

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 ancestors with matches may be anywhere within six generations
- **Y-DNA – Benefits**
 - a) Your close matches definitely share a common paternal line ancestor
 - b) Matches will reveal the 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) It can be used to identify the maiden names of mothers
- **Mitochondrial DNA – Benefits**
 - a) The value would be 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 readily estimated

5. Autosomal

- **Autosomal – Overview**

- a) Tests all DNA genes
- b) Can identify close relationships
- c) Identifies ethnic origins
- d) Some companies use it 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
- Shared Matches
- Notes for matches
- Family Trees
- Genetic Communities
- Contact Matches (All)
- Chromosome Matching

7. Use this to project common ancestors from cousin matches

X great-grandfather = X+1st cousin

2nd great-grandfather = 3rd cousin

or grandfather = 1st cousin

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 yourself with too much information, as this may discourage a response
- Don't assume the person you are contacting is a genealogist

9. Autosomal – Steps to Get Started

- Use close matches – 1st, 2nd, and then 3rd 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

10. Who has the 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)

11. Strategy - Focus on why you took the test

- If you want the most matches:
 - i. Pay for the AncestryDNA test
(note 23andMe does not have as many tools as AncestryDNA)
 - ii. Download raw data
 - iii. Upload data to FamilyTreeDNA and MyHeritageDNA
- If you are only curious about your origins:
 - i. The big four will give you a reasonable estimate
 - ii. Uploading to multiple companies may be confusing, but it should give you a reasonable average
- For medical reports – MyHeritage or 23andMe
- If needed, use multiple types (YDNA, mtDNA, and atDNA) to accomplish your goals
- Use traditional genealogical databases (online trees, census, BMD, etc.) to achieve goals