

Three years of mandatory helmet use in Spain. Some results of an inconvenient law.

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Text presented at the VeloCity conference in Munich, June 2007

Introduction

In 2004 a reform of the *Reglamento General de Circulación* (General Traffic Rules of Spain) was passed which contained some improvements for cyclists. However, there were also items in the new rules that deviated from this positive trend. The mandatory use of cycle helmets on interurban roads created the distinct impression that cycling is a risk-taking sport, ignoring its function as a mode of transport, as a healthy leisure pursuit and its role in cycling tourism.

The Rules were presented by the government, but were actually developed by technicians of the Dirección General de Tráfico (DGT, Spanish Directorate of Traffic). They had to build on *La Ley de Adaptación de las normas de circulación a la práctica del ciclismo* (The law to adapt traffic rules to the practice of cycling), which was enacted in parliament and which already positioned cycle helmets as mandatory.

It proved quite a challenge to the technicians of the DGT to develop the law, which had obviously been drawn up without consulting bicycle users. The rules proposed some somewhat subjective contexts in which helmets would not be mandatory. This double standard of creating severe restrictions on one hand and lax standards on the other showed the profound contradictions of a law that should never have been passed.

Three years after the passing of the law, I will attempt to analyse its results, showing that the aims of this mandatory helmet law still have not been realised and that there has been a profound lack of success in the primary goal of the law: to improve the safety of cyclists.

Cyclists have not been a priority

Spain does not care about its cyclists; in fact, it is one of the countries least concerned for this group. Reliable data for the number of cyclists in the country are not known, nor are there data for the number of bicycles, nor for the number of kilometres travelled with them. Likewise, there are no percentage breakdowns available for the reasons that journeys are undertaken by bicycle (leisure, sport, transport, etc.).

In the absence of these data, accident statistics for cyclists cannot be totally trustworthy. Without pursuing a more general understanding of behaviours and reasons for journeys and without determining the contributions that various factors can make to accidents, an enormous quantity of information is being lost. This hinders the understanding of the phenomenon and the discovery of possible solutions.

Up until 2004 (the year the reforms of the rules were passed) there were basically two approaches to ensuring the road safety of cyclists in Spain:

1) Attempting to improve the safety of cyclists on main roads, ignoring for the most part the urban areas.

The characteristic error of seeing cycling almost exclusively as a sport neglects a more global concept of the bicycle, and has not even resulted in a substantial improvement in the safety of roads, according to the cycling accident figures that have been gathered.

2) Introducing obligatory measures for cyclists, some of which simultaneously deter bicycle use, shifting the responsibility onto the cyclists, without prior study of what are the true causes that have brought cyclists to their position of vulnerability.

The problem of road carnage is addressed by treating the symptoms of the final stage, blaming and holding responsible those most defenceless in traffic, when one should tackle the problem at the root, that is to say, tackling motorist aggression and the responsibilities of the public administration.

What the law and rules say about cycle helmets

In the *Law to adapt traffic rules to the practice of cycling* of 1999, which, sadly, is known as the "anti-cyclist law", the obligatory use of cycle helmets for cyclists on interurban roads was imposed with the following words:

"Bicycle drivers and, where relevant, occupants will be obliged to use protective helmets on interurban roads under the conditions statutorily established."

In the justification of the law, it was recognised that "cycle helmets are not the solution to ending cyclist road accidents"¹. It was further stated: "If out of every one hundred cyclists, one is saved ..."². That is to say, they are content with 1% effectiveness without determining whether that 1% of cyclists is going to be lost through other causes, brought about by the very same obligation to use helmets. Traffic accounts for around 4000 losses of life in Spain every year, around 100 of which are cyclists. In order for the number of victims to drop to 3999, more than two million cyclists (an accepted but unofficial estimate of the number of cyclists who travel on interurban roads) would have to put on helmets every time they went out.³

The General Traffic Rules which came into force in January of 2004 actualised the law with the following words:

"Bicycle drivers and, where relevant, occupants will be obliged to use officially approved or certified protective helmets according to the legislation in force when they travel on interurban roads, except on prolonged ascents or for proven medical reasons or in conditions of extreme heat.

Bicycle drivers in competition and professional cyclists will be governed by their own rules, whether during training or competition."

As we can see, one of the categories of cycling in which one runs the most risks, racing, is exempt from the use of helmets during training (for competition they are mandatory, according to UCI rules); meanwhile, all other users are compelled on safety grounds.

It is not clear from the content of the text what is meant by a "prolonged ascent". What gradient is considered an "ascent"? What distance is considered "prolonged"?

The exemption for "conditions of extreme heat" is necessary and justified on the same grounds as that for prolonged ascents (excessive effort and/or heat can impede adequate dissipation of heat from the head for the majority of helmets⁴) but it is nevertheless an ambiguous phrase. What are considered "conditions of extreme heat"?

The sensation of heat will not be the same for a Spanish person as for a Northern European. Neither will it be the same for someone who goes for a gentle ride as for someone who goes a brisk ride. Nor will it be the same for someone with long hair as for someone with short hair, or

¹ Agencia Efe, "El Congreso aprobará el casco obligatorio para ciclistas en carretera", El País, Madrid, 1 noviembre 1999.

² J.M.M., "Ciclistas más seguros", Tráfico, XV, julio-agosto 1999, Dirección General de Tráfico (Ministerio de Interior), Madrid.

³ Hildegard Resinger, "El casco para ciclistas y la seguridad vial", Congreso Ibérico: La bicicleta y la ciudad. Aveiro, Portugal, 2000.

⁴ Paul Bruhwiler (EMPA) *et al.*, "Heat transfer variations of bicycle helmets". *Journal of Sports Sciences*, Vol. 24, no. 9, September 2006. British Association of Sport and Exercise Sciences.

no hair. But none of this can be measured. Does one have to argue with the traffic officer about whether the conditions prevailing are those of "extreme heat"?

Logically the solution is not to introduce parameters to define extreme temperature, or to define what conditions one can consider hot for cycling, or parameters to decide whether an ascent is prolonged. The solution is not to compel a use of helmets for which the regulations themselves cannot adequately determine limits.

Considering these circumstances it is hardly surprising that the officers responsible for interurban traffic do not consider it a priority to impose fines on cyclists who do not wear helmets (although there are a very small number of exceptions), which in turn implies that this is an unnecessary regulation.

According to the DGT, the majority of cyclists killed are knocked down by a car when they are travelling along roads of adequate width, in conditions of good visibility and on straight sections, without the cyclist having committed any infraction⁵. Under these circumstances, to question whether or not the cyclist was wearing a helmet makes no sense.

The fine for not wearing a helmet can be up to 150 euros.

The impact in urban areas

The mandatory use of helmets on interurban roads has resulted in cyclists being blamed for everything that happens to them when not wearing a helmet, even if they are travelling within an urban area, where helmets are optional. The persecution of cyclists which is being witnessed in some cities is worrying. For example, in Madrid traffic police and the local police are continually taking cyclists to task for not wearing helmets. There have even been cases of fines being imposed incorrectly on cyclists for this reason (see the adjacent image: a copy of a fine



issued to a cyclist on Calle Alcalá, an urban street, for not wearing a helmet; the offence is given as "Circular en bicicleta sin casco protector", "Travelling by bicycle without protective helmet"). Naturally such fines are never paid, but such harassment deters people from cycling. It is already difficult to foster a culture of commuter-cycling in Madrid, mostly because the city has been planned for cars, and this persecution of cyclists does not exactly help.

Culpability and responsibility

Currently if a motorist carries out an illegal manoeuvre that places a cyclist in danger and the cyclist reproaches the driver, the latter will tend to blame the cyclist for not wearing a helmet. The unspoken message is: "If I knock you down because of my bad driving and you are not wearing a helmet, a large part of the blame lies with you." Insurance companies take advantage of the cyclist not wearing a helmet (even in locations where helmets are optional) to reduce pay-outs in cases of car-bicycle accidents where the insurer's client was responsible, even though it has been demonstrated that if a cyclist is knocked down by a car the helmet will not work and will not prevent a serious or fatal injury.⁶

⁵ Estudio sobre accidentes de ciclistas en carretera, 1999. Ministerio del Interior, España

⁶ Dr. Michael Schwartz, neurosurgeon and member of the commission to establish helmet standards of the Canadian Standards Association, cited at: Ontario Coalition for Better Cycling, *Bicycle Helmets. Frequently asked questions*, <http://www.globalx.net/ocbc/hfaq.html>, 1999.

Cycling is dangerous

Since the law came into effect, there has been insufficient evidence of what the current situation for cyclists is, but worse still is the unspoken message that has been put about: "**Cycling is VERY dangerous, which is why you must wear a helmet**". Is this true? Is this statement compatible with the promotion of cycling to reduce congestion in cities full of cars and other polluting vehicles? Cycle helmets reinforce the notion that travelling by bicycle is unsafe, when in fact it is a very safe activity.

The campaign for cyclist road safety and cycle helmets

The radio campaign that the DGT launched in the spring of 2005 informed cyclists of some of their rights and duties, but not of all of them. Of course, they did not neglect to mention the mandatory use of cycle helmets.

On the radio, it was heard: "And, of course, it is best to wear a helmet at all times, even though it is only compulsory on main roads." From this, it not surprising that we now suffer harassment even in urban areas. Furthermore, in the radio campaign the exemptions from wearing helmets on interurban routes (heat, hills, medical reasons) were not mentioned.

In a graphic accompanying the campaign (see image below), it is claimed "72 sportspeople might have saved their lives last year". Once more cycling is associated with sport, along with risk and the need to protect oneself with helmets. Some of these 72 cyclists who died were not sportspeople at all, but simply using the bicycle as a means of transport or for leisure (cycling tourism), for which two activities it is not necessary to be especially fit or to wear special sporting attire.



In the same graphic, the advice to motorists in relation to cyclists is mixed with the advice given to cyclists themselves. After telling drivers of motor vehicles to take care around cyclists, it is explained that helmets are mandatory for cyclists, which implicitly shifts guilt onto cyclists in the event of accidents if the cyclist is not wearing a helmet.

Statistics and studies

In the only official study about cycling accidents carried out so far in Spain⁷ it is stated: "It was not possible to establish the existence of a relationship between the use of helmets and the type of cranial injuries suffered. The differences found could be attributable to chance. Neither could it be established, from the data available to this study, what merits helmets might have against types of cranial injuries suffered (traumatic conditions versus fractures)."

Despite this, unbelievably, the mandatory use of helmets was instigated the same year.

The statistics show that solitary accidents (those involving only the cyclist) make up only a small percentage of cyclist accidents. The majority have more than one vehicle involved, mostly motor vehicles. In these accidents, the helmet industry exculpate themselves from the insufficient protection provided by their product, because in following the best guidelines of

⁷ ESTUDIO SOBRE ACCIDENTES DE CICLISTAS EN CARRETERA (Dirección General de Tráfico, March 1999)

comfort, lightness and heat dissipation from the head "it is impossible to manufacture a helmet for cyclists which offers significant protections against impacts"⁸. In fact, half of cyclists who lose their life these days on Spanish roads were wearing helmets.

The mandatory use of helmets is, as we have said, for interurban roads. There are no reliable data so far that collate the effects of the application of the law. The numbers of dead or injured in the years leading up to the law and following it are not useful unless there are also statistics that show whether the number of cyclists rose or

Year	Cyclists injured on interurban roads	Cyclists injured in urban areas	Cyclists killed on interurban roads	Cyclists killed in urban areas
2001	753	1239	78	22
2002	803	1238	78	18
2003	766	1320	62	15
2004	820	1455	68	21
2005	733	1434	59	23

fell during this time. As we can see in the adjoining table, there is no lasting impact on the number of cyclists injured after the law. Since these numbers are relatively low, variations can be as a result of chance and of no statistical significance. In the first year of the law, there was an appreciable growth in accidents and deaths that corrected itself the following year.

Evaluative study by the Dirección General de Tráfico

In a small evaluative study carried out in the first year of the helmet law⁹, the following conclusions were drawn:

- In the first year of mandatory helmets, accidents rose 8.93%

As we have said, this trend is not necessarily significant, since it is based on very low numbers, and in fact the following year there was a decline, thought that is not reflected yet in this study.

- An increase in helmet use was detected among injured cyclists after the law (from 35.6% to 48%)

It could be said that helmet use led to a greater frequency of accidents, given that the number of accidents in general rose 8.93% the year after the law, and that the number of injured wearing helmets rose in the same period by 12.6%. However, to be able to refine these data, it would be necessary to know the number of cyclists who used helmets before and after the law and, unfortunately, these data are not known. On the main roads, the most numerous group are sporting cyclists, who mostly already use helmets. Could it be that the effect of risk compensation, the euphoria of feeling more protected, has led those users to commit more illegal manouevures and run more risks?

- There has been a decline in head injuries, from 30.2% to 25.1%

It is surprising that the use of helmets among injured cyclists has risen 12.6% while the decline of head injuries "only" has been 5.1%. Still more, one has to weigh this decline in head injuries against an increase in injuries to other parts of the body. The study itself warns us that: "On this point it is important to take into account that in the protocol for recording statistical data, traffic officials are obliged to indicate only one option in the field 'location of injury'. Set against this, given the characteristics of bicycling accidents, it is common that injuries are present in more than one location. Faced with the presence of a verifiable head injury in conjunction with other

⁸ Dr. George Shively of The Snell Memorial Foundation, cited at Ontario Coalition for Better Cycling, *Bicycle Helmets. Frequently asked questions*, <http://www.globalx.net/ocbc/hfaq.html>, 1999

⁹ "Estudio de Evaluación. Obligatoriedad del uso del casco en ciclistas en vías interurbanas." Instituto de Tráfico y Seguridad Vial. Universidad de Valencia. 2005

injuries, the officers will tend to record the head injury, assuming that it is the most serious. Thus, it is possible to hypothesise that these other injuries that have lately come to the fore already had existed before the introduction of the new regulations, but had been neglected before when head injuries were present."

Under-recording must also be considered¹⁰. In this phenomenon, an important percentage of accidents and cyclist victims are excluded from the records, since for various reasons the police play no part, although hospital admissions or similar could be used. Furthermore, the data collected by the traffic police after an accident provide no insights into how the immediate environment affected the cyclist's mobility (for example, cycling hazards caused by inadequate cleaning of the road's shoulder). Neither can we treat the data as a reliable source of medical information, given the limitations that are present by design (multiple field-entries are not allowed) and because of the purely subjective observations made by traffic officers (who have no medical qualifications) about the location and severity of injuries.

All this implies that great prudence is required in studying the development of accidents using data produced by traffic officers.

The study carried out by the Universidad Politécnica de Valencia

This study¹¹, was carried out for the period 1996-2001 on data provided by the DGT. Since it was carried out before the DGT study, it allows us to create a broader comparative overview, which we show in the following table.

	Universidad Politécnica de Valencia 1996-2001	DGT Study 1999-2003	DGT Study 2004 (Mandatory Helmet Use)
Percentage of cyclists in accidents on interurban roads wearing helmets	28.1%	35.6%	48%
Percentage of head injuries	22.4%	30.2%	25.1%

From these data we can derive new conclusions:

- The number of cyclists that wore helmets and were involved in accidents on interurban roads appears to be growing. This could be attributable to a greater number of cyclists using helmets, but this is not verifiable.
- There is no correlation between head injuries and the presumed greater use of helmets
- In the period 1996-1999, before the "anti-cyclists law" which prompted the mandatory use of helmets, the percentage of head injuries was much lower despite the fact that the number of helmet-wearing cyclists involved in accidents was also lower. Or was it because of that?

¹⁰ "Under reporting of road traffic accidents". Traffic, Engineering and Control, December 1991. London. Helen James

¹¹ "Estudio sobre accidentalidad ciclista en España. Período 1996-2001" Universidad Politécnica de Valencia-Comisión por la Seguridad Vial del Ciclista de la Federación de Ciclismo de la Comunidad Valenciana

Prohibitions and obligations for the most polluting vehicles

Madrid is failing to keep within the number of days permitted per year to exceed maximum levels of atmospheric pollution. There are many other Spanish cities with similar problems. And yet there are no serious measures to fight this problem, no prohibitive or compulsory measures are introduced against the cause of this problem: motorists. Logically, any such measures would deter the use of cars, but in such a scenario everyone would emerge a winner. However, when "trying" to solve the problem of cycling accidents, it is seen as acceptable to impose on cyclists, compelling them to use a measure that has not been demonstrated to be a sure solution to the problem. It is a world turned upside-down: the most vulnerable and least polluting are blamed and compelled, and the most dangerous and polluting, the motorists, are tolerated and facilitated.

Data on existing bicycles and their relationship with helmets

Every year 750,000 bicycles are sold in Spain, a low number if we compare it with the numbers sold in the past year in neighbouring countries. France: 3,500,000, Germany: 4,500,000 or the Netherlands: 1,323,000¹².

Although in the majority of cities and villages in Spain the level of cycling is marginal, there are conclusive data showing that there has been a slow but continuous rise of bicycle use in a good number of urban areas during the last few years. At the end of the century, only one city was managing, with great difficulty, to get cycling up to 1% of the transport modal distribution. Today various provincial capitals have achieved 1% of the modal distribution, and some are heading towards 3% (San Sebastián y Vitoria) and a good number of small-to-medium cities have achieved numbers between 3% and 7%.¹³ Keep in mind that helmet use is not obligatory in urban areas. Undoubtedly this lack of compulsion in urban areas is not the only nor, of course, the principal cause of this rise in the numbers of urban cyclists, but some among us are convinced that if this nonsensical law had been extended to cities (and it had been considered in the early stages), things would be much worse.

On main roads (where the use of helmets *is* mandatory) the use of bicycles is stagnant and there are indications that it may even be dropping slightly. In 2000, 5% of bicycles sold in Spain were of the road-bike variety¹⁴. According to the DGT¹⁵, road bikes in 2006 made up only 2% of the total bikes in use.

According to data from the commercial outlet Decathlon in Catalonia, which has 32% of the total sales of this Autonomous Community, sales of road bikes are assumed to be 4% of the total in the past year, while mountain bikes made up 27%, city bikes 31% and cruiser bicycles 38%. Taking into account that sales in Catalonia represent between 20% and 25% of the total of the country, it would not be outlandish to say this is a reliable mirror of what is going on in Spain. We have not come across data from other shops of importance.

It is clear that attitudes do not come about for a single reason, but neither is there any doubt that the sum of those reasons is what changes inclinations and, as in other countries of the world, it could be that the mandatory use of helmets is one factor more that would deter the use of bicycles, in this case, in interurban areas.

¹² CDM Bike magazine, number 219. April 2007.

¹³ Survey carried out on the 32 groups then belonging to the ConBici co-ordinating committee in February 2007.

¹⁴ SEEB, la Sociedad Española de Empresarios de la Bicicleta/The Spanish Society of Bicycle Employers

¹⁵ "Opiniones sobre Seguridad Vial de los Ciudadanos Españoles" June 2006. DGT

Spain, tourist destination

Spain is one of the most popular tourist destinations in Europe and the world. In fact, tourism is one of the pillars of the national economy. A tourist destination so inimical to an activity at the height of its popularity, as cycle tourism is, is clearly losing opportunities to be a destination for cyclists who seek good weather, characteristic landscapes and exercise. Both the mandatory use of helmets and the poor bike-accessibility of Spanish trains are recognised by members of the Federation of European Cyclists (www.ecf.com) as barriers to maintaining the visits of its cycling tourists to Spain, causing them to change their vacation plans to destinations that are more attractive and less restrictive of personal liberty.

No other European country has such a strict compulsion on helmet use and, curiously, Spain is the country in which fewest kilometres are cycled annually per inhabitant¹⁶.

As the situation stands, far fewer cyclists wish to visit Spain, especially given the burden that a helmet can be in Spain's hot climate, and the ambiguity of the law on this point. We can say goodbye to Green tourism and to respectful tourists along with it.

Expectations

In the text of the Plan Estratégico de Infraestructuras y Transportes (PEIT, The Strategic Plan for Infrastructure and Transport)¹⁷ a special section is dedicated to non-motorised modes of transport¹⁸. It makes the following suggestion among other measures that could be introduced to favour cycling:

"To avoid the introduction of measures which, although intended to improve the accident rates of cyclists, penalise the use of bicycles."

The mandatory use of helmets is one of these measures whose intention was to improve the rates of cycling accidents, but has been shown by both this paper and other sources to be ineffective. In fact, the original version of the text was a proposal by ConBici, the Coordinating Committee in Defence of the Bicycle, whose intention was clearly the repeal of the mandatory helmet law.

At the moment, the text of the Plan to Promote Non-motorised Transport Modes is under development. We hope that the PEIT will be fulfilled and therefore the withdrawal of the controversial mandatory helmet law will be sought.

Conclusions

- The mandatory helmet law is not reducing the rates of dead and injured. Instead, it could be driving people away from cycling, thus contributing to the health problems brought about by sedentary lifestyles. At the same time, it could be having negative effects in certain urban environments, putting pressure on everyday cyclists to use helmets when travelling around the city, despite helmets being optional in this context.
- The bicycle has become a dangerous vehicle in the minds of the public, a message that is not true and is proving difficult to counteract
- There is no clear correlation between greater helmet use and fewer head injuries
- Everything seems to point towards a growth in bicycle use in urban areas (where helmet use is not mandatory), while in interurban zones (where helmet use is mandatory) it is not growing and maybe declining, at least slightly.
- "Green" cycling tourists could be being lost because of a law that has many detractors among foreign cycling tourists
- We trust that the law will change, freeing cyclists from mandatory use.

¹⁶ Cycling, the way ahead for towns and cities. European Commission. 1999.

¹⁷ PEIT, Ministerio de Fomento. 2005

¹⁸ 6.10.4. Plan de Promoción de los modos no motorizados. PEIT. Ministerio de Fomento. 2005

Thank you to Hildegard Resinger for her collaboration and to Dermot Ryan and Pilar Rivero for the English translation.