Mean Height at 17 Has Stayed Within 170.4–170.9 cm for Boys and 157.8–158.1 cm for Girls Since 1990, Yet 12-Year-Old Boys Rose from 151.4 cm in 1990 to 153.8 cm in 2025 — Dividing the 2019→2025 Difference by One Year of Growth at That Age Gives 0.2 Months for Boys and 0.0 for Girls at Age 6, and at Most 2.1 Months (Boys, 13) and 1.6 (Girls, 11), Concentrated at Pubertal Ages, Not Uniform Like 2020, When Measurement Timing Differed (1.9–2.7 Months for Boys 6–15, 2.0–2.9 for Girls 6–13) [M104]

Read yearly change in height as difference ÷ one year of growth at that age (months) ── What separates them is whether every age moved by the same number of months (a shift in measurement timing) or the change is concentrated at pubertal ages (the shape of when growth happens)

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Abstract

Using the yearly statistics of the Ministry of Education, Culture, Sports, Science and Technology's School Health Statistics Survey (Table 10, mean height by age, school years 1900–2025, ages 5–17, boys and girls), this paper looked at the yearly shape of children's mean height. It asks whether the rise is continuing and whether the shape differs by age. No new mathematical theorem and no new law are claimed.

First, **from 1900 to 2025, mean height at age 6 rose by +9.6 cm for boys and +10.8 cm for girls, and at age 17 by +12.7 cm for boys and +10.9 cm for girls. The maximum at 17 first appeared in 1994**

for both sexes, and in the comparable years from 1990 to 2025 it stays within 170.4–170.9 cm for boys and 157.8–158.1 cm for girls (Section 4).

Second, **among the comparable years (the 113 years from 1900 to 2025 excluding 1921, 1940–1947, and 2020–2023), the maximum falls in 2024 or 2025 (including ties) for boys aged 7–15 and girls aged 7–12, while at age 6, boys 16–17, and girls 13–17 the maximum is always in 2006 or earlier. Boys aged 12 rose from 151.4 cm in 1990 to 153.8 cm in 2025 (+2.4 cm)** (Section 4).

Third, this is the core of the paper. **Dividing the difference by one year of growth at that age (the difference to the neighboring ages in the same year's table) to get months, the change from 2019 to 2020 — a year for which the table's note states that measurement timing differed — was 1.9–2.7 months for boys aged 6–15 and 2.0–2.9 months for girls aged 6–13, nearly the same at every age. From 2019 to 2025 it was 0.2 months for boys and 0.0 for girls at age 6, and at most 2.1 months (boys, 13) and 1.6 (girls, 11), concentrated at pubertal ages** (Section 5).

Fourth, **the age with the largest difference to the next age in the same year's table moved earlier for boys, from 13 in 1900–1939 (38 of 39 years) to 12 in 1960–1999 (37 of 40) and 11 in 2000–2025 (all 22, including ties). For girls it moved from 11 to 10 and 9** (Section 6).

Fifth, **between 1939 and 1948, with 1940–1947 absent from the table, every age became shorter; the largest drop was at age 14 for both sexes (boys −6.1, girls −3.1 cm), and at age 6 it was −1.0 cm for boys and −0.8 cm for girls. In 1948, the age with the largest difference to the next age for boys was 14 (13 in 1939)** (Section 6).

Sixth, what separates them is **whether every age moved by the same number of months (a shift in measurement timing) or the change is concentrated at pubertal ages (the shape of when growth happens)**. When you hear that "children's height is (no longer) rising," check together at which age it was seen and how the difference is arranged across ages.

Scope note: **This paper claims no new mathematical theorem and no new law** — mean height by age is in a public table, and this paper only took differences and divided them by the difference to the neighboring ages in the same year's table to get months. **This paper is a structural interpretation of the shape of numbers in public aggregate data; it is not medical advice, not a diagnosis, and not a treatment recommendation. The author is not a physician. Decisions about individual health should be discussed with a physician or a medical institution. This is a preprint that has not been peer reviewed. The numbers are averages over groups of children and are not a standard for judging any one child's growth or body shape. The reasons mean height moved (nutrition, living conditions, differences by birth year, and so on) cannot be separated with this table and are not discussed.** Following the table's note, 2020–2023 (Reiwa 2–5) include data measured at different times and cannot be compared with the past, so they were excluded from the comparisons (2020 was used only as an example of the shape when measurement timing shifts). The table measures different children each year; it does not follow the same children. "One year of growth" is the difference to the neighboring ages in the same year's table, not one child's growth. **About the data**: the School Health Statistics Survey (Ministry of Education, Culture, Sports, Science and Technology) was taken from e-Stat and used under the Government of Japan Standard Terms of Use (Version 2.0); the differences, one year of growth, months, and differences between adjacent ages in this paper were processed from it. What this paper adds: **dividing yearly differences in height by one year of growth at each age, and using the arrangement across ages to distinguish a shift in measurement timing (the same months at every age) from a change in shape (concentrated at pubertal ages)**.

1. Notation and question

- **Mean height**: the average for children of that school year and age (cm, one decimal place).
- **Comparable years**: the 113 years from 1900 to 2025 excluding 1921 and 1940–1947 (no numbers in the table) and 2020–2023 (which the table's note says cannot be compared with the past).

- **One year of growth**: in the same year's table, half the difference between mean height at ages a−1 and a+1 (for 17, the difference between 17 and 16).
- **Months**: the difference between two years ÷ one year of growth in the earlier year × 12. **If measurement timing shifted by the same number of months at every age, the months would be nearly the same at every age.**

Question: Is the rise in mean height continuing? At which ages does the change appear, and does it have the same shape as a shift in measurement timing?

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2. Preview and design

Written honestly: the design was decided after looking at the table.

	Content
Table	School Health Statistics Survey, yearly statistics, Table 10, mean height by age (1900–2025) (two sheets, boys and girls)
Noticed in the preview	Ages 6 and 17 have been flat since the 1990s, while ages 11–14 (9–12 for girls) are highest in 2024 and 2025
Noticed in the preview (2)	The table's note says Reiwa 2–5 include data measured at different times and cannot be compared with the past. In 2020 every age is higher
Noticed in the preview (3)	Dividing change by one year of growth distinguishes a shift in measurement timing (the same months at every age) from a change in shape (concentrated at particular ages)
Comparison	Long-term series (ages 6, 12, 17); the year of the maximum among comparable years; months for 2019→2020, 2019→2024, 2019→2025, and 1990→2019; the age with the largest difference to the next age; 1939→1948

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3. Data and checks

Calculation 3.1 The retrieved file was fixed by SHA-256, and the following were checked.

- Two sheets, boys and girls. Columns are ages 5–17. There are 118 year rows (1900–2025; no rows for 1940–1947).
- Only 1921 (Taisho 10) has "…" for every age. Every other year has no gaps at ages 6–17. Age 5 is "…" for 1939 and earlier and for 1952 and 1953.
- A note under the boys' sheet says that Reiwa 2–5 include data measured at different times and cannot be compared with past values, and that the same applies to the following tables. The girls' sheet has no note rows.
- Within the same year's table, mean height falls with age in 0 places for boys and 3 places for girls (ages 16 and 17 in 1929, 1935, and 1937).
- Months are used only at ages where one year of growth is 2 cm or more (boys 6–15, girls 6–13, in both 2019 and 1990). Older ages are under 2 cm in 2019. Rounding to one decimal place adds at most ±0.53 months (boys) and ±0.52 months (girls) at the ages used.

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4. Long-term series

Calculation 4.1 Mean height (cm)

Year	Boys 6	Boys 12	Boys 17	Girls 6	Girls 12	Girls 17
1900	107.0	133.9	157.9	104.8	133.0	147.0
1939	109.1	137.8	162.5	108.1	138.8	152.5
1948	108.1	135.0	160.6	107.3	136.1	152.1
1970	114.5	147.1	167.8	113.6	148.4	155.6
1990	116.8	151.4	170.4	116.0	151.5	157.9
2019	116.5	152.8	170.6	115.6	151.9	157.9
2025	116.6	153.8	170.6	115.6	152.4	157.9

Observation 4.2: **From 1900 to 2025, age 6 rose by +9.6 cm (boys) and +10.8 cm (girls), and age 17 by +12.7 cm (boys) and +10.9 cm (girls). The maximum at 17 first appeared in 1994 for both sexes, and the comparable years from 1990 to 2025 stay within 170.4–170.9 cm for boys and 157.8–158.1 cm for girls.**

Observation 4.3: **The difference from 1990 to 2025 is −0.2 cm at age 6, +1.7 at 11, +2.4 at 12, +2.3 at 13, +1.6 at 14, and +0.2 at 17 for boys; −0.4 at 6, +1.1 at 11, +0.9 at 12, and +0.0 at 17 for girls. Among comparable years, the maximum falls in 2024 or 2025 (including ties) for boys 7–15 and girls 7–12, while at age 6, boys 16–17, and girls 13–17 the maximum is always in 2006 or earlier.** The rise continues not at 17, the last age in the table, but at the ages before it.

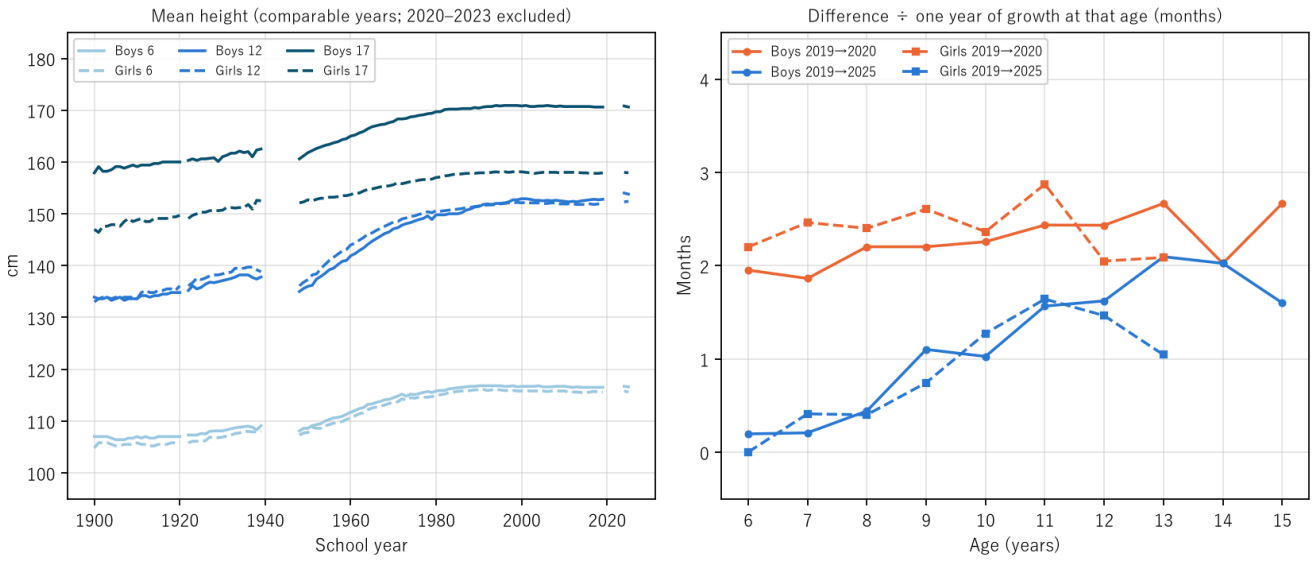


Figure 1: Left, mean height at ages 6, 12, and 17 (solid for boys, dashed for girls; comparable years only). Right, difference ÷ one year of growth at that age (months); orange is 2019→2020, blue is 2019→2025.

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5. The core — dividing the difference by one year of growth at that age

Calculation 5.1 Boys (one year of growth from the 2019 table, cm)

Age	One year of growth	2019→2020 difference	Months	2019→2025 difference	Months
6	6.15	+1.0	2.0	+0.1	0.2
7	5.80	+0.9	1.9	+0.1	0.2
8	5.45	+1.0	2.2	+0.2	0.4
9	5.45	+1.0	2.2	+0.5	1.1
10	5.85	+1.1	2.3	+0.5	1.0
11	6.90	+1.4	2.4	+0.9	1.6
12	7.40	+1.5	2.4	+1.0	1.6
13	6.30	+1.4	2.7	+1.1	2.1
14	4.15	+0.7	2.0	+0.7	2.0
15	2.25	+0.5	2.7	+0.3	1.6

Calculation 5.2 Girls (one year of growth from the 2019 table, cm)

Age	One year of growth	2019→2020 difference	Months	2019→2025 difference	Months
6	6.00	+1.1	2.2	+0.0	0.0
7	5.85	+1.2	2.5	+0.2	0.4
8	6.00	+1.2	2.4	+0.2	0.4
9	6.45	+1.4	2.6	+0.4	0.7
10	6.60	+1.3	2.4	+0.7	1.3
11	5.85	+1.4	2.9	+0.8	1.6
12	4.10	+0.7	2.0	+0.5	1.5
13	2.30	+0.4	2.1	+0.2	1.0

Observation 5.3: **From 2019 to 2020, the months were 1.9–2.7 for boys aged 6–15 and 2.0–2.9 for girls aged 6–13, nearly the same at every age. Months at age 6 ÷ the largest months are 0.73 for boys and 0.77 for girls. The difference in measurement timing stated in the table's note fits this shape. From 2019 to 2025, age 6 gives 0.2 months for boys and 0.0 for girls, the largest is 2.1 months (boys, 13) and 1.6 (girls, 11), and age 6 ÷ the largest is 0.09 for boys and 0.00 for girls.** From 2019 to 2024, age 6 is also 0.4 months for both sexes (age 6 ÷ the largest is 0.19 for boys and 0.16 for girls), so no shift in measurement timing is visible at age 6 in 2024 and 2025.

Observation 5.4: **The same shape existed before 2019. From 1990 to 2019, boys' months were −0.6 at age 6, 1.5 at 11, and 2.3, 2.2, and 2.4 at 12–14** (one year of growth from the 1990 table). For girls it was −0.8 at 6 and 1.3 at 10, less clear than for boys.

Observation 5.5: The higher values at pubertal ages in 2024 and 2025 do not have the shape of a shift in measurement timing (the same months at every age); they have a shape concentrated at pubertal ages. What changed cannot be known from this table.

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6. The age with the largest difference to the next age

Calculation 6.1 In the same year's table, the a for which the difference in mean height between ages a and a+1 is largest (comparable years; ties counted for both)

Years	Count	Boys	Girls
1900–1939	39	13: 38 times, 12: once	11: 34 times, 12: 3 times, others
1948–1959	12	14: 11 times, 12: once	11: 9 times, 10: twice, 12: once
1960–1999	40	12: 37 times, 11: 3 times, 13: once	10: 34 times, 9: 10 times, 11: once
2000–2025	22	11: 22 times, 12: 3 times	9: 18 times, 10: 9 times

Observation 6.2: **The age with the largest difference to the next age moved earlier, from 13 to 12 to 11 for boys and from 11 to 10 to 9 for girls. However, for boys in 1948–1959 it was 14 (11 of 12 years), later than 13 in 1939.** For girls in 1900, ages 6 and 8 were tied. These are differences between different children lined up in the same year, not the peak of one child's growth.

Calculation 6.3 1939→1948 (1940–1947 absent from the table)

Age	6	12	13	14	15	17
Boys, difference (cm)	−1.0	−2.8	−4.2	−6.1	−5.4	−1.9
Girls, difference (cm)	−0.8	−2.7	−2.9	−3.1	−1.6	−0.4

Observation 6.4: **From 1939 to 1948, every age from 6 to 17 became shorter; the largest drop was at 14 for both sexes (boys −6.1, girls −3.1 cm), and at 6 it was −1.0 cm for boys and −0.8 cm for girls. The first year that regained the 1939 level was 1951 at age 6 and 1956 at 14 for boys, and 1951 at 6, 1955 at 14, and 1950 at 17 for girls.** The drop, too, was concentrated at pubertal ages (in the opposite direction to the rise in 2024 and 2025). The reasons cannot be known from this table.

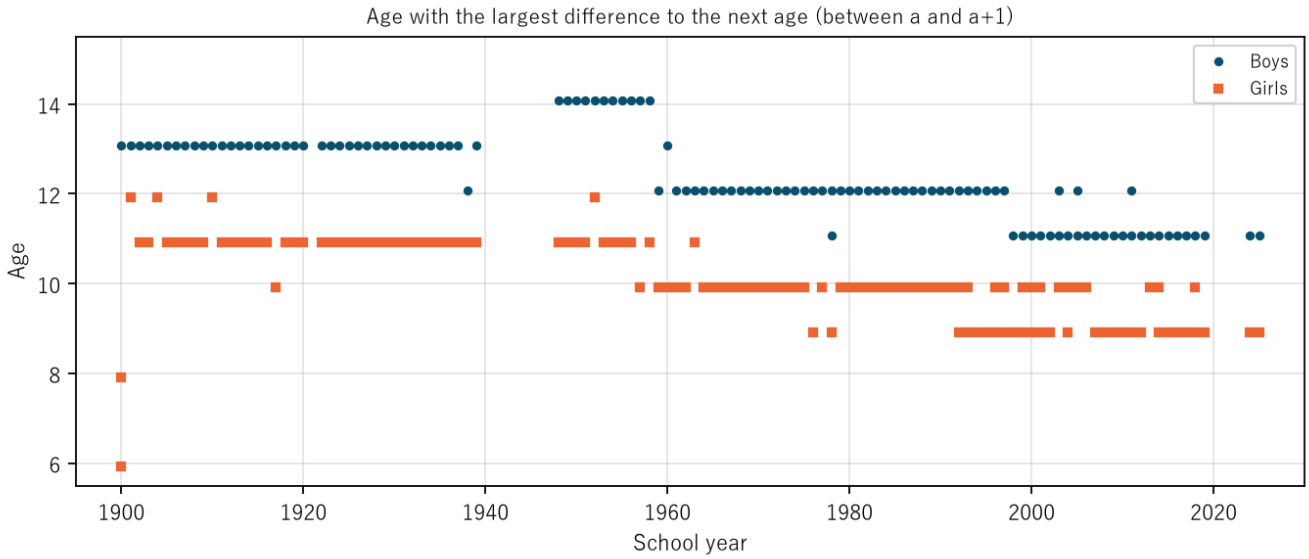


Figure 2: In the same year's table, the a for which the difference in mean height between ages a and a+1 is largest (circles for boys, squares for girls; ties drawn for both; comparable years only).

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7. Limitations

1. **The numbers are averages over groups of children and are not a standard for judging any one child's growth or body shape. The reasons mean height moved (nutrition, living conditions, differences by birth year, and so on) cannot be separated and are not discussed.**
2. The table measures different children each year, and "one year of growth" is the difference to the neighboring ages in the same year's table. It does not follow the same children.
3. 2020–2023 were excluded from comparisons following the table's note. That the 2020 months are uniform fits a difference in measurement timing, but how large the shift was is not checked with this table.
4. Only means were examined. Spread (standard deviation, distribution) was not.
5. The table ends at 17; height after that is not known.
6. Rounding to one decimal place adds up to ±0.53 months to the months. Ages where one year of growth is under 2 cm were not used for months.

Conclusion

Mean height at 17 has stayed within 170.4–170.9 cm for boys and 157.8–158.1 cm for girls since 1990. Even so, boys aged 12 rose from 151.4 cm in 1990 to 153.8 cm in 2025. Dividing the difference by one year of growth at that age, 2020, when measurement timing differed, was uniform at 1.9–2.9 months at every age, while 2019→2025 gave 0.2 months for boys and 0.0 for girls at age 6 and at most 2.1 months (boys) and 1.6 (girls).

What separates them is one thing — whether every age moved by the same number of months (a shift in measurement timing) or the change is concentrated at pubertal ages (the shape of when growth happens).

When you hear that "children's height is (no longer) rising," **check together at which age it was seen and how the difference is arranged across ages.**

Data and reproduction

Data	School Health Statistics Survey, yearly statistics, Table 10, mean height by age (1900–2025) (Ministry of Education, Culture, Sports, Science and Technology, e-Stat) (retrieved 26 September 2026)
Terms of use	e-Stat follows the Government of Japan Standard Terms of Use (Version 2.0). The differences, one year of growth, months, and differences between adjacent ages in this paper were processed from it and are not numbers produced by the government
Coverage	Japan; school years 1900–2025; ages 5–17; boys and girls
Verification	`検算/M104.py` (`--zu` also draws the figures). Every number in the text is taken from `検算/M104_output.txt`
Raw data	`data/` holds the retrieved file and `SOURCES.md` (URL, retrieval date, SHA-256, terms of use, definitions and how the calculations were set up)
Figures	`図/M104_zu1` and `図/M104_zu2` (png, svg, English versions)

References

- Ministry of Education, Culture, Sports, Science and Technology. School Health Statistics Survey, yearly statistics, Table 10: Mean height by age (1900–2025) (in Japanese). e-Stat (accessed 26 September 2026). https://www.e-stat.go.jp/