GET Questions Expanded (Some Refining Required)

H559

2025-02-17

This document contains a the full question titles of a questions that the author intends to include in the Genetic Evolution Tournament. The author include some questions on neural implants / brain-computer inferences and has also shifted away from an exceedingly detailed approach on certain questions to one of broader scope. There is still room for improvement in this regard, though. There are many more questions than the 148 listed, if one sums by question group. There are 29 instances of `[OECD Nations]` *and 102 instances of* `[2030, 2040`*. Since there are 38 member nations of OECD (a lot to gather data for!), this means there are at least (some date questions are not covered by the Command-F search for* `[2030, 2040)`

$$(29 \cdot 38) + (3 \cdot 102) = 1102 + 306 = 1408$$

questions. The author proposes possibly using the top 10 most populous OECD nations or, alternatively, the 10 with the highest GDP, even though this paints a smaller picture of the world.

---

1. What percentage of these nation's populations will be born polygenically screened in 2030? [OECD Nations]
2. What percentage of these nation's populations will be born polygenically screened in 2040? [OECD Nations]
3. What percentage of these nation's populations will be born polygenically screened in 2050? [OECD Nations]

4. What percentage of these nation's populations will be born polygenically screened in 2075? [OECD Nations]
5. What percentage of these nation's populations will be born polygenically screened in 2100? [OECD Nations]
6. What percentage of these nation's populations will be born genetically modified in 2030? [OECD Nations]
7. What percentage of these nation's populations will be born genetically modified in 2040? [OECD Nations]
8. What percentage of these nation's populations will be born genetically modified in 2050? [OECD Nations]
9. What percentage of these nation's populations will be born genetically modified in 2075? [OECD Nations]
10. What percentage of these nation's populations will be born genetically modified in 2100? [OECD Nations]
11. How many companies will there be offering prenatal genetic modification services in the United States in the following years? [2040, 2050, 2075, 2100]
12. How many companies will there be offering IVF services in the United States in the following years? [2040, 2050, 2075, 2100]
13. What will be the average cost of using IVF services in the United States in 2020 US Inflation Adjusted USD in the following years? [2040, 2050, 2075, 2100]
14. What will be the average cost of using genetic modification services in the United States in 2020 US Inflation Adjusted USD in the following years? [2040, 2050, 2075, 2100]
15. Conditional on the use of polygenic screening or genetic modification for these traits being adopted in the United States, what will measurements in [trait] change by [year] in the following nations? [Intelligence, Longevity, Height, Eye Color, Skin Color, Hair Color/Texture, Physical Strength, Disease Resistance, Cardiovascular Health, Metabolism, Pain Tolerance, Depression/Anxiety, Visual Acuity, Resistance To Addiction, Empathy, Aggression, Morality]
16. How much more intelligent will individuals polygenically screened

for intelligent be than those who were not screened for intelligent in the following years? [2040, 2050, 2075, 2100]

17. How much less depressed will individuals polygenically screened against depression be than those who were not screened for depression in the following years? [2040, 2050, 2075, 2100]

18. How many lawsuits will be filed in the United States against companies offering in-vitro fertilization (IVF) services that screen for the following traits by 2050? [Intelligence, Longevity, Height, Eye Color, Skin Color, Hair Color/Texture, Physical Strength, Disease Resistance, Cardiovascular Health, Metabolism, Pain Tolerance, Depression/Anxiety, Visual Acuity, Resistance To Addiction, Empathy, Aggression, Morality]

19. Will these nations have over 1000 genetically modified newborns by the year 2030? [OECD Nations]

20. Will these nations have over 1000 genetically modified newborns by the year 2040? [OECD Nations]

21. Will these nations have over 1000 genetically modified newborns by the year 2050? [OECD Nations]

22. Will these nations have over 1000000 genetically modified newborns by the year 2040? [OECD Nations]

23. Will these nations have over 1000000 genetically modified newborns by the year 2050? [OECD Nations]

24. Will these nations have over 10% genetically modified newborns annually by the year 2040?

25. Will these nations have over 10% genetically modified newborns annually by the year 2050?

26. Will these nations have over 10% genetically modified newborns annually by the year 2075?

27. What percentages of newborns will be born using polygenic screening in the USA in the following years? [2030, 2040, 2050, 2075, 2100]

28. What percentages of newborns will be born using genetic engineering services in the USA in the following years? [2030, 2040, 2050, 2075, 2100]

29. How many insurance agencies in the USA will cover polygenic screening for intelligence in the following years? [2030, 2040, 2050, 2075, 2100]

30. How many insurance agencies in the USA will cover polygenic screening for depression in the following years? [2030, 2040, 2050, 2075, 2100]

31. How many insurance agencies in the USA will cover prenatal genetic engineering in the following years? [2030, 2040, 2050, 2075, 2100]

32. What percentage of the populations in the following nations will be enrolled in government-subsidized genetic enhancement programs by 2050? [OECD Nations]

33. What percentage of the populations in the following nations will be enrolled in government-subsidized genetic enhancement programs by 2075? [OECD Nations]

34. How many regulatory bodies will be established in the following nations to oversee prenatal genetic engineering by 2050? [OECD Nations]

35. How many regulatory bodies will be established in the following nations to oversee prenatal genetic engineering by 2075? [OECD Nations]

36. What will be the difference in adoption rates between urban and rural areas of the United States for genetic modification services in the following years? [2040, 2050, 2075]

37. What percentage of bottom 50% of families by earnings in the USA will have access to polygenic screening in the following years? [2030, 2040, 2050, 2075]

38. How many public hospitals in the USA will offer genetic enhancement services in the following years? [2030, 2040, 2050, 2075, 2100]

39. What proportion of national healthcare budgets in the following nations will be allocated to genetic enhancement initiatives in 2030? [OECD Nations]

40. What proportion of national healthcare budgets in the following nations will be allocated to genetic enhancement initiatives in

2040? [OECD Nations]

41. What proportion of national healthcare budgets in the following nations will be allocated to genetic enhancement initiatives in 2050? [OECD Nations]

42. What will be the public approval rating for genetic engineering programs will there be in the United States in the following years? [2030, 2040, 2050, 2075]

43. What will be the public approval rating for polygenic screening programs will there be in the United States in the following years? [2030, 2040, 2050, 2075]

44. How many genetic enhancement clinics are expected to operate in major European cities in the following years? [2030, 2040, 2050, 2075, 2100]

45. What percentage increase in average life expectancy is predicted for individuals receiving genetic enhancements in the USA in the following years? [2030, 2040, 2050, 2075, 2100]

46. How many companies offering personalized genetic enhancement packages will operate in the USA in the following years? [2030, 2040, 2050, 2075, 2100]

47. What percentage of public research funding across OECD nations will be directed toward genetic enhancement programs in the following years? [2030, 2040, 2050, 2075, 2100]

48. Will major US insurance companies begin covering genetic enhancements as standard benefits by the following years? [2030, 2040, 2050, 2075]

49. How many demographic studies will be published on the impact of genetic engineering on population health in OECD nations by the following years? [2030, 2040, 2050, 2075]

50. How many demographic studies will be published on the impact of polygenic screening on population health in OECD nations by the following years? [2030, 2040, 2050, 2075]

51. What proportion of genetic enhancement procedures will be conducted in public institutions versus private clinics in the USA by the following years? [2030, 2040, 2050, 2075]

52. How many new patents for genetic enhancement techniques will be filed globally in the following years? [2030, 2040, 2050, 2075]

53. What percentage of births in the following nations will incorporate some form of genetic screening by 2030? [OECD Nations]

54. What percentage of births in the following nations will incorporate some form of genetic screening by 2040? [OECD Nations]

55. What percentage of births in the following nations will incorporate some form of genetic screening by 2050? [OECD Nations]

56. What will be the average out-of-pocket expense for genetic enhancement procedures in the USA in the following years? [2030, 2040, 2050, 2075]

57. What percentage of births in the following nations will involve elective genetic modifications for non-medical traits by 2030? [OECD Nations]

58. What percentage of births in the following nations will involve elective genetic modifications for non-medical traits by 2040? [OECD Nations]

59. What percentage of births in the following nations will involve elective genetic modifications for non-medical traits by 2050? [OECD Nations]

60. What percentage of births in the following nations will involve elective genetic modifications for non-medical traits by 2075? [OECD Nations]

61. What percentage of American adults will opt for genetic modifications aimed at increasing disease resistance by 2030?

62. What percentage of American adults will opt for genetic modifications aimed at increasing disease resistance by 2040?

63. What percentage of American adults will opt for genetic modifications aimed at increasing disease resistance by 2050?

64. How many international treaties focused on genetic engineering ethics will be established by the following years? [2030, 2040, 2050]

65. How many studies on the effects of genetic enhancements on cognitive abilities will be completed in the USA by the following years?

[2050, 2075, 2100]

66. How many studies on the effects of polygenic screening on cognitive abilities will be completed in the USA by the following years? [2050, 2075, 2100]

67. How many clinical trials testing genetic enhancements for improved cardiovascular health will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

68. How many clinical trials testing genetic enhancements for improved intelligence will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

69. How many clinical trials testing genetic enhancements for enhanced longevity will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

70. How many clinical trials testing genetic enhancements for increased physical strength will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

71. How many clinical trials testing genetic enhancements for optimized metabolism will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

72. How many clinical trials testing genetic enhancements for improved visual acuity will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

73. How many clinical trials testing genetic enhancements for enhanced disease resistance will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

74. How many clinical trials testing genetic enhancements for increased pain tolerance will be underway in OECD nations in the

following years? [2030, 2040, 2050, 2075]

75. How many clinical trials testing genetic enhancements for reduced depression and anxiety will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

76. How many clinical trials testing genetic enhancements for improved immune system function will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

77. How many clinical trials testing genetic enhancements for enhanced resistance to addiction will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

78. How many clinical trials testing polygenic screening for improved cardiovascular health will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

79. How many clinical trials testing polygenic screening for improved intelligence will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

80. How many clinical trials testing polygenic screening for enhanced longevity will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

81. How many clinical trials testing polygenic screening for increased physical strength will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

82. How many clinical trials testing polygenic screening for optimized metabolism will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

83. How many clinical trials testing polygenic screening for improved visual acuity will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

84. How many clinical trials testing polygenic screening for enhanced disease resistance will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

85. How many clinical trials testing polygenic screening for increased pain tolerance will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

86. How many clinical trials testing polygenic screening for reduced depression and anxiety will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

87. How many clinical trials testing polygenic screening for improved immune system function will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

88. How many clinical trials testing polygenic screening for enhanced resistance to addiction will be underway in OECD nations in the following years? [2030, 2040, 2050, 2075]

89. How many genetically modified individuals will serve in the militaries of the USA in the following years? [2030, 2040, 2050, 2075, 2100]

90. What will be the total market cap (in 2020 USD) of companies specializing in genetic enhancement services in OECD nations in the following years? [2030, 2040, 2050, 2075, 2100]

91. What will be the total market cap (in 2020 USD) of companies specializing in polygenic screening services in OECD nations in the following years? [2030, 2040, 2050, 2075, 2100]

92. What percentage of OECD nations' GDP will be generated by the genetic engineering industry in the following years? [2030, 2040, 2050, 2075, 2100]

93. What percentage of OECD nations' GDP will be generated by the polygenic screening industry in the following years? [2030, 2040, 2050, 2075, 2100]

94. What percentage of OECD nations' GDP will be generated by the

reproductive services industries in the following years? [2030, 2040, 2050, 2075, 2100]

95. What will be the average market cap of USA companies offering prenatal genetic modification services in the following years? [2030, 2040, 2050, 2075, 2100]

96. What percentage of OECD nations' national healthcare budgets will be allocated to genetic enhancement research and development in the following years? [2030, 2040, 2050, 2075, 2100]

97. What percentage of OECD nations' national budgets will go towards education in the following years? [2030, 2040, 2050, 2075, 2100]

98. What percentage of OECD nations' national budgets will go towards healthcare in the following years? [2030, 2040, 2050, 2075, 2100]

99. How many publicly traded USA companies will exceed USD 1 billion in annual revenue from genetic enhancement services in the following years? [2030, 2040, 2050]

100. What will be the total venture capital investment (in 2020 USD) in genetic engineering R&D across OECD nations in the following years? [2030, 2040, 2050]

101. What percentage of working-age adults in OECD nations will adopt neural implants for cognitive enhancement by the following years? [2030, 2040, 2050, 2075, 2100]

102. What will be the total market cap (in 2020 USD) of companies specializing in neural implant technologies in OECD nations by the following years? [2030, 2040, 2050, 2075, 2100]

103. How many startups focusing on human biological enhancement technologies will be established in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

104. What percentage increase in average workforce productivity will be observed in OECD nations as a primary effect of widespread

cognitive enhancement technologies by the following years? [2030, 2040, 2050, 2075, 2100]

105. What will be the average cost (in 2020 USD) per neural implant procedure in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

106. What percentage of public healthcare budgets in OECD nations will be allocated to research and maintenance of bioenhancement technologies by the following years? [2030, 2040, 2050, 2075, 2100]

107. What will be the annual global revenue (in 2020 USD) from brain–machine interface devices in the following years? [2030, 2040, 2050, 2075, 2100]

108. What percentage of military personnel in OECD nations will be equipped with brain–machine interface devices by the following years? [2030, 2040, 2050, 2075, 2100]

109. What percentage of newborns in OECD nations will receive gene therapy interventions for inherited diseases by the following years? [2030, 2040, 2050, 2075, 2100]

110. What will be the total market cap (in 2020 USD) of companies specializing in gene therapy services in OECD nations by the following years? [2030, 2040, 2050, 2075, 2100]

111. What percentage of national healthcare budgets in OECD nations will be allocated to gene therapy research and development by the following years? [2030, 2040, 2050, 2075, 2100]

112. How many clinical trials focusing on gene therapy for genetic disorders will be underway in OECD nations by the following years? [2030, 2040, 2050, 2075, 2100]

113. What will be the average cost (in 2020 USD) of a gene therapy

treatment in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

114. What percentage of patients with rare genetic diseases in OECD nations will have access to gene therapy treatments by the following years? [2030, 2040, 2050, 2075, 2100]

115. How many gene therapy products will have received FDA (or equivalent) regulatory approval in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

116. What will be the total annual revenue (in 2020 USD) of companies offering gene therapy for monogenic disorders in OECD nations by the following years? [2030, 2040, 2050, 2075, 2100]

117. How many publicly traded USA companies focused on gene therapy will exceed USD 1 billion in annual revenue by the following years? [2030, 2040, 2050, 2075, 2100]

118. What percentage of gene therapy patents filed globally will originate from OECD nations by the following years? [2030, 2040, 2050, 2075, 2100]

119. What percentage reduction in the prevalence of specific inherited disorders is expected in OECD nations as a secondary effect of widespread gene therapy by the following years? [2030, 2040, 2050, 2075, 2100]

120. How prevalent will cystic fibrosis be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

121. How prevalent will sickle cell disease be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

122. How prevalent will hemophilia be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

123. How prevalent will Huntington's disease be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

124. How prevalent will Duchenne muscular dystrophy be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

125. How prevalent will thalassemia be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

126. How prevalent will familial hypercholesterolemia be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

127. How prevalent will Tay-Sachs disease be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

128. How prevalent will phenylketonuria be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

129. How prevalent will Marfan syndrome be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

130. How prevalent will Fragile X syndrome be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

131. How prevalent will alpha-1 antitrypsin deficiency be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

132. How prevalent will spinal muscular atrophy be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

133. How prevalent will hereditary breast and ovarian cancer (BRCA mutations) be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

134. How prevalent will neurofibromatosis type 1 be across OECD nations in the following years? [2030, 2040, 2050, 2075, 2100] relative to 2020

135. How many insurance providers in the USA will incorporate gene therapy coverage as a standard benefit by the following years? [2030, 2040, 2050, 2075, 2100]

136. What percentage of USA healthcare spending will be dedicated to gene therapy treatments by the following years? [2030, 2040, 2050, 2075, 2100]

137. What will be the average time (in months) from initiation to regulatory approval for gene therapy products in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

138. What percentage of gene therapy treatments in OECD nations will employ viral vector delivery systems compared to non-viral methods by the following years? [2030, 2040, 2050, 2075, 2100]

139. What percentage of the global gene therapy research publications will come from OECD nations by the following years? [2030, 2040, 2050, 2075, 2100]

140. How many adverse events per 1000 gene therapy procedures are projected in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

141. What will be the total venture capital investment (in 2020 USD) in gene therapy startups across OECD nations by the following

years? [2030, 2040, 2050, 2075, 2100]

142. What will be the projected average lifespan extension (in years) attributable to gene therapy interventions in OECD nations by the following years? [2030, 2040, 2050, 2075, 2100]

143. What percentage of inherited metabolic disorders across OECD nations will be treatable by gene therapy by the following years? [2030, 2040, 2050, 2075, 2100]

144. How many gene therapy manufacturing facilities will be operational in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

145. How many gene therapy interventions for improving cognitive function will be approved in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

146. What will be the projected increase in workforce productivity (percentage) in OECD nations as a secondary effect of gene therapy-enhanced cognitive abilities by the following years? [2030, 2040, 2050, 2075, 2100]

147. What will be the projected increase in GDP in OECD nations as a secondary effect of gene therapy-enhanced cognitive abilities by the following years? [2030, 2040, 2050, 2075, 2100]

148. How many insurance claims related to adverse events from gene therapy procedures will be filed annually in the USA by the following years? [2030, 2040, 2050, 2075, 2100]

```
pandoc --output "full-questions.pdf" --pdf-engine=xelatex
--pdf-engine-opt=--shell-escape "full-questions.md"
```