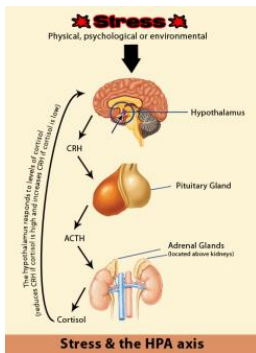


# Farmworker's Stressors in Relation to Cortisol

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## Adapting to Stress



By Salyann Boyles WebMD Health News Reviewed by Laura J. Martin, MD

## Immigrant Farmworkers



<http://www.csulb.edu/divisions/students/camp/>  
(Accessed 7/30/13)

## Introduction

Cortisol is a hormone made by the adrenal glands and works to break down glucose to form it into energy through gluconeogenesis. Cortisol is essential for recouping energy following stress. Daily stressors can affect cortisol levels dramatically<sup>1</sup>. Therefore, this study will address the association between stressful activities and cortisol levels among Mexican immigrant farmworkers living along the Texas-Mexico border. We hypothesize that farmworkers' daily stressors will be related to their physiological stress measures (cortisol). This research attempts to form data that can help find ways to reduce the stress of immigrant farmworkers.

1. J. E. A. Young, J. Abelson, S. L. Lightman. Cortisol pulsatility and its role in stress regulation and health. *Front. Neurosci.* 2004.

## Methods

The data analyzed was collected from surveys from 60 immigrant farmworkers living along the Texas-Mexico border. The following data was collected:

- A 63 questions survey that asked questions that could contribute to their daily stress.

Sample Questions:

1. What is your total income?
  2. Do you understand your training?
  3. What language do you speak?
  4. How many hours do you work?
- Upon waking up, the participants were asked to take a salivary cortisol test
  - For the Young Scholars Summer ASSIST project, Pearson's Correlation was run between the participant's cortisol levels and their responses to sex, age, and some of the language factors on the acculturation scale (language spoke, language read, language thought, language of friends).

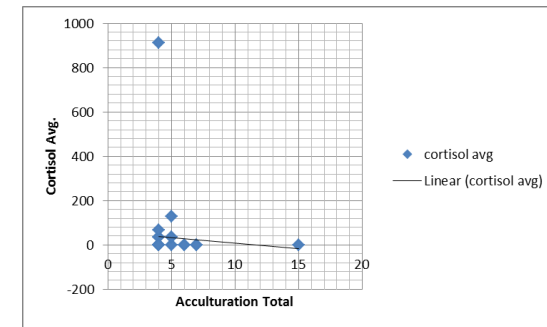
## Results

The data was analyzed by running correlations between cortisol levels and sex, age, and some of the language factors of the acculturation scale. For all analyses run, there were no statistically significant correlations with cortisol levels ( $p > 0.05$ ). Namely, sex ( $r = -0.177$ ), age ( $r = -0.063$ ), language read ( $r = -0.039$ ), language spoke ( $r = -0.039$ ), language of friends ( $r = -0.04$ ), language thought ( $r = -0.039$ ), hours worked ( $r = 0.261$ ), and the total of the partial language acculturation score ( $r = -0.063$ ).

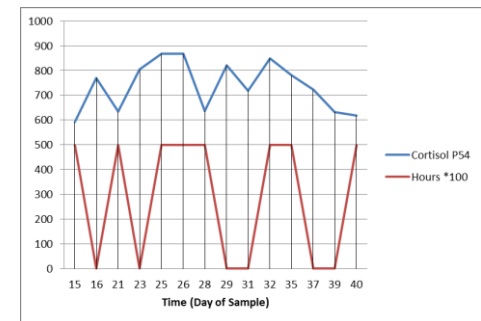
## Discussion

Although there were no significant correlations found for the acculturation factors analyzed, the research is important because it suggests that average cortisol levels may not be associated with these particular stress factors. It also suggests that there are a number of stressors in a farmworker's daily life. To be able to study which events are the most stressful would require not only a completely controlled environment but also careful consideration of all factors in the acculturation scale. Individual differences in stress add to the complexity of the research. In this particular data analysis no statistically significant correlations were found, but there are other components to the overall research conducted at BioQUAL that are still undergoing analysis. Future analyses will examine the effects of day-to-day stressors on cortisol levels among farmworkers. The tool developed by ASSIST will be useful to further analyze these relationships.

## Correlation Between Language Acculturation Factors and Cortisol



## Cortisol in Relation to Hours Worked



Here we can see an accurate representation of the results. This graph illustrates one participant's daily cortisol levels and the hours they worked. For this participant, the hours worked was not statistically significantly correlated to cortisol levels.

## Acknowledgments

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