# **CTE** Testing

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*Abstract*—CTE Testing is in its infancy, but will allow for the protection of athletes in the future, through the use of brain scans.

## I. INTRODUCTION

TE (chronic traumatic encephalopathy) is a growing conversation in contact sports, mainly the NFL. The symptoms of CTE include chronic headaches, memory loss, confusion, aggression, depression, and progressive dementia. Old testing methods have been simply assessing what CTE is, staining tissue samples from deceased athletes looking for the presence of a protein named tau. The newest testing method allows for living patients to be evaluated using brain scans and dyes. With testing, the hope is that players will be able to be pulled from play before these occur.

#### II. METHODS

A radioactive dye FDDNP is injected into the blood stream, which attaches itself to the tau protein. Using a PET scan, the concentration of the dye can be seen relative to patients who do not have CTE.



### III. RESULTS

The five NFL players that were tested all showed the symptoms of CTE. The testing is still in its infancy, but on the subjects tested the results showed a clear in the difference in the concentration of the dye, and thus a difference in protein concentration.

### IV. DISCUSSION

As the testing for CTE becomes available to the public there will be a much clearer picture on not only how to protect and prevent CTE, but also provide a base of patients for potential treatments of CTE.

Some of the side effects of the increase in publicity for CTE have been a significant decrease in the sign up for youth athletic programs, mainly youth football.

With the testing coming out there has been a massive influx of requests for the testing procedure to be done, not only by current and former professional athletes, but as well as by parents of high school students. This has led to attempts to expedite the process of verification and certification, which should bring down the cost from the current \$15,000 USD.

With the added data physicians will have a tougher time with justifying their decisions on advising patients to return to play. As time progresses, the detection should be able to find a clear line that will help keep players safe.

### REFERENCES

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