

Designer babies? Canadians say modifying genes in embryos acceptable only in certain circumstances

Lack of consensus on whether risks of ‘gene editing’ outweigh potential benefits

April 30, 2019 – With recent advances in embryonic gene editing – that is, modifying the genetic make-up of a human embryo to add a desirable trait or remove an undesirable one – raising the spectre of “designer babies” in some people’s minds - a new poll from the non-profit Angus Reid Institute finds Canadians divided about the risks of genetic research.

In general, Canadians see editing the genes of embryos as acceptable if it’s done to cure the babies born from those embryos of life-threatening diseases.

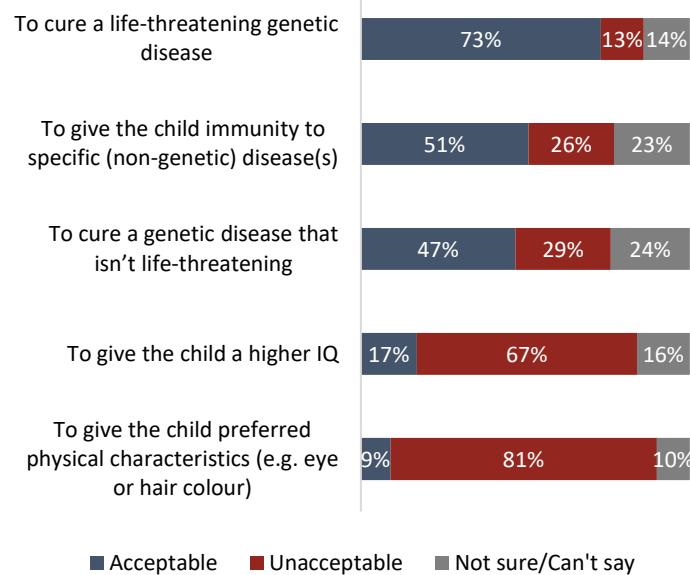
They’re less certain, however, about the acceptability of gene editing in other medical circumstances – such as to give children immunity to disease or to cure conditions that aren’t life-threatening. Further, they’re decidedly against editing genes for cosmetic reasons.

All of this adds up to divided views on the overall value gene editing, with 40 per cent saying the risks outweigh the potential benefits, 32 per cent saying the potential benefits outweigh the risks, and the rest (28%) uncertain.

More Key Findings:

- Age and gender are key drivers of opinion on this issue, with younger men most likely to see gene editing as acceptable and older women most likely to see it as unacceptable.
- Almost half of Canadians (47%) say current rules prohibiting gene editing and subjecting violators to fines of up to \$500,000 or 10 years of jail time are “about right,” while the rest are divided (30% say these rules are too strict; 23% say they are too lenient)

Consider the following scenarios. For each, indicate if you think it would be acceptable or unacceptable to use embryonic gene editing for the stated purpose. (All respondents)



METHODOLOGY:

The Angus Reid Institute conducted an online survey from April 18 – 23, 2019, among a representative randomized sample of 1,544 Canadian adults who are members of Angus Reid Forum. For comparison purposes only, a probability sample of this size would carry a margin of error of +/- 2.5 percentage points, 19 times out of 20. Discrepancies in or between totals are due to rounding. The survey was self-commissioned and paid for by ARI. Detailed tables are found at the end of this release.

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- Relatively few Canadians are familiar with this issue. One-in-four (24%) say they had never even heard of gene editing before taking this survey, and only 9 per cent say they are “very familiar with it”

About ARI

The Angus Reid Institute (ARI) was founded in October 2014 by pollster and sociologist, Dr. Angus Reid. ARI is a national, not-for-profit, non-partisan public opinion research foundation established to advance education by commissioning, conducting and disseminating to the public accessible and impartial statistical data, research and policy analysis on economics, political science, philanthropy, public administration, domestic and international affairs and other socio-economic issues of importance to Canada and its world.

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Acceptable or unacceptable? Depends on the circumstances

The concept of “designer babies” has been around for decades, first as the stuff of science fiction and currently as a slippery slope down which DNA-related research might soon be sliding. To be sure, the prospect of babies genetically engineered to be smarter, stronger, or more attractive is still a long way off, but it may have gotten just a little bit closer in late 2018 when a Chinese researcher claimed to have successfully modified the genes of several embryos, two of which were carried to term.

As mentioned, about half of Canadians (49%) say they are familiar with the concept of gene editing to create designer babies, but only one-in-ten (9%) describe themselves as “very familiar with it.” Fewer than one-in-four (24%) say they had never heard these terms before taking this survey.

After reading an explanation of what gene editing is and how it could potentially be used in the future, Canadians were asked to weigh in on whether they believe it would be acceptable or unacceptable to use this technology to achieve each of five specific outcomes.

As seen in the table that follows, Canadians are more likely to see each of the three medical reasons for gene editing asked about in this survey as “acceptable” than “unacceptable.” Specifically, a large majority of Canadians (73%) say gene editing to cure a life-threatening genetic disease is acceptable, while roughly half say the same of using this technology to cure non-life-threatening genetic diseases (47%) or to create immunity to non-genetic conditions (51%).

Two other, more cosmetic reasons for modifying an embryo’s genetic material – to make a baby smarter or to give it a desired physical characteristic – are rejected as unacceptable by wide margins:

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Please consider the following scenarios that could be possible in the future. For each one, please indicate whether you think it would be acceptable or unacceptable to use embryonic gene editing for the stated purpose.

(All Respondents)

	Using gene editing for this purpose is ...		
	Acceptable	Unacceptable	Not sure/Can't say
To cure a life-threatening genetic disease	73%	13%	14%
To give the child immunity to specific (non-genetic) disease(s)	51%	26%	23%
To cure a genetic disease that isn't life-threatening	47%	29%	24%
To give the child a higher IQ	17%	67%	16%
To give the child preferred physical characteristics (e.g. eye or hair colour)	9%	81%	10%

Canadians' responses to this question vary significantly across age and gender lines.

Young men (those aged 18-34) are more likely than other age and gender cohorts to say each of the five items canvassed is acceptable, with more than six-in-ten saying so for each of the medical items, as seen in the table that follows.

Women, especially those ages 55 and older, are more circumspect about all of the reasons for gene editing canvassed:

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Percentage saying gene editing to produce each result is 'acceptable'						
(All Respondents)						
(weighted sample sizes)	Men			Women		
	18-34 (208)	35-54 (254)	55+ (275)	18-34 (227)	35-54 (277)	55+ (298)
To cure a life-threatening genetic disease	85%	74%	75%	81%	70%	61%
To give the child immunity to specific (non-genetic) disease(s)	67%	57%	51%	55%	45%	37%
To cure a genetic disease that isn't life-threatening	62%	55%	49%	47%	40%	36%
To give the child a higher IQ	27%	17%	19%	17%	14%	11%
To give the child preferred physical characteristics (e.g. eye or hair colour)	20%	11%	8%	11%	7%	3%

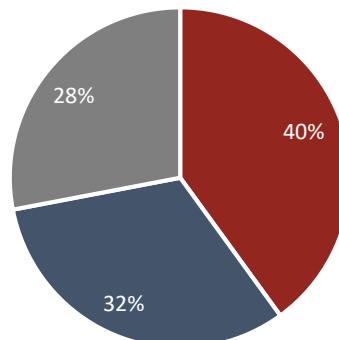
Risks outweigh benefits for four-in-ten

So, on balance, is research into gene editing worth pursuing? Or do the risks associated with it outweigh the potential benefits? While the technology is still in its infancy and more research is needed to determine the long-term risks, some scientists are understandably hopeful about the potential to cure or better treat a host of diseases.

The public, meanwhile, is divided on this question. Four-in-ten (40%) say the risks of gene editing outweigh the benefits, while one-in-three (32%) say the opposite. The rest (28%) are unsure.

Which of these perspectives is closer to your own, even if neither is exactly how you feel? (All Respondents)

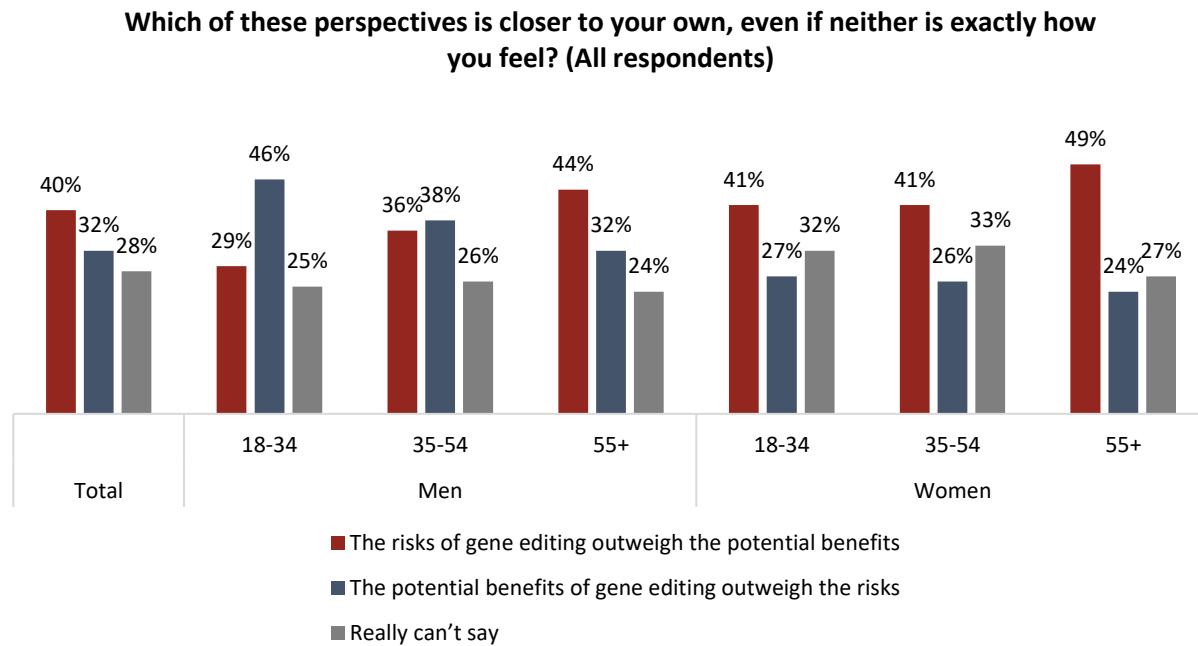
- The risks of gene editing outweigh the potential benefits
- The potential benefits of gene editing outweigh the risks
- Really can't say



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Again, age and gender are key dividing lines. Young men are much more likely to say the benefits outweigh the risks, while older men and women of all ages are more likely to take the opposite position:



Half say current laws are ‘about right’

Some countries, including Canada, have laws banning so-called “germ-line editing” of the type discussed in [this survey](#). Essentially, “germ-line editing” refers to editing genes in a way that allows traits to be passed on to the next generation.

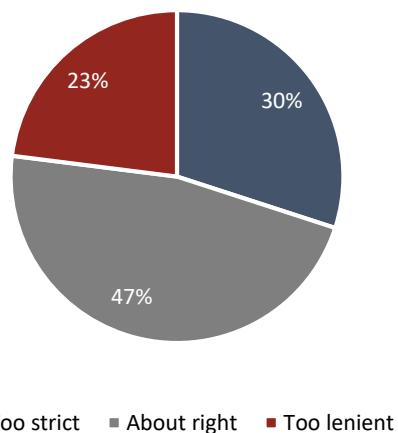
Canada’s ban on conducting such research comes with fines of up to \$500,000 and prison sentences of up to 10 years. Some Canadian scientists [have called](#) for this law to be changed, arguing that banning certain types of research outright stifles scientific progress, particularly in a field where technology is changing so rapidly.

Asked how they feel about their country’s current legal framework, almost half of Canadians (47%) say they think it is “about right.” Among those who don’t feel this way, more think existing laws are too strict than think they are too lenient:

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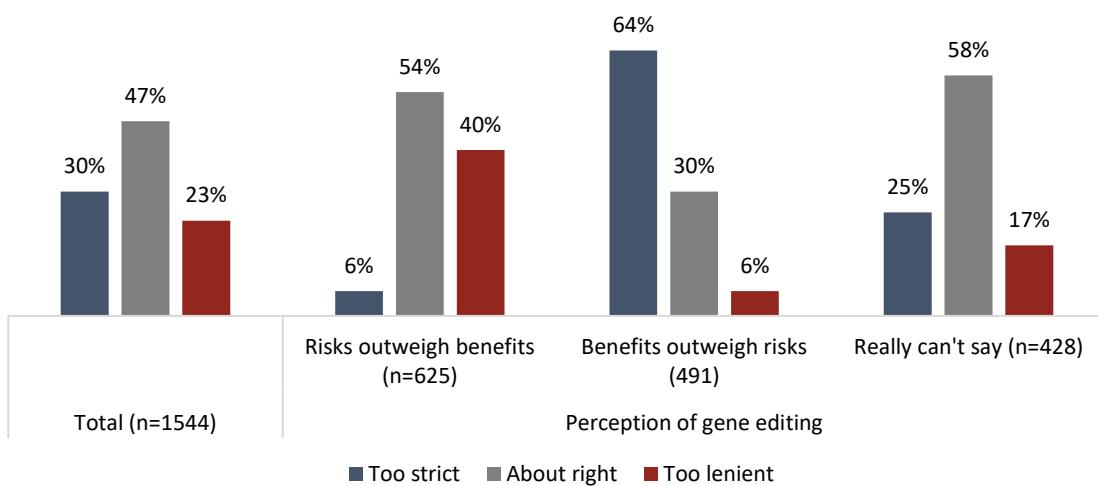
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**Would you say the current law is ...
(All respondents)**



Perhaps unsurprisingly, those who believe the potential benefits of gene editing outweigh the risks say current laws are too strict, while those who say the risks outweigh the benefits believe they're either "about right" or "too lenient," as seen in the graph that follows.

Would you say the current law is ...



For detailed results by age, gender, region, education, and other demographics, [click here](#)

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