Supercentenarians Landscape Overview

Top-100 Living
Top-100 Longest-Lived
Top-25 Socially and Professionally Active

Executive and Infographic Summary

AGING ANALYTICS AGENCY

www.aginganalytics.com

GERONTOLOGY RESEARCH GROUP

www.grg.org

Supercentenarians Landscape Overview

Executive Summary

There have always been human beings who have lived well beyond normal life expectancy, these ‘supercentenarians’ who lived past 110 years of age. What did not exist was a codified system of tracking and verifying these claims and separating fact from human error and false claims.

In 1990, however L. Stephen Coles, MD PhD created the Gerontology Research Group (GRG) which for the first time could verify and catalogue these claims.This was as part of the GRG’s mission statement to “slow and ultimately reverse age-related decline for more healthy years of life”

In 2019 the Ageing Analytics Agency in association with the GRG have compiled this report highlighting some of the amazing personalities and demographics of the world’s confirmed supercentenarians. The report also explores historical research of the top 100 living supercentenarians, which the Gerontology Research Group (GRG) and Aging Analytics Agency believe is crucial for the ongoing growth and development of the global Longevity movement.

This report is broken down into three main segments.

1. 100 longest lived supercentenarian persons of all time
2. 100 oldest currently living supercentenarian persons
3. 25 oldest currently living supercentenarian persons who are still professionally or socially active

Supercentenarians Validation

The Gerontology Research Group (GRG) is a global group of researchers in various fields that verifies and tracks supercentenarians, or people who are at least 110 years old in a list of the verified oldest people. The group also aims to further gerontology research with a goal of reversing or slowing aging.

It was founded in 1990 by **L. Stephen Coles** and Stephen M. Kaye after the two met at a conference, according to Coles. The original chapter of the GRG, the LA-GRG, holds meetings each month but the organization has members worldwide who meet via online forums. A number of competent scientist regularly participate in its forum science discussions which reports and discusses recent research in such topics as cell rejuvenation, stem cell therapies, control of chronic inflammation, aging biomarkers, lifespan enhancement approaches effective in animals, meta-analyses of aging studies, centenarians and supercentenarians, new disease therapies, key proteins related to aging, supplements, anti-aging interventions.

The GRG verifies that people claiming to be supercentenarians are at least 110 years old by validating proof of age documents provided by the claimant or their family. People claiming to be supercentenarians, or their family members, are required to supply documents that prove the claimant's birth date, change of name (if applicable), and date of death (if applicable), along with another piece of official government identification.Researchers from the GRG verify that these documents are true and correct and if they are, the claimant is included in the GRG's official tables of supercentenarians.

The GRG also conducts research on aging by interviewing willing supercentenarians and collecting their blood and DNA samples. The GRG is recognized as an authority on supercentenarians by Guinness World Records and is often quoted in newspapers. As of September 19, 2019, the GRG recognizes approximately 35 living supercentenarians age 112+.

Supercentenarians Validation

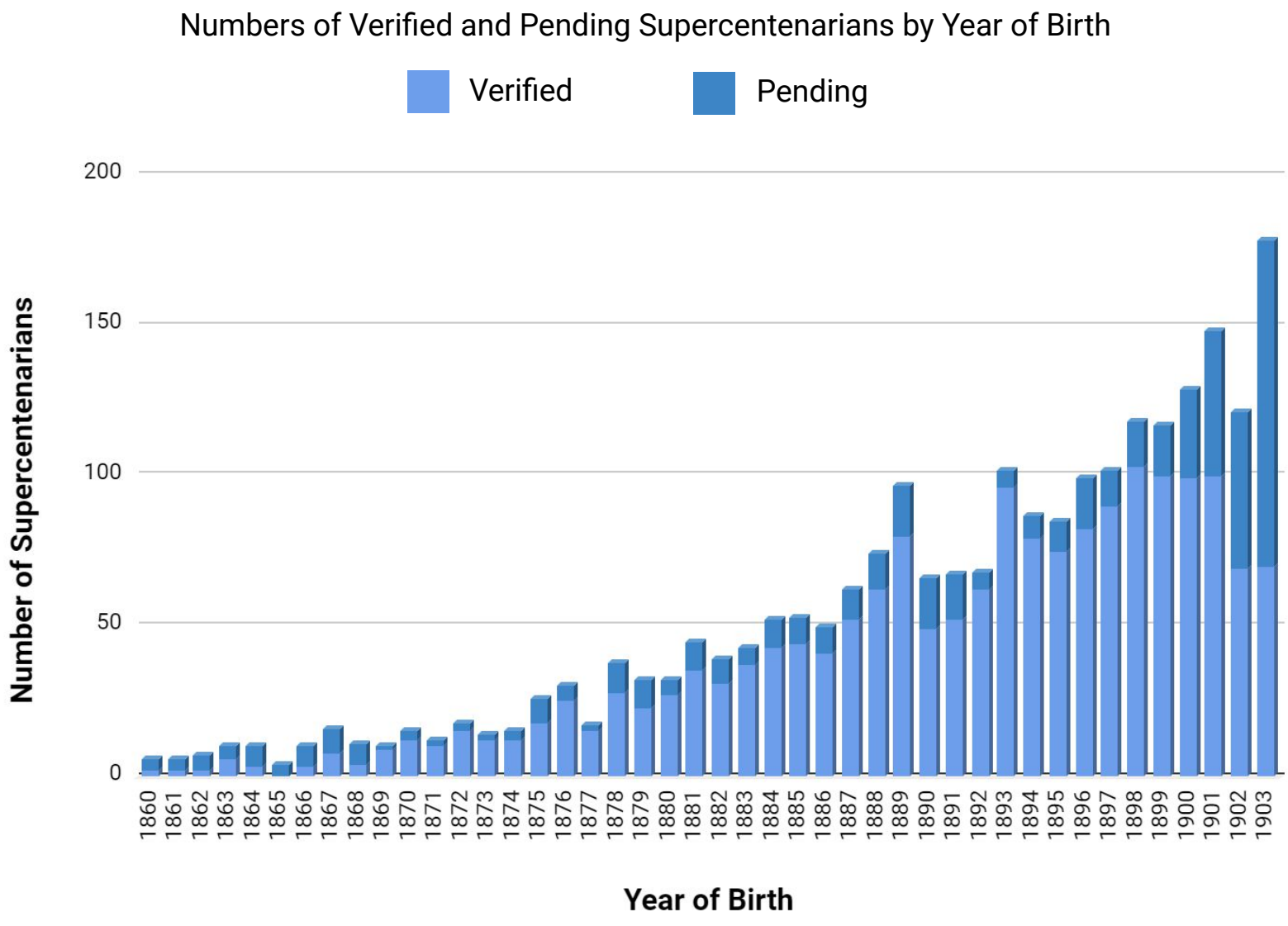
Historically there have been just over 1,700 validated supercentenarians in total.

When that number is divided into nation-based demographics, the United States has a significant lead in the overall number of persons living to 110 or older, outpacing the next six nations combined. However, part of that is due to population size as the USA is the world's third-most populous nation and first among nations that had large-scale birth registration 110+ years ago. Per capita, Japan actually does better. When the national demographics are parsed down to an all-time top 100 supercentenarians, the USA still maintains a lead, but at this point not as dominant a one.

Gerontology Research Group Founder Dr. L. Stephen Coles in 2012
with 112 year old Florida, USA resident Charlotte Flowers

Source: grg.org

Numbers of Verified and Pending Supercentenarians



This graph shows a greater proportion of supercentenarians being verified as we get closer to the modern era. Pending cases are under review and may be verified in the future.

Source: grg.org

Gender Discrepancy Between Supercentenarians

Across all continents, it is clear the gender distribution of supercentenarians tilts heavily towards females, typically by a factor of 10. Even when the overall numbers are low – as is the case in Africa and Australia – the disparity remains. The global total is 1:10 towards women, and the trend cuts across cultures and disparate environmental factors. Even within the Supercentenarian group, those at the highest end tend to be exclusively women.

The discrepancy has informed the popular culture and mainstream media, with many outlets wondering aloud what the cause could be, although this has typically been from anecdotal evidence. While there is a universe of possible causes and correlations, the data alone solves many questions about differences between

- **climate**
- **culture**
- **genetics**
- **and other environmental factors**

It should be noted, however, that the majority of the data has been pulled from the 20th century which means that generations of men across the globe were affected by some of the largest and most traumatic conflicts in human history which may skew the data. As the population of supercentenarians increases worldwide in a general sense and improved healthcare and nutrition play their part, we may witness some interesting shifts due to these outside circumstances.

Some researchers argue that the cause may have more to do with a regenerative decline between men and women, which would point to a biological cause. Adult stem cells are regulated in a sexually dimorphic manner (like flashy peacock feathers, for example), and they respond to sex hormones. This line of research could open up new explanations for how the sex hormones estrogen and testosterone may specifically modify lifespan. Moreover, there might be a difference in telomere length between males and females: these little caps at the ends of chromosomes help to signify the lifespans of cells. Further research is needed in order to understand how genetics might have an impact on stem cell aging in males and females and at the very least.

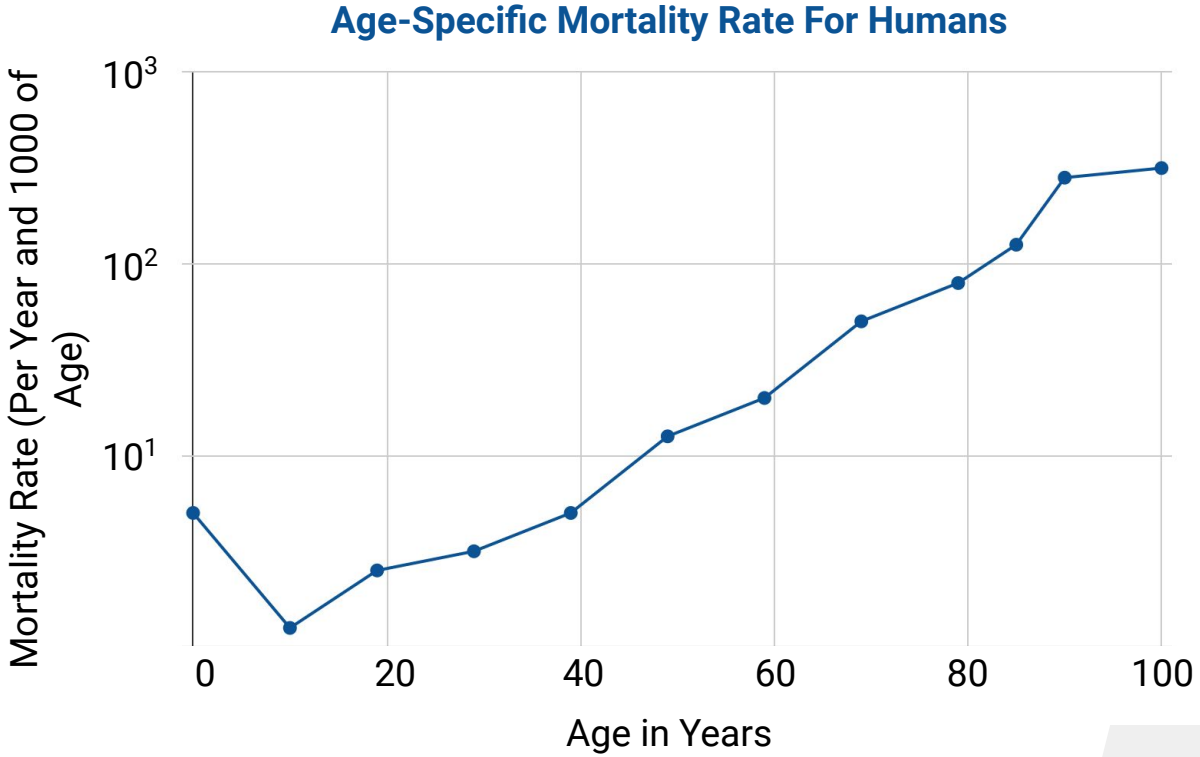
Age Range Patterns For Supercentenarians

Based on the global numbers, an interesting trend emerges regarding age distribution within supercentenarians. According to what's known as the Gompertz law, mortality rates tend to level off, or plateau, later in life after a steady increase throughout previous life, leading many supercentenarians appearing to be "stuck in time" as the aging process after 100 continues to decelerate. Because the Gompertz distribution has no upper limit, if the damage theories are true, meaning that lifetime probabilities are not zero, a Longevity record will be eventually destroyed infinitely. Despite this, there is a sharp spike in mortality at 113-117 (the mortality peak) and an immediate decline after, with the highest mortality at age 117, then an outlier effect beyond that.

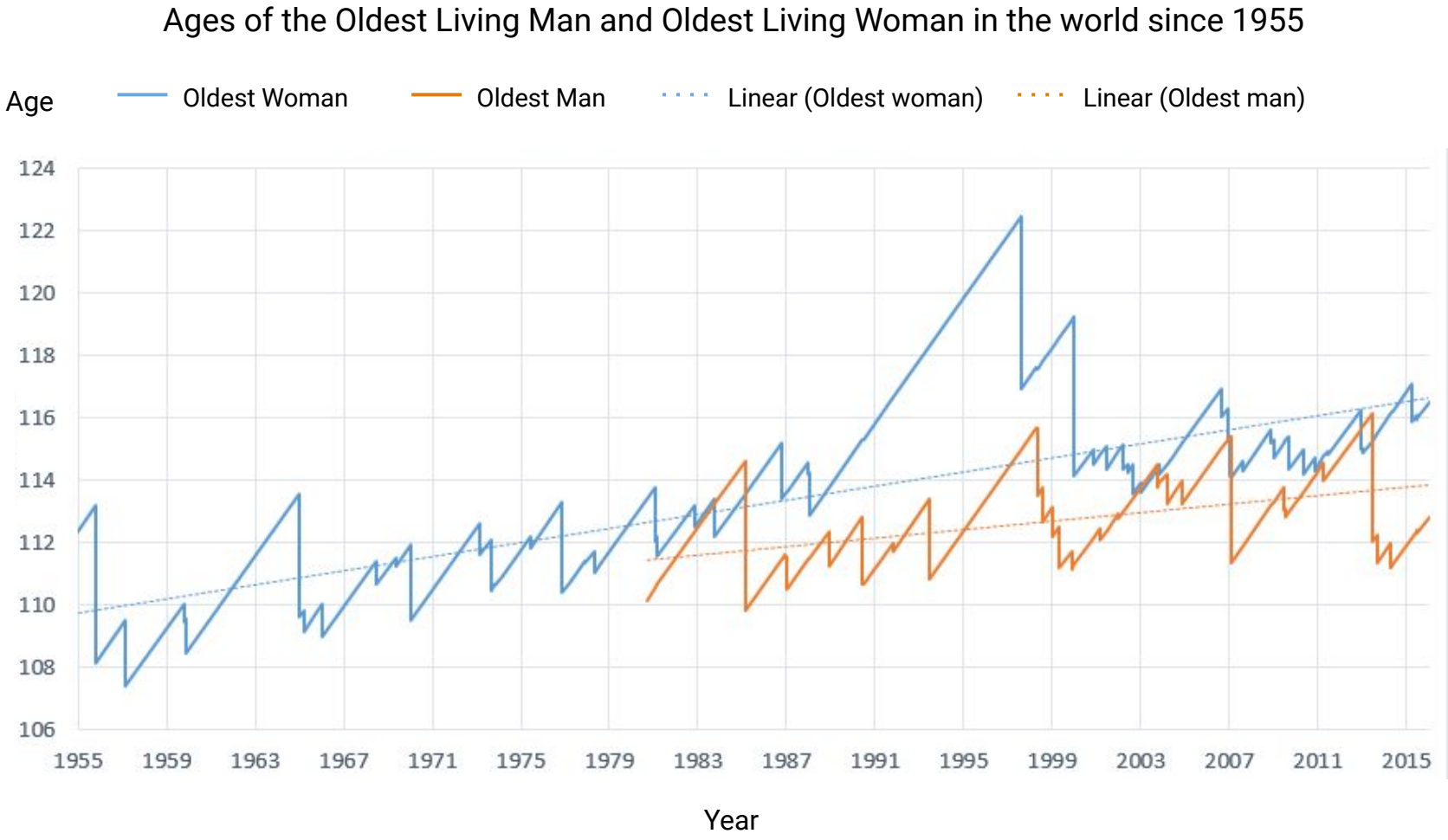
Furthermore, while there appears to be a heavy slant towards females as is to be expected, it is even higher at ages above 114. Very few males reach age 114, whereas females reach this age every year in recent years. This irregularity represents an important area of focus in Longevity research over the coming decades.

As more and more people born later in the 20th century reach this status, the data and findings will be more reliable than those recorded during the turn of the 20th century. However, a core pattern has already emerged with the cases at hand and this pattern of mortality has been remarkably persistent over the past 20 years.

The graphic displays three common characteristics: 1) High mortality shortly after birth, 2) exponential growth (Gompertz law) in middle age, 3) leveling off in old age.



Ages of the Oldest Living Man and Oldest Living Woman



From the early 1950s onward there have been more female than male supercentenarians. Although the number of men in this category increases in the later part of the 1970s, at no point do women relinquish their lead.

Source: grg.org

Data Availability About Supercentenarians Across Countries

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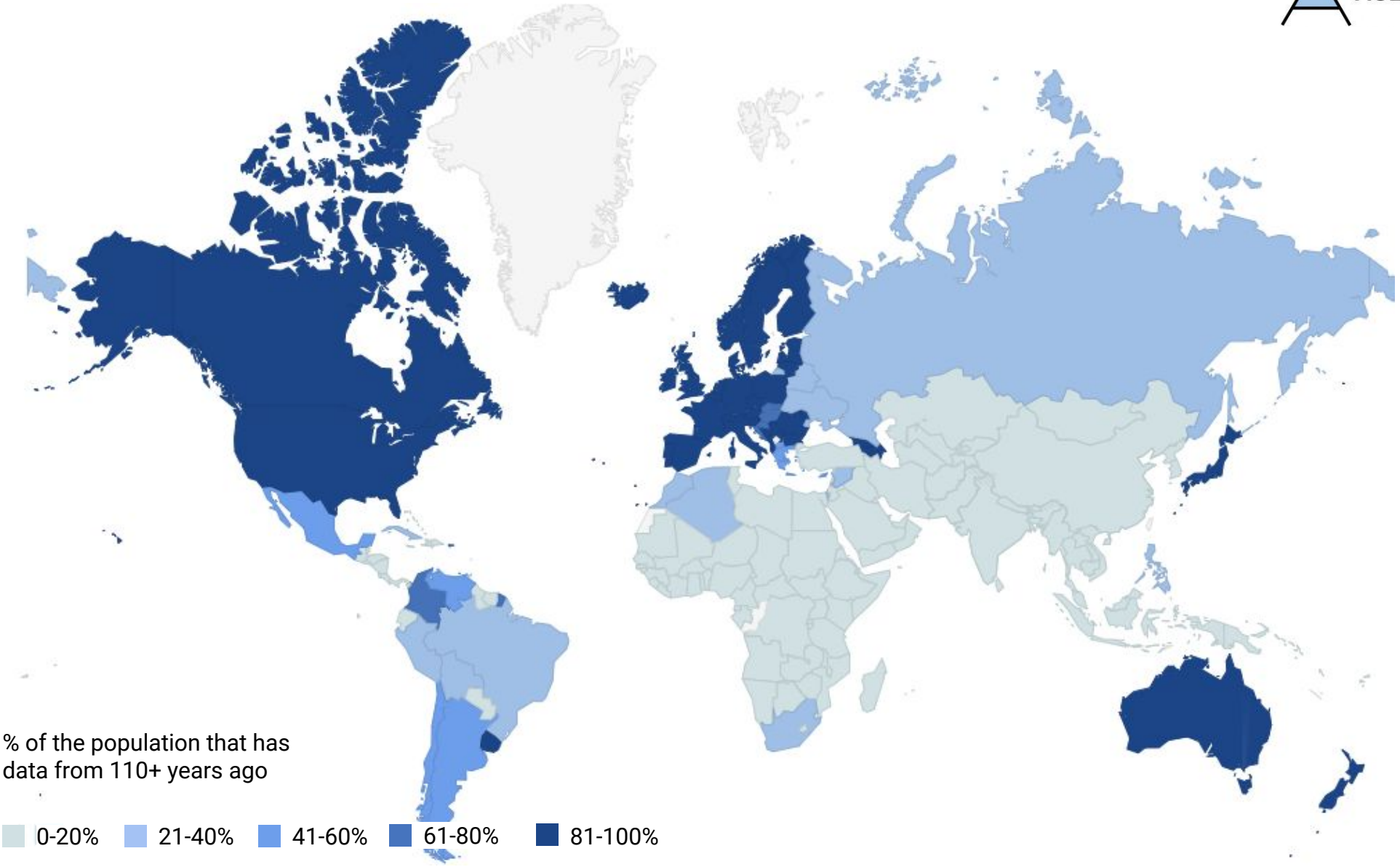

Historically our picture of aging and of possible supercentenarians is incomplete. Data has improved over time, as we can see there are several regions with full or near full population data from 110 years ago and beyond. Our understanding will increase even further as the richness and accuracy of data improves.

Source: grg.org

Validated Supercentenarians by Nation of Birth

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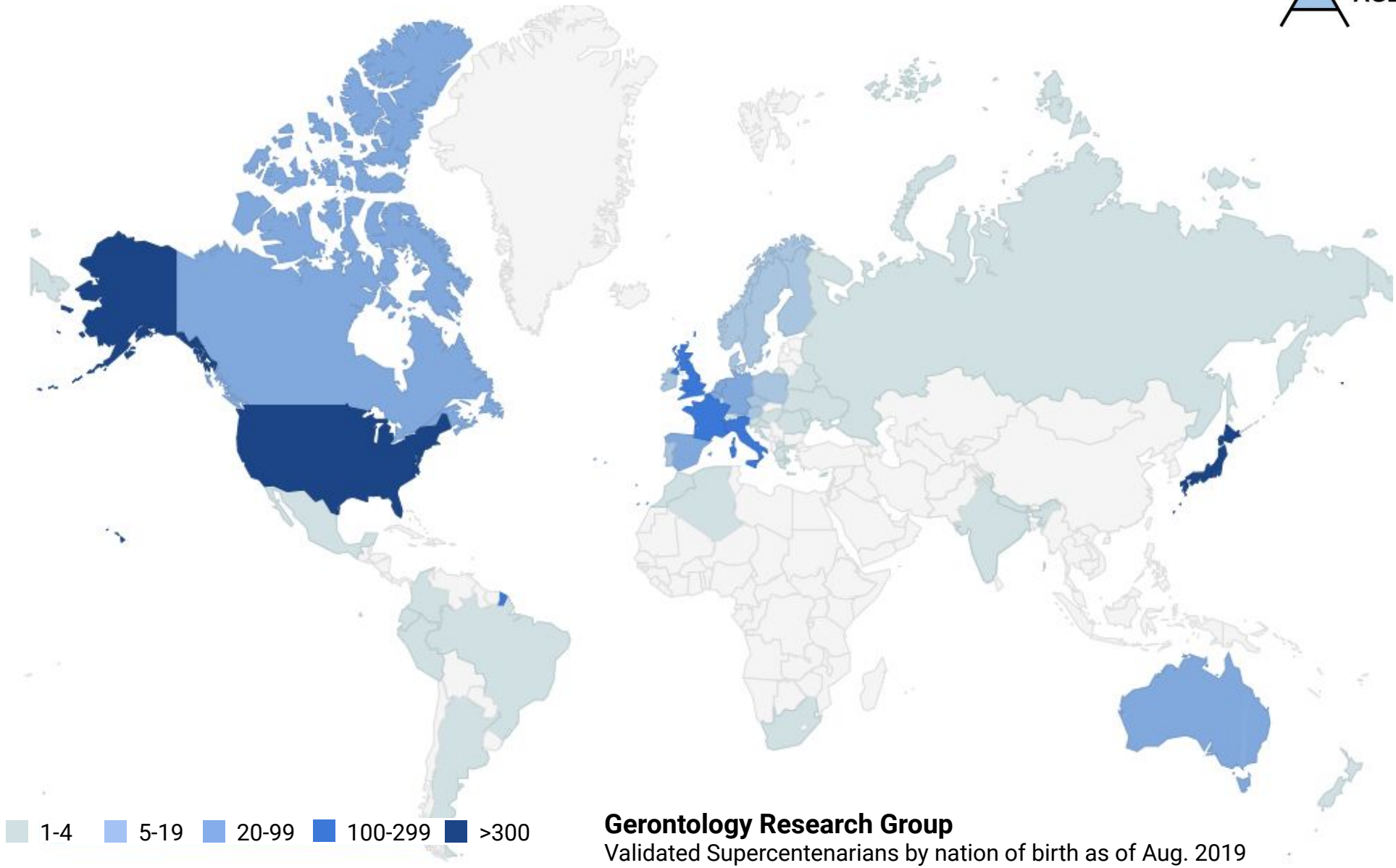


Gerontology Research Group
Validated Supercentenarians by nation of birth as of Aug. 2019

While supercentenarians are found across the globe there is a clear relationship to standard of living and social stability to the number of supercentenarians a nation produces.

Source: grg.org

Supercentenarians Social Activity and Independence

One of the most important dimensions of the research is while living a significant length of time, how active and mobile are supercentenarians?

Our research and biographical findings show that the many supercentenarians continue working and maintain independence long past 100, with a few of them continuing in the fields they worked for the majority of their lives. Holding a job at 70 or 80, however, is very different than doing so at 100. Yet there are striking examples of people who did successfully carry on working after they hit the century mark and these examples we have provided in this report.

Based on the biographical data we have collected, it also appears that there is no consistent or planned dietary plan or secret behavior for their survival, with master athletes standing alongside composers. However, patterns of moderate food intake, moderate exercise level, fast walking, regular sleep-wake cycles, and mental balance appear to be repeating patterns of success for our longest-lived individuals. Negative habits, where present, are only in moderation. While it appears that the majority of mobile and socially-active supercentenarians are women, it also appears that both men and women show very little chronic age-related conditions that would otherwise render them immobile. This includes myocardial infarction and cardiovascular diseases, but also no history of strokes or other severe physical issues.

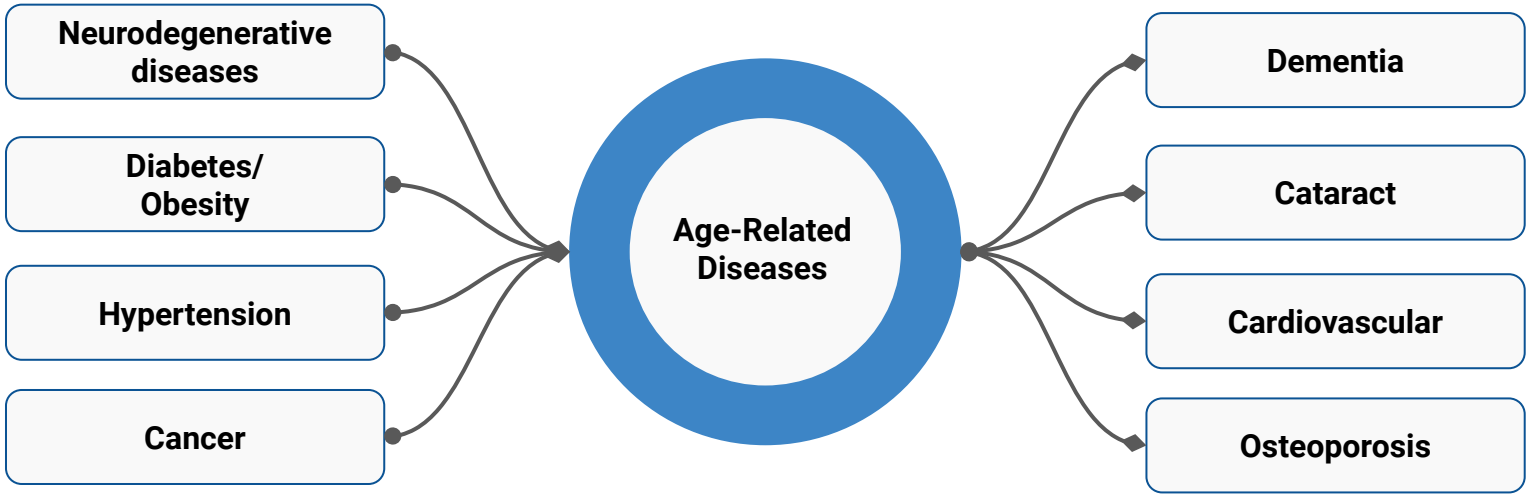
Furthermore, the majority of supercentenarians appear to be psychologically and intellectually acute with very few cases of dementia and other psychological debilitations. This is in contrast to centenarians, who appear to have a much wider variance in conditions, with a remarkably low rate of dementia.

This proves especially important as supercentenarians are frequently referred to as “living treasures” with their extensive firsthand experience, and being living connections to the distant past. It has a strong cultural significance that may grant them a special place in society, which has a feedback effect on mental and emotional health. Japan can serve as a positive example of what is possible as other populations around the world mature. While the number of people who must move into nursing homes will rise dramatically, so, too, will the number of vibrant, fully engaged senior citizens who continue to live at home unaided and work or volunteer well into their 80s, 90s or even 100s. This will likely be especially true as the first wave of baby boomers begins to crash against the retirement wall.

Supercentenarians Have "Super" Immune Systems

The new study "Single-cell transcriptomics reveals expansion of cytotoxic CD4 T cells in supercentenarians" reveals that immune cells profiled from supercentenarians hava very unique characteristics. Supercentenarians are rare individuals who reach 110 y of age. They are endowed with high resistance to non-communicable diseases such as cancer, stroke, and cardiovascular disease. Demographers in Canada estimated that the chance of living more than 110 y is as low as 1 in 100,000. According to the population census covering the whole territory of Japan in 2015, the number of centenarians was 61,763, of which only 146 were supercentenarians. However the study of extreme Longevity comes up against a problem of methodology: how to validate claims about a person's age when there is an issue of the "lack of birth registration".

A distinctive feature of supercentenarians is a long healthy lifespan, maintaining relatively high cognitive function and physical independence even after 100 y of age. In other words, many supercentenarians can spend almost their entire lives in good health due to the delayed onset of age-related diseases and compression of morbidity. Therefore, supercentenarians can be considered a good model of successful aging, and understanding their attributes would be beneficial for superaging societies.



Source: PNAS

Introduction

1788 marks the birth year of the earliest known supercentenarian.This was Dutch soldier Geert Adriaans Boomgaard who when he died in 1899 became not only the first verified supercentenarian but also the longest lived person. He was surpassed for this title in 1902 by Englishwoman Margaret Ann Neve.

Photos of Geert Boomgaard at 100 and 110 years of age (from left to right)

It is reasonable to assume that there have been earlier examples, but because they can not be verified they must be excluded.

There is also no manner of conclusively knowing whether supercentenarians have existed throughout human history, of if they are a relatively recent phenomenon. We also do not know the roles that culture, environment or individual genetics might have played or how these factors could be interrelated.

These gaps in our knowledge highlight the importance of not only accurate, but also comprehensive data over multiple fields to fully be able to understand the phenomenon of extraordinary Longevity.

All Supercentenarians Region Distribution by Gender

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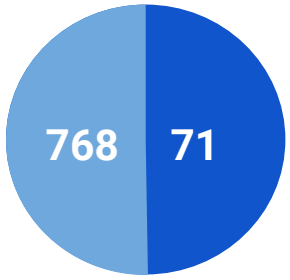
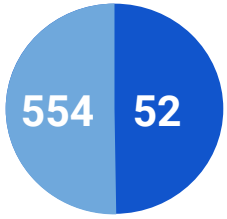
America



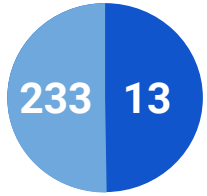
48%

Europe



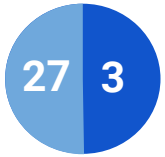
35%

Asia



15%

Africa & Australia



2%

male

female

Source: grg.org

All Supercentenarians
Distribution by Gender

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Men

160 ♂

Women

1579 ♀

Available data shows that as long as data has been collected that there has been an overwhelming dominance of female supercentenarians over their male counterparts.

All Supercentenarians Distribution by Age

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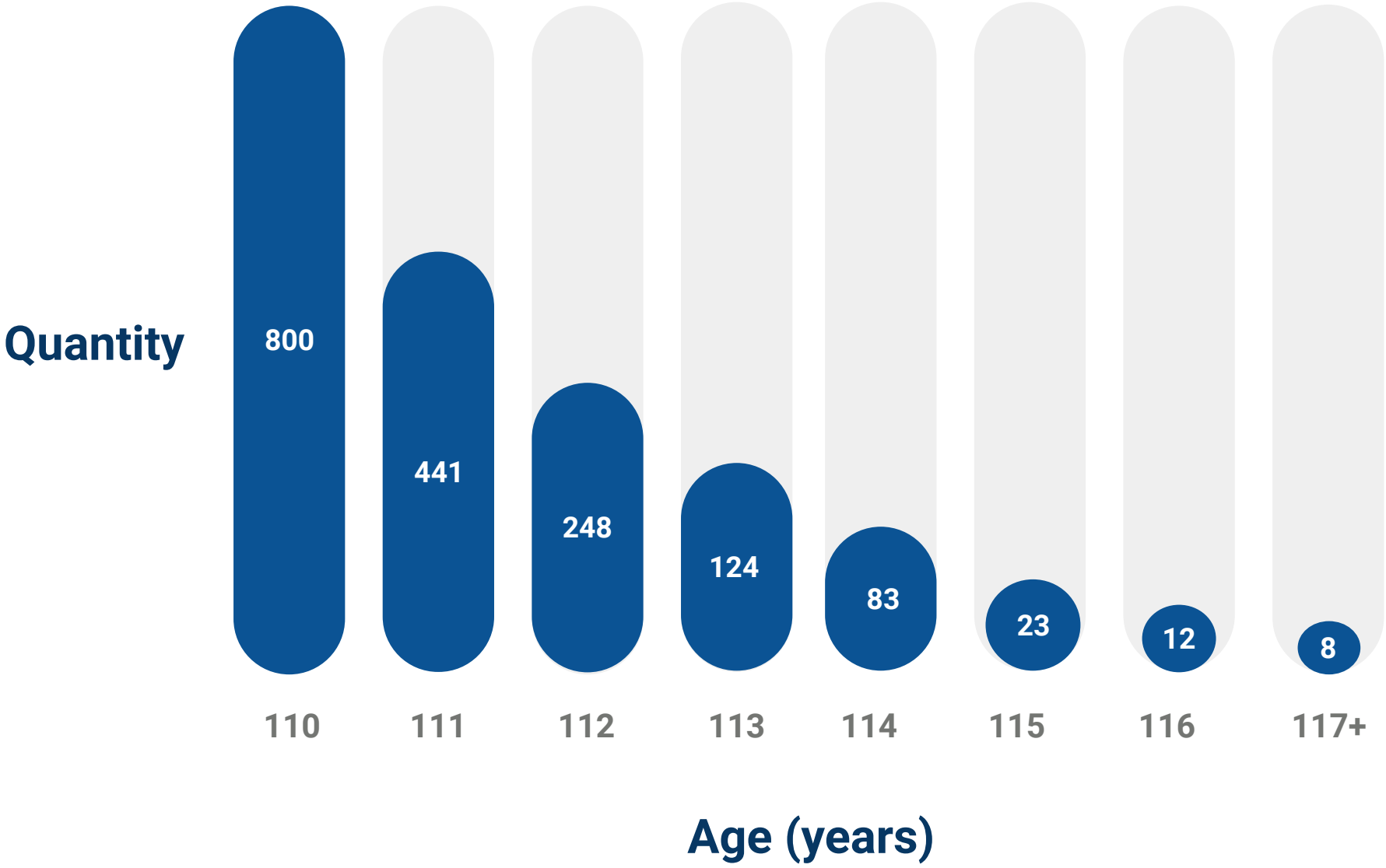

Top-100 Longest-Lived Supercentenarians

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1. Jeanne Calment
2. Sarah Knauss
3. Nabi Tajima
4. Lucy Hannah
5. Marie-Louise Meilleur
6. Violet Brown
7. Emma Morano-Martinuzzi
8. Chiyo Miyako
9. Misao Okawa
10. Maria Esther de Capovilla
11. Susannah Mushatt Jones
12. Gertrude Weaver
13. Tane Ikai
14. Elizabeth Bolden
15. Besse Cooper
16. Maria Robucci-Nargiso
17. Jiroemon Kimura
18. Ana Vela-Rubio
19. Giuseppina Projetto-Frau
20. Jeralean Talley
21. Maggie Barnes
22. Dina Manfredini
23. Shimoe Akiyama
24. Christian Mortensen
25. Charlotte Hughes
26. Edna Parker
27. Mary Ann Rhodes
28. Harumi Nakamura
29. Margaret Skeete
30. Bernice Madigan
31. Gertrude Baines
32. Emiliano Mercado del Toro
33. Bettie Wilson
34. Julie Winnefred Bertrand
35. Maria de Jesus
36. Marie-Josephine Gaudette
37. Susie Gibson
38. Augusta Holtz
39. Hendrikje van Andel-Schipper
40. Maud Farris-Luse
41. Marie Brémont
42. Koto Okubo
43. Antonia Gerena Rivera
44. Chiyono Hasegawa
45. Annie Jennings
46. Eva Morris
47. Kama Chinen
48. Maria Gomes Valentim
49. Mary Bidwell
50. Mary Josephine Ray
51. Goldie Steinberg
52. Kiyoko Ishiguro
53. Maria Maia-Lopes
54. Eudoxie Baboul
55. Ramona Iglesias-Jordan
56. Yukie Hino
57. Delphine Gibson
58. Eugénie Blanchard
59. Venere Pizzinato-Papo
60. Neva Morris
61. Hide Ohira
62. Blanche Cobb
63. Ethel Lang
64. Mathew Beard
65. Yone Minagawa
66. Maria Antonia Castro
67. Ura Koyama
68. Carrie Lazenby
69. Myrtle Dorsey
70. Iso Nakamura
71. Anna Eliza Williams
72. Walter Breuning
73. Eunice Sanborn
74. Grace Clawson
75. Mitsue Toyoda
76. Tase Matsunaga
77. Yukichi Chuganji
78. Kame Nakamura
79. Lydie Vellard
80. Adelina Domingues
81. Wilhelmina Kott
82. Mitoyo Kawate
83. Gabrielle des Robert
84. Camille Loiseau
85. Charlotte Benkner
86. Anne Primout
87. Ettie Mae Greene
88. Dominga Velasco
89. Toshie Yorimitsu
90. Irene Frank
91. Christina Cock
92. Olivia Patricia Thomas
93. Tae Ito
94. Anna Henderson
95. Emma Verona Johnston
96. Mamie Rearden
97. Bettie Chatmon
98. Lessie Brown
99. Odie Matthews
100. Chiyo Shiraishi

Top-100 Longest-Lived Supercentenarians
Regional Distribution by Gender

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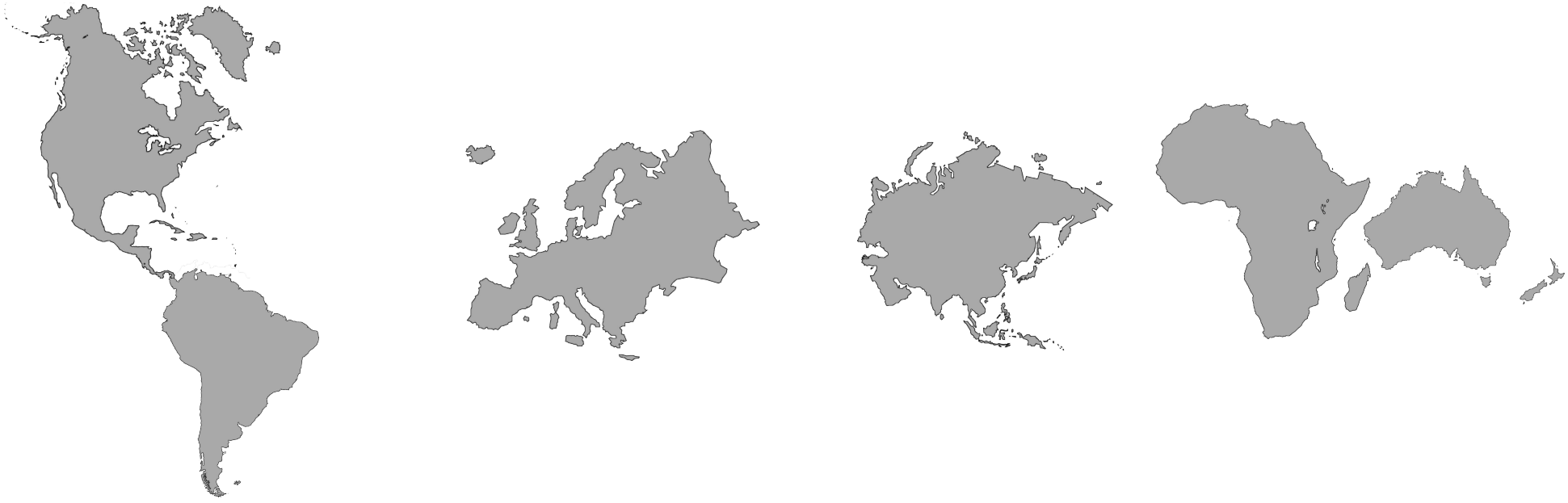
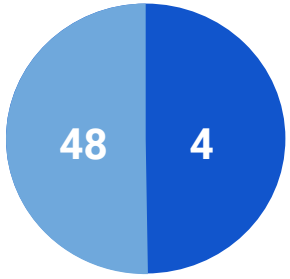


America

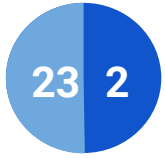


52%

Europe

22%

Asia



25%

Africa & Australia

1%

male female

Source: grg.org

Top-100 Longest-Lived Supercentenarians Distribution by Nation

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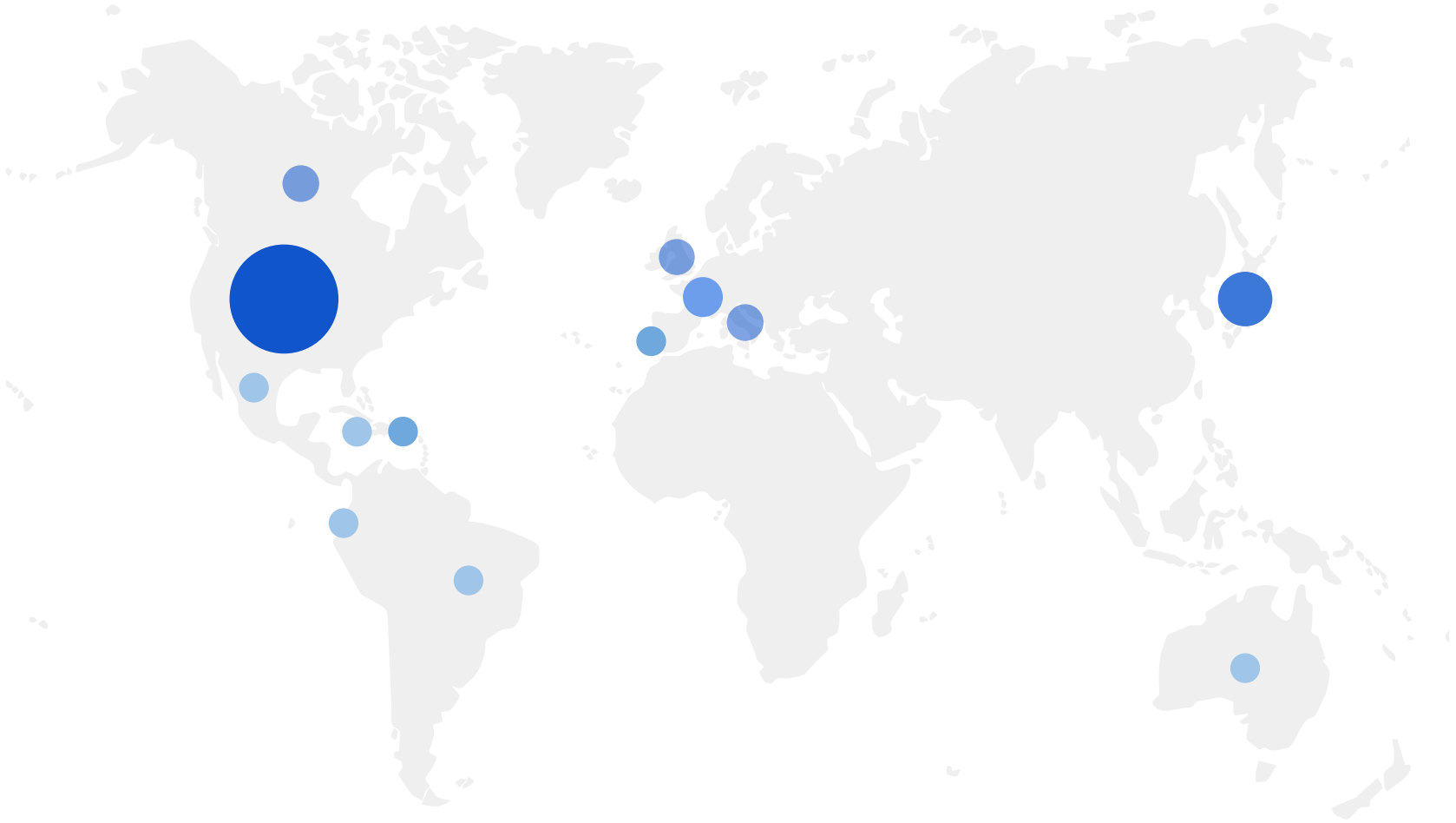
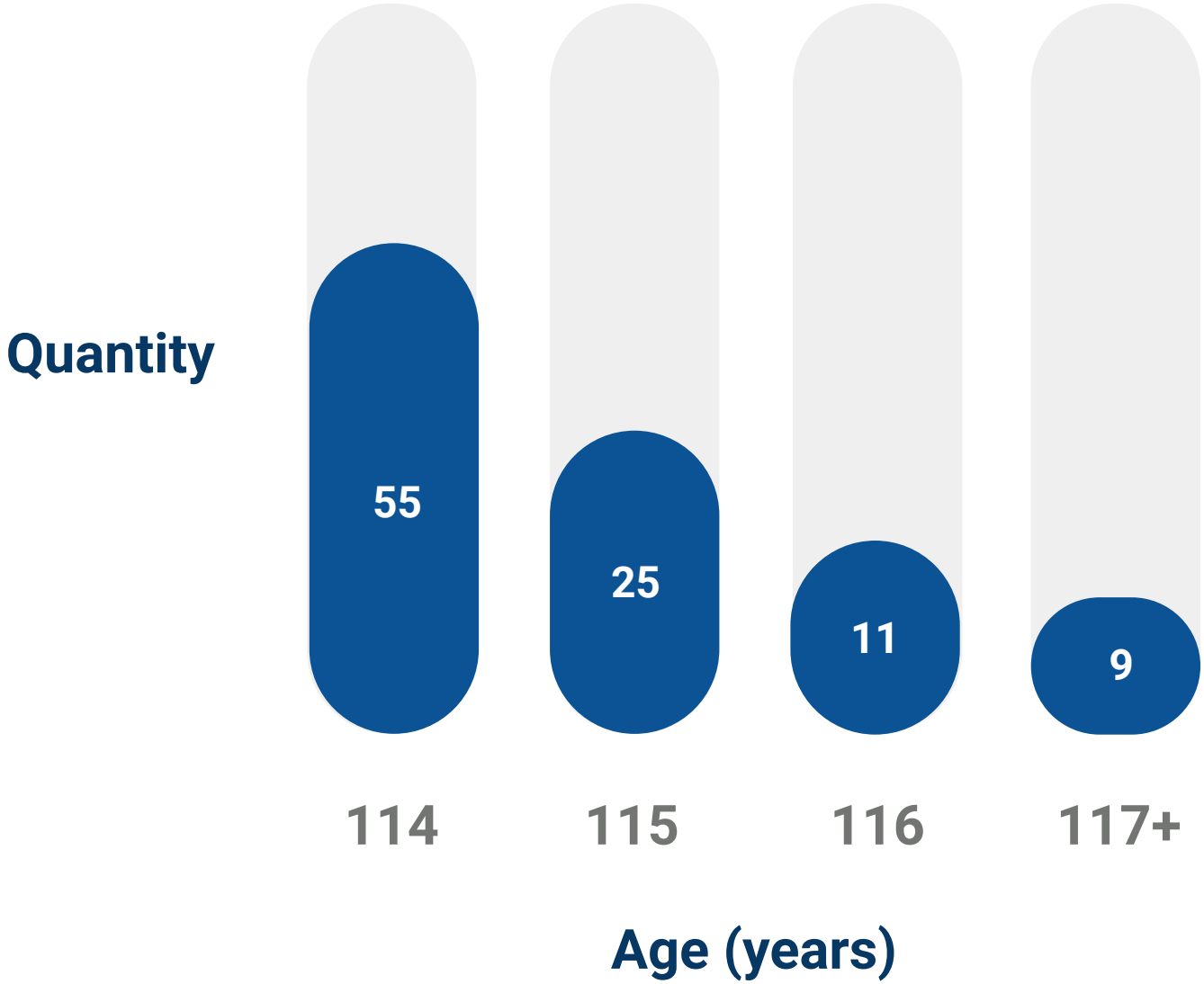


43	USA	8	France	5	Italy	2	Portugal		
25	Japan	5	United Kingdom	3	Canada	2	Puerto Rico	2	Others

Source: grg.org

Top-100 Longest-Lived Supercentenarians Distribution by Age

AGING ANALYTICS AGENCY



Top-100 Living Supercentenarians

Kane Tanaka

Japan's Kane Tanaka is currently the world's oldest human being.

As of August 27, 2019 she is 116 years old, seven years shy of eclipsing the all time record of 122 years held by Jeanne Louise Calment of France who passed away in 1997.

In total only eight people have lived past 116, and the only one other than Jeanne to survive past 117 is Sarah Knauss of Hollywood Pennsylvania, USA who passed away in 1999 at 119 years of age.

The 117 year boundary seems all but unbreakable. Except that it has been broken. Only twice, but these outliers open the possibility of exceeding the 122 year mark and beyond.

It is not likely however, that this can happen without sufficient and dedicated input and investment into the Longevity field

It is only with the recent advent of A.I. has it been possible to do so across disciplines with fact and data driven decisions.

Top-100 Living Supercentenarians

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1. Kane Tanaka
2. Lucile Randon
3. Shin Matsushita
4. Jeanne Bot
5. Shigeyo Nakachi
6. Faustina Sarmiento Pupo
7. Haruno Yamashita
8. Kame Ganeko
9. Julia Amelia da Conceicao
10. Alelia Murphy
11. Geertje Kuijntjes
12. Katerina Karnarou
13. Michiko Yamazaki
14. Osugi Sogo
15. Hester Ford
16. Iris Westman
17. Gustav Gerneth
18. Kura Bingo
19. Mina Kitagawa
20. Anna Benericetti
21. Jeanne Lara
22. Carmen Emilia Jaramillo
23. Eliza Carrows
24. Tekla Juniewicz
25. Anne Brasz-Later
26. Irene Dutton
27. Marie-Louise Taterode
28. Minnie Whicker
29. Mathilde Mange
30. Clara Cedeño Tello
31. Motome Hirata
32. Josefa Santos Gonzalez
33. Thelma Sutcliffe
34. Renata Bianchi
35. Louise Schaaf
36. Valentine Ligny
37. Natsuyo Kinase
38. Beulah Meloche
39. Ramona Siqueira
40. Chizuko Yoshizawa
41. Mitsu Toshima
42. Tsuru Iizuka
43. Hildegard Lange
44. Hama Yasukawa
45. Ellen Goodwill
46. Sumie Yabune
47. Yuki Kamitamari
48. Sarah Patenaude Bruyère
49. Kikue Tanaka
50. Maria Branyas Morera
51. Chitetsu Watanabe
52. Hide Kittaka
53. Tame Yamaguchi
54. Kano Ebara
55. Kesa Yamada
56. Yoshie Okamoto
57. Katsuko Nakajima
58. Antonia Ocampo
59. Voncile Drye
60. Fusa Tatsumi
61. Dorothy Brown
62. Yoshi Baba
63. Opal Goode
64. Florence Carroll
65. Cecile Klein
66. Marie-F. Jousseaume
67. Evangelista Luisa López
68. Valesca Tanganelli
69. Virginia Constante
70. Evelyn Kleine
71. Margaret Quinn
72. Virtudes Tomás Navarro
73. Marie-Louise Berthelot
74. Gwen Payne
75. Madeleine Chat
76. Maude Harris
77. Lucy Mirigian
78. Marthe Roch
79. C. P. Crawford
80. Irma Ilari
81. Jeanne Bonnot
82. Kinoue Hosoya
83. Bessie Hendricks
84. Maryse Lancioni
85. Reita Fennell
86. Chiyako Iwamoto
87. Alexina St-Pierre Loyer
88. Downing Jett Kay
89. Fumio Rikiishi
90. Shizu Sato
91. Hatsue Tachikawa
92. Hazel Eikermann
93. Irene Dunham
94. Suzy Ford
95. Leonora Cox
96. Jesús Mosteo
97. Nao Unno
98. Alice Schaufelberger
99. Christine Ireland
100. Elise Henry

Top-100 Living Supercentenarians
Continental Distribution by Gender

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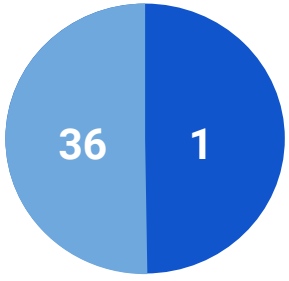
America



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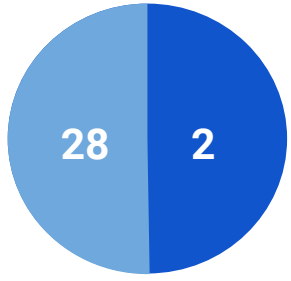
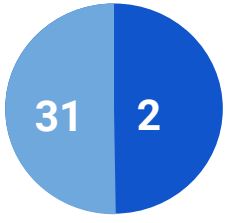
Europe



30%

Asia



33%

male female

Source: grg.org

Top-100 Living Supercentenarians Distribution by Age and Gender

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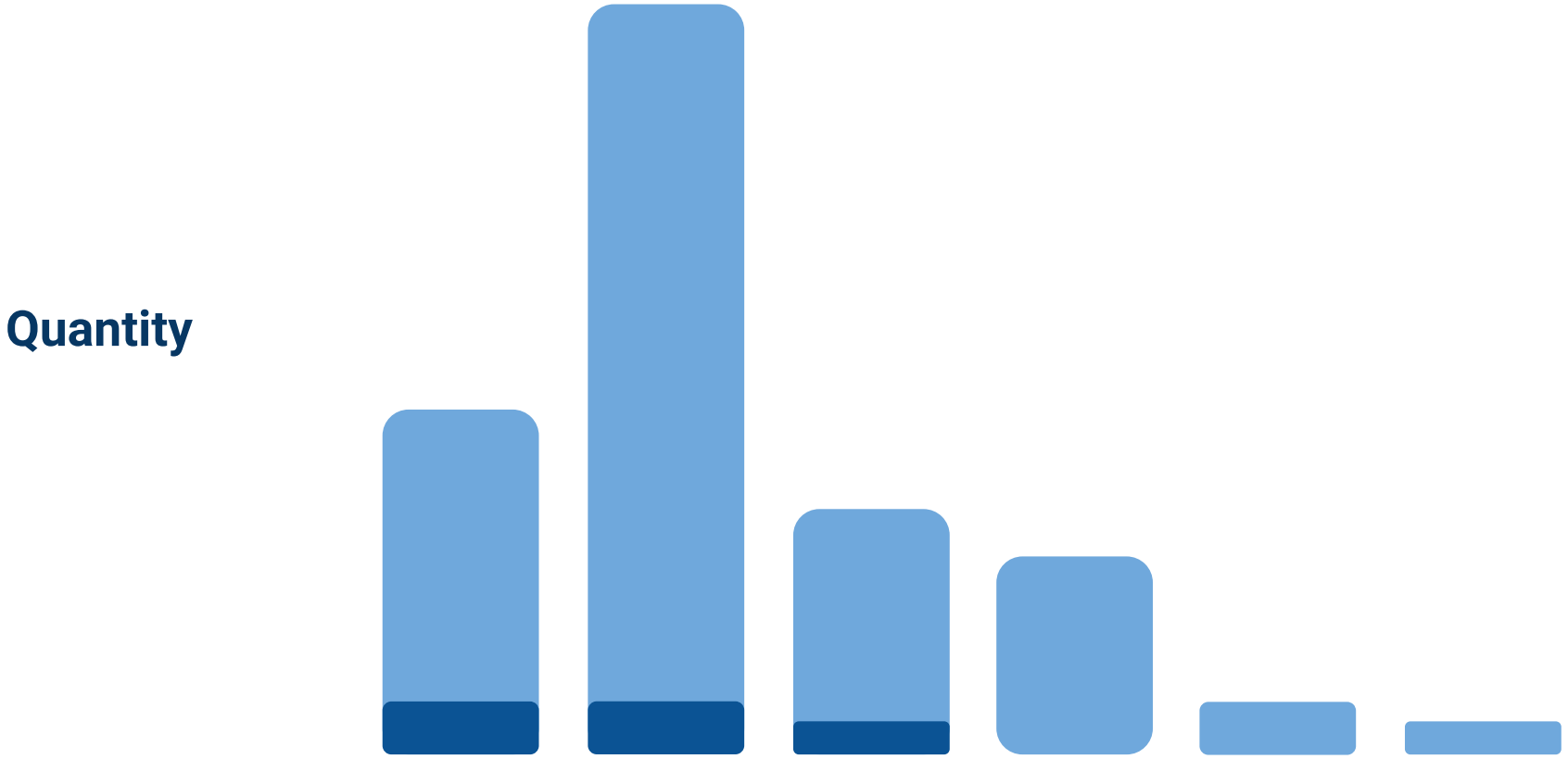

Top-25 Socially and Professionally Active Centenarians

There is little point in increasing human Longevity if the period during which we are no longer able to enjoy and participate in life does not also increase.

This is known as Health Adjusted Life Expectancy (HALE) and Quality Adjusted Life Expectancy (QALE).

A strong indicator of both quality of life and overall health is the ability to remain professionally and socially active.

Currently it's not correct to talk about validated supercentenarians who are professionally and socially active, because most of them are in a protected environment: a nursing facility, a care home, at home with live-in care. However, there are some noteworthy centenarians.

As our understanding of ageing increases and with greater investment in Longevity tech and medicine, it makes sense that active and engaged persons in excess of 110 years of age will eventually become a reality.

Is it impossible that this may include individuals from this current crop of centenarians?

Top-25 Socially and Professionally Active Centenarians Distribution by Nation

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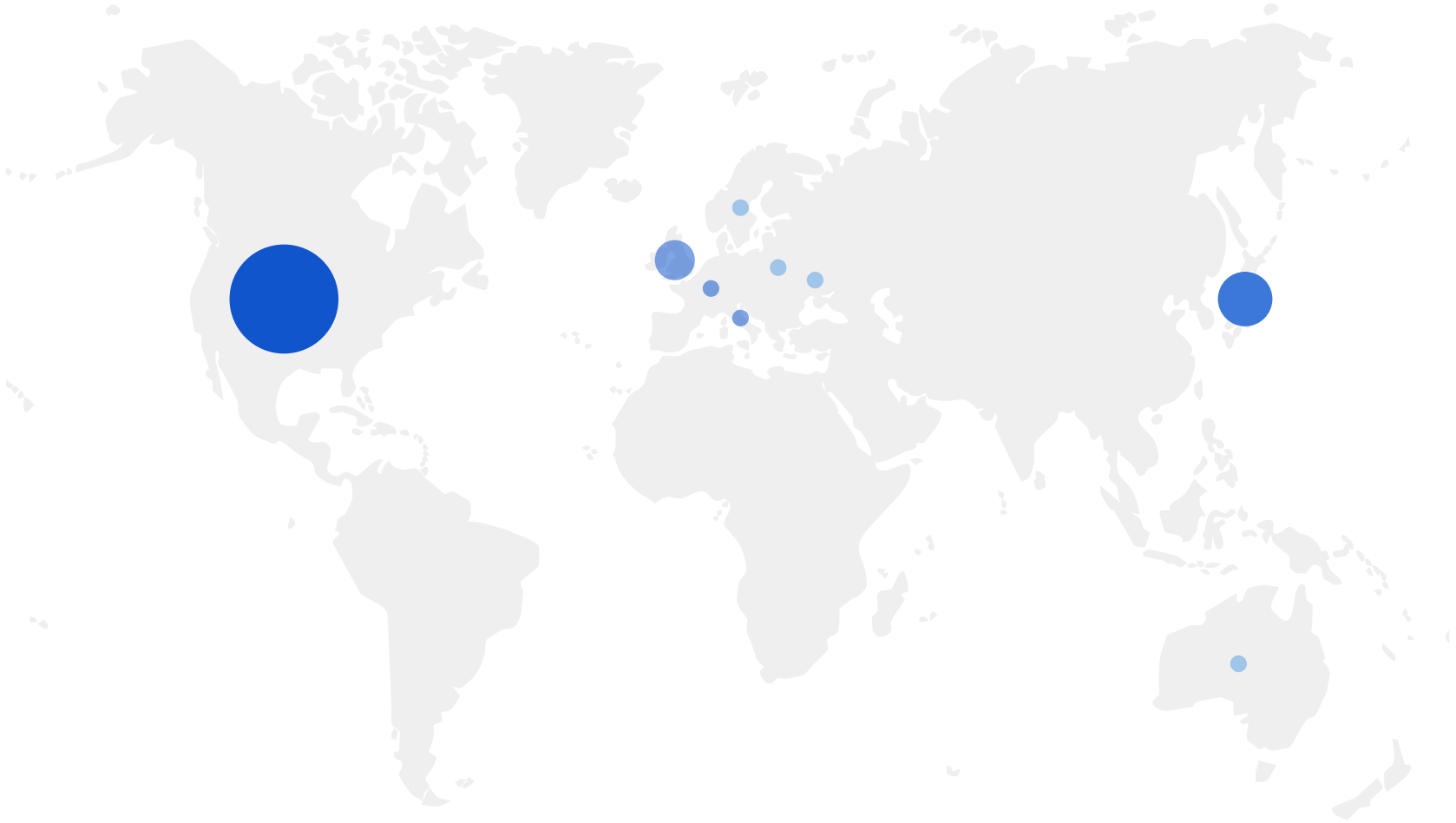

10	USA	3	United Kingdom	2	Italy	1	Poland	1	Ukraine
4	Japan	2	France	1	Australia	1	Sweden		

Top-25 Socially and Professionally Active Centenarians Distribution by Type of Activity

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Business	Social Sector	Arts	Sports	Media	Science
3	3	9	7	1	2

Among currently living and active supercentenarians there is a strong preference toward activities that foster healthy bodies and healthy minds.
Personal expression, whether physically or creatively seems to play a strong role.

Key Findings of the Report

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Factors that contribute to Longevity	Description
Relationships, social inclusion	Kindness, love and a strong sense of community actually make you healthier and happier. There is strong association between good health and positive emotions. Loneliness is harmful to your health. Seniors who report feeling left out and isolated have more trouble with everyday tasks like bathing and climbing stairs. They also die earlier than less-lonely folks do.
Socio-economic status	The socioeconomic level in appears to have an important latent effect on the production of centenarians in both females and males. There are important aspects of socioeconomic indicators: higher overall economic development level, public expenditure on health, mobile telephone subscribers as the standard of living, and the use of improved sanitation facilities for healthy aging.
Brain Activity	Brain activity has role in human aging and Longevity. For the first time, scientists have shown that brain activity has a significant influence on human life span.They demonstrate how neural activity is higher in individuals with shorter life spans and lower in those who live longer lives.
Physical Activity	Regular exercise delivers huge health benefits. It help keep brain cells healthy by delivering more blood and oxygen. In fact, research suggests aerobic exercise may delay or improve symptoms of Alzheimer’s disease.
Genetic Factors	Scientists found that lifestyle plays almost no factor in health and Longevity after the age of 80, and that almost everything in advanced age is due to genetic factors.
Healthy Diet	It is important to eat a healthy diet rich in whole grains, vegetables, and fruits, and substitute healthier monounsaturated and polyunsaturated fats for unhealthy saturated fats and trans fats, take a daily multivitamin, and be sure to get enough calcium and vitamin D, maintain a healthy weight and body shape.
Conscientious	Conscientiousness refers to a person's ability to be self-disciplined, organized, efficient, and goal-oriented. Conscientious people may also have lower blood pressure and fewer psychiatric conditions, as well as a lower risk of diabetes and heart or joint problems.

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Link to the Report: www.aginganalytics.com/supercentenarians

E-mail: info@aginganalytics.com | **Website: www.aginganalytics.com**