

How to Determine How Much Autosomal DNA You Share Mary Eberle, JD

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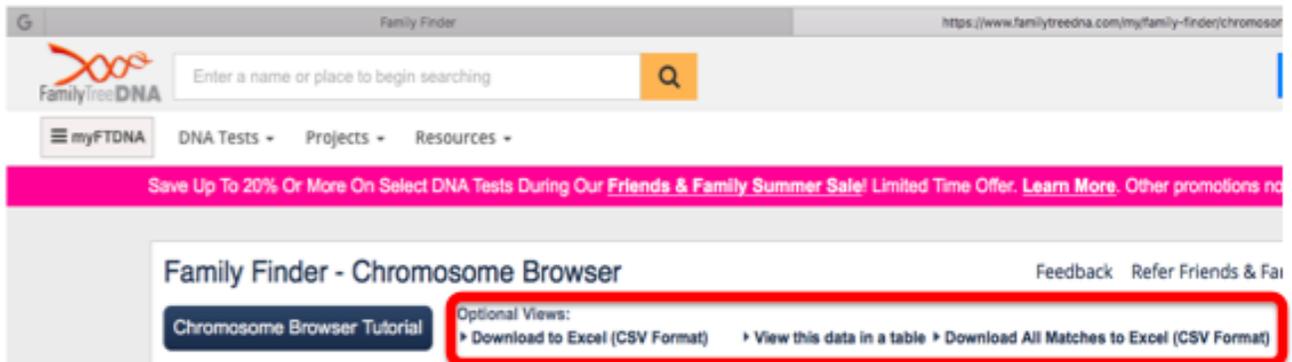
Background: Determining how much DNA you share with a match is required to figure out the possible relationships you have to that match. Not all DNA testing companies accurately predict your relationships. Thus, it's important to do it yourself. Here's how:

1. How to determine how much DNA you share with a match
 - a. Shared DNA is measured in centiMorgans (cM) or percents (%)
 - i. cM can be thought of as a length, like inches.
 - ii. % is just that—the % of DNA you share with a match.
 - b. Companies reporting in cM or %s - Depends on testing company or website
 - i. cM
 1. Ancestry
 2. FamilyTreeDNA
 3. GedMatch
 - ii. %
 1. 23andMe use % in your match list
 2. But if you do a comparison to a match, it will show you cMs shared
2. How do you find the amount of DNA shared with a match?
 - a. Ancestry
 - i. Click on 1 match, then
 - ii. Click on little "i" to show how much DNA is shared

The screenshot shows a match profile on AncestryDNA. At the top, there is a star icon, a profile picture placeholder, and a blue bar. Below this, it says "Member since 2007, last logged in Jun 24, 2017". The predicted relationship is "2nd Cousins" with a possible range of "2nd - 3rd cousins" and a link "What does this mean?". A green progress bar indicates "Confidence: Extremely High". A red arrow points to an information icon (i) next to the confidence text. A tooltip box is open, showing "Amount of Shared DNA" and "219 centimorgans shared across 11 DNA segments". Below the tooltip, there is a "PED" icon and another link "What does this mean?".

b. FamilyTreeDNA

- i. need to subtract segments under 7 cM
- ii. Reason:
 1. To only use segments that are “identical by descent” (IBD; usually 7 or more cM are IBD and helpful) and
 2. to remove segments that are “identical by state” (IBS; usually fewer than 7 cM are IBS and *not* helpful). It also throws off the ability to use the reference tables showing possible relationships!
- iii. FTDNA over-predicts your matches’ closeness (says they are closer than they are)
 1. To determine amount of Shared DNA
 - a. Select up to 5 match(es)
 - b. Click on Chromosome Browser (CB)
 - c. Once in CB, you can
 - i. Download to Excel (far left choice)
 - ii. View data in table (middle choice)
 1. Then add up segments 7 cM or larger
 2. Compare your *new* total cM to table with possible relationships (in **DNA Detectives Autosomal Statistics Chart** handout) or on Possible Relationships Calculator at <http://dnahunters.com/possible-relationships-calculator/>



- c. 23andMe uses % and cM
 - i. No adjustment needed!
 - ii. 23andMe use % in your match list
 - iii. But if you do a comparison to a match, it will show you cMs shared

- 3. Look at average cMs or %s & ranges shared between various relationships at one of the following
 - i. ISOGG: http://www.isogg.org/wiki/Autosomal_DNA_statistics
 - ii. Possible Relationships Calculator on www.DNAHunters.com
 - iii. table from DNA Detectives (another handout)
 - iv. Remember:
 - 1. Averages of shared amount of DNA varies. The smaller the number, the higher the variation.
 - 2. There are a lot of ways that two people can share the same amount of DNA. This is where trees are so important! Need paper documentation to confirm your DNA findings

*Try the **Possible Relationship Calculator** on Mary's website at <http://dnahunters.com/possible-relationships-calculator/>. Input the shared centiMorgans (cM) (or % shared DNA) for a DNA match, and get the possible relationships to that match.*