CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
S1415

Project Title
Does the Inflammatory Cytokine IL-6 Lead to Decreased Muscle Strength?

Abstract

Objectives/Goals

Introduction- It has been recognized that when a person grows older, they experience a decline in muscle strength and stamina. To this day it is still unknown why this happens. One major theory says that high levels of inflammation may cause the decline. Studies have shown that a specific cytokine that is called interleukin 6(IL 6), when made constantly at high levels, either marks or causes a 40% decline in the muscle strength and stamina.

Question: Do aged IL 6KO aged mice have the same motor coordination and stamina as non-affected aged mice or improved motor coordination and stamina.
Hypothesis: Aged IL 6KO mice have an increased stamina rate and improved motor coordination ability because these mice have shown considerable amounts of extra lifespan.

Methods/Materials

Materials:
Rotarod, Mice-(9 Wildtype, 10 IL 6), Wipes, Timer, ethanol alcohol
Methods:
Get required Animal Training.; Train mice to get used to the Rotarod.; Place mice on Rota Rod and start motor and timer.; Do both Acceleration test(motor coordination) and steady speed test(stamina).; When a mouse falls, hit timer to stop the time and record the time.; After each mouse is done, wipe rod and area around mouse.

Results

I found that there was about a 9.919 second difference between the IL 6 KO mice compared to the Wildtype mice, in favor for the IL 6 KO mice. However we cannot deem these findings as completely accurate due to the high standard deviation and error.

Conclusions/Discussion

Conclusion:
I found from the data, that there was a trend in muscle function in favor of the IL 6 KO mice. There was an increase in the time on the rotarod for the IL 6 KO mice compared to the wildtype mice. However the differences in average time between the wild type mice and IL-6 knockout mice turned out to not to be significantly different due to a high standard error. Therefore the differences in the times could have been due to chance.

Summary Statement

My purpose is to see if the inflammatory cytokine IL-6 may in fact progress sarcopenia faster in mice, and maybe even in humans.

Help Received

I used the lab equipment at the University of California San Diego under the supervision of Dr. Laura Dugan; Researcher in Geriatrics