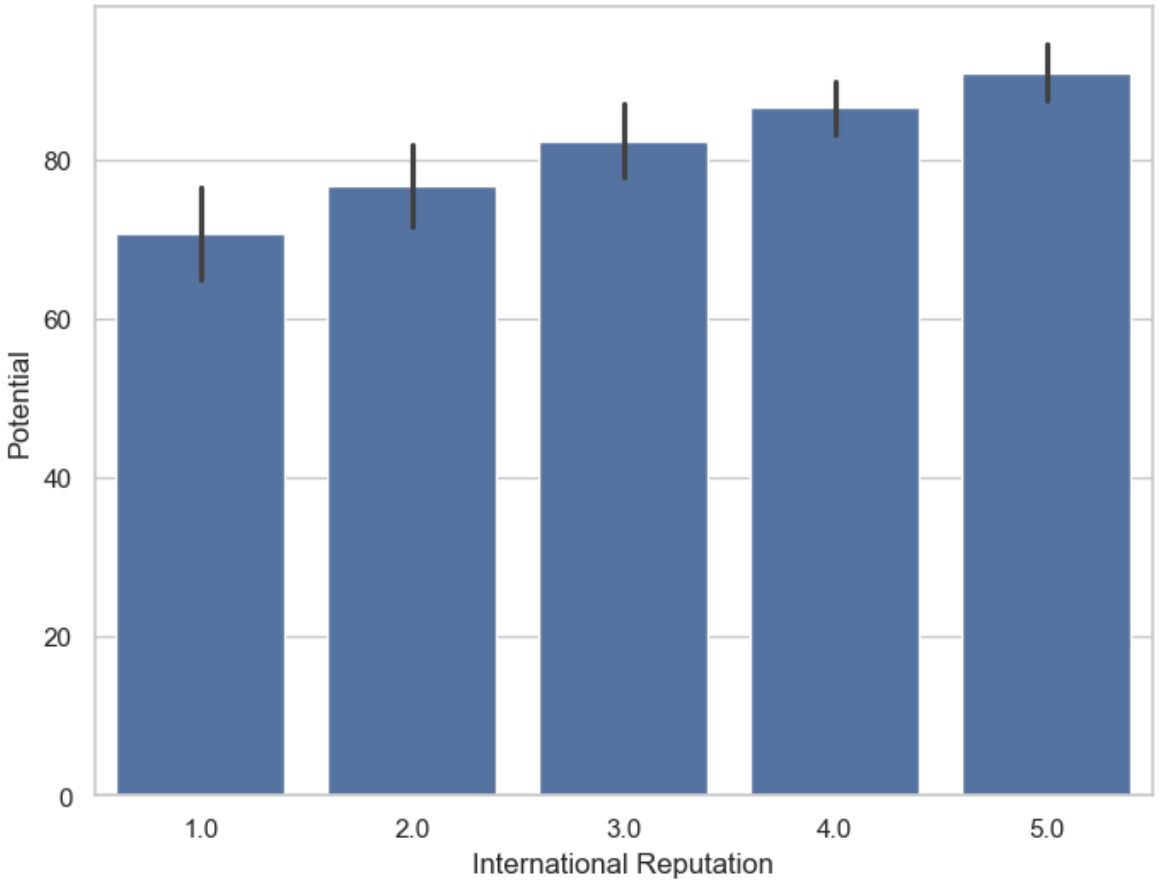
In [42]:
```
from numpy import median
f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa, estimator=me
plt.show()
```



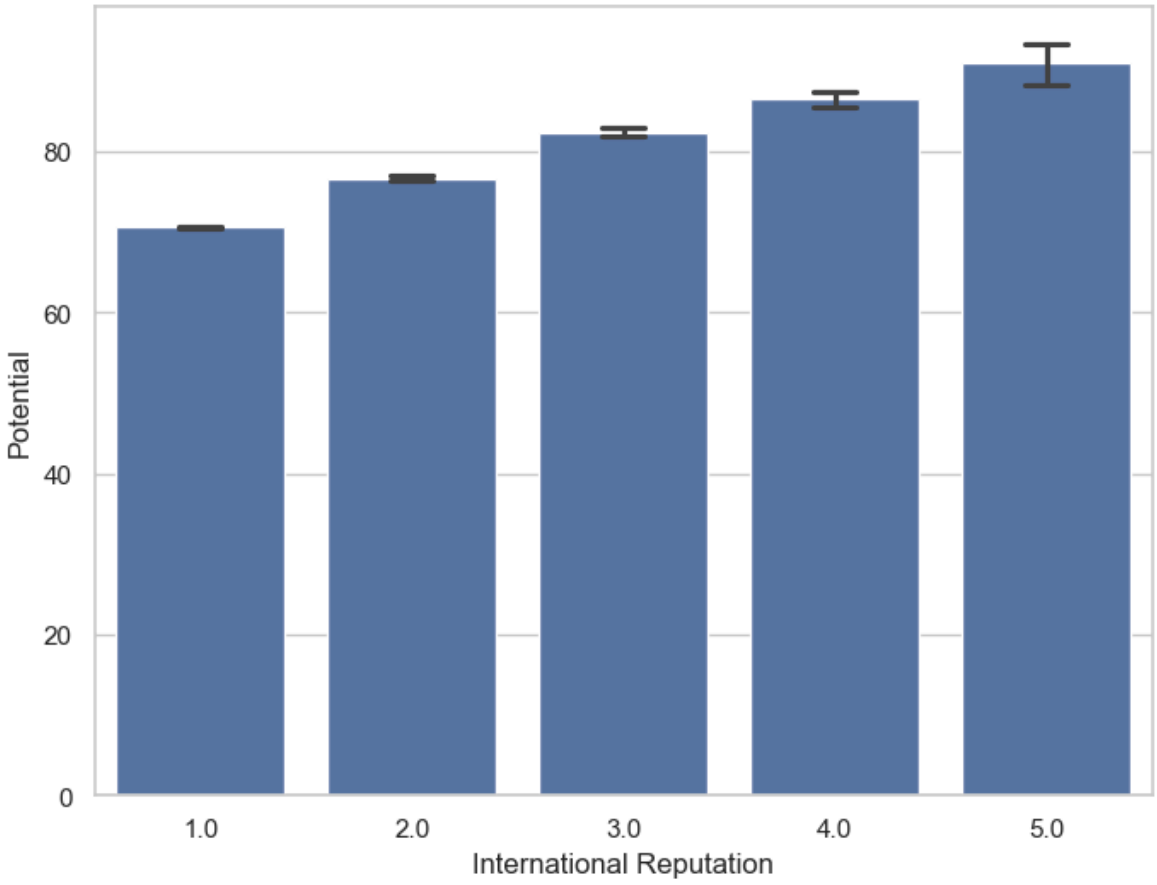
In [43]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa, ci=68)
plt.show()
```



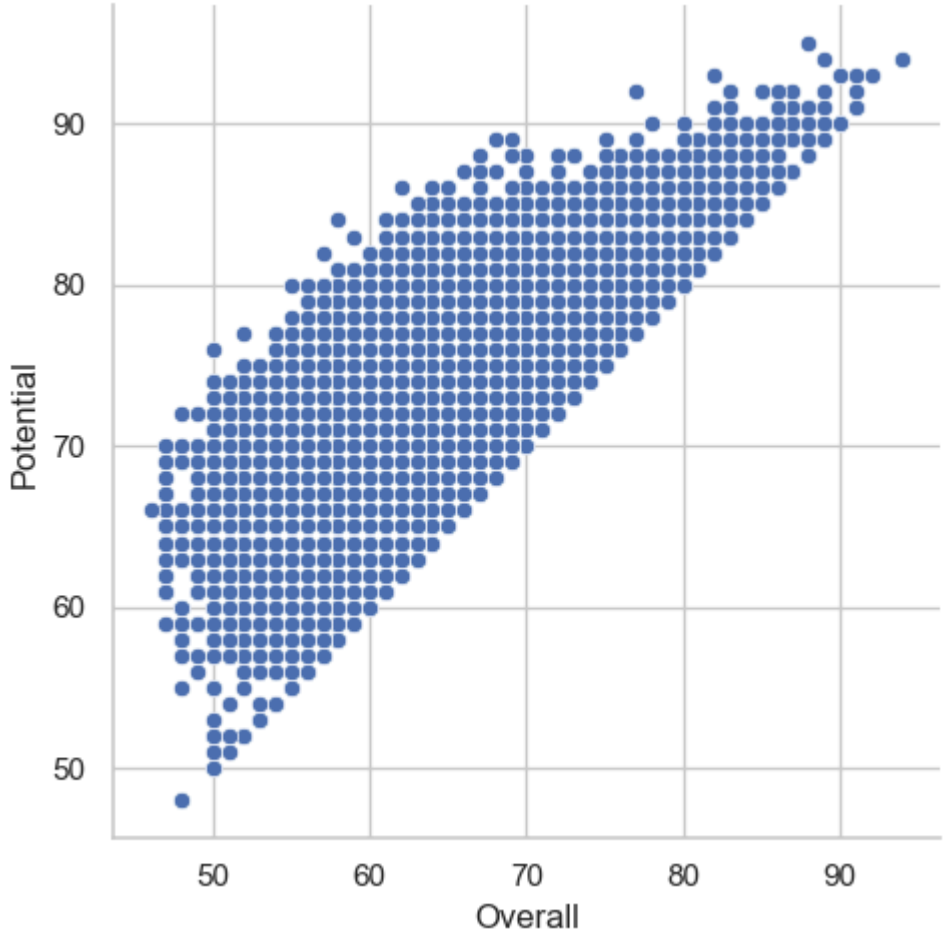
In [44]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa, ci="sd")
plt.show()
```



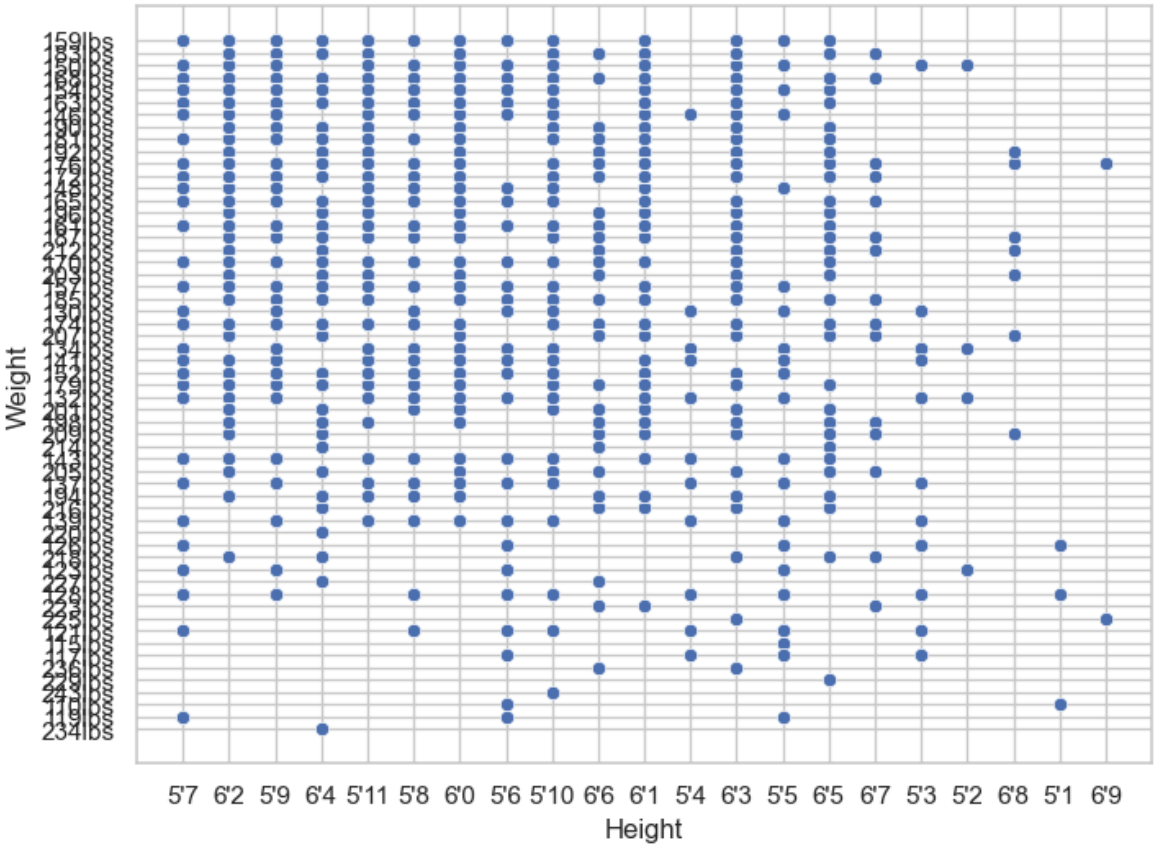
In [45]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.barplot(x="International Reputation", y="Potential", data=fifa, capsize=0.2)
plt.show()
```



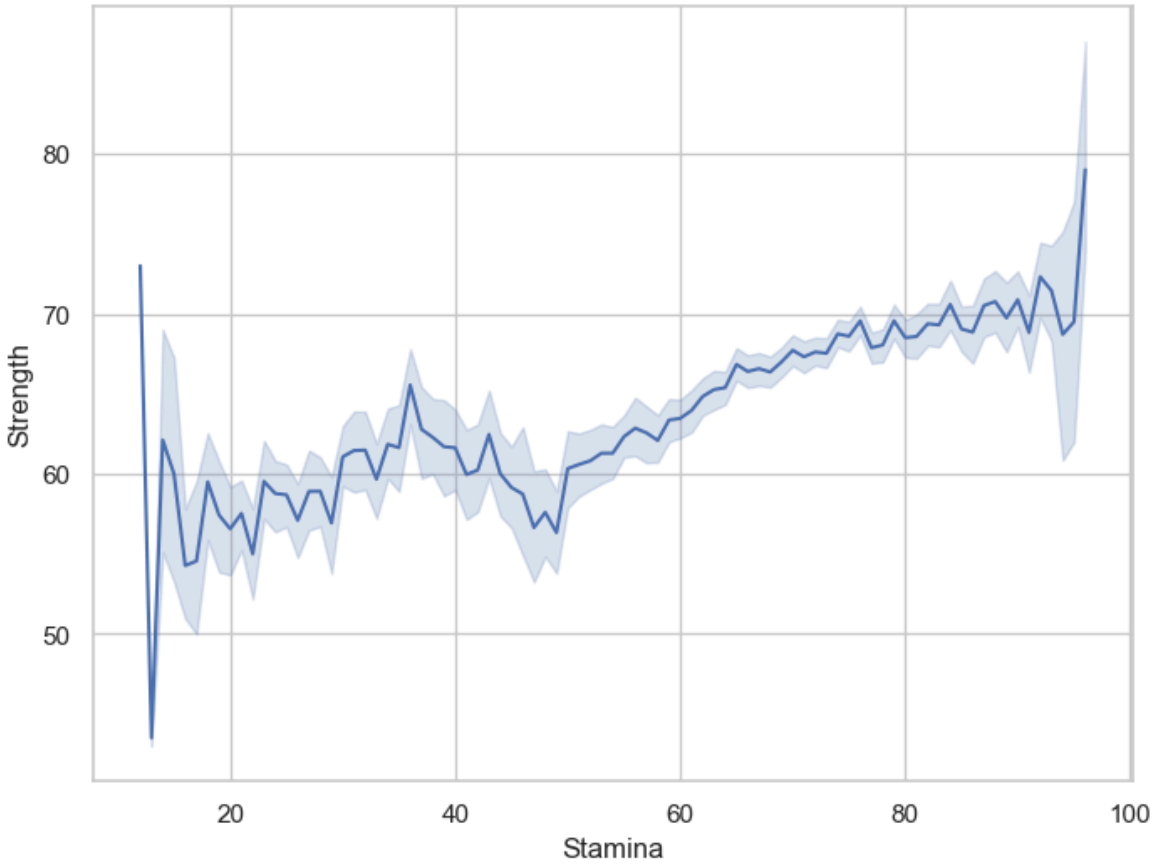
In [46]:
```
g = sns.relplot(x="Overall", y="Potential", data=fifa)
```



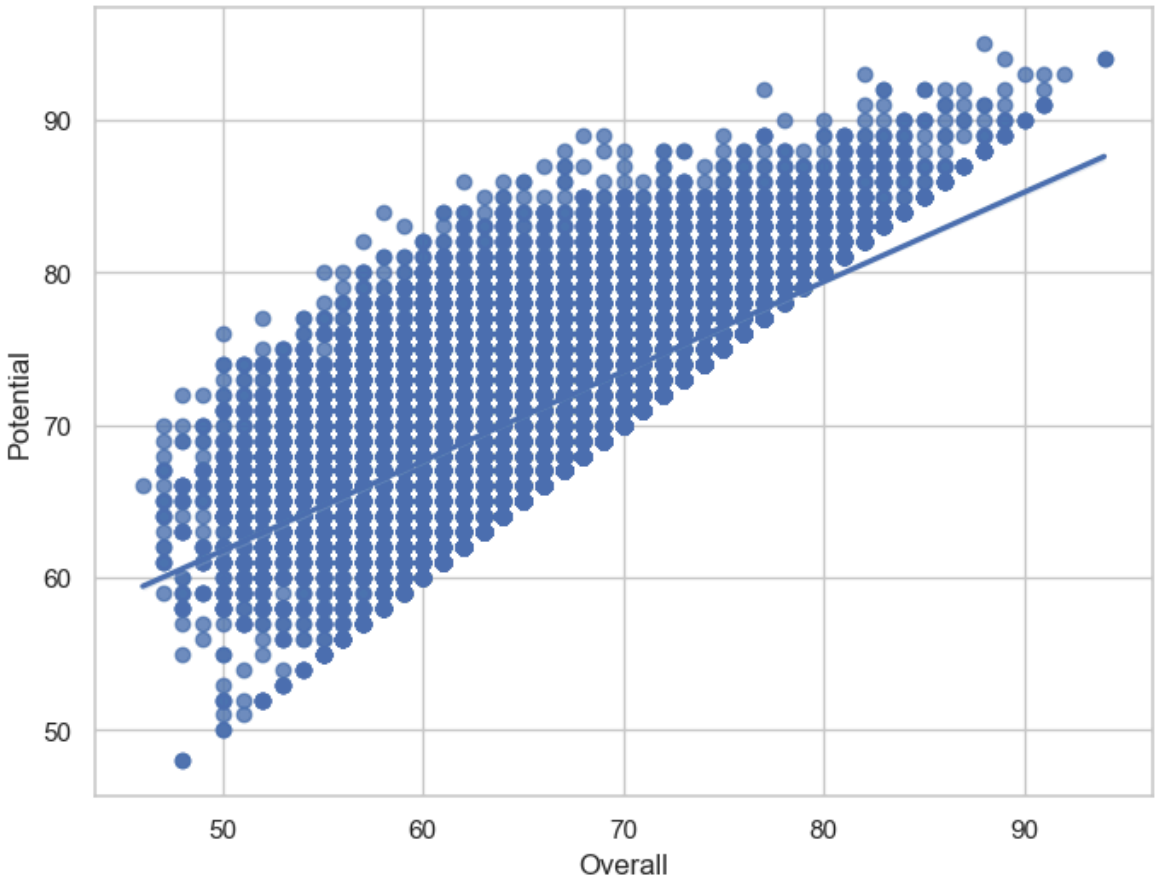
In [47]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.scatterplot(x="Height", y="Weight", data=fifa)
plt.show()
```



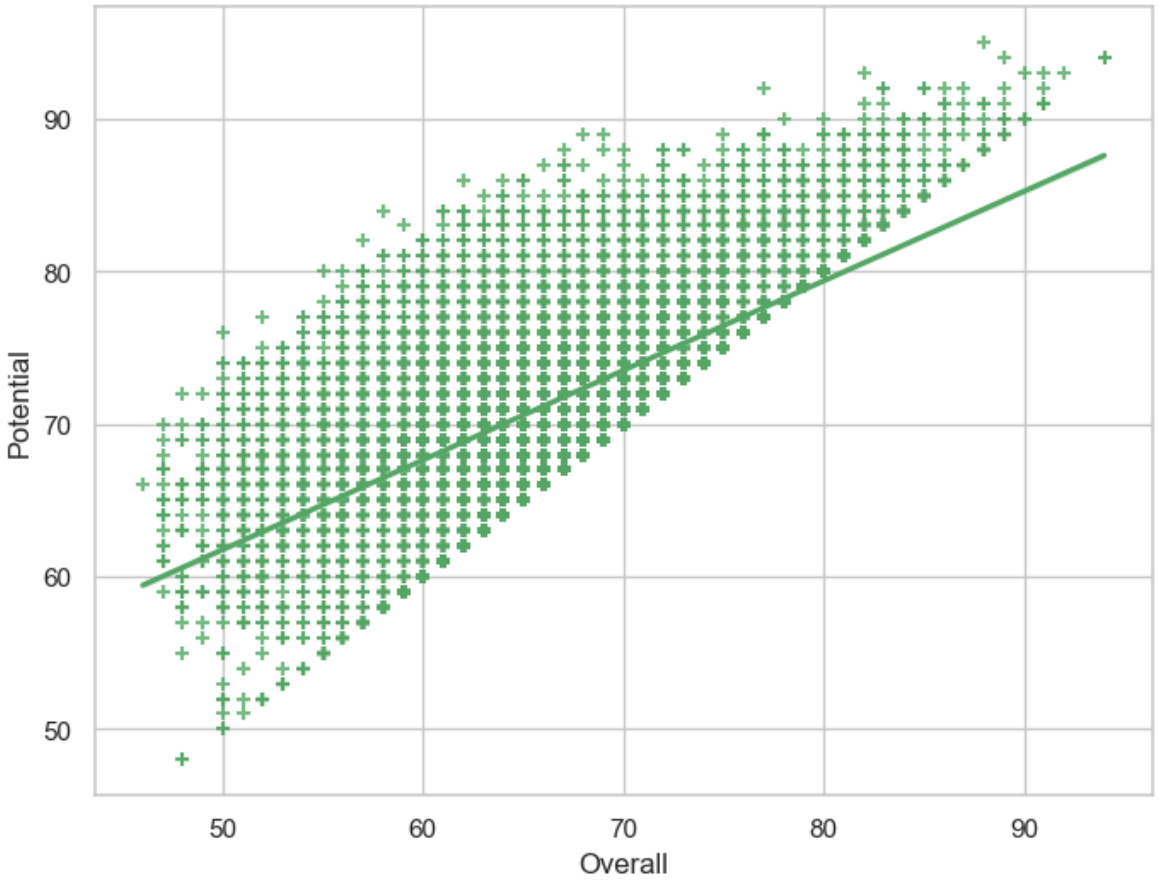
In [48]:
```
f, ax = plt.subplots(figsize=(8, 6))
ax = sns.lineplot(x="Stamina", y="Strength", data=fifa)
plt.show()
```



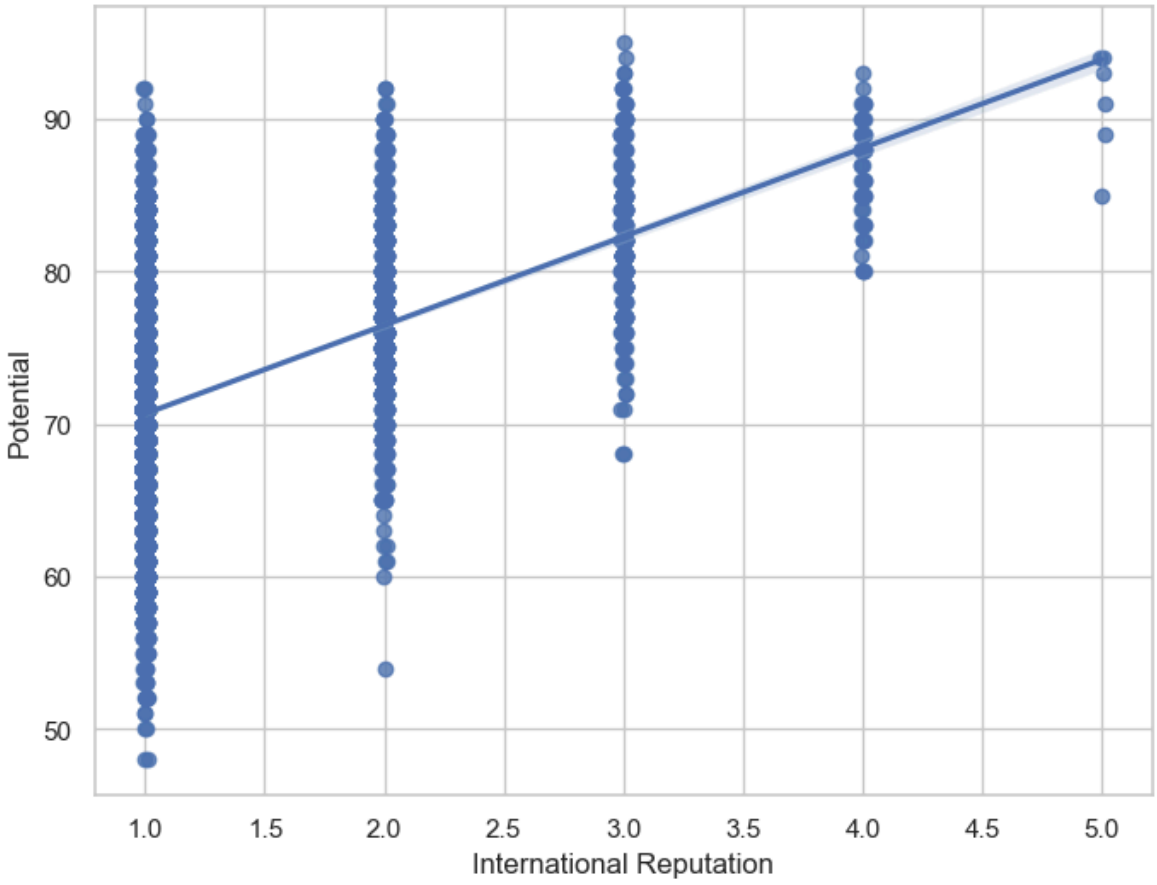
In [49]:
```
f, ax = plt.subplots(figsize=(8, 6))
ax = sns.regplot(x="Overall", y="Potential", data=fifa)
plt.show()
```



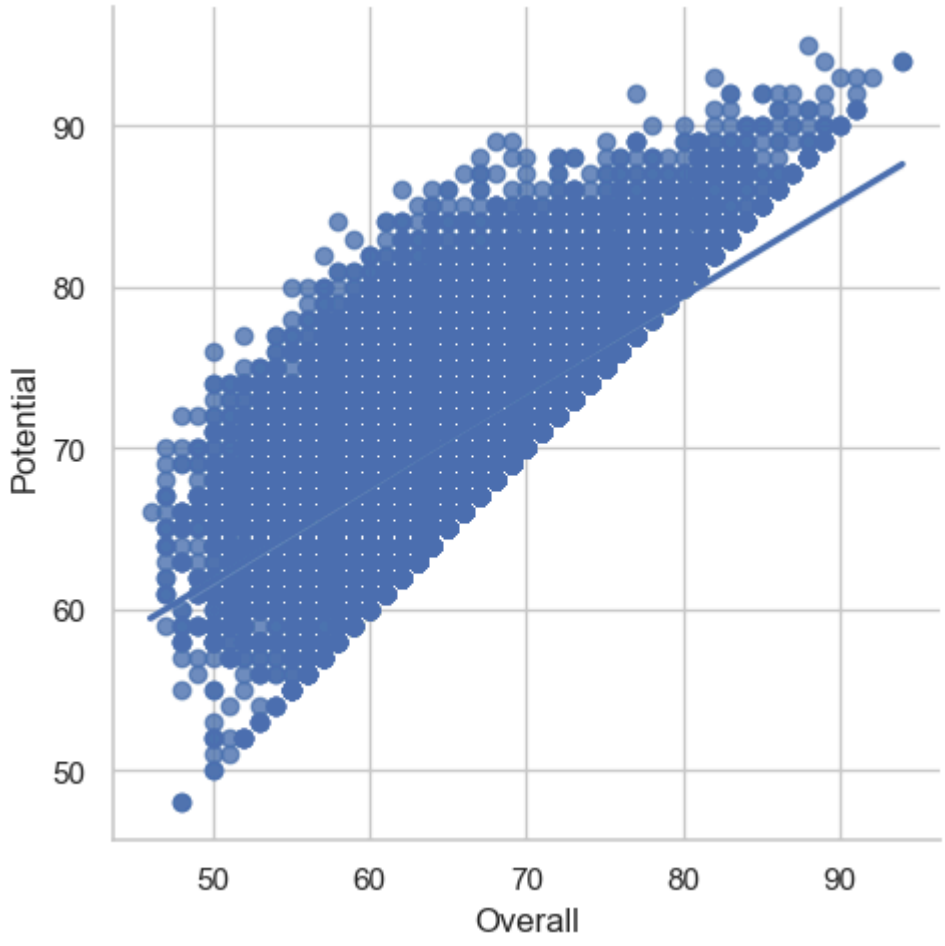
In [50]:
```
f, ax = plt.subplots(figsize=(8, 6))
ax = sns.regplot(x="Overall", y="Potential", data=fifa, color= "g", marker="+")
plt.show()
```



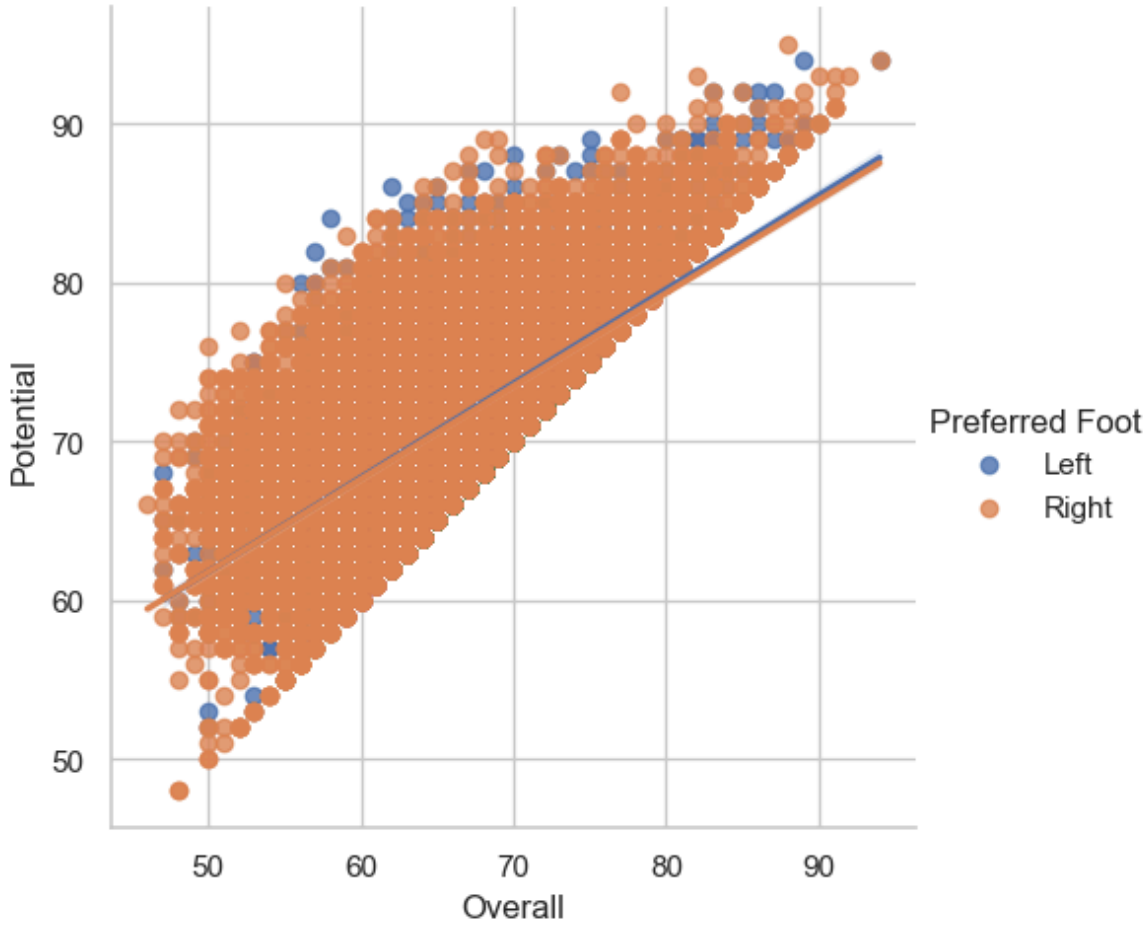
In [51]:
```
f, ax = plt.subplots(figsize=(8, 6))
sns.regplot(x="International Reputation", y="Potential", data=fifa, x_jitter=.01
plt.show()
```



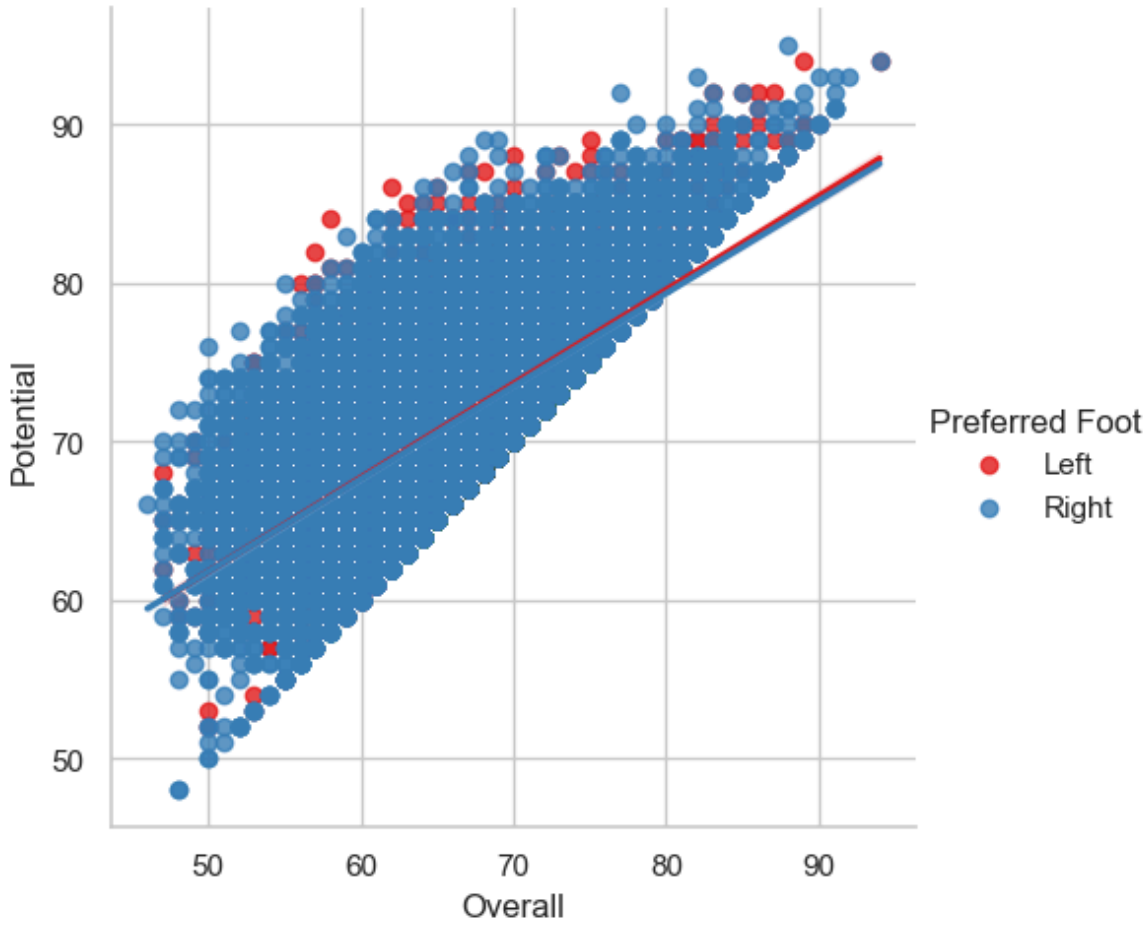
In [52]:
```
g= sns.lmplot(x="Overall", y="Potential", data=fifa)
```



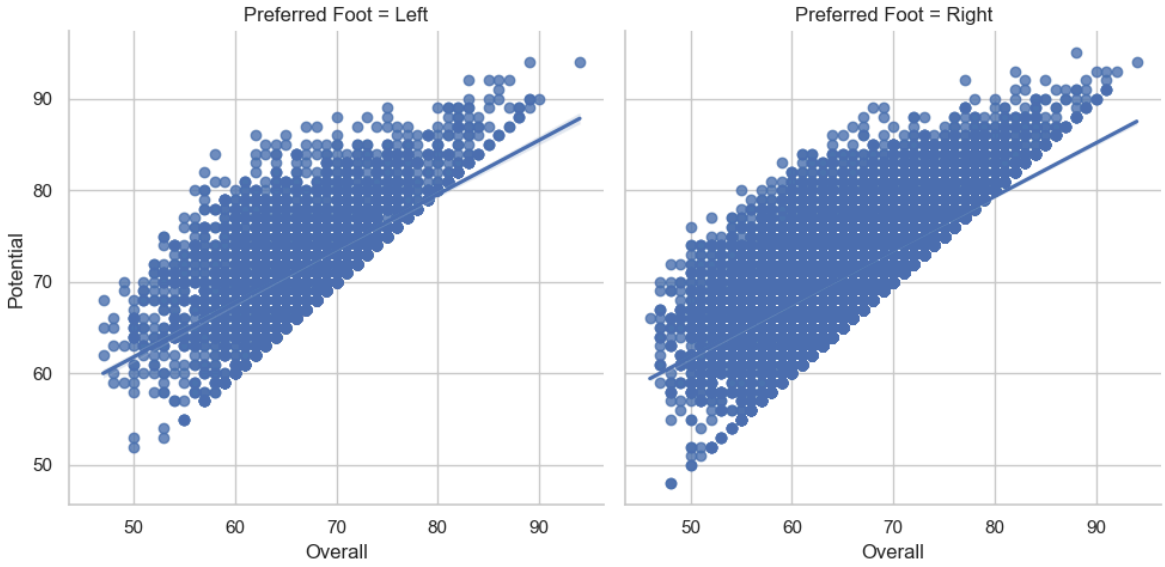
In [53]:
```
g= sns.lmplot(x="Overall", y="Potential", hue="Preferred Foot", data=fifa)
```



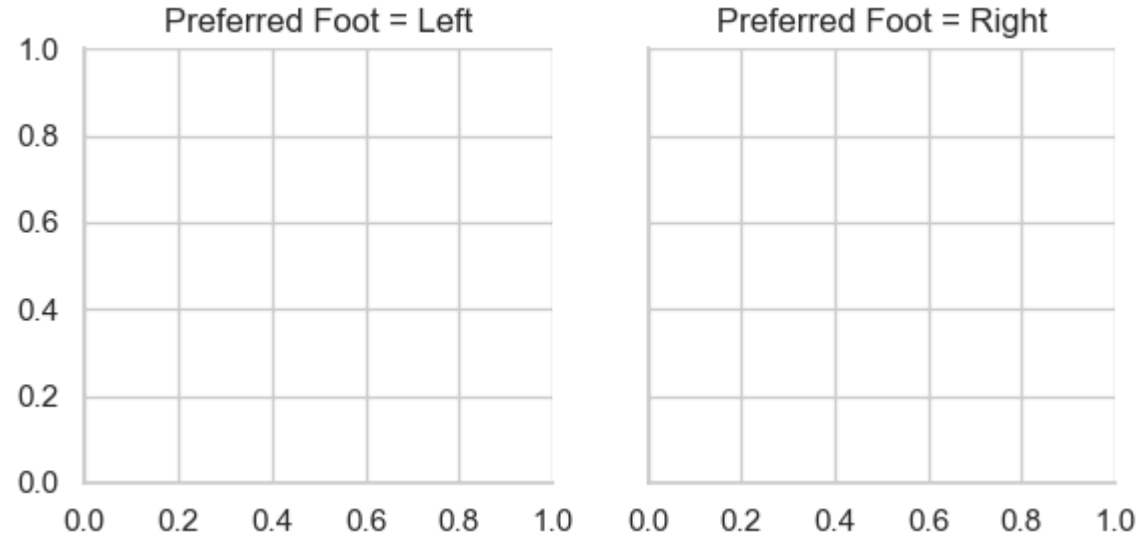
In [54]:
```
g= sns.lmplot(x="Overall", y="Potential", hue="Preferred Foot", data=fifa, palet
```



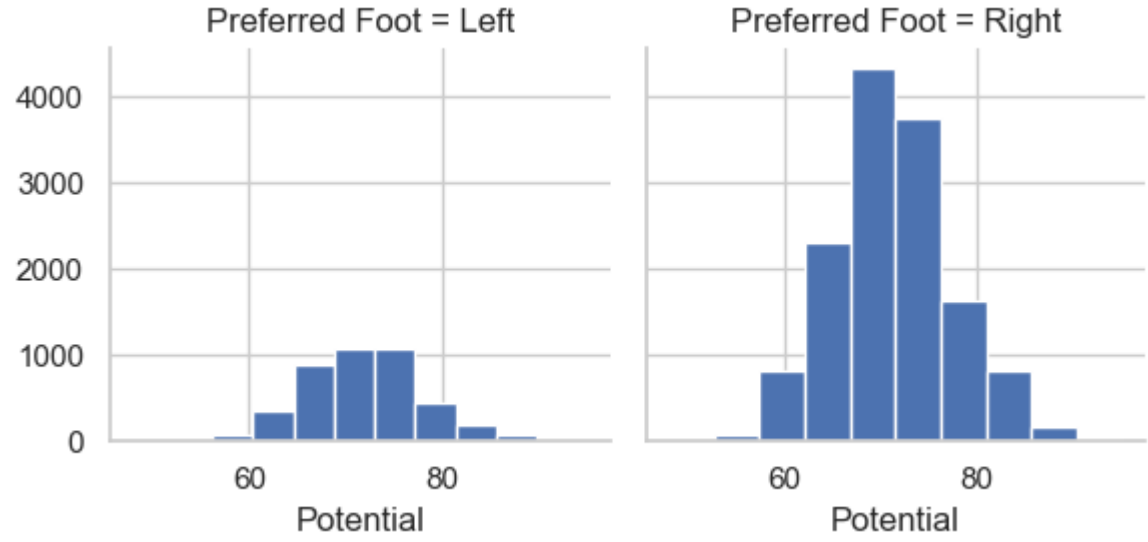
In [55]:
```
g= sns.lmplot(x="Overall", y="Potential", col="Preferred Foot", data=fifa)
```



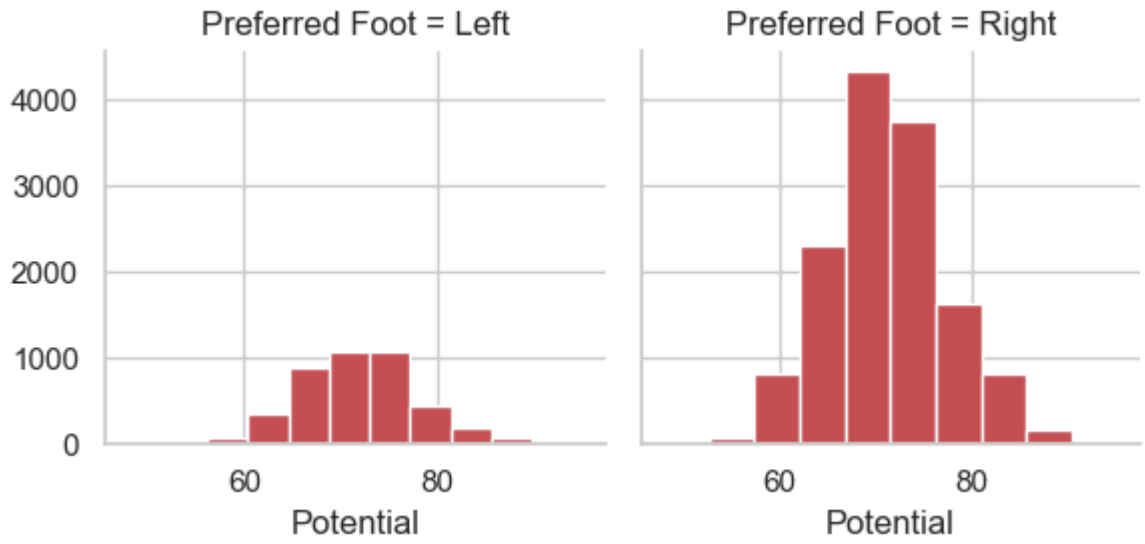
In [56]:
```
g = sns.FacetGrid(fifa, col="Preferred Foot")
```



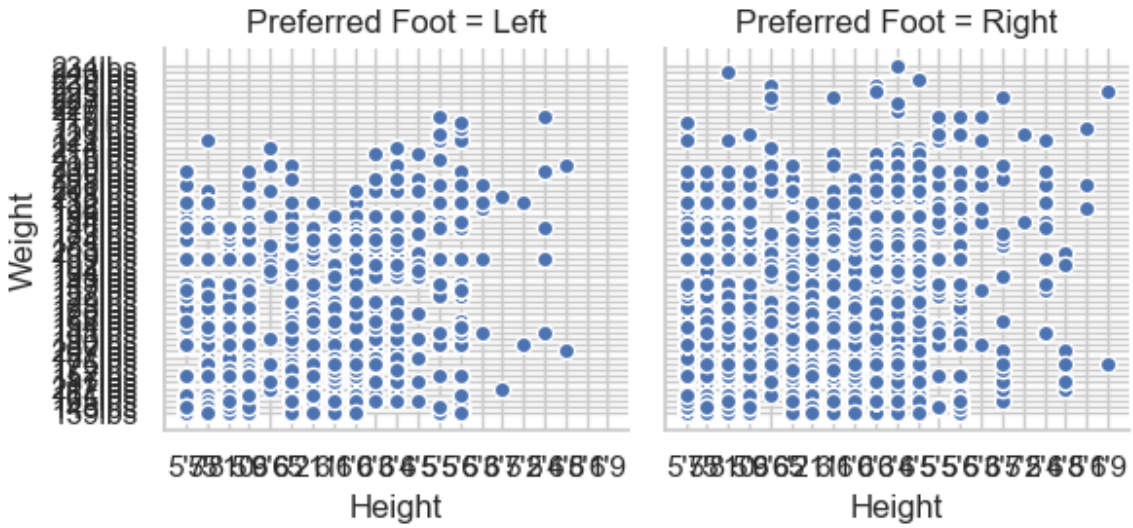
In [57]:
```
g = sns.FacetGrid(fifa, col="Preferred Foot")
g = g.map(plt.hist, "Potential")
```



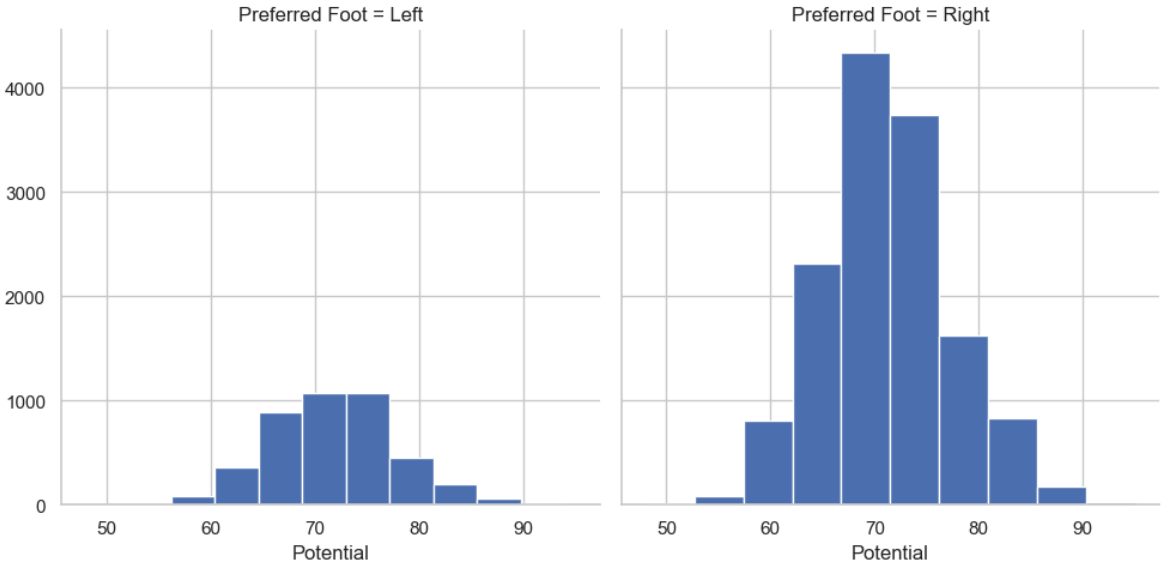
In [58]:
```
g = sns.FacetGrid(fifa, col="Preferred Foot")
g = g.map(plt.hist, "Potential", bins=10, color="r")
```



In [59]:
```
g = sns.FacetGrid(fifa, col="Preferred Foot")
g = (g.map(plt.scatter, "Height", "Weight", edgecolor="w").add_legend())
```

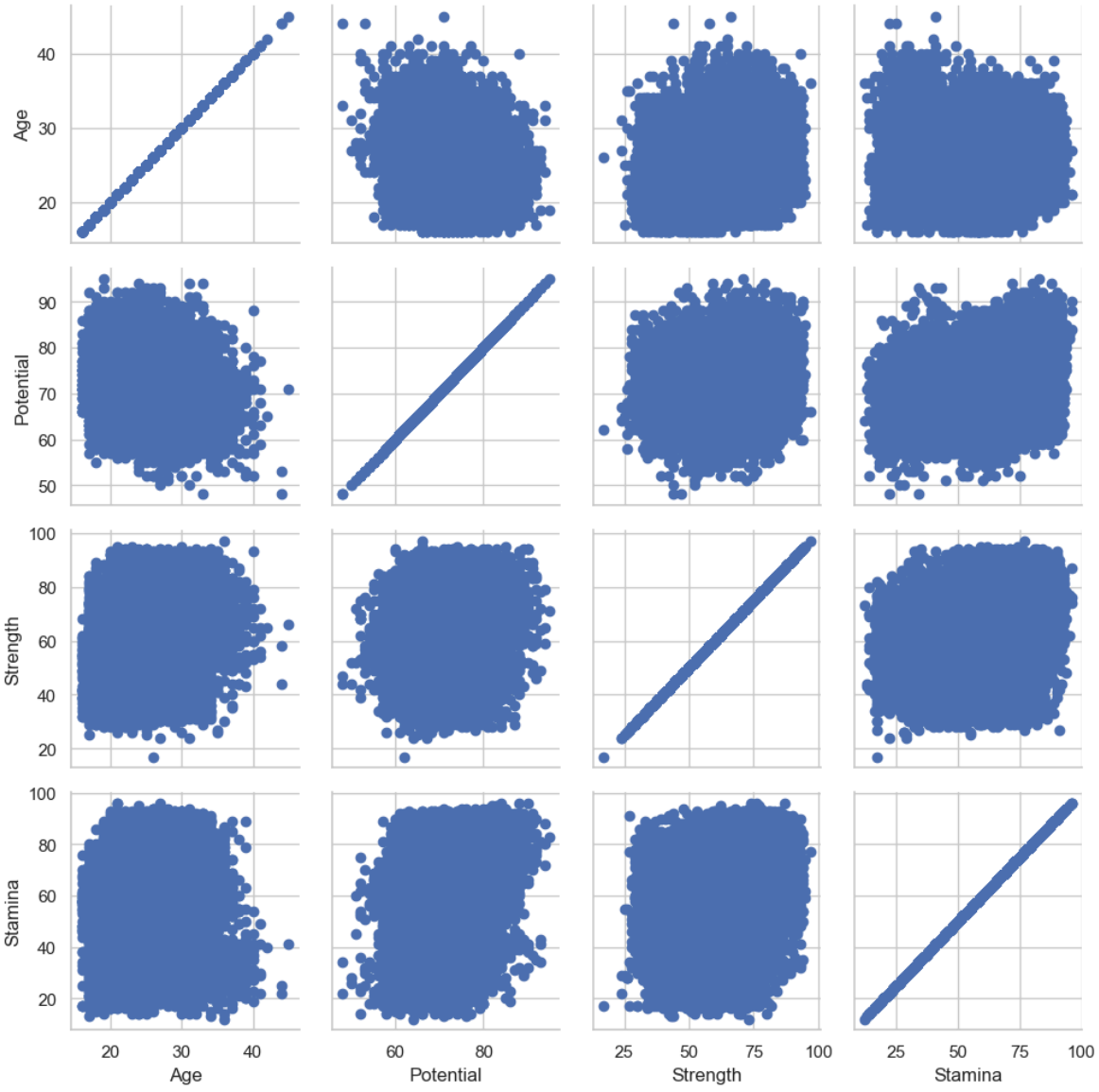


In [60]:
```
g = sns.FacetGrid(fifa, col="Preferred Foot", height=5, aspect=1)
g = g.map(plt.hist, "Potential")
```

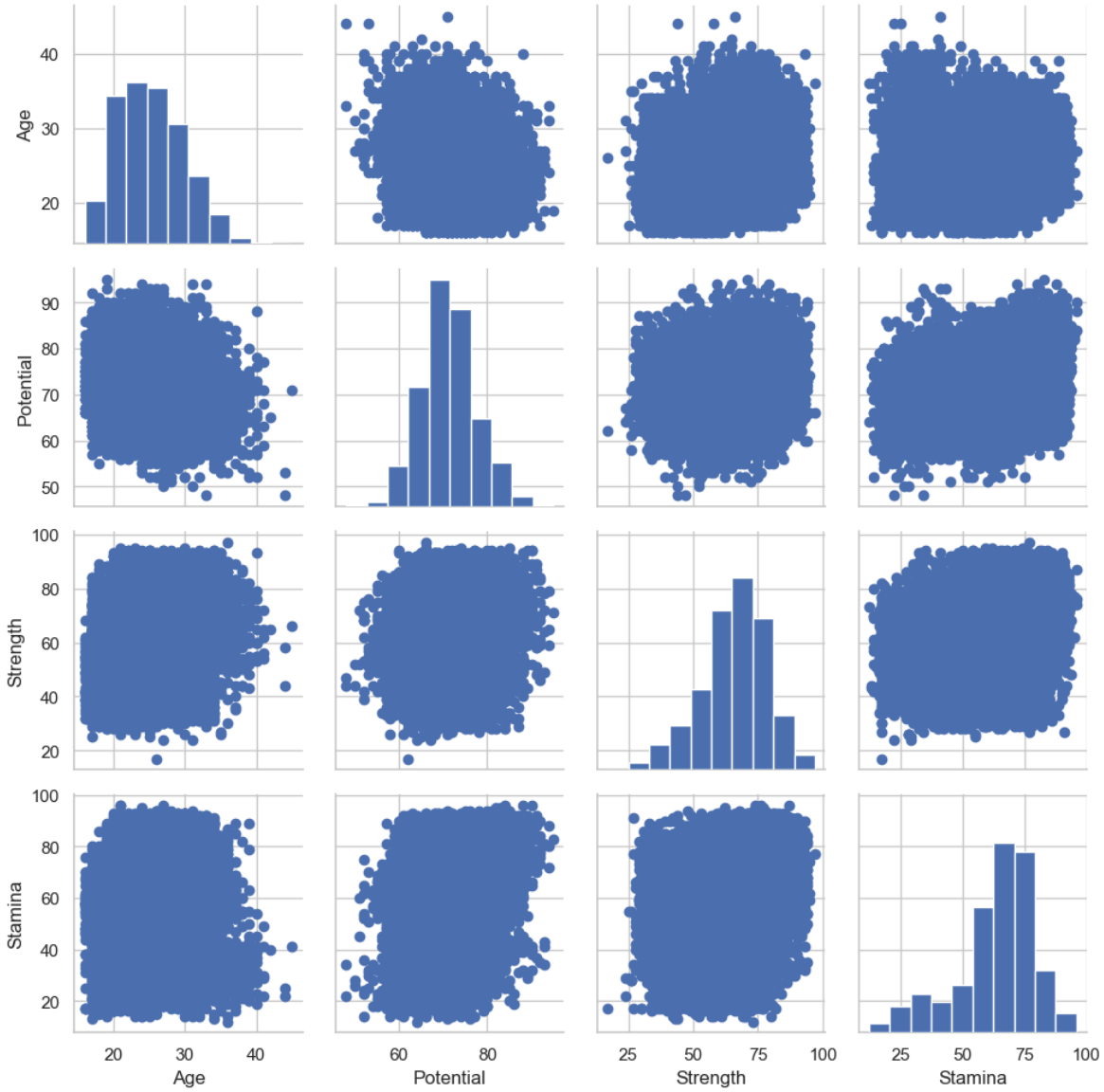


In [61]:
```
fifa_new = fifa[['Age', 'Potential', 'Strength', 'Stamina', 'Preferred Foot']]
```

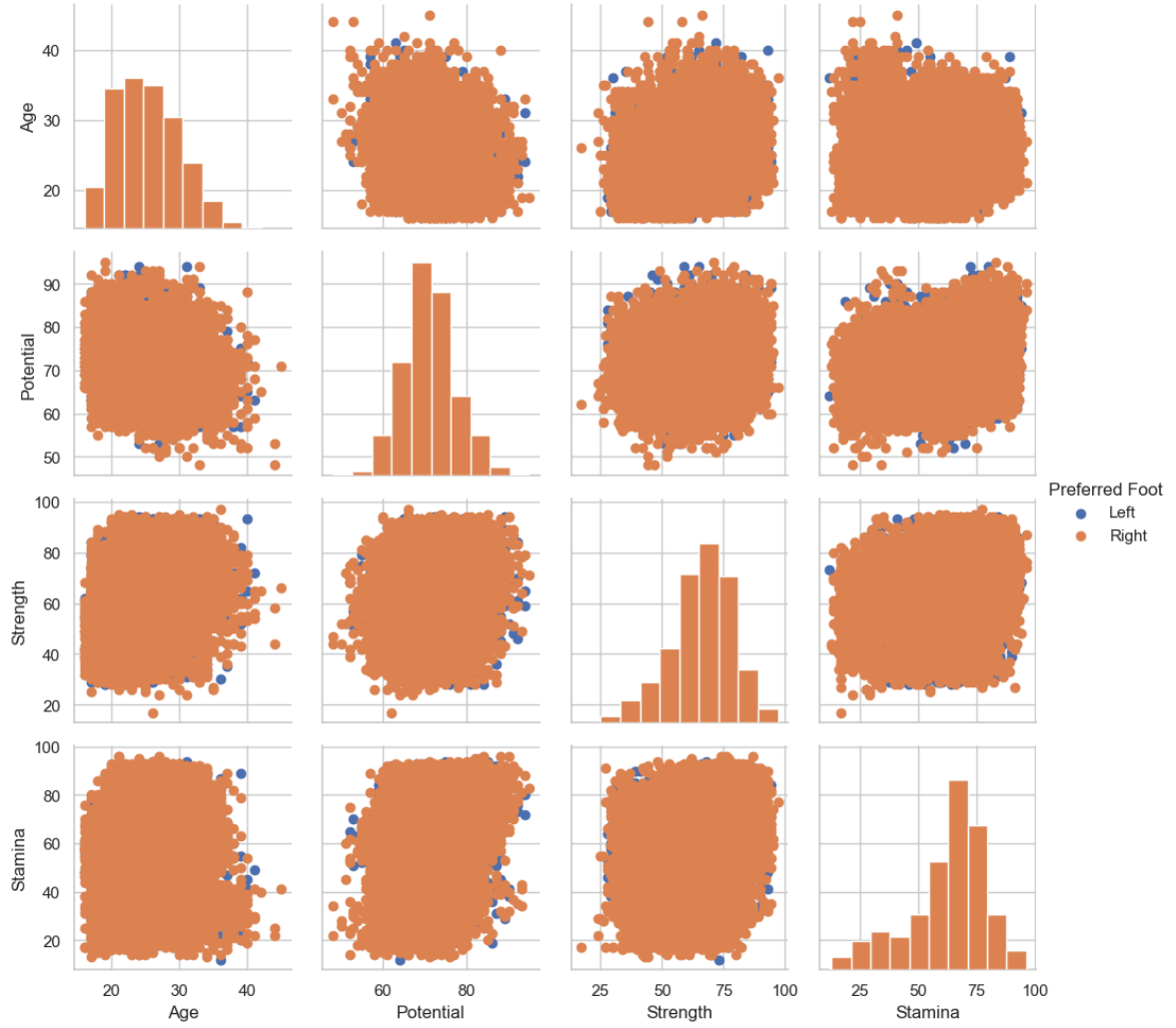
In [62]:
```
g = sns.PairGrid(fifa_new)
g = g.map(plt.scatter)
```



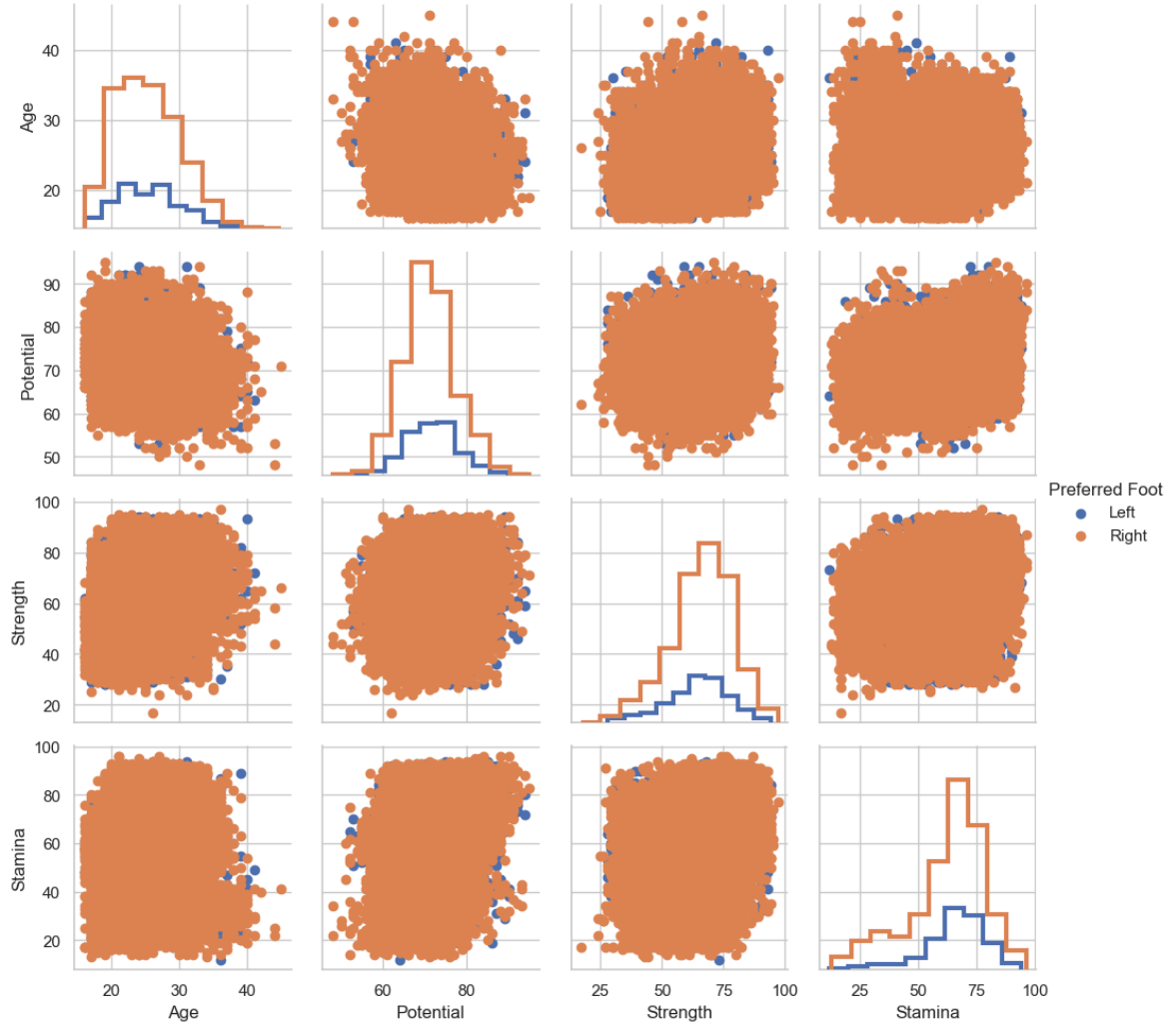
In [63]:
```
g = sns.PairGrid(fifa_new)
g = g.map_diag(plt.hist)
g = g.map_offdiag(plt.scatter)
```



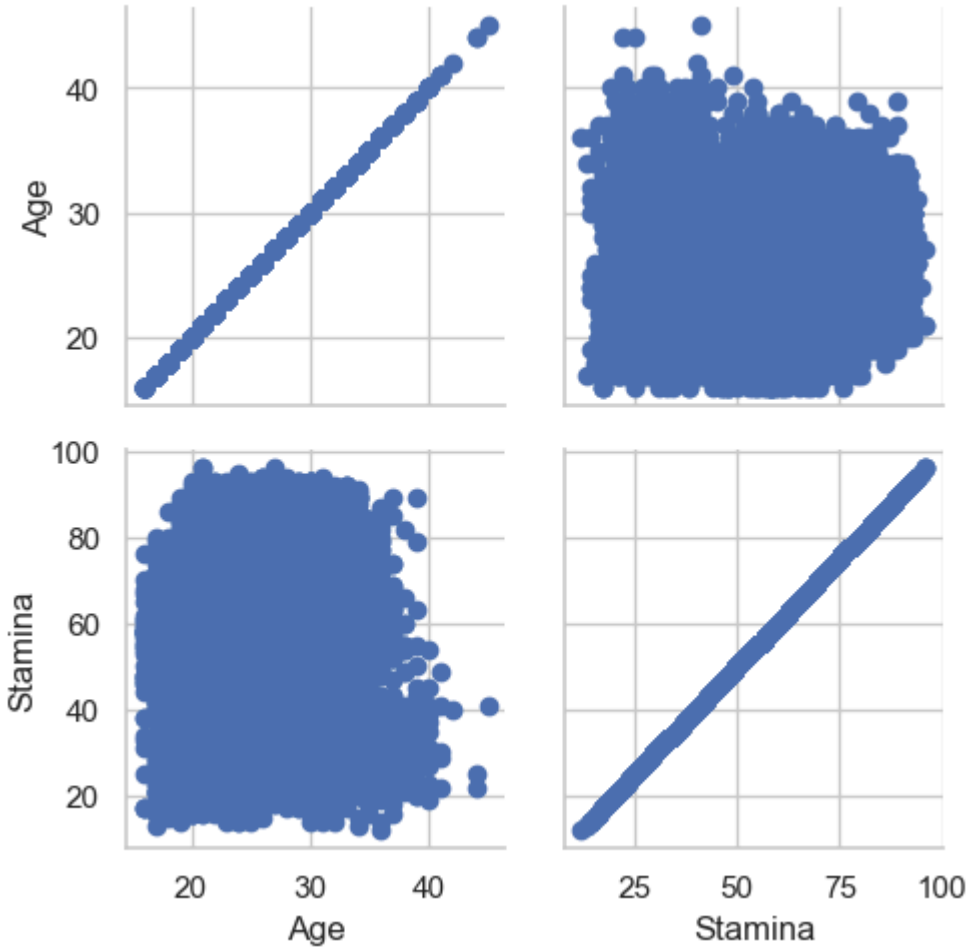
In [64]:
```
g = sns.PairGrid(fifa_new, hue="Preferred Foot")
g = g.map_diag(plt.hist)
g = g.map_offdiag(plt.scatter)
g = g.add_legend()
```



In [65]:
```
g = sns.PairGrid(fifa_new, hue="Preferred Foot")
g = g.map_diag(plt.hist, histtype="step", linewidth=3)
g = g.map_offdiag(plt.scatter)
g = g.add_legend()
```

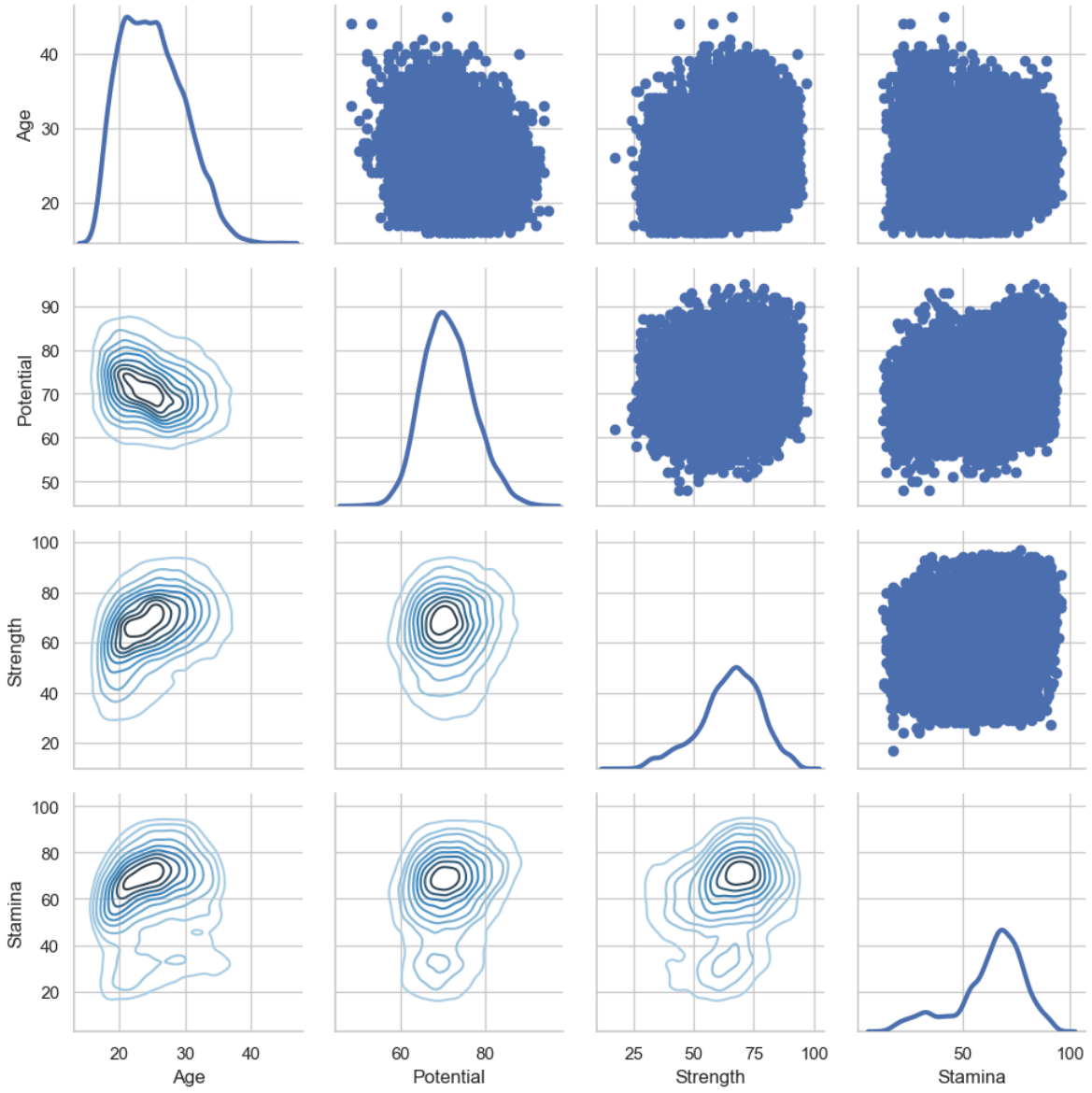


In [66]:
```
g = sns.PairGrid(fifa_new, vars=['Age', 'Stamina'])
g = g.map(plt.scatter)
```



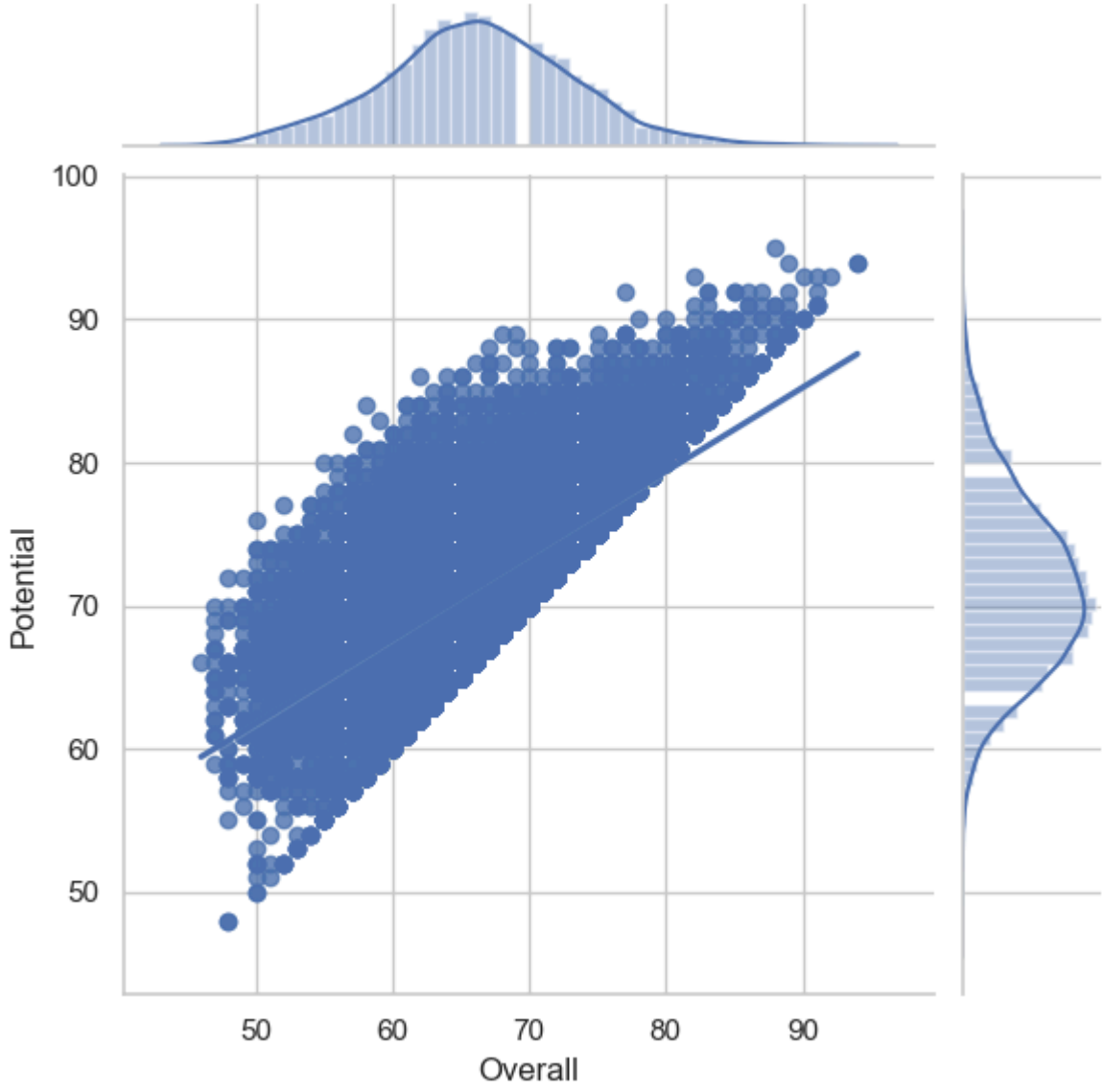
In [145…

```
g = sns.PairGrid(fifa_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)
```



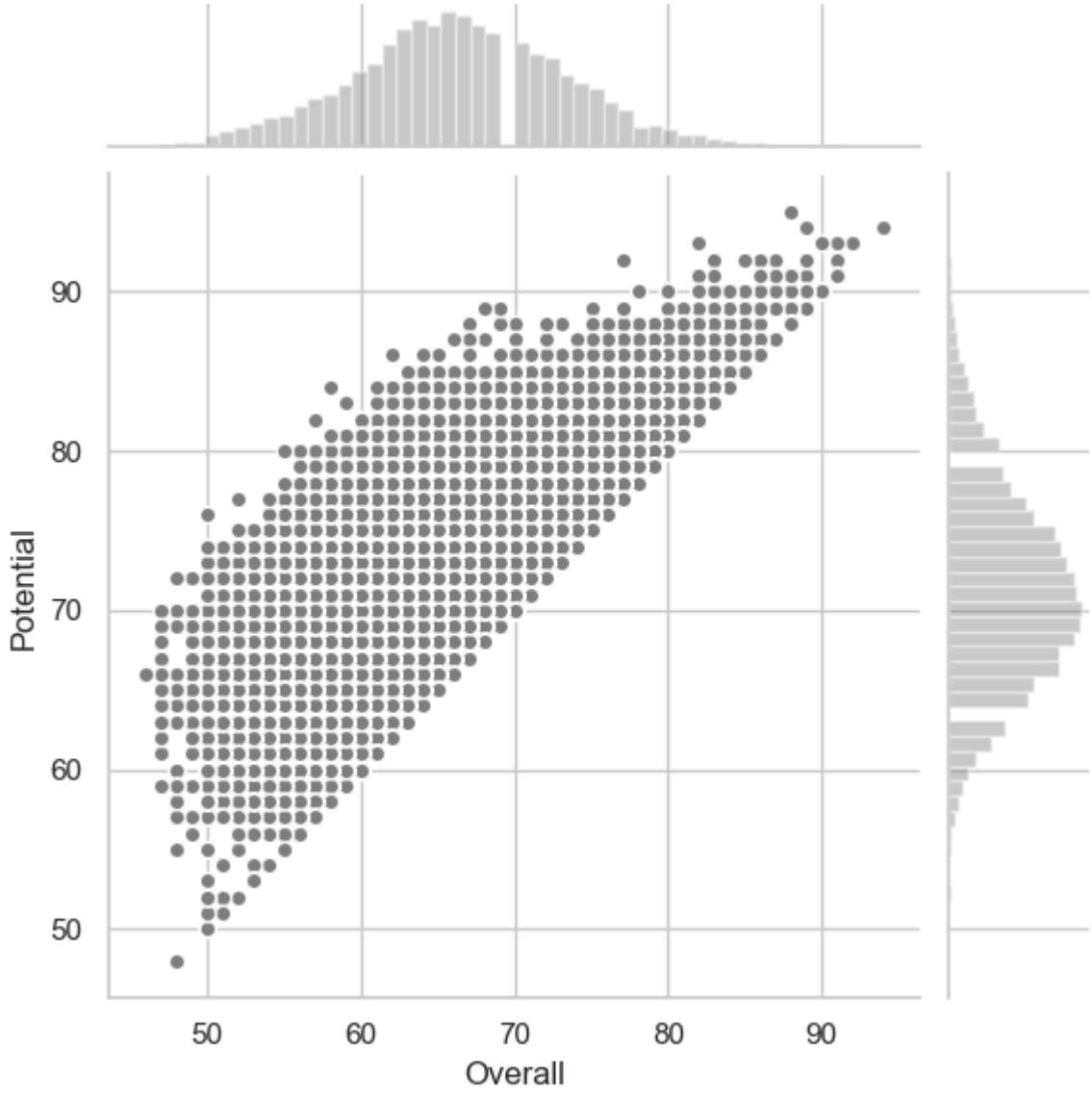
In [147…

```
g = sns.JointGrid(x="Overall", y="Potential", data=fifa)
g = g.plot(sns.regplot, sns.distplot)
```



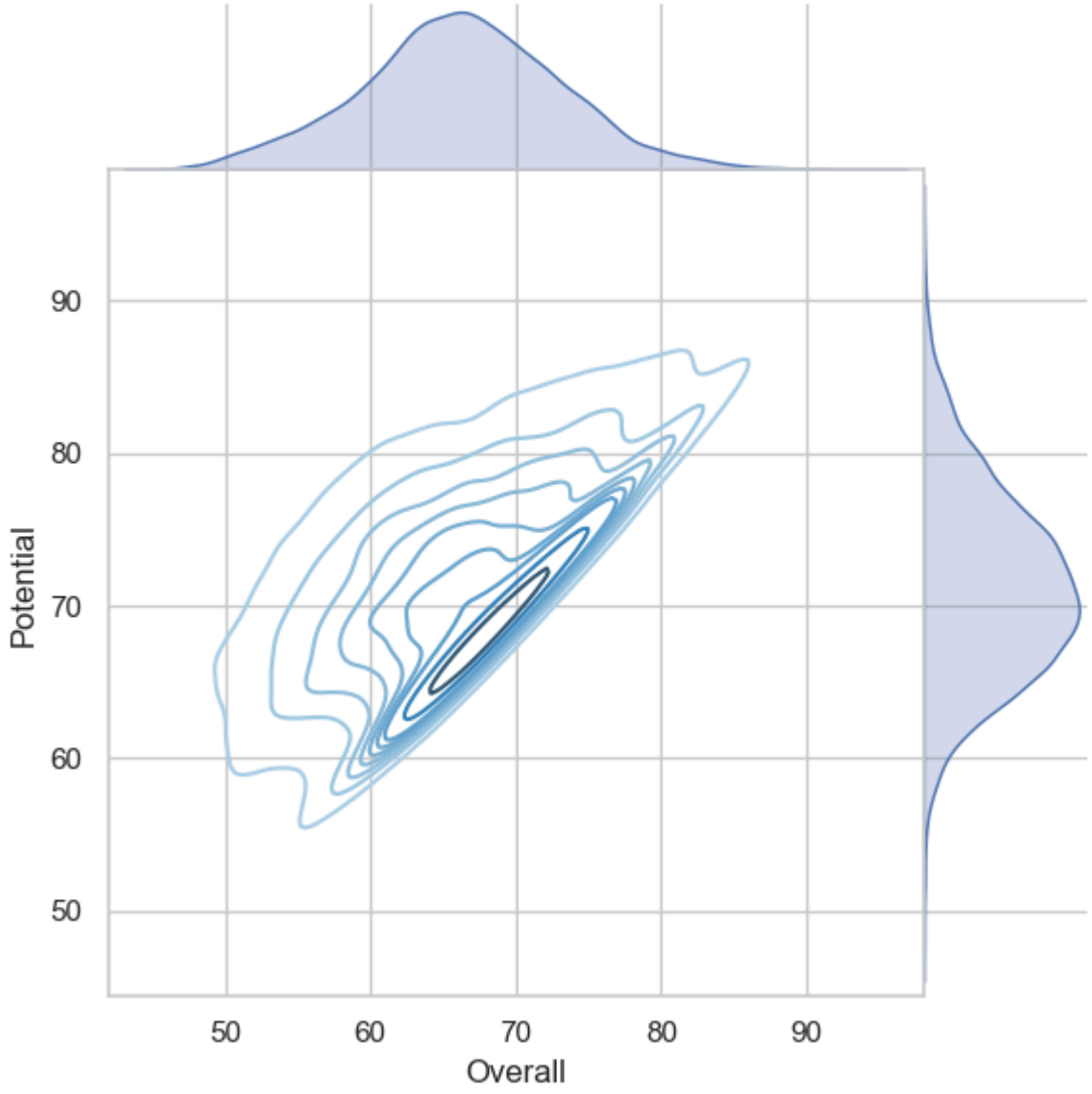
In [149…
```
import matplotlib.pyplot as plt
```

In [151…
```
g = sns.JointGrid(x="Overall", y="Potential", data=fifa)
g = g.plot_joint(plt.scatter, color=".5", edgecolor="white")
g = g.plot_marginals(sns.distplot, kde=False, color=".5")
```



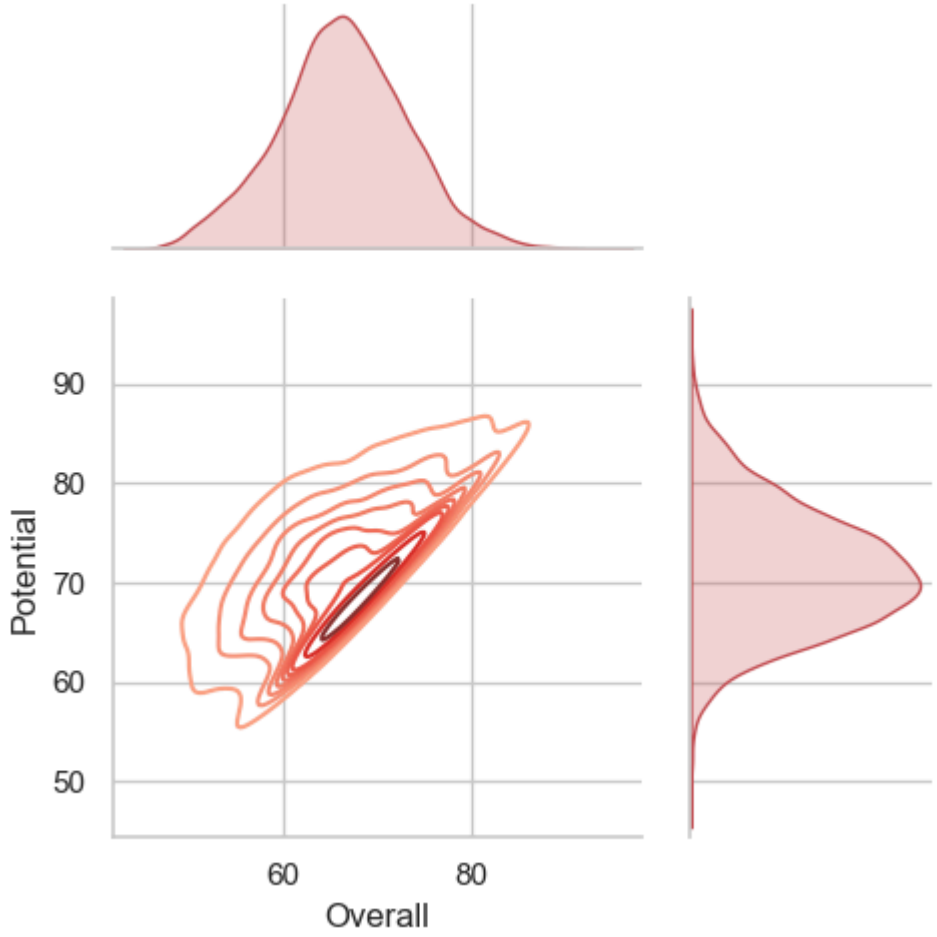
In [153…

```
g = sns.JointGrid(x="Overall", y="Potential", data=fifa, space=0)
g = g.plot_joint(sns.kdeplot, cmap="Blues_d")
g = g.plot_marginals(sns.kdeplot, shade=True)
```



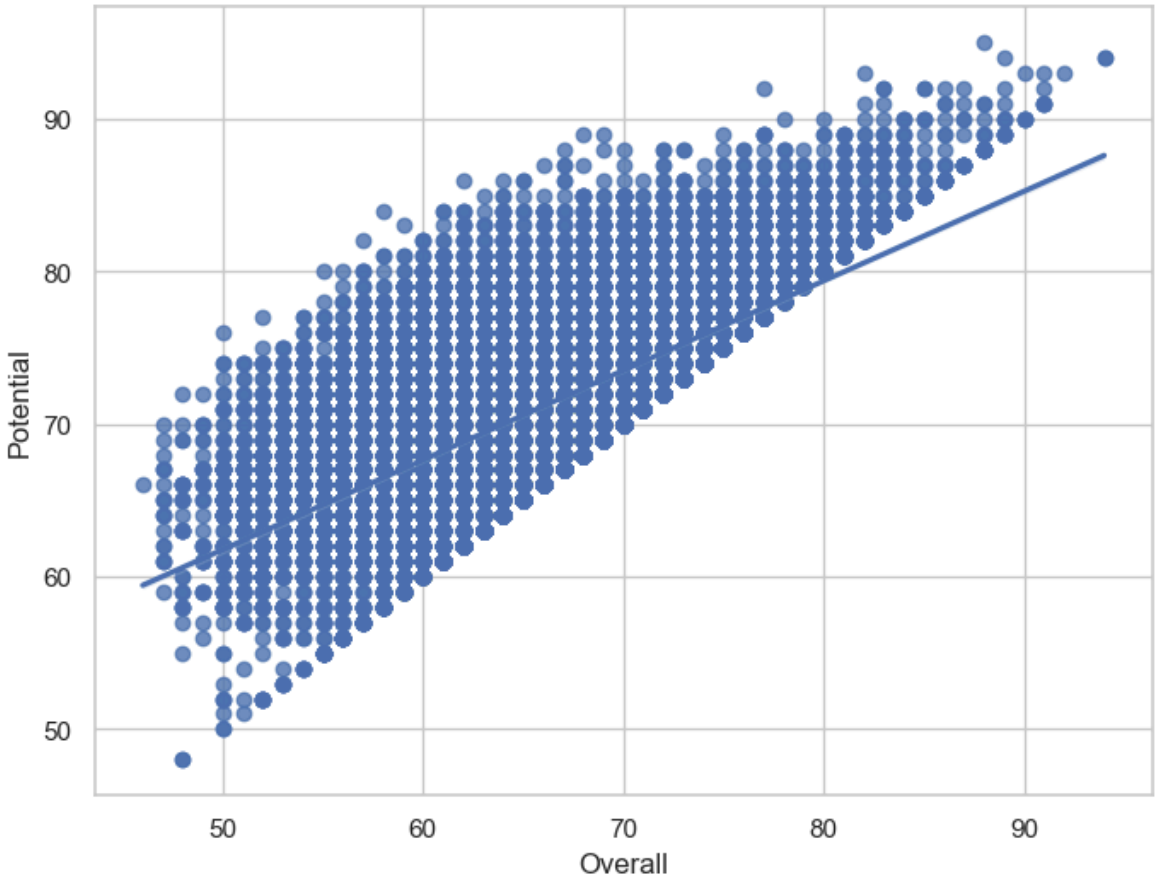
In [155…

```
g = sns.JointGrid(x="Overall", y="Potential", data=fifa, height=5, ratio=2)
g = g.plot_joint(sns.kdeplot, cmap="Reds_d")
g = g.plot_marginals(sns.kdeplot, color="r", shade=True)
```



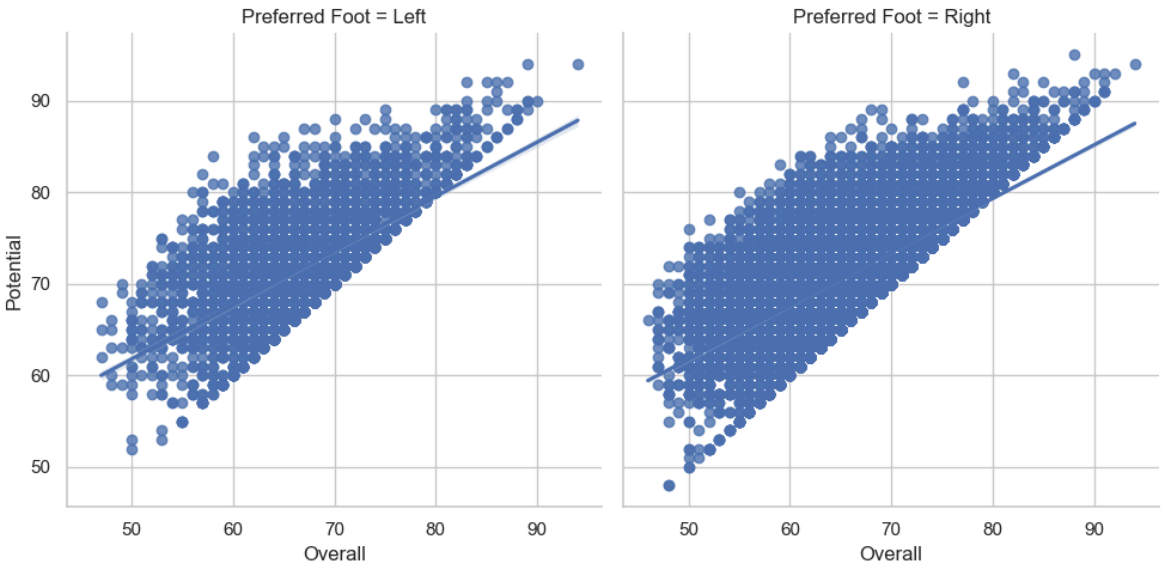
In [157…

```
f, ax = plt.subplots(figsize=(8, 6))
ax = sns.regplot(x="Overall", y="Potential", data=fifa);
```



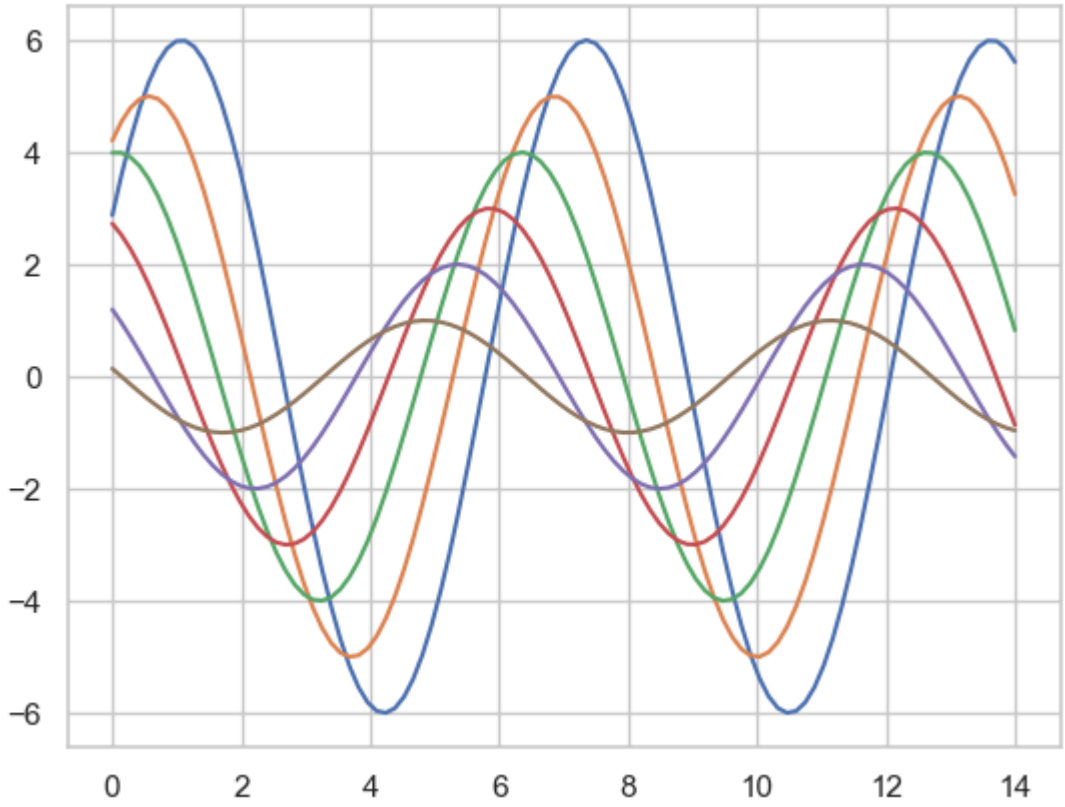
In [159…
```
sns.lmplot(x="Overall", y="Potential", col="Preferred Foot", data=fifa, col_wrap
```

Out[159…
```
<seaborn.axisgrid.FacetGrid at 0x1f0d30e4380>
```

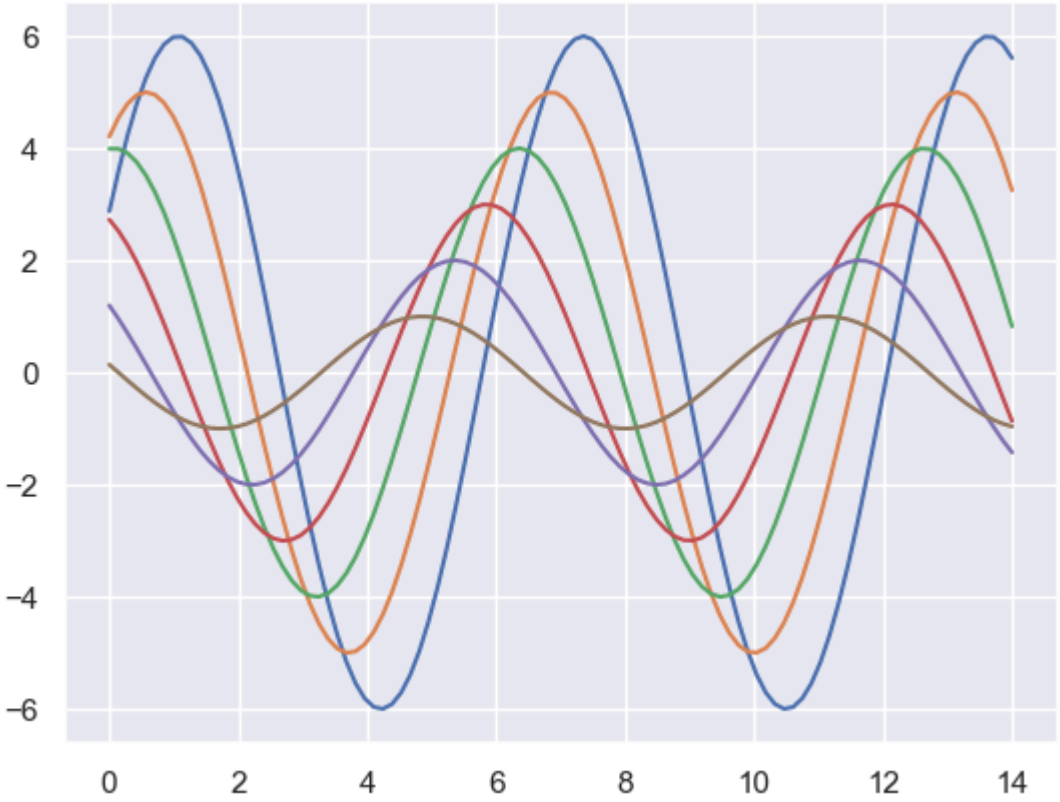


In [161…
```
def sinplot(flip=1):
    x = np.linspace(0, 14, 100)
    for i in range(1, 7):
        plt.plot(x, np.sin(x + i * .5) * (7 - i) * flip)
```

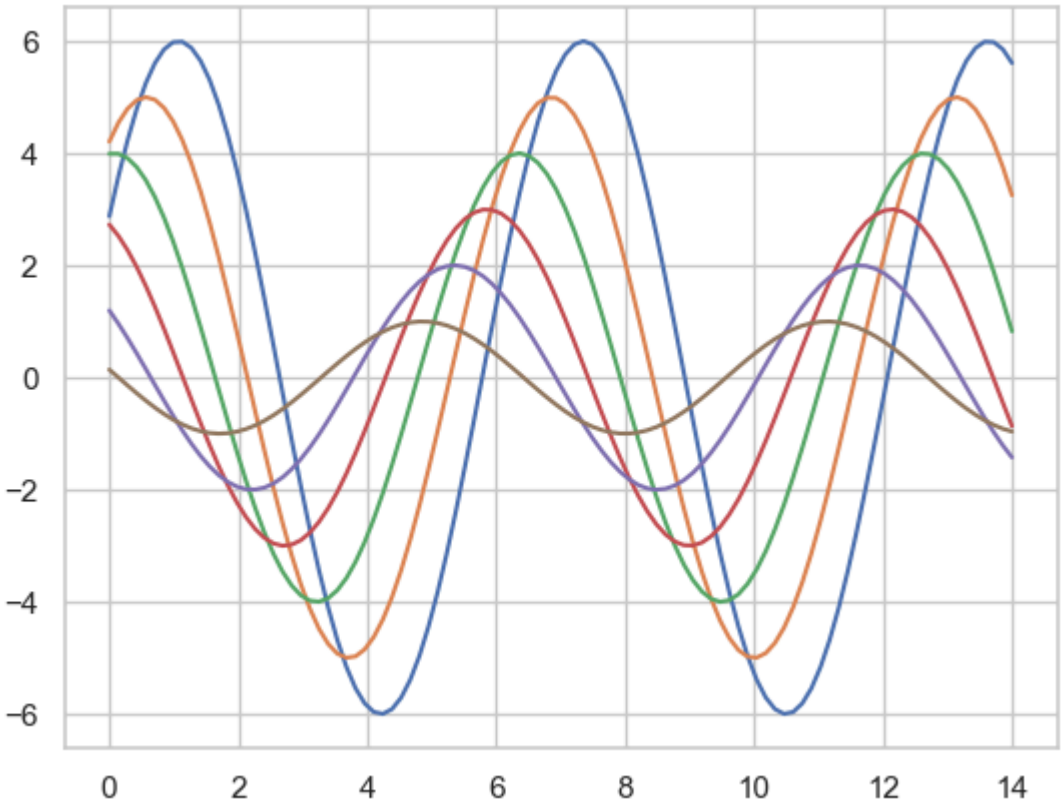
In [163…
```
sinplot()
```



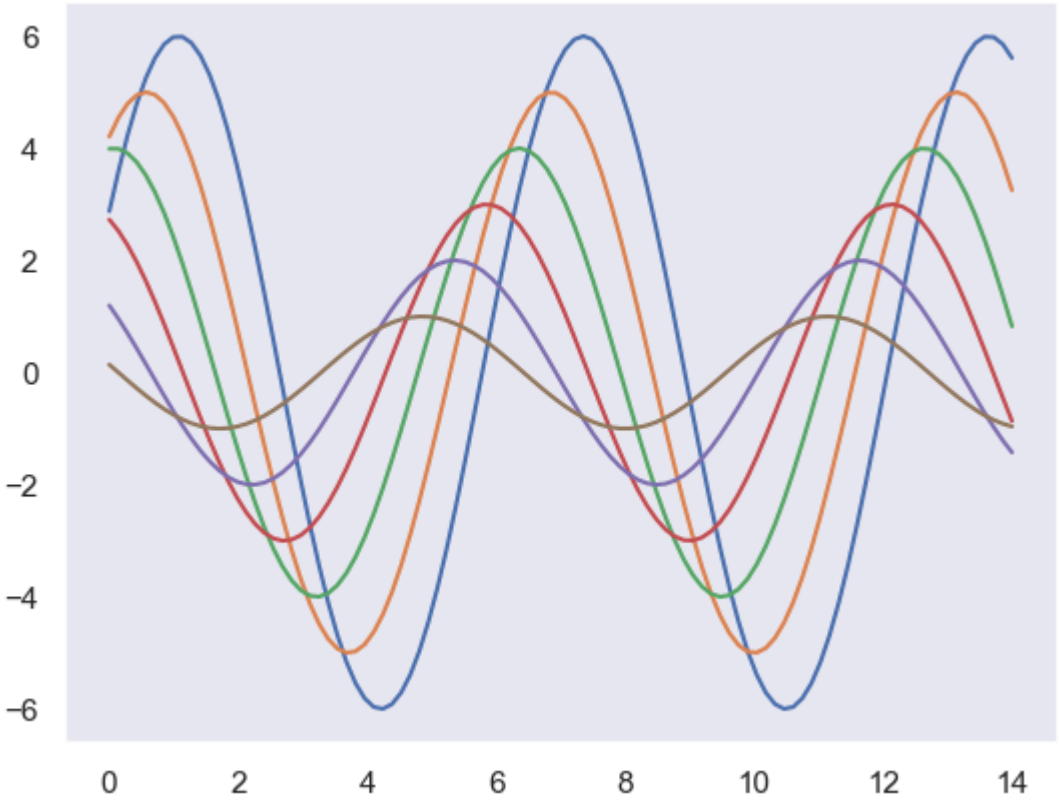
In [165…
```
sns.set()
sinplot()
```



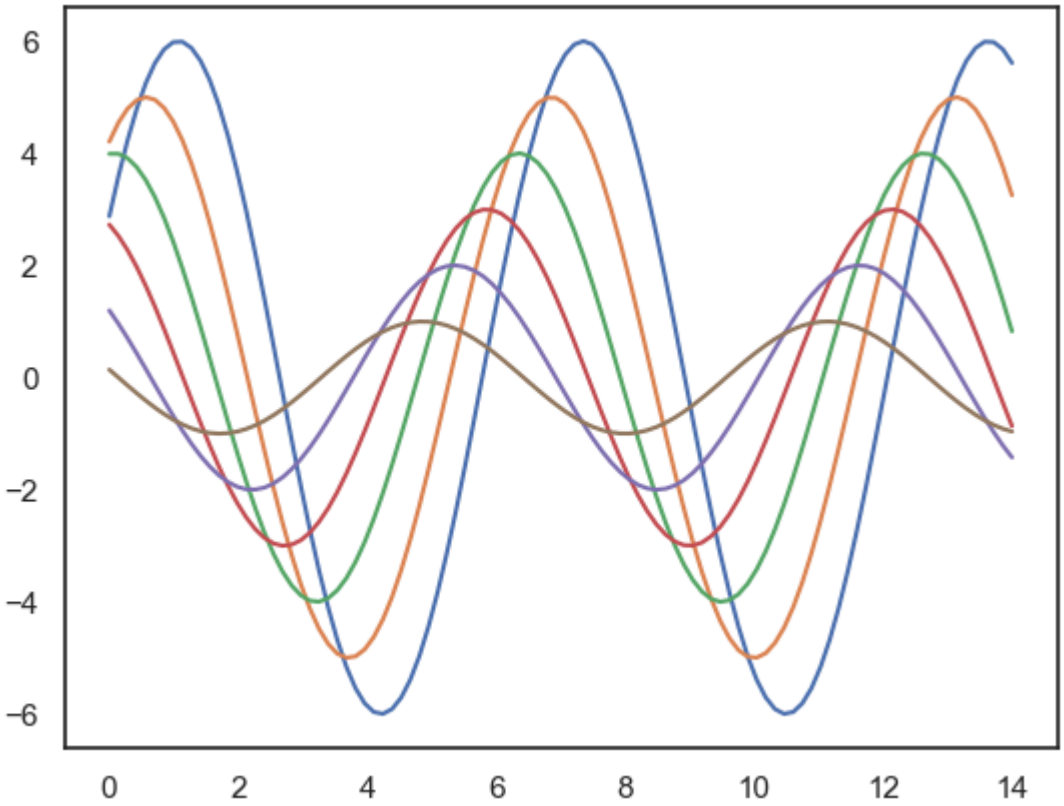
In [167…
```
sns.set_style("whitegrid")
sinplot()
```



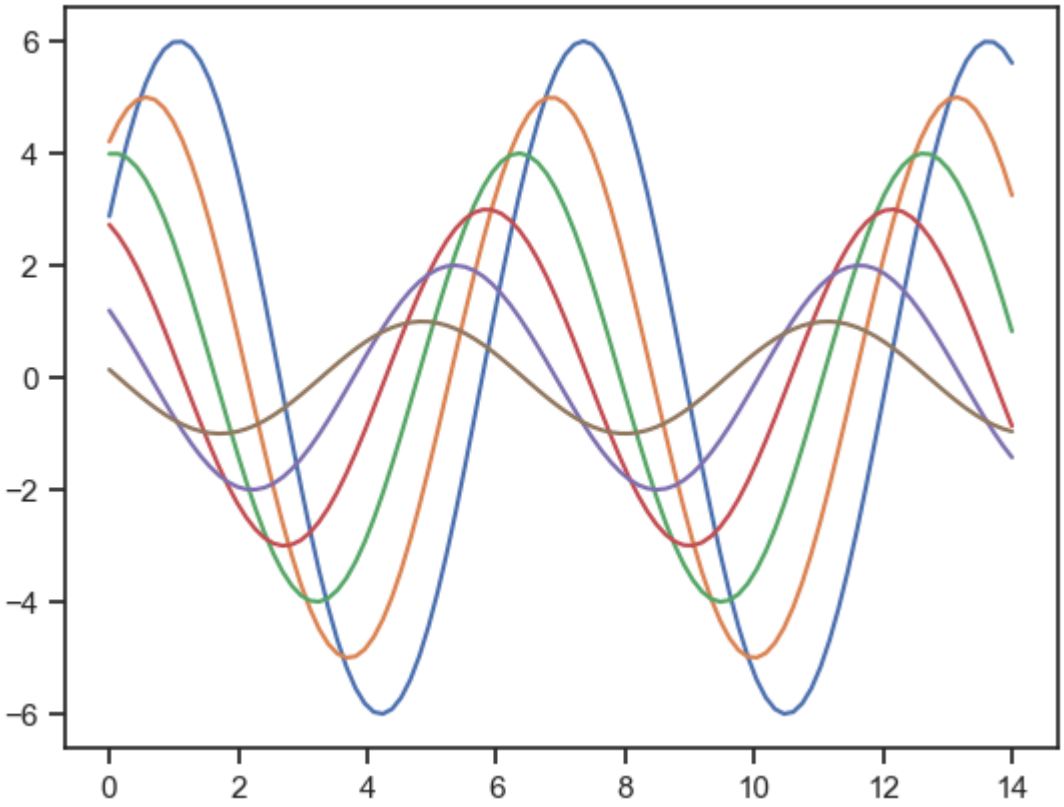
In [169…
```
sns.set_style("dark")
sinplot()
```



In [171…
```
sns.set_style("white")
sinplot()
```



In [173…
```
sns.set_style("ticks")
sinplot()
```


6
4
2
0
−2
−4
−6
0
2
4
6
8
10
12
14