

# How DNA Testing Can Help Your Genealogy Research

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## 1. Why Should Genealogists Take a DNA Test

- Curious about their origins.
- Curious about what the results would show
- Medical information
- Exchange information.
- Prove or disprove their oral history.
- Test relationship theories.

## 2. Testing Companies

- FamilytreeDNA – Y-DNA, mtDNA, and Autosomal
- 23andme – autosomal only
- Ancestry.com – autosomal only
- MyHeritage – autosomal only
- Many new companies

## 3. Y-DNA

### • Y-DNA – Overview

- a) Y-DNA is given from father to son
- b) Identifies male line
- c) Common ancestor with matches may be anywhere within six generations

### • Y-DNA – Benefits

- a) Your close matches definitely share a common paternal line ancestor with you
- b) Matches will reveal birth father's surname or variation unless the name was purposely changed

### • Y-DNA – Limitations

- a) Only males can be tested.
- b) Only checks the paternal line
- c) Common ancestors may have lived hundreds of years ago
- d) The time to your most recent common ancestor can only be estimated

#### 4. Mitochondrial DNA (mtDNA)

- **Mitochondrial DNA (mtDNA) – Overview**

- a) Passed to sons and daughters from their mother
- b) Son cannot pass mtDNA to his children
- c) Can be used to identify the maiden names of mothers

- **Mitochondrial DNA – Benefits**

- a) The value would be in identifying possible relationships in incomplete branches and finding lost close cousins.
- b) Your close matches share a common maternal line ancestor with you

- **Mitochondrial DNA – Limitations**

- a) Only checks the maternal line
- b) Common ancestors may have lived many years ago
- c) The time to your most recent common ancestor cannot be easily estimated

#### 5. Autosomal

- **Autosomal – Overview**

- a) Tests all DNA genes
- b) Can identify close relationships
- c) Identifies ethnic origins
- d) Some companies use to identify medical information

- **Autosomal – Benefits**

- a) Tests autosomes not analyzed by mtDNA and Y-DNA tests
- b) May help discover previously unknown cousins
- c) May confirm close relationships

- **Autosomal – Limitations**

- a) Some relationships at 3rd cousin level and beyond may not show up as matches (some DNA is lost with each new generation)
- b) The more distant matches are only speculative
- c) If ancestors married cousins or were part of close-knit ethnic groups, relatives may appear to be closer than they really are
- d) Only clues to relationships on another side of "Brick Walls."

#### 6. Autosomal – Tools

- Surname searches (All)
- Shared Matches (Ancestry & FamilytreeDNA)
- Notes for matches (Ancestry & FamilytreeDNA)
- Family Trees (all but 23andMe)
- Genetic Communities (Ancestry only)
- Contact Matches (All)
- Chromosome Matching (FamilytreeDNA only)

## 7. Where to Start

- Use close matches – 1<sup>st</sup>, 2<sup>nd</sup>, and then 3<sup>rd</sup> cousins
- (identify which branch of the family)
  - a) Surname search of known ancestors
  - b) Shared matches
- Put findings in notes
- Search attached family trees to confirm who is common ancestors
- Contact matches without trees to find common ancestors if significant

## 8. Tips when contacting matches

- Upload a complete tree of direct ancestors
- Update your profile
- Send your message from the DNA match page
- Introduce yourself and the purpose of your research
- Be as specific as possible to avoid confusion Vague messages make it difficult to give a helpful response
- Possibly a list of common ancestors as indicated by the projected relationship
- Do not overwhelm with too much information as this may discourage a response
- Don't assume the person you are contacting is a genealogist

## 9. Steve's Mystery DNA

	Ancestry	23andme	FamilyTreeDNA	Estimate from Family Tree Research
European	99.9%	99.8 %	99.0%	100%
· British & Irish	40.0%	12.7%	24.0%	0.0%
· French & German	14.0%	10.4%	6.0%	12 to 20%
· Northern European	9.0%	36.2%	31.0%	50.0%
· Eastern European	35.0%	30.6%	38.0%	30 to 38%
· Broadly European		9.9%		0.0%
Other	2.0%	.2%	1.0%	0.0%

10. Steve's Mystery DNA – Additional DNA Testing
  - Y-DNA – 2<sup>nd</sup> cousin on father's (did not match)
  - Y-DNA – 1st cousin on father's (did not match)
  - Autosomal – 2<sup>nd</sup> cousin on father's (did not Match)
  - Autosomal - Sister
  
11. Steve's Mystery DNA – Research for new family members
  - Used 1940 Census and 1946 City Directory to determine who was in Bloomington with a name similar to **Wertenberger (YDNA match)**
  - Used tools on DNA testing websites to find new family members (1<sup>st</sup> and 2<sup>nd</sup> cousin matches, family trees, surname searches, common matches)
  - More DNA tests of possible new 1<sup>st</sup> cousins or siblings
  
12. Steve's Mystery DNA – additional DNA testing
  - Identified four brothers who could be my biological father
  - Paid for three autosomal test kits for descendants of two of the brothers
  - Granddaughter of the third brother took the autosomal test without being contacted
  - Results of DNA tests identified my biological father
  - I now have two new brothers and one sister (met them in June 2017)
  
13. Surprise #2
  - New first cousin appeared in my match results
  - I recognized her from her family tree (We went to same grade school)
  - Picture of her younger sister could be a picture of my older sister
  - They were not cousins nor known to be related before the DNA test
  - Need more DNA results from her cousins to determine where the non-marital event happened

**Curiosity may bring an unwanted surprise**