Ch7-Lab: Cognitive Performance & Aging

```
*1. Examine the pattern of correlations among the variables. Anything surprising?.
CORR cog TO health /STAT.
```

	Mean	Std. Deviation	N
cog	99.63500	11.907169	200
age	48.74500	14.593314	200
exer	24.57500	3.923179	200
health	4.00350	.346610	200

	cog	age	exer
age	-.170		
	.016		
exer	.179	.748	
	.011	.000	
health	.352	-.240	.194
	.000	.001	.006

```
*2. Determine the best-fit regression equation using all three predictors.
REGRESS /DEP = cog /ENTER health exer age  /SAVE PRED(prdc.hea) RESID(resc.hea).
```

Model	R	R Square
1	.496	.246

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6930.910	3	2310.303	21.276	.000
	Residual	21283.445	196	108.589		
	Total	28214.355	199			

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	66.246	9.872		6.711	.000
	health	2.839	2.698	.083	1.052	.294
	exer	1.895	.349	.624	5.436	.000
	age	-.504	.095	-.617	-5.318	.000

	Mean	Std. Deviation	N
Predicted Value	99.63500	5.901584	200
Residual	.000000	10.341759	200

```
LIST /CASES = FROM 1 TO 2.
 o cog age exer health    prdc.hea    resc.hea
```



```
 1 101  40   20   3.7     94.50764     6.49236
 2 100  26   20   4.0    102.41067    -2.41067
```

```
 *4. Strength and significance of unique contribution of health.
REGRESS /STAT = DEFAU ZPP CHANGE /DEP = cog /ENTER age exer /ENTER health.
```

			Change Statistics				
Model	R	R Square	R Square Change	F Change	df1	df2	Sig. F Change
1	.491	.241	.241	31.342	2	197	.000
2	.496	.246	.004	1.108	1	196	.294

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6810.622	2	3405.311	31.342	.000
	Residual	21403.733	197	108.648		
2	Regression	6930.910	3	2310.303	21.276	.000
	Residual	21283.445	196	108.589		
	Total	28214.355	199			

		Unstandardized Coefficients				Correlations		
Model		B	Std. Error	t	Sig.	Zero-order	Partial	Part
1	(Constant)	75.255	4.921	15.294	.000			
	age	-.563	.076	-7.375	.000	-.170	-.465	-.458
	exer	2.108	.284	7.428	.000	.179	.468	.461
2	(Constant)	66.246	9.872	6.711	.000			
	age	-.504	.095	-5.318	.000	-.170	-.355	-.330
	exer	1.895	.349	5.436	.000	.179	.362	.337
	health	2.839	2.698	1.052	.294	.352	.075	.065

```
 *5. Calculate a residual health predictor to compute part r.
REGRESS /DEP = health /ENTER age exer /SAVE RESI(resh.ae).
```

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.987	2	4.493	59.324	.000
	Residual	14.921	197	.076		
	Total	23.908	199			

```
 VARI LABEL resh.ae ''.
CORR resh.ae WITH cog age exer.
```

	cog	age	exer
resh.ae	.065	.000	.000


```
 *6. Use the /FORWARD procedure to obtain a final equation.
REGRESS /VARI = cog TO health /DEP = cog /FORWARD.
```

Model	Variables Entered	Variables Removed	Method
1	health	.	Forward (Criterion: Probability-of-F-to-enter <= .050)

Model	R	R Square
1	.352	.124

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3504.520	1	3504.520	28.082	.000
	Residual	24709.835	198	124.797		
	Total	28214.355	199			

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	51.163	9.181		5.573	.000
	health	12.107	2.285	.352	5.299	.000

Model		Beta In	t	Sig.	Partial Correlation
1	age	-.091	-1.324	.187	-.094
	exer	.114	1.697	.091	.120


```
 *7. Use the /BACKWARD procedure to obtain a final equation.
*    Do the /FORWARD and /BACKWARD options produce the same final equation? Why?.
REGRESS /VARI = cog TO health /DEP = cog /BACKWARD.
```

Model	Variables Entered	Variables Removed	Method
1	health, exer, age	.	Enter
2	.	health	Backward (criterion: Probability of F-to-remove >= .100).

Model	R	R Square
1	.496	.246
2	.491	.241

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6930.910	3	2310.303	21.276	.000
	Residual	21283.445	196	108.589		
2	Regression	6810.622	2	3405.311	31.342	.000
	Residual	21403.733	197	108.648		
	Total	28214.355	199			

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	66.246	9.872		6.711	.000
	age	-.504	.095	-.617	-5.318	.000
	exer	1.895	.349	.624	5.436	.000
	health	2.839	2.698	.083	1.052	.294
2	(Constant)	75.255	4.921		15.294	.000
	age	-.563	.076	-.690	-7.375	.000
	exer	2.108	.284	.695	7.428	.000

Model		Beta In	t	Sig.	Partial Correlation
2	health	.083	1.052	.294	.075

```
 *8. What do you think will happen with /STEPWISE? Why?
*    Perform the /STEPWISE analysis and compare to your expected outcome.
*    Change PIN and POUT to modify the outcome.
REGRESS /VARI = cog TO health /DEP = cog /STEPWISE.
```

Model	Variables Entered	Variables Removed	Method
1	health	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

```
REGRESS /VARI = cog TO health /CRIT = PIN(.10) POUT(.11) /DEP = cog /STEPWISE.
```

Model	Variables Entered	Variables Removed	Method
1	health	.	Stepwise (Criteria: Probability-of-F-to-enter <= .100, Probability-of-F-to-remove >= .110).
2	exer	.	Stepwise (Criteria: Probability-of-F-to-enter <= .100, Probability-of-F-to-remove >= .110).
3	age	.	Stepwise (Criteria: Probability-of-F-to-enter <= .100, Probability-of-F-to-remove >= .110).
4	.	health	Stepwise (Criteria: Probability-of-F-to-enter <= .100, Probability-of-F-to-remove >= .110).

Model	R	R Square
1	.352	.124
2	.370	.137
3	.496	.246
4	.491	.241

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3504.520	1	3504.520	28.082	.000
	Residual	24709.835	198	124.797		
2	Regression	3860.425	2	1930.212	15.614	.000
	Residual	24353.930	197	123.624		
3	Regression	6930.910	3	2310.303	21.276	.000
	Residual	21283.445	196	108.589		
4	Regression	6810.622	2	3405.311	31.342	.000
	Residual	21403.733	197	108.648		
		28214.355	199			

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	51.163	9.181		5.573	.000
	health	12.107	2.285	.352	5.299	.000
2	(Constant)	45.684	9.692		4.714	.000
	health	11.343	2.318	.330	4.893	.000
	exer	.348	.205	.114	1.697	.091
3	(Constant)	66.246	9.872		6.711	.000
	health	2.839	2.698	.083	1.052	.294
	exer	1.895	.349	.624	5.436	.000
	age	-.504	.095	-.617	-5.318	.000
4	(Constant)	75.255	4.921		15.294	.000
	exer	2.108	.284	.695	7.428	.000
	age	-.563	.076	-.690	-7.375	.000

Model		Beta In	t	Sig.	Partial Correlation
1	age	-.091	-1.324	.187	-.094
	exer	.114	1.697	.091	.120
2	age	-.617	-5.318	.000	-.355
4	health	.083	1.052	.294	.075