Cycle helmets - for & against

Why you should wear a cycle helmet

1. They ought to prevent cuts, scrapes and bruises to the top part of your head, and mild concussion (feeling a bit woozy), in the event of coming off your bike. Such things won't kill you but could ruin your whole afternoon. One of the original purposes was off-road cycling where hitting your head on low branches and stones next to the track then became a preventable danger. [1]
2. If not wearing a helmet makes you feel sufficiently at risk to avoid cycling at all.
3. If your mates are calling you names for wearing a helmet then you could continue to do so as practice in not being told what to do.
4. Some insurance companies sometimes claim a cyclist has contributed negligently to "accidents" they're involved in by not wearing a helmet, even when there has been no head injury. In fact, no such claim has succeeded, partly thanks to CTC lawyers. [2]
5. It's a good place to put a rear light since it's the highest point available. Also you can get neat helmet-mounted mirrors.
6. Some organized events and venues, and countries, and partners, require them.

Why you shouldn't wear a cycle helmet

1. Their design-intended strength is equivalent to a impact speed of about 12·5mph [3]. They were never intended for collisions with cars. They're not a cycle-equivalent of motorbike crash helmets (and you can't wear one of those because your brain would boil). They're not safety gear in the sense of being designed to save your life [1]. They work by the outer shell keeping the polystyrene in place whilst it absorbs the deceleration by being crushed. Counter-intuitively if the shell breaks in the initial contact the total energy absorbed is a lot less: a broken helmet is one that didn't work. This means above about 12·5mph the helmet has little effect; certainly it won't reduce a crash at, say, 30mph by an amount equivalent to crashing at 12·5mph. Ask an engineer. Casualty staff aren't usually engineers.
2. Children are supposed to learn physical control and awareness of limits by informed trial and error, but those wearing helmets do more damage to their bikes [4], implying that they're not learning as much. Teenagers, who already think they're immortal, don't need something that appears to make it true.
3. Because they protect that which feels the most important and vulnerable they can lessen the perceived importance of proven safety devices e.g. brakes that work and lights with charged batteries, not to mention knowing what you're doing [5]. It's disturbingly easy to mistake a reduction in fear for a reduction in actual risk.
4. They mess up your hair. It's difficult to keep the rain off as well. They take up a fair bit of space when not being worn. More seriously, despite all the vent holes they're hot in the summer. Many people lose focus if they're too hot, even faint. Small people might also find them tiring.
5. Presumably no driver wants to kill anybody, so why do they? It must be when the margin for error is either too small or gets used up too quickly. They probably don't know how weak these helmets actually are. The Transport Research Laboratory found car drivers perceive helmet-wearing cyclists as more likely to know what they're doing and say they'd therefore leave less space for them when overtaking. [6]
6. There is some concern that helmets, because they're wider than the head, make rotational brain injuries more likely, and those are *really* nasty [7]. And if your head+helmet is bigger and heavier it's more likely to be hit.
7. If you are pro-choice the Department of Transport views a Mandatory Helmet Law as unfeasible partly because of the current low wearing rate. [8]
8. Here are some numbers:
   (a) Many places have made helmets compulsory since the early 1990's. All found either no effect on deaths and serious injuries or that they got worse if you include that cycling tended to drop significantly. For example, Western Australia had a drop in cycling of 30% but a drop in head injuries of 11%-21%. No one knows why this should be the case. [9]
   (b) A 1988 US study of 8 million cyclist crashes over 15 years showed a correlation between increased helmet wearing and increased risk of death [10]. No one knows why.
   (c) UK child cyclist figures show twice as many girls as boys wearing cycle helmets but with the same head injury rate. [11]

These lists are an attempt to show that it is by no means obvious that cycle helmets are always a good thing and can do no harm. I think it comes down to a rather complex judgement call for each rider and context. Personally I don't wear one on the road, because I feel safer knowing I'm perceived as more vulnerable by my main source of danger, particularly at the speeds which matter. There's more information at `http://www.cyclehelmets.org`, with which I have no connection, I'm just an average cyclist.

[1] Tom Gill, Cycling and Children and Young People, National Children's Bureau,
`http://www.ncb.org.uk/Page.asp?originx1444gb_23718458425669d9112583383929` (p.36-37)
[2] Cyclists' Touring Club, `http://www.ctc.org.uk` (→ What I need → Peace of Mind)
[3] EU helmet standard EN 1078, 1997,
`http://www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_507998-06.hcsp#P235_31794`
[4] Mok, D et al., Risk compensation in children's activities: a pilot study, June 2004, `http://en.wikipedia.org/wiki/Risk_compensation#Cycle_Helmets`
[5] National Cycle Training, `http://www.ctc.org.uk/DesktopDefault.aspx?TabID=3529`
[6] TRL report 459, Driver's perceptions of cyclists, 2002, `http://www.trl.co.uk/store/report_detail.asp?srid=2700` (§2.3.4, §3.3)
[7] Curnow, WJ, The efficacy of bicycle helmets against brain injury, Accident Analysis & Prevention, Volume 35, Issue 2, March 2003,
`http://www.chapmancentral.co.uk/web/public.nsf/Documents/Brain_Injury_Mechanisms?OpenDocument`
[8] Department of Transport, Tomorrow's roads: safer for everyone, March 2000,
`http://www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_504644-10.hcsp#P987_141309` (§9.25)
[9] Helmet Laws: What has been their effect?, `http://www.cyclehelmets.org/mf.html?1096`
[10] Rodgers, GB, Reducing bicycle accidents: a re-evaluation of the impact of the CPSC bicycle standard and helmet use, J Product Liability, 11: 307-317, 1988, summary by John Franklin: `http://www.lesberries.co.uk/cycling/helmets/research.html`
[11] Hewson, PJ, Investigating population level trends in head injuries amongst child cyclists in the UK, February 2005,
`http://dx.doi.org/10.1016/j.aap.2005.03.020`