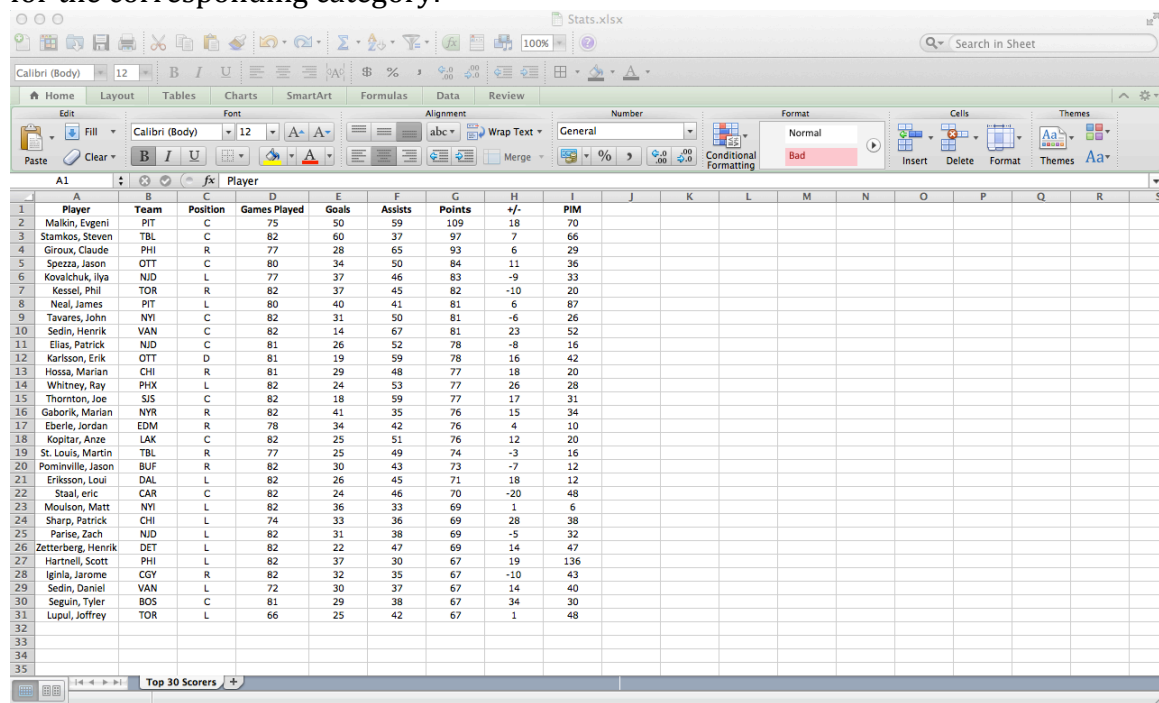


Using Microsoft Excel for Recording and Analyzing Data

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The standard computer program used for record keeping of strength and conditioning is Microsoft's Excel. Its simple spreadsheets make it easy to organize and sort data into an easily readable format and its basic functionality is simple enough to pickup without much instruction. While Excel's objective function is to sort and organize data, you can also use it for simple data analysis, which I will walk you through step-by-step.

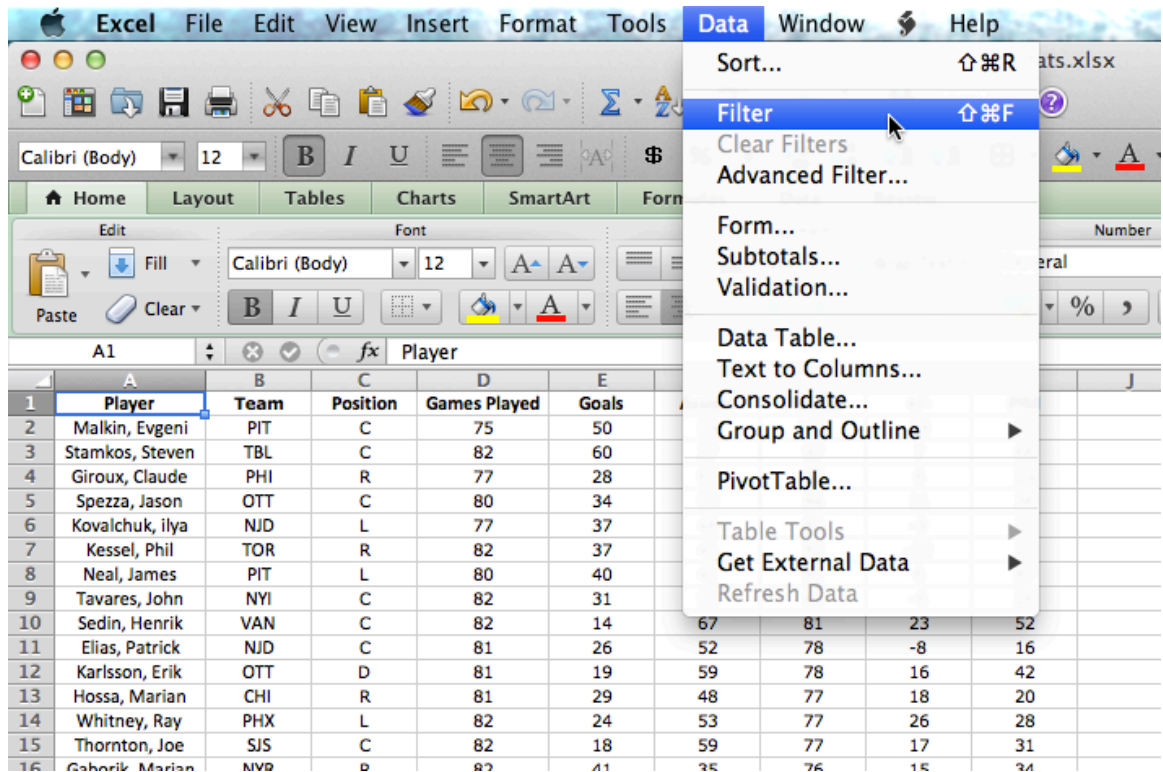
When you setup your Excel spreadsheet to record data (whether it be testing, statistics, anything), I recommend utilizing the top row to be your column headings. My general rule of thumb is to have the players' names as the first column, followed by your exercises. Each exercise needs to have its own column, or you will run into problems. As a sample, I created a spreadsheet with the top 30 scorers in the NHL. As you can see in Figure 1, the players are listed in the left-most column, followed by their statistics in various categories. The number in each players' row is his statistic for the corresponding category.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	Player	Team	Position	Games Played	Goals	Assists	Points	+/-	PIM										
1	Malkin, Evgeni	PIT	C	75	50	59	109	18	70										
2	Stamkos, Steven	TBL	C	82	60	37	97	7	66										
3	Giroux, Claude	PHI	R	77	28	65	93	6	29										
4	Spezza, Jason	OTT	C	80	34	50	84	11	36										
5	Kovalchuk, Ilya	NJD	L	77	37	46	83	-9	33										
6	Kessel, Phil	TOR	R	82	37	45	82	-10	20										
7	Neal, James	PIT	L	80	40	41	81	6	87										
8	Tavares, John	NYI	C	82	31	50	81	-6	26										
9	Sedin, Henrik	VAN	C	82	14	67	81	23	52										
10	Elias, Patrick	NJD	C	81	26	52	78	-8	16										
11	Karlsson, Erik	OTT	D	81	19	59	78	16	42										
12	Hossa, Marian	CHI	R	81	29	48	77	18	20										
13	Whitney, Ray	PHI	L	82	24	53	77	26	28										
14	Thornton, Joe	SJS	C	82	18	59	77	17	31										
15	Gaborik, Marian	NYR	R	82	41	35	76	15	34										
16	Eberle, Jordan	EDM	R	78	34	42	76	4	10										
17	Kopitar, Anze	LAK	C	82	25	51	76	12	20										
18	St. Louis, Martin	TBL	R	77	25	49	74	-3	16										
19	Pominville, Jason	BUF	R	82	30	43	73	-7	12										
20	Eriksson, Loui	DAL	L	82	26	45	71	18	12										
21	Staal, Eric	CAR	C	82	24	46	70	-20	48										
22	Moulson, Matt	NYI	L	82	36	33	69	1	6										
23	Sharp, Patrick	CHI	L	74	33	36	69	28	38										
24	Parise, Zach	NJD	L	82	31	38	69	-5	32										
25	Zetterberg, Henrik	DET	L	82	22	47	69	14	47										
26	Hartnell, Scott	PHI	L	82	37	30	67	19	136										
27	Iginla, Jarome	CGY	R	82	32	35	67	-10	43										
28	Sedin, Daniel	VAN	L	72	30	37	67	14	40										
29	Seguin, Tyler	BOS	C	81	29	38	67	34	30										
30	Lupul, Joffrey	TOR	L	66	25	42	67	1	48										
31																			
32																			
33																			
34																			
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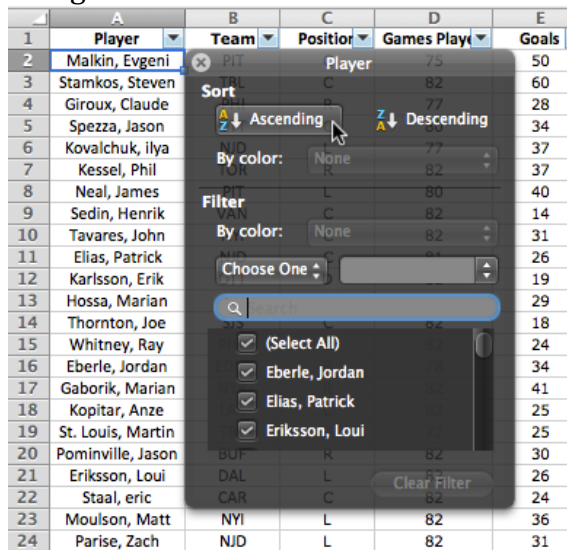
(Figure 1)

The way in which I entered the data was by most to least Points. There are other ways to sort your data; for this, we will use the Auto-Filter function. To find the Auto-Filter function, go to the Data tab, and select "Filter" as show in Figure 2.



(Figure 2)

You should now see arrows in the box of each of your categories. If this is not the case, select any one of the categories at the top of your spreadsheet, and select the Auto-Filter function again. You can now click the arrow in any of the category boxes to sort your data. In Figure 3, I am sorting the players by alphabetical order. By selecting Ascending or Descending, you can sort statistics via high-to-low, or low-to-high. You can also use Auto-Filter to look for specific results within a column, as shown in Figure 4.



(Figure 3)

A2				Eberle, Jordan		
	A	B	C	D	E	F
1	Player	Team	Position	Games Played	Goals	Assists
3	Elias, Patrick	NJD	C	81	52	
12	Kopitar, Anze	LAK	C	82	25	51
15	Malkin, Evgeni	PIT	C	75	50	59
21	Sedin, Henrik	VAN	C	14	14	67
22	Seguin, Tyler	BOS	C	61	22	38
24	Spezza, Jason	OTT	C	80	21	50
26	Staal, eric	CAR	C	82	24	46
27	Stamkos, Steven	TBL	C	82	60	37
28	Tavares, John	NYI	C	82	50	50
29	Thornton, Joe	SJS	C	83	48	60
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						

(Figure 4)

If you've set a benchmark for results, you can also sort your data to show those who scored above or below the standard. In Figure 5 I'm filtering for players who recorded at least 40 PIMs.

I	J	K	L	M
PIM				
136				
43				
42				
48				
70				
87				
52				
48				
66				
47				

(Figure 5)

In addition to auto-filtering your results, you can write a formula for a column to display specific results. We're going to look for players who scored at least 35 and recorded at least 25 penalty minutes. To do so, select an empty cell next

the right-most column. For simplification purposes, choose the top row of data; below where the column heading would be. Type in the cell (Figure 6):

=IF(AND(E2>35,I2>25),"YES","NO")

IF										
=IF(AND(E2>35,I2>25),"YES","NO")										
1	Player	Team	Position	Games Played	Goals	Assists	Points	+/-	PIM	Goals/PIM
2	Malkin, Evgeni	PIT	C	75	50	59	109	18	70	=IF(AND(E2>35,I2>25),"YES","NO")
3	Stamkos, Steven	TBL	C	82	60	37	97	7	66	
4	Giroux, Claude	PHI	R	77	28	65	93	6	29	
5	Spezza, Jason	OTT	C	80	34	50	84	11	36	
6	Kovalchuk, Ilya	NJD	L	77	37	46	83	-9	33	
7	Kessel, Phil	TOR	R	82	37	45	82	-10	20	
8	Neal, James	PIT	L	80	40	41	81	6	87	
9	Sedin, Henrik	VAN	C	82	14	67	81	23	52	
10	Tavares, John	NYI	C	82	31	50	81	-6	26	
11	Elias, Patrick	NJD	C	81	26	52	78	-8	16	

(Figure 6)

This will display YES if the results I'm looking for are true, and NO if they are false. The E2 and I2 refer to the columns I'm using for comparison. You can also change the YES and NO to say whatever you prefer.

Once you have your formula written in the designated cell, move the cursor to the bottom-right corner of the cell and you should see a black + sign. Click and drag down the column to all the rows you wish to run this analysis on. What you're doing is copying the formula to these cells and the formula will accommodate itself to the new row's data. You may title the column appropriately. You can now use the auto-filter function to filter for YES or NO in your new column to display the results that are of interest (Figure 6).

1	PIM	Goals/PIM
70	YES	
66	YES	
29	NO	
36	NO	
33	YES	
20	NO	
87	YES	
52	NO	
26	NO	
16	NO	
42	NO	
20	NO	
31	NO	
28	NO	
10	NO	
34	YES	
20	NO	
16	NO	
12	NO	
12	NO	
48	NO	
6	NO	
32	NO	
38	NO	
47	NO	
136	YES	
43	NO	
48	NO	
40	NO	
30	NO	

(Figure 6)

You can also use Excel to calculate the average value of a column of data. You can use any cell, though I recommend the empty cell below the data list. To create the average value, type =AVERAGE(then you can highlight the cells you want to

take the average of, close the parenthesis, and press enter. Your formula will look something like this:

=AVERAGE(A2:A10)

This will take the average of all values from A2 to A10. Figure 7 shows an average formula.

I	J
PIM	
70	
66	
29	
36	
33	
20	
87	
52	
26	
42	
16	
31	
28	
20	
34	
20	
10	
16	
12	
12	
48	
47	
38	
32	
6	
136	
48	
43	
40	
30	
=AVERAGE(I2:I31)	

(Figure 7)

In addition to taking the average of data, you can also set up a ranking system for your data. Create a new column next to the column you wish to rank. To do so, right-click the column **to the right** of the column you wish to rank, and select “Insert” or “Insert New Column.” You can label the column “Rank” followed by what you’re ranking. In the first empty cell (the top row of data), you’re going to enter **=RANK(** and select the corresponding data point in which you are ranking (it must be in the same row!). For instance, let’s say you’re ranking the F column of data. After you select the corresponding F data, you’re going to type a comma. Your formula should be:

=RANK(F2,

After the comma you need to enter your range of data, which is all the values you want to rank. Do this by highlighting the column of data as you did when calculating the average. Type another comma. Your formula should now look like this:

=RANK(F2,F2:F10,

The third part comes in how you choose to sort the data. If you want to sort in descending order, enter **0**. If you want to sort in ascending order, enter **1**. Close the parenthesis. Your formula should now look like this (though the final 0 may be a 1):

=RANK(F2,F2:F10,0)

There is still one more step in this process before we can copy this formula to the other rows. In our data range (**F2:F10**), we must insert \$ before each letter and each number. This will make sure the formula doesn’t adjust itself to the new row, and will always rank the same data in the same order. The final formula will look like this, as shown in Figure 8:

=RANK(F2,\$F\$2:\$F\$10,0)



I	J	K
PIM	Rank	
70	=RANK(I2,\$I\$2:\$I\$31,0)	

(Rank 8)

Finally, apply the formula to the entire column.

There are many functions that Microsoft Excel allows you to do and there are endless possibilities in how you utilize them. The more creative you are with organizing data and writing the formulae, the more you will benefit from this program.