

Article by Francisco Galadi (Technical Industrial Engineer, Traffic accident reconstruction investigator and external collaborator of RTS)

'Newton and Reyes accident'



After the tragic accident in which the football player José Antonio Reyes lost his life in June 2019, Francisco Galadí went to investigate the scene. The expert investigator and specialist in traffic collision reconstructions, has questioned some of the theories surrounding the accident and has pointed to a tyre blowout as a possible cause.

In [different interviews](#) with [Spanish media](#), Galadi has concluded that the car was travelling at a maximum speed of 135 kilometres per hour and nowhere near the 237 k.p.h. that some have claimed. And as we learned in recent days, some very well informed sources clearly indicate that the [conclusions reached by the Civil Guard will back up the opinion issued by Galadi some three months ago now](#), in that overspending was not in fact the real and effective cause of the accident.

Francisco explains his reasoning below in an article prepared exclusively for [RTS International Loss Adjusters](#).



Madrid, October 3, 2019 - That cars nowadays are not made like they used to be has become something of a truism. And in fact, modern cars are designed with what are known as “crumple zones”. These crumple zones play a fundamental role in so-called “programmed deformation pathways”:

In effect, self-supporting bodies are today designed precisely so that they crumple when they suffer a collision. As a result, the kinetic energy of the vehicle while in motion is transformed into deformation energy. The idea behind a car body that is designed to crumple, in other words, one with an intelligent deformation pathway, is for all or most of the energy to dissipate before it reaches the passenger cabin. This **protects the people inside the vehicle if a collision occurs.**

Thus, anyone claiming that **vehicles used to be more resistant to collisions** should be told that while it is true that they did not crumple as much, in the cases in which a good part of the energy reached the passenger compartment, the passengers would suffer much more serious injuries and would become trapped inside the twisted metal.

For this same reason, we should not let ourselves be misled in thinking that the deformations caused to a vehicle can be indicative of the speed at which it was travelling at the time of the collision, without using technical means to verify that speed. For a better understanding, we suggest a careful examination of the photographs attached below. They were taken during a demonstration set up by the DGT (Spanish Directorate General of Traffic),

at the Santiago Bernabéu Stadium, showing vehicles that had collided against a rigid body, at a speed of only 50 km/h! Note the practically destroyed condition of the vehicles and remember that they were travelling at a speed of no more than 50 km/h.



It is also important to note at this point that when a vehicle collides with a rigid object, such as a concrete wall, Newton's Third Law (or the Action-Reaction law) comes into play. Basically, the law states that "if an object exerts a force (action) on a second object, the second object exerts a force equal in magnitude and opposite in direction (reaction)".

Thus according to Newton, if a vehicle collides against a wall at a speed of 50 km/h, the effect on the bodywork is similar to that of an impact at 100 km/h, because the wall does not give way and remains rigid and thus the two opposed forces that are generated dissipate the deformation energy through the vehicle's bodywork only.

This Action and Reaction Law therefore leads to the conclusion that **the bodywork of the vehicle** that the football player José Antonio Reyes was driving **could not have hit against the wall at such high speeds as speculated**, of more than 200 km/h. A simple analysis of the condition in which his vehicle was left and a comparison against the ones displayed by the DGT in the Santiago Bernabéu Stadium (which had collided at a speed of only 50 km/h) proves that the deformations in Reyes' vehicle were not caused by any excessive speeding and certainly not the disproportionate speeds claimed.

About RTS International Loss Adjusters

RTS is an international Corporate Group established in 1989, with its own offices in Spain, Latin America and Portugal. Since its beginnings, RTS' business has comprised the analysis and/or adjustment of industrial risks, damage and technical areas of all kinds.

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