

# Full Fitness Membership Statistical Analysis

## Fitness Report Introduction

As of January 1<sup>st</sup>, 2020, there were over 1500 fitness members on over 1000 different memberships. The main problem we ran into is even though we have a sizable membership database, we had very minimal amount of information about it.

To answer some of the questions we have about our members, I've compiled five sections in this analysis to gauge a further understanding about our membership core. These analyses stem from around seven reports of all our members' personal info, their locations, how long they've been members, when the terminated ones started and finished, and many more. While we do have two categories of memberships: full-facility and swim-only, this report is focused entirely on the full-facility members.

Since we didn't have any base understanding of our members, there was a lot of information to be gathered and a lot of assumptions to be made. Because of this, I have narrowed the answerable questions to five main points that I felt encapsulated the most essential and important information about our members. These five main points are:

- **WHO** are our members?
- **WHAT** are our members?
- **WHERE** are our members?
- **WHEN** did our members join?
- **HOW LONG** were our terminated members here?

In each section of this analysis, I will highlight:

- What report(s) the information was pulled from
- What is assumed/what we expect the results to be before analysis
- How many were observed and what statistics were observed
- The information and graphics that was pulled from the analysis
- Some text analysis descriptions
- Potential flaws or shortcomings from the analysis
- An overall conclusion

## Who Are Our Members?

This is the most important question that will be answered in this report. This question acts as a baseline for all future analyses, and allows us a quick solution for future demographic questions. The “who” statistic answers primarily what age demographics our members fall under and tells us what proportion of our members are male or female. Before the writing of this report, we assumed that we have an older-based membership population (seniors), with young couples being the second-most demographic.

To gather these statistics, I ran a report giving me the basic information of 1,866 of our active members. After cleaning the data, the following analysis:

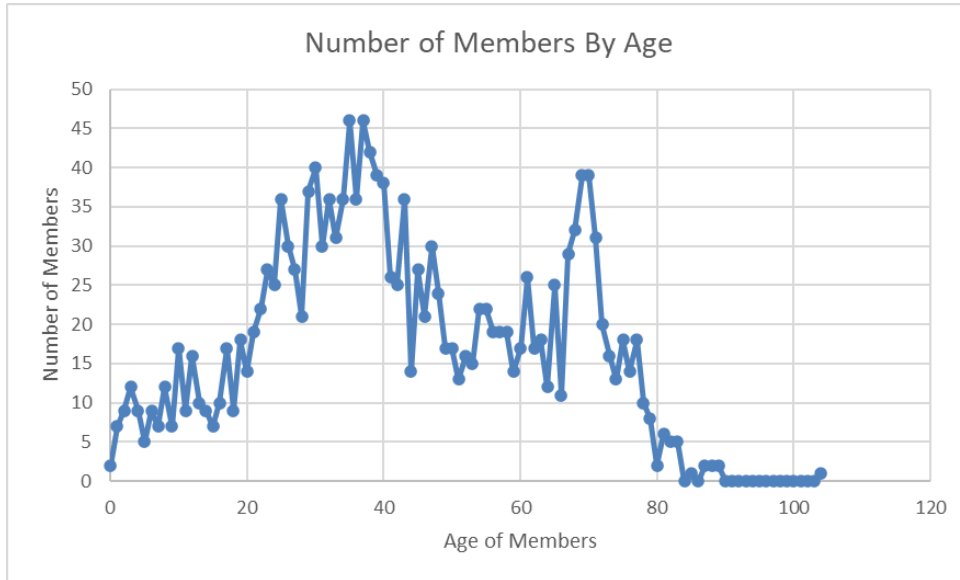
### Includes:

- All month-to-month memberships
- Corporate
- Silver Sneakers
- Paid-in-Full memberships

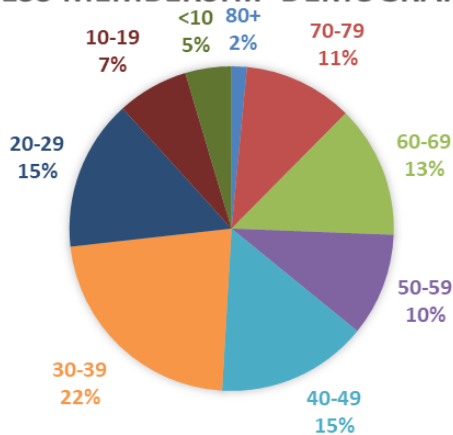
### Excludes:

- Swim-only memberships (not part of this report)
- Terminated memberships (for this statistic, we only want the people with active memberships)
- 10x Punch Passes (not enough information)
- Employees (have a membership, but usually don't use the facility)

## General Age Demographic

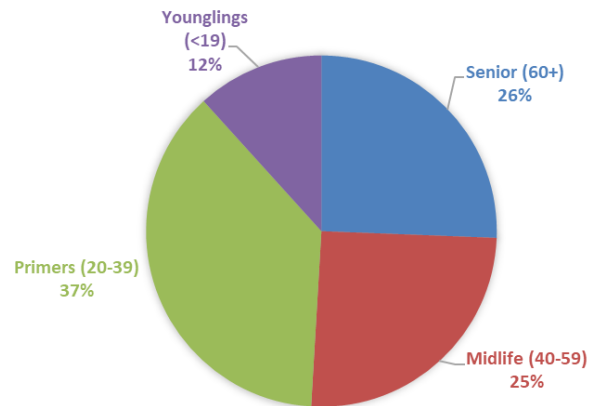


## FITNESS MEMBERSHIP DEMOGRAPHICS



AGE RANGE	NUMBER	%
80+	26	1.52%
70-79	187	10.91%
60-69	226	13.19%
50-59	176	10.27%
40-49	258	15.05%
30-39	382	22.29%
20-29	258	15.05%
10-19	122	7.12%
<10	79	4.61%

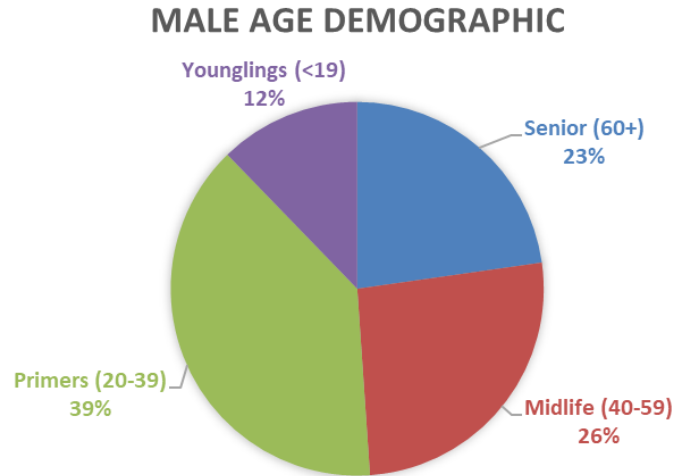
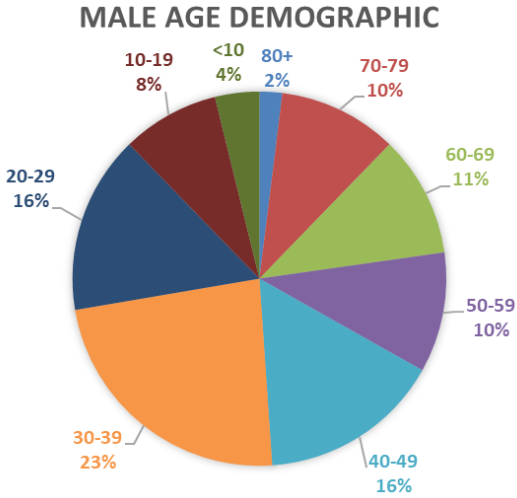
## FITNESS MEMBERSHIP DEMOGRAPHICS



AGE TITLE	NUMBER	%
Senior (60+)	439	25.61%
Midlife (40-59)	434	25.32%
Primers (20-39)	640	37.34%
Younglings (<19)	201	11.73%

## Gender Demographics

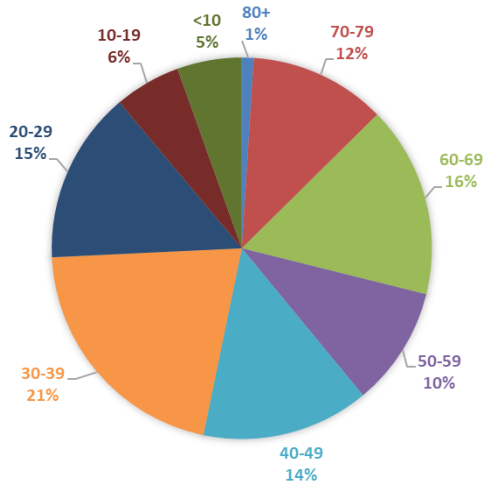
M/F	Count	%
Male	1003	53.69%
Female	863	46.20%



AGE RANGE	NUMBER	%
80+	18	1.97%
70-79	94	10.28%
60-69	96	10.50%
50-59	95	10.39%
40-49	144	15.75%
30-39	214	23.41%
20-29	141	15.43%
10-19	77	8.42%
<10	35	3.83%

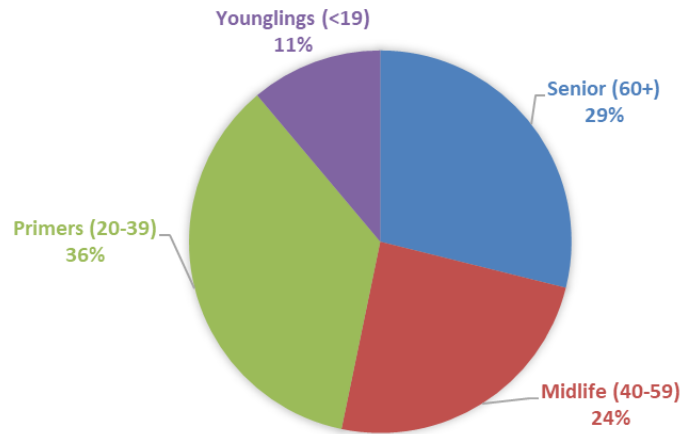
AGE TITLE	NUMBER	%
Senior (60+)	208	22.76%
Midlife (40-59)	239	26.15%
Primers (20-39)	355	38.84%
Younglings (<19)	112	12.25%

**FEMALE AGE DEMOGRAPHIC**



AGE RANGE	NUMBER	%
80+	8	1.00%
70-79	93	11.63%
60-69	130	16.25%
50-59	81	10.13%
40-49	114	14.25%
30-39	168	21.00%
20-29	117	14.63%
10-19	45	5.63%
<10	44	5.50%

**FEMALE AGE DEMOGRAPHIC**



AGE TITLE	NUMBER	%
Senior (60+)	231	28.88%
Midlife (40-59)	195	24.38%
Primers (20-39)	285	35.63%
Younglings (<19)	89	11.13%

AGE TITLE	NUMBER	%
Female Senior (60+)	231	13.48%
Male Senior (60+)	208	12.14%
Female Midlife (40-59)	195	11.38%
Male Midlife (40-59)	239	13.94%
Female Primers (20-39)	285	16.63%
Male Primers (20-39)	355	20.71%
Female Younglings (<19)	89	5.19%
Male Younglings (<19)	112	6.53%

## Conclusion

We have a surprisingly diverse membership demographic, with only one gender/age group taking up more than 20% of our membership population. Our top four member demographics are as follows:

- Males aged 20-39: 20.71%
- Females aged 20-39: 16.63%
- Males aged 40-59: 13.94%
- Females aged 60+: 13.48%

This shows we have a younger demographic than we initially expected, with almost **40% of our membership core being between 20-39.**

## What Are Our Members?

Now that we've learned who each of our members are, it's now time to delve into what they are. By asking "what are our members," we're mainly looking at what type of memberships they have. Namely, **are they a single adult, a couple, or a family?** This is important in case we want to change up the rates on members in the future depending on how many people are on a membership. For example, if we find out that an overwhelming percentage of our members are on a single membership, and we want more couples, we could raise the rate of a single membership while keeping the couple membership constant.

To gather this information, I ran a report of 1590 members and found out that they were dispersed through 1050 memberships. Just with those two numbers, **we can infer that a large percentage of our membership base is on memberships by themselves with no others.** Since we only have "single memberships" with additional people added on, I determined what constitutes a couple or family by the member's addresses. Because of this, **there could be some slight errors in the numbers due to people on a single membership having the same address as someone else on a single membership,** so they were recorded as a couple instead of two singles.

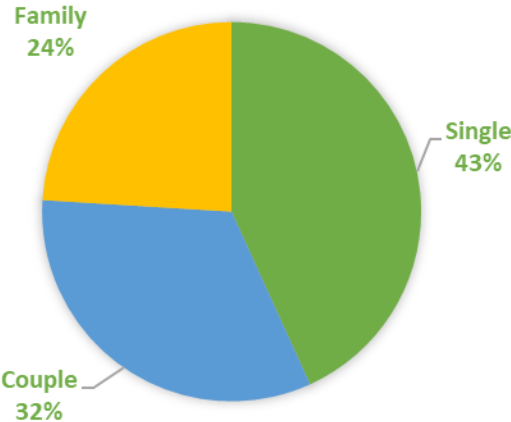
In order to fully understand just exactly what our members are, I analyzed the data in three different ways:

1. The amount of people who are on certain memberships
2. The amount of each type of membership
3. The number of family members are on each family membership

The visualization and analysis of these three questions are displayed on the graphics on the next three pages.

The graph below shows the percentage of people who are on each base type of membership (single, couple, family). For example, if Person A and Person B are on a couple's membership, they're put in as two people in this graph instead of one membership.

### MEMBERSHIP TYPES

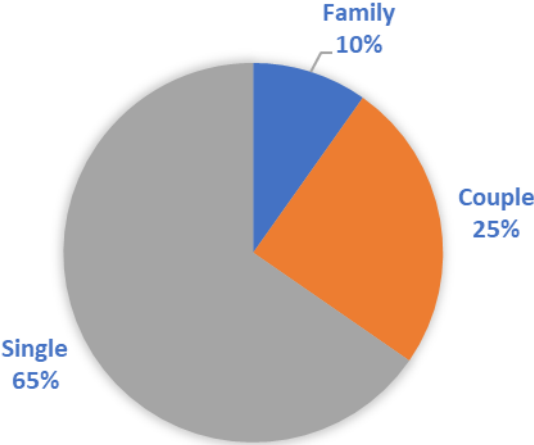


MEMBERSHIP TYPE	NUMBER	%
Single	687	43.21%
Couple	521	32.77%
Family	382	24.03%
	1590	

This graphic illustrates that most of our members are on a single membership, with the next closest being on a couple's membership. This was expected but doesn't account for how many family members are on a family membership or a couple membership. The graphic on the following page delves deeper into that.

The graph below shows the percentage of each type of membership. While the first graph shows everyone in total, this graph is based solely off of membership types. For example, if Person A and Person B are on a couples membership, they are only counted as one membership in this scenario instead of two people.

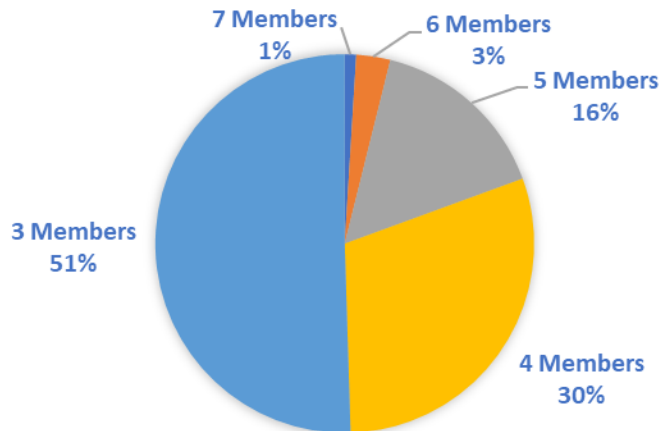
### % OF EACH TYPE OF MEMBERSHIP



MEMBERSHIP	#	%
Family	103	9.80%
Couple	261	24.83%
Single	687	65.37%
	1051	

This shows further how our single membership is the most popular, with over 65% of our memberships being single-person memberships. One thing to note is **since a couple only counts as one membership in this case, it is expected that the percentage of single membership increases by a dramatic amount.**

## # OF PEOPLE ON FAMILY MEMBERSHIP



FAMILY MEMBERS	#	%
7 Members	1	0.97%
6 Members	3	2.91%
5 Members	16	15.53%
4 Members	31	30.10%
3 Members	52	50.49%
	103	

As is expected, most of the family memberships have three people, with the number of memberships gradually going down with more family members. Over 80% of the family memberships comprise of 3-4 family members, which is to be expected given the general average family size.

### Conclusion

Looking at the distribution of the number of people on each type of membership, there is a pretty even dispersion between single, couple, and family. **The majority (43%) of our membership base are on a single membership**, but that still leaves over half (57%) of our members on a couple or family membership.

## Where Are Our Members?

After learning who and what our members are, the next step is to figure out where our members are located. We expect our members to be diversely spaced around the Bozeman, Belgrade, and Manhattan areas, but we're unsure just how far our membership base is spread out. This section of the report will further evaluate this question. In this, **we're assuming that most of our members will come from close proximity to the Hot Springs (two miles) with a significant drop off the further we get from the Hot Springs.**

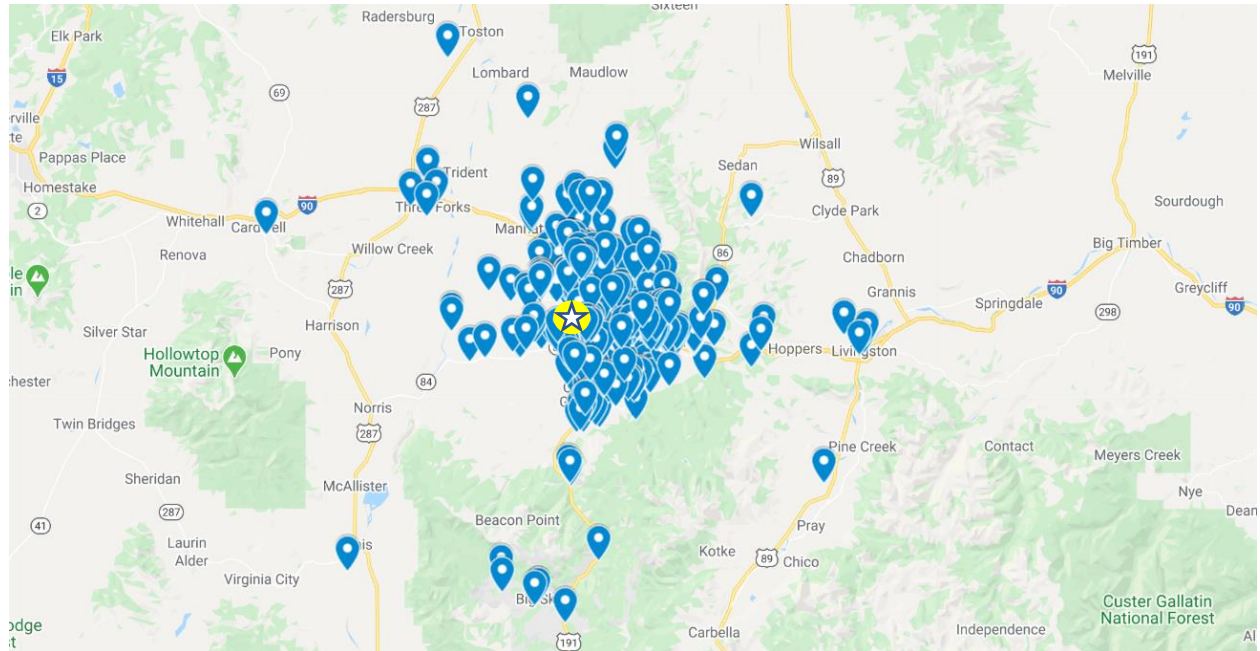
To gather this information, I ran a report of all our members' addresses, and plotted them into Google Maps, with differing distances to gain a wider focus on generally where they're located as well as where in Bozeman they're located. When I ran these maps, there are a few edits I made about the addresses I found:

- I removed any data points outside of 50 miles. I treated these as outliers, and since we take people's billing addresses upon sign ups, they may not accurately reflect where they are currently located.
- I removed things such as PO boxes, private addresses (not on Google maps), and duplicate addresses (same building, different apartments)
- 1643 addresses were available to evaluate, and after trimming the outliers there were approximately 1100 observations

A potential flaw we run into in each of these maps is **the addresses observed are the ones on the memberships. If a person has moved since signing up for their membership, their address may be inaccurate.**

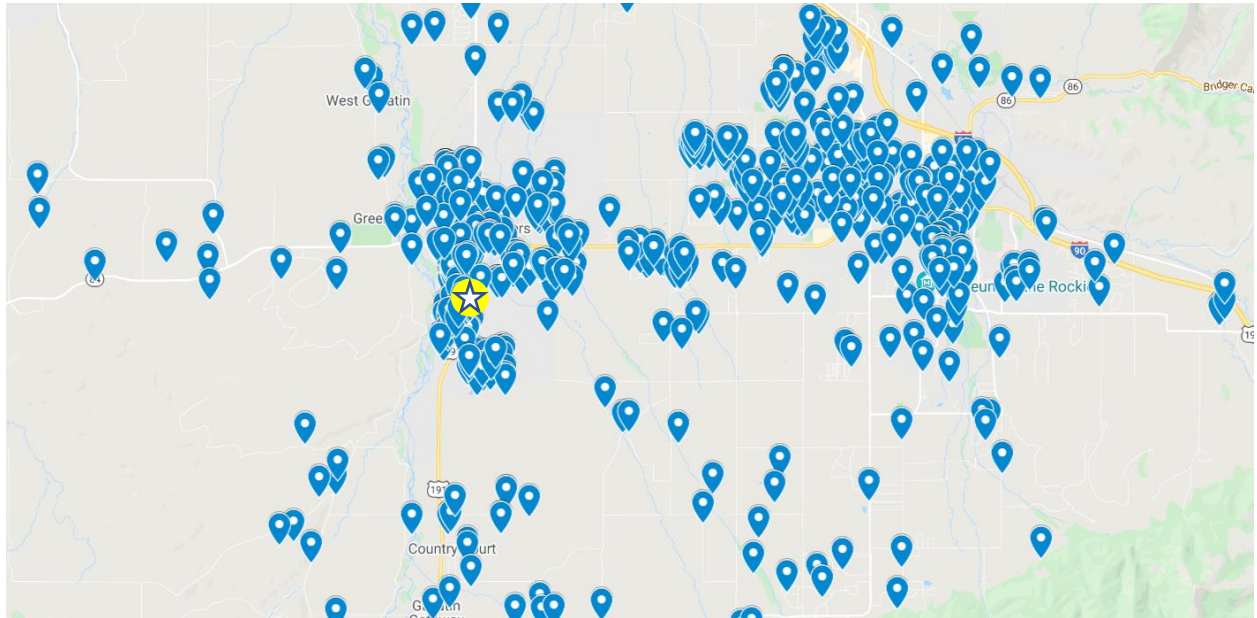
**Note:** the Bozeman Hot Springs is the gold star in each of these pictures.

### Bozeman Hot Springs + 30 miles



As expected, the core of our members is in Bozeman, Belgrade, and Manhattan. However, there are a few of our members who live as far away as Livingston, Big Sky, and Three Forks, which is generally more widespread than we were expecting. There were also addresses from as far out as Butte, Billings, and Missoula, but those fell into the “outlier” category and were removed.

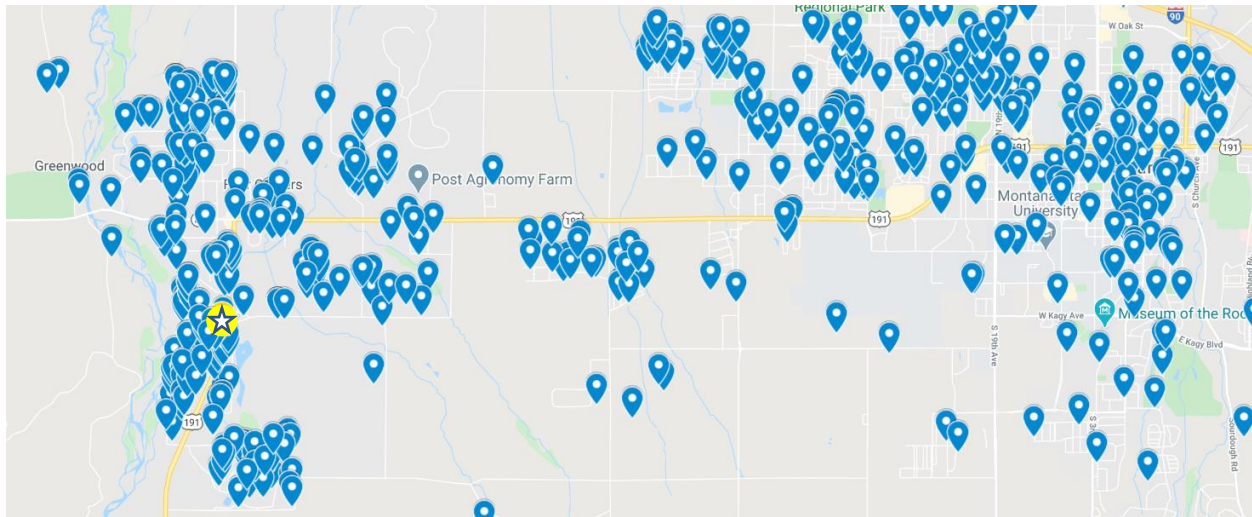
## Bozeman Hot Springs + 10 Miles



With a more zoomed-in look, we can see that approximately half of our members come from right around the Bozeman Hot Springs, which makes sense, but we also have a large portion towards the east side of Bozeman. Some more research may be necessary for a population map of the entirety of Bozeman, because there is a high chance that most of Bozeman lives on the East side. However, if that is not the case, it is interesting, and somewhat unexpected, that such a large proportion of our members are based outside of 7 miles of the facility.

One point of interest when looking at this map, is there is a surprising lack of members who are located in the more central part of Bozeman. This could be due to inconvenience of our facility or the convenience of other facilities (The Ridge, Fuel, Access, etc.). It could also be due to the lesser population of Bozeman living in the more central areas.

## Bozeman Hot Springs + 5 Miles



Finally, we zoomed in even further to only include Bozeman, excluding Belgrade & Manhattan. This shows a further in depth look of what the last graphic showed us. The main difference is that this shows how concentrated the members are around two miles of the facility, where they're more spread out in the more "suburban" areas of Bozeman. The key point to take from this map is **we have a high level of exclusivity of the Four Corners population**, but for the rest of Bozeman, I'd say we're average to above average.

### Conclusion

We have a surprisingly well spread out membership database, but our primary markets are within two miles of the Hot Springs and the East side of Bozeman. The areas we're lacking most are the Cottonwood to Ferguson areas, where residents have more convenient access to gyms such as The Ridge. However, how our wide-spread members are goes to show that awareness is not a problem that we have, but our main problem falls in the convenience of the facility, which we assumed from the beginning.

## When Did Our Members Join?

Tracking the join date of our members provides an interesting statistic that I've deemed the **"loyalty statistic"**. This came from a report of all our current members and their join dates, so we were able to gauge how many days, months, and years they have been a member. Instead of trying to figure out how many days they've been active while accounting for inactivity from the members, I'm basing all the results on the join date of their first membership. This shows the loyalty of our member database, rather than an explicit time length of activity.

Before running this test, we are assuming that those who have had longer memberships will have more loyalty than those with shorter memberships. For example, we expect someone who routinely purchased one-year memberships to have more loyalty than those who bought six- or three-month memberships. The other assumption we are running off is that age isn't a factor in the loyalty of the members, excluding MSU students. Since students tend to only be in Bozeman for four years, we are assuming they are members for a lesser amount of time.

Things to note:

- 700 active members were observed for these results
- These numbers don't account for if the member terminated and restarted the membership
- Members who started their first membership before 2011 weren't included, as they were considered outliers
- This only accounts for members who had active memberships as of 1/1/2020. If they restarted their membership after that date, they weren't counted
- Corporate memberships were factored into categories of their own, since we can't confirm the age range of all our corporate memberships.

**In Days**

MAX #	3506.541667
AVERAGE #	1463.479528

PER MEMBERSHIP	AVG DAYS
1 Month	1199.14
2019 Senior	2335.74
2019 Single	1044.21
Corporate	1344.91
Adult 1 Year EFT/PIF	1699.17
MSU	1453.01
Senior 1 Year EFT/PIF	2030.98
Adult 3 Month EFT/PIF	1512.79
Senior 3 Month EFT/PIF	2258.17
Adult 6 Month EFT/PIF	1248.87
Senior 6 Month EFT/PIF	1384.29

AGE RANGE	AVG DAYS
Adults	1340.84
Seniors	2002.29
Students	1453.01
Corporate	1344.91

MEMBERSHIP LENGTH	AVG DAYS
1 Month Minimum	1475.40
3 Month Minimum	1885.48
6 Month Minimum	1316.58
12 Month Minimum	1865.07

**In Months**

MAX #	292.2118056
AVERAGE #	121.9566273

PER MEMBERSHIP	AVG MONTHS
1 Month	99.93
2019 Senior	194.65
2019 Single	87.02
Corporate	112.08
Adult 1 Year EFT/PIF	138.71
MSU	121.08
Senior 1 Year EFT/PIF	169.25
Adult 3 Month EFT/PIF	126.07
Senior 3 Month EFT/PIF	188.18
Adult 6 Month EFT/PIF	104.07
Senior 6 Month EFT/PIF	115.36

AGE RANGE	AVG MONTHS
Adults	111.16
Seniors	166.8578993
Students	121.0840278
Corporate	112.0756944

MEMBERSHIP LENGTH	AVG MONTHS
1 Month Minimum	122.95
3 Month Minimum	157.12
6 Month Minimum	109.72
12 Month Minimum	153.98

## In Years

MAX #	9.60696347
AVERAGE #	4.009532953

PER MEMBERSHIP	AVG YEARS
1 Month	3.29
2019 Senior	6.40
2019 Single	2.86
Corporate	3.68
Adult 1 Year EFT/PIF	4.56
MSU	3.98
Senior 1 Year EFT/PIF	5.56
Adult 3 Month EFT/PIF	4.14
Senior 3 Month EFT/PIF	6.19
Adult 6 Month EFT/PIF	3.42
Senior 6 Month EFT/PIF	3.79

AGE RANGE	AVG YEARS
Adults	3.654564977
Seniors	5.485739155
Students	3.980844749
Corporate	3.684680365

MEMBERSHIP LENGTH	AVG YEARS
1 Month Minimum	4.04
3 Month Minimum	5.17
6 Month Minimum	3.61
12 Month Minimum	5.06

## Conclusion

After analyzing the “when” reports, we’re able to tell that the most loyal members we have are the senior citizens by almost two years, with the least loyalty coming from the corporate accounts. I believe that a large part of this is due to the seniors simply being able to stay put in Bozeman due to retirement, where the other age ranges are moving around much more, especially corporate. As expected, students are members an average of four years (the length of a typical bachelor’s degree). The most surprising statistic observed in this is that the loyalty doesn’t increase with each length of membership. The three-month membership is the most loyal, where the six-month membership is the least loyal. This is in large part due to many members buying a full membership every three months, where the six-month members are on a month-to-month basis and typically cancel theirs more often.

## How Long Have Our Terminated Members Been Here/Misc. Stats

The final questions that we have left to answer is (generally) “how long were our members here before terminating their membership?” The purpose of answering this question is to do two things:

1. Gain further knowledge on the loyalty statistic observed in the last section
2. Determine how many memberships our terminated members had in the past

Answering these final questions grants us the fullest information about our membership database using the tools at our disposal. With these questions answered, we should have a high understanding of who our members are.

To gather this information, I compiled a report of all the members in the system who had the “terminated” status. I included all the memberships they had since 2010 in order to gauge how many days they were typically at the Hot Springs per membership. Unfortunately, since this was such a widely dispersed array of data and since we have so many different types of memberships, we weren’t able to draw any assumptions about our terminated members. There are a few things to note on this data:

- There were 3010 ex-members observed. With such a large sample size, we’re assuming these numbers aren’t weak to outliers
- This report only takes into consideration if the member was terminated as of 1/1/2020. If the member has restarted their membership since then, they are still counted as terminated
- The 1-month memberships aren’t always one month long, so the data on there may be slightly incorrect. We often use that as a default when they don’t fall into one of the other categories
- Some members came up as having no memberships, so their datapoints were ignored.
- If people were taken off an active membership, it is counted as one termination, since one person was terminated. This could inflate the numbers if the primary is constantly making changes to their membership
- The “new memberships” are the new priced memberships that we updated at the end of 2019
- We delete members due to lack of use, so those members are not included in this analysis

This section of the report also answers some more miscellaneous questions that didn’t fall into any of the other categories.

**How Many Days or Months Have Our Terminated Members Been Here?**

	Number	Average Days	Average Months
Total	3010	569.4601064	18.96939092
1 Mo	221	301.40	10.00
New Memberships	5	172.20	5.74
Corporate	861	570.59	19.02
1 Yr Adult	523	763.35	25.45
MSU	114	446.15	14.87
1 Yr Senior	55	1071.33	35.71
3 Mo Adult	490	554.93	18.50
3 Mo Senior	70	901.26	29.61
6 Mo Adult	500	435.45	14.52
6 Mo Senior	50	938.04	31.27
January Special	85	357.67	11.92
October Special	36	453.94	15.13

This table shows the final information about the loyalty statistic observed in the previous section of this report. This strengthens the evidence we found that seniors are our most loyal members.

**How Many Days Since our Terminated Members Canceled Their Last Membership?**

Days Since Last Termination	
1 Mo	432.61
New Memberships	460.54
Corporate	596.58
1 Yr Adult	778.92
MSU	942.66
1 Yr Senior	725.05
3 Mo Adult	664.11
3 Mo Senior	1241.20
6 Mo Adult	841.95
6 Mo Senior	340.04
January Special	1016.13
October Special	1014.85

### How Many Memberships Did People Have Per Membership Type?

Average # of Memberships	
1 Mo	2.98
New Memberships	1.40
Corporate	4.15
1 Yr Adult	3.84
MSU	3.81
1 Yr Senior	3.98
3 Mo Adult	4.63
3 Mo Senior	3.38
6 Mo Adult	3.49
6 Mo Senior	4.21
January Special	2.60
October Special	2.61

### How Many Days Do Members Remain Active Before Terminating Per Membership Type?

	Average # of Memberships	Average Days Per Membership	Average Months Per Membership
1 Mo	2.98	97.42	3.25
New Membership	1.40	99.20	3.31
Corporate	4.15	213.63	7.12
1 Yr Adult	3.84	324.44	10.81
MSU	3.81	164.84	5.49
1 Yr Senior	3.98	394.08	13.14
3 Mo Adult	4.63	172.05	5.73
3 Mo Senior	6.11	200.84	6.69
6 Mo Adult	3.49	186.88	6.23
6 Mo Senior	4.21	243.88	8.13
January Special	2.60	154.87	5.16
October Special	2.61	207.78	6.93

## Analysis Conclusion

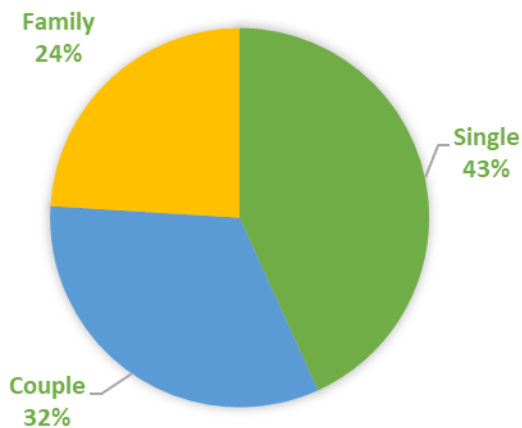
We have answered five important questions about the Bozeman Hot Springs' membership database. The only other question that we would like answered is "why do our members come here?" Unfortunately, with the information available without surveying every member, we won't be able to answer this question. Using the questions we answered, we are able to better target people with advertisements, understand who we generally work with on a daily basis, and simply understand who our primary demographics are.

### Who Are Our Members?

- Males aged 20-39: 20.71%
- Females aged 20-39: 16.63%
- Males aged 40-59: 13.94%
- Females aged 60+: 13.48%

### What Are Our Members?

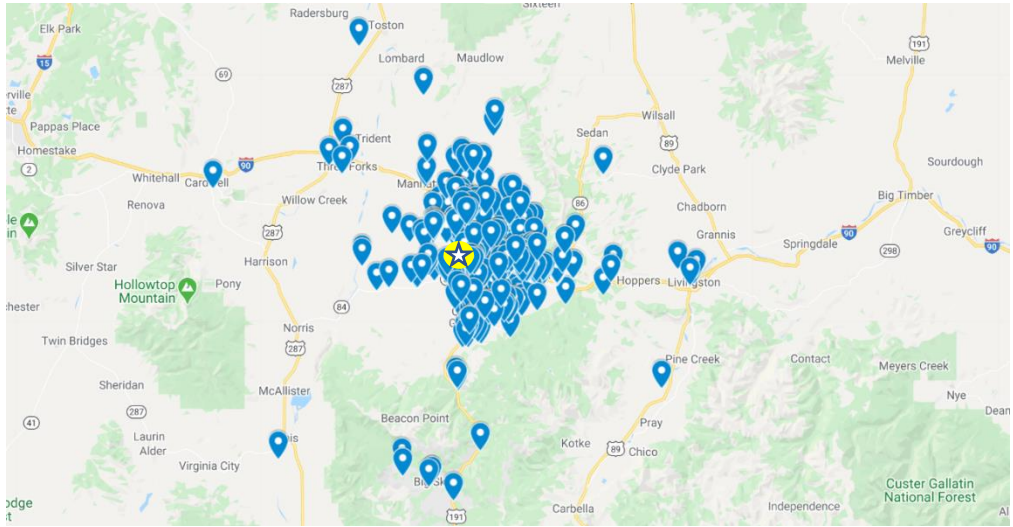
#### MEMBERSHIP TYPES



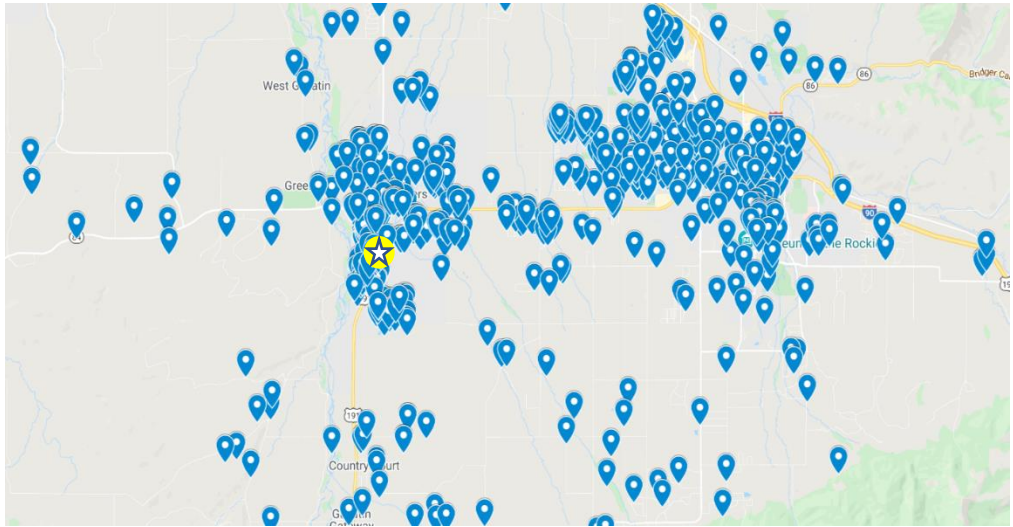
MEMBERSHIP TYPE	NUMBER	%
Single	687	43.21%
Couple	521	32.77%
Family	382	24.03%
	1590	

# Where Are Our Members?

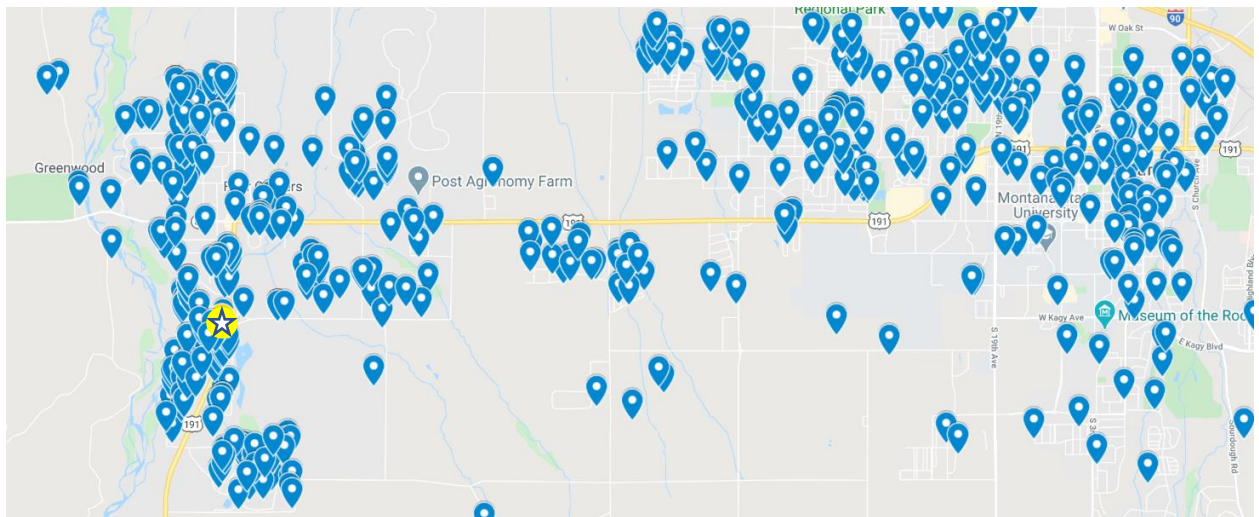
## Bozeman Hot Springs + 30 miles



## Bozeman Hot Springs + 10 Miles



## Bozeman Hot Springs + 5 Miles



**When Did Our Members Join (Loyalty Statistic)?**

AGE RANGE	AVG YEARS
Adults	3.654564977
Seniors	5.485739155
Students	3.980844749
Corportate	3.684680365

MEMBERSHIP LENGTH	AVG YEARS
1 Month Minimum	4.04
3 Month Minimum	5.17
6 Month Minimum	3.61
12 Month Minimum	5.06

**How Long Were Our Members Here Before Terminating?**

	Number	Average Days	Average Months
Total	3010	569.4601064	18.96939092
1 Mo	221	301.40	10.00
New Memberships	5	172.20	5.74
Corporate	861	570.59	19.02
1 Yr Adult	523	763.35	25.45
MSU	114	446.15	14.87
1 Yr Senior	55	1071.33	35.71
3 Mo Adult	490	554.93	18.50
3 Mo Senior	70	901.26	29.61
6 Mo Adult	500	435.45	14.52
6 Mo Senior	50	938.04	31.27
January Special	85	357.67	11.92
October Special	36	453.94	15.13