

# Sleep Deprivation and its Effects



# Hypothesis

Our hypothesis was:

Sleep affects our ability to think and do day-to-day tasks

Why we did it:

We decided to study this because as it was coming closer to exams, we wanted to investigate how much of a role sleep played into it too.

# Experiment

For our experiment we decided to use 3 different types of games to test 3 different types of skill. We recorded the hours of sleep we had that day, then played the respective games in the Morning, Lunch and Afternoon.

Skills we tested:

[Processing new information](#)

[Memory](#)

[Reaction Time](#)

# Data Collection

Processing						
	Hours of Sleep		Morning	Lunch	Afternoon	Average
Monday	7		67.2	66.8	65.7	66.57
Tuesday	6		70.3	68.7	60.6	66.53
Wednesday	8		65.3	67.4	62.4	65.03
Thursday	7		68.4	68.2	62.4	66.33
Friday	7		67.5	62.8	60.7	63.67
Memory						
	Hours of Sleep		Morning	Lunch	Afternoon	Average
Monday	7		1.62	1.34	0.95	1.30
Tuesday	6		1.74	1.56	1.62	1.64
Wednesday	8		1.54	1.56	0.98	1.36
Thursday	7		1.68	1.25	1.34	1.42
Friday	7		1.52	1.23	1.25	1.33
Reaction						
	Hours of Sleep		Morning	Lunch	Afternoon	Average
Monday	7		0.2906	0.819	0.2298	0.4465
Tuesday	6		1.3492	0.2696	0.2754	0.6314
Wednesday	8		0.4564	0.2658	0.2689	0.3304
Thursday	7		0.3789	0.3429	0.4568	0.3929
Friday	7		0.2456	0.2457	0.3648	0.2854

# Results

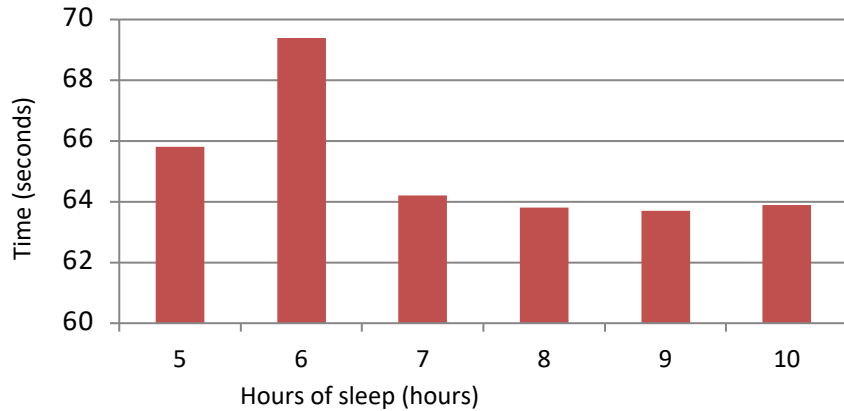
Day	Time asleep (hours)	Skill Game	Morning (secs)	Lunch (secs)	Late Afternoon (secs)	Average (secs)
Thursday	7	<u>Processing</u>	67.2	66.8	65.7	<b>66.56</b>
		<u>Memory</u>	1.62	1.34	0.95	1.303
		<u>Reaction</u>	0.2906	0.819	0.2298	0.44646

Day	Time asleep (hours)	Skill Game	Morning (secs)	Lunch (secs)	Late Afternoon (secs)	Average (secs)
Friday	6	<u>Processing</u>	70.3	68.7	<b>60.6</b>	<b>66.53</b>
		<u>Memory</u>	1.74	1.56	1.62	1.64
		<u>Reaction</u>	1.3492	0.2696	0.2754	0.63126

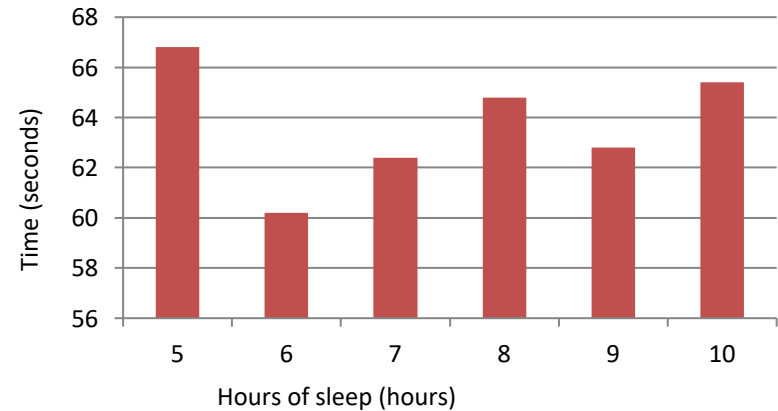
There are more results, but this was included to show some of the limitations.

# Analysis - Processing

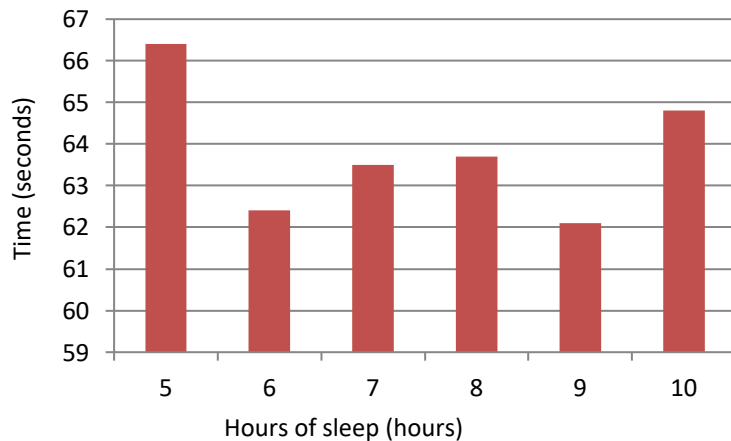
## Morning



## Afternoon

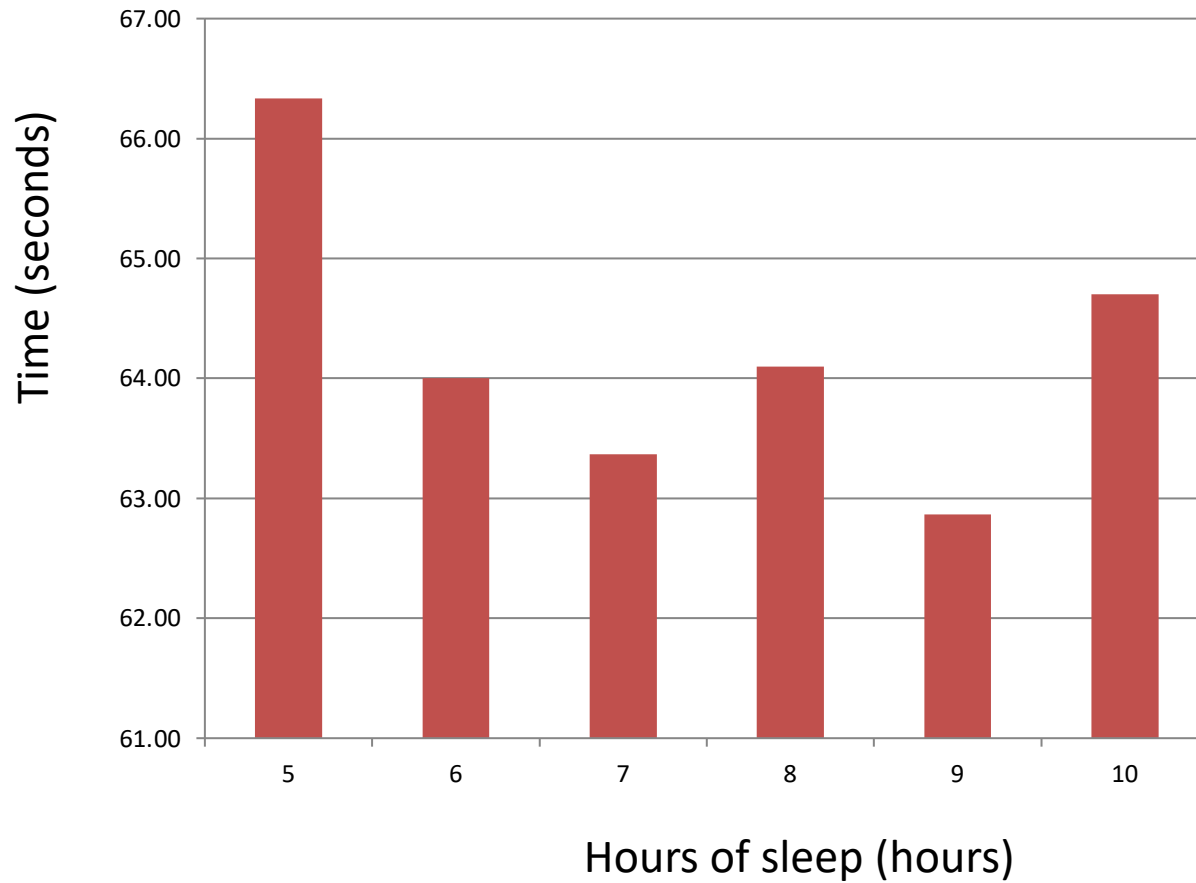


## Lunch



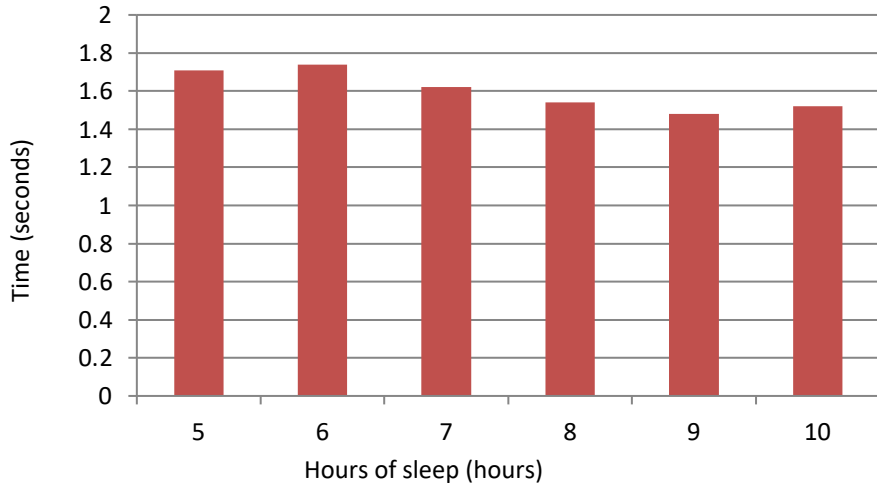
Hours of Sleep	Morning	Lunch	Afternoon	Average
5	65.8	66.4	66.8	66.33
6	69.4	62.4	60.2	64.00
7	64.2	63.5	62.4	63.37
8	63.8	63.7	64.8	64.10
9	63.7	62.1	62.8	62.87
10	63.9	64.8	65.4	64.70

# Analysis - Processing

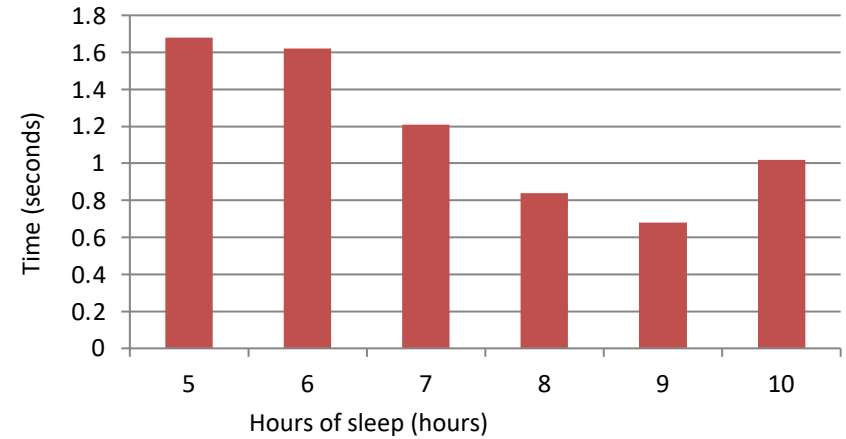


# Analysis - Memory

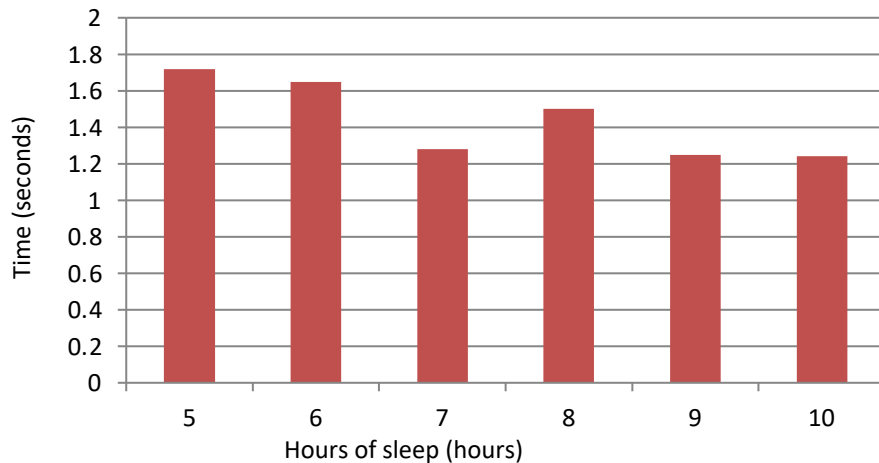
## Morning



## Afternoon



## Lunch

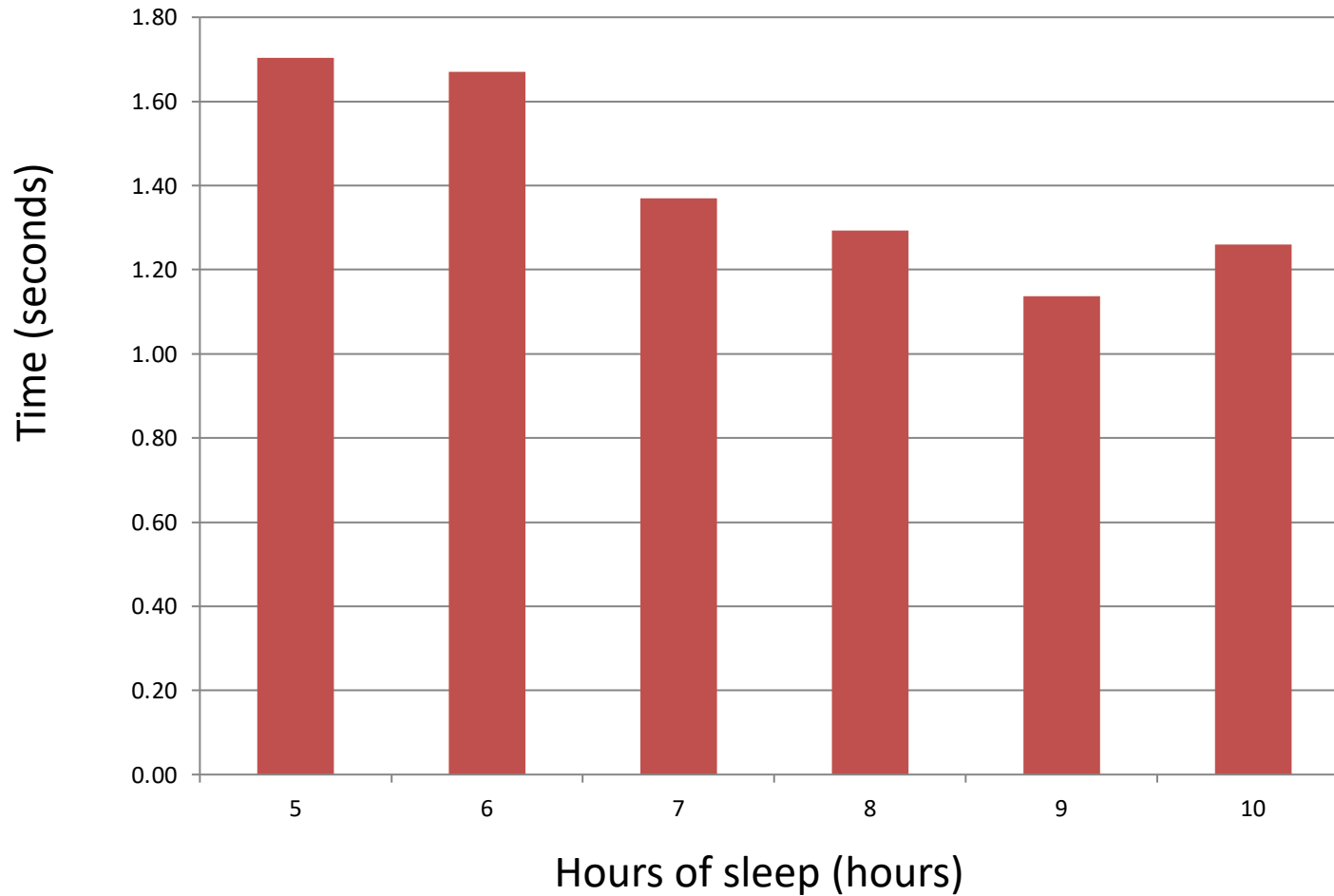


Hours of Sleep	Morning	Lunch	Afternoon	Average
5	1.71	1.72	1.68	1.70
6	1.74	1.65	1.62	1.67
7	1.62	1.28	1.21	1.37
8	1.54	1.5	0.84	1.29
9	1.48	1.25	0.68	1.14
10	1.52	1.24	1.02	1.26



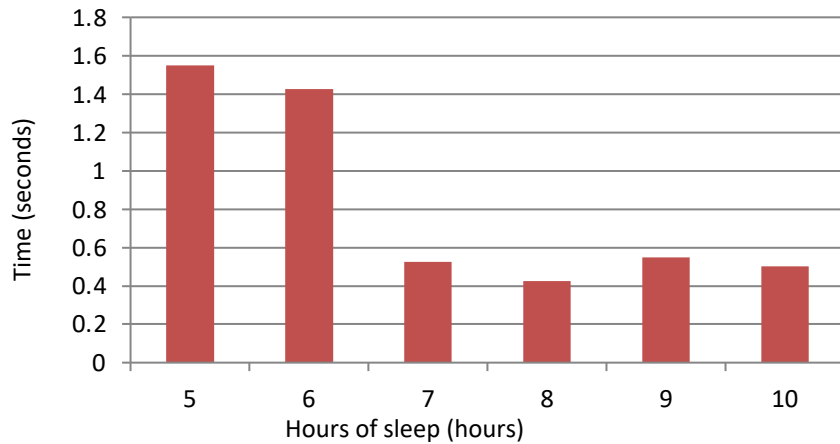
# Analysis - Memory

Average

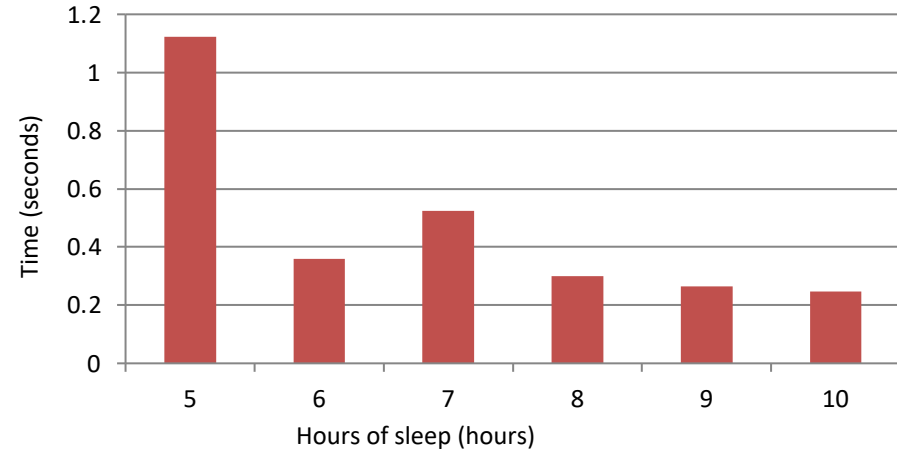


# Analysis - Reaction

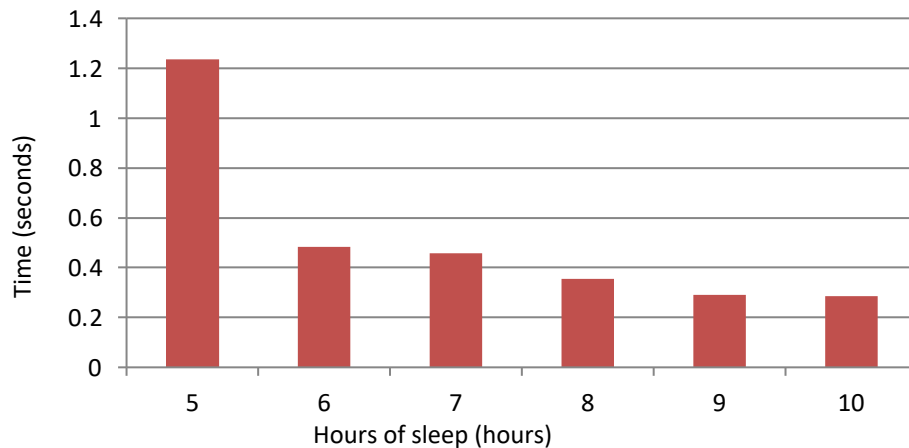
## Morning



## Afternoon



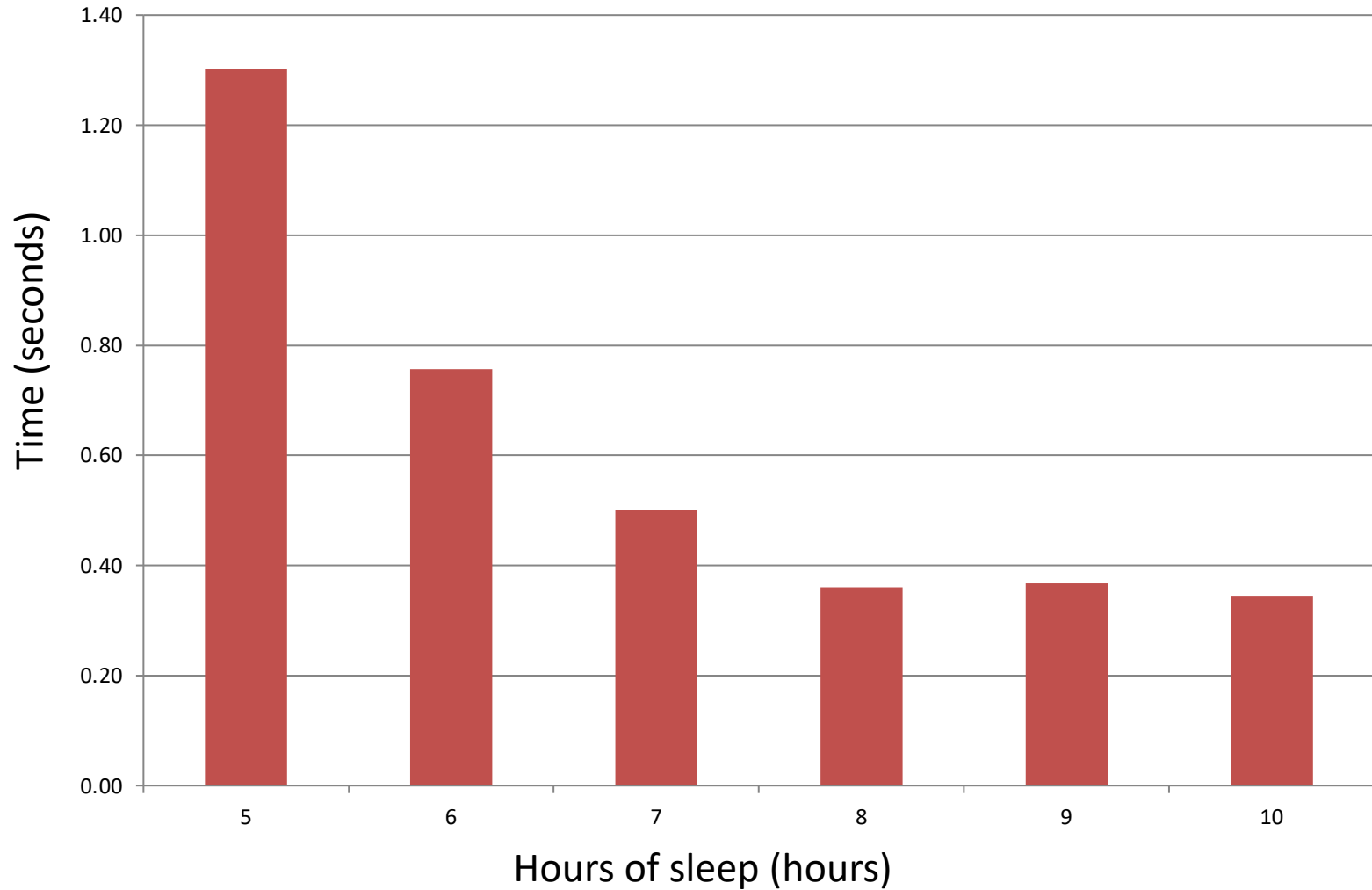
## Lunch



Hours of Sleep	Morning	Lunch	Afternoon	Average
5	1.5482	1.2358	1.1235	1.3025
6	1.4268	0.4845	0.3584	0.7566
7	0.5236	0.4563	0.5236	0.5012
8	0.4259	0.3548	0.2987	0.3598
9	0.5486	0.2896	0.2647	0.3676
10	0.5012	0.2846	0.2478	0.3445

# Analysis - Reaction

Average



# Interpretation

## Reliability

This test is fairly unreliable as it varies from person to person, so results can only be tested against the individual and not against others.

## Problems

There are a few problems as seen in the table. As the same game is played, it becomes more predictable and easier to play, resulting in an unfair advantage when playing again.

# Conclusion

From this test it seems apparent that the less sleep you have, the less effective your brain will perform. While there are a few problems with this test in how it was carried out , due to the limited resources, it is still presented quite clearly in the results that a lack of sleep has a negative influence on your performance.