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\Admn\Desktop\kartik\16th\16th- Seaborn, Eda practi
```

In [4]:
```
fifa19
```

Out[4]:

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

18207 rows × 89 columns

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

Out[5]:

	Unnamed: 0	ID	Name	Age	Photo	Natio
0	0	158023	L. Messi	31	https://cdn.sofifa.org/players/4/19/158023.png	Arge
1	1	20801	Cristiano Ronaldo	33	https://cdn.sofifa.org/players/4/19/20801.png	Po
2	2	190871	Neymar Jr	26	https://cdn.sofifa.org/players/4/19/190871.png	
3	3	193080	De Gea	27	https://cdn.sofifa.org/players/4/19/193080.png	
4	4	192985	K. De Bruyne	27	https://cdn.sofifa.org/players/4/19/192985.png	Be

5 rows × 89 columns

In [6]:
```
fifa19.tail()
```

Out[6]:

	Unnamed: 0	ID	Name	Age	Pho
18202	18202	238813	J. Lundstram	19	https://cdn.sofifa.org/players/4/19/238813.p
18203	18203	243165	N. Christoffersson	19	https://cdn.sofifa.org/players/4/19/243165.p
18204	18204	241638	B. Worman	16	https://cdn.sofifa.org/players/4/19/241638.p
18205	18205	246268	D. Walker-Rice	17	https://cdn.sofifa.org/players/4/19/246268.p
18206	18206	246269	G. Nugent	16	https://cdn.sofifa.org/players/4/19/246269.p

5 rows × 89 columns

In [7]:
```
fifa19.info()
```

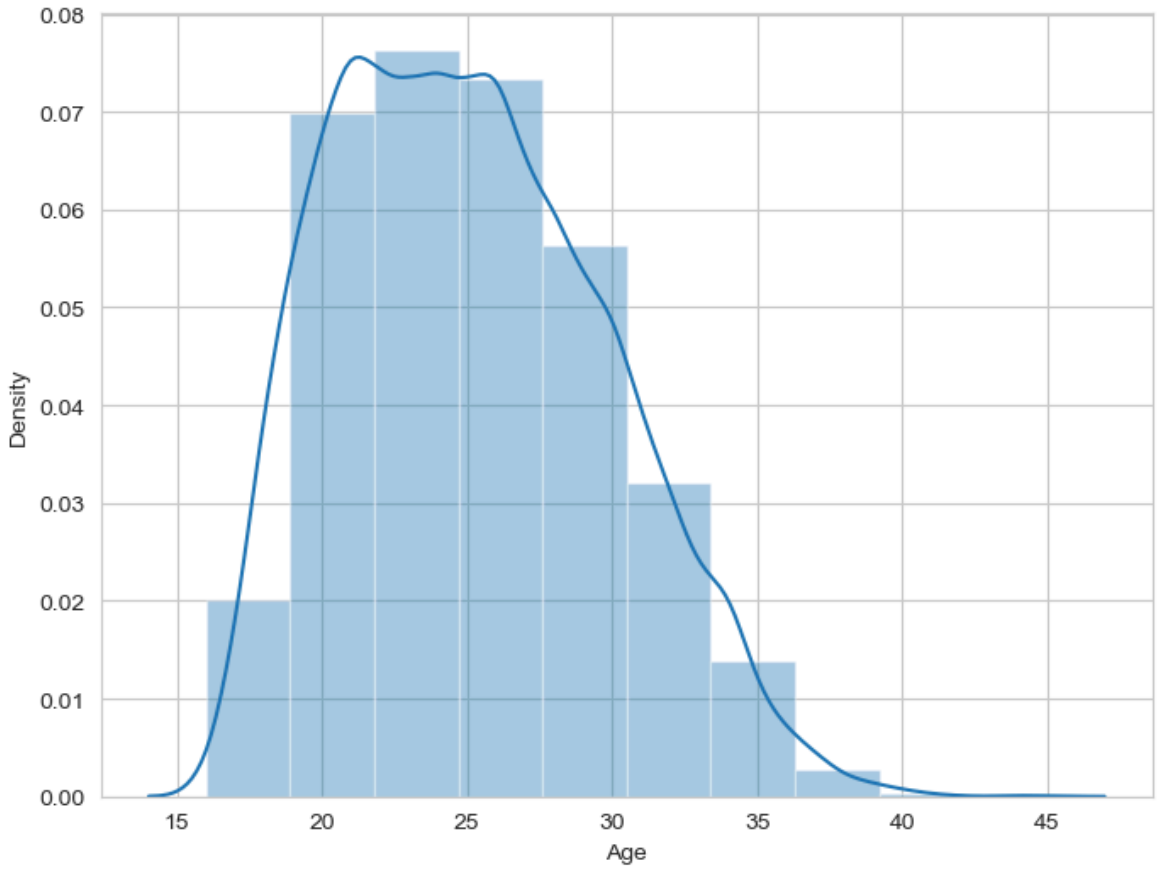
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 18207 entries, 0 to 18206
Data columns (total 89 columns):
 #   Column                    Non-Null Count  Dtype  
---  ------                    --------------  -----  
 0   Unnamed: 0                18207 non-null  int64  
 1   ID                        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
```

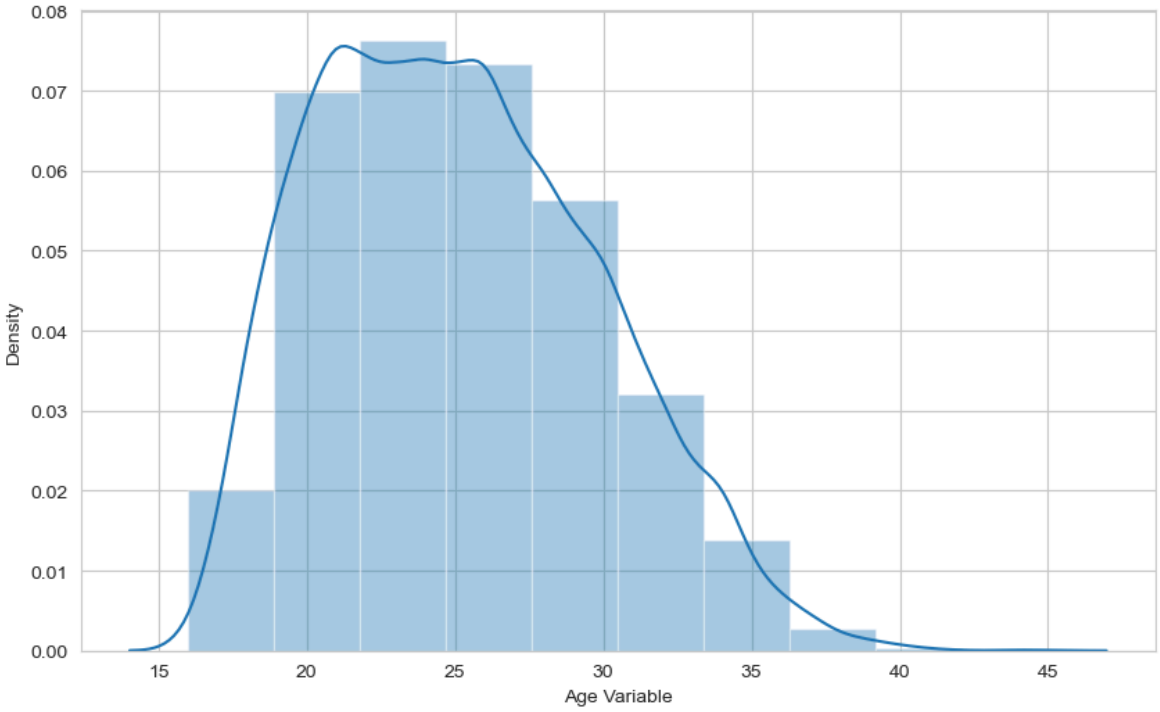
In [8]:
```
fifa19['Body Type'].value_counts()
```

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
```

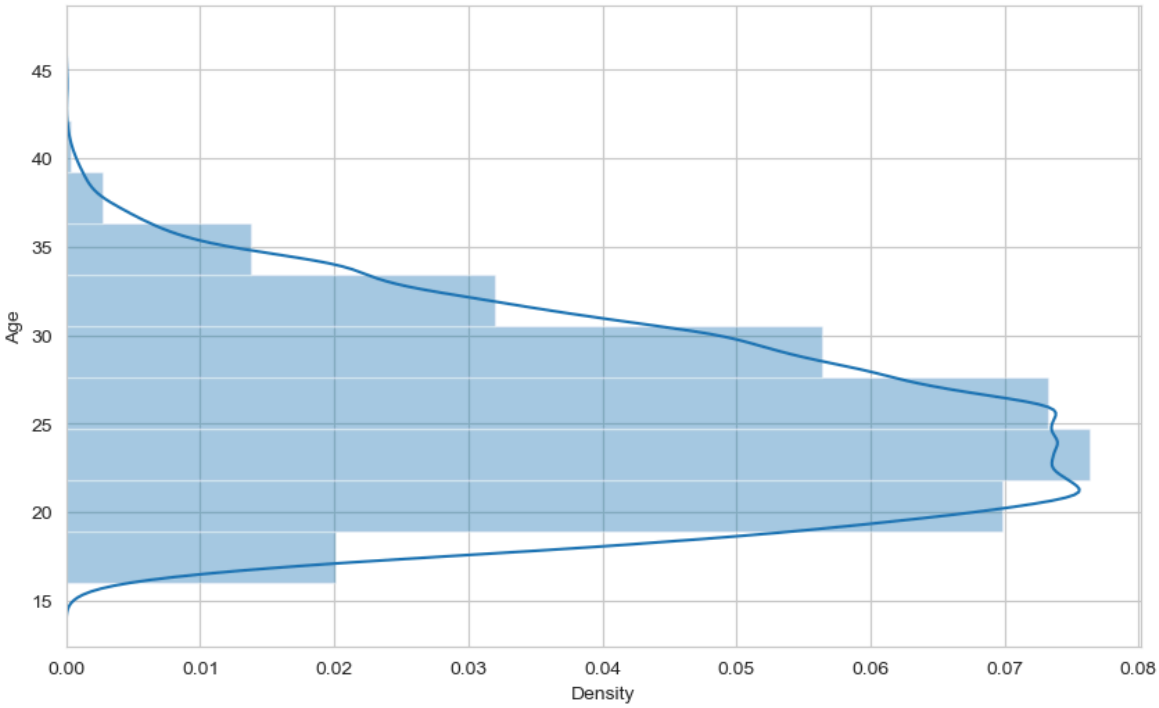
In [9]:
```
f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
ax=sns.distplot(x,bins=10)
plt.show()
```



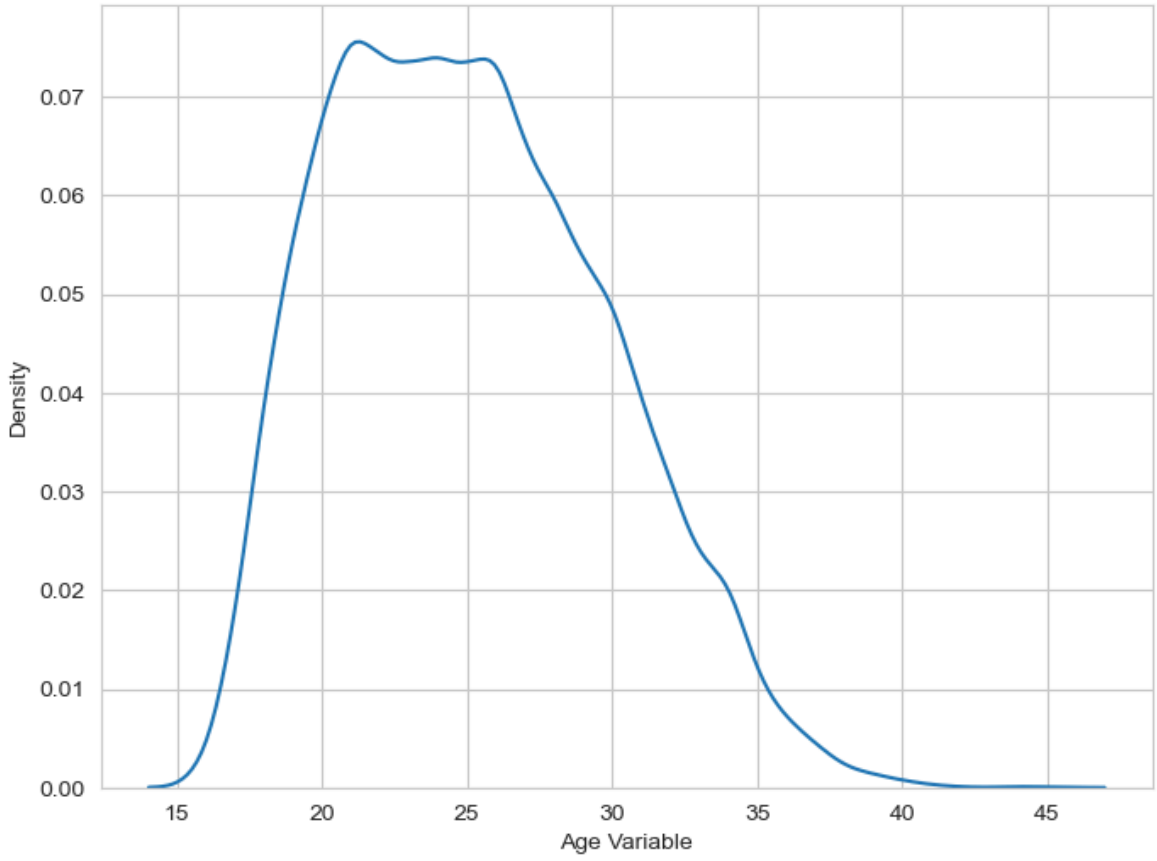
In [10]:
```
f,ax=plt.subplots(figsize=(10,6))
x=fifa19['Age']
x=pd.Series(x,name='Age Variable')
ax=sns.distplot(x,bins=10)
plt.show()
```



In [11]:
```
f,ax=plt.subplots(figsize=(10,6))
x=fifa19['Age']
ax=sns.distplot(x,bins=10,vertical=True)
plt.show()
```

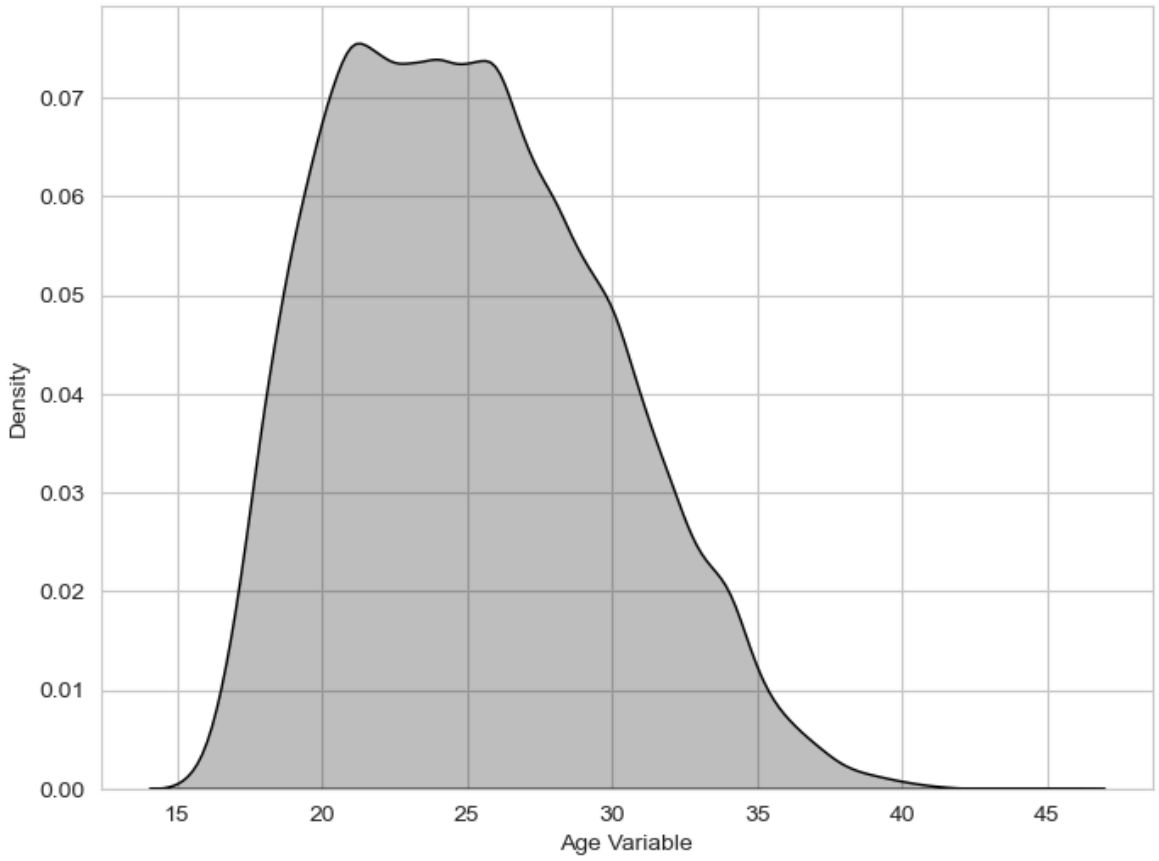


In [12]:
```
f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
x=pd.Series(x,name='Age Variable')
sns.kdeplot(x)
plt.show()
```

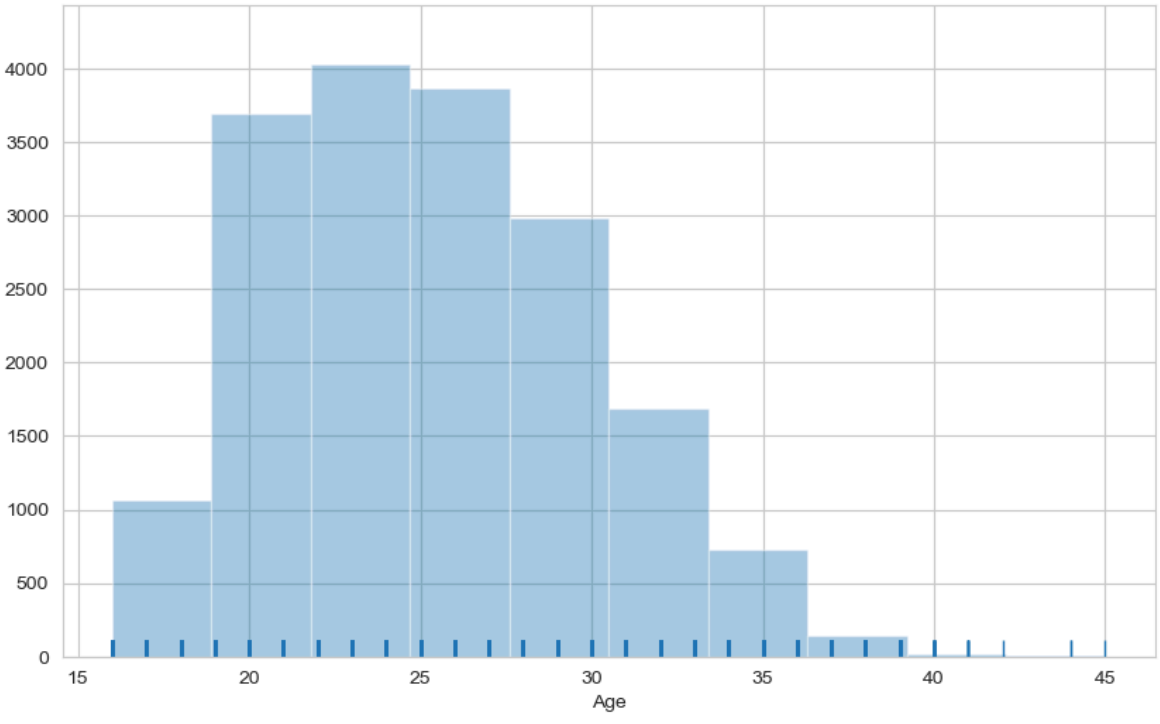


In [13]:
```
f,ax=plt.subplots(figsize=(8,6))
x=fifa19['Age']
x=pd.Series(x,name='Age Variable')
```

```
ax=sns.kdeplot(x,shade=True,color='k')
plt.show()
```

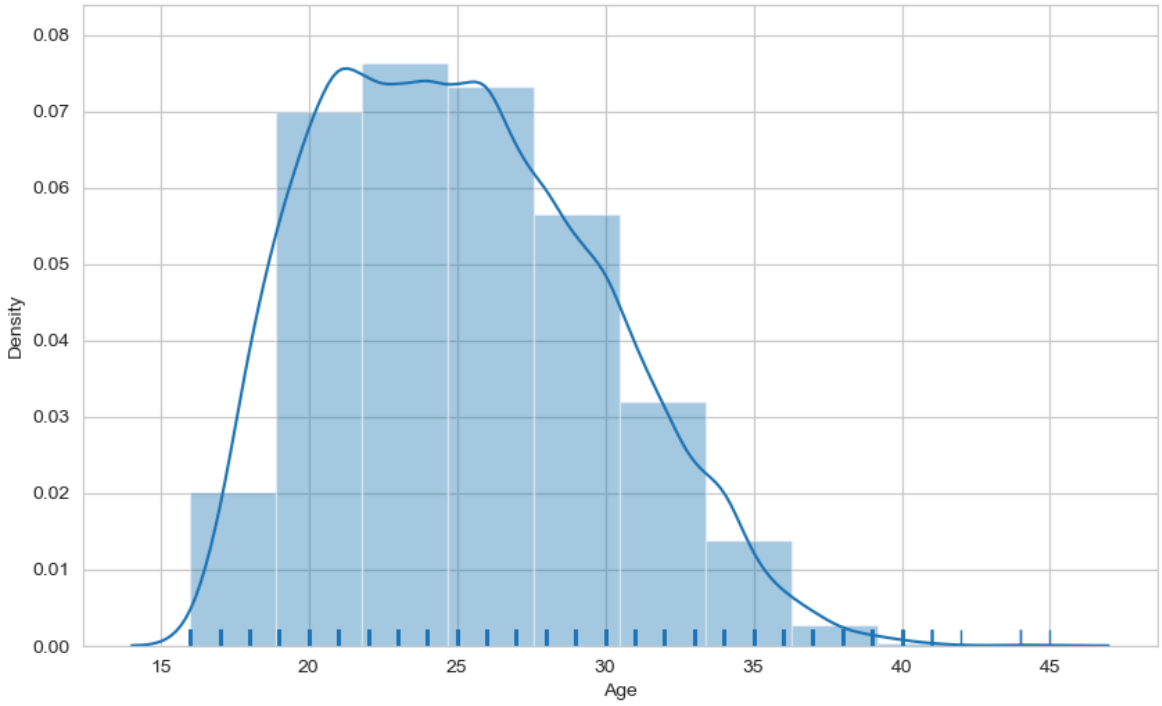


In [14]:
```
f,ax=plt.subplots(figsize=(10,6))
x=fifa19['Age']
ax=sns.distplot(x,kde=False,rug=True,bins=10)
plt.show()
```

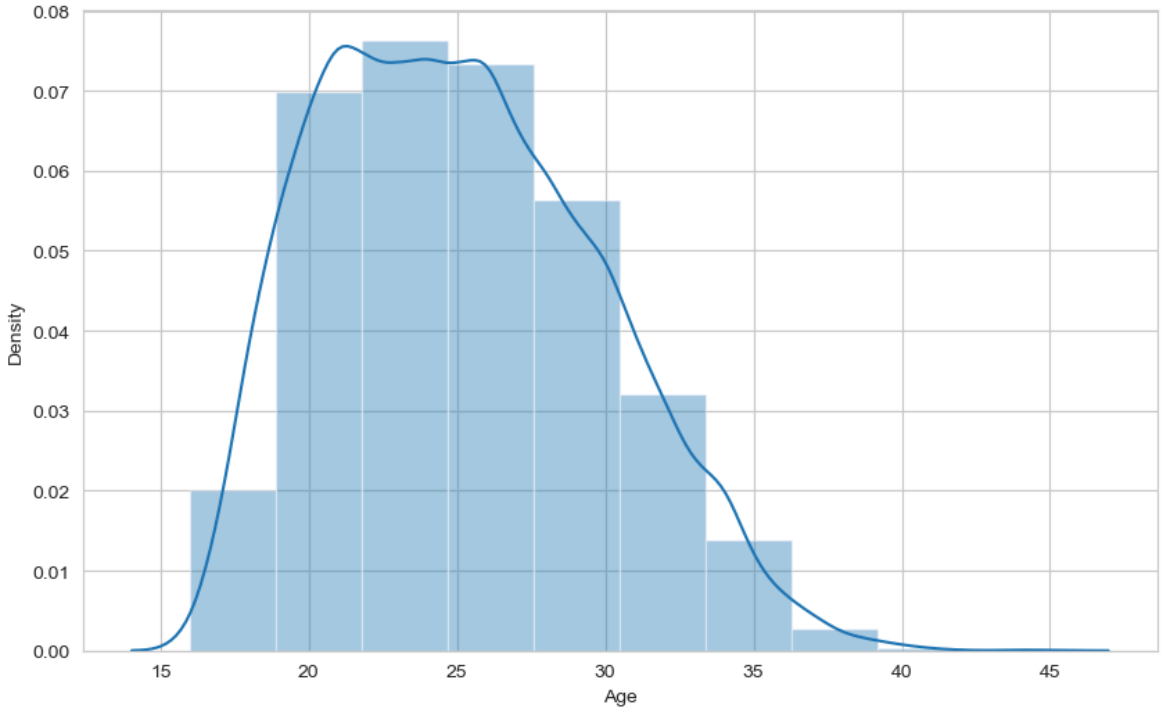


In [15]:
```
f,ax=plt.subplots(figsize=(10,6))
x=fifa19['Age']
```

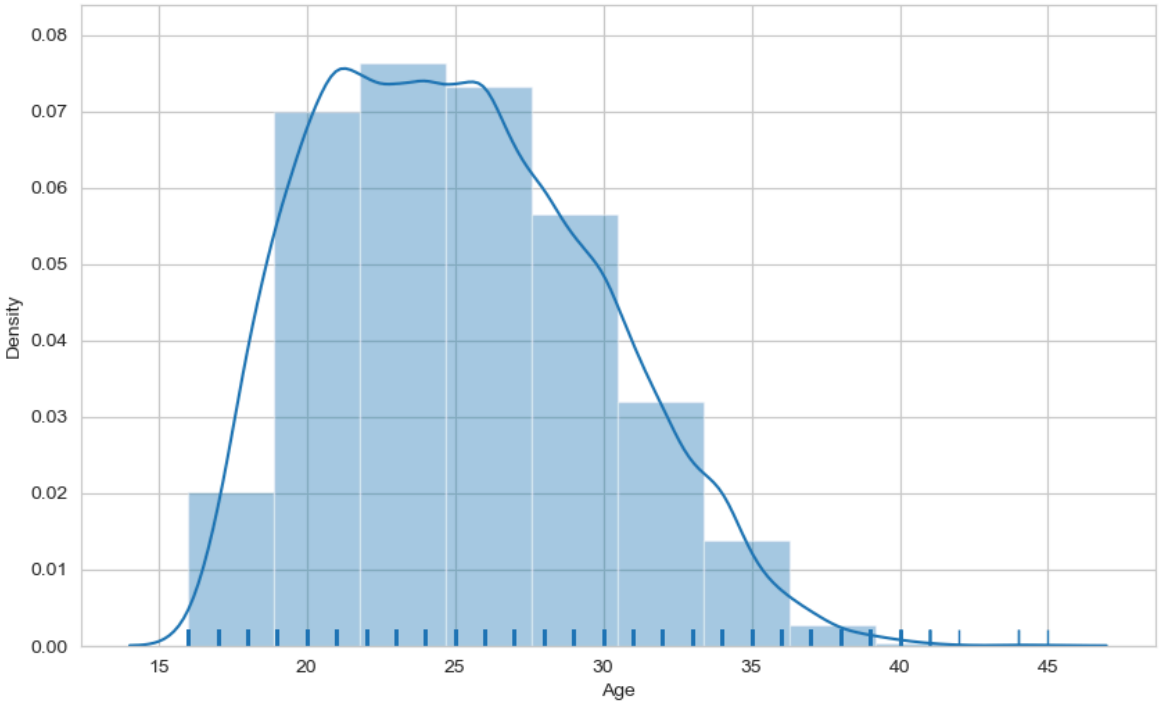
```
ax=sns.distplot(x,kde=True,rug=True,bins=10)
plt.show()
```



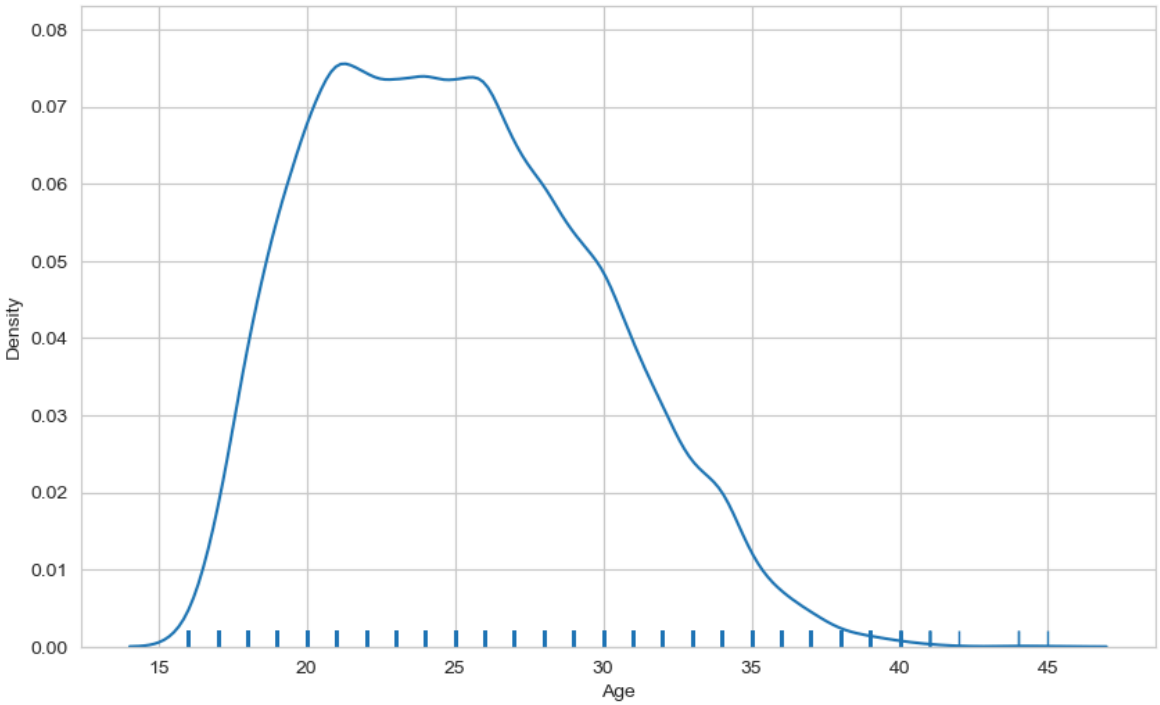
In [16]:
```
f,ax=plt.subplots(figsize=(10,6))
x=fifa19['Age']
ax=sns.distplot(x,kde=True,rug=False,bins=10)
plt.show()
```



In [17]:
```
f,ax=plt.subplots(figsize=(10,6))
x=fifa19['Age']
ax=sns.distplot(x,hist=True,rug=True,bins=10)
plt.show()
```



In [18]:
```
f,ax=plt.subplots(figsize=(10,6))
x=fifa19['Age']
ax=sns.distplot(x,hist=False,rug=True,bins=10)
plt.show()
```



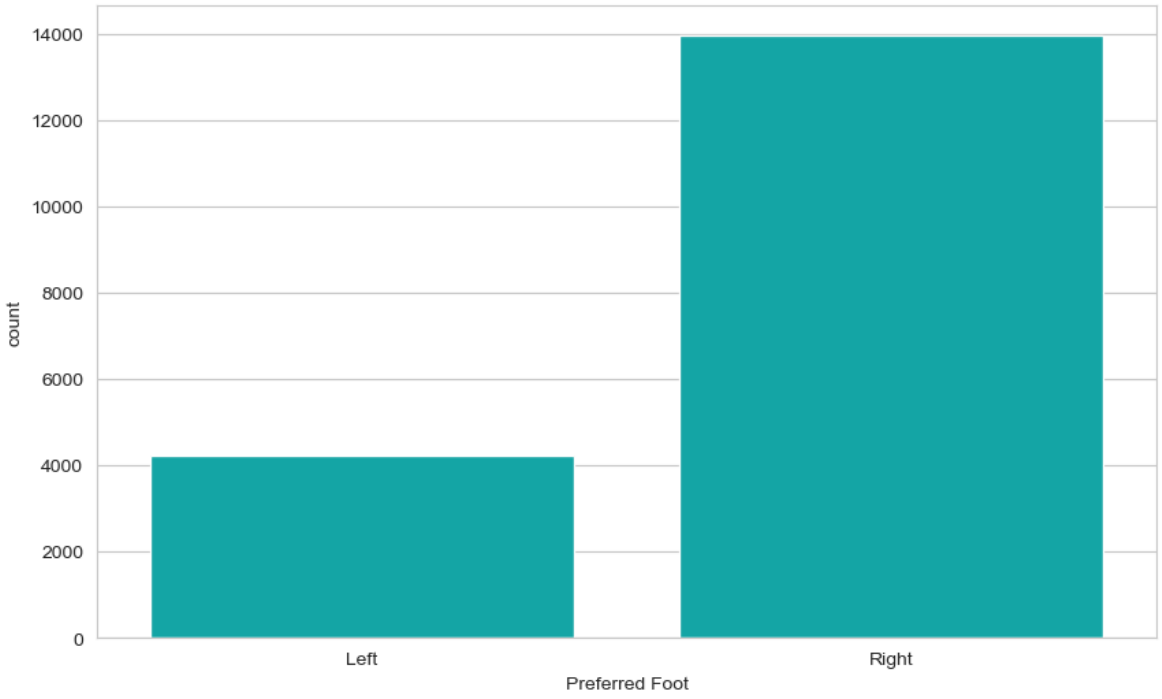
In [19]:
```
fifa19['Preferred Foot'].nunique()
```

Out[19]:
```
2
```

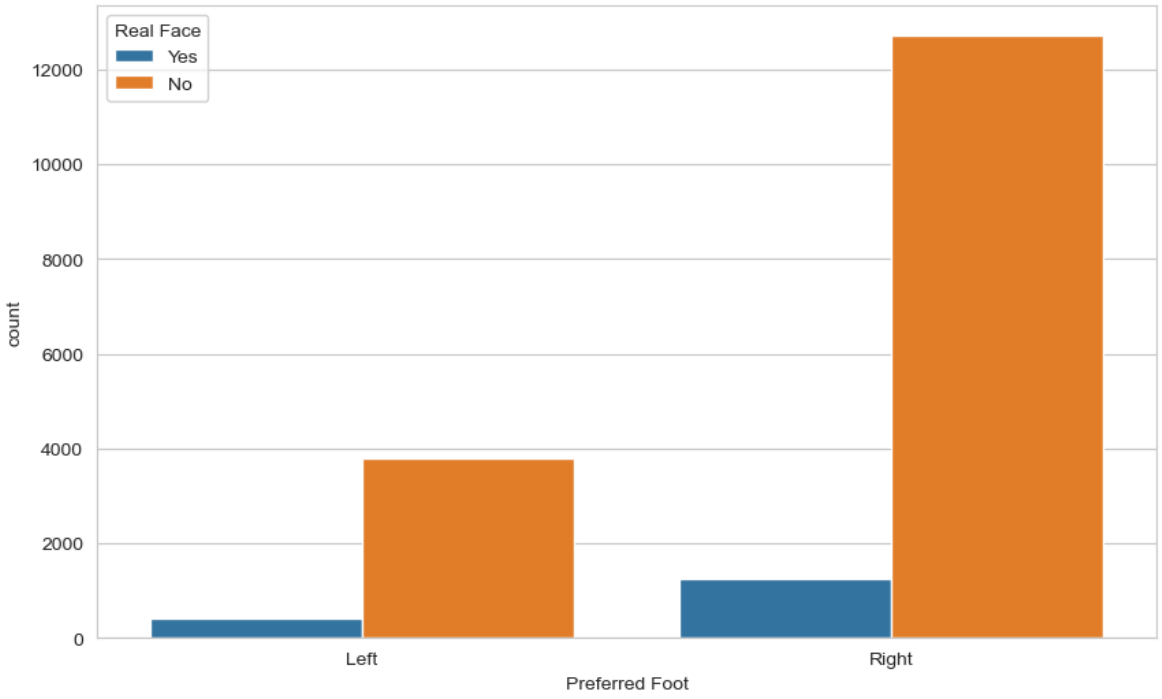
In [20]:
```
fifa19['Preferred Foot'].value_counts()
```

Out[20]:
```
Preferred Foot
Right    13948
Left      4211
Name: count, dtype: int64
```

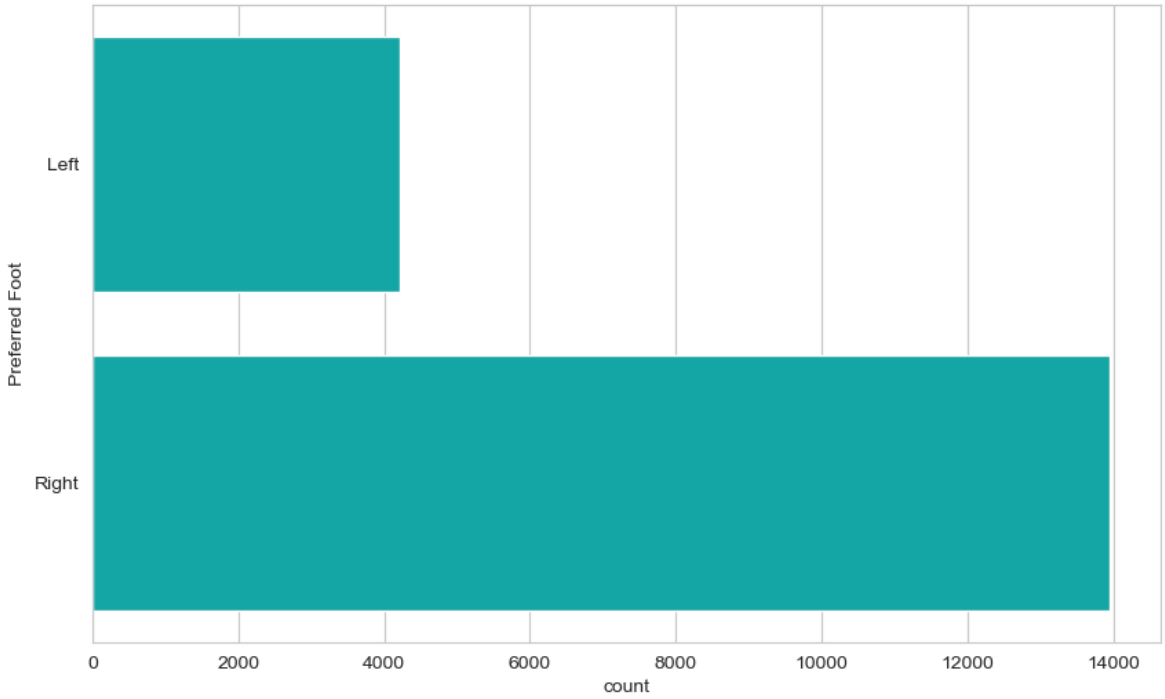
In [21]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.countplot(x='Preferred Foot',data=fifa19,color='c')
plt.show()
```



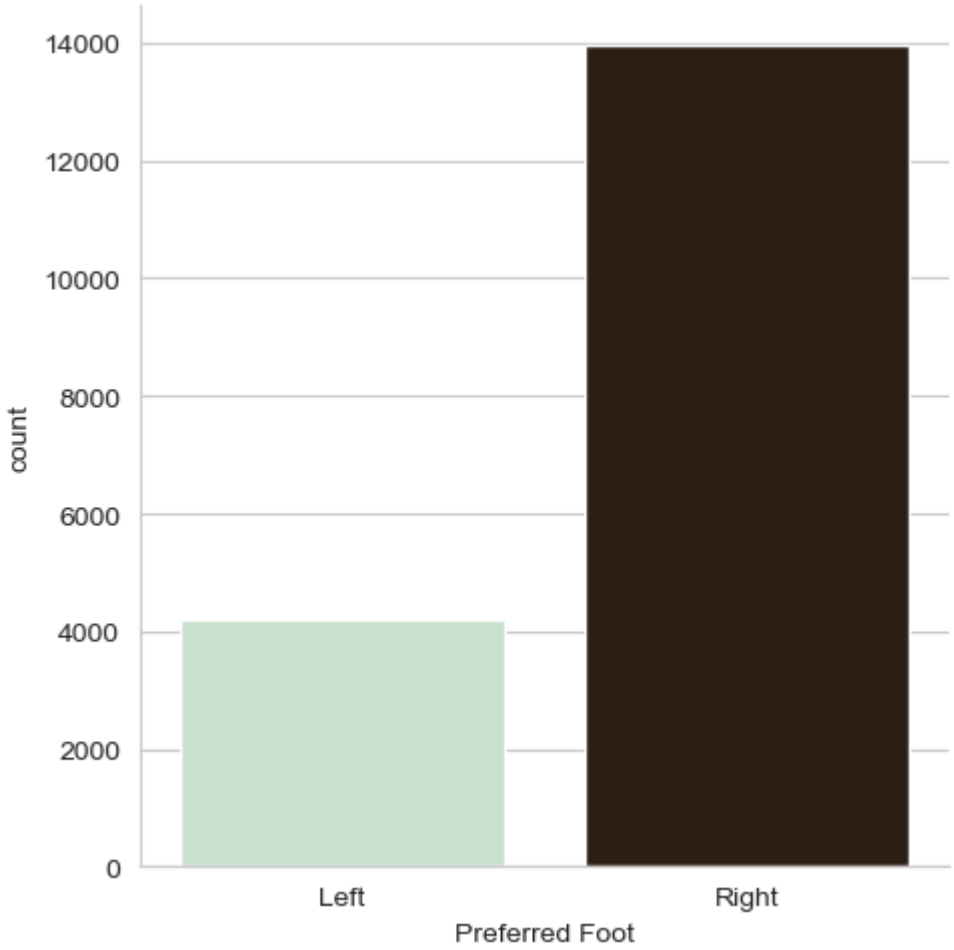
In [22]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.countplot(x='Preferred Foot',hue='Real Face',data=fifa19)
plt.show()
```



In [23]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.countplot(y='Preferred Foot',data=fifa19,color='c')
plt.show()
```



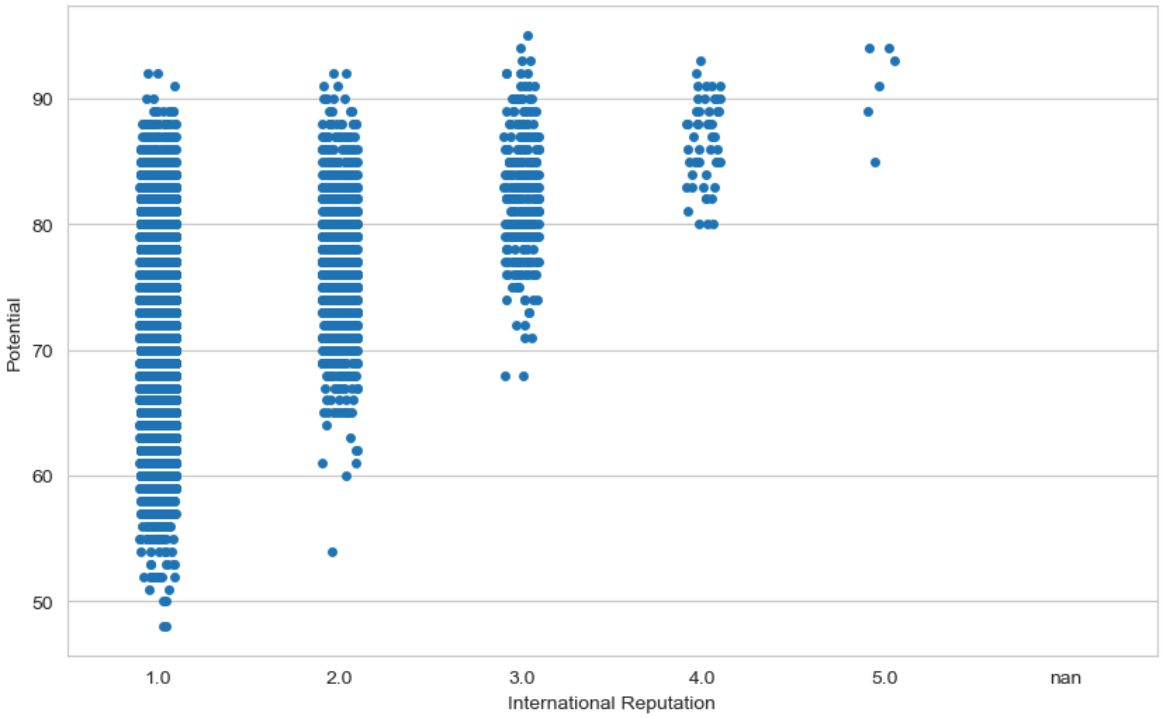
In [24]:
```
g=sns.catplot(data=fifa19,x='Preferred Foot',kind='count',palette='ch:25')
```



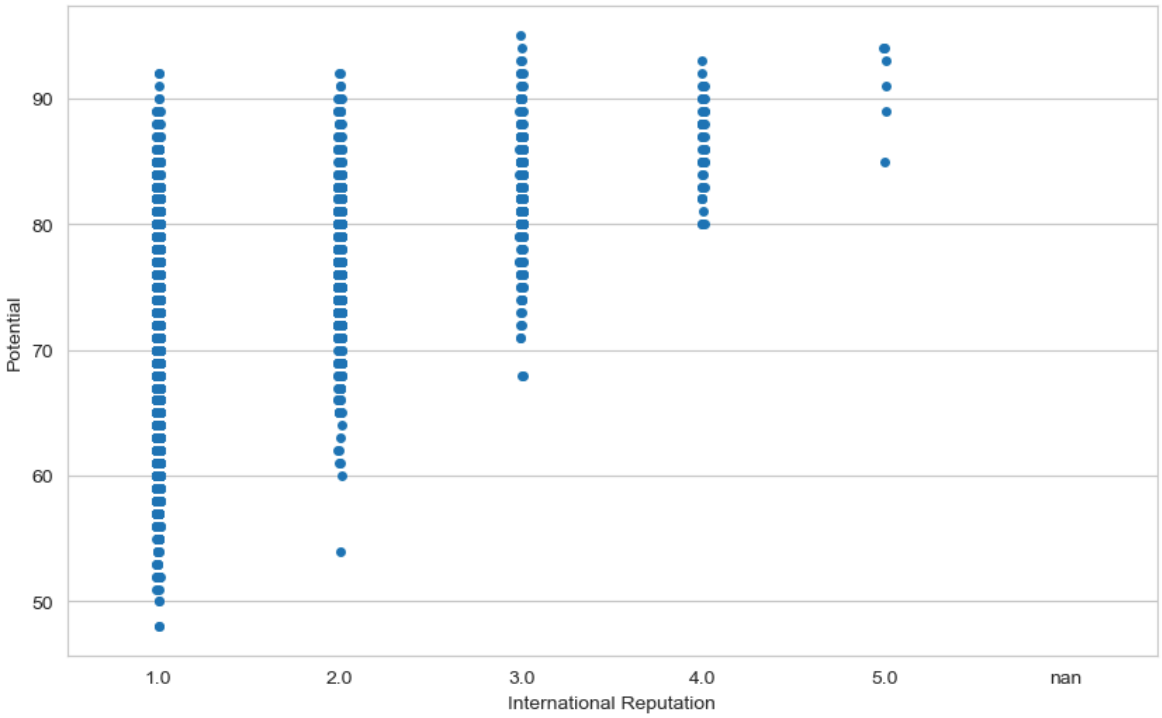
In [25]:
```
fifa19['International Reputation'].value_counts()
```

Out[25]:
```
International Reputation
1.0    16532
2.0     1261
3.0      309
4.0       51
5.0        6
Name: count, dtype: int64
```

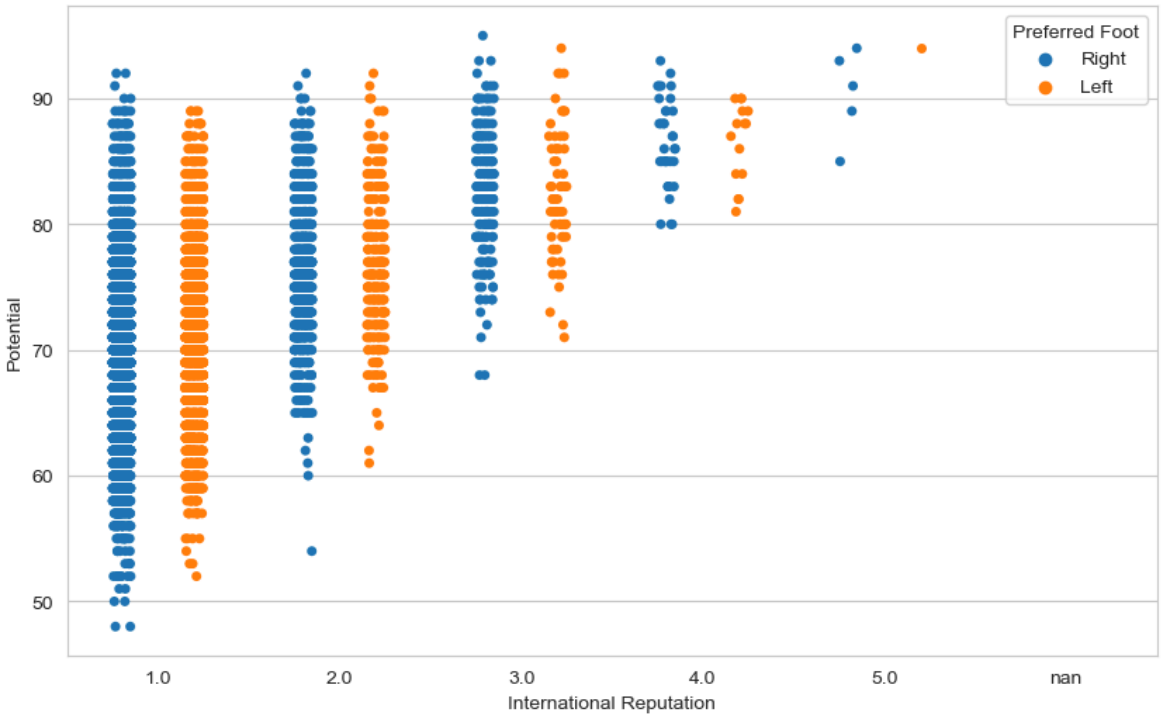
In [26]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.stripplot(x='International Reputation',y='Potential',data=fifa19)
plt.show()
```



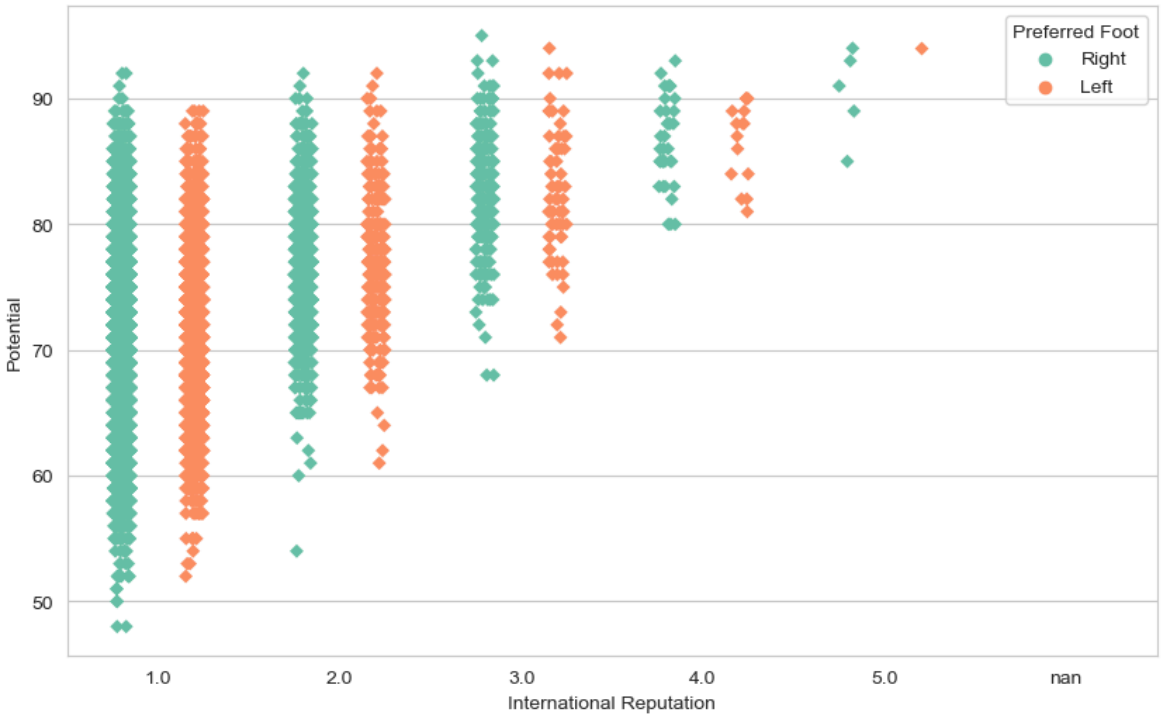
In [27]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.stripplot(x='International Reputation',y='Potential',data=fifa19,jitter=0.01
plt.show()
```



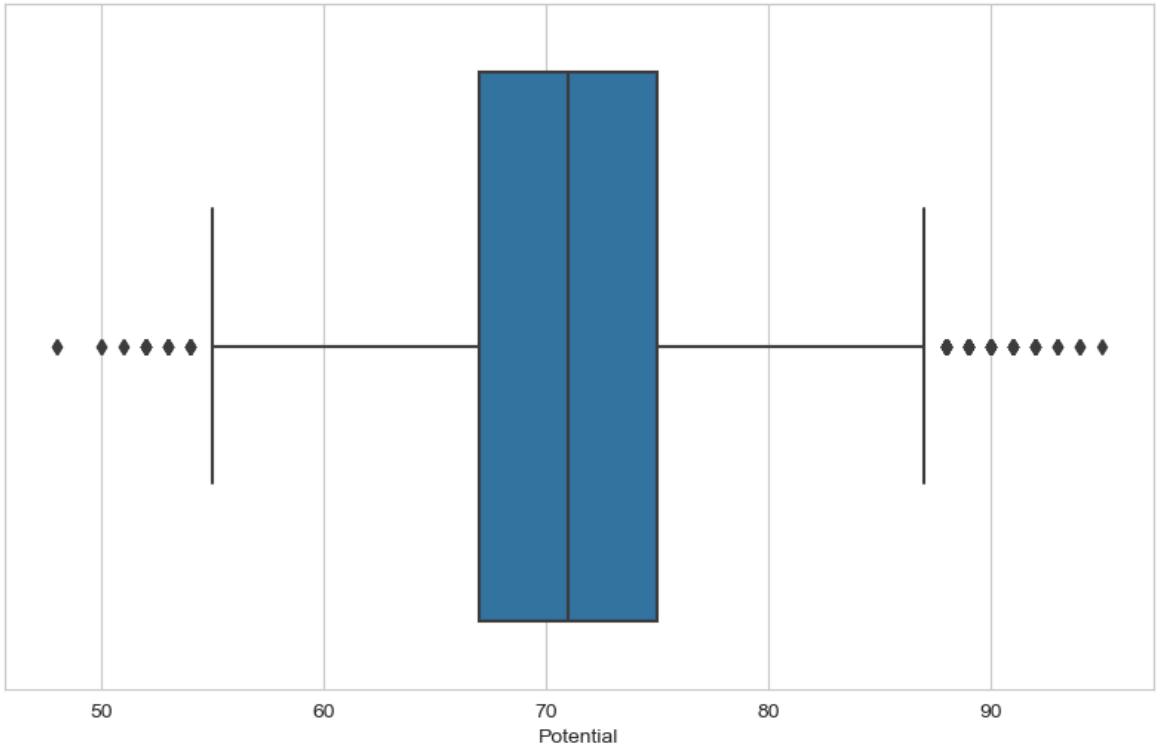
In [28]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.stripplot(x='International Reputation',y='Potential',data=fifa19,hue='Prefer
plt.show()
```



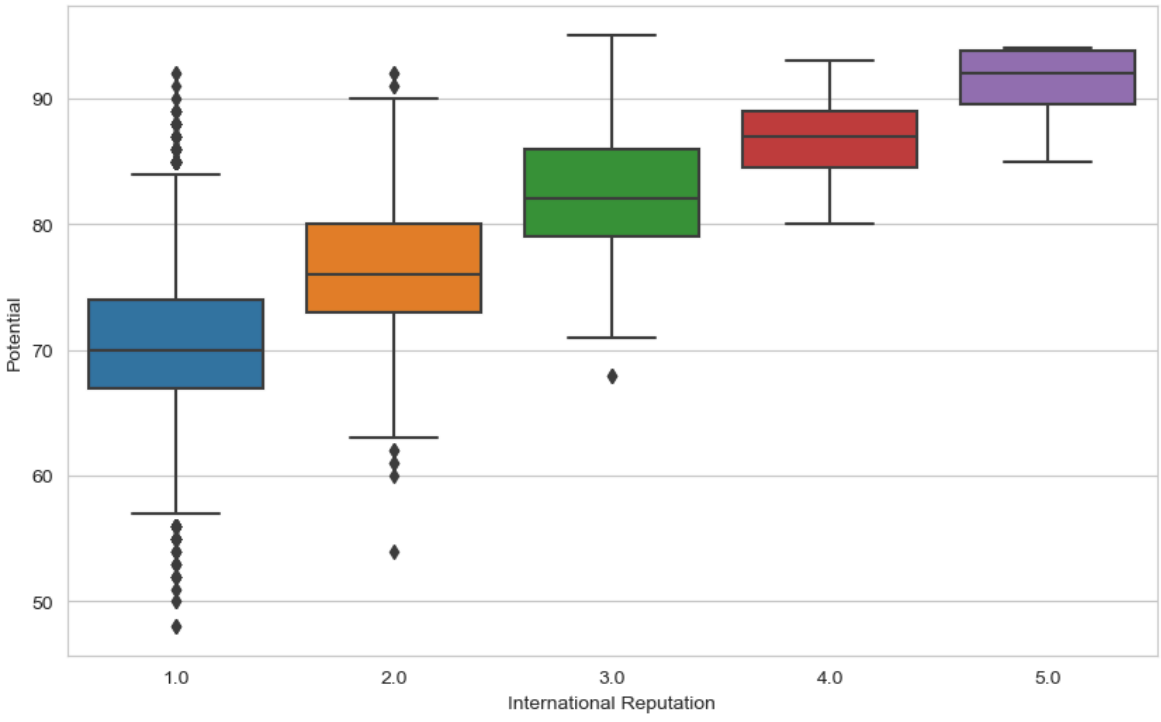
In [29]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.stripplot(x='International Reputation',y='Potential',data=fifa19,hue='Prefer
plt.show()
```



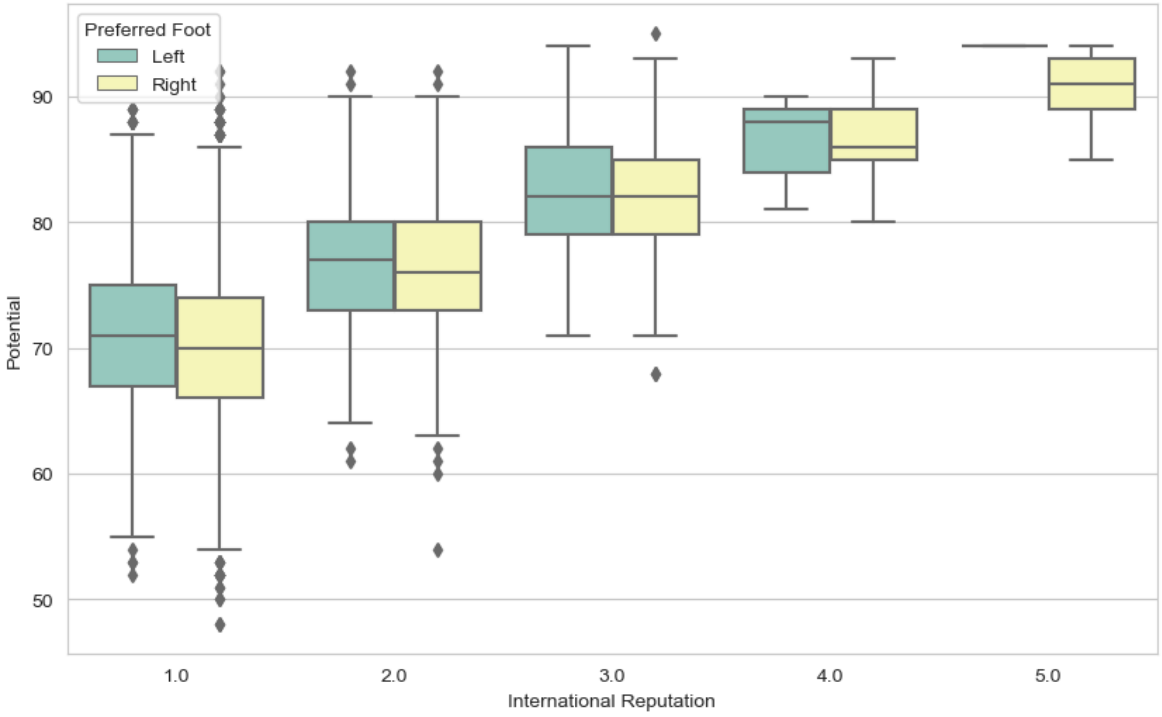
In [30]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.boxplot(x=fifa19['Potential'])
plt.show()
```



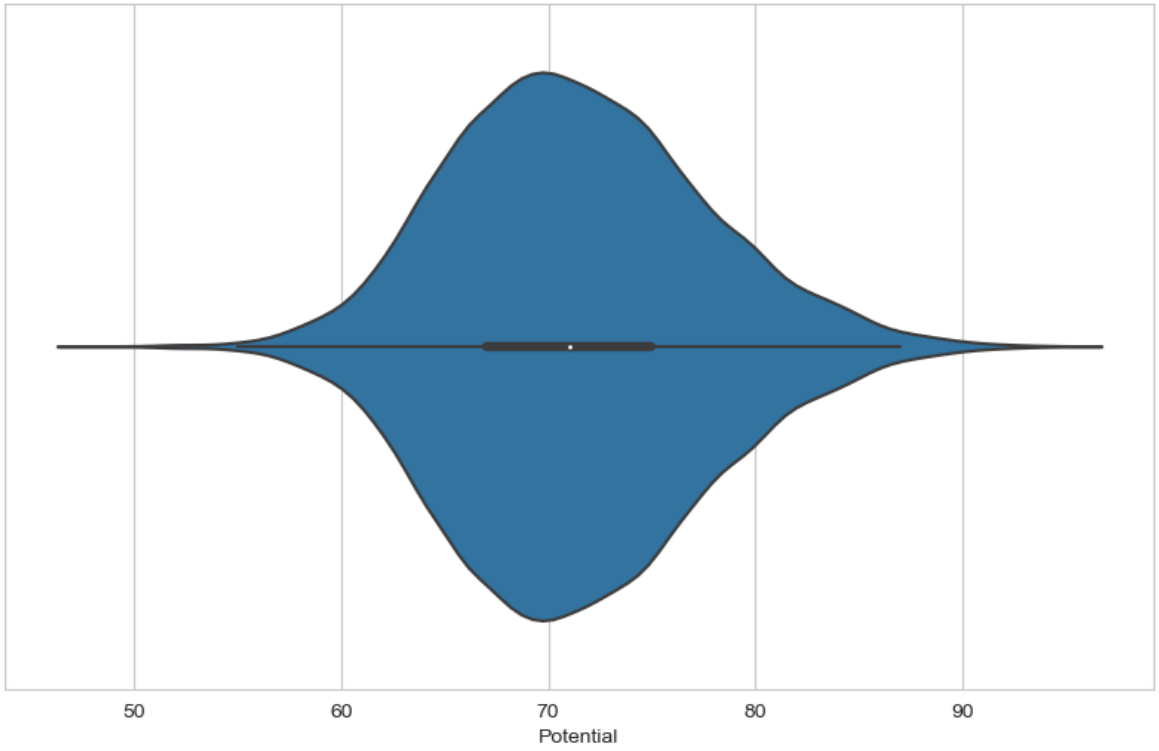
In [31]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.boxplot(x='International Reputation',y='Potential',data=fifa19)
plt.show()
```



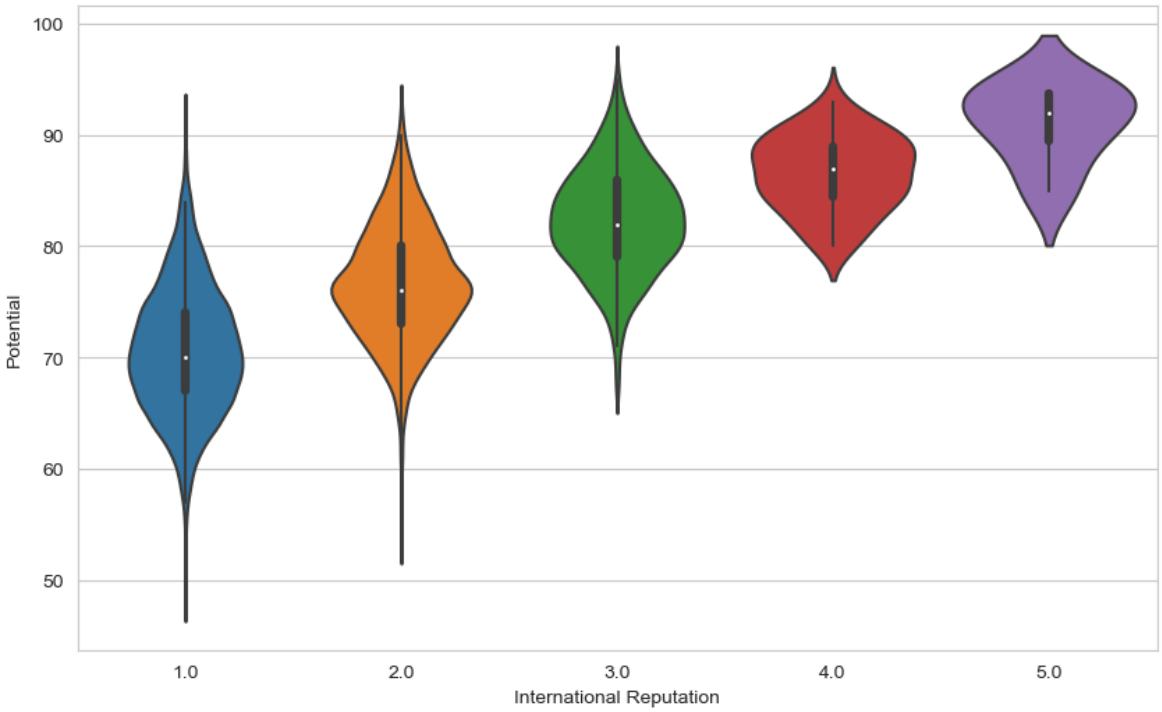
In [32]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.boxplot(x='International Reputation',y='Potential',data=fifa19,hue='Preferre
plt.show()
```



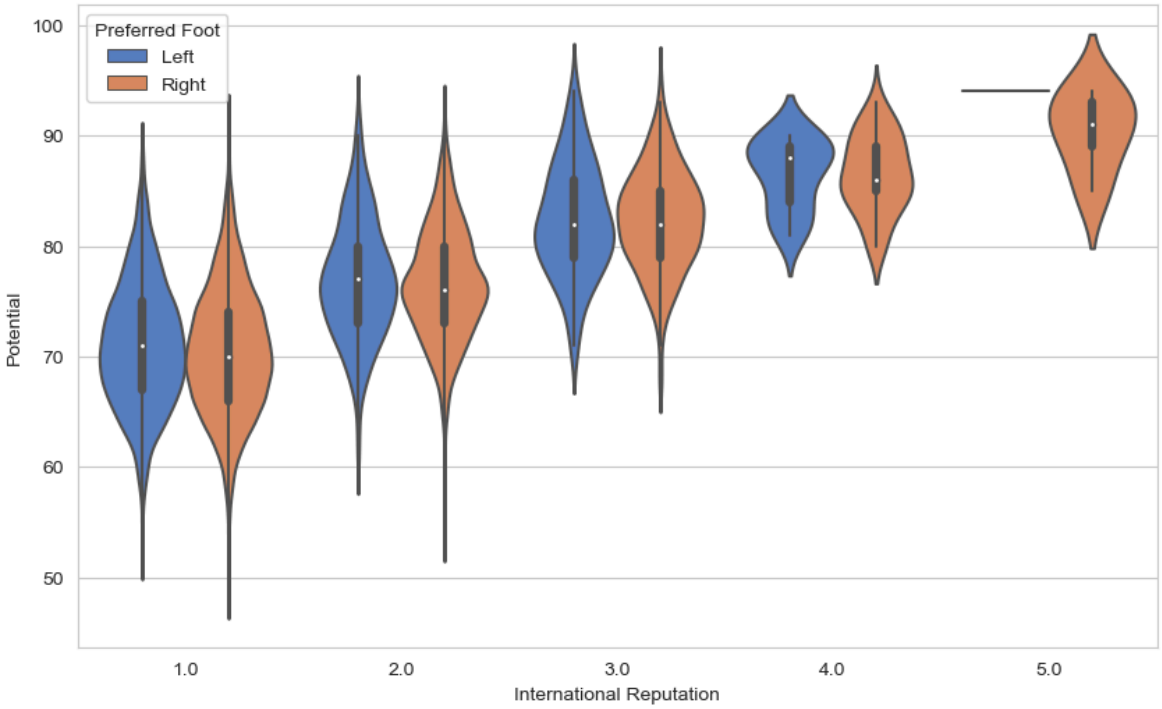
In [33]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.violinplot(x=fifa19['Potential'])
plt.show()
```



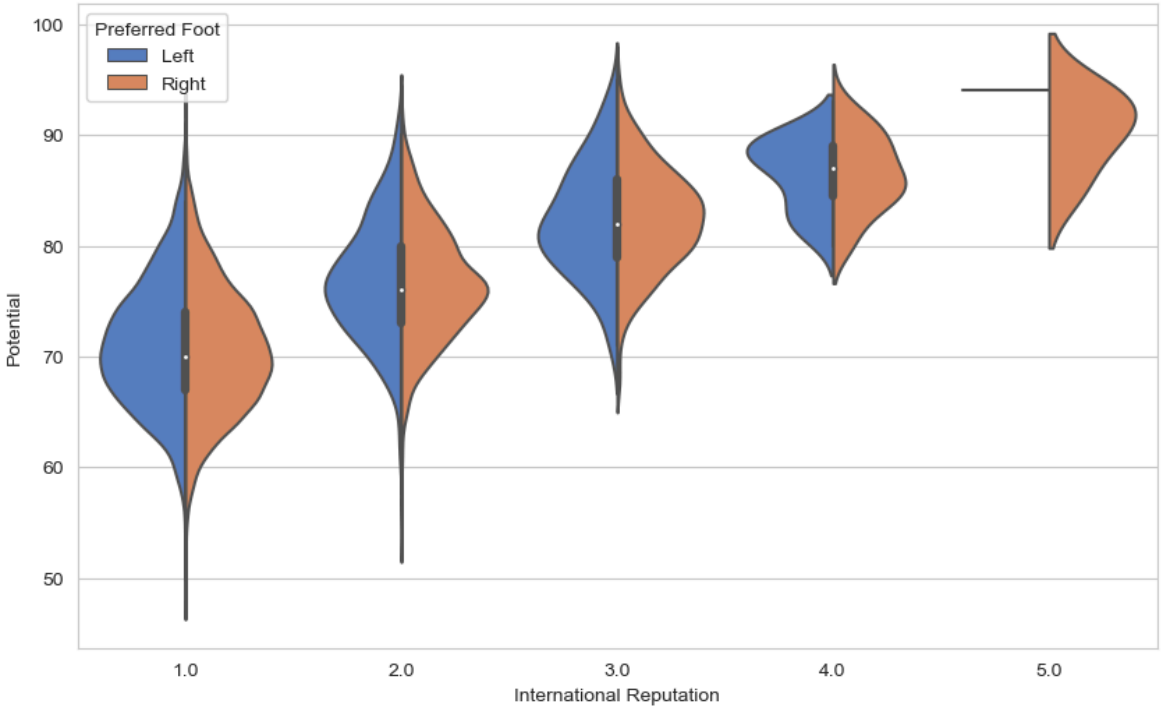
In [34]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.violinplot(x='International Reputation',y='Potential',data=fifa19)
plt.show()
```



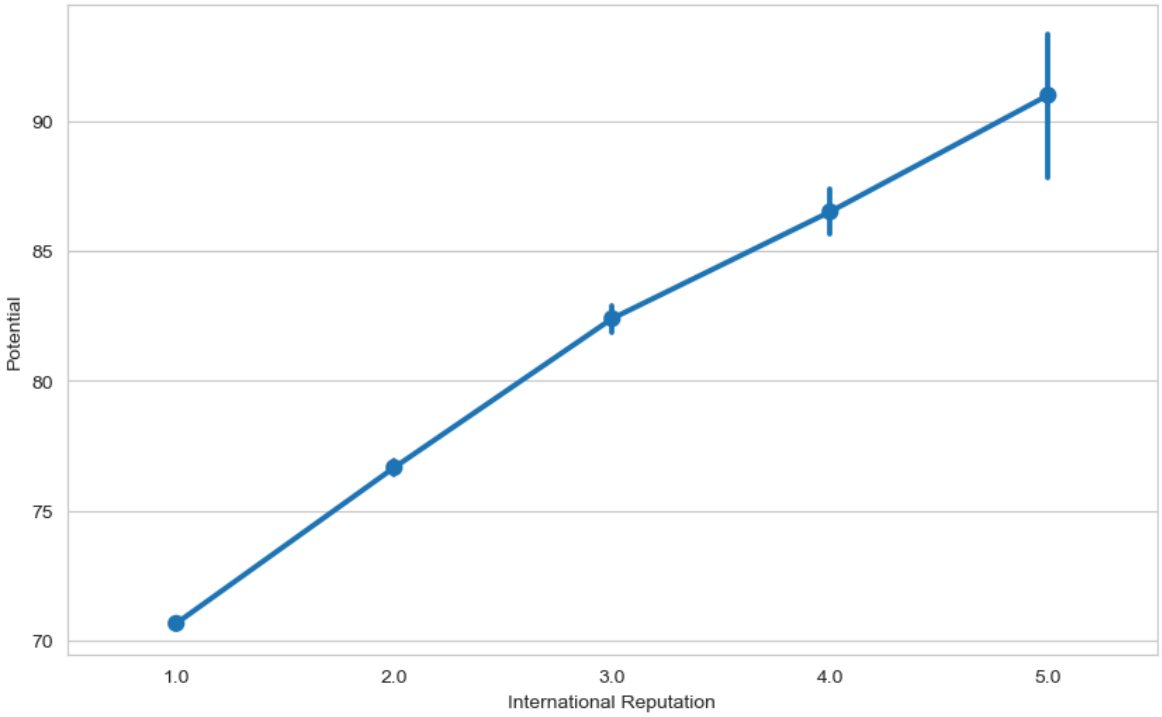
In [35]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.violinplot(x='International Reputation',y='Potential',data=fifa19,hue='Prefe
plt.show()
```



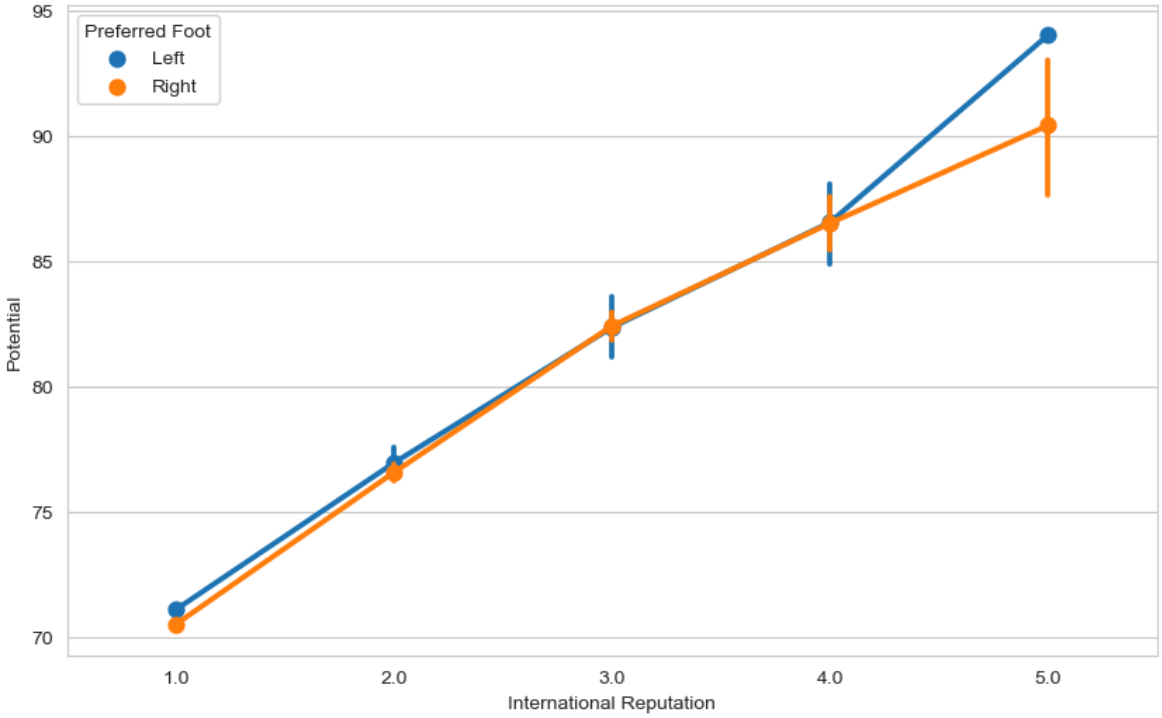
In [36]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.violinplot(x='International Reputation',y='Potential',data=fifa19,hue='Prefe
plt.show()
```



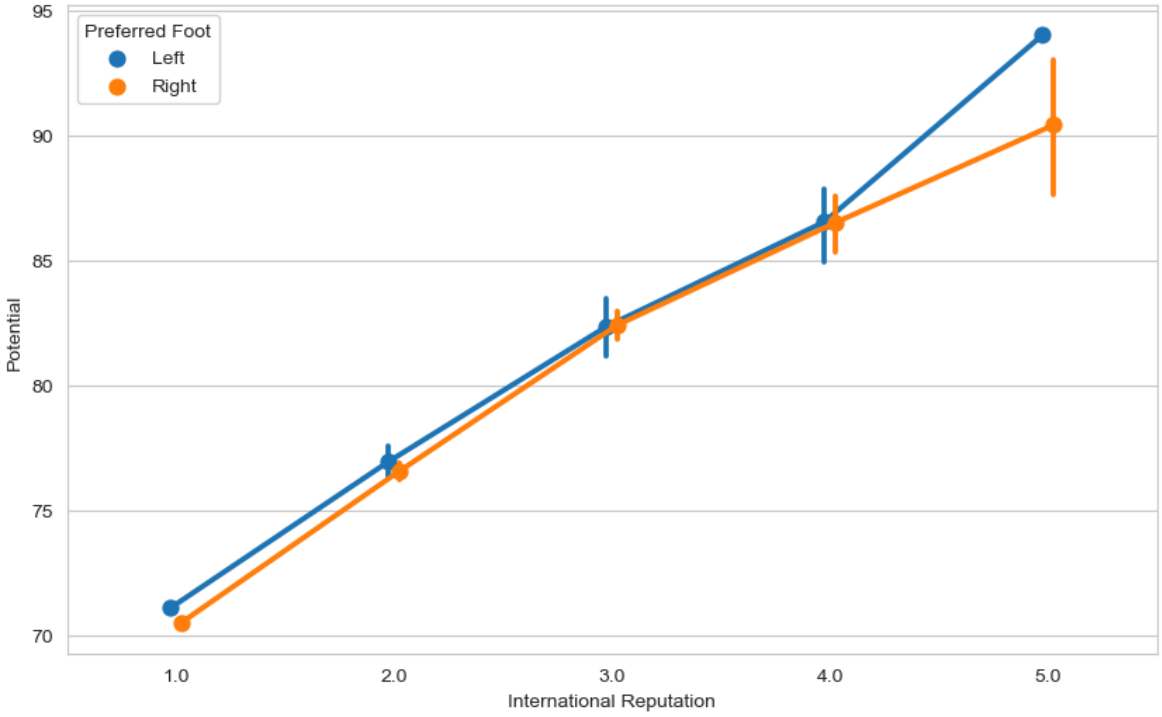
In [37]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.pointplot(data=fifa19,x='International Reputation',y='Potential')
plt.show()
```



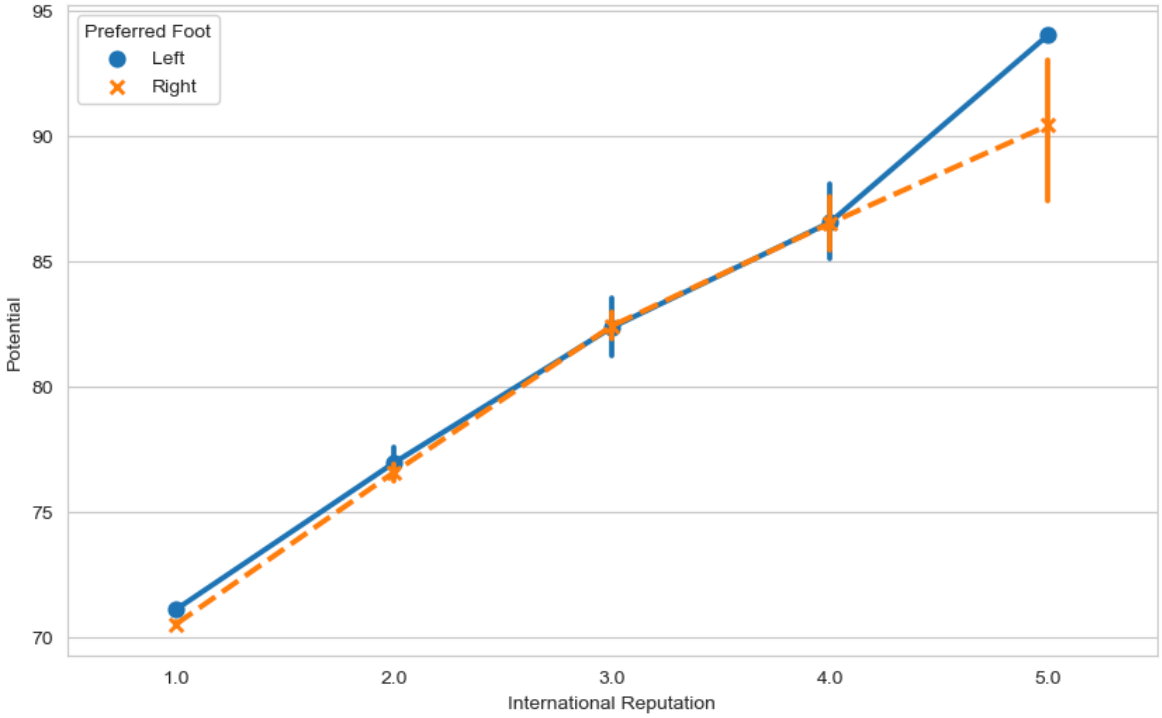
In [38]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.pointplot(data=fifa19,x='International Reputation',y='Potential',hue='Prefer
plt.show()
```



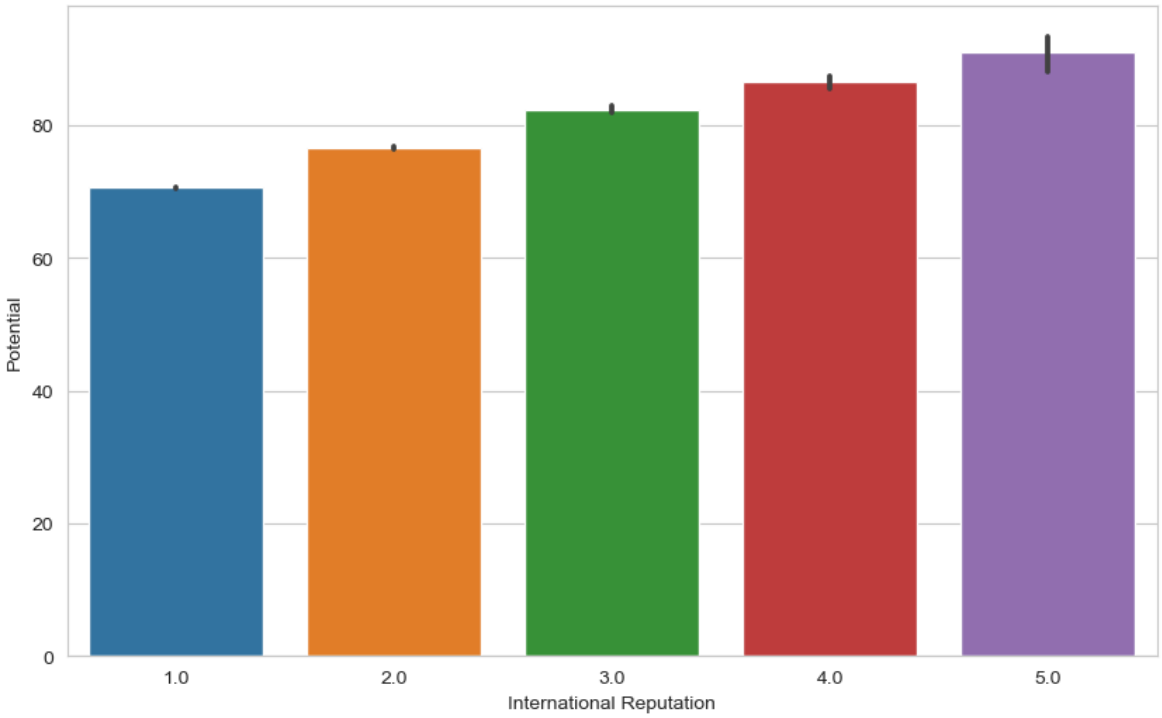
In [39]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.pointplot(data=fifa19,x='International Reputation',y='Potential',hue='Prefer
plt.show()
```



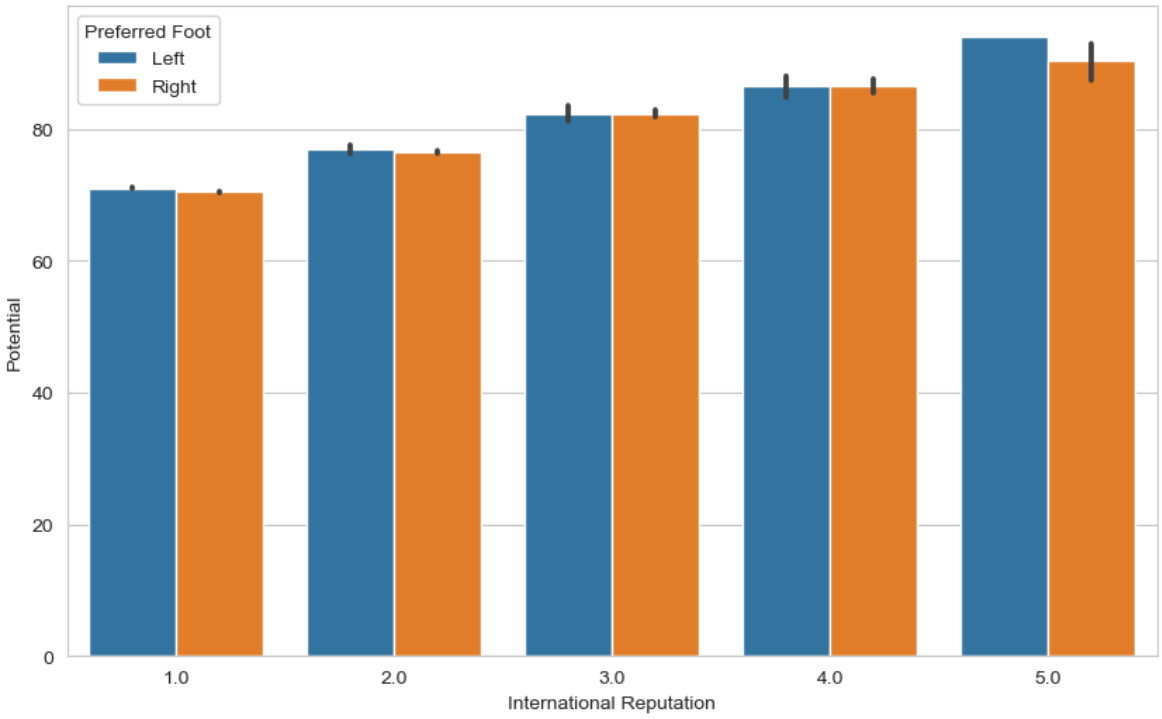
In [40]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.pointplot(data=fifa19,x='International Reputation',y='Potential',hue='Prefer
plt.show()
```



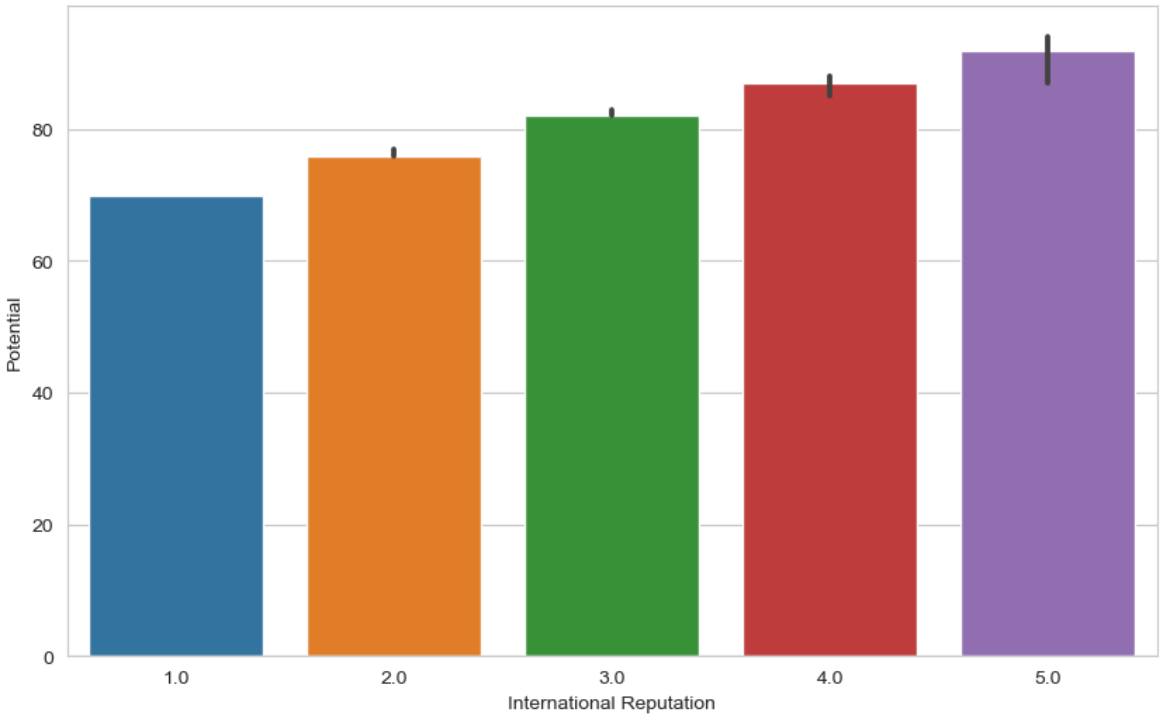
In [41]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.barplot(data=fifa19,x='International Reputation',y='Potential')
plt.show()
```



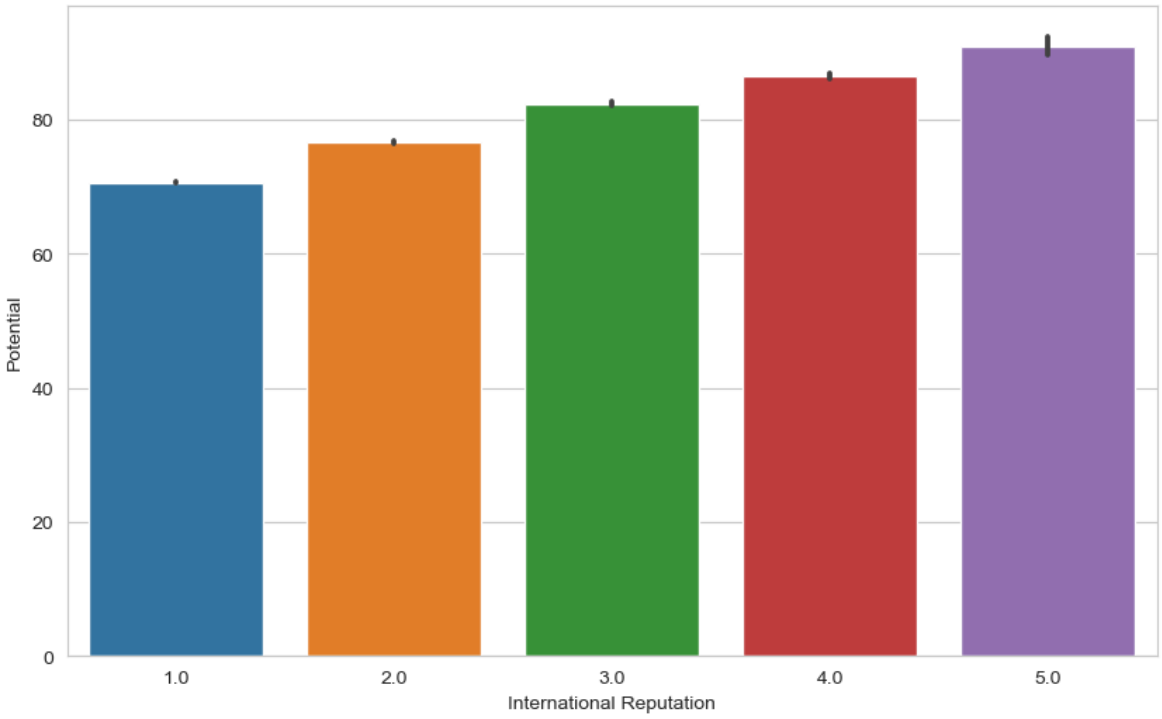
In [42]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.barplot(data=fifa19,x='International Reputation',y='Potential',hue='Preferre
plt.show()
```



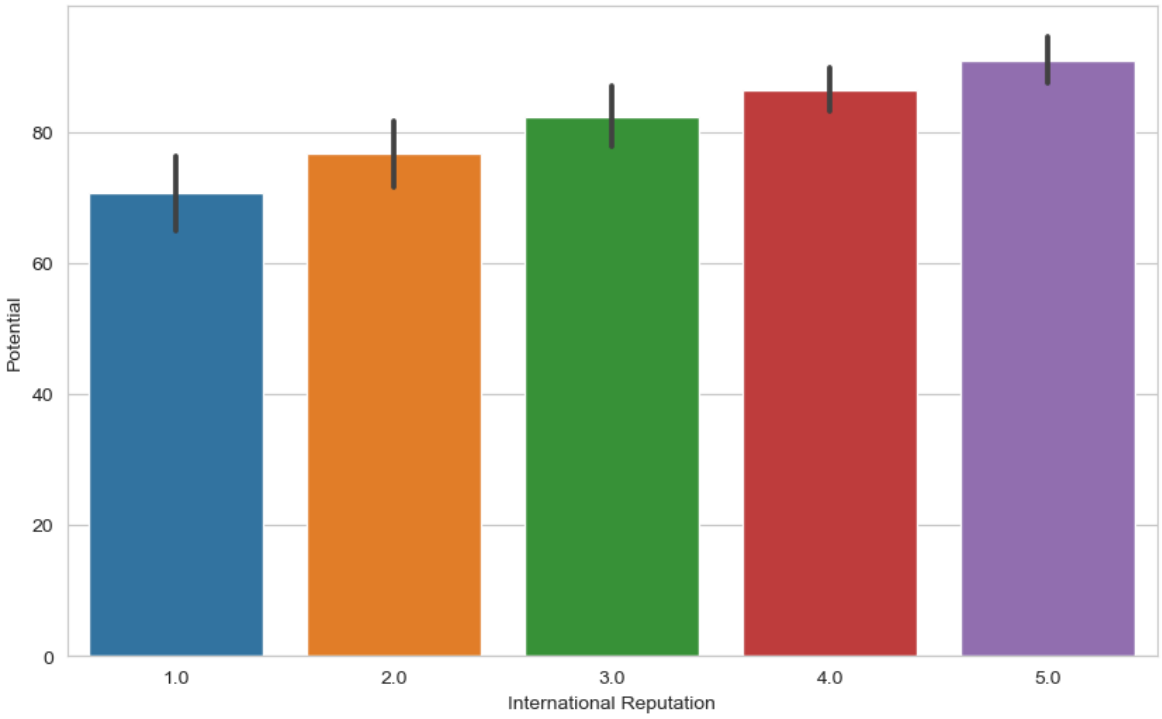
In [43]:
```
from numpy import median
f,ax=plt.subplots(figsize=(10,6))
sns.barplot(x='International Reputation',y='Potential',data=fifa19,estimator=med
plt.show()
```



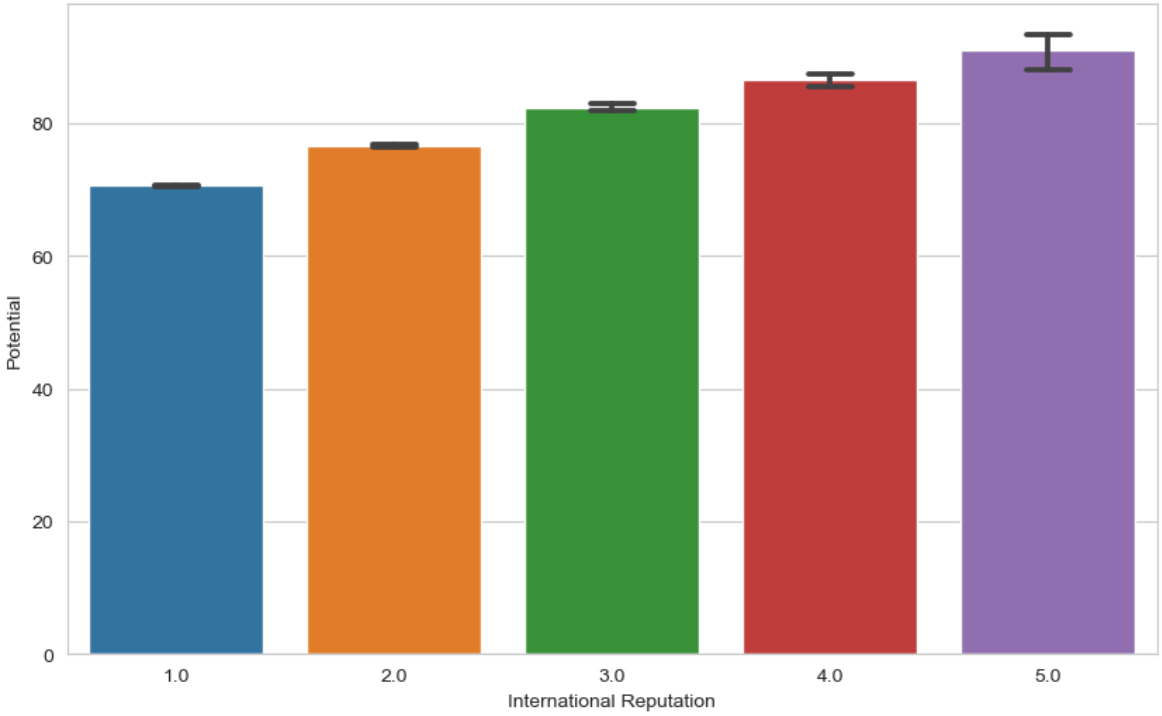
In [44]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.barplot(x='International Reputation',y='Potential',data=fifa19,ci=68)
plt.show()
```



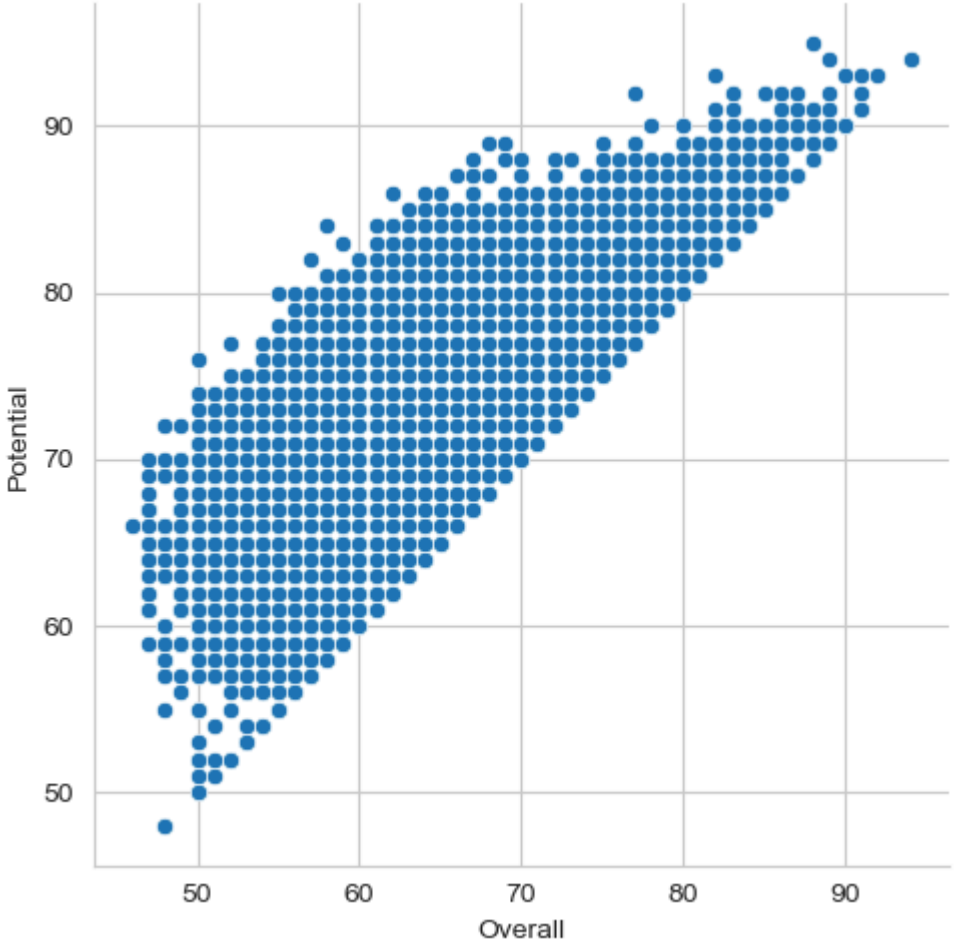
In [45]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.barplot(x='International Reputation',y='Potential',data=fifa19,ci='sd')
plt.show()
```



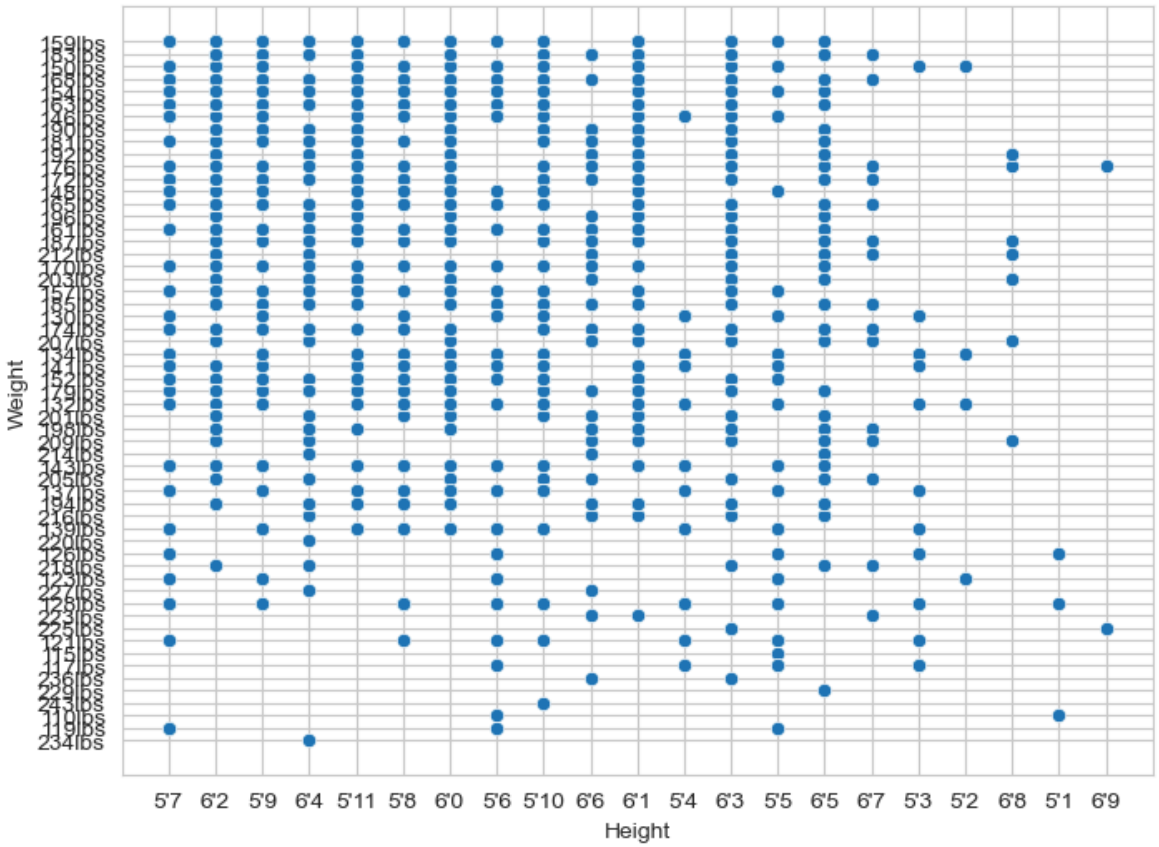
In [46]:
```
f,ax=plt.subplots(figsize=(10,6))
sns.barplot(x='International Reputation',y='Potential',data=fifa19,capsize=0.2)
plt.show()
```



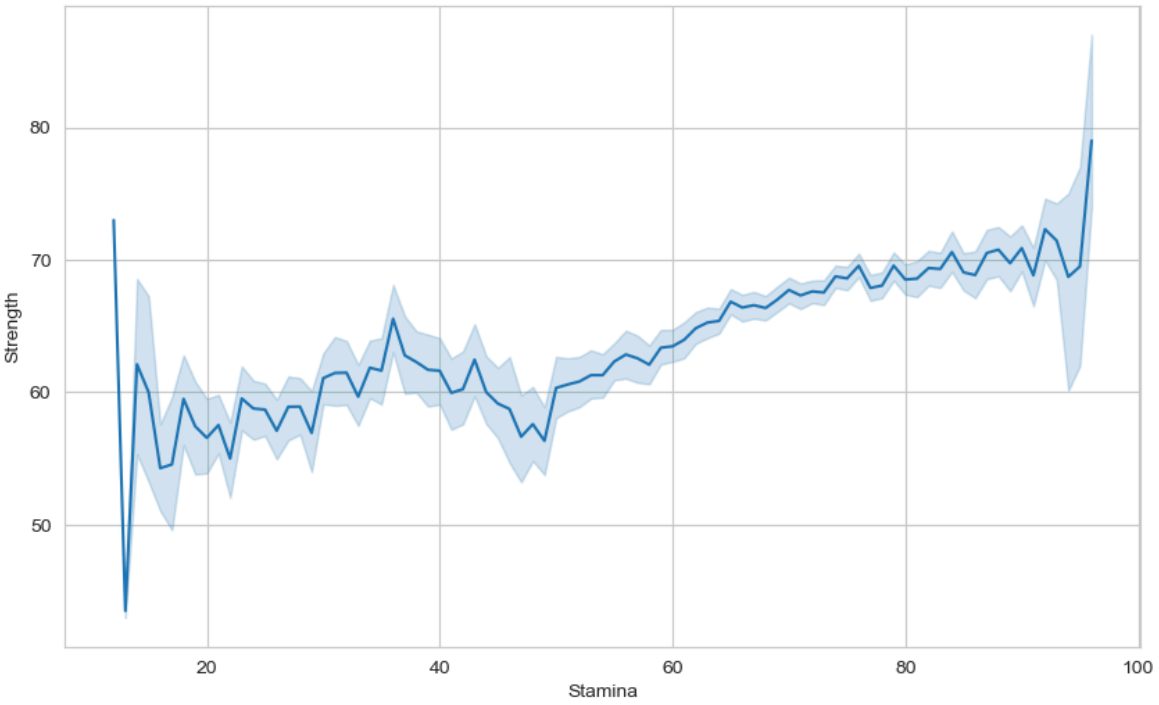
In [47]:
```
g=sns.relplot(x='Overall',y='Potential',data=fifa19)
```



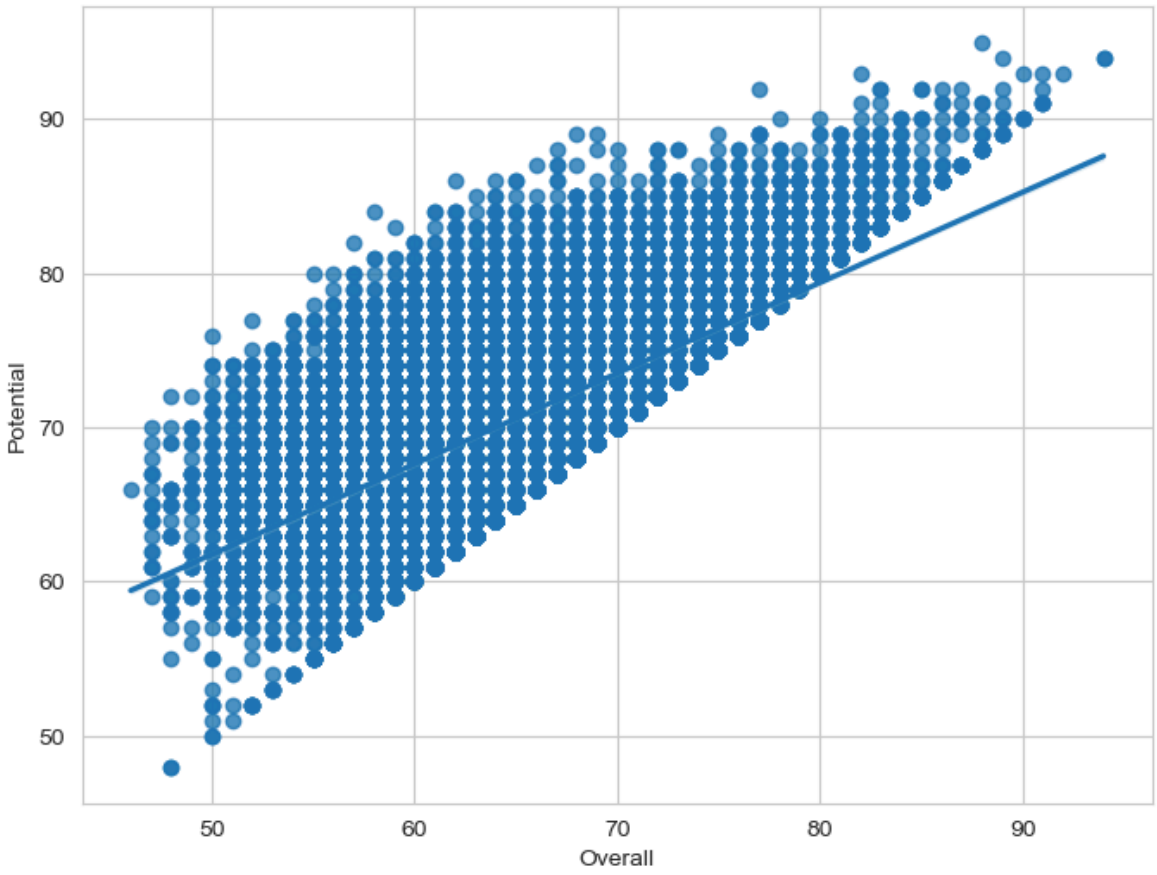
In [48]:
```
f,ax=plt.subplots(figsize=(8,6))
sns.scatterplot(data=fifa19,x='Height',y='Weight')
plt.show()
```



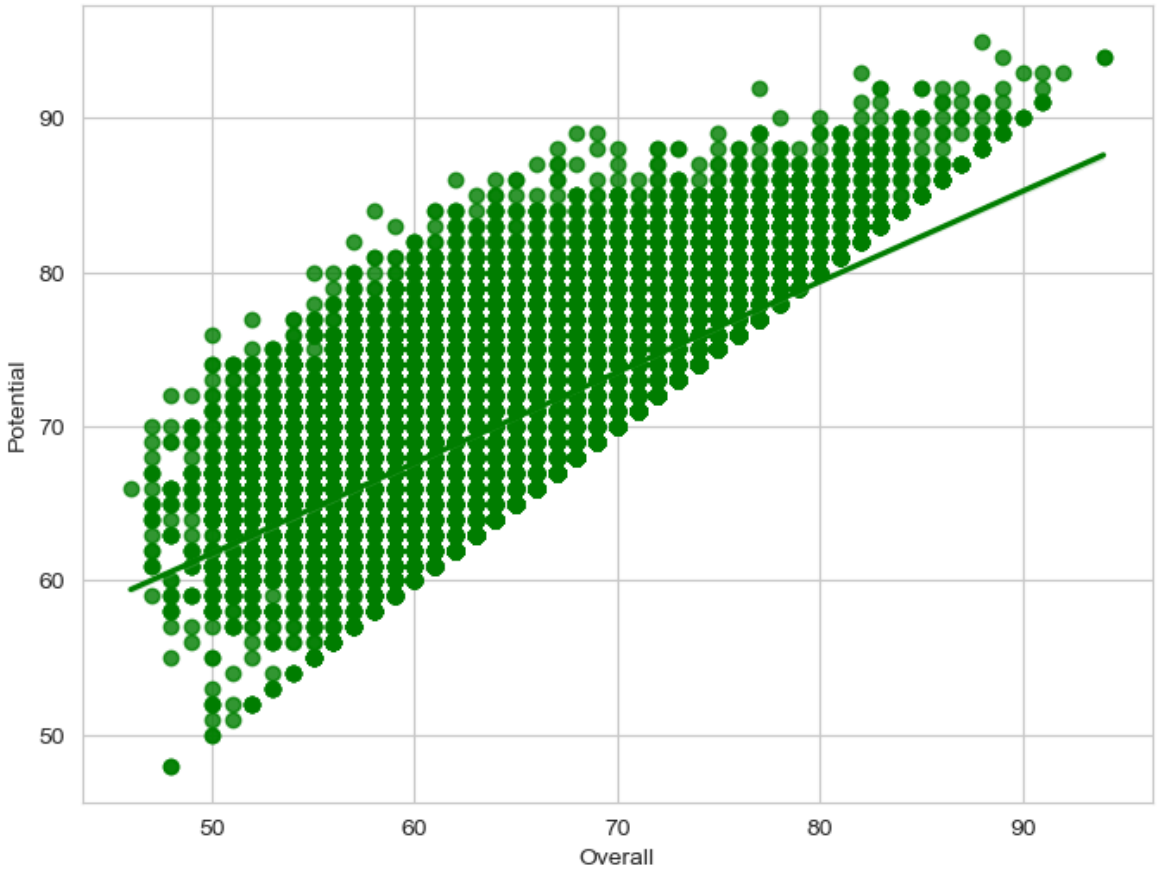
In [49]:
```
f,ax=plt.subplots(figsize=(10,6))
ax=sns.lineplot(data=fifa19,x='Stamina',y='Strength')
plt.show()
```



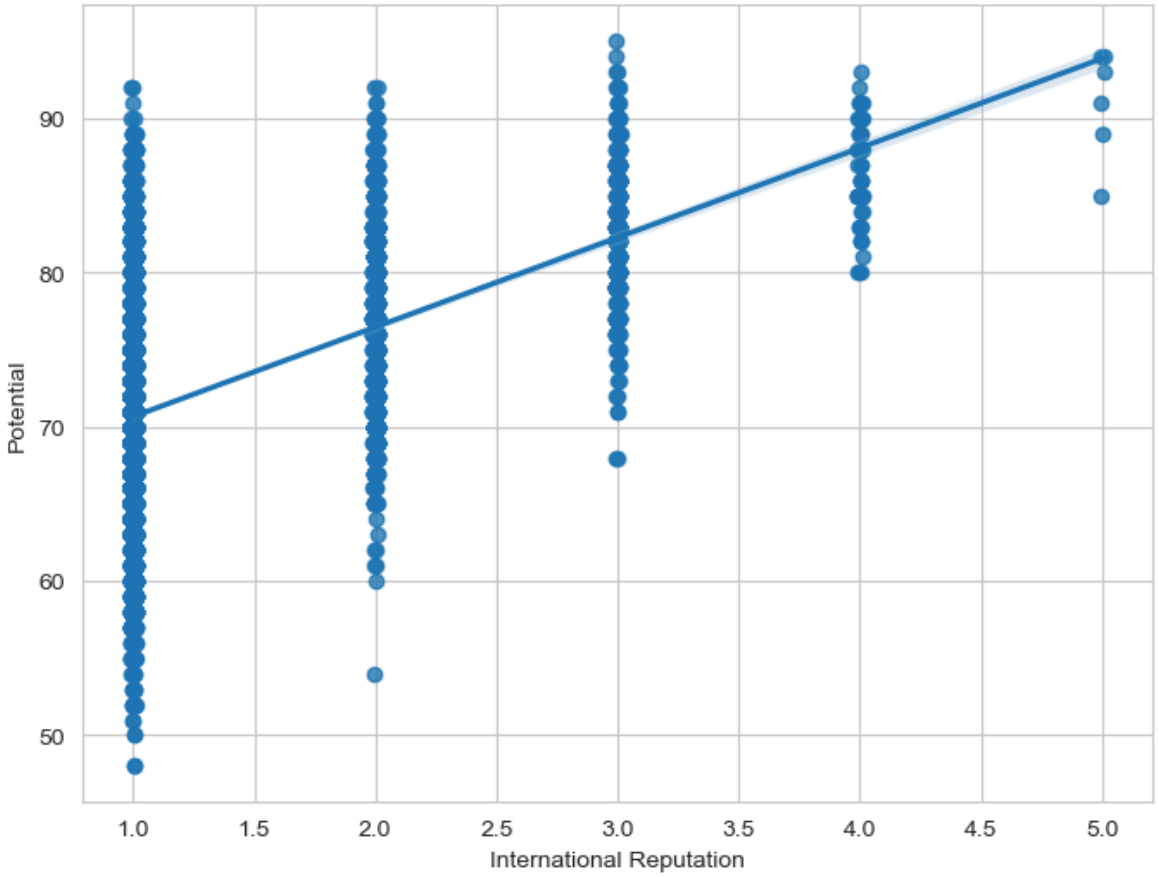
In [50]:
```
f,ax=plt.subplots(figsize=(8,6))
ax=sns.regplot(x='Overall',y='Potential',data=fifa19)
plt.show()
```



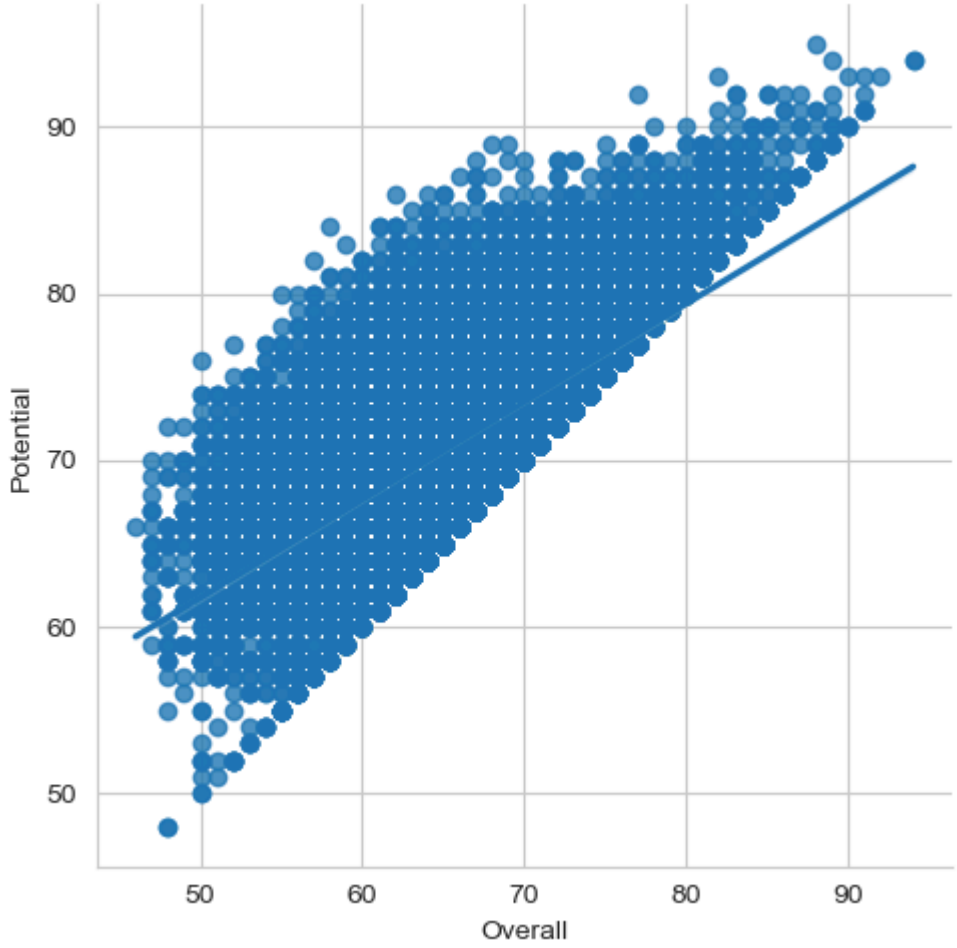
In [51]:
```
f,ax=plt.subplots(figsize=(8,6))
ax=sns.regplot(x='Overall',y='Potential',data=fifa19,color='g')
plt.show()
```



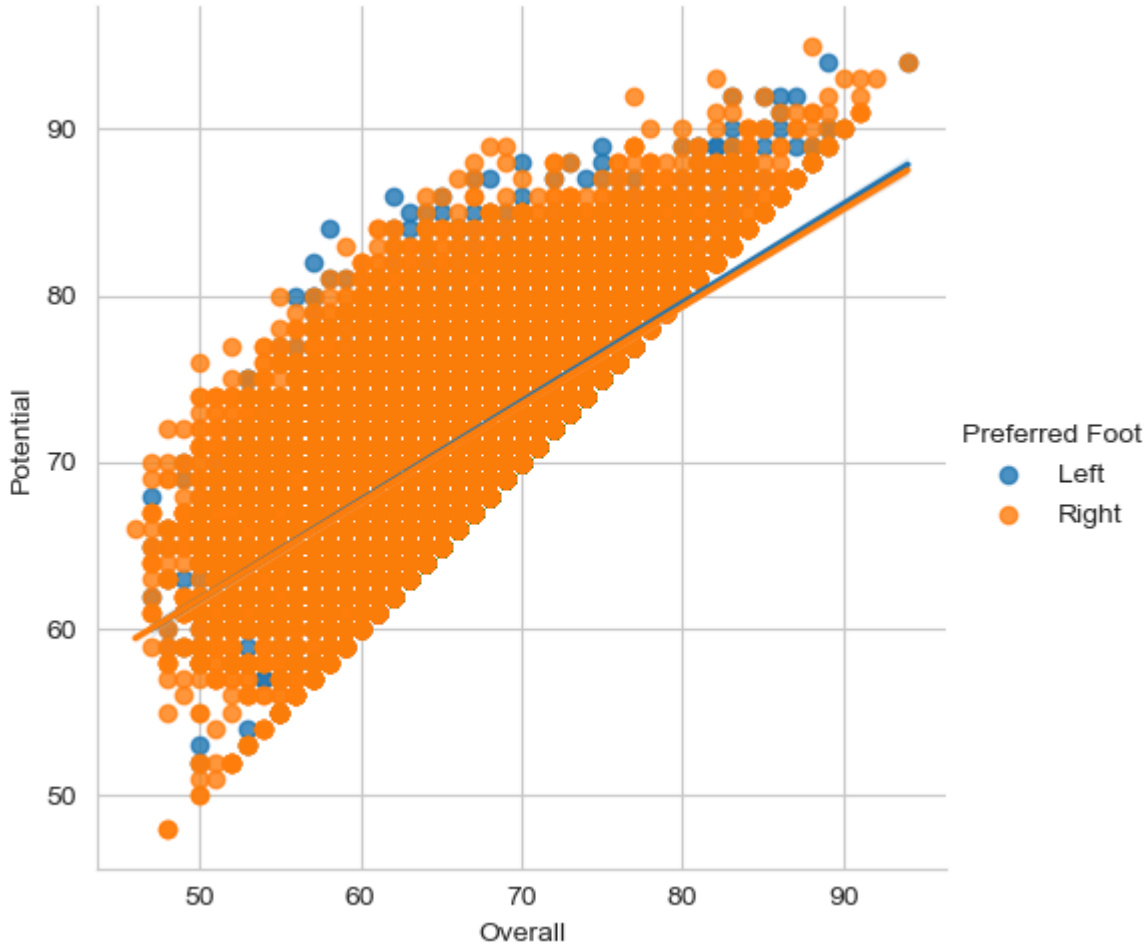
In [52]:
```
f,ax=plt.subplots(figsize=(8,6))
ax=sns.regplot(x='International Reputation',y='Potential',data=fifa19,x_jitter=0
plt.show()
```



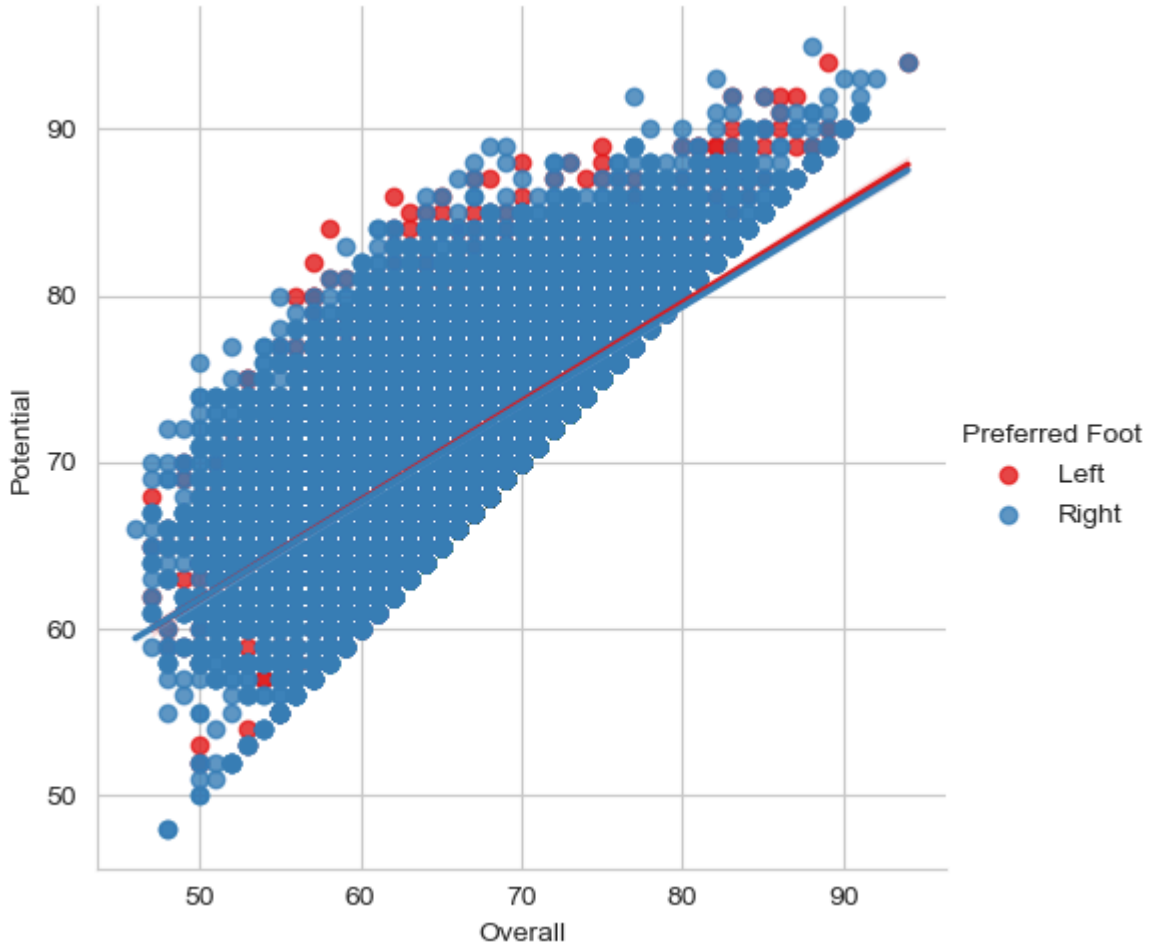
In [53]:
```
g=sns.lmplot(x='Overall',y='Potential',data=fifa19)
```



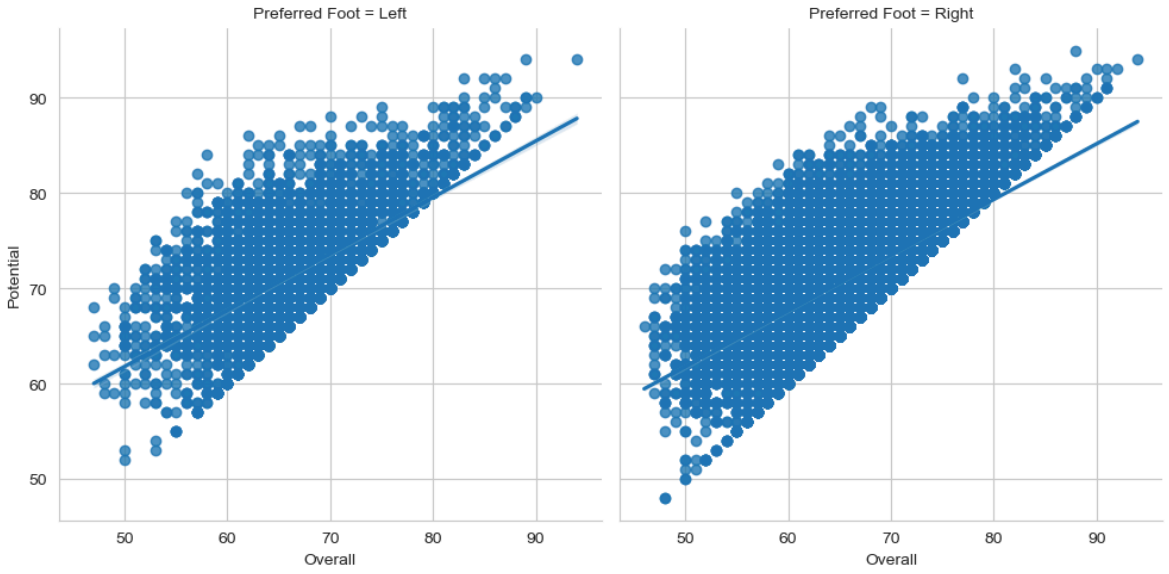
In [54]:
```
g=sns.lmplot(x='Overall',y='Potential',data=fifa19,hue='Preferred Foot')
```



In [55]:
```
g=sns.lmplot(x='Overall',y='Potential',data=fifa19,hue='Preferred Foot',palette=
```

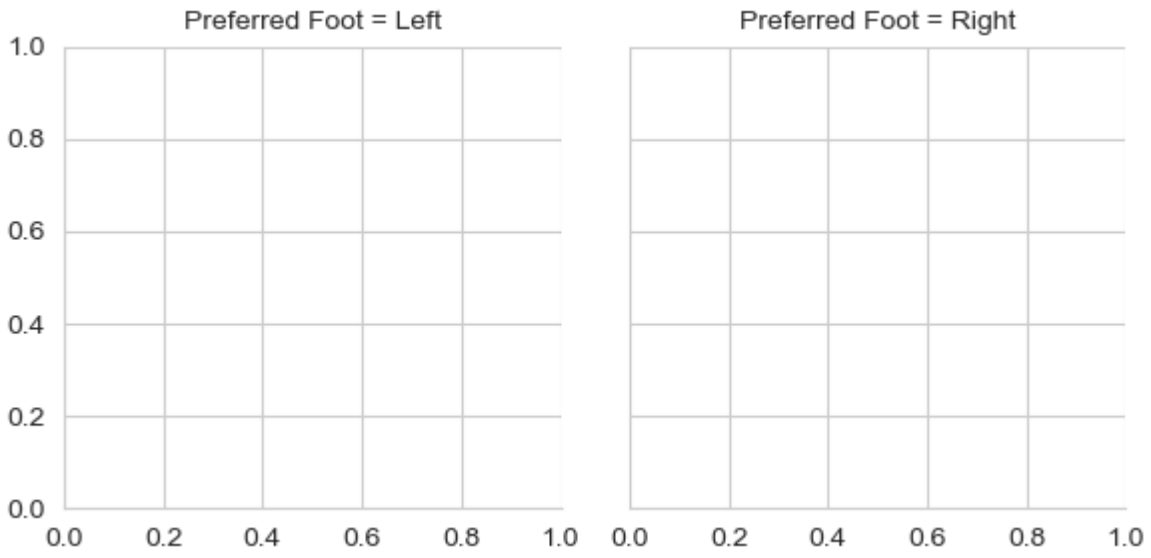


In [56]:
```
g=sns.lmplot(x='Overall',y='Potential',data=fifa19,col='Preferred Foot')
```



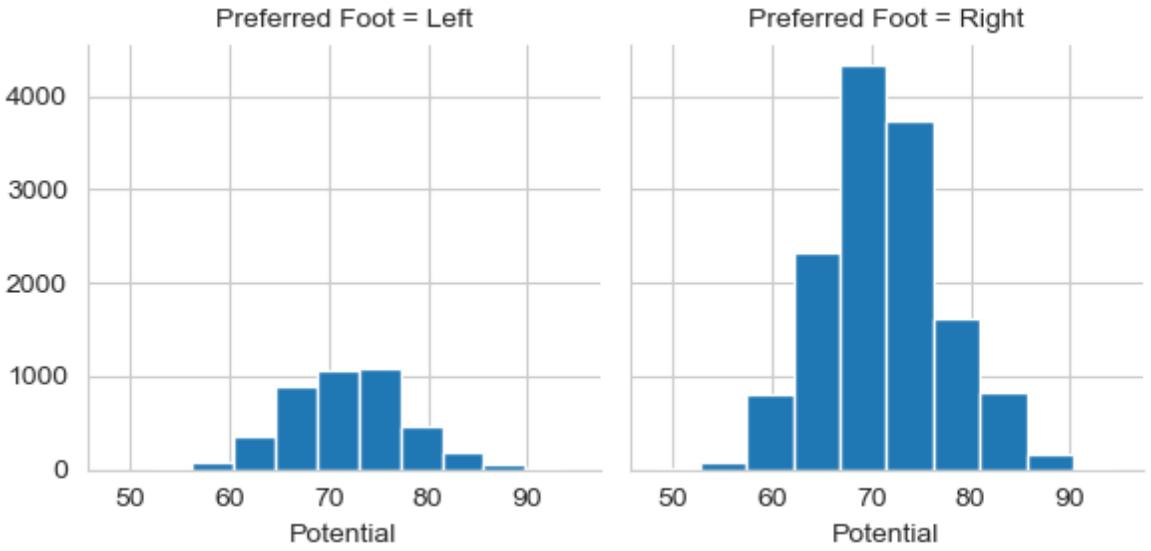
In [57]:
```
sns.FacetGrid(fifa19,col='Preferred Foot')
```

Out[57]: <seaborn.axisgrid.FacetGrid at 0x20fd0fef6d0>



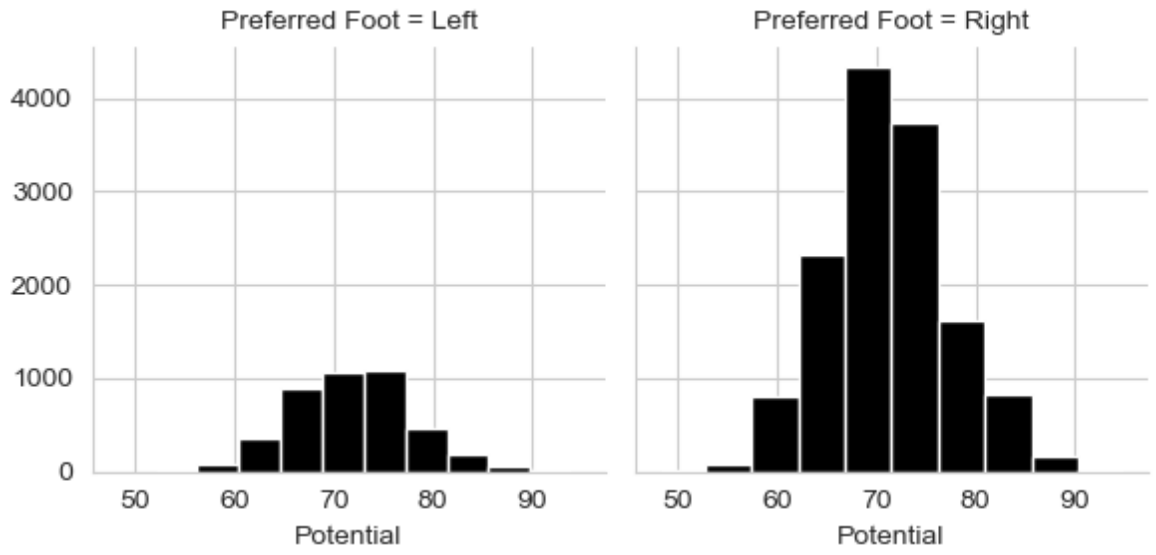
In [58]:
```
g=sns.FacetGrid(fifa19,col='Preferred Foot')
g.map(plt.hist,'Potential')
```

Out[58]: <seaborn.axisgrid.FacetGrid at 0x20fd5432d10>

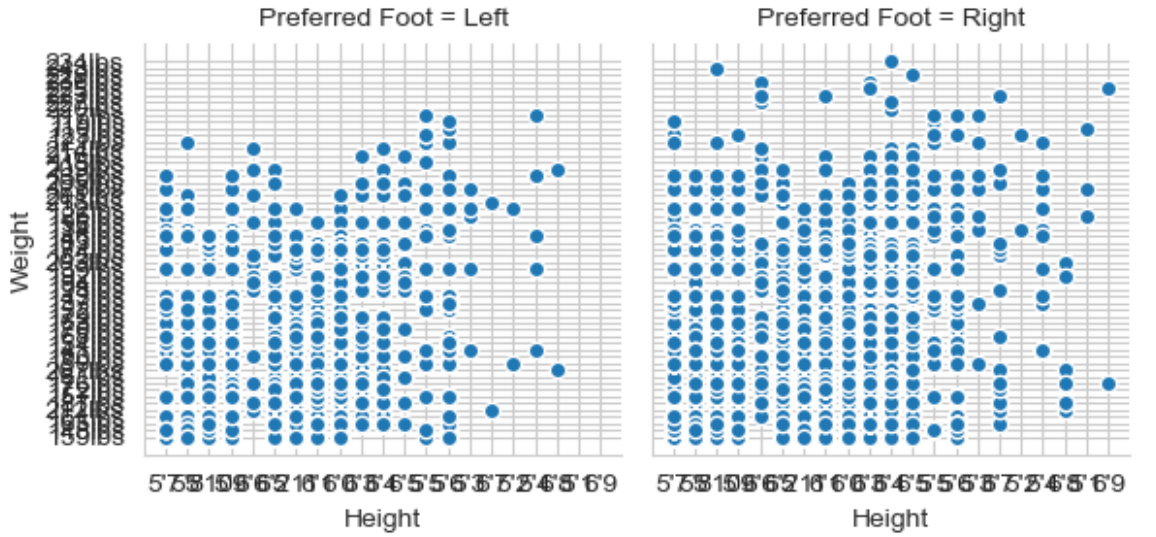


In [59]:
```
g=sns.FacetGrid(fifa19,col='Preferred Foot')
g.map(plt.hist,'Potential',bins=10,color='k')
```

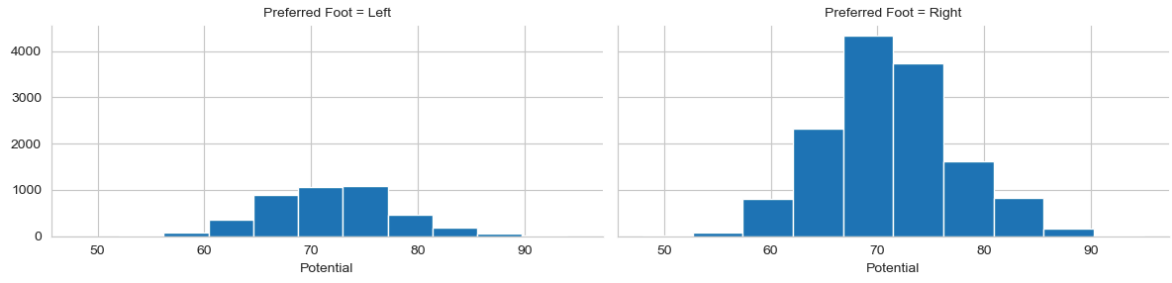
Out[59]: <seaborn.axisgrid.FacetGrid at 0x20fcea5d8d0>



In [60]:
```
g=sns.FacetGrid(fifa19,col='Preferred Foot')
g=(g.map(plt.scatter,'Height','Weight',edgecolor='w').add_legend())
```

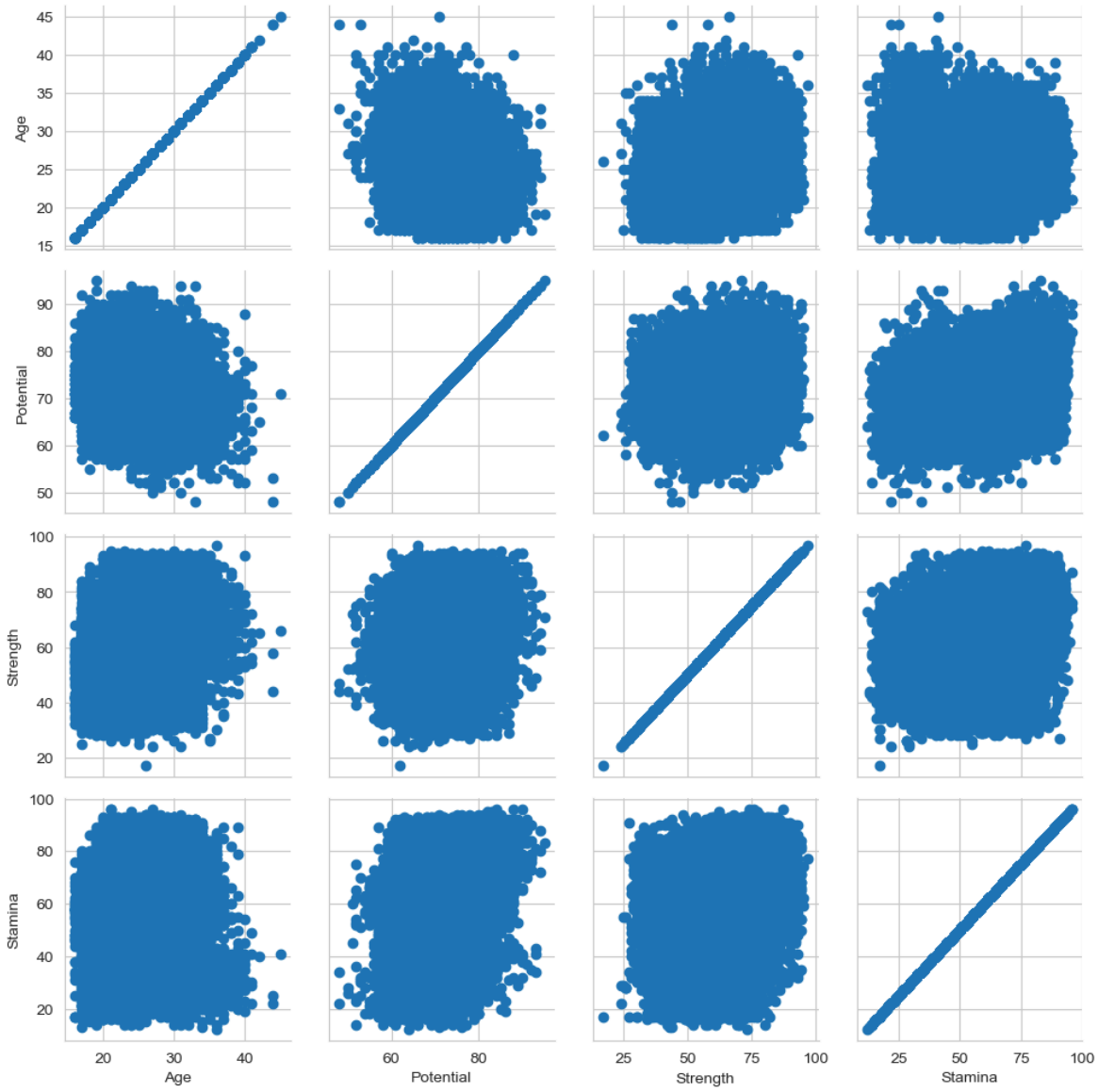


In [61]:
```
g=sns.FacetGrid(data=fifa19,col='Preferred Foot',height=3,aspect=2)
g=g.map(plt.hist,'Potential')
```

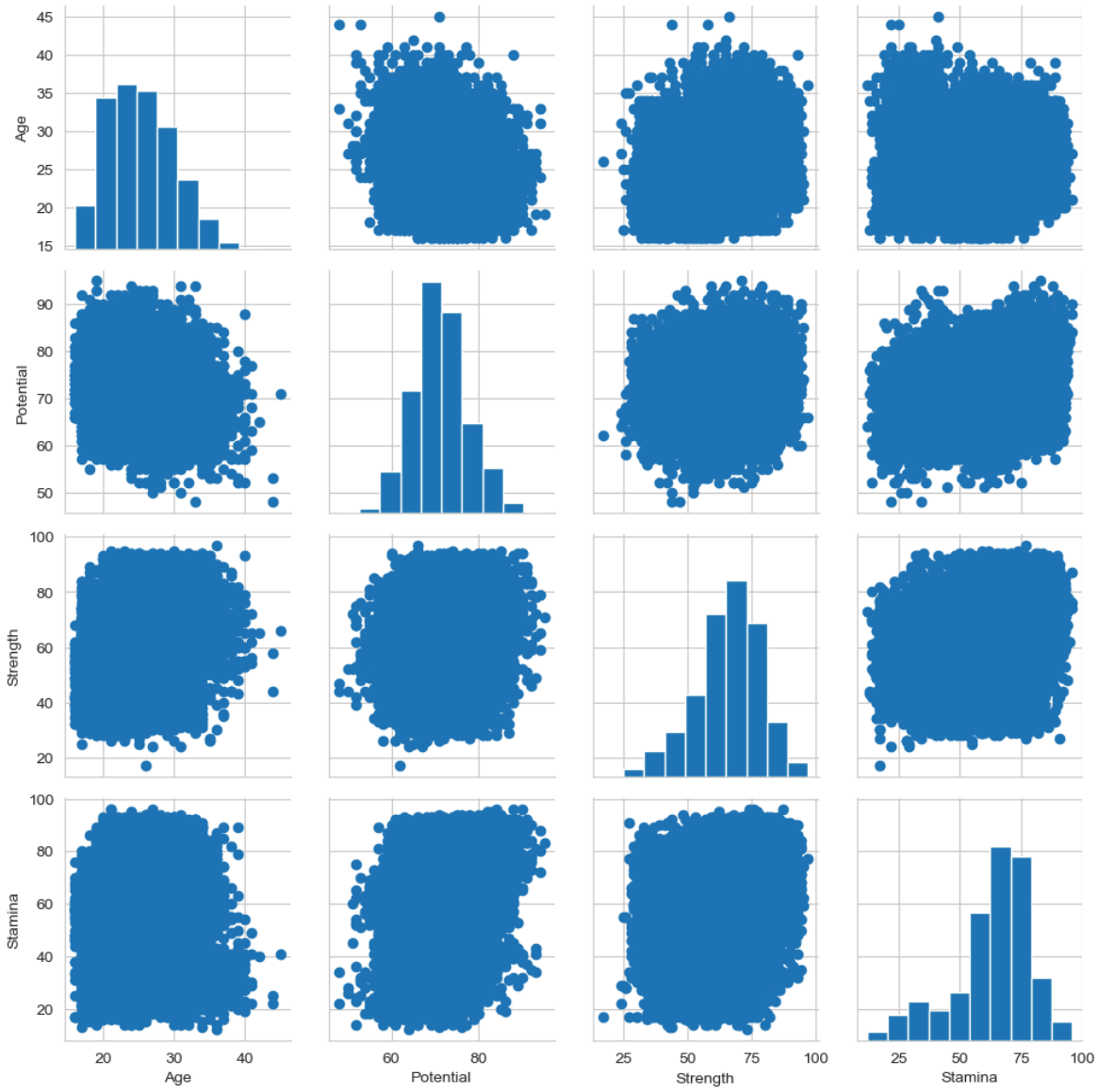


In [62]:
```
fifa19_new = fifa19[['Age', 'Potential', 'Strength', 'Stamina', 'Preferred Foot'
```

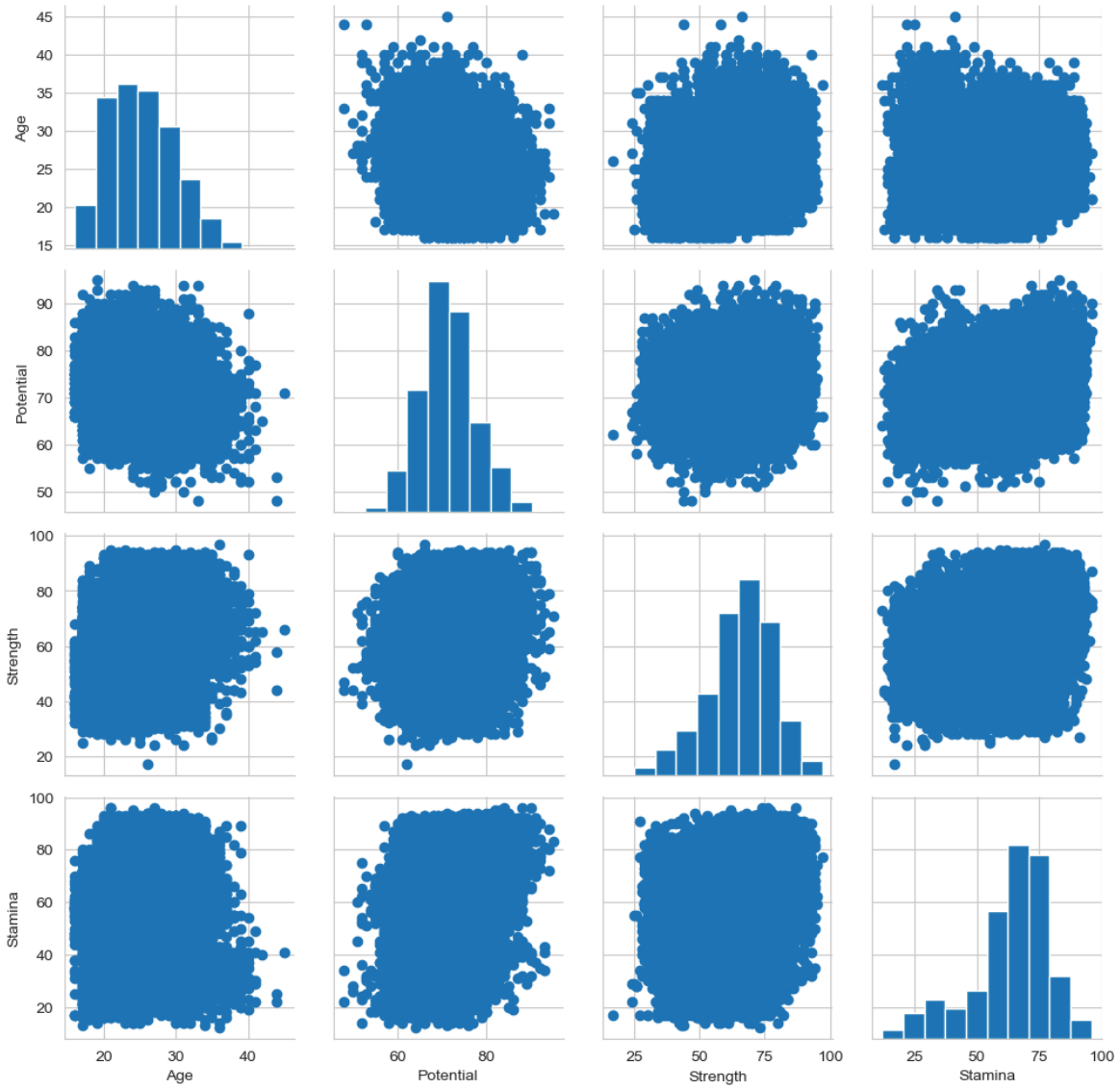
In [63]:
```
g=sns.PairGrid(fifa19_new)
g=g.map(plt.scatter)
```



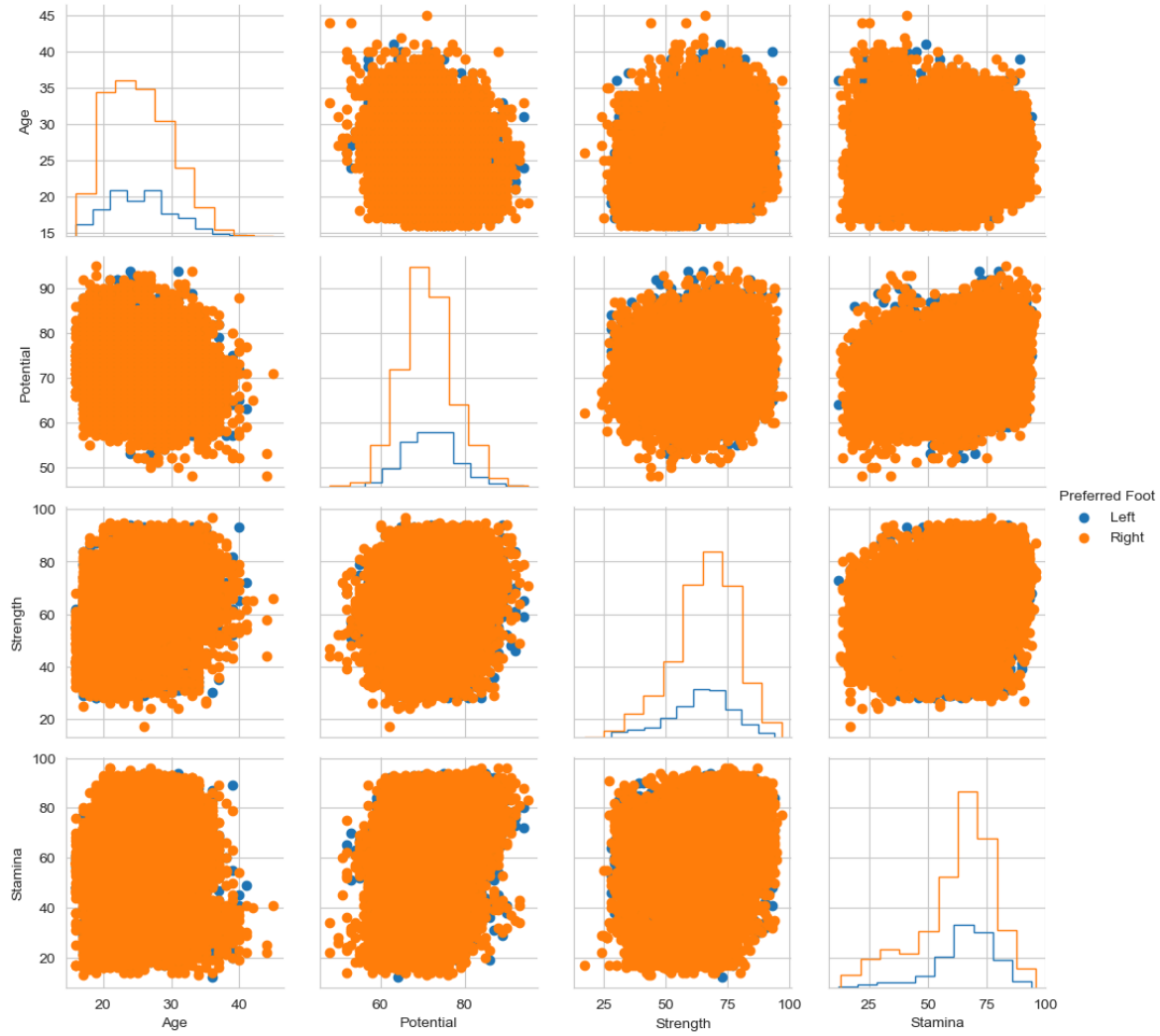
In [64]:
```
g=sns.PairGrid(fifa19_new)
g=g.map_diag(plt.hist)
g=g.map_offdiag(plt.scatter)
```



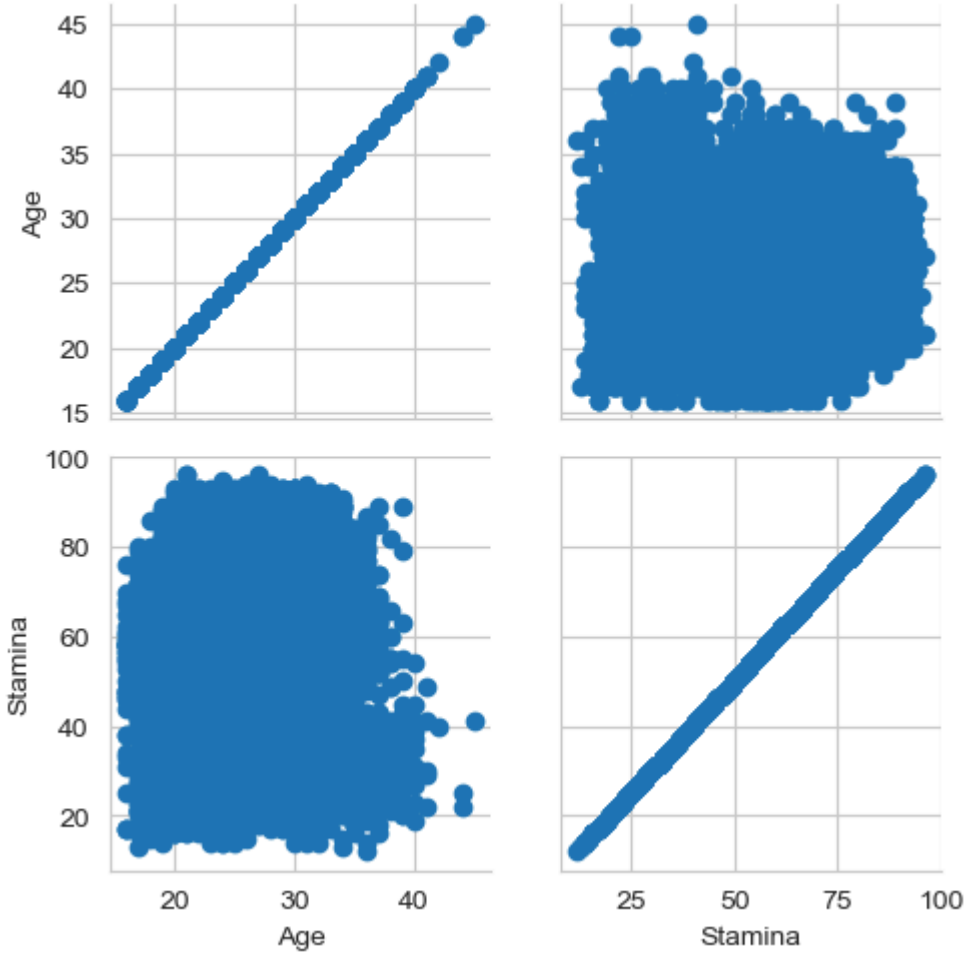
In [65]:
```
g=sns.PairGrid(fifa19_new)
g=g.map_diag(plt.hist)
g=g.map_offdiag(plt.scatter)
g=g.add_legend()
```



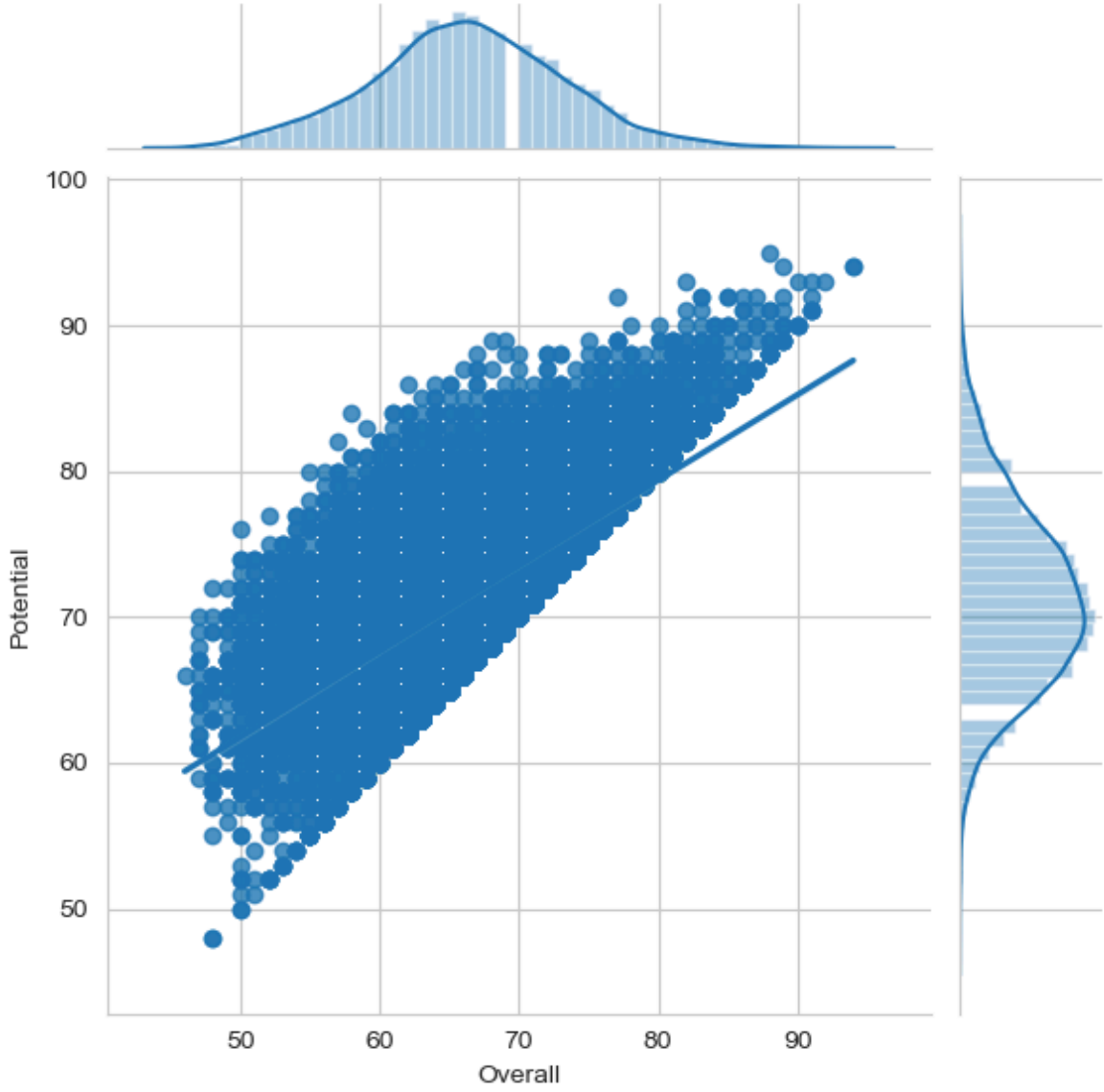
In [66]:
```
g=sns.PairGrid(fifa19_new,hue='Preferred Foot')
g=g.map_diag(plt.hist,histtype='step')
g=g.map_offdiag(plt.scatter)
g=g.add_legend()
```



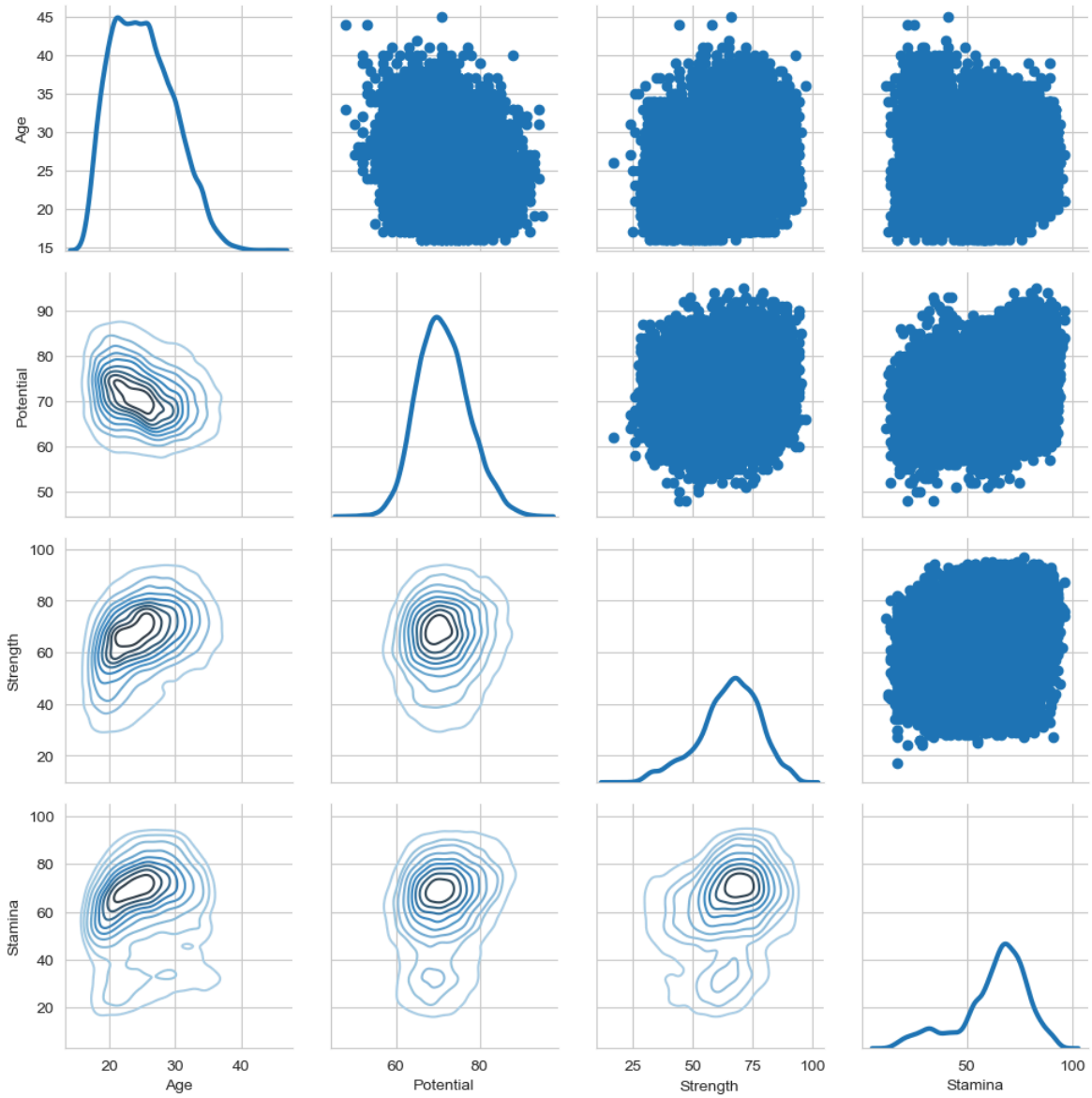
In [67]:
```
g=sns.PairGrid(fifa19_new,vars=['Age','Stamina'])
g=g.map(plt.scatter)
```



In [68]:
```
g=sns.JointGrid(x='Overall',y='Potential',data=fifa19)
g=g.plot(sns.regplot,sns.distplot)
```

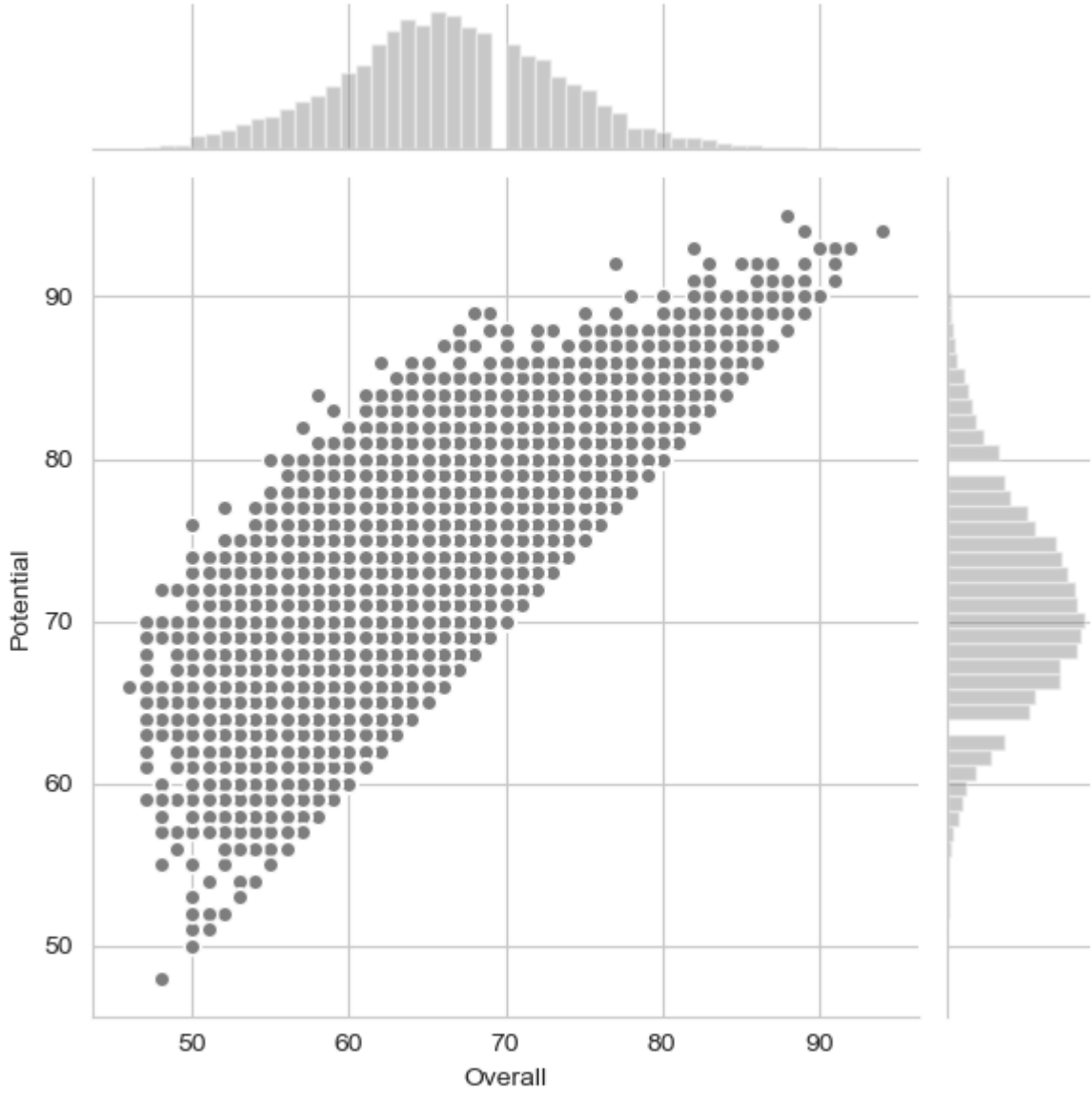


In [69]:
```
g=sns.PairGrid(fifa19_new)
g=g.map_upper(plt.scatter)
g=g.map_lower(sns.kdeplot,cmap='Blues_d')
g=g.map_diag(sns.kdeplot,lw=3,legend=False)
```

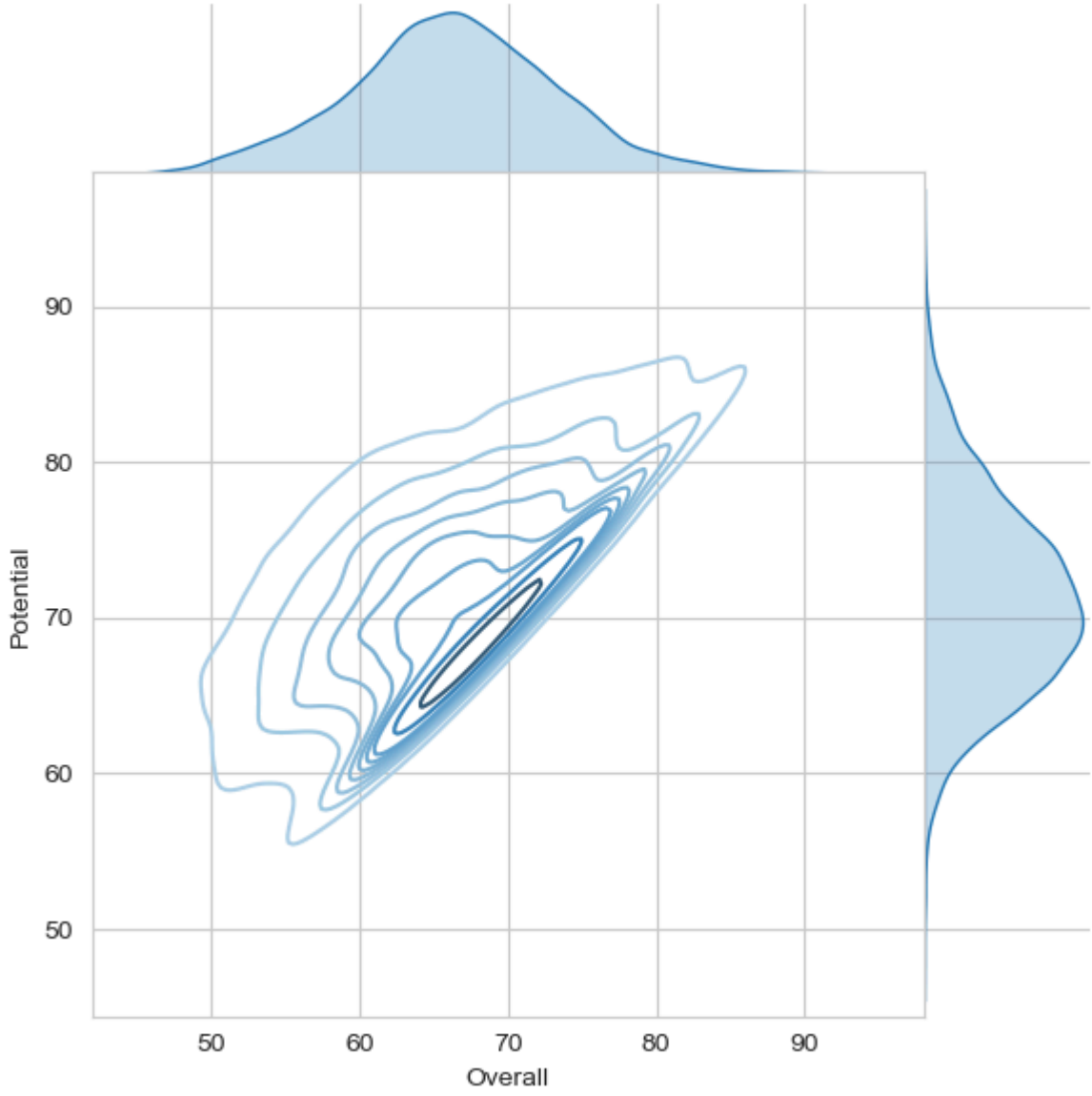


In [70]:
```
import matplotlib.pyplot as plt
```

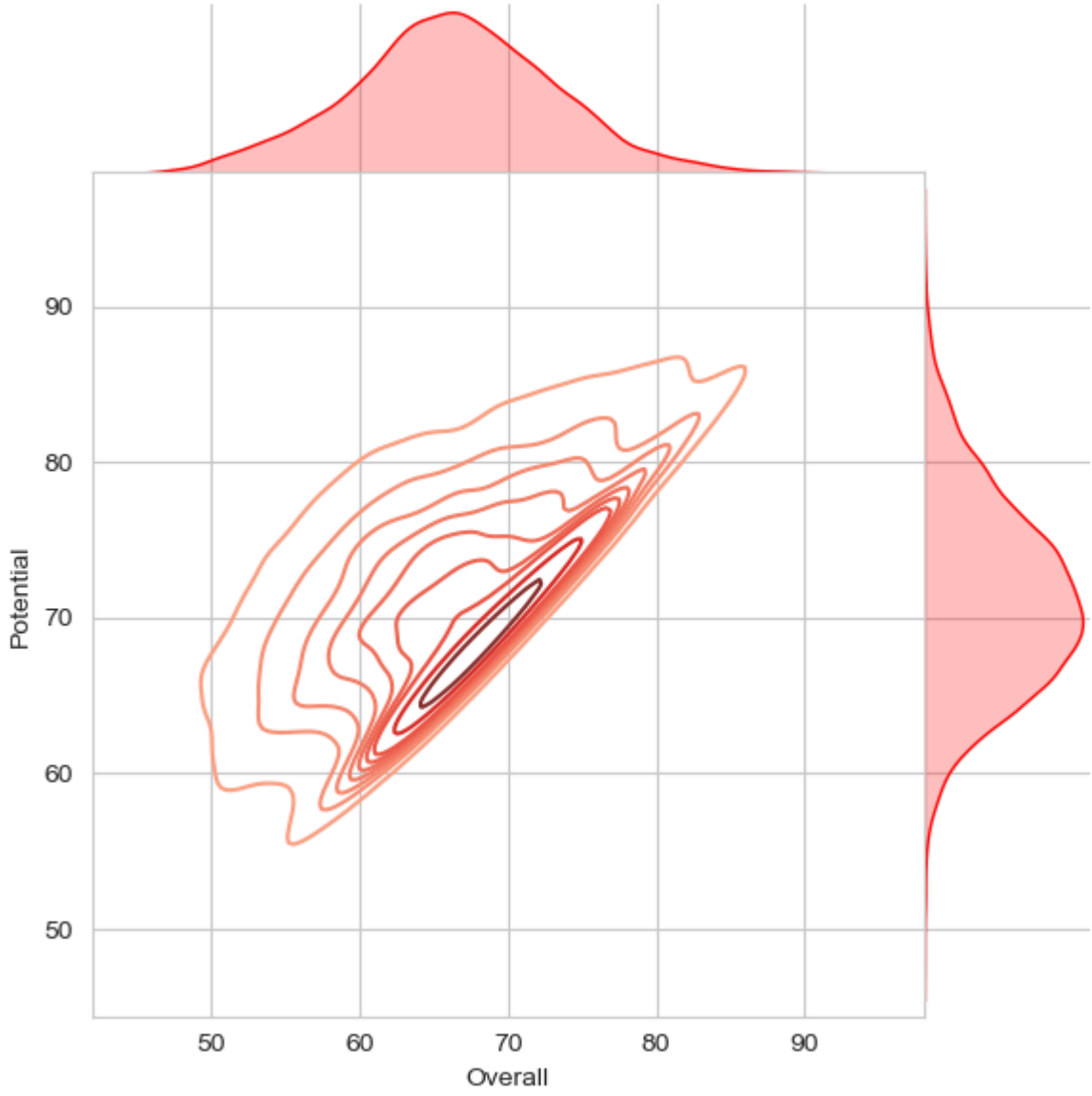
In [71]:
```
g=sns.JointGrid(x='Overall',y='Potential',data=fifa19)
g=g.plot_joint(plt.scatter,color='0.5',edgecolor='white')
g=g.plot_marginals(sns.distplot,kde=False,color='0.5')
```



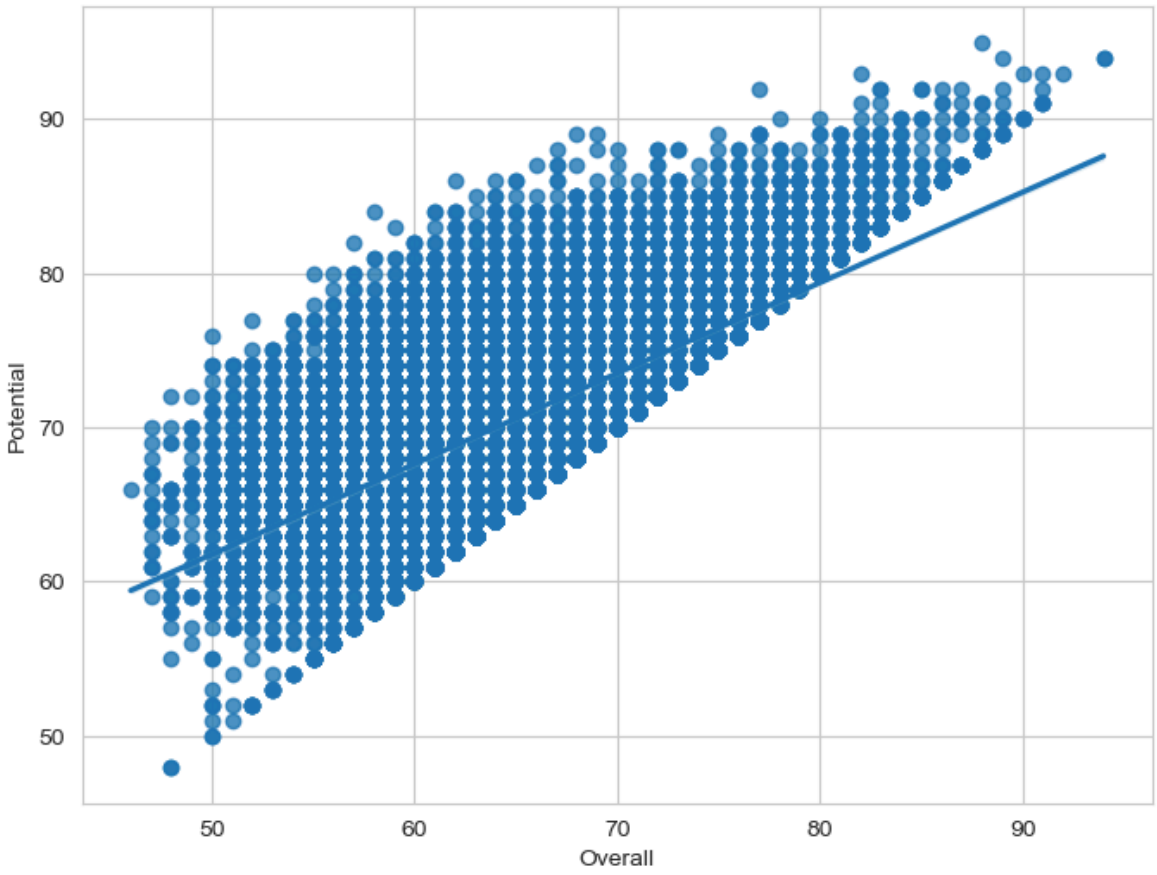
In [72]:
```
g=sns.JointGrid(x='Overall',y='Potential',data=fifa19,space=0)
g=g.plot_joint(sns.kdeplot,cmap='Blues_d')
g=g.plot_marginals(sns.kdeplot,shade=True)
```



In [73]:
```
g=sns.JointGrid(x='Overall',y='Potential',data=fifa19,space=0)
g=g.plot_joint(sns.kdeplot,cmap='Reds_d')
g=g.plot_marginals(sns.kdeplot,shade=True,color='r')
```

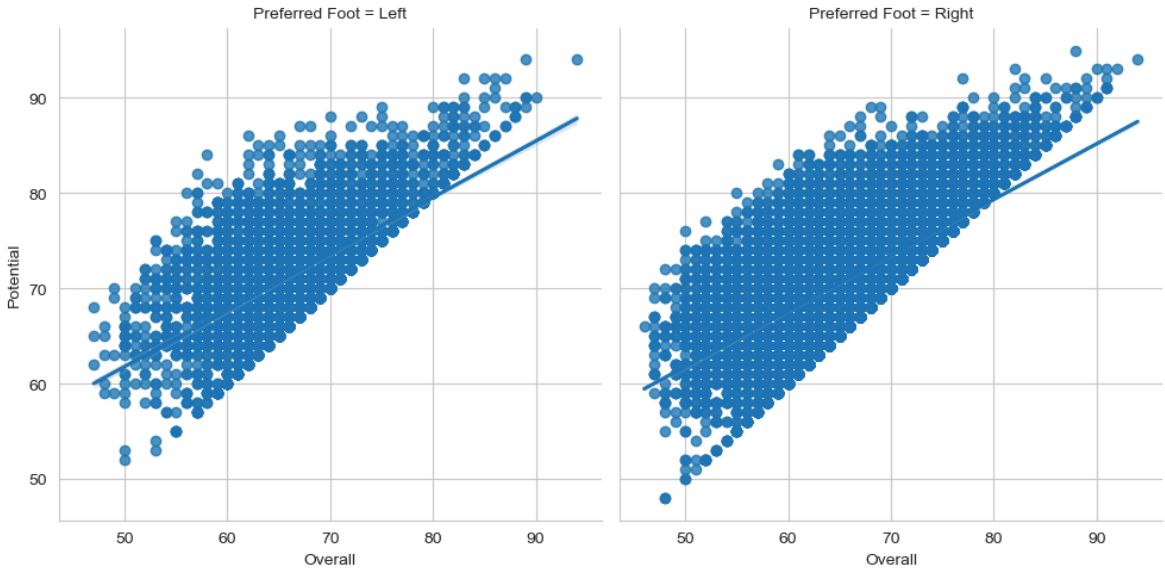


In [74]:
```
f,ax=plt.subplots(figsize=(8,6))
ax=sns.regplot(x='Overall',y='Potential',data=fifa19)
```



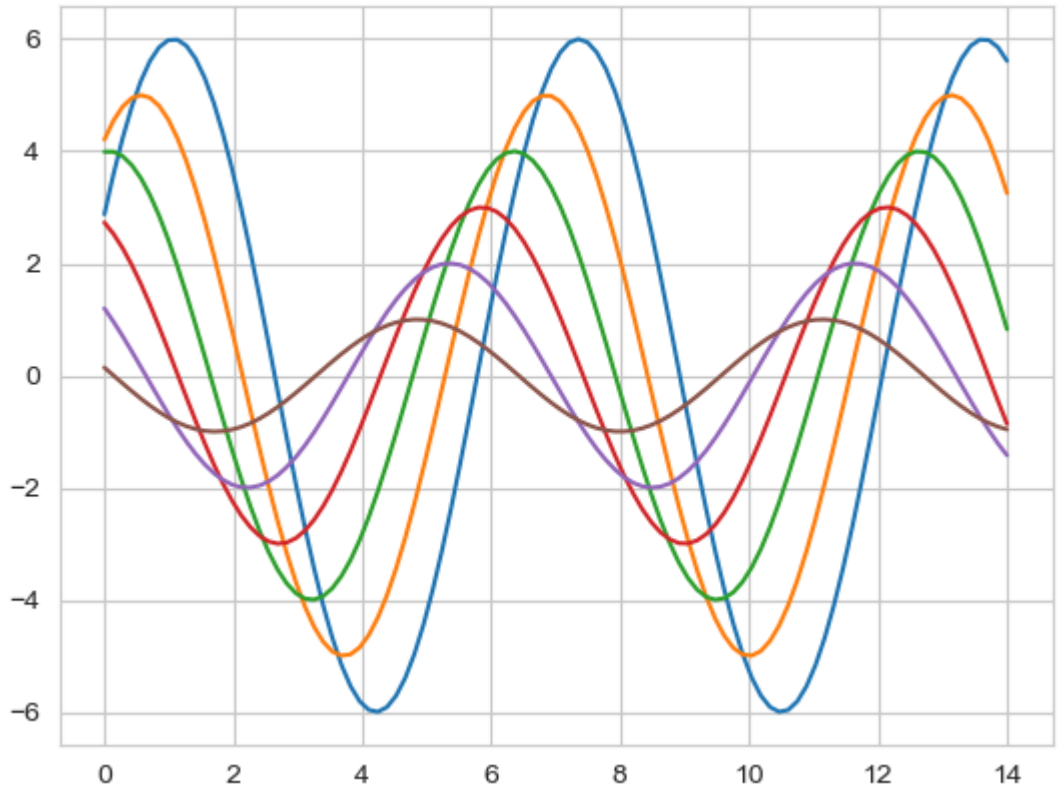
In [75]:
```
sns.lmplot(x='Overall',y='Potential',col='Preferred Foot',data=fifa19,col_wrap=2
```

Out[75]: <seaborn.axisgrid.FacetGrid at 0x20fd4707bd0>

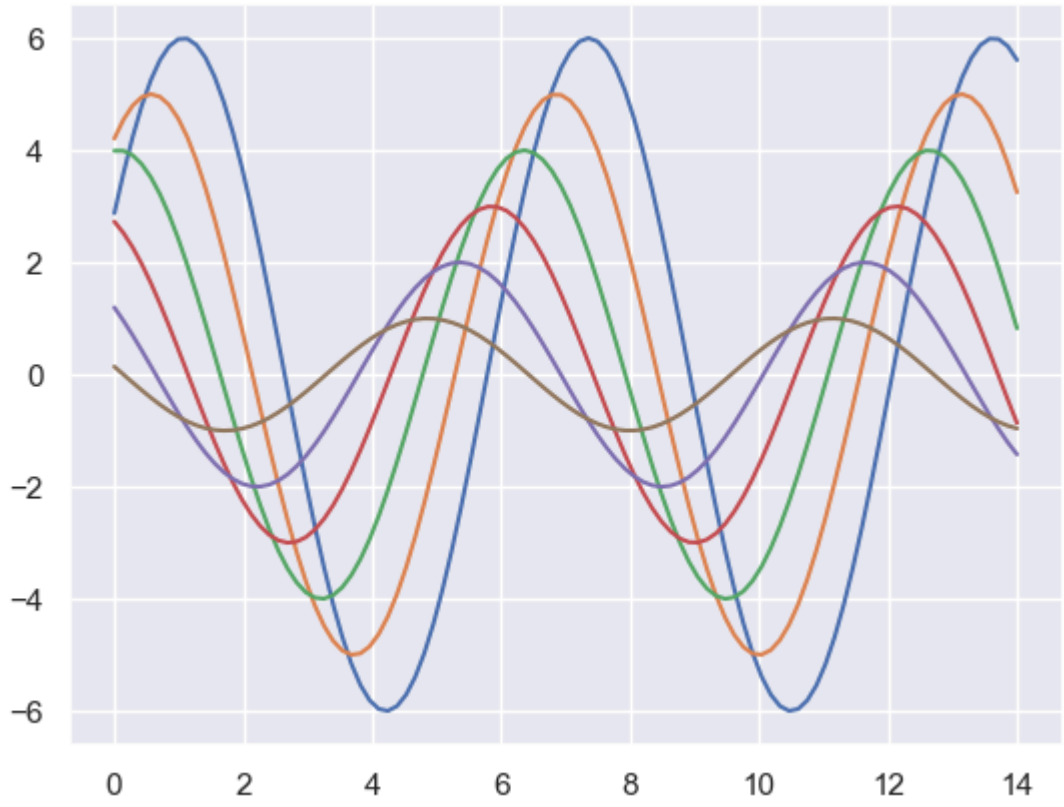


In [80]:
```
def sinplot(flip=1):
    x=np.linspace(0,14,100)
    for i in range(1,7):
        plt.plot(x,np.sin(x+i*0.5)*(7-i)*flip)
```

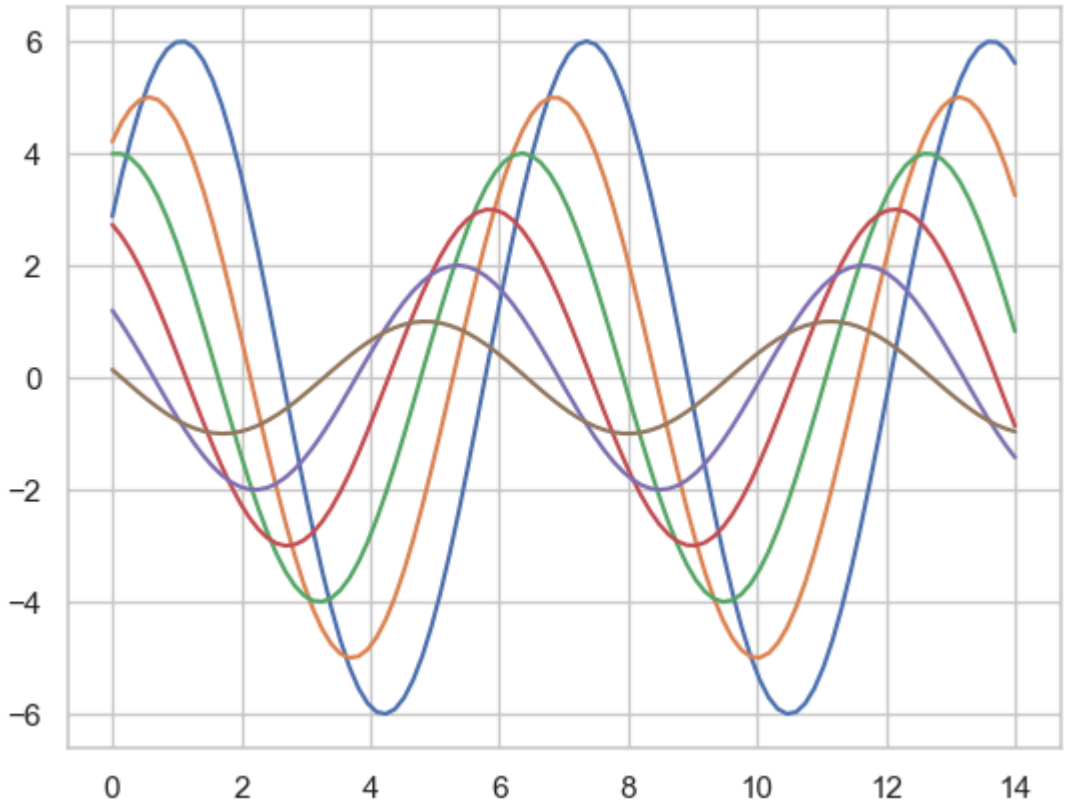
In [81]:
```
sinplot()
```



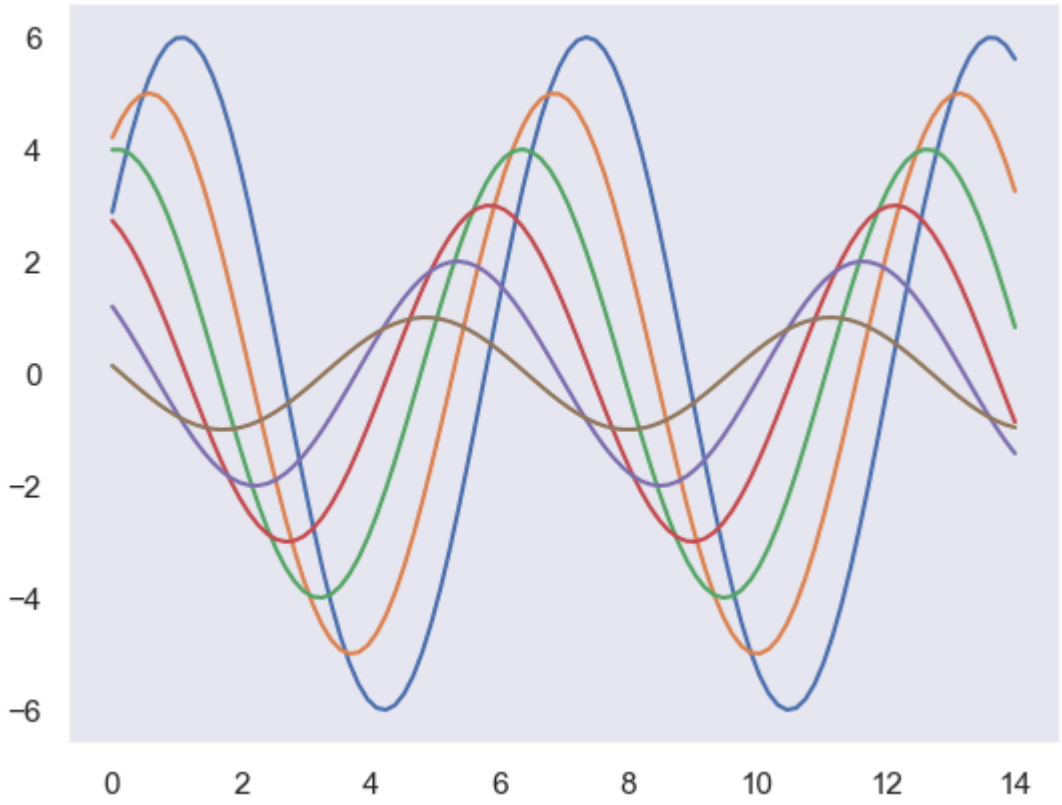
In [82]:
```
sns.set()
sinplot()
```



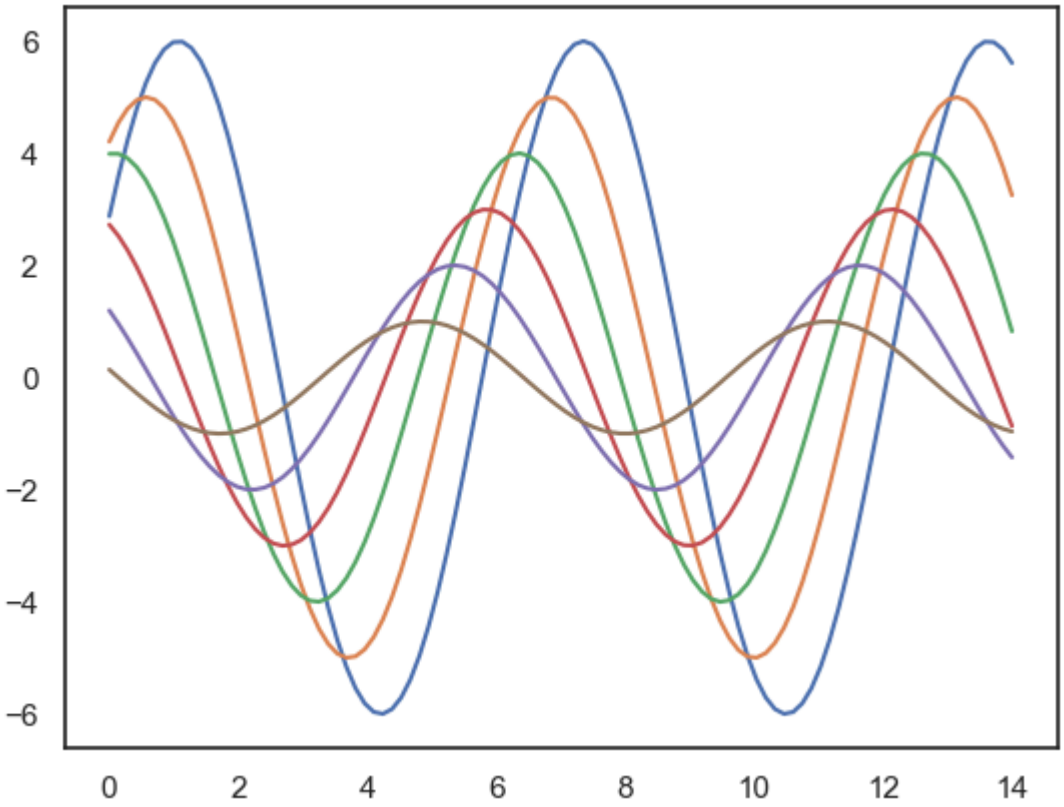
In [83]:
```
sns.set_style('whitegrid')
sinplot()
```



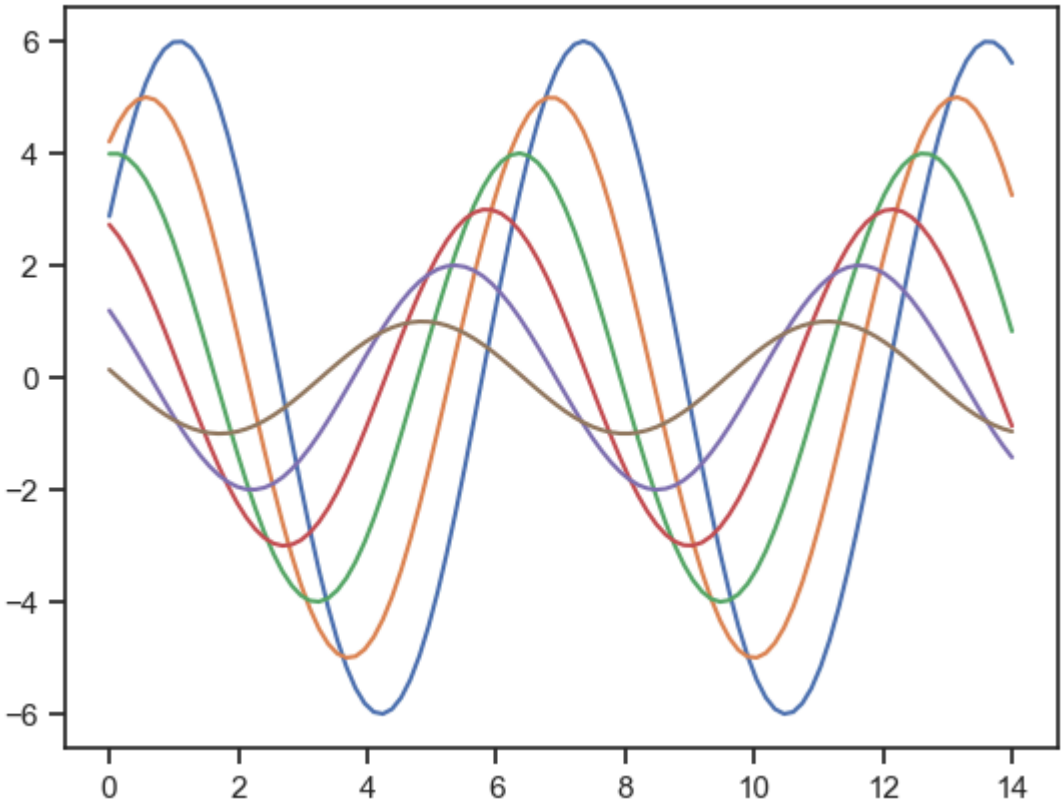
In [84]:
```
sns.set_style('dark')
sinplot()
```



In [85]:
```
sns.set_style('white')
sinplot()
```



In [86]:
```
sns.set_style('ticks')
sinplot()
```



In [ ]:

In [ ]: