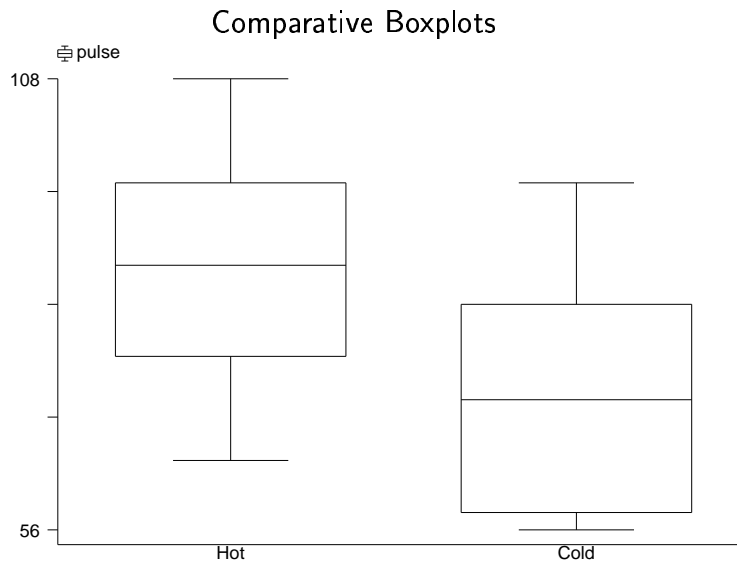


Inference for Means based on Small Samples

Two Independent Samples

Dialysis study: effect of dialysate temperature on pulse rate



Summary statistics for pulse rate

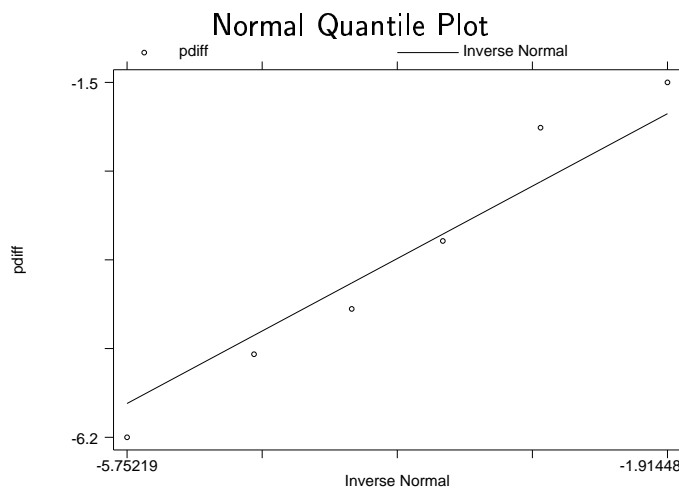
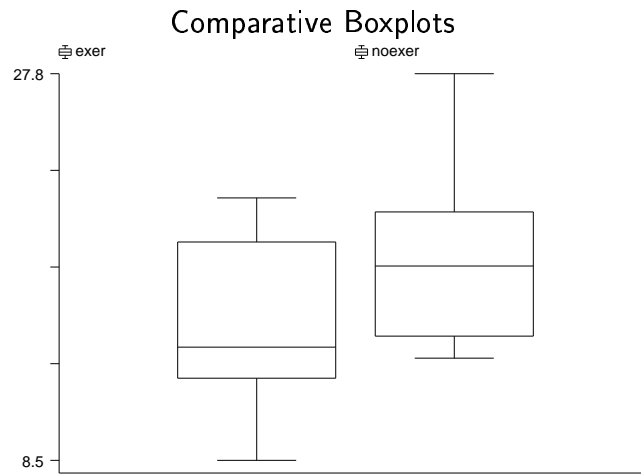
	Obs	Mean	Std. Dev.	Min	Max
temp = Hot	10	86.6	13.05714	64	108
temp = Cold	10	71.8	14.05386	56	96

Comparing Means from Paired Samples

Example: The following data records the results of an experiment involving 6 healthy male subjects. For each participant, blood samples were taken during sleep on two different nights. The first sample was drawn after a day that included no strenuous activities, and the second was drawn after a day of vigorous exercise. Levels of growth hormone were determined from the samples.

	Subject						mean	s.d
	1	2	3	4	5	6		
Exercise	8.5	12.6	21.6	19.4	14.7	13.6	15.07	4.75
No-exercise	13.6	14.7	27.8	20.9	19.2	17.2	18.90	5.14

Summaries for paired differences: mean=3.83, s.d.=1.80



```
. ttest exerc=noexerc
```

Paired t test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
exerc	6	18.9	2.096982	5.136535	13.50954	24.29046
noexerc	6	15.06667	1.940389	4.752964	10.07874	20.0546
diff	6	3.833333	.7337877	1.797405	1.947072	5.719595

Ho: mean(exerc - noexerc) = mean(diff) = 0

Ha: mean(diff) < 0
 t = 5.2240
 P < t = 0.9983

Ha: mean(diff) ~ = 0
 t = 5.2240
 P > |t| = 0.0034

Ha: mean(diff) > 0
 t = 5.2240
 P > t = 0.0017