

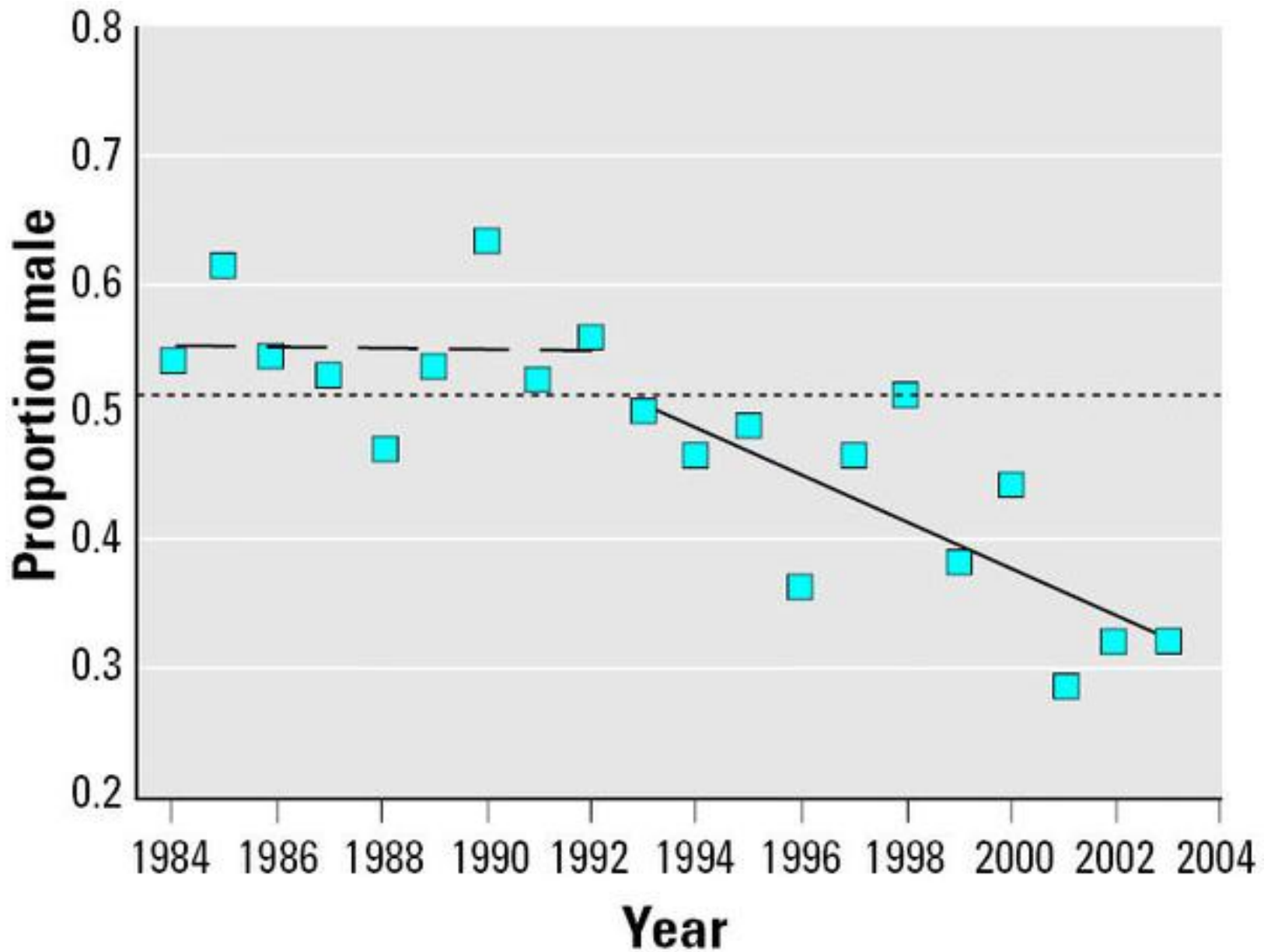
Endocrine Disruptors:
The Proposed Aamjiwnaang
Birth Mapping Project

Michael Gilbertson

Community Forum on Pollution and Action

Friday, February 11, 2011,

Holiday Inn, Sarnia.



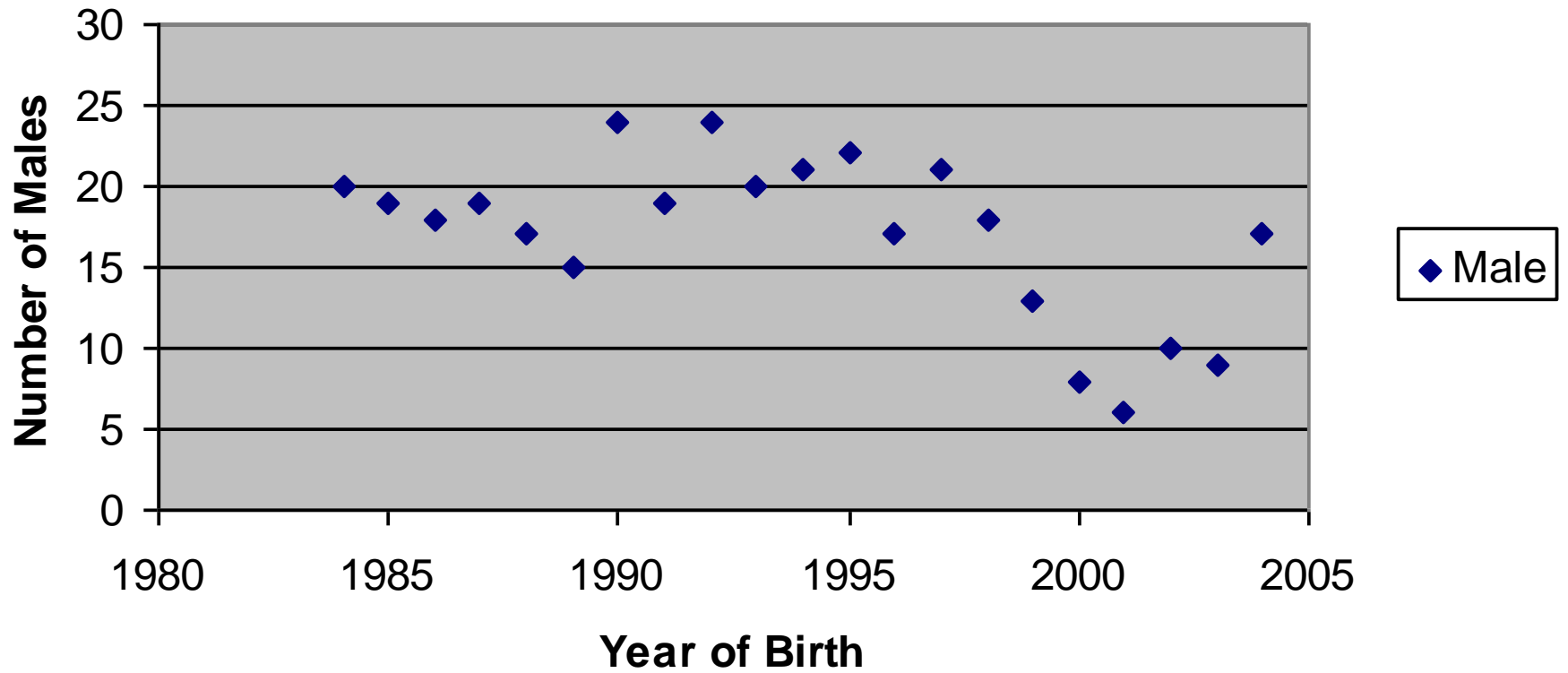
Declining Sex Ratio in a First Nation Community: Constanze A. Mackenzie, Ada Lockridge, and Margaret Keith (2005) *Environ Health Perspect* 113:1295–1298.

Table 1. Total live births, proportion of live male births (male live births/total live births), χ^2 , and p -value for Aamjiwnaang First Nation 1984–2003 arranged in 5- and 10-year periods.

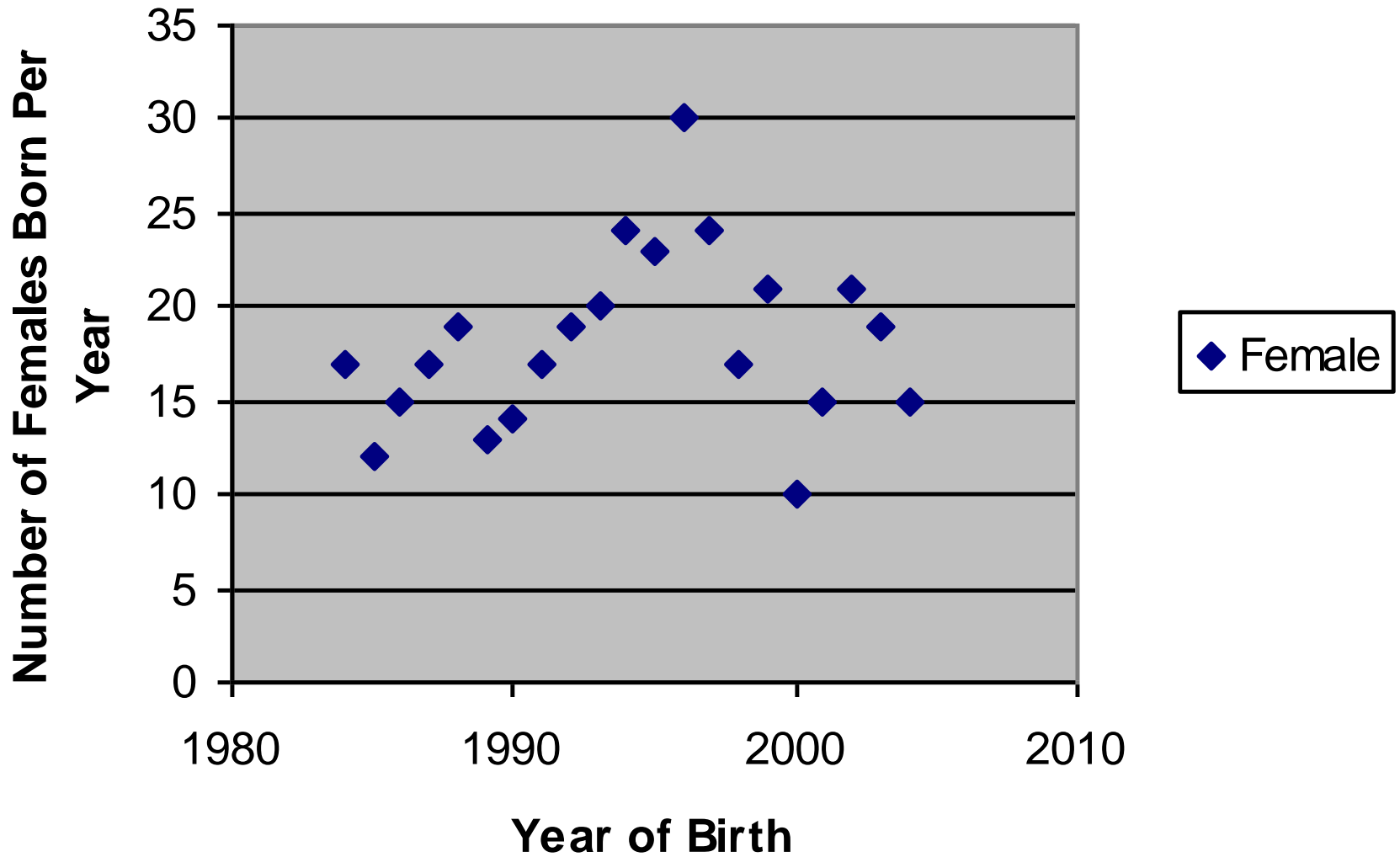
Period	Total live births	Proportion male births	χ^{2a}	p -Value
5-Year				
1984–1988	173	0.538	0.185	0.667
1989–1993	185	0.551	0.532	0.466
1994–1998	215	0.451	1.574	0.210
1999–2003	132	0.348	7.472	0.006*
10-Year				
1984–1993	358	0.545	0.807	0.369
1994–2003	347	0.412	7.100	0.008*

^aChi-square was performed using an expected male proportion equal to 0.512; $df = 1$. *Highly significant statistical deviation ($p < 0.01$) from the expected proportion of males using Chi-square analysis.

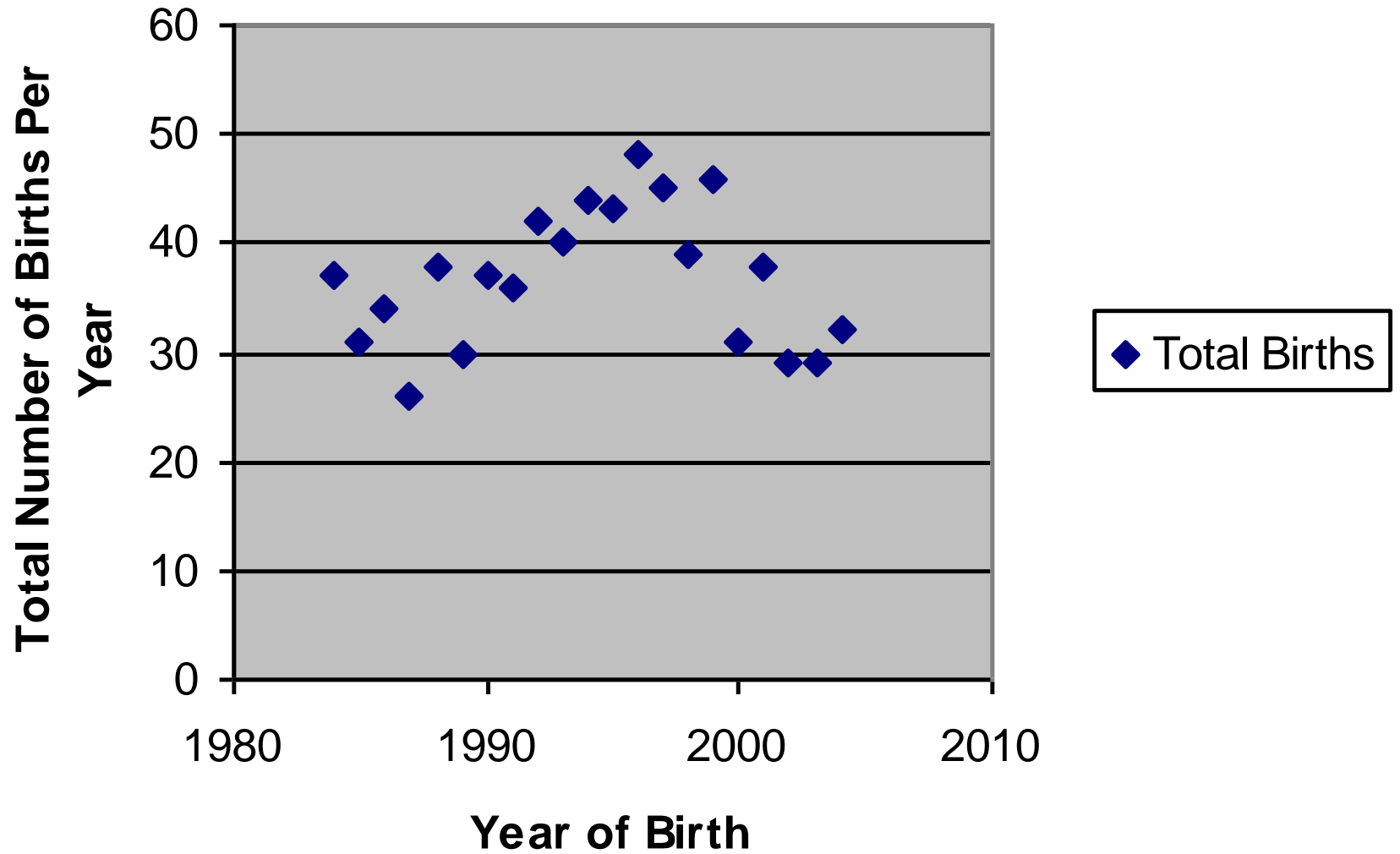
Number of Males Born per Year



Number of Females Born Per Year



Total Births Per Year (1984-2004)



Conclusions

- Indications of Changes in Sex-Ratio;
- Indications of Decrease in Number of Births;
- Suggest About 10 Births per Year Lost for 10 years?
- Need for Further Research –
 - Verification of Results;
 - Update on Trends;
 - Causes?

Limitations of the Method

- **Assumptions**
- Band Membership was Equivalent to Births;
- All Births Result in a Band Membership;
- No Changes in Registration Process;
 - Eligibility Requirements;
- Parents Follow Through with Registration;
- Omitted Miscarriages, Stillbirths and Handicaps.

Limitations of the Method

- No Data on Causes
- Smoking;
- Alcohol;
- Pharmaceutical and Illicit Drugs;
- Exposures to Pollution;
 - Explosions;
 - Spills/Leaks;
 - Normal Operations - Fugitive Emissions.

Next Steps

- Need for Independent Method to Find
- Births;
- Miscarriages and Stillbirths
- Sex Ratio;
- Map Patterns;
- Find Possible Sources of Pollution.

AAMJIWNAANG ENVIRONMENT COMMITTEE

NAME OF INTERVIEWER

DATE OF INTERVIEW

BIRTH MAPPING QUESTIONNAIRE

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IDENTIFICATION (Will not be used in reports or publications)

NAME	BAND NUMBER	DATE OF BIRTH	BIRTH PLACE

**INTERVIEW
OUTCOME**

COMPLETED
PARTLY COMPLETED

NOT AT HOME
POSTPONED

DECLINED
OTHER

Hello. My name is (NAME OF INTERVIEWER). I am working with The Aamjiwnaang Environment Committee. We are conducting a survey about where the children of the Aamjiwnaang Band were born. The information we collect will help the Environment Committee and the Band Council to understand whether there are effects of local pollution. These questions usually take about 10 to 15 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.

Do you have any questions? May I begin the interview now?

SIGNATURE OF INTERVIEWEE

MOTHER'S INFORMATION

What is/was your mother's name?

What was your mother's date of birth?

Where was your mother born?

FATHER'S INFORMATION

What is/was your father's name?

What was your father's date of birth?

Where was your father born?

Now I would like to ask about all the births you have had during your life.

Have you ever given birth?

Yes

No

How many children have you given birth to?

Boys

Girls

Have you had any miscarriages or stillbirths?

Boys

Girls



**Weeks 3 & 4*:
Poppyseed**

Your little zygote is settling into your uterus...

> [More on what baby's up to](#)



Week 8: Raspberry

Average size: .63 in, .04 oz

Little arms and legs are moving like crazy...

> [More on what baby's up to](#)



Week 12: Plum

Average size: 2.1 in, .49 oz

Almost all vital systems are fully formed...

> [More on what baby's up to](#)



Week 5: Appleseed

*Average size: .13 in***

Major organs and systems are forming...

> [More on what baby's up to](#)



Week 9: Green Olive

Average size: .9 in, .07 oz

A Doppler device might pick up a heartbeat...

> [More on what baby's up to](#)



Week 13: Peach

Average size: 2.9 in, .81 oz

Teeth and vocal cords are appearing...

> [More on what baby's up to](#)



Week 6: Sweet Pea

Average size: .25 in

Blood is starting to circulate...

> [More on what baby's up to](#)



Week 10: Prune

Average size: 1.2 in, .14 oz

Arm joints are working, and soon legs will too...

> [More on what baby's up to](#)



Week 14: Lemon

Average size: 3.4 in, 1.5 oz

Liver, kidney and spleen are continuing to develop...

> [More on what baby's up to](#)



Week 7: Blueberry

Average size: .51 in

Baby's brain is growing fast...

> [More on what baby's up to](#)



Week 11: Lime

Average size: 1.6 in, .25 oz

Fingers and toes are no longer webbed...

> [More on what baby's up to](#)



Week 15: Naval Orange

Average size: 4.0 in, 2.5 oz

Legs are finally longer than arms...

> [More on what baby's up to](#)



Week 16: Avocado
Average size: 4.6 in, 3.5 oz
 Eyebrows, lashes and hair are filling in...
 > [More on what baby's up to](#)



Week 17: Onion
Average size: 5.1 in, 5.9 oz
 Skeleton is hardening, and fat is accumulating...
 > [More on what baby's up to](#)



Week 18: Sweet Potato
Average size: 5.6 in, 6.7 oz
 Baby's moving like crazy -- feel anything yet?
 > [More on what baby's up to](#)



Week 19: Mango
Average size: 6.0 in, 8.5 oz
 Vernix caseosa is coating baby's skin...
 > [More on what baby's up to](#)



Week 20: Cantaloupe
Average size: 6.5 in, 10.6 oz
 Boy or girl, genitals are fully formed...
 > [More on what baby's up to](#)



Week 21: Banana
*Average size: 10.5 in***, 12.7 oz*
 Taste buds are starting to work...
 > [More on what baby's up to](#)



Weeks 21-24 (Month 5): Papaya
Average size: 10.5-11.8 in, 12.7-20.8 oz
 Nipples are sprouting, and face is fully formed!
 > [More on what baby's up to](#)



Weeks 25-28 (Month 6): Eggplant
Average size: 13.6-14.8 in, 1.5-2.2 lb
 Immune system is preparing for the outside world...
 > [More on what baby's up to](#)



Weeks 29-32 (Month 7): Squash
Average size: 15.2-16.7 in, 2.5-3.8 lb
 Sleeping and waking cycles are establishing...
 > [More on what baby's up to](#)



Weeks 33-36 (Month 8): Honeydew
Average size: 17.2-18.7 in, 4.2-5.8 lb
 Growth is slowing, and baby may soon descend...
 > [More on what baby's up to](#)



Weeks 37-Delivery (Month 9): Watermelon
Average size: 18.9-20.9 in, 6.2-9.2 lb
 Full term! Baby's finally ready for the outside world...
 > [More on what baby's up to](#)

Comparison of Embryo/Fetus Size With Familiar Fruits and Vegetables (2)