The State of HEMA in 2021: The German and Austrian HEMA Census

Alexander Fürgut,
Independent scholar
Schwabenfedern, HEMA Guide, Schwertgeflüster,

Abstract – To understand the Historical European Martial Arts (HEMA) community, its weapon disciplines, organisational structure, and gender, a HEMA census was conducted in 2021 for Germany and Austria and in 2019 for Germany. The 2021 census captures 3186 HEMA practitioners training in 124 locations in Germany and 801 practitioners training in 34 locations in Austria. It is the most comprehensive and detailed dataset of its kind to date.
It shows that most HEMA groups are organised as an independent *Verein* or as part of an umbrella *Verein*. The pandemic had an average effect on the number of practitioners and primarily impacted commercial schools with a 20% reduction in membership.
20% (Germany) and 27.5% (Austria) of all practitioners are identified as female, while 0.75% (Germany) and 3.9% (Austria) of practitioners are identified as non-binary.
Longsword is the most popular weapon discipline, being trained at over 88% of locations in both countries. Runner-up disciplines trained at 40% to 44% of locations include long knife, dagger, sword and buckler, historical wrestling (Germany), and dagger, sword and buckler and polearms (Austria). Two-handed swords saw the biggest increase in training locations during the pandemic.
HEMA hotspots are in South Germany (Bavaria and Baden-Württemberg), where nearly 39% of all German practitioners train, and in Eastern Austria (Vienna, Lower Austria, and Burgenland), where over 55% of all Austrian practitioners train.

Keywords – HEMA census; sports statistics

I. INTRODUCTION

The author conducted the first census of the HEMA community in 2019 in Germany. The goal was to quantitatively assess the number of practitioners, their gender, what weapon discipline they were training, how their groups were organised, and where they were located. At the time, the German HEMA federation (Deutscher Dachverband für Historisches Fechten e.V. or DDHF) knew only the number of practitioners of their member groups, while the other data points were unknown.

For several reasons, such statistics are relevant for federations and practitioners alike:

- The number of practitioners is an important measure of market size and market saturation for gear manufacturers considering entering the HEMA market.
- The DDHF aims to join the German Olympic Sports Confederation (Deutscher Olympischer Sportbund or DOSB), which is assumed to require 10,000 practitioners inside the federation.[1]
- How HEMA federations spend their resources depends on their assumptions of what has the largest impact, for example which weapon disciplines should get federation-organised events or have a national squad. If those assumptions are wrong, the resource allocation will also be wrong.
- Practitioners might be prevented from organising workshops and events for a weapon discipline if they are under the impression that it is being trained less than is the case.

Similar surveys were carried out by Roger Norling in 2013, with a follow-up by Liam Boyle in 2015, and an independent survey by Rebecca Glass McCaffrey in 2016.[2] They each asked the worldwide HEMA community to participate and did not focus on any particular country or region. While this provides a global overview, the results are not precise enough to draw reliable conclusions due to the low response rates per country. Nevertheless, the data made it clear that HEMA was a growing global phenomenon.

For the 2019 census, the DDHF provided internal member data to the author and public outreach for the survey. As it was a cooperation with the DDHF, it was publicly referenced as the *DDHF HEMA Zensus*. The census was repeated in 2021 in Germany and included Austria, as this was a recurring request by Austrian HEMA practitioners. The author cooperated again with the DDHF and extended the cooperation to the Austrian HEMA federation (Österreichischer Fachverband für historisches Fechten or ÖFHF). The Austrian census was referenced as the *ÖFHF HEMA Zensus*.

The census results were shared with a non-academic, German-speaking audience as three infographics: Germany 2019, Germany 2021, and Austria 2021.[3] Furthermore, an

* Acknowledgement: My thanks goes to the DDHF and ÖFHF for supporting this project. Thanks to Lisa Gotzian for providing feedback on the Infographics and to Julian Nickerl for providing feedback on this paper.

[1] It is unclear if this is the case. However, according to several conversations the author had with the DDHF leadership, this is the current assumption.

[2] See Norling, 'Stats for the HEMA community'; Boyle, 'HROARR HEMA / HWMA Census'; McCaffrey, 'HEMA Census'.

[3] See Fürgut, 'HEMA Zensus Deutschland 2019'; Fürgut, 'HEMA Zensus Deutschland 2021'; Fürgut, 'HEMA Zensus Österreich 2021'.

infographic in *Historical European Martial Arts: An International Overview* used the total number of practitioners in 2019.[4]

This paper covers the 2021 census and its 2019 predecessor in greater detail than the infographics. It aims to make the data and method accessible in English to an academic audience so that more qualified research might be conducted in the future.

II. METHOD

The HEMA census was carried out as a Google Forms survey. Two key decisions were when to count a group as doing HEMA and if the granularity of the data required that individuals or groups respond.

1. The author decided that a group had to self-identify as doing HEMA to be included. They needed to specify on their website or social media accounts that they do HEMA, Historical Fencing (*Historisches Fechten*), Historical Martial Arts (*Historische Kampfkünste*) or a variation of it.[5]
2. To reduce the number of practitioners the census needed to contact and process survey responses for, it was decided that the HEMA census would not collect individual but group data. So a representative would be asked to complete the survey for the whole group.

Therefore, to achieve a high response rate and lower the barrier of entry, one central goal was that the survey was easy to fill out from memory by a single respondent.

This limited the data collected to information a representative would know without doing an internal survey. For example, the survey asked for the gender distribution, as that data is often already collected or can be approximated since there are only two (male and female in 2019) or three (male, female, and non-binary in 2021) available options. On the other hand, asking for their members' age or age groups would have made it much harder to complete the survey, as there are many more possible variations.

Collected data includes a group's name, cities in which it trains, their legal form such as *Verein* or commercial school, the number of practitioners and their gender, the number of instructors and their gender, and which weapon disciplines are being trained.[6] The

---

[4] See Jaquet et al., *Historical European Martial Arts: An International Overview*. That the census data was much more thorough than collecting individual answers as for other countries is most likely also the reason, why Germany is the country with the most practitioners.

[5] The author is aware that parts of the HEMA community might disagree with a group self-identifying as a HEMA group and might instead put them under the re-enactment or living history label, which is exactly the issue. Using external criteria leaves too much room for discussion and personal bias.

[6] *Verein* is a legal form in Germany and Austria with the option for non-profit status. As the English terms *association*, *club* or *society* are more broadly defined, it is going to be used untranslated.

survey asked respondents to estimate the fields for which they did not know the precise number, for example how many of their members are female.

The survey defined practitioners as everyone registered as a member and paying dues, thus being allowed to participate in class. The survey asked respondents to include fully registered but non-active members that could join classes but decided not to. On the other hand, sustaining members (*Fördermitglieder*) and passive members who are not allowed to participate in classes should not have been included. The alternative would have been to count only active class participants, which fluctuates heavily from month to month and would have shifted the census results depending on when the survey was carried out.[7]

One issue with counting groups and aggregating their membership data is that their organisational forms differ vastly. Some groups are one *Verein* that spans several cities under the same legal entity, while other groups use the same umbrella name but are individual legal entities. For comparability, groups are separated according to the cities they train in, called their 'location'.

Due to data protection, no data on individual groups is published, only aggregated data. While much of the collected data is publicly available through a group's homepage, such as the city they train in or what weapon disciplines they study, membership numbers can be sensitive information, especially for commercial schools in competitive markets. It was feared that publicising the full data set would skew the results to favour non-commercial over commercial groups or invite manipulation to make a group appear larger or smaller than it is.

Note that the respondent provided genders for the whole group, so the answers are likely approximated if this data was not precisely known. Also, there could be a difference between the gender that members self-identify with and the gender provided by the respondent, for example if a transgender member is assumed to be cisgender and vice versa.

Groups were contacted through e-mail and Facebook by the author and, if they were members of their HEMA federation, by a federation board member. The 2019 survey for Germany was publicly shared, as well as the Austrian 2021 survey. The 2021 German survey, on the other hand, was only shared through direct contact with groups. The German survey opened on 9 October 2021, the Austrian survey on 28 October 2021 and both surveys closed on New Year's Eve. The 2019 German census opened on 23 October and closed on 2 December.

[7] In the authors' group *Schwabenfedern*, for example, participation is much lower in December, January, and August due to members being on holiday.

.II.1. Finding existing HEMA groups

So as to contact as many HEMA groups as possible, the author compiled a list of known HEMA groups based on publicly available information. For Germany, an existing list from the 2019 census was expanded, and for Austria, a new list was created. Both used a combination of crowdsourcing via the largest Facebook group in Germany and Austria, supplemental information from the HEMA federations and googling by the author.[8]

Data collected on groups include

- The group's name.
- The city they train in.
- An optional street address of their training location.
- Their state.
- Their homepage.
- Their Facebook page.
- If they are part of their national HEMA federation.

The list used for contacting HEMA groups at the start of the census contained 172 locations in Germany and 29 in Austria.[9] There were groups in Germany with five additional locations that wanted to be removed from the public list in 2019. They were still contacted for the 2021 census and counted for the total number of locations, bringing the count up to 177.

.II.2. Contacting each HEMA group

In Germany, groups were contacted via e-mail by the author and the DDHF. In cases when no e-mail was found, groups were contacted via a direct message sent to their Facebook page.[10] E-mails and messages contained a short description of the HEMA census, its goals, and a link to the Google Form survey. In Austria, ÖFHF member groups were contacted for the census through ÖFHF leadership via e-mail, Facebook and WhatsApp. The author contacted non-ÖFHF members via e-mail and Facebook. HEMA groups that did not respond in any way or fill out the survey in three weeks were further contacted by e-mail or Facebook. The author also contacted group members he knew personally in case the e-mails and Facebook messages remained unread. Not responding was not necessarily due to the groups ignoring the author. In multiple instances in

[8] HEMA D.A.CH. Facebook group <https://www.facebook.com/groups/hema.dach>; ÖFHF - Österreichischer Fachverband für Historisches Fechten - HEMA Austria Facebook group <https://www.facebook.com/groups/412190742303084>.

[9] As both lists are living documents used for other projects, they have since been updated.

[10] In theory, it is a legal requirement in Germany for the majority of websites to provide a valid e-mail address in their imprint, but this was not always the case.

Germany, it turned out that mailboxes indicated on a group's website and Facebook page were unused and inaccessible to the current leadership. This was not the case in Austria.

Data was collected via a Google Form, as shown in Fig. 1.

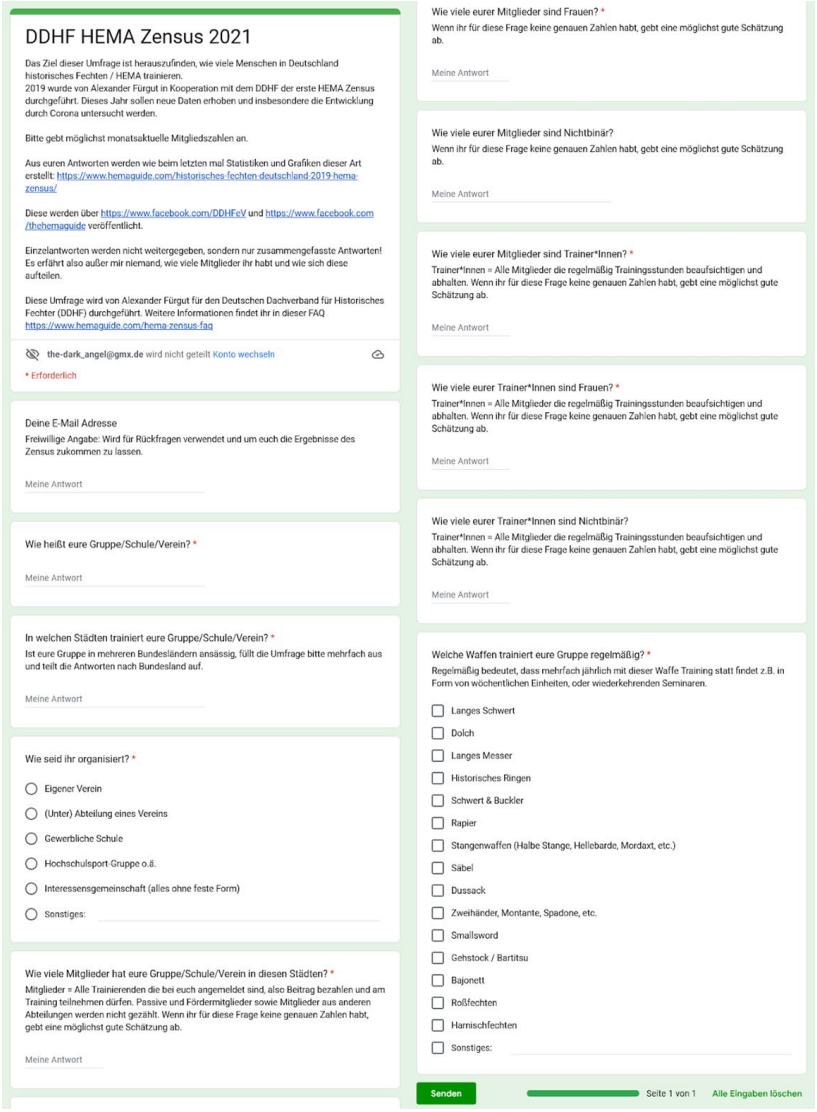

Fig. 1: The 2021 German census form.

The 2021 survey form in Fig. 1 is an extension of the 2019 form. The main additions were that the 2021 census offered non-binary as a gender option and asked about the gender of instructors. Also, the list of weapon disciplines was adapted to feature the most popular answers from 2019, sorted by their popularity in descending order. One important detail was that the name of the commercial school organisation field was changed from *Kommerzielle Schule* to *Gewerbliche Schule*. Both *kommerziell* and *gewerblich* translate to 'commercial' in English, but feedback from the first census showed that *kommerziell* had a negative connotation for school owners. Organisational form and weapon disciplines were single and multiple-choice fields, both of which had the option to add custom responses. All other questions provided a free text field for the answer. The forms for the two countries differed only slightly in the introduction text, for example mentioning the ÖFHF instead of the DDHF and the Austrian form contained one additional question, asking respondents if their data can be shared with the ÖFHF. The ÖFHF wanted to update their member data based on the census results, to which the author agreed for respondents that explicitly permitted sharing of their data. Interestingly, all respondents allowed data sharing with the ÖFHF, even groups non in the ÖFHF.

.II.3. Survey content and structure

The Google Form asked participants for the following data. The order matches Fig. 1:

- The respondents' e-mail
- Name of the HEMA group
- In which cities this group trains
- Their organisation type
    - Available options: separate *Verein*; (sub) department of a *Verein*; commercial school; university sports group or similar; community of interest (everything without a defined form); other (free text)
- How many members the group has in those cities
- How many of their members are female
- How many of their members are non-binary
- How many of their members are instructors
- How many of their instructors are female
- How many of their instructors are non-binary
- Which weapon disciplines they train regularly
    - Available options: longsword; dagger; long knife; historical wrestling; sword and buckler; rapier; polearms (staff, halberd, poleaxe, etc.); sabre; dussack; two-handed swords (montante, spadone, etc.); smallsword; walking stick / bartitsu; bayonet; mounted fencing; armoured fencing; other (free text)

.II.4. Duplication removal

The 2019 census survey was shared publicly, but the acknowledgement that a group had already responded was private, so there were sometimes multiple responses per group. As it was unknown who filled out the survey, the author calculated the averages for groups with multiple responses. Due to this, there are half-member counts in the 2019 data. If one response said that the group had 30 members and nine women and another 31 members and 10 women, the final values were 30.5 members and 9.5 women. As the 2021 survey asked for respondents' e-mails, groups with duplicated entries were contacted and asked for clarification on which entry to use.

III. RESULTS

Since the 2019 HEMA census was carried out before the COVID-19 pandemic and the 2021 census after nearly two years of restrictions to public life and organised sport, the census data offers a unique insight into how resilient the HEMA community was to those changes. Comparison data for 2019 is shown for Germany, where available.

Most notable is that total membership shrunk by 3.51%, with commercial groups having the most significant membership decline, while *Verein*-based membership declined less than average. What stands out in Austria is that no group chose 'commercial school' as their organisational form, even though some Austrian practitioners earn their living through HEMA.[11]

One thing to note is that the number of non-binary members is most likely under-reported, as several responses stated that they did not collect or ask their members for this data. Also, the term non-binary did confuse multiple respondents as they put question marks, 'unknown' or similar as their answer or asked the author for clarification. The number of male members was not asked directly but inferred: Male = Total – Female – Non-binary.

.III.1. Highlights

This section shows some highlights from the results that are explained in more detail in later chapters. As Fig. 2 shows, Germany's average total group membership has not changed much from 2019 to 2021. Note that all groups that responded in 2019 also responded in 2021, and other groups not present in the 2019 census have answered as well, so the numbers are not entirely comparable. A better comparison is Fig. 3, which only compares the membership change between groups that responded to both censuses

[11] One example would be Ingulf Kohlweiss, see: https://www.indes.at/fechtlehrer/popp-kohlweiss/. He talks about doing HEMA full-time with the author in a podcast, see Fürgut, '*HEMA als Lifestyle feat. Ingulf Popp-Kohlweiss (SG 70)*'.

and showed that the most significant membership loss during the pandemic hit commercial schools.

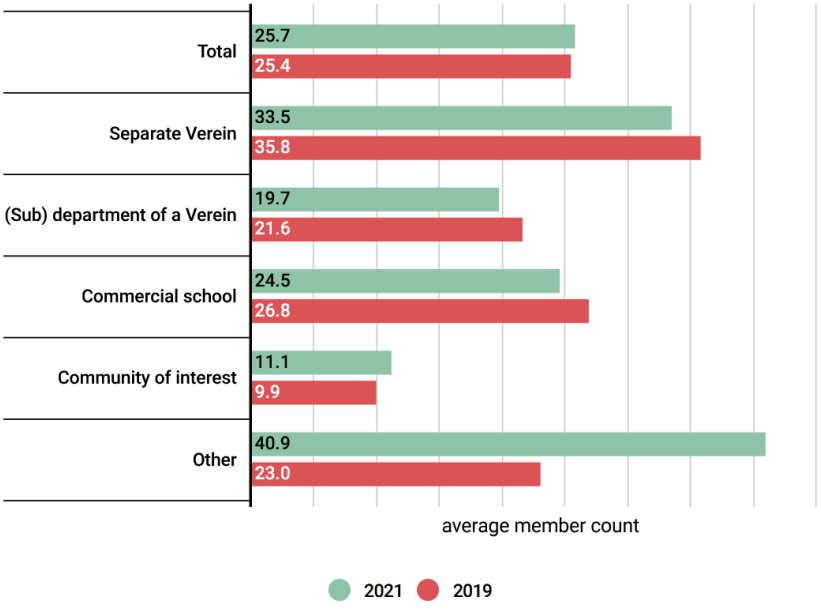

Fig. 2: Average membership for German HEMA groups by organisational form for 2021 and 2019.

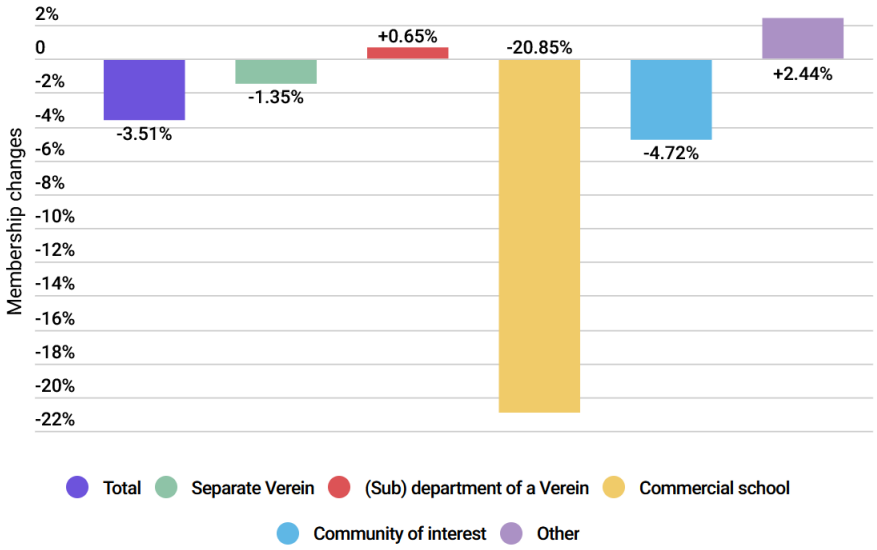

Fig. 3: Membership changes for German groups that responded both in 2019 and 2021.

.III.2. Number of practitioners and participation

To gauge the participation level of the HEMA community in the census, the number of known group locations can be compared to the number of groups for whom answers have been received.

Country	Locations contacted	Responses received	Locations received	Locations not received	Members received	Average members	Est. total members
Germany	177 (169)	91 (103)	124 (141)	53 (28)	3,186 (3,577.5)	25.69 (25.37)	4,547.1 (4,287.5)
Austria	29	31	34	1	801	23.56	824.6

Tab. 1: Locations contacted, responses received, Locations received, Locations not received, member count received, average member count and estimated HEMA community size in Germany and Austria. Data for 2019 is in parentheses.

As Tab. 1 shows, out of 177 known group locations in Germany, 124 filled out the 2021 census, which amounts to a 70% response rate. Based on the average member count and 177 known locations, the estimated total size of the German HEMA community is 4,547 members. It is hard to know whether this is an over- or underestimation, since large groups with multiple locations and hundreds of students, as well as smaller groups with only a handful of members, have chosen not to participate.

The initial list of known group locations for Austria contained 29 entries, but responses were received for 34 locations. This is due to multiple groups self-identifying as HEMA groups and filling out the survey that both the Austrian HEMA federation and the Facebook crowd initially thought of as non-HEMA groups. Only one known group in Austria has not filled out the survey. Therefore, the estimated number of HEMAists in Austria is 825, based on 35 locations.

Based on the estimate that Austria has 825 practitioners and Germany has 4547, Austria has 18% of the number of practitioners that Germany has. As 83.12 million citizens lived in Germany in 2021 and Austria 8.98 million in Austria, Austria has 10.8% of the population of Germany, which means that in Austria, a much higher proportion of people participate in HEMA.[12]

[12] See Statistisches Bundesamt, 'Bevölkerung am 31.12.2021 nach Nationalität und Bundesländern' and Statistik Austria, 'Pressemitteilung: 12.739-037/22'.

.III.2.1. Comparing HEMA to other Sports in Germany

In 2021, there were 22,474 Olympic fencers in Germany, which means that this sport is around five times the size of HEMA.[13] As fencing has been part of the modern Olympic Games since its beginnings in 1896, the difference is surprisingly small.

In the author's experience, HEMA in Germany is mostly trained by adults between the ages of 20 and 50, with hardly any groups offering child or youth classes. Also, the sport itself is too young to have many 60+ members that have been training their whole life. This matches the data provided by Rebecca Glass McCaffrey, where only 2.4% of participants were under 18 and 5.3% were over 50.[14] So a better comparison might be to consider only the adults of Olympic fencing. Starting with the 19-26 age bracket to over 60, the number of adult Olympic fencers is 10,433.[15] 54% of all Olympic fencers are 18 years and younger, and 46% are 19 years and older.

The exact ratio of 19+ adults to youths and children is not known for HEMA in Germany. If the assumption is that around 80% of HEMA practitioners in Germany are 19 years and older, the estimated total number of HEMA practitioners of that age would be ≈3,638 compared to 10,433 19+ Olympic fencing practitioners, in which case the adult Olympic fencers would be around 2.9 times more numerous than HEMA practitioners. If the assumption is that 90% of all HEMA practitioners are 19 years and older, these ≈4,092 HEMA practitioners would be around 2.6 fewer than adult Olympic fencers.

The exact ratio of 19+ adults to youths and children is not known for HEMA in Germany. If the assumption is that between 80% and 90% of HEMA practitioners in Germany are 19 years and older, then the estimated total number of HEMA practitioners of that age would be between 3,638 and 4,092. Compared to 10,433 19+ Olympic fencing practitioners, it follows that there are currently between 2.9 and 2.6 times more Olympic fencers than HEMA practitioners in Germany.

It has to be noted that of the 10,433 Olympic fencers, 15% or 1,566 practitioners are in the 60+ age group. It can be assumed that many of them have been practising Olympic fencing for a long time and that this age group will grow in HEMA over time as the sport gets older and more mature.

It is noteworthy that several smaller sports in the DOSB do not reach five-figure membership and can be compared to HEMA. Examples of such Olympic sports are bob and sled (6,111), curling (760), surfing (1,435) and speed-skating (2,670). Examples of

---

[13] See DOSB, 'Bestands-Erhebung 2021 Stichtag der Erfassung: 1. Januar 2021'. The date of reference is January 2021, while the census ran Oct-Dec 2021, so it would be better to use the 2022 membership report for comparison. However, it is not yet available.

[14] Glass McCaffrey, 'HEMA Census'.

[15] Based on the DOSB age brackets of 19-26, 27-40, 41-60 and over 60. Ignoring under six, 7-14 and 15-18. As the DOSB does not provide age data starting at 18, the closest age bracket of 19-26 was used as a starting point.

non-Olympic sports are deaf sports (7,418), minigolf (8,292), *Rasenkraftsport* (9,245), skibob (325) and water skiing (2,950). Other martial arts in the DOSB which make for an interesting comparison are boxing (78,808), judo (115,847), karate (129,719), wrestling (62,278), taekwondo (56,208), ju-jutsu (46,574) and kickboxing (25,807). Unsurprisingly, the largest sport in Germany is football, with 7,064,052 members.

To conclude, HEMA is significantly larger than some sports but smaller than all other DOSB Martial Arts and has growth potential in the youth, child and older age segments

.III.2.2. Comparing HEMA to other Sports in Austria

Interestingly, the difference between HEMA and Olympic fencing is much less pronounced in Austria than in Germany. Sport Austria lists Olympic fencing with 1,132 members, compared to the estimated 825 HEMA practitioners, so Olympic fencing is only around ≈1.4 times larger than HEMA.[16]

Sport Austria does not break their membership down into age groups as the DOSB does, but they provide the number of *Vereine* for each sport, which the DOSB does not. In the case of Olympic fencing, there are 69 *Vereine* listed, compared to the 34 HEMA locations in the 2021 HEMA census. So the average Olympic Fencing *Verein* has 16.4 members, compared to HEMA's 23.56.

It is unclear from the Sport Austria report how comparable their *Verein* count is to this paper's definition of location, for instance how many of their *Vereine* consist of multiple locations. Still, there are only two possibilities:

1. If all Olympic fencing *Vereine* have only one location, the membership numbers are directly comparable to the HEMA census.
2. If some or all of the *Vereine* listed have multiple locations, the average membership is less than 16.4.

If the number of HEMA locations in Austria doubled while the membership averages remained the same, HEMA would end up with around 1,602 members, having outgrown Olympic fencing.

It should be noted that there are several sports smaller or comparable in size to HEMA in the Sport Austria report, like casting (794), curling (309), speed-skating (907) and modern pentathlon (206). Other martial arts include boxing (3,148), jiu-jitsu (2,342), judo (21,601), karate (10,032), kick- and Thaiboxing (1,733), wrestling (3,842) and taekwondo (8,262).[17]

---

[16] See Sport Austria. 'Mitgliederstatistik. Per 31.12.2021'. Sport Austria is the umbrella organisation of the three federations: Arbeitsgemeinschaft für Sport und Körperkultur in Österreich (ASKÖ); Allgemeiner Sportverband Österreichs (ASVÖ); and Sportunion Österreich (Sportunion). The report's date of reference is 31 December, 2021, the same day the HEMA census 2021 ended.

[17] Note that according to Sport Austria, the speed-skating numbers are from 2016.

As in Germany, HEMA in Austria is larger than some established sports but smaller than all other martial arts in Sport Austria.

.III.2.3. Organisational form

This section contains the number of locations and members broken down into a group's organisational form, as seen in Fig. 4. It is clear that Germany is much more diverse in its membership structure than Austria, where over 90% of all members train in a *Verein*.

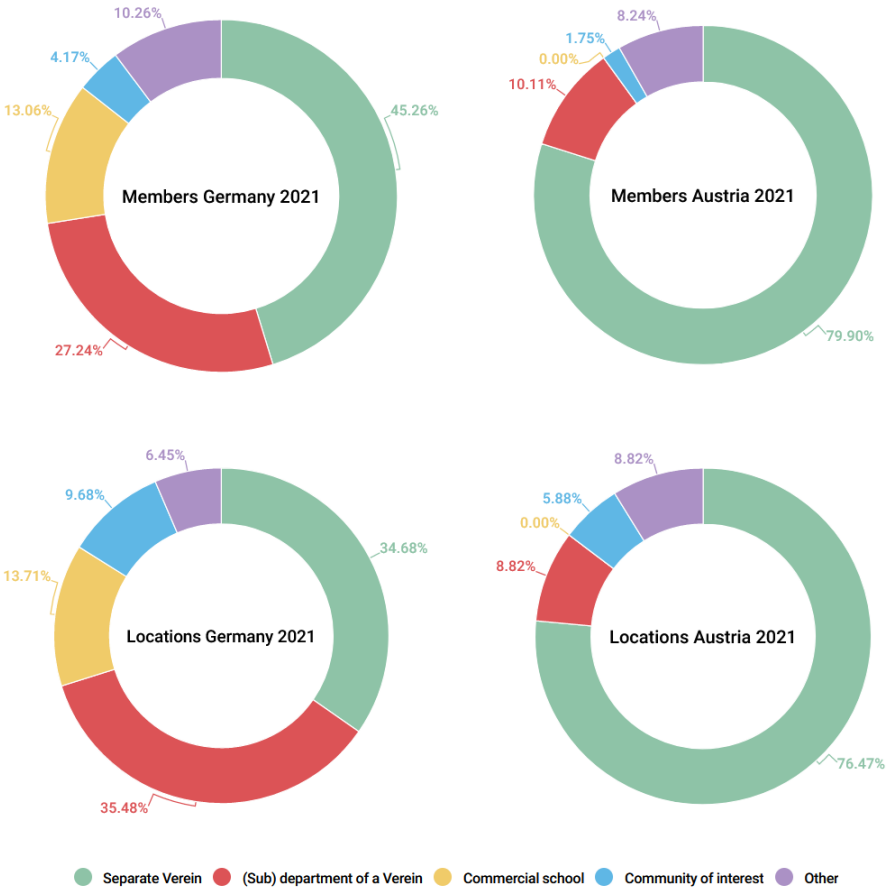

Fig 4: Location and member count based on organisational form for Germany and Austria in 2021.

.III.2.4. Organisational form Germany

Tab. 2 shows how the organisational form influences member and location count.

Organisational form	Members	Locations	Avg. members
Total	3,186 (3,577.5)	124 (141)	25.7 (25.4)
Separate *Verein*	1,442 (1,289.5)	43 (36)	33.5 (35.8)
(Sub) department of a *Verein*	868 (949)	44 (44)	19.7 (21.6)
Commercial school	416 (1020)	17 (38)	24.5 (26.8)
Community of interest	133 (158)	12 (16)	11.1 (9.9)
Other	327 (161)	8 (7)	40.9 (23.0)

Tab. 2: 2021 German group members, locations and average member count by organisational form with 2019's data in parentheses.

'Other' contains locations that did not fall into one of the existing categories, for example by specifying to be of a mixed form.[18] Only two locations identified themselves as university sports groups, so they are part of 'Other' to protect their privacy. The standard deviation in member average is 11.64 for 2021 and 9.39 for 2019. Note that the large change between commercial school members and 'Other' is due to one group with over 200 members changing their organisational form from 2019 to 2021.

.III.2.5. German membership changes through COVID-19

To better compare the effect of the COVID-19 pandemic on membership in German HEMA groups, Tab. 3 compares only group locations that filled out the census in 2019 and 2021. This matches the data in Fig. 3.

Organisational form	Members	Change in percent
Total	2,576 (2,666.5)	-3.51
Separate *Verein*	1,186 (1,202)	-1.35
(Sub) department of a *Verein*	611 (607)	+0.65
Commercial school	386 (466.5)	-20.85
Community of interest	106 (111)	-4.72
Other	287 (280)	+2.44

Tab. 3: Member count changes for German groups that responded in 2019 and 2021. In parentheses are the member numbers for 2019.

[18] Mixed means that they specified a combination of different organisational forms, for instance that they are both a *Verein* as well as a university sports group.

The total number of HEMA practitioners for the considered groups shrunk by 3.51%, while the biggest loss in membership hit commercial schools.

Interestingly, according to Germany's federal institute for sports science (*German Bundesinstitut für Sportwissenschaft*, BISp), the overall member development in 2020 for all *Vereine* was -3.3% and -3.5% for *Vereine* in the DOSB, which matches HEMAs' overall development.[19] Taking just 'Separate *Verein*' and '(Sub) department of a *Verein*' into consideration, they declined by only 0.67% and prove HEMA *Vereine* to be more robust than Germany's average.

The stark decline in membership of commercial schools could be due to fewer new members joining and higher-than-usual membership attrition due to COVID-19 restrictions. Commercial schools often have higher dues than a *Verein*, making it more likely that members cancel membership during downtimes such as the pandemic.

As the author could not find studies of sports membership trends during the COVID-19 pandemic that included commercial schools, no comparison data is provided. Also, as there is no previously available data for Austria, no such comparison could be made.

.III.2.6. Organisational form Austria

Tab. 4 lists membership for Austrian HEMA groups by their organisational form, matching Fig. 4. As only one university sports group participated, its data has been added to '*Other*'. The other two locations under 'Other' specified their organisational form as '*group under construction'* and '*branch group'*.[20]

Organisational form	Members	Locations	Avg. member count
Total	801	34	23.6
Separate *Verein*	640	26	24.6
(Sub) department of a *Verein*	81	3	27
Commercial school	0	0	0
Community of interest	14	2	7
Other	66	3	22

Tab. 4: 2021 Austrian group members and locations by organisational form.

[19] See Breuer et al. 'Auswirkungen der COVID-19-Pandemie auf die Sportvereine in Deutschland'.

[20] Originally in German *Verein im Aufbau* and *Zweigvergein,* which is a Verein that is part of a larger Verein.

.III.3. Gender

This section contains the gender distribution of HEMA practitioners for their organisational form and instructors' genders. Fig. 5 shows the gender breakdown for Germany and Fig. 6 for Austria in 2021.

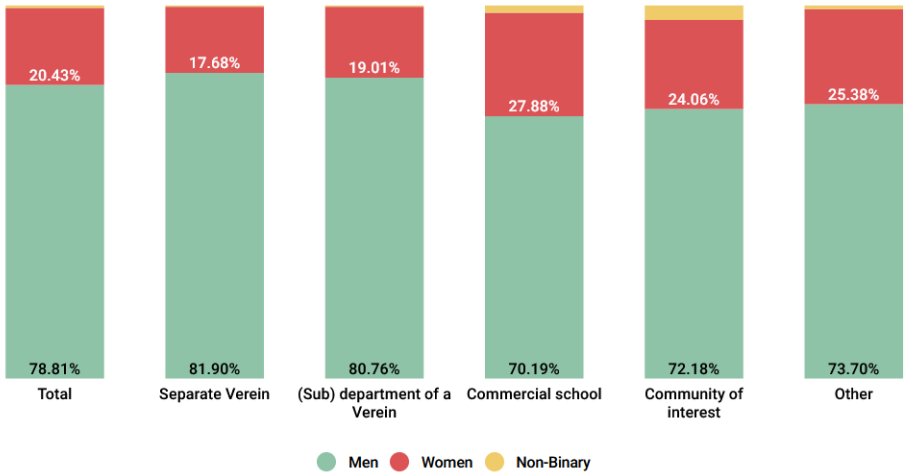

Fig. 5: Germany 2021 gender breakdown by organisational form.

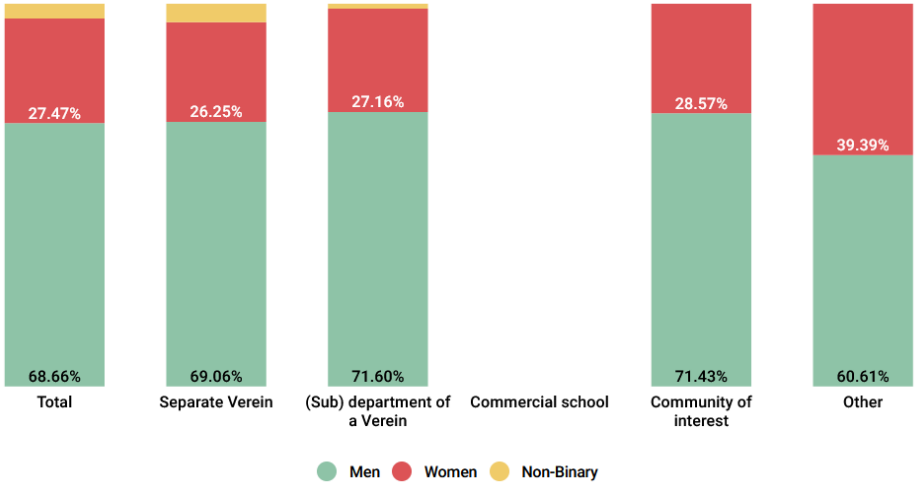

Fig. 6: Austria 2021 gender breakdown by organisational form.

.III.3.1. Gender by organisational form Germany 2021

Tab. 5 shows the gender distribution of German HEMA groups.

Organisational form	Men	Women	Non-Binary
Total	2,511 (2,847)	651 (730.5)	24
Separate *Verein*	1,181 (1,076.5)	255 (213)	6
(Sub) department of a *Verein*	701 (757.5)	165 (191.5)	2
Commercial school	292 (749)	116 (271)	8
Community of interest	96 (122)	32 (36)	5
Other	241 (142)	83 (19)	3

Tab. 5: German members by gender, with the 2019 data supplied in parentheses. Note that as the 2019 survey did not ask for non-binary members, data for men and non-binary is not directly comparable between the years.

The 2021 census asked respondents for the total number of members and the number of female and non-binary members, while the 2019 census only asked for male and female members. The highest ratio of total to non-binary members in any group was 30 to four.

As Fig. 5 shows, 'Separate *Verein*' have the lowest number of female participants, with 17.68%, and commercial schools have the highest, with 27.88%, a difference of 10.2%.

.III.3.2. Gender by organisational form Austria 2021

Tab. 6 shows the gender distribution in Austrian HEMA groups.

Organisational form	Men	Women	Non-Binary
Total	550	220	31
Separate *Verein*	442	168	30
(Sub) department of a *Verein*	58	22	1
Commercial school	0	0	0
Community of interest	10	4	0
Other	40	26	0

Tab. 6: Austrian membership by gender. No data is available for 2019.

Interestingly, one group responded that all of their members were non-binary and another, that all but two of their members were non-binary. Statistically, those are outliers, and it is unclear if this is due to their group having a larger-than-average number of non-binary members or misunderstanding the question.

.III.3.3. HEMA instructor gender

Tab. 7 shows the gender of HEMA instructors for Germany and Austria, while Fig. 7 and Fig. 8 visualise the gender proportions.

Country	Total	Men	Women	Non-Binary
Germany	333 (333)	304	28	1
Austria	122	100	20	2

Tab. 7: The gender of instructors according to the 2021 census. Only the total number of instructors is known for Germany in 2019 and supplied in parentheses.

Fig. 7: Gender breakdown of German HEMA instructors in 2021.

Fig. 8: Gender breakdown of Austrian HEMA instructors in 2021.

For Germany, the 333 instructors make up 10.5% of all 3,186 German respondents, while the 122 Austrian instructors equal 15.2% of all 801 Austrian respondents. This means that the ratio of instructors to regular trainees is significantly higher in Austria than in Germany.

Out of 2,511 male German members, the proportion of instructors is 12.11%, while female instructors make up 4.30% of all female members and non-binary instructors 4.17% of all non-binary members. Compare this to Austria where 18.18% of all males are instructors, 9.09% of all females and 6.45% of all non-binary members. This means that Austria has a higher number of instructors per practitioner than Germany and their proportion of female and non-binary instructors is also higher, as Fig. 7 and Fig. 8 show.

.III.4. Weapon disciplines in HEMA

The survey asked each group to specify which weapon discipline they regularly train. The survey defined regularly as 'Regularly means that you train multiple times a year with this weapon, e.g. in the form of weekly classes or recurring seminars'.[21]

One weakness of the 2021 questionnaire is that it is unknown how many locations train which disciplines for groups with multiple locations. In one German case, a group with seven locations responded that they do walking stick, so all locations were counted as if they were training it, even though that might not be the case. As this may lead to uncommon disciplines claiming more locations than they are actually being trained in, the data for single-location groups is also provided. Groups that filled out the survey for only one location are considered single-location groups.

.III.4.1. HEMA weapon disciplines trained in Germany

Tab. 8 shows how many locations train each weapon discipline. The total number of locations in 2021 was 124, counting single- and multi-location answers and 94, counting only single-location answers. The total number of locations in 2019 was 141, counting single- and multi-locations and 89, counting only single-location answers.

Surprisingly, long knife and dagger are among Germany's most popular weapon disciplines and outperform sabre and rapier, both when counting single and multi-location groups. Dagger is also more popular than sword and buckler in both cases. According to the author's experience, longsword, rapier, sword and buckler, and sabre are the four primary competitive weapons used in HEMA and can usually be found at large tournaments like Swordfish. This could indicate that the German HEMA community is not very competition-focused.

It is noticeable that while the percentage of locations training longsword stays the same when counting single or multi-locations groups, many less popular disciplines show significant changes. Long knife, dussack, and sword and buckler have the most significant drop when considering only single-location groups.

Note that the changes between 2019 and 2021 are not necessarily due to a weapon discipline being more or less popular. This could also be due to different groups participating in each survey and therefore sampling a different part of the HEMA community.

[21] Originally 'Regelmäßig bedeutet, dass mehrfach jährlich mit dieser Waffe Training statt findet z.B. in Form von wöchentlichen Einheiten, oder wiederkehrenden Seminaren'.

Weapon	2021		2019	
	Locations	% of total Loc.	Locations	% of total Loc.
Longsword	112 (84)	90.32 (89.36)	123 (78)	87.23 (87.64)
Rapier	41 (23)	33.06 (24.47)	47 (18)	33.33 (20.22)
Long Knife	54 (26)	43.55 (27.66)	58 (30)	41.13 (33.71)
Dagger	54 (33)	43.55 (35.11)	67 (38)	47.52 (42.70)
Sword and Buckler	51 (28)	41.13 (29.79)	52 (29)	36.88 (32.58)
Historical Wrestling	50 (29)	40.32 (30.85)	52 (25)	36.88 (28.09)
Sabre[22]	35 (21)	28.23 (22.34)	28 (18)	19.86 (20.22)
Two Handers	32 (17)	25.81 (18.09)	14 (6)	9.93 (6.74)
Sickle	8 (1)	6.45 (1.06)	1 (1)	0.71 (1.12)
Polearms	39 (29)	31.45 (30.85)	36 (18)	25.53 (20.22)
Smallsword	17 (8)	13.71 (8.51)	15 (7)	10.64 (7.87)
Dussack	33 (13)	26.61 (13.83)	20 (11)	14.18 (12.36)
Walking Stick	14 (5)	11.29 (5.32)	7 (1)	4.96 (1.12)
Bajonett	5 (3)	4.03 (3.19)	2 (0)	1.42 (0)
Mounted Fencing	7 (0)	5.65 (0)	6 (0)	4.26 (0)
Armoured Fencing	14 (7)	11.29 (7.45)	1 (1)	0.71 (1.12)
Broadsword	3 (3)	2.42 (3.19)	2 (2)	1.42 (2.25)
Sidesword	4 (4)	3.23 (4.26)	2 (0)	1.42 (0)

Tab. 8: HEMA weapons trained in Germany based on the number of locations and percentage of total locations. The numbers for single-location groups are in parentheses.

[22] Sabre in the context of HEMA is an umbrella term for various historical systems that use heavier and sometimes military style models and is not to be confused with modern Olympic sabre fencing.

.III.4.2. HEMA weapon disciplines trained in Austria

Tab. 9 lists how many Austrian locations trained each weapon discipline in 2021. The total number of locations counting single- and multi-location answers is 34, and 28 counting only single-location answers.

Weapon	Locations	Percentage of total Locations
Longsword	30 (26)	88.24 (92.86)
Dagger	15 (11)	44.12 (39.29)
Sword and Buckler	15 (9)	44.12 (32.14)
Polearms	14 (12)	41.18 (42.86)
Long Knife	12 (8)	35.29 (28.57)
Historical Wrestling	10 (8)	29.41 (28.57)
Sabre	9 (7)	26.47 (25.00)
Two Handers	6 (6)	17.65 (21.43)
Armoured Fencing	6 (4)	17.65 (14.29)
Rapier	6 (6)	17.65 (24.43)
Dussack	4 (4)	11.76 (14.29)
Gladiatorial Combat	2 (2)	5.88 (7.14)
Smallsword	1 (1)	2.94 (3.57)
Sidesword	1 (1)	2.94 (3.57)
Walking Stick	0	0
Bajonett	0	0
Mounted Fencing	0	0

Tab. 9: HEMA weapon disciplines trained in Austria in 2021. Single-location responses are in parentheses.

In contrast to Germany, only three groups responded to having more than one location, with all three specifying having two locations.

Interestingly, while counting only single-location answers in Germany reduced all of the percentages, there is an increase in some disciplines for Austria as longsword and two-handers, rapier and gladiatorial combat see a significant increase.

.III.5. Practitioners by geography

This section details the geographical distribution of HEMA practitioners. Since locations are where practitioners train, they do not necessarily live in the same state and might be travelling from the outside. This is more likely to occur in city-states, while the likelihood of a practitioner living in the same state as they train in increases for larger states.

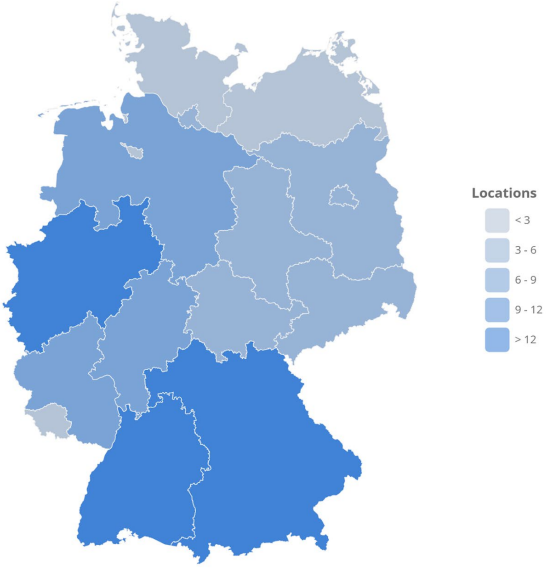

Fig. 9: German states coloured by the number of locations.

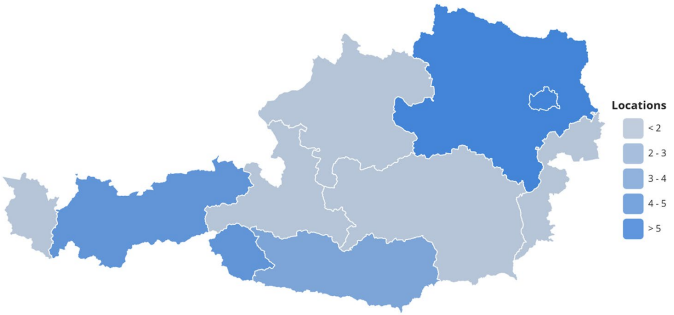

Fig. 10: Austrian states coloured by the number of locations.

.III.5.1. Geographical distribution of German HEMA practitioners

State	2021		2019	
	Locations	Members	Locations	Members
Baden-Württemberg (BW)	24 (19.35)	576 (18.08)	24 (17.02)	638 (17.83)
Bavaria (BY)	29 (23.39)	660 (20.72)	40 (28.37)	828 (23.14)
Berlin (BE)	5 (4.03)	145 (4.55)	4 (2.84)	142 (3.97)
Brandenburg (BB)	4 (3.23)	See *Other*	2 (1.42)	See *Other*
Bremen (HB)	0	0	0	0
Hamburg (HH)	3 (2.42)	136 (4.27)	3 (2.13)	127 (3.55)
Hessia (HE)	8 (6.45)	268 (8.41)	12 (8.51)	381 (10.65)
Mecklenburg-Vorpommern (MV)	2 (1.61)	See *Other*	0	0
Lower Saxony (NI)	8 (6.45)	145 (4.55)	10 (7.09)	228 (6.37)
North Rhine-Westphalia (NW)	18 (14.52)	494 (15.51)	18 (12.77)	474.5 (13.26)
Rhineland-Palatinate (RP)	12 (9.68)	323 (10.14)	11 (7.8)	285 (7.97)
Saarland (SL)	1 (0.81)	See *Other*	1 (0.71)	See *Other*
Saxony (SN)	3 (2.42)	100 (3.14)	6 (4.26)	196 (5.48)
Saxony-Anhalt (ST)	3 (2.42)	98 (3.08)	4 (2.84)	116 (3.24)
Schleswig-Holstein (SH)	1 (0.81)	See *Other*	1 (0.71)	See *Other*
Thuringia (TH)	3 (2.42)	29 (0.91)	5 (3.55)	79 (2.21)
Other	8 (6.45)	212 (6.65)	4 (2.84)	83 (2.32)

Tab. 10: Geographical distribution of German HEMA practitioners. The percentages compared to the total number of locations or total members are provided in parentheses.

Due to data protection and having less than three locations in 2021, membership data for Mecklenburg-Vorpommern, Saarland and Schleswig-Holstein are placed under 'Other'. Brandenburg would have more than three locations in 2021 and could be listed separately, but it has been kept as part of 'Other' for better comparability with 2019.

Comparing the proportion of practitioners in a state with the total population shows if there are more or fewer practitioners than expected. Focusing on Germany's three most populous states shows that 20.72% of practitioners train in Bavaria, which houses 15.83% of the population, and 18.08% of practitioners train in Baden-Württemberg, which houses 13.37% of the population. So 38.8% of all practitioners train in South Germany (BY and BW), while only 29.2% of the population live there. The opposite is true for

North Rhine-Westphalia, where 15.51% of practitioners train, while it is home to 21.53% of the population.[23]

This could be either due to a bias in the census data, where a higher percentage of HEMA groups responded from some states than others, or there being more than average practitioners in the south and less than average in North Rhine-Westphalia.

.III.5.2. Geographical distribution of Austrian HEMA practitioners

State	Locations	NUTS1:AT Region
Burgenland	1	Eastern Austria
Carinthia	3	Southern Austria
Lower Austria	7	Eastern Austria
Upper Austria	1	Western Austria
Salzburg	1	Western Austria
Styria	4	Southern Austria
Tyrol	3	Western Austria
Vorarlberg	1	Western Austria
Vienna	13	Eastern Austria

Tab. 11: Geographical distribution of Austrian HEMA practitioners.

Since Tab. 11 shows that many states in Austria have only one location, the member data needs to be aggregated for data protection, but summing them all up under Other as with Germany would not be useful. Instead, the NUTS1:AT Standard was used to group them into regions for Tab. 12.[24]

Region	Locations	Total Members	Men	Women	Non-Binary
Eastern Austria	21 (61.76)	443 (55.31)	323 (40.32)	119 (14.86)	1 (0.12)
Southern Austria	7 (20.59)	177 (22.1)	100 (12.48)	48 (5.99)	29 (3.62)
Western Austria	6 (17.65)	181 (22.6)	127 (15.86)	53 (6.62)	1 (0.12)

Tab. 12: Geographical and gender distribution in Austria based on NUTS1:AT regions. The percentage compared to total number of locations or total members is provided in parentheses.

[23] See Statistisches Bundesamt, 'Bevölkerung am 31.12.2021 nach Nationalität und Bundesländern'.

[24] NUTS is the common classification of territorial units for statistics, an EU standard that groups states into regions with a comparable size. NUTS1 aims for regions with a population size of three to seven million. See EC, 'Commission Regulation (EC) no. 1059/2003 on the establishment of a common classification of territorial units for statistics (NUTS)'.

Not surprisingly, Vienna and the surrounding two states that make up Eastern Austria are home to the vast majority of Austrian HEMAists. Interestingly, 61.76% of all locations are in Eastern Austria, but just 55.31% of all members, while it is the inverse with Western Austria, where 17.65% of all locations are, but 22.6% of all members train.

.III.6. Weapon disciplines by geography

To better understand if there are regional preferences for weapon disciplines, Tab. 13 and Tab. 14 contain the top ten most popular weapon systems for each state or region.

.III.6.1. Top ten weapon disciplines in Germany by state

State	Longsword	Long Knife	Dagger	Sword and Buckler	Historical Wrestling	Rapier	Polearms	Sabre	Dussack	Two Handers
BW	22 (92)	14 (58)	14 (58)	15 (63)	17 (71)	11 (46)	15 (63)	9 (38)	11 (46)	10 (42)
BY	26 (90)	14 (48)	15 (52)	11 (38)	13 (45)	2 (7)	4 (14)	3 (10)	10 (34)	9 (31)
BE	4 (80)	2 (40)	2 (40)	3 (60)	0	1 (20)	3 (60)	2 (40)	1 (20)	1 (20)
HH	2 (67)	1 (33)	0	2 (67)	0	2 (67)	1 (33)	1 (33)	1 (33)	0
HE	7 (88)	4 (50)	5 (63)	1 (13)	4 (50)	4 (50)	4 (50)	0	4 (50)	1 (13)
NI	8 (100)	4 (50)	3 (38)	4 (50)	1 (13)	1 (13)	2 (25)	3 (38)	4 (50)	0
NW	14 (78)	5 (28)	6 (33)	4 (22)	5 (28)	4 (22)	4 (22)	6 (33)	2 (11)	5 (28)
RP	12 (100)	7 (58)	3 (25)	5 (42)	3 (25)	8 (67)	1 (8)	6 (50)	0	1 (8)
SN	3 (100)	1 (33)	1 (33)	0	2 (67)	1 (33)	0	2 (67)	0	1 (33)
ST	3 (100)	1 (33)	1 (33)	1 (33)	1 (33)	1 (33)	1 (33)	1 (33)	0	2 (67)
TH	3 (100)	0	0	0	1 (33)	0	0	0	0	0
Other	8 (100)	1 (13)	4 (50)	5 (63)	3 (38)	6 (75)	4 (50)	2 (25)	0	2 (25)

Tab. 13: Top ten weapon disciplines by German state in 2021. Highlighted in bold is the second most popular weapon discipline per state. In parentheses is the rounded percentage of locations training that weapon discipline, based on total state locations.

Tab. 13 contains a breakdown of the top ten weapons according to their state. Longsword is the weapon discipline trained in most locations in all states besides Hamburg, where the sample size of only two locations might warp the result. All other disciplines inside the top ten are the second most popular choices in at least some of the states.

.III.6.2. Top ten weapon disciplines in Austria by region

As with the practitioners, the weapon disciplines use the NUTS1:AT regions instead of individual states.

Region	Longsword	Long Knife	Dagger	Sword and Buckler	Historical Wrestling	Rapier	Polearms	Sabre	Armoured Fencing	Two Handers
Eastern Austria	17 (81)	8 (48)	8 (48)	10 (67)	5 (24)	3 (14)	8 (48)	7 (48)	4 (29)	4 (19)
Southern Austria	7 (100)	0	2 (29)	2 (29)	1 (14)	1 (14)	3 (43)	1 (14)	2 (29)	1 (14)
Western Austria	6 (100)	4 (67)	5 (83)	3 (50)	4 (67)	2 (33)	3 (50)	1 (17)	0	1 (17)

Tab. 14: Top ten weapon disciplines Austria by NUTS1:AT regions in 2021. In parentheses is the rounded percentage of locations training that discipline, based on total locations per region.

As with Germany, longsword is the most popular weapon discipline in all regions, with a big gap to the second most popular discipline in Eastern and Southern Austria. The difference between the most and second most popular discipline is the closest in Western Austria, where the difference is only one location. The top ten is nearly identical to Germany: in Austria, dussack was more popular than armoured fencing.

IV. DISCUSSION

HEMA proves to be a robust sport even during a crisis like the COVID-19 pandemic: *Vereine* lost fewer members than the average sport. Nevertheless, compared to previous research, the growth of HEMA has stagnated during the pandemic. The main question is if COVID-19 has stopped HEMA's growth permanently, or if HEMA will continue to grow post-pandemic. Further research in the coming years will be necessary to determine this.

Future research should especially consider the role of commercial schools in Germany and monitor if their membership numbers recover to pre-pandemic levels and if the number of commercial school locations changes, for instance due to school closures.

Collecting data for HEMA groups and not individuals proves to be a robust approach to getting high response rates and, therefore, a comprehensive picture of the HEMA

community. Nevertheless, it cannot provide information about individual practitioners and their preferences, which would be an interesting point for further research.

The weaknesses of the current census approach relate to counting the number of non-binary students, how many locations train a weapon for multi-location groups, and the fact that the author contacted HEMA groups personally, which might distort results to include more groups in South Germany – who know who the author is – and fewer in North Germany. Regarding non-binary students, the next census should offer an easy-to-understand definition and explanation of what non-binary means in the context of gender.

Collecting more robust data on weapon disciplines is a bit more tricky. One approach would be to design the form so that only single-location answers are possible. Respondents would need to fill the form out multiple times for multi-location groups and provide their data broken down into single locations. As the author has learned from talking with various group leaders after the 2019 census, this is not a viable solution as many of the multi-location groups do not differentiate their data based on locations. This would likely prevent multi-location groups from participating.

An alternative is that the survey could ask respondents with multiple locations to clarify how many of the locations train each weapon discipline. This is less of a hurdle than filling out the form multiple times, but still not ideal as the form gets more bloated and takes longer to fill out. This might lead to more respondents starting to fill out the form but losing interest and giving up midway through.

A third option would be to e-mail respondents afterwards and ask for clarification, specifically on the number of weapon disciplines. This would require them to provide their e-mail for further questions, but the process would only start after they have already responded and would not increase the complexity of the form itself.

An interesting question is whether counting the number of members presents an adequate picture of the state of HEMA as a sport. It is possible that the low membership changes from 2019 to 2021 in *Verein*-based groups do not reflect the reality in the training halls, where more members might have turned inactive and will terminate their membership at a later point in time. Terminating membership immediately might not be a priority for a low-cost membership in a *Verein*, whereas a higher-priced commercial school membership might be cancelled much sooner. Could the nearly 21% reduction in commercial school memberships more accurately reflect active members in every organisational form? This could mean that the actual number of participants leaving the HEMA community for good might be higher than the census shows and the whole extent of the pandemic will only become apparent in the next couple of years.

Ideally, a HEMA census at the level of detail used in this paper would be concluded every couple of years and be expanded to more countries to answer such questions. This would require either a dedicated and well-funded team of researchers or a crowd-sourcing approach where community members work together to collect the data, analyse it, and produce reports on it. The latter approach raises questions of data privacy and protection,

as preventing leaks gets harder the more volunteers are involved, thus weakening the trust in the HEMA census organisers, potentially preventing groups from participating. If most or all HEMA groups in a country are members of their HEMA federation, the federations would be well-positioned to collect such data and provide it to the public.

It should be noted that the basic assumption that groups will not share their membership numbers if the raw data is publicised might be wrong. A future census could ask respondents if their data can be shared publicly. Alternatively, it might be feasible to publish anonymised data, removing identification markers like each group's name, city and state. While the largest HEMA group in a country might still be identifiable, most groups would look too similar in the data to differentiate them. Special care would need to be taken to ensure that published reports based on geography would not undermine this approach to data protection.

V. BIBLIOGRAPHY

Boyle, Liam, 'HROARR HEMA / HWMA Census', 2015 <https://docs.google.com/forms/d/1TsspbQuKIVlPfrG8zhpHS4fMR6Wy867YPX9Ae655YRA/viewanalytics>

Breuer, Christoph, Svenja Feiler, and Lea Rossi, *Auswirkungen der COVID-19-Pandemie auf die Sportvereine in Deutschland. Ergebnisse der COVID-Zusatzbefragung im Rahmen der 8. Welle des Sportentwicklungsberichts* (Bonn: Bundesinstitut für Sportwissenschaft, 2021)

DOSB, 'Bestands-Erhebung 2021 Stichtag der Erfassung: 1. Januar 2021', 2021 <https://www.dosb.de/medienservice/statistiken>

EC, 'Commission Regulation (EC) no. 1059/2003 on the establishment of a common classification of territorial units for statistics (NUTS)', *The Official Journal of the European Union*, 2003 <https://eur-lex.europa.eu/eli/reg/2016/2066/oj>

Fürgut, Alexander, 'HEMA als Lifestyle feat. Ingulf Popp-Kohlweiss (SG 70)', 2021 <https://www.schwertgefluester.de/hema-lifestyle-ingulf-popp-kohlweiss/>

Fürgut, Alexander, 'HEMA Zensus Deutschland 2019', 2020 <https://infogram.com/hema-zensus-deutschland-2019-1hnp27d3eovn2gq>

Fürgut, Alexander, 'HEMA Zensus Deutschland 2021', 2022 <https://infogram.com/hema-zensus-deutschland-2021-1h7g6k0edzqdo2o>

Fürgut, Alexander, 'HEMA Zensus Österreich 2021', 2021 <https://infogram.com/hema-zensus-osterreich-2021-1h7g6k0k9ver02o>

Glass McCaffrey, Rebecca, 'HEMA Census', 2016 <https://docs.google.com/forms/d/1XBHCvKhPFIyEZFicdtC1pfdgwfIxTgrKpOeWO1zf4Uo/viewanalytics>

Jaquet, Daniel, Audrey Tuaillon Demésy, and Iason-Eleftherios Tzouriadis, *Historical European Martial Arts. An International Overview* (Chungju-si: ICM, 2020)

Norling, Roger, 'Stats for the HEMA community,' 2013 <https://hroarr.com/survey/worldwide/practitioners/>

Sport Austria, 'Mitgliederstatistik. Per 31.12.2021', 2022 <https://www.sportaustria.at/de/ueber-uns/mitglieder/mitgliederstatistik/>

Statistik Austria, 'Pressemitteilung: 12.739-037/22', 2022 <https://oesterreich.ahk.de/newsroom/news/news-detailansicht/bevoelkerungszahl-oesterreichs-stieg-auf-knapp-898-mio-zu-jahresbeginn-2022>

Statistisches Bundesamt, 'Bevölkerung am 31.12.2021 nach Nationalität und Bundesländern', 2022 <https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/Tabellen/bevoelkerung-nichtdeutsch-laender.html>