TopExercicios

November 9, 2024

1 Análise Exploratoria de dados sobre os 50 melhores exercicios físicos

[2]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

import warnings
warnings.simplefilter('ignore')
```

[4]:
```
df = pd.read_csv('Top 50 Excerice for your body.csv')
```

1.1 Observando o DataSet e verificando os valores nulos

[5]:
```
df.head()
```

[5]:

	Name of Exercise	Sets	Reps	Benefit	Burns Calories (per 30 min)	Target Muscle Group	Equipment Needed	Difficulty Level
0	Push-ups	3	15	Builds upper body strength	200	Chest, Triceps, Shoulders	NaN	Intermediate
1	Squats	4	12	Strengthens lower body	223	Quadriceps, Hamstrings, Glutes	NaN	Beginner
2	Lunges	3	10	Improves balance and coordination	275	Quadriceps, Hamstrings, Glutes	NaN	Beginner
3	Burpees	3	10	Full body workout	355	Full Body	NaN	Advanced
4	Mountain Climbers	3	20	Improves cardiovascular fitness	240	Core, Shoulders, Legs	NaN	Intermediate

[6]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 50 entries, 0 to 49
Data columns (total 8 columns):
 #   Column                       Non-Null Count  Dtype
---  ------                       --------------  -----
 0   Name of Exercise             50 non-null     object
 1   Sets                         50 non-null     int64
 2   Reps                         50 non-null     int64
 3   Benefit                      50 non-null     object
 4   Burns Calories (per 30 min)  50 non-null     int64
 5   Target Muscle Group          50 non-null     object
 6   Equipment Needed             30 non-null     object
 7   Difficulty Level             50 non-null     object
dtypes: int64(3), object(5)
memory usage: 3.3+ KB
```

Podemos observar 20 valores nulos na coluna referente aos equipamentos necessários

[7]:
```
df.isna().sum()
```

[7]:
```
Name of Exercise               0
Sets                           0
Reps                           0
Benefit                        0
Burns Calories (per 30 min)    0
Target Muscle Group            0
Equipment Needed              20
Difficulty Level               0
dtype: int64
```

Preenchendo os valores nulos e verificando se aida resta algum

[8]:
```
df['Equipment Needed'].fillna('NEN', inplace=True)
```

[9]:
```
df.head()
```

[9]:

	Name of Exercise	Sets	Reps	Benefit	Burns Calories (per 30 min)	Target Muscle Group
0	Push-ups	3	15	Builds upper body strength	200	Chest, Triceps, Shoulders
1	Squats	4	12	Strengthens lower body	223	Quadriceps, Hamstrings, Glutes
2	Lunges	3	10	Improves balance and coordination	275	Quadriceps, Hamstrings, Glutes
3	Burpees	3	10	Full body workout		
4	Mountain Climbers	3	20	Improves cardiovascular fitness		

```
3                          355                        Full Body
4                          240          Core, Shoulders, Legs

  Equipment Needed Difficulty Level
0              NEN     Intermediate
1              NEN         Beginner
2              NEN         Beginner
3              NEN         Advanced
4              NEN     Intermediate
```

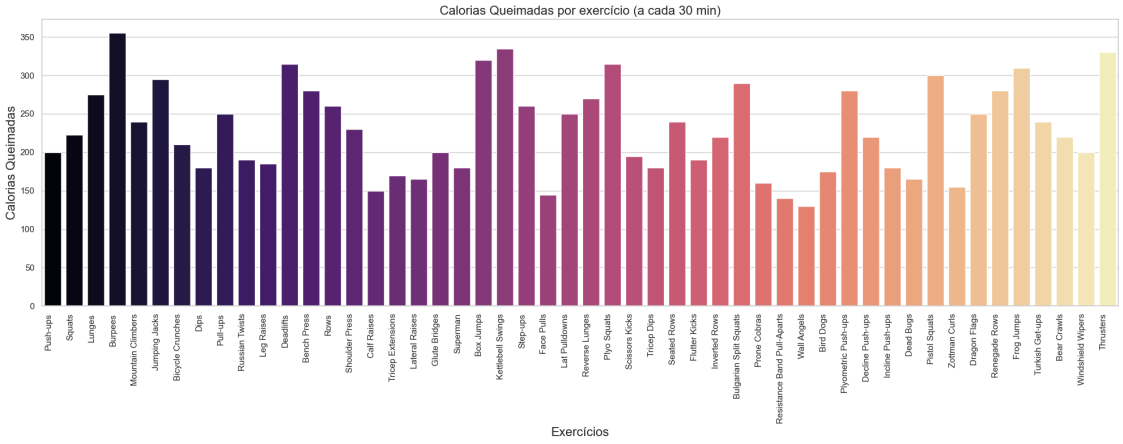
[10]:
```
df.isna().sum()
```

[10]:
```
Name of Exercise              0
Sets                          0
Reps                          0
Benefit                       0
Burns Calories (per 30 min)   0
Target Muscle Group           0
Equipment Needed              0
Difficulty Level              0
dtype: int64
```

1.2 Observando a queima de caloria por exercício

[18]:
```
sns.set_theme(style='whitegrid')
plt.figure(figsize=(20,8))
sns.barplot(x='Name of Exercise', y='Burns Calories (per 30 min)', data=df,␣
 ↪palette='magma')
plt.title('Calorias Queimadas por exercício (a cada 30 min)', fontsize=16)
plt.xlabel('Exercícios', fontsize=16)
plt.ylabel('Calorias Queimadas', fontsize=16)
plt.xticks(rotation=90, ha='right')


plt.tight_layout()
plt.show()
```



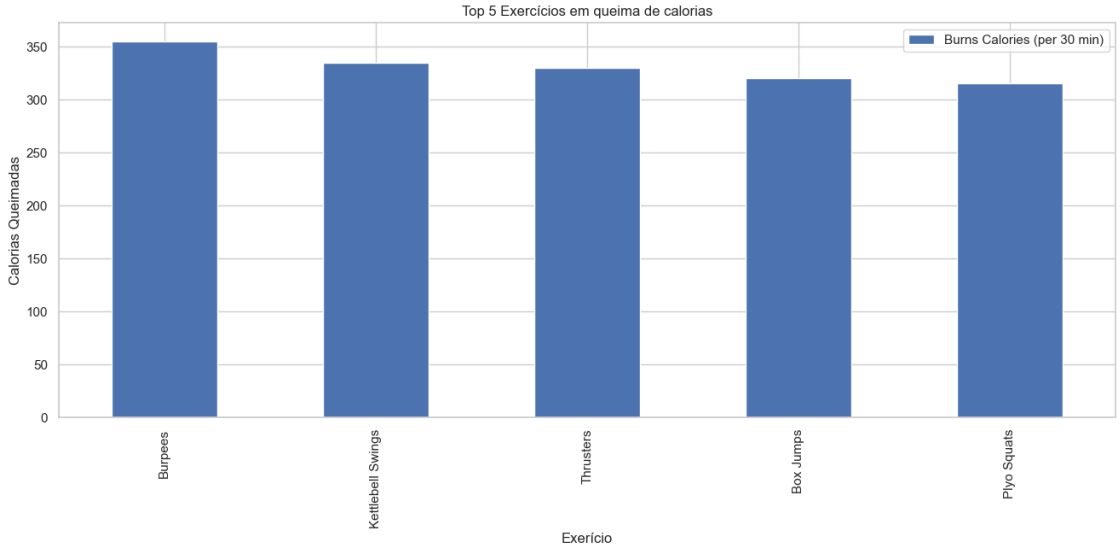
[26]:
```
#Listando os 5 execícios que mais queimam calorias
mais_calorias = df[['Burns Calories (per 30 min)', 'Name of Exercise']].
 ↪sort_values(by='Burns Calories (per 30 min)', ascending=False)
mais_calorias = mais_calorias.head(5)
mais_calorias
```

[26]:

	Burns Calories (per 30 min)	Name of Exercise
3	355	Burpees
21	335	Kettlebell Swings
49	330	Thrusters
20	320	Box Jumps
26	315	Plyo Squats

[32]:
```
mais_calorias.plot(kind='bar',title='Top 5 Exercícios em queima de calorias',␣
 ↪x='Name of Exercise', y='Burns Calories (per 30 min)', xlabel='Exerício',␣
 ↪ylabel='Calorias Queimadas', figsize=(16,6))
```

[32]:
```
<Axes: title={'center': 'Top 5 Exercícios em queima de calorias'},
xlabel='Exerício', ylabel='Calorias Queimadas'>
```

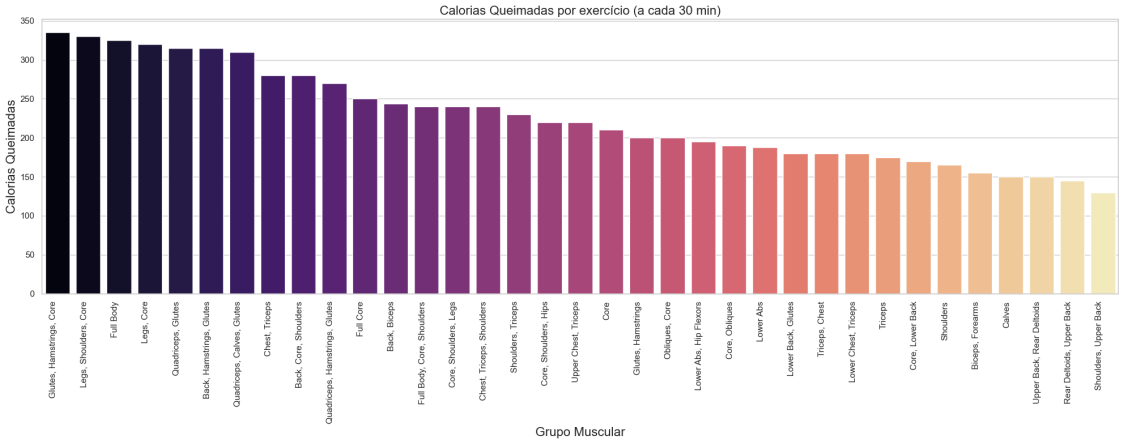


1.3 Exercícios que mais gastam calorias separados por grupo muscular alvo

[67]:
```
table = pd.pivot_table(df, index='Target Muscle Group', values='Burns Calories␣
↪(per 30 min)')
table['Burns Calories (per 30 min)'] = round(table['Burns Calories (per 30␣
↪min)'],1)
table = table.sort_values(by='Burns Calories (per 30 min)',ascending=False)
```

[68]:
```
sns.set_theme(style='whitegrid')
plt.figure(figsize=(20,8))
sns.barplot(x='Target Muscle Group', y='Burns Calories (per 30 min)',␣
↪data=table, palette='magma')
plt.title('Calorias Queimadas por exercício (a cada 30 min)', fontsize=16)
plt.xlabel('Grupo Muscular', fontsize=16)
plt.ylabel('Calorias Queimadas', fontsize=16)
plt.xticks(rotation=90, ha='right')


plt.tight_layout()
plt.show()
```



1.4 Top 5 Exercícios divididos por Grupo Muscular que mais gastam calorias

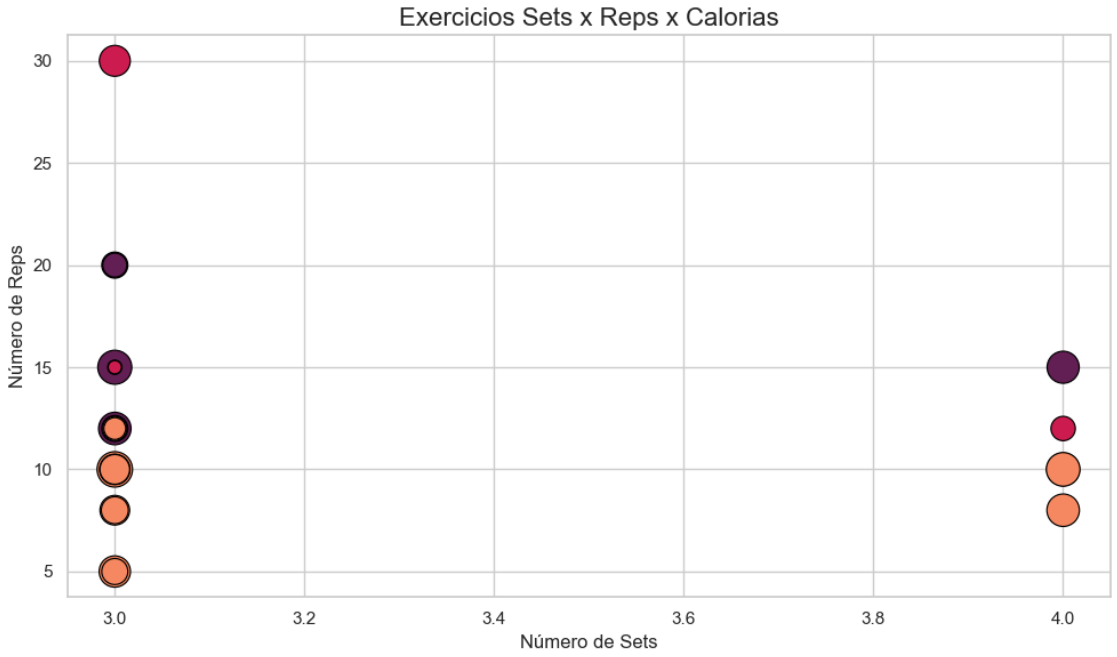
[69]:
```
table.head(5)
```

[69]:

Target Muscle Group	Burns Calories (per 30 min)
Glutes, Hamstrings, Core	335.0
Legs, Shoulders, Core	330.0
Full Body	325.0
Legs, Core	320.0
Quadriceps, Glutes	315.0

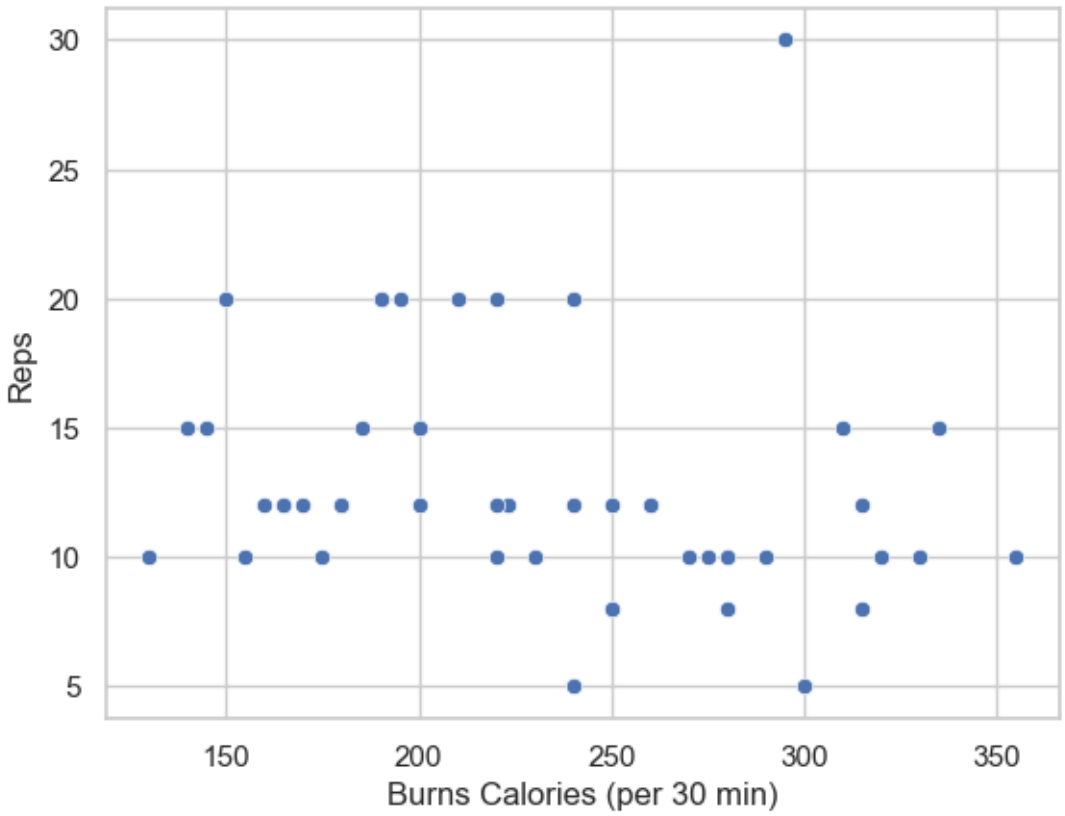
1.5 Relação entre sets, repetições e calorias queimadas

[34]:
```
plt.figure(figsize=(10,6))
sns.scatterplot(x='Sets', y='Reps', size='Burns Calories (per 30␣
 ↪min)',hue='Difficulty Level', data=df, sizes=(50,500), palette='rocket',␣
 ↪edgecolor='black', legend=False)
plt.title('Exercicios Sets x Reps x Calorias', fontsize=16)
plt.xlabel('Número de Sets', fontsize=12)
plt.ylabel('Número de Reps', fontsize=12)
plt.tight_layout()
plt.show()
```

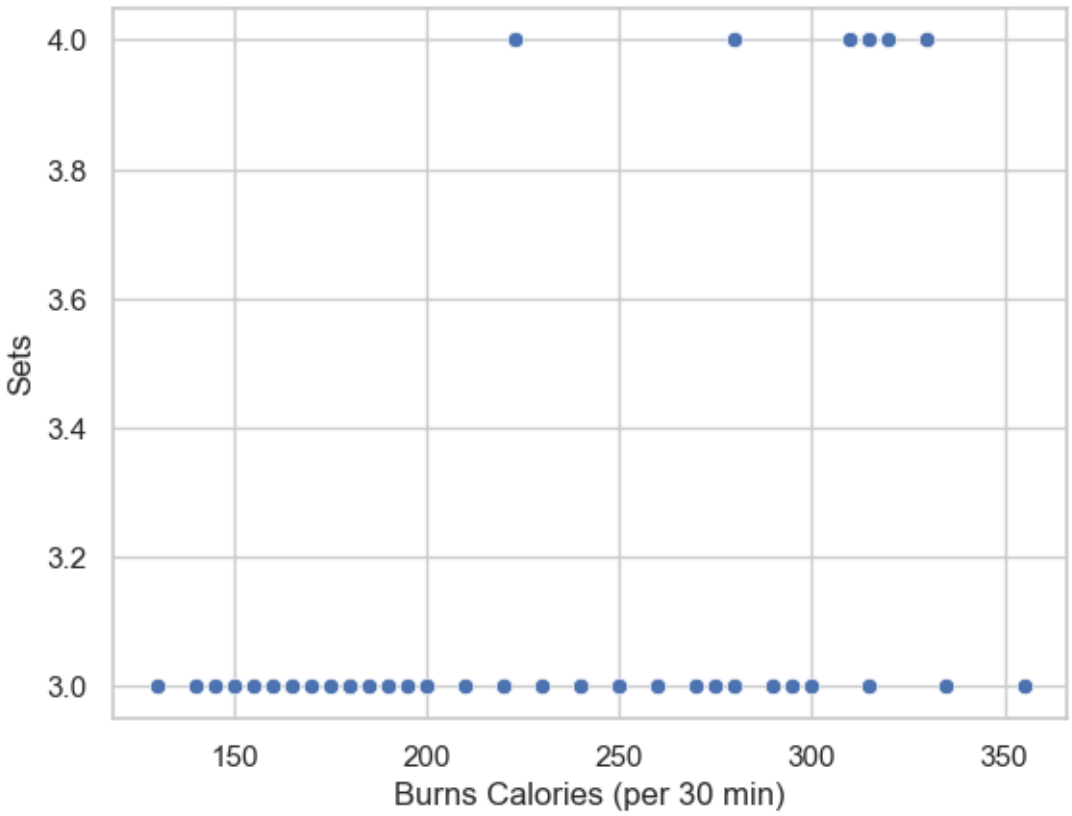


1.6 Observando correlações

[42]:
```
sns.scatterplot(x=df['Burns Calories (per 30 min)'], y=df['Reps'])
plt.show()
```



[43]:
```
sns.scatterplot(x=df['Burns Calories (per 30 min)'], y=df['Sets'])
plt.show()
```


4.0
3.8
3.6
3.4
3.2
3.0
Sets
150
200
250
300
350
Burns Calories (per 30 min)