

P Discovery Project

Wearables in the Sports Industry?

Apolo, a startup which manufactures smart devices, recorded 500 responses from athletes, trainers, coaches, and team physicians regarding their interest in wearing Apolo smart devices and their beliefs on whether wearables improve their performance. These responses are recorded in the Wearables in the Sports Industry data set. As discussed at the beginning of this chapter, the use of wearables is a multibillion-dollar industry worldwide for companies such as Apple, Fitbit, and other organizations that produce wearable technology to track fitness and nutrition.

The individuals who participated in the sample were athletes or those who work with athletes. All participants were 18 years or older. The variables measured were Age and Role (coach, team physician, athlete, or trainer), and three questions were asked:

1. Do you use Apolo smart devices to train?
2. Do you feel that Apolo smart devices have helped you improve your performance?
3. Would you recommend the use of Apolo smart devices to train?

The responses to these questions were recorded as 0 (No) or 1 (Yes). If the answer to question 1 was yes, then a fourth question was asked:

4. How many hours per week do you use Apolo smart devices to train?

If the participant did not use Apolo smart devices, then 0 was recorded for the hours.

Using the aforementioned data, please do the following:

1. Summarize the data by role indicating the number of coaches, team physicians, athletes, and trainers that chose to participate in the survey.
2. Summarize the data according to the role of the participants and the first three questions asked of them. That is, create a table indicating the number of people in each role who answered “Yes” to each of the first three questions.
3. Apolo believes that they will be profitable if more than 40% of survey respondents use smart devices. Test that Apolo will be profitable using a significance level of 5%.
4. Some managers at Apolo believe that the responses of the athletes are the only ones that matter. Find the P -value for the hypothesis test that at least 40% of the athletes would use Apolo smart devices. Do the data suggest that more than 40% of the athletes will use Apolo smart devices at a 5% level of significance?
5. For Apolo customers (i.e., the survey participants who answered “Yes” to “Do you use Apolo smart devices to train?”), calculate the sample mean and sample standard deviation for the number of hours that they use an Apolo smart device per week.
6. Apolo believes that in order to retain customers, the customers need to be using smart devices more than 6 hours per week. Test the hypothesis that, on average, Apolo customers use their smart device more than 6 hours per week. Use a significance level of 1%.

Data

The data set can be found on stat.hawkeslearning.com under **Discovering Business Statistics, Second Edition > Data Sets > Wearables in the Sports Industry**.

7. Apolo would like to know a probable range of values for the mean hours customers use a smart device per week. Construct a 99% confidence interval for the mean hours Apolo customers use a smart device per week. What can Apolo conclude about the mean?

Sample of the Data Collected					
Gender	Age	Role	Do you use Apolo smart devices to train?	Apolo smart device improved performance?	Recommend use of Apolo smart device?
Male	40	Coach	1	0	1
Male	35	Team Physician	1	1	1
Female	48	Team Physician	0	0	0
Male	60	Team Physician	0	0	1
Female	18	Athlete	1	0	1
Male	47	Team Physician	0	0	1
Female	39	Trainer	0	0	0
Female	20	Athlete	1	0	1