# DNA - When Cousins Marry
# Endogamy vs. Pedigree Collapse for Genealogical Research

By Constance Henley Knox

This handout is from the video on Genealogy TV by the same name. I this video I interviewed Diahan Southard to discuss the differences between Pedigree Collapse vs. Endogamy and how we can determine these relationships within our family history.

## Definitions

Centimorgans (cM) is a unit of measurement to determine the genetic distance between two relatives. The larger number of cM's, the closer you are related. See the Shared cM Project to see all possible relationships for any given cM's you share with another DNA match.

"Pedigree Collapse describes how reproduction between two individuals who share an ancestor causes the number of distinct ancestors in the family tree of their offspring to be smaller than it could otherwise be." (ISOGG Wiki)

"Endogamy is the practice of marrying within the same ethnic, cultural, social, religious or tribal group. In endogamous populations everyone will descend from the same small gene pool. People will be related to each other in a recent genealogical timeframe on multiple ancestral pathways and the same ancestors will, therefore, appear in many different places on their pedigree chart. Endogamy can be the result of a conscious decision or cultural pressure to marry within the selected group but also occurs as a result of geographical isolation (for example, in island communities)." (ISOGG Wiki)

Diahan Southard says "Endogamy is when you have Pedigree Collapse over and over and over again."

ISOGG - **International Society of Genetic Genealogy**

IBS vs. IBD

IBS means Identical by State (or DNA from the general population).
IBD means Identical by Descent (or DNA from our genetic relationships within our pedigree).

## Determine Endogamy

Look for the longest shared segment. Segments longer than 20 cM's is an indication there is *no* endogamy. If you have a lot of cM's in many smaller segments (less than about 20 cM's), where you cannot find an identifiable long segment, you likely have an endogamous pedigree. Examples of endogamous population are some Jewish, Arcadian, Pacific Islanders or any population that were bound by geographic restrictions, such as an island.

## Determine Pedigree Collapse

Look for ancestors that show up in two or more direct family lines. I have found Wikitree's fan chart can help visualize where you have duplicating ancestors in lines, indicating Pedigree Collapse.

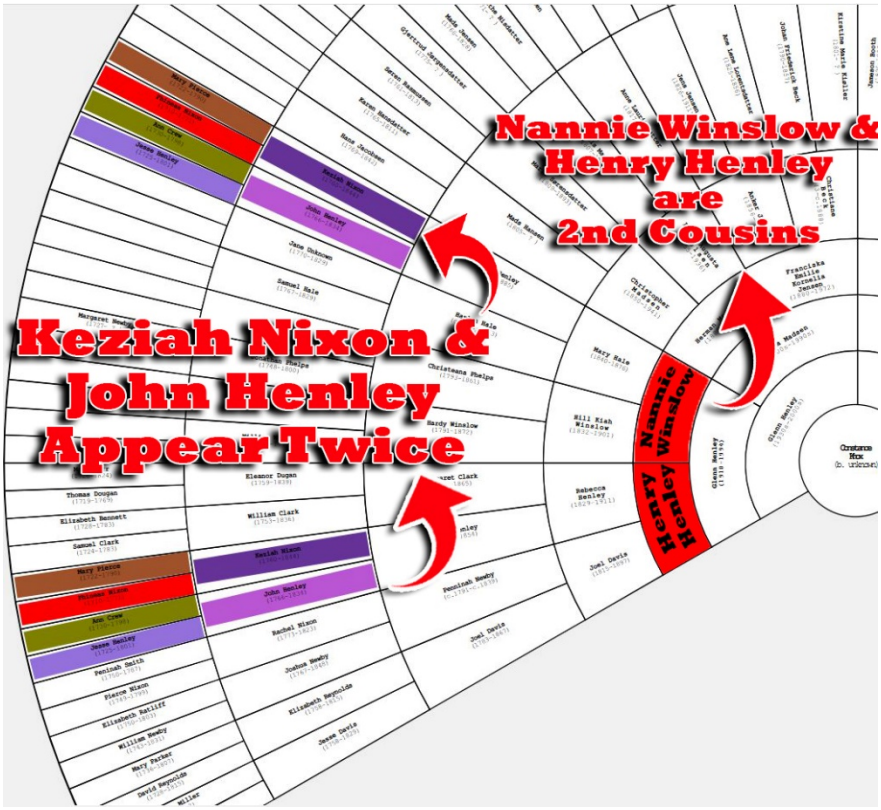
Pedigree Collapse only effects your DNA results if the cousins marrying cousins happens within recent generations. You may also see this when two brothers marry two sisters. There may be other variations too, like a man who has children from two different sisters.

## Two Relationships

In some cases, you may find DNA matches may have two different of relationships. Shown in the video, Fred and Fiona were 2nd cousins and 4th cousins. Adding the average cM's for both relationships (using the Shared cM Project) would give you the expected DNA range. Compare the expected DNA range to the reported cM's shown with DNA matches, should be within the expected range.

WikiTree Fan Chart (not mentioned in the video)

Using the WikiTree Fan chart, you can turn on colors to find repeating ancestors. The purple colors show where an ancestral couple repeats in my family. Going down three generations, shows where my great grandparents Henry Henley and Nancy Winslow were 2nd Cousins. As a result, there might be a slight increase in the cM count among the descendants from this couple.



## AncestryDNA

Ancestry uses the Timber Algorithm cuts off the pile-up regions that represents the general population and has no genealogical significance. This helps create better quality DNA matches. You should also know that AncestryDNA no longer shows less than 8 cM's DNA matches to reduce false positives.

## MyHeritage

MyHeritage does not use AncestryDNA's Timber algorithm and thus you may see additional smaller cM segments and a slightly higher overall cM count. MyHeritage has an excellent Chromosome browser to help determine the longest segments. Use the One-to-One tool to see the shared segments between you and a DNA match.

## Shared cM Project – Briefly mentioned in this video, the Shared cM Project was created by Dr. Blaine Bettinger where he collected the number of centimorgans and calculated the various relationships among the test takers. The results have given us an unbelievably valuable tool that shows us the estimate range of centimorgans for each relationship.

## "Do Genealogy" as Diahan says...

Remember to combine traditional genealogy along with DNA research to help prove your lineage.

## Diane Southard Your DNA Guide Blog

Part 1 https://www.yourdnaguide.com/ydgblog/2019/7/26/pedigree-collapse-and-genetic-relationships

Part 2 https://www.yourdnaguide.com/ydgblog/2019/7/26/calculating-the-pedigree-collapse-effect-in-your-dna-matches

### About Diahan Southard

Your DNA Guide Founder Diahan Southard has been working in the genetic genealogy industry since its infancy. Both before and after earning a degree in microbiology from Brigham Young University, she worked for the Sorenson Molecular Genealogy Foundation, a major pioneer in creating a correlated genetic and genealogical database.

Diahan is the author of Your DNA Guide- The Book, the ultimate step-by-step guide, do-it-yourself DNA manual.

Your DNA Guide Website

Your DNA Guide YouTube Channel

## Connie Recommends These DNA Books

Your DNA Guide- The Book by Diahan Southard

The Family Tree Guide to DNA Testing and Genetic Genealogy by Blaine T. Bettinger

Genetic Genealogy in Practice by Blaine T. Bettinger and Debbie Parker Wayne

## Connie Recommends These Other Genealogy TV Videos

Grouping DNA Cousin Matches on Ancestry

AncestryDNA Grouping Cousin Matches: Clarified

Organizing DNA Cousin Matches using Excel Spreadsheets

DNA Playlist on Genealogy TV