بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــســـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

A Medico Legal Study of Motor Car Accidents

THESIS

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By

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INTRODUCTION

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Interaction between man and motor vehicle became a sign of civilization in the industrialized countries. Most of the attention is paid towards machine and economy, little is paid to human life. As time goes on, dangers of car driving come to play.

Historical review:

The first self-propelled vehicle was invented in 1769, when Nicolas Cugnot, a French military engineer, designed a steam powered vehicle. This vehicle may still be seen today in the "Conservatoire Nationale des Arts et Metiers" in Paris.(1) The most dramatic change in the mode of transportation occurred in 1885 when Daimler and Benz built the first motor car which was referred to by the layman as the horseless car.(2)

The first reported accident was when the machine designed by Cugnot ran into a wall. Other studies allege that the first motor car accident reported was in 1889, when a pedestrian was run over by a motor car, as he was stripped off by a trolley. (2)

Factors leading to car accidents:

Accidents are generally due to a rather complex process by which many factors interact. These include :

1-Human factors

2-The vehicle

3-The roadway (including environmental factors)

1-Human factors:

The most important human factors are the driver's behaviors which receive attention in most accidents; this is because driving involves multiple tasks, the demands of which can change continually .To drive safely, one must maintain alertness, make decisions based on the ever-changing information present in the environment, and execute maneuvers based on these decisions.[3][4]

In recent years, there has been much interest in the role of driver impairment in the causation of road crashes[5][6][7] .The many factors leading to this impairment had been extensively reviewed in literature .These are :

a- *Age:*

Youthful age has been sited as one of the most important variables related to crash risk.[8][9].Young drivers are inexperienced not only in driving but in drinking and combining the two activities [10].In 1994 almost 7,800 persons aged 16 years through 20 years were drivers in fatal motor vehicle crashes according to the National Highway Traffic Safety Administration (NHTSA)[7][11][12].

Driving inexperience and immaturity are considered to be the main causes of motor-vehicle crashes among drivers aged 16 to 20 years old. In one study Hingson and colleagues (1996), concluded that drivers in this age group have a greater risk than older drivers of being involved in a fatal crash. This combined with a penchant for risk-taking driving behaviors such as speeding-along with a tendency both to underestimate the dangerous consequences of such behaviors and to overestimate their driving skills-contributes to the high crash rate among young drivers.

b-Emotion:

Safe driving is a full-time job for the mind as well as for the body. It's not only to see and hear the signs and signals of the road-way, but also to use good judgment based on the gathered information .The decisions made can mean the difference between safe and dangerous driving.

A driver may experience a range of strong feelings, often positive and negative : joy, sadness ,anger and fear .Overall, strong feelings have the power to focus all the attention on one thing , and then a loss of concentration .[4]

Whatever the cause of the emotion, it can interfere with driving ability by taking the attention away from the road.

Other strong emotions are : anger, feeling of grief , hopelessness or intense anxiety may last for several days , and make it dangerous to drive.

Emotional stress, including excitation and depression ,drowsy and sleepy drivers are responsible for many accidents.

To add, wakefulness as an essential requirement for safe driving. Sleep or more accurately drowsy driving, due to sleep loss or deprivation, has been identified as a contributing variable to crashes. [4]

c-Fatigue:

An understanding of the role of driver fatigue has the potential to lead to further improvements in road safety. However, most definitions include the concept of a deterioration with extended effort in work output, physiological well-being or feelings [13].The most dangerous aspect of drivers' fatigue is falling asleep at the wheel .While drivers affected by fatigue may have slower reactions and impaired visual scanning, they may be able to compensate to some extent for these impairments by, for example, slowing down or being less willing to overtake. In a study by Haworth (1998)[13],

fatigue was a contributing factor in 9.1 % of crashes. An alternative estimate of the contribution of fatigue was calculated by classifying fatigue-related crashes that involved several of the following factors :

-Extended driving hours

-Evidence of falling asleep on the wheel

-Comments about tiredness

-Night time driving

-Driving right off center in the absence of elevated blood alcohol concentration.

d-Speed:

Excessive speed is reported to be an important contributory factor in many crashes. Analyses of a number of large data bases in the United States indicated that speeding or excessive speed contributed to around 12 % of all crashes reported to the police and to be about one third of fatal cashes. In Australia, it has been reported that excessive speed is an important factor in approximately 20 % of rural crashes .[14]

A large body of evidence indicates that there is a positive association between speed and the risk of crash involvement .This evidence includes the findings from case control studies and from studies of fatality and casualty rates before and after changes to speed limits .Three case control studies conducted in the United States more than 20 years ago attempted to quantify this association ,but the validity of the results and their interpretation have been questioned.[15]

A study carried out in Metropolitan Adelaide (1997) established the relationship between traveling speed and the risk of crash involvement using a case control study designed in an urban setting[16].This study found an exponential increase in crash risk with increasing travel speed above the

urban area speed limit 60km/hr and that there appeared to be as high a crash risk involved in traveling more than 15km/hr above the 60km/hr speed limit as there was in driving with a blood alcohol concentration above 0.15 mg/dl. A review of literature on speed and crash risk was reported by Kloeden and McLean (1997)[16].It examined the available literature case control type studies, driver's characteristic speed and crash history studies, and correlation studies. Correlation studies have demonstrated a positive association between speed and crash involvement, and crash history studies have reported a relationship that is not U-shaped (as in the study carried out 30 years ago by Solomon,1964).The studies conducted by Solomon on rural roads reported that the relationship was U-shaped with crash risk being elevated at both relatively low and relatively high speeds.

Klodeon, McLean, Moore and Ponte (November 1997) reported that cars involved in casualty crashes were generally traveling faster than cars that were exceeding 60km/hr compared to 42% of those not involved in a crash. The difference was even greater at higher speeds : 14 % of casualty crash involved cars were traveling faster than 80km/hr,in a 60km/hr speed zone compared to less than 1 % of those not involved in a crash.[16][17][18](Fig.1).